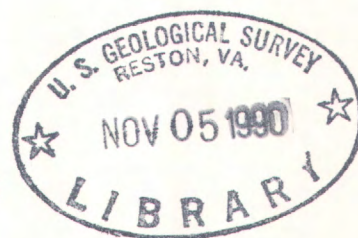


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Water Resources Data New York Water Year 1989

Volume 3. Western New York



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NY-89-3
Prepared in cooperation with the State of New York
and with other agencies

CALENDAR FOR WATER YEAR 1989

1988

OCTOBER

S	M	T	W	T	F	S
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1989

JANUARY

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AUGUST

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Water Resources Data New York Water Year 1989

Volume 3. Western New York

by J.B. Campbell, W.F. Coon, D.A. Sherwood and D.D. Deloff



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NY-89-3

Prepared in cooperation with the State of New York
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, Jr., Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in New York write to
District Chief, Water Resources Division
U.S. Geological Survey
U.S. Post Office and Courthouse
P.O. Box 1669
Albany, New York 12201
1990

PREFACE

This volume of the annual hydrologic data report of New York 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 streamflow, ground-water levels, and quality of water 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. Hydrologic data for New York are contained in three volumes:

- Volume 1. Eastern New York excluding Long Island
- Volume 2. Long Island
- Volume 3. Western New York

The data contained in these three volumes were collected, computed, and processed from three subdistrict offices and one area field office. The offices, and personnel in charge, are:

- Volume 1. Albany, John R. Ritter, Subdistrict Chief
Potsdam, Howard G. Lent, Jr., Technician-in-charge
- Volume 2. Syosset, Donald L. Bingham, Subdistrict Chief
- Volume 3. Ithaca, Robin G. Brown, Acting Subdistrict Chief

The authors, including W. H. Johnston, 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:

H. L. Dixon	C. O. Szabo	M. J. Welsh
R. L. Mulks	K. A. Voytko	H. J. Zajd, Jr.

A. M. Weaver typed the text of the report.

This report was prepared in cooperation with the State of New York and with other agencies under the general supervision of L. Grady Moore, District Chief, New York.

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15. Supplementary Notes Prepared in cooperation with the State of New York and other agencies.			14.
16. Abstract (Limit: 200 words) Water resources data for the 1989 water year for New York consist of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs; and water levels of ground-water wells. This volume contains records for water discharge at 78 gaging stations; stage only at 19 gaging stations; stage and contents at 6 gaging stations; water quality at 4 gaging stations and 9 partial-record stations; and water levels at 21 observation wells. Also included are data for 49 crest-stage partial-record stations. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements. These data together with the data in Volumes 1 and 2 represent that part of the National Water Data System operated by the U. S. Geological Survey and cooperating State, local, and Federal agencies in New York.			
17. Document Analysis a. Descriptors *New York, *Hydrologic data, *Surface water, *Ground water, *Water quality, Streamflow, Flow rates, Gaging stations, Lakes, Reservoirs, Chemical analysis, Sediments, Water analyses, Water temperature, Water levels, Water wells, Data collection, Sites. b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
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[Letter after station name designates type of data: (d) discharge, (e) gage height, elevation,
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* * * * *

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED

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Broome County

Well 420646075531201 Local number Bm 100 172

Well 420657075583501 Local number Bm 121 173

Well 421138075511301 Local number Bm 128 174

Well 421157075535401 Local number Bm 129 175

Cattaraugus County

Well 420530078445201 Local number Ct 121 176

Cayuga County

Well 424158076251901 Local number Cy 7 177

Chautauqua County

Well 420326079295801 Local number Cu 5 178

Well 420815079121401 Local number Cu 10 179

Well 420748079062701 Local number Cu 104 180

Chemung County

Well 420829076484801 Local number Cm 46 181

Chenango County

Well 421556075281602 Local number Cn 12 182

Well 423849075315701 Local number Cn 13 183

Cortland County

Well 423541076114701 local number C 102 184

Madison County

Well 430056075354102 Local number M 178 185

Niagara County

Well 430655079022001 Local number Ni 69 186

Well 431308078544501 Local number Ni 70 187

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED

ix

GROUND-WATER LEVELS

Ontario County

Well 425840077133901 Local number Ot 900 188

Otsego County

Well 424136075025101 Local number Og 23 189

Steuben County

Well 422445077203301 Local number Sb 472 190

Wyoming County

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DISCONTINUED SURFACE-WATER STATIONS

The following continuous-record streamflow, elevation, or stage (†) stations in western New York have been discontinued or converted to partial-record stations. Daily records were collected and published for the period of record shown for each station. Stations that are presently operated as crest-stage partial-record stations are preceded by an asterisk (*).

Station number	Station name	Drainage area (mi ²)	Period of record
Susquehanna River Basin			
01496450	Canadarago Lake at Schuyler Lake	65.0	10/68 – 10/78
01497000	Cherry Valley Creek at Westville	81.4	1/30 – 6/31 6/38 – 7/41
01497500	Susquehanna River at Colliersville	349	5/07 – 12/08 7/24 – 9/68
01498000	Charlotte Creek at Davenport Center	164	9/38 – 9/56
01498500	Charlotte Creek at West Davenport	167	6/38 – 10/75
01499000	Otego Creek near Oneonta	108	8/40 – 9/68
01499050	Flax Island Creek near Otego	4.22	7/66 – 9/68
01499470	East Branch Handsome Brook at Franklin	9.12	9/66 – 9/68
01501000	Unadilla River near New Berlin	199	7/24 – 9/68
01501015	Mill Brook at New Berlin	4.64	5/74 – 11/80†
01501500	Sage Brook near South New Berlin	0.70	11/32 – 9/68
01505500	Canasawacta Creek near South Plymouth	57.9	9/45 – 9/75
*01507000	Chenango River at Greene	593	2/37 – 9/70
01507470	Red Brook at Smithville Flats	7.06	7/66 – 9/68
01507500	Genegantslet Creek at Smithville Flats	82.3	6/38 – 9/70
01507975	Muller Gulf Creek near Cuyler	2.67	7/66 – 9/68
01508000	Shackham Brook near Truxton	2.95	11/32 – 9/68
01508500	Albright Creek at East Homer	6.81	10/38 – 9/68
*01508803	West Branch Tioughnioga River at Homer	71.5	11/66 – 9/68 10/72 – 9/86
01508962	Otter Creek at mouth at Cortland	14.3	12/75 – 12/76
01509150	Gridley Creek above East Virgil	10.36	7/74 – 9/81
01509500	Dudley Creek at Lisle	30.0	6/38 – 7/40
01510500	Otselick River near Upper Lisle	217	1/37 – 9/69
*01511500	Tioughnioga River at Itaska	730	10/29 – 6/67
*01513500	Susquehanna River at Vestal	3,941	3/37 – 6/67
01513719	East Branch Nanticoke Creek above Glen Aubrey	12.8	9/76 – 10/77
01513720	East Branch Nanticoke Creek at Glen Aubrey	15.4	3/76 – 7/76
01513790	Nanticoke Creek at Union Center	90.7	8/75 – 10/77
01513840	Pumpelly Creek at Owego	8.59	7/66 – 9/68
*01514000	Owego Creek near Owego	185	1/30 – 11/78
01514500	Dean Creek at Spencer	8.03	7/54 – 9/60

† No winter record.

DISCONTINUED SURFACE-WATER STATIONS--continued

Station number	Station name	Drainage area (mi ²)	Period of record
Susquehanna River Basin--continued			
01515500	Cayuta Creek near Alpine	17.6	11/29 - 9/31
01522000	Canisteo River at Hornell	93.7	6/38 - 4/43
01522500	Karr Valley Creek at Almond	27.4	2/37 - 9/68
01524000	Canacadea Creek at Hornell	58.5	9/25 - 9/29
01525000	Bennett Creek at Canisteo	95.3	5/38 - 9/47
*01525500	Canisteo River at West Cameron	340	1/30 - 9/31
			2/37 - 9/70
01525750	Tuscarora Creek Tributary near Woodhull	9.43	7/66 - 9/68
01526000	Tuscarora Creek near South Addison	114	2/37 - 9/70
01526495	Mulholland Creek near Erwins	5.06	7/66 - 9/68
01526980	Kirkwood Creek near Atlanta	4.65	8/66 - 9/68
*01527000	Cohocton River at Cohocton	52.2	10/50 - 10/81
01527050	Switzer Creek near Cohocton	3.45	11/78 - 10/80
01527500	Cohocton River at Avoca	157	5/38 - 9/45
01529000	Mud Creek near Savona	76.6	7/18 - 12/19
			3/37 - 9/82
01530380	Newtown Creek at Breesport	20.6	8/75 - 11/78‡
Allegheny River Basin			
*03010800	Olean Creek near Olean	198	4/58 - 9/68‡
			10/75 - 8/81
*03011000	Great Valley Creek near Salamanca	137	12/50 - 9/68
03011550	Quaker Run near Quaker Bridge	28.5	5/63 - 9/64‡
03012834	Conewango Creek below South Dayton	63.3	8/75 - 10/77‡
*03013800	Ball Creek at Stow	9.06	10/73 - 9/74
03013980	Chautauqua Lake at Celeron	189	10/72 - 8/73
03013990	Chautauqua Lake near Mayville	189	11/49 - 10/76
Streams Tributary to Lake Erie			
04213410	Cattaraugus Creek near Arcade	79.0	3/63 - 6/68
04213440	Franks Creek near West Valley	0.28	12/75 - 10/79
04213441	Franks Creek tributary No. 4 near West Valley	0.12	12/75 - 9/76
04213442	Franks Creek tributary No. 2 to tributary No. 4 near West Valley	0.002	12/75 - 3/77
04213443	Franks Creek tributary No. 3 to tributary No. 4 near West Valley	0.004	12/75 - 3/77
04213450	Buttermilk Creek near Springville	30.0	10/61 - 9/68
04213492	South Branch Cattaraugus Creek near Cattaraugus	70.4	10/79 - 11/81
04214000	Cattaraugus Creek at Versailles	466	10/15 - 9/23
04214200	Eighteenmile Creek at North Boston	37.2	3/63 - 9/68
04214400	Buffalo Creek near Wales Hollow	76.9	3/63 - 9/68
Streams Tributary to Niagara River			
04218190	Black Creek near Swormville	12.9	3/78 - 10/79
04218450	Ellicott Creek at Milgrove	40.8	3/63 - 9/68
04218500	Ellicott Creek at Williamsville	76.2	10/55 - 10/72
04218592	Donner Brook near Lockport	3.84	11/77 - 11/78‡

‡ No winter record.

DISCONTINUED SURFACE-WATER STATIONS--continued

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Station number	Station name	Drainage area (mi ²)	Period of record
Streams Tributary to Lake Ontario			
04219940	Manning Muckland Creek near Barre Center	5.80	5/74 – 11/78‡
04219940	Manning Muckland Creek tributary near Elba	21.9	5/74 – 11/78‡
04220250	West Creek near Hilton	31.0	5/57 – 9/64
04220470	Dyke Creek near Andover	38.0	2/64 – 9/68
04220500	Dyke Creek at Wellsville	72.1	8/55 – 9/60
04221500	Genesee River at Scio	308	6/16 – 9/72
04221600	Van Campen Creek at Friendship	45.9	1/64 – 9/68
04221720	Angelica Creek at Transit Bridge	86.7	2/64 – 6/68
04221820	Genesee River at Belfast	644	2/64 – 6/67
04222000	Caneadea Creek at Caneadea	62.0	7/49 – 9/68
04222500	Lost Nation Brook near Centerville	1.21	10/34 – 8/35
04222900	East Koy Creek at East Koy	46.5	1/64 – 9/68
04223500	Genesee River at St. Helena	1,019	10/46 – 9/50
04224650	Canaseraga Creek near Canaseraga	58.4	1/64 – 9/68
04225000	Canaseraga Creek near Dansville	152	3/19 – 9/68
04225005	Canaseraga Creek at Cumminsville	155	7/70 – 1/77 7/10 – 12/12 7/15 – 6/17 10/17 – 9/19
04225500	Canaseraga Creek at Groverland	180	8/15 – 3/20 10/55 – 9/64
04226000	Keshequa Creek at Craig Colony, Sonyea	68.3	8/17 – 9/32 11/74 – 1/78
04226500	Keshequa Creek near Sonyea	68.4	9/15 – 12/16
0422660005	Keshequa Creek at mouth at Sonyea	69.0	3/11 – 12/13
04228000	Conesus Creek near Lakeville	72.0	10/19 – 9/34
04228900	Springwater Creek at Springwater	10.1	1/64 – 9/68
04231500	Genesee River below Erie Canal at Rochester	2,457	4/04 – 12/04 4/05 – 9/18
0423205023	Irondequoit Creek at Wetland Narrows at Rochester	144	3/81 – 11/83
04232200	Catharine Creek at Montour Falls	41.1	8/75 – 10/77‡
*04232630	Kendig Creek near MacDougall	13.8	10/64 – 9/68
04232650	Seneca River at Lock 4, Waterloo	742	1/31 – 12/66 1/69 – 9/79
04233678	Dryden Lake Inlet near Harford	2.73	8/73 – 11/74
04233700	Virgil Creek at Freeville	40.3	8/73 – 10/75
04234018	Salmon Creek at Ludlowville	81.7	10/64 – 9/68
04234055	Canoga Creek at Canoga	3.20	10/64 – 9/68
*04234200	Mud Creek at East Victor	64.2	4/58 – 9/68
04234270	Red Creek near Walworth	23.8	10/64 – 12/68 4/69 – 6/69
04235150	Flint Creek at Potter	31.0	3/64 – 9/68 10/70 – 10/78
04235271	Clyde River at Lock 26 Clyde	845	1/35 – 12/66
04235300	Owasco Inlet at Moravia	106	1/60 – 9/68
04236500	Skaneateles Creek at Willow Glen	75.8	4/1895 – 9/08
04239500	Onondaga Creek at Syracuse	95.0	11/39 – 7/49
04240000	Onondaga Creek at Temple Street Syracuse	104	6/49 – 9/51

‡ No winter record.

DISCONTINUED SURFACE-WATER STATIONS--continued

Station number	Station name	Drainage area (mi ²)	Period of record
Streams Tributary to Lake Ontario--continued			
04240145	Spafford Creek at Bromley Road near Spafford	3.14	11/81 - 10/83
04240150	Spafford Creek at Sawmill Road near Spafford	8.06	11/81 - 9/83
			12/85 - 9/86
0424015305	Rice Brook at Rice Grove	2.64	11/81 - 9/83
0424016205	Willow Brook at Lader Point	3.73	11/81 - 9/83
0424016825	Amber Brook at Amber	3.75	11/81 - 9/83
0424016975	Van Benthuyzen Brook near Amber	5.84	11/81 - 9/83
04241200	West Branch Fish Creek at Blossvale	204	12/65 - 9/68
04241500	East Branch Fish Creek at Fish Creek near Constableville	74.3	10/23 - 9/32
04244000	Chittenango Creek near Chittenango	66.3	8/50 - 9/68
*04245000	Limestone Creek at Fayetteville	85.5	11/39 - 9/86
04245250	Butternut Creek below Dewitt	58.6	6/64 - 6/66
*04245840	Scriba Creek near Constantia	38.4	3/66 - 9/68

‡ No winter record.

WATER RESOURCES DATA - NEW YORK, 1989
Volume 3.--Western New York

INTRODUCTION

Water resources data for the 1989 water year for New York consist of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs; and water levels of ground-water wells. This volume contains records for water discharge at 78 gaging stations; stage only at 19 gaging stations; stage and contents at 6 gaging stations; water quality at 4 gaging stations and 10 partial-record stations; and water levels at 21 observation wells. Locations of these sites are shown on figure 1. Also included are data for 49 crest-stage partial-record stations. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as measurements made at miscellaneous sites. These data together with the data in Volumes 1 and 2 represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in New York.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Distribution Branch, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1971 water year, the Geological Survey publishes annual water data for streamflow, water quality, and ground water for all States. These reports are identified by 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 NY-89-3." 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.

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 (518) 472-3107.

COOPERATION

The U.S. Geological Survey and organizations of the State of New York and other agencies have had cooperative agreements for the systematic collection of water records since 1900. Organizations that assisted in collecting data included in Volume 3, water year 1989, through cooperative agreement with the Survey are:

- New York State Department of Environmental Conservation
- New York State Department of Transportation
- County of Chautauqua, Planning Department
- County of Cortland, Planning Department
- County of Monroe, Department of Health
- County of Monroe, Division of Engineering
- County of Monroe, Water Authority
- County of Onondaga, Department of Drainage and Sanitation
- County of Onondaga, Water Authority Commission
- City of Auburn
- Town of Amherst, Erie County
- Town of Cheektowaga, Erie County
- Irondequoit Bay Pure Waters District

Assistance in the form of funds for collecting records at gaging stations published in this report was also given by the U.S. Army Corps of Engineers.

The following organizations aided in collecting records:

Municipalities of Batavia, Canandaigua, Cortland, Jamestown, Lancaster, Oneida, Rochester, Syracuse; Cornell University; New York State Electric and Gas Corporation; Niagara Mohawk Power Corporation; Rochester Gas and Electric Corporation.

Organizations that supplied data are acknowledged in station descriptions.

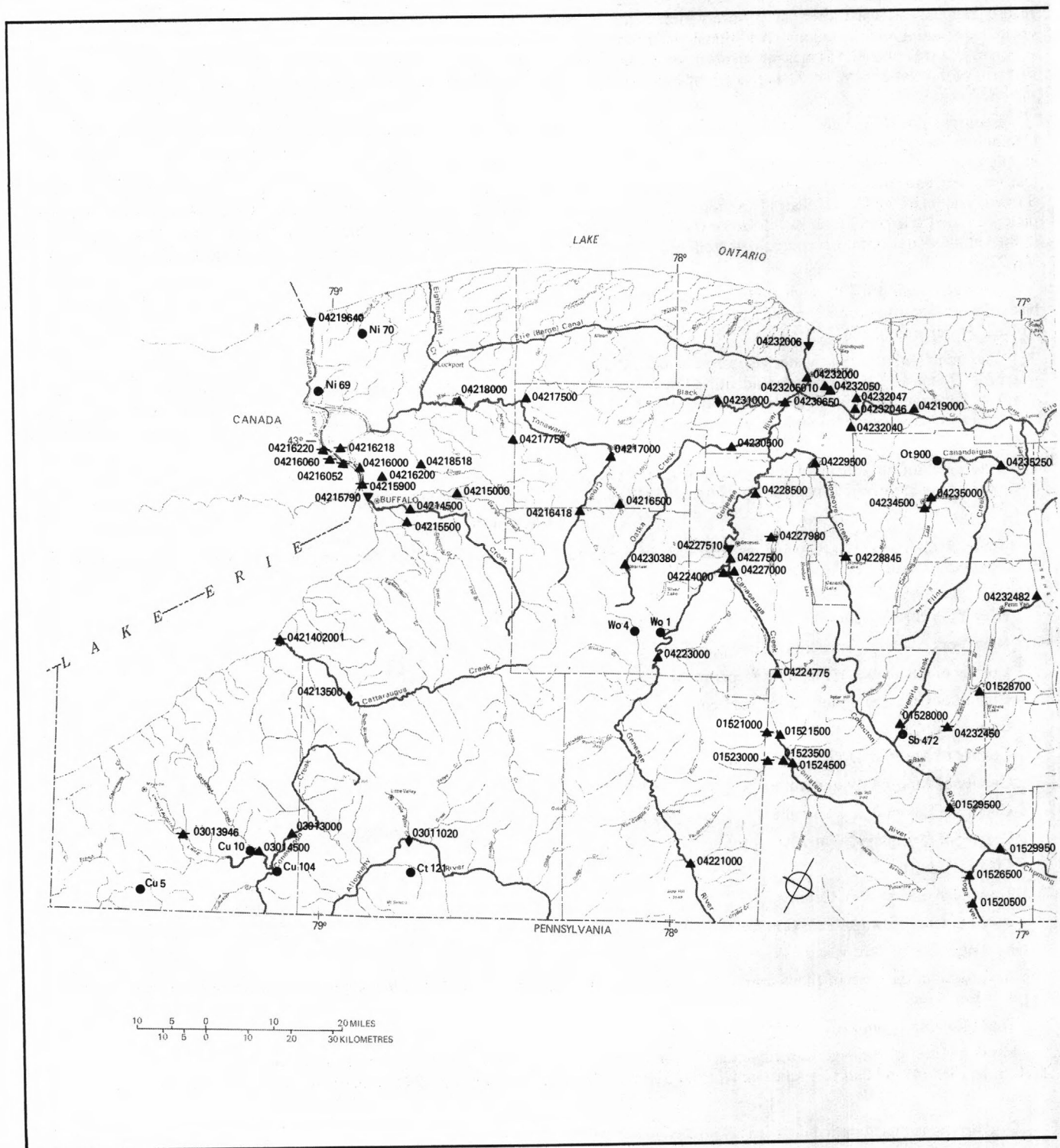
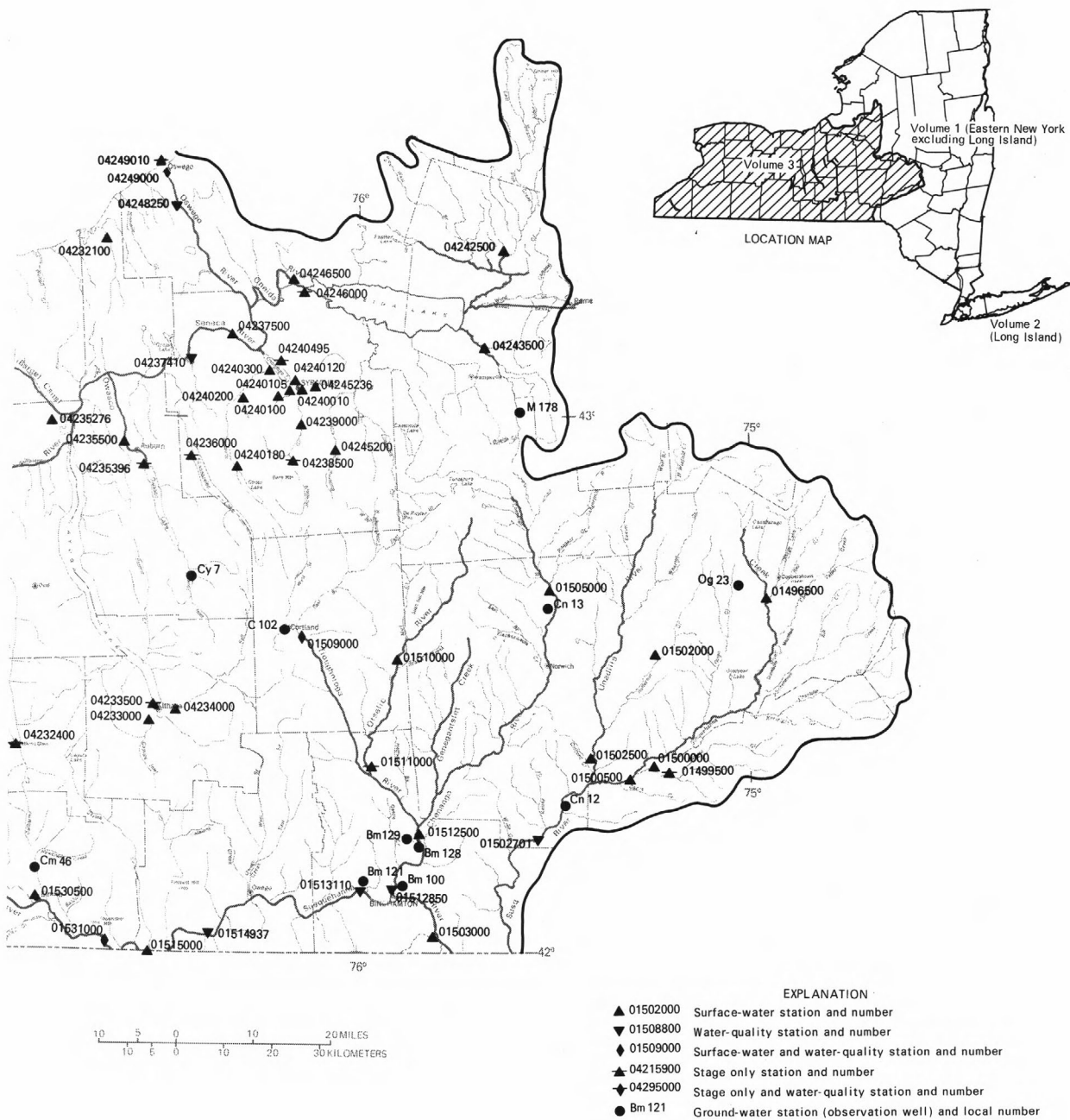


FIGURE 1.-- LOCATION OF GAGING STATIONS AND



OBSERVATION WELLS IN WESTERN NEW YORK

WATER RESOURCES DATA - NEW YORK, 1989
SUMMARY OF HYDROLOGIC CONDITIONS¹

Surface Water

Annual mean discharges in western New York were in the normal² range (table 1). Extreme conditions with below-average and deficient streamflows prevailed from December through March (table 2), and excessive flows occurred during May and June (table 3).

Table 1.-- Comparison of annual mean discharge of the 1989 water year with annual mean discharges for the period of record for selected streams
[Locations are shown in figure 1.]

Station	Period of record	1989 Water year mean discharge (ft ³ /s)	Percentage of period-of-record average discharges
01503000	Susquehanna River at Conklin	1914–88	94
01531000	Chemung River at Chemung	1906–13, 1915–88	94
03011020	Allegheny River at Salamanca	1904–88	103
04213500	Cattaraugus Creek at Gowanda	1941–88	99
04217000	Tonawanda Creek at Batavia	1945–88	109
04221000	Genesee River at Wellsville	1917–1988 ³	95
04234000	Fall Creek near Ithaca	1926–88	85
04242500	East Branch Fish Creek at Taberg	1924–88	95

Streamflow at the beginning of the 1989 water year continued in the recession that was in effect at the end of September. Precipitation during October and November was above and below average, respectively, but monthly mean flows were in the normal range for both months.

December began a 4-month period of below-average precipitation that resulted in below-average and deficient streamflow conditions at most stream-gaging sites (table 2). Recorded precipitation during December marked this month as the driest in the last 28 years. Snow that accumulated during the first 3 weeks of the month melted when temperatures rose during the 4th week, and rain and snowmelt caused minor increases in streamflows at this time. Snowfall was scant through January and February in most of western New York; however, the snowbelt regions adjacent to Lakes Erie and Ontario received above-average snow accumulations. The generally deficient streamflows were occasionally augmented by snowmelt and/or rain during unseasonably warm periods. These weather and streamflow patterns continued through most of March.

Table 2.--Comparison of monthly mean discharges with period-of-record median monthly discharges for the below-average streamflow period, December through March of the 1989 water year for selected streams.
[Locations are shown in figure 1.]

Station	Period of record used	Percentage of period-of-record median monthly discharge			
		Dec.	Jan.	Feb.	Mar.
01503000	Susquehanna River at Conklin	64	57	68	47
01531000	Chemung River at Chemung	28	35	38	58
03011020	Allegheny River at Salamanca	66	84	87	63
04213500	Cattaraugus Creek at Gowanda	83	94	73	79
04217000	Tonawanda Creek at Batavia	53	86	58	66
04221000	Genesee River at Wellsville	39	46	57	63
04234000	Fall Creek near Ithaca	44	56	49	59
04242500	East Branch Fish Creek at Taberg	50	68	88	105

Heavy rains during the last week of March brought an end to deficient streamflow conditions and produced high flows on many streams on March 31 and April 1. Rain and snow fell frequently throughout April, but the quantity of precipitation was small. Streamflows receded through the month, and monthly mean discharges indicated normal flow conditions at most stream-gaging sites.

¹ Climatological data used in this summary are from monthly weather summaries published by the National Oceanic and Atmospheric Administration.

² Range refers to the quartile within which a given flow statistic falls. The excessive range is defined as flow in the upper quartile, deficient as flow in the lower quartile, and normal as flow in the two middle quartiles.

³ Includes equivalent discharge record from Genesee River at Scio (04221500) for 1917-1955 and 1959-1972.

May and June were characterized by frequent and, at times, heavy rain and thunderstorms that resulted in the wettest June since 1972 and the second-wettest May-June period since 1890. Streamflow was in the excessive range (table 3), and most of the recorded annual peak flows occurred during these 2 months. Most streams in the south-central part of the State, primarily the Susquehanna and Chemung River basins, had annual peak flows during May 7-13. Heavy, steady rainfall on June 9, with 3 to 5 inches of rain within 6 hours north and east of Buffalo, produced annual peak flows in streams in that area. Continued showers and thunderstorms maintained saturated ground conditions so that heavy rainfall during June 20-23 produced annual peak flows elsewhere in the westernmost part of the State. During this time, flows in major channels generally stayed within their banks, although localized cloudbursts caused flooding in the basins of smaller tributaries. Hardest hit were parts of Orleans and Wyoming Counties, where nearly 4 inches of rain during the evening of June 22 washed out bridges and flooded many streets. A period-of-record maximum discharge was recorded on Little Tonawanda Creek at Linden (67 years of record) on June 23.

Table 3.—Comparison of monthly mean discharges with period-of-record median monthly discharges for the excessive streamflow period, May and June of the 1989 water year for selected streams.
[Locations are shown in figure 1.]

Station	Period of record used	Percentage of period-of-record median monthly discharge	
		May	June
01503000	Susquehanna River at Conklin	222	349
01531000	Chemung River at Chemung	266	624
03011020	Allegheny River at Salamanca	182	628
04213500	Cattaraugus Creek at Gowanda	196	404
04217000	Tonawanda Creek at Batavia	322	920
04221000	Genesee River at Wellsville	243	721
04234000	Fall Creek near Ithaca	189	274
04242500	East Branch Fish Creek at Taberg	113	174

The excessive streamflow conditions of May and June generally returned to the normal range in July. Precipitation quantities during July and August were below average in western New York, but the preceding wet conditions and frequent scattered showers and thunderstorms kept streamflows within the normal range. Above-average quantities of precipitation during September relieved the dryness of the previous month. Scattered showers and thunderstorms caused minor and localized increases in streamflow and produced normal flow conditions on most streams, but some streams in the Oswego River basin had flows in the excessive range for this month. Streamflow was receding during the last week of the water year.

Surface-Water Quality

Analysis of stream-water samples and associated discharge data collected from the four National Stream Quality Accounting Network (NASQAN) stations in western New York indicated no significant changes in chemical or biological quality from previous years. Nearly all values for constituents sampled were within the historical extremes for each site. Of those few values that exceeded the historical extremes, none indicated a trend in the data. Water-quality data collected from 12 sites in central and western New York as part of a statewide cooperative program with the New York State Department of Environmental Conservation (NYSDEC) are included in this report. Samples from these sites were collected by the NYSDEC and analyzed by the USGS National Water Quality Laboratory at Denver, Colo. Three of the NYSDEC sites, Niagara River at Youngstown, Genesee River at Charlotte Docks, and Cattaraugus Creek at Gowanda, are also NASQAN sites.

Ground Water

Ground-water levels, which were below average monthly levels in September 1988 after several months of below-average precipitation, continued to decline into October. Lowest levels for the 1989 water year were recorded at most observation wells during this month. A seasonal rise in ground-water levels occurred during November with the cessation of vegetation growth and an increase in precipitation to near-average amounts. During the dry winter months, the response of water levels to snowmelt was minimal, and water levels in most observation wells remained relatively constant. Ground-water levels rose in response to heavy precipitation at the end of March but declined during April. Above-average precipitation during May and June produced near-record monthly high ground-water levels, and at most observation wells the highest levels for the year were recorded during this period. From the end of June into September, below-average precipitation and the water demands of vegetation caused water levels to decline. Heavy rain towards the end of September caused a rise in ground-water levels, and water levels were higher-than-normal at the end of the water year.

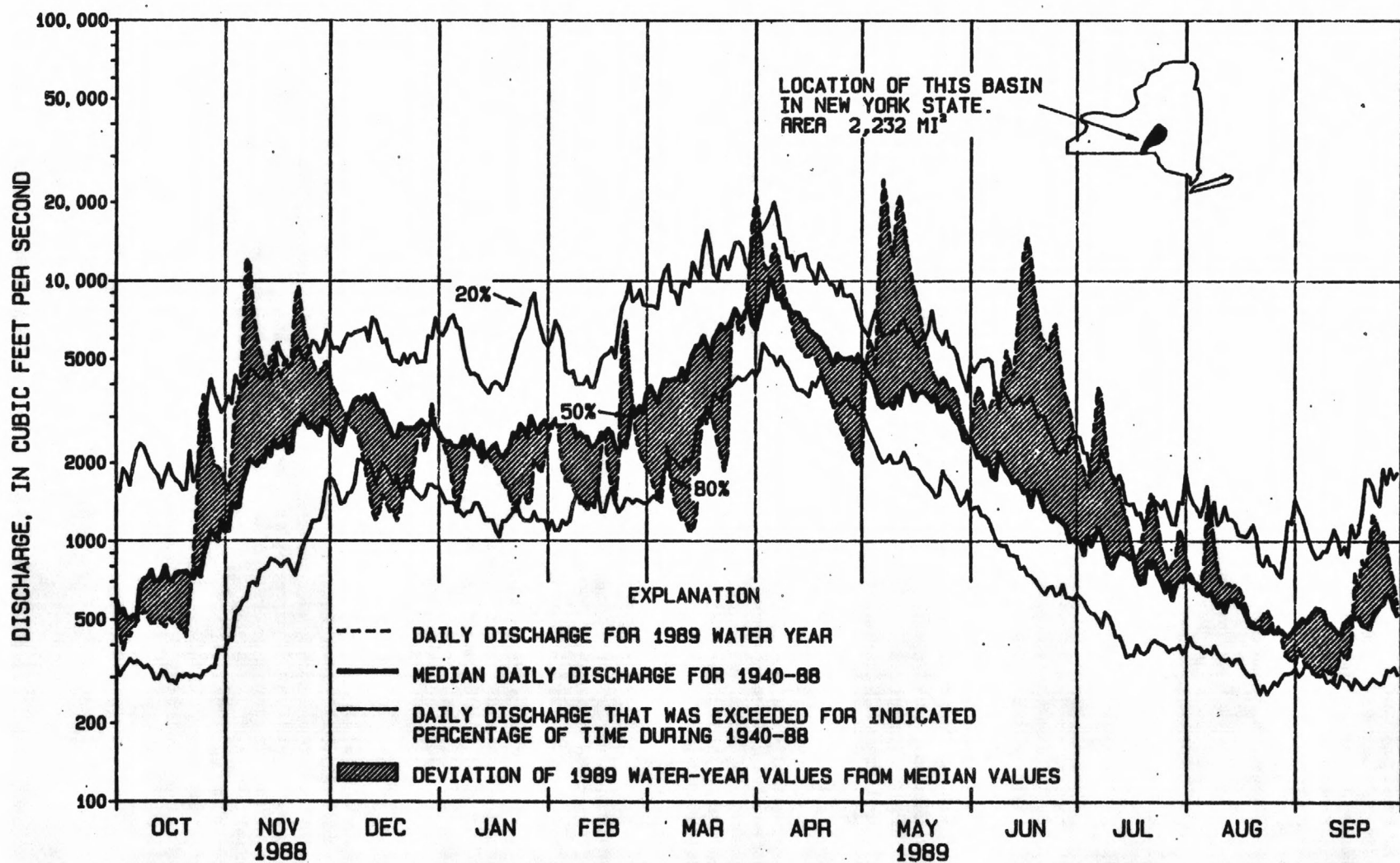


Figure 2.--Comparison of discharge at Susquehanna River at Conklin during 1989 water year with median discharge for 1940-88.

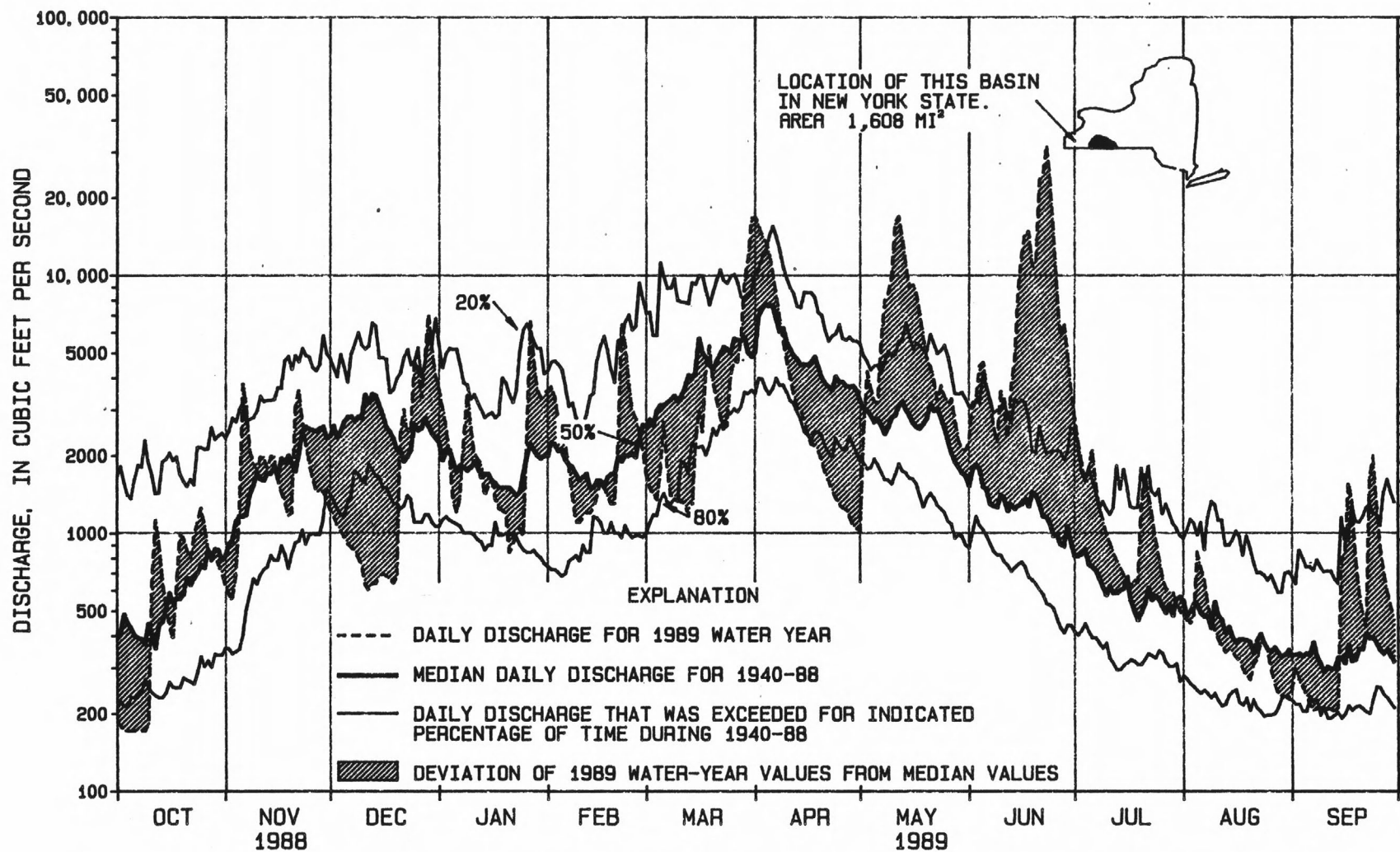


Figure 3.--Comparison of discharge at Allegheny River at Salamanca during 1989 water year with median discharge for 1940-88.

WATER RESOURCES DATA - NEW YORK, 1989 SPECIAL NETWORKS AND PROGRAMS

National Stream Quality Accounting Network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. NASQAN sites are generally located at the downstream ends of hydrologic accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water quality on a yearly basis in streams flowing from the United States and (2) to detect and assess long-term changes in streamflow and stream quality.

EXPLANATION OF THE RECORDS

The surface-water and ground-water data in this report are for the water year that began October 1, 1988, and ended September 30, 1989. A calendar of the water year is provided on the inside of the front cover. The data include discharge or stage of streams and canals, stage, surface area, and contents of lakes or reservoirs, surface-water quality, and ground-water levels. The locations of the stations and wells where data were collected are shown in figure 1. The following provide an explanation of how the data were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each surface-water station and well in this report is assigned a unique identification number. The "downstream order" system is used for surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed on listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indentation in a list of stations in the front of the 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, miscellaneous sites, and other stations; therefore, the station number for a partial-record station or a miscellaneous site indicates downstream-order position in a list made up of all 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 01502500, includes the 2-digit Part number "01" plus the 6-digit downstream order number "502500." The Part number designates the major river basin. Part numbers used in this report and their corresponding river basins are: "01," the North Atlantic Slope basin; "03," the Ohio River basin; and "04," the St. Lawrence River basin. In a few instances where no gaps were left in the 8-digit numbering sequence, one or two digits were added (making a 9- or 10-digit station number) and (or) a latitude-longitude number was used to identify intermediate stations.

Latitude-Longitude System

The well-identification number is based on 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 within a 1-second grid. See figure below.

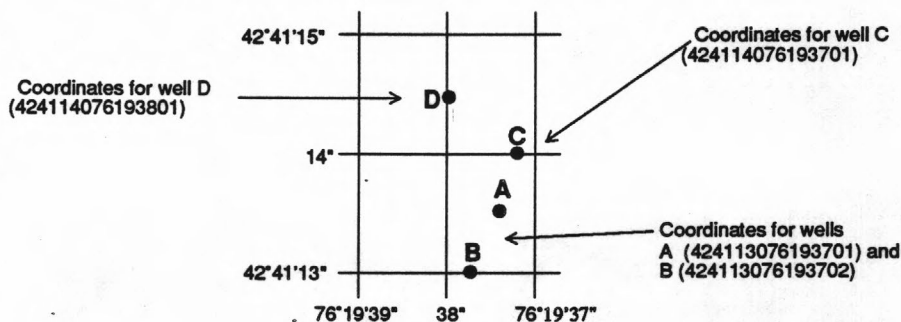


Figure 5. System for numbering wells (latitude and longitude)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations." Periods of record for discontinued continuous-record surface-water stations are given in a table following the "Contents" section of this report.

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Locations of all complete-record stations for which data are given in this report are shown in figure 1.

Data Collection and Computation

The data collected at stream-gaging stations consist of records of stage, measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationship between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data collected at a lake or reservoir station consist of records of stage and notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, results of individual discharge measurements are plotted against corresponding stages to develop stage-discharge relation curves. From these curves, rating tables that indicate the approximate discharge for any stage within the range of measurements are prepared. If it is necessary to express discharge greater than measured, the rating curves are extended on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting.

Daily mean discharges are computed by applying the instantaneous stages (gage heights) to the stage-discharge curves or rating tables and averaging these discharges for each day. Monthly and yearly mean discharges are computed from the daily figures. 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 computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes of the personnel making the measurements and observers 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.

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.

At some stream-gaging stations, formation of ice in the winter may so obscure the stage-discharge relation that daily mean discharges must be estimated on the basis of gage-height record, occasional water discharge measurements, and other information such as temperature and precipitation records, notes by gage observers and hydrologist, and records of discharge for other stations in the same or nearby basins for comparable periods.

For computing lake or reservoir contents, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The daily contents are computed from gage heights and capacity tables, then the daily, monthly, and yearly change of contents are computed from the daily figures. If the stage-capacity curve changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

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 recorded range in stage, previous and following records, discharge measurements, weather records, and comparison with other station records in the same or nearby basins. Likewise daily contents may be estimated from operator's logs, previous and following records, inflow-outflow studies, and other information. 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."

Data Presentation

The records published for each gaging station consist of two parts, the station description and the data table for the current water year. The station description provides, under different headings, information such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. Following is a list of headings for complete record stations and a discussion of the information provided under each heading.

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, given for some stations, is that determined and used by the U.S. Army Corps of Engineers or other agencies.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--Identifies 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.--Published records are occasionally revised in light of new information, and revisions published in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years for which 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. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see DEFINITION OF TERMS), 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 at 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 Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred, as recorded on a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified.

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.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except secondary peaks are also included. Secondary peaks are those that are less than the peak for the year but that exceed a selected base discharge. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

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 District Office 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 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 stages are given.

The second part of the record for each gaging station is the table of daily mean discharges, followed by monthly and yearly summaries. In the monthly summary below the table, the "TOTAL" line gives the sum of the daily figures. The "MEAN" line gives the average flow in cubic feet per second during the month. The "MAX" and "MIN" lines give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile ("CFSM" line), or in inches ("IN." line). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Information published for partial-record stations follows the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

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, "e 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 observations of stage, measurements of discharge, and interpretations 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 the true discharge; "good," within 10 percent; and "fair," within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft³/s; to tenths between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures above 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharge figures listed for partial-record stations.

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. Evaporation 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 records in this report, such as discharge measurement notes, water temperature measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-readable form and many statistical analyses are available. Information on the availability of unpublished data or statistical analyses may be obtained from the 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. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

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 once 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 is usually 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. Locations of surface-water quality stations are shown on figure 1.

Note that "continuing-record" differs from "continuous recording," which refers to a continuous graph or a series of discrete values recorded at predetermined intervals. Some water-quality data may be obtained through continuous recordings (i.e., temperature); however, most data are obtained only monthly or less frequently.

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. Where a surface-water daily record station is not available or where the location of the water quality sampling site differs significantly from that of the nearby surface-water station, the continuing-record water-quality site is given its own station number and name in the regular downstream order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites. Data for precipitation-quality stations appear next.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern is that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite 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 onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book I, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed in the "Publications on Techniques of Water-Resources Investigations" section of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see DEFINITION OF TERMS) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentrations in the cross sections. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of instantaneous suspended-sediment discharge, the percentage of suspended sediment finer than 0.062 mm are reported at continuing-record sites.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Arvada, Colo., or Doraville, Ga. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation, including station location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily precedes the data tables. If the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. Following is a list of headings and a discussion of the information provided under each heading.

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, given for some stations, is that determined and used by the U.S. Army Corps of Engineers or other agencies.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage area to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, temperature recorder, sediment pumping sampler, or other sampling device is in operation at a station.

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

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

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximum or minimum may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--Published data are occasionally revised in light of new information, and appropriate revisions 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 insure the most recent updates.

Following information on station history are tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily. Following these are tables of daily mean temperatures.

Remark Codes

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

PRINTED OUTPUT

E

>

<

K

REMARK

Estimated value

Actual value is known to be greater than the value shown

Actual value is known to be less than the value shown

Results based on colony count outside the acceptance range
(non-ideal colony count)

Categories of Water-Quality Data

There is a broad range of water-quality parameters available for most stations whose record exceeds more than a few years operation. Sampling schedules are often intermittent for certain types of data, with analyses available for some but not all years within a station's period of record. An accurate description of the variety of data available is shown by grouping similar parameters into a few general categories, which are listed in the "PERIOD OF RECORD" paragraph. Each category of data is followed by a notation of the water year(s) for which data is available and a letter code describing the frequency of sampling (see following section, "Frequency-of-Sampling Notation").

The "PERIOD OF RECORD" paragraph lists the following categories of data to describe information available.

CHEMICAL DATA: Usually includes most of the "major ions," and may often include some of the following physical properties: specific conductance, pH, temperature, color, turbidity, dissolved oxygen.

MINOR ELEMENT DATA: Comprises the "heavy metals" and some of the "alkaline earth" groups. Determinations usually include some but not all of the following: Al, As, Ba, Cd, Cr, Co, Cu, Hg, Li, Ni, Pb, Se, Sn, Sr, Zn.

RADIOCHEMICAL DATA: The determinations of the concentration of individual radioactive elements, such as radium 226, cobalt 60, strontium 90, and tritium. This category also includes the gross measurement of radioactivity (alpha, beta, gamma) without regard to the radiochemical species that produce the radioactivity.

PESTICIDE DATA: The organic compounds (insecticides and herbicides) used to control insects and plants. Routinely, the analyses searches for traces of between 12 to 22 compounds.

ORGANIC DATA: Organic data (other than pesticides) such as OC, PCB, PCN.

NUTRIENT DATA: Constituents containing nitrogen or phosphorus. Results usually include several of the following: nitrite plus nitrate, phosphorus, ammonia nitrogen, organic nitrogen, ammonia nitrogen plus organic nitrogen (Kjeldahl nitrogen).

BIOLOGICAL DATA: The identification and concentration of microscopic plant organisms (phytoplankton, periphyton), or enteric bacteria (total coliform, fecal coliform, or fecal streptococcal) living in aquatic habitats.

SEDIMENT DATA: Suspended-sediment concentration, suspended-sediment discharge, and particle-size data for discrete samples.

Frequency-of-Sampling Notation

The categories of data given in the "PERIOD OF RECORD" paragraph are followed by the water year(s) for which that kind of data was collected. The amount of data available is specified by the following letter codes:

- | | |
|------------------------------|------------------------------------|
| (a) 1 or 2 samples per year. | (d) 10 to 20 samples per year. |
| (b) 3 to 5 samples per year. | (e) more than 20 samples per year. |
| (c) 6 to 9 samples per year. | |

Thus, "CHEMICAL DATA: 1972-74(c), 1977-82(a).", shows there are at least six analyses each year for the first three years of record, no data for this category in 1975 and 1976, and 1 or 2 samples for each of the five additional years.

Records of Ground-Water Levels

Ground-water level data consist of water-level measurements made in observation wells. Ground-water records are presented by county, in alphabetical order. Locations of observation wells are shown on figure 1.

Data Collection and Computation

Water-level measurements are made in many types of wells, under varying conditions of access and at different temperatures; hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level records are from direct measurements using a steel tape or from the graph or punched tape of a water-stage recorder. 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 altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 (see DEFINITION OF TERMS) 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 in wells equipped with recording gages are reported as mean daily values; then monthly and yearly means are computed from the daily figures. Water levels in wells not equipped with recording gages are measured periodically, usually weekly, with a weighted tape.

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 in 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 a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot.

Data Presentation

Each well record consists of two parts, the well description and a table of water levels observed in the current water year. The well description includes such information as location, aquifer, period of record, historical extremes, and other information pertinent to the well site. Following is a list of headings for well records and a discussion of the information provided under each heading.

LOCATION.--Provides (immediately below the well-identification number) the latitude and longitude (in degrees, minutes, and seconds); the hydrologic unit number (see DEFINITION OF TERMS); the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--Identifies by name (if a name exists) and geologic age the aquifer(s) open to the well.

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

INSTRUMENTATION.--Describes frequency of measurements 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.--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 on), 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) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

REMARKS.--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-Survey) observers.

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

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

The second part of the well-record is a table of water levels, reported in feet above or below land-surface datum. For wells not equipped with continuous-stage recorders, the table lists the water levels and measurement dates. For well records longer than one year, a hydrograph of ground-water level fluctuations for the past ten water years (including the current water year) is presented following the data table.

ACCESS TO WATSTORE DATA

The National WATER Data STORAGE and RETrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's district offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

DEFINITION OF TERMS

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

Acre-foot (AC-FT, acre-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.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

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 threadlike in shape, often clumped into colonies. Some bacteria cause disease, 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.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines 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 which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°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 intestines 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°C ± 1.0°C on KF medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material See Bottom material.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Biomass pigment ratio is an indicator of the total proportion of periphyton which are autotrophic (plants). This is also called the Autotrophic Index.

Bottom material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. 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 judge when the results should be reported as "total in bottom material."

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by 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 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Colloid is any substance with particles in such a fine state of subdivision dispersed in a medium, for example water, that they do not settle out; but not in so fine a state of subdivision that they can be said to be truly dissolved.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate 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 or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

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.

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

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.

Dissolved refers to that material in a representative water sample which passes through a 0.45-micrometer 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.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$d = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific 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 river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

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.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (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.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

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

Micrograms per liter ($\mu\text{g/L}$, $\mu\text{g/L}$) 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.

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

National Geodetic Vertical Datum of 1929 (NGVD) 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.

Organic carbon (OC) is a measure of the organic matter present in aqueous solution and (or) suspension. May be reported in any of three categories (DOC, dissolved organic carbon; SOC, suspended organic carbon; TOC, total organic carbon).

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (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.

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 suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in distilled water (chemically dispersed).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	0.00024 - 0.004	Sedimentation.
Silt004 - .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. The sample is subjected to mechanical and chemical dispersion in distilled water before analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton is the assemblage of algae, fungi, and bacteria which are attached to or live upon submerged objects in lakes and rivers.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

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

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Euglenoids (Euglenophyta) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark.

Fire algae (Pyrrhophyta) are free-swimming unicells characterized by a red spot.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [$\text{mg C}/(\text{m}^2 \cdot \text{time})$ for periphyton and macrophytes and $\text{mg C}/(\text{m}^3 \cdot \text{time})$ for phytoplankton] are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [$\text{mg O}_2/(\text{m}^2 \cdot \text{time})$ for periphyton and macrophytes and $\text{mg O}_2/(\text{m}^3 \cdot \text{time})$ for phytoplankton] are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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.

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.

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).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

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

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

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks 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 (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.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emerged or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization or organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map 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 planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that 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 table of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45-micrometer 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-micrometer 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 would be 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-micrometer 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.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom Animal
Phylum Arthropoda
Class Insecta
Order Ephemeroptera
Family Ephemeridae
Genus Hexagenia
Species Hexagenia limbata

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 in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total (as used in tables of chemical analyses):

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 would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

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 determines all of the constituent in the sample.)

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to state annual basic-data reports published beginning in 1975.

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.

WRD is used as an abbreviation for "Water Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

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

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, Books and Open-File Reports Section, Federal Center, Box 25425, 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-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren 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 measurements 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 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*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 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, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 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-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-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 H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 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: 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.
- 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.

SUSQUEHANNA RIVER BASIN
01496500 OAKS CREEK AT INDEX, NY

LOCATION.--Lat 42°39'56", long 74°57'36", Otsego County, Hydrologic Unit 02050101, on right bank 200 ft upstream from bridge on State Highway 28 at Index, 0.5 mi upstream from mouth, and 3 mi southwest of Cooperstown.

DRAINAGE AREA.--102 mi²

PERIOD OF RECORD.--November 1929 to September 1932, March 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,174.47 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1932, nonrecording gage at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Prior to June 1964 and since October 1979 flow regulated by natural storage in Canadarago Lake. June 1964 to September 1979 flow regulated by gates at Panther Mountain Dam at outlet. Satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--54 years (1931-32, 1938-89), 170 ft³/s, 22.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,320 ft³/s, Oct. 17, 1977, from rating extended above 1,700 ft³/s by logarithmic plotting, gage height, 7.62 ft; minimum, 1.3 ft³/s, Aug. 4, 5, 1962, gage height, 1.79 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 6	1230	*1,060	*5.37	No other peak greater than base discharge.			
Minimum daily discharge, 6.7 ft ³ /s, Sept. 9.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	148	264	e130	e150	e120	614	85	227	171	30	11
2	49	198	250	e120	174	e110	486	174	208	161.	28	12
3	49	235	238	e110	156	e100	474	157	207	151	34	11
4	55	215	229	e98	e140	e110	503	147	188	121	46	13
5	83	269	211	e94	e130	e120	584	143	179	160	95	8.8
6	74	771	202	e90	e120	e130	562	593	192	148	60	7.6
7	66	587	e190	e98	e110	e110	554	535	184	129	48	7.0
8	61	512	e180	e110	e100	e100	510	456	174	130	43	6.8
9	57	478	e160	e120	e94	e90	475	427	168	149	40	6.7
10	57	446	e150	e110	e92	e88	445	435	314	146	36	9.0
11	58	420	e130	e100	e88	e84	417	596	232	151	33	11
12	58	391	e120	e96	e86	e82	395	538	201	140	34	9.0
13	64	399	e110	e94	e84	e78	373	501	256	132	36	8.1
14	63	410	e98	e98	e82	96	356	472	266	114	33	9.2
15	56	365	e96	e98	e98	171	334	446	323	64	29	13
16	53	342	e100	e110	e90	168	335	418	491	55	28	15
17	48	356	e98	e110	e86	148	311	390	429	51	25	22
18	49	335	e96	e100	e82	175	295	360	381	47	23	20
19	61	309	e100	e90	e78	169	278	328	353	44	21	19
20	53	335	127	e80	e74	153	259	301	325	46	23	43
21	48	422	155	e74	e130	e130	242	282	306	49	30	46
22	79	372	139	e78	e240	e120	229	265	303	44	24	37
23	127	350	123	e80	e170	e110	212	241	281	40	21	74
24	151	337	132	e80	e160	150	201	237	262	37	19	83
25	162	318	165	e70	e160	254	188	223	241	34	17	76
26	147	300	e130	e86	e150	246	178	213	221	31	16	70
27	153	286	e120	e82	e140	222	167	215	205	29	14	67
28	156	327	e150	e80	e130	250	143	188	208	50	12	62
29	161	309	e170	e78	---	287	82	167	196	46	12	57
30	153	280	e150	e90	---	411	84	168	181	38	12	30
31	150	---	e140	e110	---	589	---	174	---	34	11	---
TOTAL	2651	10822	4723	2964	3394	5171	10286	9875	7702	2742	933	864.2
MEAN	85.5	361	152	95.6	121	167	343	319	257	88.5	30.1	28.8
MAX	162	771	264	130	240	589	614	596	491	171	95	83
MIN	48	148	96	70	74	78	82	85	168	29	11	6.7
CFSM	.84	3.54	1.49	.94	1.19	1.64	3.36	3.12	2.52	.87	.30	.28
IN.	.97	3.95	1.72	1.08	1.24	1.89	3.75	3.60	2.81	1.00	.34	.32
CAL YR	1988	TOTAL	52174.9	MEAN	143	MAX	771	MIN	6.6	CFSM	1.40	IN. 19.03
WTR YR	1989	TOTAL	62127.2	MEAN	170	MAX	771	MIN	6.7	CFSM	1.67	IN. 22.66
e Estimated												

SUSQUEHANNA RIVER BASIN
01500000 OULEOUT CREEK AT EAST SIDNEY, NY

27

LOCATION.--Lat 42°20'00", long 75°14'07", Delaware County, Hydrologic Unit 02050101, on right bank 0.2 mi downstream from bridge on County Highway 44, 0.4 mi downstream from East Sidney Dam, at East Sidney, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--103 mi².

PERIOD OF RECORD.--August 1940 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,086.23 ft above National Geodetic Vertical Datum of 1929. Prior to June 13, 1947, water-stage recorder at site 0.5 mi upstream at datum 27.30 ft higher.

REMARKS.--No estimated daily discharges. Records good. Since November 1949, flow regulated by East Sidney Lake (see station 01499500). Satellite gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--49 years, 171 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,250 ft³/s, Dec. 30, 1942, gage height, 7.62 ft, site and datum then in use, from rating curve extended above 4,000 ft³/s; minimum daily, 1.2 ft³/s, Aug. 13, 1949; minimum gage height, 0.32 ft, Aug. 13, 14, 17, 1949.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 16,700 ft³/s, in July 1935, was determined by computation of flow over dam and from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,910 ft³/s, May 15 at 1000 hours, gage height, 4.79 ft; minimum daily, 1.4 ft³/s, Apr. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	77	246	79	159	86	1.4	93	71	91	45	9.7
2	15	127	261	109	190	86	646	410	86	51	33	9.7
3	15	235	257	109	132	85	1160	346	93	41	42	9.7
4	15	180	251	77	67	85	733	250	93	41	66	9.7
5	15	186	247	55	57	85	792	231	92	149	75	9.7
6	15	1060	240	39	70	87	695	239	93	211	75	9.7
7	22	996	234	46	88	86	747	12	122	124	75	9.7
8	27	496	199	94	68	85	467	232	134	91	66	9.6
9	27	422	102	133	57	84	416	1480	134	103	42	9.6
10	27	305	60	79	57	58	362	1660	269	103	36	9.6
11	27	276	60	55	59	26	302	122	172	81	34	9.7
12	27	192	49	55	60	18	247	381	132	54	38	9.7
13	27	193	36	126	60	18	206	1740	395	28	41	9.7
14	28	354	45	91	59	26	176	1650	419	22	54	9.8
15	28	239	96	55	92	93	114	1670	651	22	39	22
16	28	135	75	67	186	138	118	781	789	23	30	30
17	21	291	46	74	176	144	122	352	880	30	31	30
18	15	346	37	74	79	143	125	315	601	33	31	23
19	15	256	37	73	58	143	127	197	500	33	31	10
20	15	341	53	73	58	141	129	163	302	67	31	24
21	15	880	87	43	432	123	155	163	275	154	31	54
22	17	503	86	24	604	60	163	164	239	84	24	42
23	39	497	60	34	209	30	164	126	293	41	20	30
24	151	306	48	56	126	195	150	101	557	21	20	57
25	239	276	117	56	66	859	115	121	327	22	20	51
26	213	265	112	60	58	267	103	134	214	22	20	27
27	96	220	60	109	78	278	83	134	155	22	20	19
28	77	219	60	79	86	261	72	134	132	261	16	19
29	77	219	210	56	---	476	73	134	132	232	9.3	19
30	77	218	139	76	---	786	73	90	132	84	9.2	20
31	77	---	73	153	---	946	---	71	---	73	9.7	---
TOTAL	1501	10310	3683	2309	3491	5998	8836.4	13696	8484	2414	1114.2	612.6
MEAN	48.4	344	119	74.5	125	193	295	442	283	77.9	35.9	20.4
MAX	239	1060	261	153	604	946	1160	1740	880	261	75	57
MIN	14	77	36	24	57	18	1.4	12	71	21	9.2	9.6

CAL YR	1988	TOTAL	47280.5	MEAN	129	MAX	1190	MIN	8.6
WTR YR	1989	TOTAL	62449.2	MEAN	171	MAX	1740	MIN	1.4

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 7	0200	*10,400	*9.81	No peak greater than base discharge.			
Minimum discharge, 111 ft ³ /s, Sept. 10-11, gage height, 1.73 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	789	1930	e1000	1090	e720	7530	991	1330	1080	376	144
2	239	1060	1880	e920	1320	e680	5800	2540	1600	993	340	148
3	197	1740	1570	e820	e1100	e660	5360	2880	1550	822	348	166
4	214	1810	1620	e740	e780	e640	4930	2290	1310	727	376	138
5	268	1960	1460	e660	e730	e660	5760	1860	1260	986	424	147
6	331	5910	1370	e720	e700	e980	6140	7070	1290	2200	396	147
7	305	6650	1360	e800	e680	e700	6150	9510	1740	1330	467	187
8	284	4380	1270	e940	e660	e660	5030	6740	1520	1020	354	159
9	258	3590	1140	e1100	e650	e600	4240	6370	1480	950	335	151
10	267	3070	964	e1000	e640	e560	3790	6370	2320	909	310	117
11	275	2760	e900	e860	e630	e540	3330	8470	2490	1020	362	173
12	253	2430	e640	e800	e620	e500	3010	7410	1970	795	297	138
13	269	2290	e620	e980	e610	e440	2770	7190	2610	685	323	135
14	259	2950	e660	1070	e600	542	2710	6060	3570	660	386	129
15	265	2580	e700	933	e840	944	2420	5490	4230	432	320	177
16	255	2130	e780	981	e1200	1280	2660	4090	6130	405	305	493
17	243	2390	e700	940	e900	1020	2700	3520	6360	437	221	344
18	226	2760	e660	856	e700	1060	2390	3050	5460	660	200	371
19	222	2300	e640	790	e600	1100	2220	2570	4320	356	227	270
20	243	2420	e660	783	e580	971	2020	2240	3380	408	245	257
21	239	5100	e760	660	1860	884	1880	2070	2950	749	284	532
22	315	4170	e840	566	3820	703	1720	2000	2770	743	307	586
23	618	3410	e720	804	2300	661	1490	1760	2840	509	275	432
24	1240	3080	e680	747	e1500	1120	1440	1680	3130	455	222	439
25	1450	2690	e980	661	e1000	2870	1300	1510	2640	388	305	525
26	1220	2430	1160	675	e840	2470	1240	1340	2100	396	214	381
27	985	2270	1040	949	e800	2380	1130	1560	1810	347	158	365
28	801	2250	1020	786	e760	2460	1020	1410	1650	588	154	236
29	940	2370	1650	772	---	3480	904	1300	1320	777	146	202
30	836	2070	1390	876	---	4960	1000	1120	1120	552	151	359
31	839	---	e1100	1100	---	8530	---	1150	---	454	224	---
TOTAL	14505	85809	32864	26289	28510	45775	94084	113611	78250	22833	9052	8048
MEAN	468	2860	1060	848	1018	1477	3136	3665	2608	737	292	268
MAX	1450	6650	1930	1100	3820	8530	7530	9510	6360	2200	467	586
MIN	149	789	620	566	580	440	904	991	1120	347	146	117
CFSM	.48	2.91	1.08	.86	1.04	1.50	3.19	3.73	2.66	.75	.30	.27
IN.	.55	3.25	1.24	1.00	1.08	1.73	3.56	4.30	2.96	.86	.34	.30
CAL YR	1988	TOTAL	439159	MEAN 1200	MAX 8390	MIN 83	CFSM 83	1.22	IN. 16.64			
WTR YR	1989	TOTAL	559630	MEAN 1533	MAX 9510	MIN 117	CFSM 117	1.56	IN. 21.20			

e Estimated

SUSQUEHANNA RIVER BASIN
01502000 BUTTERNUT CREEK AT MORRIS, NY

29

LOCATION.--Lat 42°32'43", long 75°14'22", Otsego County, Hydrologic Unit 02050101, on right bank 15 ft upstream from bridge on State Highway 23 at Morris, and 0.2 mi upstream from Calhoun Creek.

DRAINAGE AREA.--59.7 mi².

PERIOD OF RECORD.--June 1938 to current year.

REVISED RECORDS.--WSP 921: 1939. WSP 2103: Drainage area. WRD NY 1974: 1973(P).

GAGE.--Water-stage recorder: Datum of gage is 1096.21 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 99.2 ft³/s, 22.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,980 ft³/s, Oct. 17, 1977, gage height, 9.44 ft; minimum daily, 1.3 ft³/s, Sept. 24, 1939.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 6	0930	*1,160	*5.97	No peak greater than base discharge.			
Minimum discharge, 4.8 ft ³ /s, Sept. 9, gage height, 1.33 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	15	49	e147	e79	e77	e54	668	e55	201	79	9.8	7.4	
2	15	82	e136	e72	111	e48	376	e155	167	73	9.9	8.1	
3	16	104	e125	e67	88	e42	346	e145	166	68	11	7.1	
4	16	95	e123	e62	e58	e39	e280	e94	151	63	11	6.7	
5	17	160	e111	e62	e50	e46	e344	e76	132	99	42	6.3	
6	20	890	e100	e57	e49	e75	e327	639	148	70	28	5.9	
7	18	402	e100	e53	e48	e56	e266	593	138	48	25	5.5	
8	16	288	e93	e57	e46	e43	e221	392	125	48	20	5.3	
9	16	234	e83	e67	e46	e36	e195	319	119	42	17	5.1	
10	16	199	e74	e79	e44	e35	e188	373	265	42	15	5.5	
11	18	172	e66	e67	e42	e33	e178	815	172	62	14	32	
12	18	150	e56	e59	e41	e30	e168	475	138	43	14	13	
13	18	173	e52	e59	e40	e32	e157	376	199	38	14	9.0	
14	18	202	e48	e55	e39	e39	e151	316	195	34	13	8.5	
15	18	156	e49	e56	e46	102	e136	277	272	31	12	14	
16	17	142	e51	e64	e67	e133	e150	243	501	28	12	18	
17	16	184	e48	e81	e52	e80	e138	224	369	25	11	23	
18	16	165	e46	e56	e48	86	e122	192	304	24	11	17	
19	19	143	e42	e51	e42	e109	e111	168	263	22	9.9	15	
20	19	188	e42	e52	e41	e74	e98	152	218	22	10	61	
21	18	306	e54	e50	233	e70	e88	152	196	25	15	52	
22	27	229	e60	e59	305	e57	e80	144	180	22	14	32	
23	39	e182	e54	e54	179	e55	e74	123	173	20	11	41	
24	85	e170	e54	e48	e104	105	e70	141	156	18	10	58	
25	110	e161	e75	e43	e83	309	e65	130	138	17	9.3	41	
26	75	e152	e90	e44	e76	222	e62	122	124	15	8.8	36	
27	64	e142	e76	e68	e67	186	e56	114	116	13	7.9	33	
28	61	e179	e73	e49	e60	213	e54	97	104	13	7.7	30	
29	62	e215	e130	e50	---	276	e51	85	96	13	7.6	28	
30	54	e165	e107	e60	---	592	e55	83	86	11	7.8	26	
31	50	---	e100	e81	---	731	---	94	---	10	7.4	---	
TOTAL	987	6079	2465	1861	2182	4008	5275	7364	5612	1138	416.1	650.4	
MEAN	31.8	203	79.5	60.0	77.9	129	176	238	187	36.7	13.4	21.7	
MAX	110	890	147	81	305	731	668	815	501	99	42	61	
MIN	15	49	42	43	39	30	51	55	86	10	7.4	5.1	
CFSM	.53	3.39	1.33	1.01	1.31	2.17	2.95	3.98	3.13	.61	.22	.36	
IN.	.62	3.79	1.54	1.16	1.36	2.50	3.29	4.59	3.50	.71	.26	.41	
CAL YR	1988	TOTAL	25460.8	MEAN	69.6	MAX	890	MIN	8.6	CFSM	1.17	IN.	15.87
WTR YR	1989	TOTAL	38037.5	MEAN	104	MAX	890	MIN	5.1	CFSM	1.75	IN.	23.70
e Estimated													

SUSQUEHANNA RIVER BASIN
01502500 UNADILLA RIVER AT ROCKDALE, NY

LOCATION.--Lat 42°22'40", long 75°24'23", Chenango County, Hydrologic Unit 02050101, on right bank 400 ft down-stream from Chenango-Otsego County highway bridge at Rockdale, and 0.7 mi downstream from Kent Brook.

DRAINAGE AREA.--520 mi².

PERIOD OF RECORD.--November 1929 to September 1933, January 1937 to current year.

REVISED RECORDS.--WRD NY 1974: 1973 (P).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 992.25 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1933, nonrecording gage at bridge 400 ft upstream at datum 0.73 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--55 years (water years 1931-33, 1938-89), 836 ft³/s, 21.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft³/s, Dec. 31, 1942, gage height, 12.98 ft; minimum daily, 27 ft³/s, Sept. 20-27, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 1	0330	*6,730	*8.98	May 11	1800	6,150	8.70

Minimum discharge, 78 ft³/s, Sept. 9-10, gage height, 3.60 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	443	1200	e700	766	e450	6050	411	1230	394	135	94
2	114	614	1090	e620	1110	e400	3390	996	1540	349	127	103
3	114	1340	992	e560	906	e350	2450	1320	1430	312	134	98
4	121	1240	958	e520	568	e330	2640	886	1130	288	137	94
5	124	1380	884	e480	e470	e380	3130	700	1070	594	182	89
6	137	4670	793	e450	e450	e640	3210	2510	979	1080	386	86
7	151	5170	790	e430	e430	e500	2700	4530	1120	565	314	84
8	138	3160	751	e470	e410	e390	2230	3170	902	456	219	82
9	127	2040	678	e560	e400	e330	1870	2310	813	361	179	80
10	127	1720	580	e720	e380	e310	1700	2190	1590	302	159	79
11	132	1550	507	e600	e370	e290	1550	5380	1520	315	145	146
12	139	1380	e420	e520	e360	e270	1440	4940	1080	296	142	152
13	140	1380	e400	e500	e350	277	1340	3000	1270	258	143	109
14	138	1710	e380	e470	e340	320	1270	2240	1620	232	142	100
15	147	1450	e400	e450	e400	784	1140	1930	2110	211	138	113
16	142	1220	e420	e520	e600	1510	1210	1700	3720	197	130	150
17	131	1340	e400	676	e470	977	1120	1570	2920	189	123	191
18	126	1470	e380	461	e400	911	981	1360	2160	179	117	192
19	132	1190	e350	420	e360	1110	903	1160	1740	169	113	168
20	133	1300	e340	418	e350	731	792	952	1460	171	112	276
21	133	2210	e430	404	1080	639	700	860	1260	194	123	417
22	211	1950	e540	437	2540	529	633	837	1220	187	147	297
23	377	1610	e490	428	1830	481	574	681	1160	174	131	237
24	970	1450	e450	390	1090	880	538	819	1240	162	116	337
25	1640	1310	e600	350	770	2410	505	892	1170	152	109	313
26	1160	1200	e780	355	e620	1920	471	747	815	143	103	247
27	712	1110	e640	520	e540	1650	435	717	654	139	98	206
28	605	1340	e620	472	e480	1770	409	619	573	153	96	178
29	605	1740	e1100	453	---	2290	388	517	557	153	96	162
30	541	1370	e960	520	---	3420	400	464	471	176	96	151
31	475	---	e860	741	---	6100	---	564	---	151	94	---
TOTAL	10056	51057	20183	15615	18840	33349	46169	50972	40524	8702	4486	5031
MEAN	324	1702	651	504	673	1076	1539	1644	1351	281	145	168
MAX	1640	5170	1200	741	2540	6100	6050	5380	3720	1080	386	417
MIN	114	443	340	350	340	270	388	411	471	139	94	79
CFSM	.62	3.27	1.25	.97	1.29	2.07	2.96	3.16	2.60	.54	.28	.32
IN.	.72	3.65	1.44	1.12	1.35	2.39	3.30	3.65	2.90	.62	.32	.36
CAL YR	1988	TOTAL	251886	MEAN	688	MAX	6430	MIN	68	CFSM	1.32	IN. 18.02
WTR YR	1989	TOTAL	304984	MEAN	836	MAX	6100	MIN	79	CFSM	1.61	IN. 21.82

e Estimated

SUSQUEHANNA RIVER BASIN

31

01502701 SUSQUEHANNA RIVER AT AFTON, NY

LOCATION.--Lat 42°13'38", long 75°31'27", Chenango County, Hydrologic Unit 02050101, at bridge on State Highway 41, 0.1 mi southeast of Afton and intersection of State Highways 7 and 41, and 0.2 mi downstream from Kelsey Brook.

DRAINAGE AREA.--1,716 mi².

PERIOD OF RECORD.--Water years 1988 to current year.

CHEMICAL DATA: 1988-89 (b).

MINOR ELEMENT DATA: 1988-89 (b).

COOPERATION.--Water-quality samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

		DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD. UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3
OCT 06	0900	355	238	--	7.9	11.0	771	8.4	75	96
APR 17	1000	4480	163	6.5	--	6.0	740	12.8	106	65
MAY 09	0930	10400	98	6.7	--	7.5	741	13.2	113	42
JUN 21	0900	4890	162	6.9	--	18.0	745	8.1	88	62
AUG 07	0800	1220	210	7.1	--	23.5	733	6.6	81	90
	CALCIUM, DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINTY LAB (MG/L AS CACO3)	SULFATE, DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 06	32	4.0	8.3	1.5	79	17	12	0.1	150	<1
APR 17	22	2.5	4.9	1.2	50	13	8.5	0.1	300	1
MAY 09	14	1.8	3.6	1.0	29	13	6.1	0.1	780	<1
JUN 21	21	2.4	4.2	0.90	53	10	6.1	0.1	520	<1
AUG 07	30	3.7	6.9	1.4	76	13	11	0.1	180	1
	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY, TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL TOTAL RECOV- ERABLE (UG/L AS NI)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	
OCT 06	52	330	8	40	0.1	2	200	--	--	
APR 17	130	590	<5	40	<0.1	200	60	15	181	
MAY 09	13	1800	7	70	<0.1	9	20	47	1320	
JUN 21	4	950	2	60	0.1	2	<10	20	254	
AUG 07	14	370	2	50	<0.1	3	10	5	16	

SUSQUEHANNA RIVER BASIN
01503000 SUSQUEHANNA RIVER AT CONKLIN, NY

LOCATION.--Lat 42°02'07", long 75°48'12", Broome County, Hydrologic Unit 02050101, on left bank at abutment of former highway bridge, 500 ft upstream from bridge on County Highway 304 at Conklin, 0.7 mi downstream from Little Snake Creek, and 3.5 mi downstream from Pennsylvania-New York State line.

DRAINAGE AREA.--2,232 mi².

PERIOD OF RECORD.--November 1912 to current year.

REVISED RECORDS.--WSP 1672: 1918(M, P). WSP 2103: Drainage area. WDR NY-81-3: 1918 (M, P).

GAGE.--Water-stage recorder. Datum of gage is 841.04 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 4, 1914, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Minor regulation by upstream lakes and reservoirs. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--76 years (water years 1914-89), 3,579 ft³/s, 21.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,600 ft³/s, Mar. 18, 1936, gage height, 20.14 ft; maximum gage height, 20.83 ft, Mar. 22, 1948; minimum discharge, 85 ft³/s, Oct. 14, 1964, gage height, 1.30 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18,000 ft³/s and maximum (*);

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 1	0700	21,600	11.52	May 11	2100	22,900	11.89
May 7	0600	*25,000	*12.48				

Minimum discharge, 286 ft³/s, Sept. 12-13, gage height, 1.90 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	488	1690	4200	e2500	2410	e1900	21100	1950	2580	2300	862	338	
2	437	1560	3860	e2400	2660	e1800	16700	3920	3410	2030	764	388	
3	380	2050	3630	e2200	2990	e1600	12000	6020	3920	1900	719	353	
4	434	3370	3240	e2000	2610	e1500	11000	5600	3730	1630	651	333	
5	431	3450	3150	e1600	1910	e1400	11500	4620	3250	2010	673	329	
6	463	5200	2890	e1300	e1700	e1800	13800	13800	3180	2690	787	316	
7	490	12100	2720	e1500	e1700	e2300	12700	24400	3410	3910	1380	305	
8	508	11500	2680	e1700	e1600	e1600	11100	20200	3920	3600	1370	304	
9	543	7840	2530	e2000	e1500	e1400	9040	13800	3550	2560	970	323	
10	509	6200	e2200	e2600	e1400	e1300	7890	12500	4130	2010	784	319	
11	483	5350	e1900	e2400	e1400	e1200	6880	19800	5390	1810	692	311	
12	483	4800	e1600	e2200	e1300	e1200	6110	21400	4850	1720	689	295	
13	494	4480	e1300	e2000	e1400	e1100	5610	16700	4320	1630	694	335	
14	482	5240	e1200	e2200	e1400	1090	5410	13000	5840	1360	670	380	
15	467	5560	e1300	e2100	e1500	1230	5130	10700	9360	1250	681	359	
16	506	4720	e1500	e2000	e2200	2290	5120	9170	13000	1050	667	355	
17	484	4290	e1400	e1900	e2700	3090	5270	8220	14600	896	618	421	
18	493	4950	e1300	e1800	e1900	2830	5010	6900	12400	867	565	743	
19	467	4920	e1300	e1700	e1600	3150	4600	5850	9290	914	499	668	
20	449	5000	e1200	e1600	e1400	2810	4240	5040	7260	1120	489	851	
21	431	8540	e1300	e1500	e2000	2430	3870	4510	6080	1310	501	784	
22	601	9560	e1600	e1300	5880	2130	3580	4220	5810	1520	502	956	
23	867	7410	e1800	e1300	6990	1870	3270	3890	5380	1450	523	1260	
24	1360	6160	e1600	e1500	e4500	2180	2900	4320	6540	1170	552	1200	
25	3130	5470	e2000	e1500	e3300	6540	2740	4070	6810	940	511	1050	
26	3620	4890	e2500	e1400	e2500	7720	2550	3740	5330	844	452	1090	
27	2890	4470	e2600	e1400	e2200	6530	2380	3870	4220	765	478	951	
28	2250	4330	e2200	2080	e2000	6190	2200	3620	3580	815	438	788	
29	1950	4790	e2500	1940	---	7500	2040	3130	3190	848	368	687	
30	1920	4880	e3400	1800	---	10500	1950	2740	2680	1130	358	578	
31	1850	---	e2800	2050	---	17000	---	2580	---	1030	347	---	
TOTAL	30360	164770	69400	57470	66650	107180	207690	264280	171010	49079	20254	17370	
MEAN	979	5492	2239	1854	2380	3457	6923	8525	5700	1583	653	579	
MAX	3620	12100	4200	2600	6990	17000	21100	24400	14600	3910	1380	1260	
MIN	380	1560	1200	1300	1300	1090	1950	1950	2580	765	347	295	
CFSM	.44	2.46	1.00	.83	1.07	1.55	3.10	3.82	2.55	.71	.29	.26	
IN.	.51	2.75	1.16	.96	1.11	1.79	3.46	4.40	2.85	.82	.34	.29	
CAL YR	1988	TOTAL	967630	MEAN	2644	MAX	16400	MIN	208	CFSM	1.18	IN.	16.13
WTR YR	1989	TOTAL	1225513	MEAN	3358	MAX	24400	MIN	295	CFSM	1.50	IN.	20.43

e Estimated

SUSQUEHANNA RIVER BASIN

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01505000 CHENANGO RIVER AT SHERBURNE, NY

LOCATION.--Lat 42°40'43", long 75°30'39", Chenango County, Hydrologic Unit 02050102, on right bank 20 ft downstream from bridge on State Highway 80, 0.5 mi west of Sherburne, and 0.5 mi downstream from Handsome Brook.

DRAINAGE AREA.--263 mi².

PERIOD OF RECORD.--May 1938 to current year.

REVISED RECORDS.--WSP 851: 1938(M). WSP 1502: 1955. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,037.16 ft above National Geodetic Vertical Datum of 1929. July 22 to Dec. 9, 1953, nonrecording gage or reference point and Dec. 10, 1953 to Jan. 26, 1955, water-stage recorder at temporary site 1.5 mi downstream, at datum approximately 11.9 ft lower, during period of construction of highway bridge.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow from 82 mi² of drainage area formerly may have been diverted into Mohawk River basin through abandoned Chenango Canal; no diversion from this cause known during period of record. Telephone gage-height telemeter and satellite gage-height, temperature and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 397 ft³/s, 20.50 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft³/s, Mar. 6, 1979, gage height, 9.94 ft; maximum gage height, 9.99 ft, Dec. 30, 1942 (ice jam); minimum discharge, 12 ft³/s, Sept. 25, 1964; minimum gage height, 1.52 ft, Sept. 19, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 10.6 ft, from records of National Weather Service.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	1500	*2,710	*7.49	No peak greater than base discharge.			
Minimum discharge, 36 ft ³ /s, Oct. 1, 2, gage height, 1.71 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	117	403	e290	421	e220	2030	152	1460	254	62	57
2	38	173	377	e270	522	e200	1410	390	921	255	63	60
3	38	415	358	e260	e360	e190	1240	354	756	250	83	60
4	39	416	343	e195	e310	e190	1320	295	681	235	79	57
5	39	607	311	e190	e300	e250	1550	255	586	269	153	55
6	40	1720	305	e195	e290	e240	1440	650	628	233	137	54
7	40	1220	307	e200	e260	e230	1270	1500	558	171	122	53
8	40	878	295	e220	e220	e220	1060	1140	474	153	105	51
9	39	721	e240	e310	e210	e210	873	976	427	132	89	50
10	39	592	e210	e280	e210	e200	763	945	632	121	82	55
11	39	506	e180	e250	e210	e190	676	2410	462	138	77	55
12	41	440	e175	e230	e200	e160	622	2210	380	115	76	50
13	41	428	e180	e220	e190	e150	560	1720	512	104	76	48
14	45	459	e195	e190	e200	e210	508	1330	615	97	74	49
15	41	384	e200	e200	e260	e720	461	1050	869	91	72	72
16	40	348	e185	236	e235	712	442	865	1180	87	71	81
17	39	394	e180	199	e170	480	402	760	951	85	75	86
18	39	388	e170	184	e180	566	384	623	797	80	70	84
19	39	343	e165	178	e180	489	354	519	668	75	68	73
20	39	399	171	e175	e190	376	320	442	547	80	69	383
21	38	784	263	e150	e400	362	292	392	511	88	78	304
22	56	636	260	e160	e760	285	263	348	465	82	69	158
23	94	550	199	e165	e500	279	240	305	420	78	66	218
24	232	494	217	e150	e350	462	227	409	389	73	65	359
25	378	445	e300	e150	e300	900	207	405	448	69	62	211
26	261	410	e260	e155	e280	667	194	353	328	66	61	158
27	204	386	e260	e280	e250	643	183	321	283	64	59	130
28	168	518	e350	e220	e240	785	172	279	304	78	58	118
29	157	493	e380	226	---	968	152	247	301	73	58	114
30	137	432	e330	297	---	1550	160	260	255	65	59	105
31	125	---	e330	390	---	2190	---	323	---	63	58	---
TOTAL	2643	16096	8099	6815	8198	15294	19775	22228	17808	3824	2396	3408
MEAN	85.3	537	261	220	293	493	659	717	594	123	77.3	114
MAX	378	1720	403	390	760	2190	2030	2410	1460	269	153	383
MIN	38	117	165	150	170	150	152	152	255	63	58	48
CFSM	.32	2.04	.99	.84	1.11	1.88	2.51	2.73	2.26	.47	.29	.43
IN.	.37	2.28	1.15	.96	1.16	2.16	2.80	3.14	2.52	.54	.34	.48
CAL YR	1988	TOTAL	96277	MEAN	263	MAX	2640	MIN	25	CFSM	1.00	IN. 13.62
WTR YR	1989	TOTAL	126584	MEAN	347	MAX	2410	MIN	38	CFSM	1.32	IN. 17.90

e Estimated

SUSQUEHANNA RIVER BASIN
01509000 TIOUGHNIAGA RIVER AT CORTLAND, NY

LOCATION.--Lat 42°36'10", long 76°09'35", Cortland County, Hydrologic Unit 02050102, on right bank at east end of Elm Street at Cortland, 0.4 mi downstream from confluence of East and West Branches. Water-quality sampling site at Cortland Sewage Treatment Plant, 0.4 mi downstream from discharge station.

DRAINAGE AREA.--292 mi², including 14.0 mi², the flow from which may be diverted into De Ruyter Reservoir in Oswego River basin.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1938 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WRD NY 1974: 1973.

GAGE.--Water-stage recorder. Datum of gage is 1,084.92 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1939, water-stage recorder at datum 4.00 ft higher; Oct. 1, 1939 to Sept. 30, 1963, water-stage recorder at datum 3.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at low and medium flow caused by powerplants in mills on West Branch. Slight diversion from East Branch for operation of Erie (Barge) Canal. Slight diversion from Gate House Pond on West Branch 17 mi upstream from station into Onondaga Creek basin (St. Lawrence River basin) for manufacturing purposes by Linden Chlorine Process Co. Telephone and satellite gage-height telemeters at station.

AVERAGE DISCHARGE.--51 years (water years 1939-89), 492 ft³/s, 22.88 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s, Mar. 5, 1964, gage height, 12.49 ft; maximum gage height, 13.82 ft, Apr. 5, 1950; minimum discharge, 9.8 ft³/s, Sept. 20, 1939, Sept. 29, 1959; minimum daily, 17 ft³/s, Sept. 26, 27, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 31	1030	*3,410	*7.54	No peak greater than base discharge.			

Minimum discharge, 78 ft³/s, Sept. 12, 13, 14; minimum gage height, 2.82 ft, Oct. 2, 5, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	285	432	e360	484	e280	2570	268	1400	286	169	93
2	96	372	410	e350	660	e270	1690	509	1960	256	155	105
3	96	605	388	e330	479	e250	1640	519	1270	237	149	103
4	96	575	373	e270	e380	e250	1980	421	1430	222	156	92
5	95	831	349	e250	e360	e330	2050	377	1250	354	230	87
6	97	1880	339	e230	e350	e380	1820	614	1090	327	222	85
7	101	1790	338	e230	e340	e250	1500	1470	924	433	202	84
8	98	1050	326	e260	e320	e250	1250	1410	749	542	178	82
9	96	811	307	e340	e300	e240	1030	1190	654	357	154	80
10	97	683	e270	e280	e280	e240	905	1060	704	310	141	80
11	104	618	e260	e260	e260	e270	798	2350	601	315	132	81
12	110	537	e240	e250	e250	260	723	2940	498	267	132	80
13	108	492	e210	e240	e260	e220	666	1990	560	246	135	80
14	107	525	e210	e230	e260	e240	608	1420	629	235	129	80
15	104	471	e230	e260	e290	e640	570	1110	749	217	120	182
16	102	430	e220	295	e240	858	549	944	1080	205	117	214
17	102	440	e220	e260	e240	548	506	821	1210	202	123	229
18	117	440	e200	e250	e240	e680	479	701	1050	190	114	234
19	119	390	e200	e240	e230	693	454	610	815	176	111	188
20	124	434	217	e220	e220	510	422	541	653	210	113	1410
21	124	1030	282	e200	e400	496	391	513	644	276	166	1180
22	293	828	323	e210	e920	399	364	474	637	214	137	588
23	460	662	e240	e220	e580	388	345	421	625	195	118	634
24	740	590	e250	e210	e400	514	334	482	591	183	111	955
25	866	531	385	e200	e360	1010	318	477	499	168	105	598
26	567	492	e320	e240	e350	907	303	431	421	156	100	461
27	451	469	e290	355	e320	899	288	391	380	153	93	384
28	395	492	e380	310	e310	1200	277	356	418	248	91	334
29	364	510	553	291	---	1460	269	328	393	258	91	297
30	323	460	e430	358	---	1900	273	368	324	210	91	270
31	298	---	e390	456	---	3170	---	441	---	187	89	---
TOTAL	6946	19723	9582	8455	10083	20002	25372	25947	24208	7835	4174	9370
MEAN	224	657	309	273	360	645	846	837	807	253	135	312
MAX	866	1880	553	456	920	3170	2570	2940	1960	542	230	1410
MIN	95	285	200	200	220	220	269	268	324	153	89	80
CFSM	.77	2.25	1.06	.93	1.23	2.21	2.90	2.87	2.76	.87	.46	1.07
IN.	.88	2.51	1.22	1.08	1.28	2.55	3.23	3.31	3.08	1.00	.53	1.19
CAL YR	1988	TOTAL	135771	MEAN	371	MAX	4220	MIN	77	CFSM	1.27	IN. 17.30
WTR YR	1989	TOTAL	171697	MEAN	470	MAX	3170	MIN	80	CFSM	1.61	IN. 21.87

e Estimated

SUSQUEHANNA RIVER BASIN
01509000 TIOUGHNIOGA RIVER AT CORTLAND, NY--Continued

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957 to current year.

CHEMICAL DATA: 1957 (e), 1970, 1972 (a).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1956 to September 1957, once-daily measurements, unpublished.

pH: October 1956 to September 1957, once-daily measurements, unpublished.

WATER TEMPERATURES: October 1956 to current year.

REMARKS.--Daily water-temperature measurements made at 0900 hours. Measurements are reported to half degrees Celsius.

COOPERATION.--Water-temperature records furnished by the city of Cortland.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 23.5°C July 22, 1957; minimum daily (except water year 1960), 0.0°C on many days during winter periods in water years 1957, 1959, 1962, 1967-84, 1987-88.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum reported daily, 19.0°C Aug. 6; minimum daily, 0.0°C Feb. 5, 9, 24 and Mar. 7, 8.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
(ONCE DAILY AT 0900)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	5.5	4.0	2.0	4.0	2.0	3.0	10.5	15.5	15.5	17.0	14.5
2	15.0	5.0	4.0	3.0	4.0	1.5	3.0	10.0	16.0	16.0	17.0	15.0
3	14.0	5.0	4.5	2.0	.5	.5	3.0	7.5	16.0	16.5	17.0	12.5
4	13.0	5.0	4.0	.5	1.0	4.0	5.0	7.5	16.0	17.0	17.5	12.0
5	13.0	7.5	4.5	1.0	.0	4.5	6.5	---	14.5	18.5	18.0	12.5
6	11.0	9.0	4.5	1.0	1.5	1.0	6.5	---	14.0	---	19.0	13.0
7	10.5	8.0	4.5	---	2.0	.0	6.0	8.5	13.5	18.0	17.5	14.0
8	10.0	6.5	5.0	3.0	.5	.0	5.0	5.5	14.0	17.0	14.5	13.0
9	9.5	6.0	4.0	2.5	.0	2.0	4.5	5.5	15.0	16.5	15.5	14.0
10	9.0	6.0	3.0	1.0	.5	2.5	4.0	---	16.0	17.5	15.5	15.0
11	10.0	6.5	2.5	2.0	1.5	4.0	4.0	6.0	15.0	18.0	16.0	15.5
12	9.5	6.5	2.0	---	2.5	4.0	3.5	9.0	14.5	17.0	15.5	14.5
13	9.0	5.5	1.0	1.5	1.5	2.5	5.0	9.0	15.5	15.0	15.5	13.0
14	8.5	6.5	1.0	1.0	2.0	4.0	5.5	9.0	14.5	15.0	15.5	14.0
15	10.0	6.5	2.0	3.5	1.5	5.0	6.5	9.0	14.0	16.0	16.0	13.5
16	12.5	6.5	1.5	3.5	3.0	4.0	7.0	9.5	14.5	---	17.5	13.0
17	11.0	7.0	1.5	2.5	1.5	3.5	8.0	---	15.0	14.5	17.0	13.5
18	12.0	8.5	2.0	3.5	1.5	4.5	8.0	13.0	14.5	16.0	14.5	13.5
19	12.0	5.0	3.0	4.0	1.5	1.5	8.0	13.5	15.0	---	15.0	13.5
20	9.0	5.0	4.0	4.5	1.5	1.5	8.5	14.0	16.0	---	15.0	14.5
21	8.5	5.0	4.5	---	1.5	3.5	8.0	14.0	16.5	16.0	15.5	15.0
22	10.0	4.0	3.5	---	2.5	3.5	8.0	14.0	16.5	---	16.0	16.0
23	6.0	4.5	3.0	1.0	1.5	2.5	6.5	13.0	16.5	16.5	15.5	17.0
24	7.5	4.5	3.5	2.0	.0	2.5	6.5	13.0	16.5	17.0	15.0	12.0
25	6.5	4.5	3.0	3.0	2.0	2.5	8.0	---	17.0	17.0	14.0	11.5
26	7.0	5.0	2.0	3.0	2.0	3.0	8.5	12.5	17.0	17.5	12.5	12.5
27	6.5	7.0	2.0	3.0	2.5	4.5	8.0	---	17.0	17.5	13.0	12.0
28	6.5	6.5	4.5	2.0	2.0	6.0	7.5	12.0	17.5	---	13.5	11.5
29	6.5	5.5	4.0	3.5	---	6.5	10.0	12.5	16.0	16.0	15.0	11.0
30	7.0	4.5	3.5	5.0	---	6.0	9.5	14.0	16.0	16.5	16.0	12.0
31	6.0	---	3.5	3.5	---	4.5	---	14.5	---	17.0	14.0	---
MEAN	9.7	5.9	3.2	---	1.6	3.1	6.4	---	15.5	---	15.7	13.5
MAX	15.0	9.0	5.0	---	4.0	6.5	10.0	---	17.5	---	19.0	17.0
MIN	6.0	4.0	1.0	---	.0	.0	3.0	---	13.5	---	12.5	11.0

SUSQUEHANNA RIVER BASIN
01510000 OTSELIC RIVER AT CINCINNATUS, NY

LOCATION.--Lat 42°32'28", long 75°54'00", Cortland County, Hydrologic Unit 02050102, on right bank 150 ft upstream from Mead Brook, and 300 ft downstream from bridge on County Highway 159 at Cincinnatus.

DRAINAGE AREA.--147 mi².

PERIOD OF RECORD.--June 1938 to September 1964, October 1969 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,031.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Telephone and satellite gage-height telemeters and flood stage warning device at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--46 years (water years 1939-64, 1970-89), 264 ft³/s, 24.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,390 ft³/s, Dec. 30, 1942; maximum gage height, 10.68 ft, Apr. 4, 1950; minimum discharge, 3.8 ft³/s, Sept. 25, 1939; minimum gage height, 0.11 ft, Aug. 24, 28, 29, Sept. 25, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	1800	3040	6.15	June 1	1200	*3,060	*6.17
May 11	1545	2,850	5.93				

Minimum discharge, 7.3 ft³/s, Sept. 13, 14, gage height, 0.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	132	275	e220	358	e150	1490	110	1840	119	32	20
2	27	213	260	e200	445	e140	838	253	972	107	30	22
3	28	342	244	e180	308	e130	946	219	634	97	31	20
4	27	323	236	e150	e240	e130	1030	177	599	91	29	18
5	30	584	217	e140	e230	e150	1140	164	459	206	64	17
6	33	1710	209	e130	e210	e180	912	546	538	163	63	11
7	37	905	207	e130	e190	e150	766	1470	436	183	48	8.9
8	31	597	198	e140	e180	e130	623	840	345	174	43	8.6
9	28	492	181	e200	e170	e120	524	664	300	114	35	8.4
10	31	423	e160	e160	e160	e120	460	651	462	98	31	8.2
11	34	384	e150	165	e150	e110	404	2480	302	100	29	8.7
12	37	331	e140	e160	e140	e110	364	1770	230	85	28	8.2
13	39	357	e160	e150	e150	e100	335	964	319	78	29	7.5
14	37	389	145	e150	e150	164	307	688	363	71	28	16
15	35	318	147	e160	e160	655	277	557	556	66	26	35
16	33	286	144	e170	e150	560	264	470	865	61	25	43
17	33	325	e130	e140	e130	371	238	409	679	60	23	64
18	35	301	e125	e140	e120	538	225	338	519	55	22	49
19	37	262	e115	e130	e120	448	207	287	401	51	22	397
20	36	348	e120	e130	e120	333	189	250	319	60	23	595
21	35	703	172	e110	e180	316	176	226	318	70	44	220
22	207	493	179	e120	650	251	165	204	286	57	35	270
23	227	415	e130	e120	364	247	154	178	243	50	27	667
24	465	371	e150	e110	e240	432	147	230	258	45	24	344
25	409	334	e220	e100	e210	772	139	208	353	41	22	242
26	262	307	e200	e130	e190	636	130	179	217	38	20	193
27	198	292	e170	232	e170	664	122	166	183	36	19	162
28	180	358	e250	178	e160	900	116	150	178	48	19	140
29	185	343	e300	168	---	1040	111	129	163	49	19	123
30	155	295	e250	251	---	1820	114	162	135	39	19	108
31	141	---	e230	299	---	2190	---	197	---	34	17	---
TOTAL	3120	12933	5814	4963	6045	14057	12913	15336	13472	2546	926	3834.5
MEAN	101	431	188	160	216	453	430	495	449	82.1	29.9	128
MAX	465	1710	300	299	650	2190	1490	2480	1840	206	64	667
MIN	27	132	115	100	120	100	111	110	135	34	17	7.5
CFSM	.68	2.93	1.28	1.09	1.47	3.08	2.93	3.37	3.05	.56	.20	.87
IN.	.79	3.27	1.47	1.26	1.53	3.56	3.27	3.88	3.41	.64	.23	.97
CAL YR 1988	TOTAL	73195	MEAN	200	MAX	3290	MIN	16	CFSM	1.36	IN.	18.52
WTR YR 1989	TOTAL	95959.5	MEAN	263	MAX	2480	MIN	7.5	CFSM	1.79	IN.	24.28

e Estimated

SUSQUEHANNA RIVER BASIN
01512500 CHENANGO RIVER NEAR CHENANGO FORKS, NY

37

LOCATION.--Lat 42°13'05", long 75°50'55", Broome County, Hydrologic Unit 02050102, on left bank in Chenango Valley State Park, and 1.2 mi downstream from Tioughnioga River and village of Chenango Forks.

DRAINAGE AREA.--1,483 mi².

PERIOD OF RECORD.--November 1912 to current year.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 871.63 ft above National Geodetic Vertical Datum of 1929. Nov. 11, 1912 to Oct. 1, 1914, nonrecording gage and Oct. 2, 1914 to Aug. 2, 1936, water-stage recorder at site 300 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since March 1942, flood flows partly regulated by Whitney Point Lake (see station 01511000). Slight diversion from upstream tributaries for operation of Erie (Barge) Canal. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--76 years (water years 1914-89), 2,396 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,000 ft³/s, July 8, 1935, gage height, 20.3 ft, from floodmarks, from rating curve extended above 32,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 84 ft³/s, Sept. 19, 25, 1939, gage height, 2.24 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 31	0200	*15,000	*8.77	No peak greater than base discharge.			
Minimum discharge, 258 ft ³ /s Oct. 4-5, Sept. 7, gage height, 2.58 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	321	1150	2580	e1700	2150	e1300	12300	1090	3200	1180	459	281
2	310	1240	2580	e1500	2900	e1200	9970	1970	6630	1070	436	298
3	305	2110	2440	e1400	2640	e1100	9380	2580	4460	985	451	302
4	263	2430	2310	e1200	e1700	e1000	10300	2070	3650	899	443	294
5	261	2390	2180	e1000	e1500	e1100	10700	1820	3750	1310	585	277
6	273	6410	2060	e1050	e1450	e1700	10600	3720	3310	2250	822	270
7	441	7810	2000	1370	e1400	e1400	8690	8970	3330	1690	934	262
8	890	5530	1910	e1400	e1300	e1100	6770	9070	2770	3310	701	271
9	291	3670	1560	e1650	e1200	e1000	5280	8520	2370	1750	542	277
10	299	3190	1130	e1750	e1200	e1000	4630	7120	2980	1220	491	298
11	320	2830	e1100	e1400	e1200	1140	4130	12700	2860	1110	468	330
12	348	2530	e1050	e1300	e1200	1160	3610	13100	2050	1090	504	321
13	354	2450	e1000	e1200	e1150	995	2730	12600	2190	906	491	291
14	342	3070	e1200	e1500	e1100	940	2640	9820	3050	835	453	295
15	336	2660	e1000	1260	1280	2080	2400	8110	4490	757	422	380
16	331	2200	e1100	1250	e1500	4300	2340	5850	7890	684	367	596
17	329	2230	e1100	1200	e1400	3020	2170	4280	6710	663	349	749
18	328	2420	e1000	1140	e1200	2710	2020	3650	5280	638	342	761
19	336	2070	e1000	1060	e1100	3550	1900	2950	3970	608	334	689
20	338	2320	957	1020	e980	2490	1750	2600	3180	653	336	3040
21	333	4770	1050	e980	e2000	2060	1690	2310	2820	761	373	3640
22	856	4590	e1200	e920	e5000	1820	1650	2110	2840	750	456	1910
23	2180	3220	e1200	e1100	e4100	1640	1480	1920	2780	684	436	2110
24	3310	2890	e1100	1000	e2400	2170	1400	2070	2810	637	387	3280
25	4330	2640	e1700	e900	e1900	7030	1330	2240	3310	573	331	2420
26	3050	2410	1900	921	e1600	6410	1260	2030	2320	488	312	1660
27	2120	2210	e1300	1530	e1500	5020	1190	1900	1920	465	298	1450
28	1800	2480	1460	1560	e1400	5460	1130	1700	1660	506	289	1100
29	1630	2960	e2500	1360	---	7430	1030	1420	1640	663	290	960
30	1480	2610	e2100	1480	---	10100	1020	1230	1420	593	290	879
31	1310	---	e1800	2210	---	14300	---	1720	---	491	281	---
TOTAL	29415	91490	48567	40311	49450	97725	127490	143240	101640	30219	13673	29691
MEAN	949	3050	1567	1300	1766	3152	4250	4621	3388	975	441	990
MAX	4330	7810	2580	2210	5000	14300	12300	13100	7890	3310	934	3640
MIN	261	1150	957	900	980	940	1020	1090	1420	465	281	262
CAL YR	1988	TOTAL	636865	MEAN	1740	MAX	13600	MIN	199			
WTR YR	1989	TOTAL	802911	MEAN	2200	MAX	14300	MIN	261			

e Estimated

SUSQUEHANNA RIVER BASIN

01512850 CHENANGO RIVER AT BINGHAMTON, NY

LOCATION.--Lat 42°06'11", long 75°54'55", Broome County, Hydrologic Unit 02050102, at bridge on Clinton Street, at Binghamton, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--1,602 mi²

PERIOD OF RECORD.--October 1967, Water years 1988 to current year.

CHEMICAL DATA: 1967 (a), 1988-89 (b).

MINOR ELEMENT DATA: 1967 (a), 1988-89 (b).

COOPERATION.--Water-quality samples were collected by the New York State Department of Environmental Conservation, and samples were analyzed by the USGS Central Laboratory at Denver Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CaCO ₃)
OCT 06	1045	1320	372	--	8.1	12.0	772	6.7	--	140
APR 18	0900	5740	237	7.5	--	8.5	742	11.5	101	100
MAY 09	1100	10400	130	6.8	--	8.5	744	12.0	105	57
JUN 21	1100	--	224	7.3	--	19.0	749	7.5	83	93
AUG 07	1000	1920	275	7.4	--	23.0	737	6.3	76	110

DATE	CALCIUM, DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CaCO ₃)	SULFATE, DIS-SOLVED (MG/L AS SO ₄)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS Al)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)
OCT 06	43	9.0	17	1.6	121	20	28	<0.1	200	<1
APR 18	31	5.6	9.3	1.3	78	15	16	0.1	330	1
MAY 09	18	2.9	5.5	1.0	40	13	9.4	0.1	520	<1
JUN 21	29	4.9	7.8	1.1	77	13	12	0.1	470	<1
AUG 07	34	6.4	12	1.6	91	13	18	0.1	910	1

DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS Cu)	IRON, TOTAL RECOV-ERABLE (UG/L AS Fe)	LEAD, TOTAL RECOV-ERABLE (UG/L AS Pb)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS Mn)	MERCURY, TOTAL RECOV-ERABLE (UG/L AS Hg)	NICKEL TOTAL RECOV-ERABLE (UG/L AS Ni)	ZINC, TOTAL RECOV-ERABLE (UG/L AS Zn)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT 06	7	--	<5	50	<0.1	4	--	--	--
APR 18	9	540	<5	50	<0.1	<1	<10	17	263
MAY 09	17	1200	4	60	<0.1	3	50	29	814
JUN 21	7	880	3	60	<0.1	4	20	5	--
AUG 07	15	2000	4	70	<0.1	6	10	--	--

SUSQUEHANNA RIVER BASIN
01513110 SUSQUEHANNA RIVER AT JOHNSON CITY, NY

LOCATION.--Lat 42°06'37", long 75°58'30", Broome County, Hydrologic Unit 02050103, at intake of the New York State Electric and Gas Corp., Goudy Station, at Johnson City, 100 ft upstream from Little Choconut Creek, 0.5 mi downstream from C.F.J. Memorial Bridge, 3.5 mi downstream from Chenango River and 4.8 mi upstream from discontinued discharge station (01513500) at Vestal.

DRAINAGE AREA.--3,891 mi.

PERIOD OF RECORD.--Water years 1956 to current year. Prior to October 1960, published as 01513500, "at Johnson City", and prior to October 1967, published as 01513500, "at Vestal"; however, all water-temperature records were collected at present site.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1955 to current year.

REMARKS.--Daily water-temperature measurements made at 0800 hours. Measurements are reported to whole degrees Celsius. During winter periods water is at times recirculated from inside the plant through the intake to prevent icing conditions, thus resulting in reported water temperatures that are slightly above actual river temperatures.

COOPERATION.--Water temperature records furnished by the New York State Electric and Gas Corp.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 29.0°C Aug. 4, 1979, July 21, 1980, July 13, 1987; minimum daily, 0.0°C on many days during winter periods, except 1967, 1976, 1978-80 and 1982-83.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum daily, 26.0°C July 23-28 and Aug. 5-6; minimum daily, 0.0°C on Jan. 1, Feb. 22-Mar. 1.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

(ONCE DAILY AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	4.0	4.0	.0	2.0	.0	3.0	16.0	18.0	20.0	22.0	22.0
2	18.0	6.0	4.0	1.0	3.0	1.0	3.0	14.0	19.0	21.0	22.0	20.0
3	17.0	6.0	3.0	1.0	2.0	1.0	4.0	12.0	18.0	22.0	22.0	18.0
4	16.0	6.0	3.0	1.0	1.0	2.0	4.0	10.0	19.0	23.0	24.0	18.0
5	14.0	7.0	2.0	1.0	1.0	2.0	6.0	12.0	17.0	22.0	26.0	18.0
6	13.0	8.0	2.0	1.0	1.0	2.0	6.0	10.0	17.0	21.0	26.0	19.0
7	12.0	8.0	3.0	1.0	1.0	1.0	6.0	9.0	16.0	22.0	23.0	20.0
8	12.0	7.0	3.0	1.0	1.0	1.0	5.0	7.0	16.0	21.0	19.0	21.0
9	11.0	7.0	2.0	1.0	1.0	3.0	6.0	8.0	16.0	21.0	19.0	22.0
10	11.0	6.0	2.0	1.0	1.0	1.0	4.0	9.0	17.0	22.0	20.0	23.0
11	11.0	7.0	1.0	1.0	1.0	2.0	3.0	9.0	17.0	22.0	21.0	23.0
12	8.0	6.0	1.0	1.0	1.0	3.0	4.0	8.0	17.0	22.0	21.0	21.0
13	8.0	6.0	1.0	1.0	1.0	1.0	5.0	9.0	18.0	20.0	21.0	20.0
14	7.0	6.0	1.0	1.0	1.0	2.0	6.0	9.0	17.0	21.0	22.0	21.0
15	9.0	6.0	1.0	1.0	1.0	6.0	8.0	9.0	15.0	20.0	22.0	19.0
16	11.0	6.0	1.0	1.0	1.0	6.0	8.0	11.0	14.0	21.0	23.0	18.0
17	12.0	8.0	1.0	1.0	1.0	4.0	8.0	12.0	15.0	20.0	23.0	17.0
18	12.0	7.0	1.0	1.0	1.0	5.0	11.0	14.0	16.0	21.0	22.0	17.0
19	11.0	6.0	1.0	1.0	1.0	3.0	11.0	16.0	17.0	23.0	22.0	17.0
20	10.0	6.0	1.0	1.0	1.0	2.0	12.0	17.0	18.0	24.0	21.0	17.0
21	9.0	6.0	1.0	1.0	1.0	2.0	12.0	17.0	18.0	21.0	22.0	17.0
22	8.0	4.0	1.0	1.0	.0	2.0	12.0	17.0	19.0	21.0	22.0	18.0
23	7.0	4.0	1.0	1.0	.0	2.0	11.0	17.0	19.0	22.0	24.0	19.0
24	7.0	3.0	1.0	1.0	.0	4.0	10.0	16.0	21.0	23.0	22.0	14.0
25	7.0	3.0	1.0	1.0	.0	2.0	11.0	14.0	20.0	24.0	21.0	13.0
26	7.0	3.0	1.0	1.0	.0	2.0	12.0	15.0	21.0	26.0	22.0	14.0
27	5.0	4.0	1.0	1.0	.0	4.0	14.0	16.0	21.0	26.0	21.0	13.0
28	6.0	6.0	1.0	1.0	.0	6.0	13.0	14.0	22.0	26.0	21.0	12.0
29	6.0	6.0	1.0	1.0	---	8.0	15.0	14.0	21.0	23.0	22.0	12.0
30	5.0	4.0	1.0	1.0	---	7.0	14.0	17.0	19.0	23.0	21.0	13.0
31	5.0	---	2.0	2.0	---	4.0	---	17.0	---	22.0	21.0	---
MEAN	10.1	5.7	1.6	1.0	.9	2.9	8.2	12.7	17.9	22.1	21.9	17.9
MAX	18.0	8.0	4.0	2.0	3.0	8.0	15.0	17.0	22.0	26.0	26.0	23.0
MIN	5.0	3.0	1.0	.0	.0	.0	3.0	7.0	14.0	20.0	19.0	12.0
WTR YR	1989	TOTAL	3763.0	MEAN	10.3	MAX	26.0	MIN	.0			

SUSQUEHANNA RIVER BASIN
01514937 SUSQUEHANNA RIVER AT SMITHBORO, NY

LOCATION.--Lat 42°01'41", long 76°23'07", Tioga County, Hydrologic Unit 02050103, at bridge on State Highway 282, 1.2 mi west of Nichols and 1.2 mi east of Smithboro.

DRAINAGE AREA.--4,725 mi²

PERIOD OF RECORD.--May 1972-74, Water years 1988 to current year.

CHEMICAL DATA: 1972-74 (a), 1988-89 (b).

MINOR ELEMENT DATA: 1972-74 (a), 1988-89 (b).

SEDIMENT DATA: 1988-89 (a).

COOPERATION.--Water-quality samples were collected by the New York State Department of Environmental Conservation, and samples were analyzed by the USGS Central Laboratory at Denver Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CaCO ₃)	CALCIUM, DIS- SOLVED (MG/L AS Ca)
OCT 04	1030	1600	321	7.69	15.0	765	7.4	73	120	37
APR 18	1100	10600	197	6.50	7.5	742	11.5	98	76	24
MAY 10	1000	45800	110	6.20	9.5	741	11.4	103	47	15
JUN 20	1000	--	159	7.20	18.5	747	7.9	86	59	19
AUG 08	0900	2900	283	7.50	21.5	741	6.1	71	110	33

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CaCO ₃)	SULFATE, DIS- SOLVED (MG/L AS SO ₄)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 04	6.3	14	1.9	98	23	24	0.1	90	<1
APR 18	3.8	7.9	1.3	55	14	13	0.1	380	1
MAY 10	2.4	5.4	1.1	31	15	9.0	0.1	720	<1
JUN 20	2.9	5.5	1.1	48	11	8.2	0.1	940	<1
AUG 08	5.8	13	1.7	87	15	21	0.1	470	1

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY, TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL TOTAL RECOV- ERABLE (UG/L AS NI)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 04	8	220	<5	40	<0.1	3	20	--	--
APR 18	7	780	<5	50	<0.1	4	<10	21	601
MAY 10	15	1500	7	70	<0.1	3	40	44	5440
JUN 20	12	1800	10	80	--	5	30	66	--
AUG 08	28	910	5	60	<0.1	4	40	5	39

SUSQUEHANNA RIVER BASIN
01515000 SUSQUEHANNA RIVER NEAR WAVERLY, NY

41

LOCATION.--Lat 41°59'05", long 76°30'05", Bradford County, Pa., Hydrologic Unit 02050103, on left bank 0.2 mi upstream from Cayuta Creek, 0.4 mi upstream from bridge on East Lockhart Street at Sayre, Pa., 1 mi downstream from New York-Pennsylvania State line, and 2 mi southeast of Waverly.

DRAINAGE AREA.--4,773 mi².

PERIOD OF RECORD.--February 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 743.96 ft above National Geodetic Vertical Datum of 1929 (levels by U. S. Army Corps of Engineers). Prior to November 1939, at datum 1.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Minor regulation by upstream lakes and reservoirs. Slight diversion from upstream tributaries for operation of Erie (Barge) Canal. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--52 years (water years 1938-89), 7,513 ft³/s, 21.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s, June 23, 1972, gage height, 21.24 ft; minimum daily, 237 ft³/s, Sept. 22, 1964; minimum gage height, 0.52 ft, Sept. 24, 25, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of about 21.4 ft, from flood profile (discharge, 128,000 ft³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 52,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 12	0100	*52,000	*13.02	No peak greater than base discharge.			
Minimum discharge, 680 ft ³ /s, Sept. 9-11, gage height, 0.93 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	943	3830	8460	e5200	5430	e4200	43600	3780	5470	5090	1990	796	
2	896	3470	7870	e5040	6040	e3700	36200	5470	8290	4400	1760	796	
3	929	3710	7480	e4960	7000	e3600	28100	9340	10700	3980	1600	796	
4	856	5360	7040	e4430	e6300	e3400	26400	10300	9310	3670	1530	793	
5	829	6730	6510	e2830	e4900	e3350	27200	8660	8860	4240	1570	765	
6	845	9350	6220	e2400	e4200	e3900	30000	12700	8320	5770	1890	743	
7	837	17400	5850	e2300	e4000	e4000	27600	39500	8150	6530	2690	733	
8	901	21000	5630	e3040	e3800	e3900	23400	38000	8120	8160	3220	706	
9	1540	15900	5420	e4430	e3400	e3450	19200	30500	7810	7860	2730	683	
10	1150	12000	4820	e5040	e3100	e3100	16400	25800	7310	5240	2080	680	
11	978	10200	4160	e4960	e3050	e3000	14400	44800	8810	4260	1740	683	
12	945	9090	e3300	e4300	e3000	e2900	12800	47700	9230	3800	1590	715	
13	931	8300	e2740	e4030	e3000	e2900	11300	38600	7960	3650	1560	723	
14	968	8980	e2300	e3970	e3000	e2700	10400	30400	8540	3250	1550	716	
15	968	9710	e2250	e4050	e3100	e2600	9810	24500	14100	2870	1490	843	
16	940	9120	e2460	e4000	e4100	e5200	9330	24000	21500	2640	1440	892	
17	935	7890	e2830	e3800	e4600	7970	9250	18700	27500	2340	1370	1020	
18	937	8040	e2670	e3700	e4300	7100	9090	15500	23700	2120	1250	1310	
19	940	8570	e2720	e3570	e3600	8260	8530	12700	18100	2010	1180	1570	
20	927	8440	e2700	e3400	e3200	7870	7880	10800	14100	2000	1140	3220	
21	903	13100	2910	e3000	e3700	6470	7240	9430	12200	2460	1100	6040	
22	1080	16800	3190	e2670	e10000	5660	6720	8570	11200	2700	1070	5200	
23	2670	14400	3560	e2430	e14000	5080	6280	7880	10800	3320	1090	4070	
24	4800	11700	3660	e2330	e10000	5510	5750	8160	12000	2770	1130	6010	
25	7610	10300	4330	e2700	e6700	16100	5350	8520	16300	2370	1140	5920	
26	8900	9250	5110	e2900	e5600	20100	5060	7860	12100	2030	1100	4430	
27	7240	8440	5250	e3000	e5000	17200	4730	7420	9070	1780	1010	3580	
28	5740	7980	4740	3860	e4500	15300	4440	7080	7540	1760	946	3110	
29	4840	8630	5070	4270	---	17800	4150	6420	6620	1780	934	2540	
30	4320	9140	e6400	4070	---	25300	3920	5600	5920	1800	880	2220	
31	4120	---	e5700	4560	---	39300	---	5180	---	2070	808	---	
TOTAL	71418	296830	143350	115240	142620	260920	434530	533870	339630	108720	46578	62303	
MEAN	2304	9894	4624	3717	5094	8417	14480	17220	11320	3507	1503	2077	
MAX	8900	21000	8460	5200	14000	39300	43600	47700	27500	8160	3220	6040	
MIN	829	3470	2250	2300	3000	2600	3920	3780	5470	1760	808	680	
CFSM	.48	2.07	.97	.78	1.07	1.76	3.03	3.61	2.37	.73	.31	.44	
IN.	.56	2.31	1.12	.90	1.11	2.03	3.39	4.16	2.65	.85	.36	.49	
CAL YR	1988	TOTAL	2062891	MEAN	5636	MAX	36700	MIN	540	CFSM	1.18	IN.	16.08
WTR YR	1989	TOTAL	2556009	MEAN	7003	MAX	47700	MIN	680	CFSM	1.47	IN.	19.92
e Estimated													

SUSQUEHANNA RIVER BASIN
01520500 TIOGA RIVER AT LINDLEY, NY

LOCATION.--Lat 42°01'43", long 77°07'57", Steuben County, Hydrologic Unit 02050104, on left bank just downstream from bridge on County Highway 120 at Lindley, and 6 mi upstream from Canisteo River.

DRAINAGE AREA.--771 mi².

PERIOD OF RECORD.--January 1930 to current year.

REVISED RECORDS.--WSP 871: 1938. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 964.50 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 9, 1937, nonrecording gage on bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since March 1979, flood flows regulated by detention in upstream reservoirs. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--59 years, 796 ft³/s, 14.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 128,000 ft³/s, June 23, 1972, gage height, 26.27 ft, from floodmark in gage house, from rating curve extended above 31,000 ft³/s on basis of velocity-area and slope-area studies at gage height 19.2 ft and conveyance study and slope-area measurements at gage heights 22.87 ft and 26.27 ft; minimum, 6.1 ft³/s, Sept. 1, 1939; minimum gage height, 2.68 ft, Aug. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	0130	*10,000	*11.75	No peak greater than base discharge.			
Minimum discharge, 57 ft ³ /s Oct. 15, 16-18, gage height, 2.93 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	72	101	166	e180	193	302	5030	286	621	530	152	68	
2	70	94	154	e210	198	272	2800	1090	1080	463	132	69	
3	70	92	152	e220	e210	232	2450	1550	1280	485	132	68	
4	70	97	152	e180	e160	245	2460	876	2210	453	138	68	
5	67	103	128	e160	e150	531	3260	650	1740	893	165	68	
6	62	144	119	e150	e145	1100	2570	1450	2400	835	191	68	
7	61	250	115	e160	e140	e370	2030	4990	1740	582	127	68	
8	61	220	114	e180	e130	e240	1770	3680	1320	512	116	68	
9	62	159	113	e180	e120	253	1450	2740	1080	461	103	68	
10	64	117	117	e210	e110	268	1210	4820	1200	304	93	68	
11	63	115	e110	227	e100	270	1060	7970	1010	236	99	66	
12	67	116	e94	205	e92	278	806	9550	653	167	78	66	
13	67	117	e86	187	e100	244	614	7230	1310	147	88	66	
14	61	130	e88	e170	120	191	720	4560	1860	143	84	67	
15	59	186	e92	e160	132	225	797	3630	8420	163	88	71	
16	57	191	e90	160	230	271	713	8410	9020	147	96	76	
17	57	220	e88	150	e260	264	582	7020	8600	147	226	73	
18	58	219	e86	150	e190	315	585	3450	5280	144	80	69	
19	59	217	e98	149	163	408	670	2570	2040	143	80	68	
20	59	247	e110	146	170	281	667	1800	3440	814	75	74	
21	59	393	133	e120	519	266	356	1430	3530	561	73	70	
22	74	544	133	e110	1110	324	306	1320	3430	375	71	70	
23	90	406	139	e110	e620	231	286	1020	6310	239	70	95	
24	153	324	143	e125	e330	696	359	2160	5880	260	70	192	
25	120	274	147	127	e230	3820	376	1530	4690	206	68	189	
26	92	167	142	126	295	2540	365	924	2990	165	68	200	
27	84	155	143	163	342	2050	334	954	1630	307	68	145	
28	82	183	204	202	297	1890	324	991	1080	288	69	104	
29	86	186	250	168	---	2650	248	734	1010	187	70	100	
30	87	182	e270	167	---	5690	259	644	748	171	68	99	
31	89	---	e210	169	---	7040	---	626	---	168	68	---	
TOTAL	2282	5949	4186	5121	6856	33757	35457	90655	87602	10696	3106	2641	
MEAN	73.6	198	135	165	245	1089	1182	2924	2920	345	100	88.0	
MAX	153	544	270	227	1110	7040	5030	9550	9020	893	226	200	
MIN	57	92	86	110	92	191	248	286	621	143	68	66	
CFSM	.10	.26	.18	.21	.32	1.41	1.53	3.79	3.79	.45	.13	.11	
IN.	.11	.29	.20	.25	.33	1.63	1.71	4.37	4.23	.52	.15	.13	
CAL YR	1988	TOTAL	165376	MEAN	452	MAX	8290	MIN	50	CFSM	.59	IN.	7.98
WTR YR	1989	TOTAL	288308	MEAN	790	MAX	9550	MIN	57	CFSM	1.02	IN.	13.91

e Estimated

01521500 CANISTEO RIVER AT ARKPORT, NY

LOCATION.--Lat 42°23'45", long 77°42'42", Steuben County, Hydrologic Unit 02050104, on left bank 0.2 mi downstream from Arkport Dam, and 0.9 mi west of Arkport.

DRAINAGE AREA.--30.6 mi².

PERIOD OF RECORD.--January 1937 to current year.

REVISED RECORDS.--WSP 1552: 1952-57. WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,202.85 ft above National Geodetic Vertical Datum of 1929.

REMARKS.—Records good except those for estimated daily discharges, which are poor. Since November 1939, flows above 500 ft³/s controlled by detention in Arkport Reservoir (see station 01521000). Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--52 years, 34.9 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,000 ft³/s, Mar. 5, 1938, Feb. 20, 1939; maximum gage height, 5.63 ft, Feb. 19, 1939 (ice jam); practically no flow July 30, 1938, Sept. 30, 1939 (result of construction operations).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 8, 1935, reached a discharge of 4,820 ft³/s. on basis of slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 696 ft³/s, June 21 at 0600 hours, gage height, 3.11 ft; minimum discharge, 0.96 ft³/s, Aug. 10, gage height, 0.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	1.7	8.8	e12	e15.0	e13	177	11	26	8.9	2.2	1.9
2	1.6	2.2	8.7	e10	e14	e12	102	107	32	7.3	2.6	3.0
3	1.7	2.7	7.4	e9.0	e13	e12	130	52	23	7.0	2.7	3.0
4	1.4	3.6	6.6	e7.0	e11	e12	115	32	49	6.1	4.0	2.3
5	1.4	11	6.3	e7.4	e10	e17	102	25	30	8.8	12	1.9
6	1.4	40	6.0	e7.2	e9.3	e30	72	24	29	15	6.8	1.9
7	1.2	19	5.4	e7.4	e8.8	e19	53	70	21	9.1	6.1	1.8
8	1.2	14	5.3	e8.0	e8.7	e16	42	101	13	14	4.4	1.5
9	1.3	13	3.6	e10	e8.8	e14	36	133	14	9.1	3.5	1.5
10	1.7	13	4.2	e10	e8.6	e15	33	294	48	6.2	2.3	1.5
11	7.8	11	4.4	e9.6	e8.5	e14	28	488	25	5.0	1.9	1.5
12	5.8	9.7	e5.4	e9.2	e8.0	e14	25	219	14	4.2	1.9	1.5
13	2.9	8.4	e5.8	e8.5	e8.6	e14	25	86	68	4.0	1.9	1.5
14	-2.0	9.2	e6.3	e7.8	e10	e13	26	60	109	3.6	3.1	4.8
15	1.7	8.6	e6.0	e7.0	e11	e16	23	59	214	3.2	2.9	38
16	1.5	7.3	e5.4	e7.2	e13	e28	22	158	152	3.0	2.3	24
17	1.3	7.1	e4.8	e7.0	e15	e25	19	69	244	2.9	1.8	37
18	1.7	7.1	e4.4	e6.8	e13	e38	23	48	78	2.6	1.5	22
19	2.1	7.0	e4.2	e6.6	e10	e42	21	36	44	8.5	3.1	13
20	2.4	12	e4.4	e6.4	e9.0	e20	18	28	340	26	4.6	9.2
21	2.0	43	e6.2	e6.0	e19	e18	16	26	572	15	3.7	7.1
22	4.2	29	e8.8	e7.0	e32	e19	14	21	333	12	3.6	6.0
23	9.3	20	e12	e8.8	e23	e16	13	29	69	21	3.0	29
24	9.3	15	e12	e9.0	e17	e43	12	57	45	11	2.6	19
25	5.4	11	e14	e7.8	e14	121	12	34	31	7.4	2.3	11
26	3.4	10	e13	e8.6	e14	97	12	28	24	5.2	1.9	8.3
27	2.7	9.4	e10	e12	e13	75	11	24	19	4.0	1.9	6.3
28	2.5	8.8	e14	e16	e12	114	10	18	19	3.2	1.6	5.0
29	2.7	8.8	e18	e13	---	268	9.4	14	15	2.8	1.7	4.2
30	2.4	8.8	e16	e13	---	360	9.4	14	12	2.4	1.9	3.7
31	2.0	---	e14	e15	---	462	---	16	---	2.3	1.8	---
TOTAL	89.8	371.4	251.4	280.3	357.3	1977	1210.8	2381	2712	240.8	97.6	272.4
MEAN	2.90	12.4	8.11	9.04	12.8	63.8	40.4	76.8	90.4	7.77	3.15	9.08
MAX	9.3	43	18	16	32	462	177	488	572	26	12	38
MIN	1.2	1.7	3.6	6.0	8.0	12	9.4	11	12	2.3	1.5	1.5
CAL YR	1988	TOTAL	7633.55	MEAN	20.9	MAX	373	MIN	.72			
WTR YR	1989	TOTAL	10241.8	MEAN	28.1	MAX	572	MIN	1.2			

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,720 ft³/s, June 23 at 1130 hours, gage height, 3.40 ft; minimum daily, 5.6 ft³/s, Oct. 4.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.3	e13	32	e24	68	e16	475	25	38	17	13	29
2	e9.2	e12	28	e17	74	e11	271	191	48	11	13	31
3	e6.8	e13	25	e15	e39	e12	274	184	42	13	19	31
4	e5.6	e12	24	e21	e14	e14	266	96	103	18	16	20
5	e6.1	e14	23	e19	e13	e82	268	66	49	18	28	12
6	e8.3	e42	e13	e15	e17	e130	162	54	47	25	47	9.8
7	e9.0	e36	e13	e15	e20	e27	97	132	61	27	40	7.7
8	e9.6	e46	e14	e12	e16	e19	83	282	46	27	22	11
9	e12	e29	e12	e24	e11	e16	55	303	30	28	17	14
10	e11	e16	e10	e27	e12	e18	56	495	94	26	17	14
11	e14	e18	e8.7	e18	e13	26	69	850	48	21	15	12
12	e20	e18	e7.8	e13	e13	31	55	831	45	13	13	13
13	e21	e18	e6.9	e12	e12	31	52	438	140	13	13	13
14	13	e16	e5.7	e10	e11	31	54	91	169	12	12	15
15	11	e14	e5.8	e11	e12	75	49	90	448	10	12	32
16	9.1	e12	e6.4	e12	e14	127	46	352	454	9.2	12	42
17	13	e13	e7.0	e12	e13	90	45	339	428	12	13	44
18	14	e13	e6.2	e13	e11	273	46	123	174	14	13	43
19	10	e13	e5.9	e13	e11	230	47	88	80	13	7.1	38
20	9.2	e23	e11	e13	e11	39	43	68	232	80	21	28
21	e11	e68	e46	e8.9	e121	21	35	58	191	35	33	19
22	e14	e77	e58	e8.4	e180	31	29	56	907	15	26	15
23	e16	e54	e32	e7.1	e70	40	29	46	1180	42	22	22
24	e17	38	e26	e7.3	e30	173	29	113	683	43	16	34
25	e19	33	e71	e8.4	e22	263	23	93	273	26	13	42
26	e15	31	e49	e21	e22	209	16	62	145	19	11	29
27	e13	31	e44	e200	e23	140	15	63	65	18	8.6	17
28	e13	24	e83	36	e23	201	16	57	66	15	13	12
29	e12	20	e140	32	---	469	16	39	54	11	16	9.8
30	e15	27	e90	47	---	784	24	32	32	10	21	9.6
31	e13	---	e54	64	---	877	---	36	---	11	28	---
TOTAL	377.2	794	958.4	756.1	896	4506	2745	5753	6372	652.2	570.7	668.9
MEAN	12.2	26.5	30.9	24.4	32.0	145	91.5	186	212	21.0	18.4	22.3
MAX	21	77	140	200	180	877	475	850	1180	80	47	44
MIN	5.6	12	5.7	7.1	11	11	15	25	30	9.2	7.1	7.7
CAL YR	1988	TOTAL	15702.6	MEAN	42.9	MAX	618	MIN	2.1			
WTR YR	1989	TOTAL	25049.5	MEAN	68.6	MAX	1180	MIN	5.6			

01524500 CANISTEO RIVER BELOW CANACADEA CREEK, AT HORNELL, NY

LOCATION.—Lat 42°18'50", long 77°39'05", Steuben County, Hydrologic Unit 02050104, on right bank 235 ft upstream from Erie Railroad bridge in Hornell, 0.3 mi upstream from Crosby Creek, and 1.5 mi downstream from Canacadea Creek.

DRAINAGE AREA.--158 mi².

PERIOD OF RECORD.--August 1942 to current year.

REVISÉD RECORD--WDR NY-86-3: 1971 (including minimum daily).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.131.32 ft above National Geodetic Vertical Datum of 1929.

REMARKS.—Records fair. Diversion from Carrington Creek, a tributary upstream from station, by City of Hornell for municipal supply and effluent from wastewater treatment plant which enters river downstream from gage. Since Nov. 1939, flood flows regulated by Arkport Reservoir (see station 01521000), and, since October 1948, by Almond Lake (see station 01523000); normal regulation occasionally sufficient to affect figures of monthly runoff. Satellite and gage-height telemeters at station. Several measurements of water temperature were made during the year.

COOPERATION.--Records of diversion from Carrington Creek furnished by City of Hornell.

AVERAGE DISCHARGE.—47 years, 157 ft³/s, 13.49 in./yr.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 9,560 ft³/s, June 23, 1972, gage height, 13.45 ft, from floodmark, from rating curve extended above 7,600 ft³/s on basis of critical-depth measurement of peak flow; minimum, 7.4 ft³/s, Sept. 13, 14, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,410 ft³/s, June 20 at 2030 hours, gage height, 6.30 ft; minimum, 14 ft³/s, Oct. 4, 5, gage height, 0.33 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	32	61	e70	e131	e59	e864	76	95	91	39	41
2	22	32	56	e51	e131	e47	e529	532	108	72	41	51
3	18	32	50	e45	e97	e48	e572	390	96	67	48	46
4	15	33	46	e55	e56	e51	e548	244	222	69	57	38
5	16	47	43	e51	e49	e126	e520	182	137	114	107	32
6	20	120	39	e43	e53	e213	e367	167	131	114	97	31
7	21	93	37	e42	e56	e94	e252	379	131	94	87	28
8	22	99	38	e37	e51	e68	e210	625	98	85	58	30
9	27	77	33	e60	e42	e60	e163	705	88	78	48	31
10	27	50	30	e67	e42	e64	e154	1160	261	64	43	31
11	39	52	e26	e55	e44	e77	e159	1790	134	59	39	31
12	50	50	e24	e46	e43	e82	e141	1480	102	45	37	31
13	42	49	e22	e43	e43	e83	e135	848	358	39	36	30
14	31	48	e19	e38	e42	e82	e137	402	444	39	36	50
15	28	41	e19	e38	e46	e128	e126	376	1060	33	37	145
16	27	36	e20	e40	e52	e212	e120	894	1080	43	35	81
17	29	38	e21	e40	e53	e180	e114	660	1080	34	34	125
18	33	37	e19	e41	e46	e328	e123	389	530	34	34	98
19	28	37	e18	e40	e42	e354	e122	298	257	51	38	70
20	28	61	29	e40	e40	e123	e110	238	2140	382	52	51
21	28	166	86	e33	e152	e80	e94	208	2420	186	63	40
22	39	176	115	e33	e266	e96	82	179	1860	110	54	37
23	47	127	80	e33	e155	e102	81	166	1510	162	45	73
24	48	77	69	e33	e92	e264	76	333	953	127	39	85
25	45	65	145	e34	e72	e513	71	256	542	79	35	82
26	36	80	116	e52	e72	e431	59	193	333	61	33	64
27	32	62	101	e169	e71	e333	54	177	217	56	30	44
28	32	54	171	e102	e68	e441	52	145	207	51	31	38
29	34	50	266	e82	---	e925	49	101	171	43	34	36
30	33	56	195	e100	---	e1280	59	88	122	39	36	35
31	32	---	e130	e122	---	e1520	---	89	---	39	39	---
TOTAL	948	1977	2124	1735	2107	8464	6143	13770	16887	2560	1442	1605
MEAN	30.6	65.9	68.5	56.0	75.2	273	205	444	563	82.6	46.5	53.5
MAX	50	176	266	169	266	1520	864	1790	2420	382	107	145
MIN	15	32	18	33	40	47	49	76	88	33	30	28
CAL YR	1988	TOTAL	36150	MEAN	98.8	MAX	1130	MIN	15			
WTR YR	1989	TOTAL	59762	MEAN	164	MAX	2420	MIN	15			

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 17,000 ft³/s and maximum (*):

Minimum discharge, 90 ft³/s, Oct. 7, gage height, 0.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	115	174	304	477	503	531	10400	472	961	937	275	134	
2	113	169	296	460	551	463	5400	2520	1310	790	242	139	
3	112	159	287	453	523	432	4360	3130	1700	773	237	142	
4	112	170	276	338	377	428	4790	1890	2570	715	248	137	
5	109	179	244	e330	e330	779	5680	1320	2450	1140	323	132	
6	101	322	234	e300	e310	2100	4760	1800	2600	1230	456	120	
7	96	523	224	e310	e290	883	3430	5800	2370	844	318	114	
8	102	446	215	369	e270	608	2890	6110	1750	854	279	111	
9	109	374	210	433	e260	506	2370	4660	1370	717	233	108	
10	113	291	200	563	e240	503	1970	7180	1770	552	210	110	
11	122	257	e200	531	e230	492	1730	18300	1650	445	207	113	
12	133	251	e200	442	e200	521	1470	15600	1080	367	182	111	
13	164	249	e220	382	e230	464	1140	10700	1670	312	173	109	
14	156	257	e230	366	e250	392	1240	6790	2470	293	164	112	
15	135	318	e190	310	e270	548	1290	5190	10300	298	166	165	
16	125	318	e180	304	433	1060	1200	11700	13000	275	167	347	
17	117	333	e190	279	585	797	1000	10600	11200	269	317	330	
18	117	334	e200	271	420	828	994	5590	7750	270	154	362	
19	128	325	e210	273	323	1720	1030	4030	3240	256	153	271	
20	134	359	e230	270	321	866	1130	2860	6160	1150	146	232	
21	130	562	e250	e240	790	678	721	2260	16700	1370	164	200	
22	162	907	297	e230	2590	716	641	2030	6720	776	172	181	
23	200	714	351	e220	1440	574	564	1600	10200	735	169	207	
24	309	574	340	237	798	953	619	2940	8160	641	152	419	
25	288	493	387	226	559	5620	626	2480	6690	494	148	386	
26	235	346	473	233	615	4280	619	1600	4280	374	136	370	
27	197	322	374	395	633	3260	567	1530	2510	437	130	299	
28	174	335	436	640	541	3130	549	1500	1770	474	127	212	
29	171	331	737	407	---	4790	472	1180	1690	348	127	196	
30	167	320	714	388	---	9060	468	1010	1280	310	130	185	
31	164	---	558	443	---	12900	---	976	---	294	129	---	
TOTAL	4610	10712	9457	11120	14882	60882	64120	145348	137371	18740	6234	6054	
MEAN	149	357	305	359	531	1964	2137	4689	4579	605	201	202	
MAX	309	907	737	640	2590	12900	10400	18300	16700	1370	456	419	
MIN	96	159	180	220	200	392	468	472	961	256	127	108	
CFSM	.11	.26	.22	.26	.39	1.43	1.55	3.40	3.33	.44	.15	.15	
IN.	.12	.29	.26	.30	.40	1.64	1.73	3.93	3.71	.51	.17	.16	
CAL YR	1988	TOTAL	300284	MEAN	820	MAX	12800	MIN	92	CFSM	.60	IN.	8.11
WTR YR	1989	TOTAL	489530	MEAN	1341	MAX	18300	MIN	96	CFSM	.97	IN.	13.22
e Estimated													

SUSQUEHANNA RIVER BASIN
01528000 FIVEMILE CREEK NEAR KANONA, NY

LOCATION.--Lat 42°23'18", long 77°21'29", Steuben County, Hydrologic Unit 02050105, on left bank just downstream from town of Wheeler highway bridge, 1.3 mi upstream from mouth and Kanona.

DRAINAGE AREA.--66.8 mi².

PERIOD OF RECORD.--February 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,170.30 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1973, at datum 1.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--52 years, 75.1 ft³/s, 15.27 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft³/s, June 23, 1972, gage height, 6.95 ft present datum; maximum gage height, 7.10 ft, present datum, Mar. 31, 1940 (ice jam); minimum discharge, 0.04 ft³/s, Sept. 27, 29, 1941; minimum gage height, 0.42 ft, Sept. 7, 8, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 880 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	2230	*1,200	*4.56	June 21	0400	*1,200	*4.56

Minimum discharge, 2.0 ft³/s Oct. 9, gage height, 0.83 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	3.0	8.5	15	e32	e30	e27	650	23	60	39	11.0	7.1	
2	2.9	7.2	15	e30	e33	e25	335	199	65	30	10	7.3	
3	2.9	6.2	15	e28	e28	e20	335	178	59	26	10	6.8	
4	2.9	6.6	13	e24	e22	e30	412	98	64	25	12	6.5	
5	3.2	8.5	13	e26	e21	e90	372	74	65	75	35	6.6	
6	3.0	16	12	e24	e20	e140	271	67	53	45	22	5.7	
7	2.5	17	12	e22	e20	e100	185	98	52	29	23	6.1	
8	2.4	15	12	e24	e20	e80	145	236	40	23	19	5.7	
9	2.5	18	e12	e27	e20	e65	116	229	34	20	15	6.2	
10	2.8	17	e11	e26	e23	e60	99	299	135	18	13	5.8	
11	3.6	19	e11	e23	e17	e58	84	955	89	15	12	5.7	
12	4.2	16	e10	e22	e18	e50	76	1050	51	14	11	5.5	
13	3.6	14	e10	e18	e17	e38	72	467	114	12	11	5.1	
14	3.5	13	e11	e19	e17	e40	65	220	151	12	10	7.6	
15	3.4	13	e10	e18	e18	e100	58	207	351	11	9.7	58	
16	3.4	12	e11	e16	e19	e120	56	494	405	13	9.6	46	
17	3.2	12	e11	e15	e18	e80	52	420	253	12	8.3	88	
18	3.4	12	e12	e13	e17	e110	49	212	159	9.9	7.5	62	
19	3.7	11	e12	e12	e17	e130	49	142	91	21	7.5	32	
20	4.1	12	e13	e11	e18	e70	41	104	367	174	8.2	24	
21	3.9	46	e18	e11	e25	e60	37	95	1030	67	8.5	21	
22	6.3	50	e20	e13	e50	e52	34	77	562	42	12	16	
23	7.7	34	e18	e15	e60	49	31	69	239	46	11	58	
24	8.5	26	e17	e16	e50	101	28	100	171	30	8.9	56	
25	9.2	22	e19	e15	e41	360	27	87	102	22	7.7	35	
26	8.1	21	e20	e17	e37	288	27	77	81	17	6.9	25	
27	7.2	18	e19	e26	e32	206	24	75	68	15	6.1	19	
28	6.6	18	e21	e25	e27	222	22	61	64	13	6.3	15	
29	6.2	17	e28	e22	---	319	22	48	58	13	7.2	14	
30	5.8	16	e35	e21	---	503	22	46	44	11	7.2	11	
31	7.3	---	e34	e27	---	755	---	60	---	11	6.9	---	
TOTAL	141.0	522.0	490	638	735	4348	3796	6567	5077	910.9	353.5	667.7	
MEAN	4.55	17.4	15.8	20.6	26.2	140	127	212	169	29.4	11.4	22.3	
MAX	9.2	50	35	32	60	755	650	1050	1030	174	35	88	
MIN	2.4	6.2	10	11	17	20	22	23	34	9.9	6.1	5.1	
CFSM	.07	.26	.24	.31	.39	2.10	1.89	3.17	2.53	.44	.17	.33	
IN.	.08	.29	.27	.36	.41	2.42	2.11	3.66	2.83	.51	.20	.37	
CAL YR	1988	TOTAL	14162.6	MEAN	38.7	MAX	622	MIN	1.5	CFSM	.58	IN.	7.89
WTR YR	1989	TOTAL	24246.1	MEAN	66.4	MAX	1050	MIN	2.4	CFSM	.99	IN.	13.50

e Estimated

SUSQUEHANNA RIVER BASIN

01528700 DIVERSION FROM WANETA LAKE TO KEUKA LAKE
AT KEUKA, NY

LOCATION.--Lat 42°29'06", long 77°06'39", Steuben County,
Hydrologic Unit 02050105, at entrance to conduit on Diversion Canal,
0.8 mi east of Keuka, and 1.0 mi north of Wayne.

DRAINAGE AREA.--45.5 mi².

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Daily power generation records.

REMARKS.--Records for March 1931 (when diversion and power
generation began) to September 1966 on file. Sketch indicates
diversion from Lamoka-Waneta Lakes (Susquehanna River Basin) to
Keuka Lake (Oswego River Basin).

COOPERATION.--Records furnished by New York State Electric and
Gas Corp.

AVERAGE DISCHARGE.--23 years, 19.6 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge,
73 ft³/s, June 23, 1972; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 69
ft³/s, May 12; no flow many days.

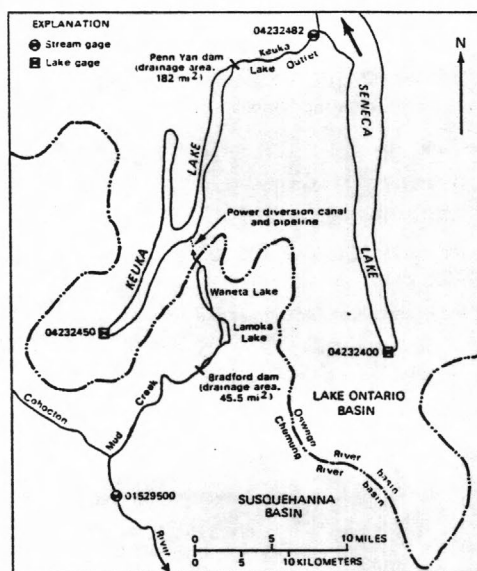


Figure 5.--Gaging stations and transbasin diversion,
Cohocton River-Keuka Lake area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	63	.00	24	59	.00	.00
2	.00	.00	.00	.00	.00	.00	63	28	.00	59	.00	.00
3	.00	.00	.00	.00	.00	.00	63	65	.00	19	.00	.00
4	.00	.00	.00	.00	.00	.00	63	62	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	63	62	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	63	62	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	63	62	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	63	63	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	63	63	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	63	63	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	63	63	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	65	69	26	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	65	63	62	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	42	63	59	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	65	59	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	63	59	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	63	59	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	65	59	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	63	59	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	63	59	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	63	59	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	63	59	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	63	38	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	29	63	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	63	63	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	63	63	.00	.00	.00	.00
27	3.0	.00	.00	.00	.00	33	30	63	29	.00	.00	.00
28	.00	.00	.00	.00	.00	63	.00	63	59	.00	.00	.00
29	.00	.00	.00	.00	---	63	.00	63	59	.00	.00	.00
30	.00	.00	.00	.00	---	63	.00	51	59	.00	.00	.00
31	.00	---	.00	.00	---	63	---	63	---	.00	.00	---
TOTAL	3.00	0.00	0.00	0.00	0.00	285.00	1050.00	1851.00	887.00	137.00	0.00	0.00
MEAN	.097	.00	.00	.00	.00	9.19	35.0	59.7	29.6	4.42	.00	.00
MAX	3.0	.00	.00	.00	.00	63	65	69	62	59	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CAL YR	1988	TOTAL	3038.80	MEAN	8.30	MAX	72	MIN	.00			
WTR YR	1989	TOTAL	4213.00	MEAN	11.5	MAX	69	MIN	.00			

SUSQUEHANNA RIVER BASIN
01529500 COHOCTON RIVER NEAR CAMPBELL, NY

49

LOCATION.--Lat 42°15'09", long 77°13'01", Steuben County, Hydrologic Unit 02050105, on left bank just downstream from bridge on town road at junction with County Highway 125, 1.9 mi upstream from Michigan Creek, and 2 mi north of Campbell.

DRAINAGE AREA.--470 mi²

PERIOD OF RECORD.--July 1918 to current year.

REVISED RECORDS.--WSP 891: 1935. WSP 1302: 1919-20(M), 1927-28(M), 1928-38 (monthly runoff). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,016.34 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 5, 1937, nonrecording gage on highway bridge.

REMARKS.--Records good except those for periods of estimated daily discharges, which are fair. During each year since March 1931, a large part of flow from 45.5 mi² of drainage area upstream from Lake Lamoka on Mud Creek, a tributary upstream from this station, is diverted into Keuka Lake (Oswego River basin), for power development. For table of diversion, see station 01528700. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--71 years, 446 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,100 ft³/s, July 8, 1935, gage height, 11.6 ft, from floodmark, from rating curve extended above 24,200 ft³/s on basis of velocity-area and slope-area measurements of peak flow; minimum, 8 ft³/s, Sept. 6, 7, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	2000	5,170	5.24	June 21	0530	*6,990	*6.16

Minimum daily discharge, 30 ft³/s, Oct. 7; minimum recorded gage height, 0.06 ft, Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e32	76	119	173	179	e170	3040	211	386	383	112	60
2	e32	71	113	157	214	e160	2050	1390	389	339	110	68
3	e32	65	108	e110	e140	e140	1910	961	369	299	109	70
4	e32	66	e100	e100	e120	e130	1980	612	420	286	106	61
5	e31	77	e96	e110	e115	e350	2090	503	388	444	203	54
6	e31	178	98	e110	e110	e620	1650	488	374	392	171	50
7	e30	168	96	e120	e105	e420	1320	732	351	293	180	49
8	e33	138	93	e130	e100	e320	1090	1180	300	249	143	46
9	37	136	e70	e140	e100	e290	913	1070	269	224	121	45
10	47	135	e68	e130	e110	e270	782	1800	648	203	108	45
11	54	127	e68	e120	e100	e250	643	4690	461	188	98	49
12	79	118	e70	e110	e96	e220	562	4260	350	170	92	47
13	66	115	e74	e100	e82	e170	523	2710	524	165	90	46
14	54	108	e80	e100	e98	e200	490	1970	596	159	87	51
15	50	101	e76	e96	e105	440	448	1740	1240	147	82	306
16	47	95	e74	e94	e98	583	426	2930	1580	143	82	269
17	43	93	e74	e90	e96	423	394	2260	1300	144	78	392
18	43	90	e72	e85	e96	574	392	1720	981	132	73	335
19	45	85	e72	e78	e90	623	375	1340	730	125	72	236
20	50	100	e78	e72	e84	432	338	982	2070	659	84	199
21	48	262	109	e66	140	397	305	783	5590	415	95	173
22	72	273	131	e70	555	331	278	641	2940	295	109	153
23	135	217	e100	e74	e410	300	260	574	2100	347	101	285
24	130	183	e95	e80	e310	477	244	734	1690	250	82	293
25	118	160	146	e86	e260	1340	235	589	1110	195	72	232
26	99	152	149	e92	e220	1190	236	526	843	166	66	199
27	106	143	128	172	e200	944	222	488	663	147	64	170
28	98	137	141	170	e190	992	210	439	585	141	60	153
29	91	133	240	144	---	1400	198	369	519	140	62	142
30	84	126	227	141	---	2380	202	355	442	126	69	129
31	80	---	216	166	---	3250	---	389	---	116	64	---
TOTAL	1929	3928	3381	3486	4523	19786	23806	39436	30208	7482	3045	4407
MEAN	62.2	131	109	112	162	638	794	1272	1007	241	98.2	147
MAX	135	273	240	173	555	3250	3040	4690	5590	659	203	392
MIN	30	65	68	66	82	130	198	211	269	116	60	45
CAL YR	1988	TOTAL	91897	MEAN	251	MAX	2350	MIN	26			
WTR YR	1989	TOTAL	145417	MEAN	398	MAX	5590	MIN	30			

e Estimated

SUSQUEHANNA RIVER BASIN
01529950 CHEMUNG RIVER AT CORNING, NY

LOCATION.--Lat 42°08'47", long 77°03'28", Steuben County, Hydrologic Unit 02050105, on right bank adjacent to Corning Glass Works power plant, 0.2 mi upstream from bridge on State Highway 414 (Centerway St.) at Corning, and 1.7 mi downstream from Cohocton River.

DRAINAGE AREA.--2,006 mi².

PERIOD OF RECORD.--Occasional discharge measurements water years 1941, 1968-69. October 1974 to current year.

REVISED RECORDS.--WRD NY-78-1: 1976, 1977(M). WDR NY-83-3: 1982(M).

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. High flows significantly regulated by upstream reservoirs. During each year a large part of flow from 45.5 mi² of drainage area is diverted upstream from Lake Lamoka on Mud Creek, an upstream tributary, into Keuka Lake (Oswego River basin) for power development. For table of diversion, see station 01528700. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 2,065 ft³/s, 13.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 127,000 ft³/s, Sept. 26, 1975, gage height, 32.46 ft; minimum, 102 ft³/s, Oct. 3, 1980, gage height, 14.22 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1972, reached a stage of 40.71 ft, from floodmark; discharge 228,000 ft³/s, from peak flows determined at upstream and downstream stations adjusted for drainage area and channel storage.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 24,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	0700	28,900	22.69	June 21	0700	*29,900	*23.06

Minimum discharge, 166 ft³/s, Oct. 6-7, gage height, 14.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	186	239	492	e620	581	e620	14900	777	1430	1430	434	220	
2	184	230	481	e560	637	e570	8260	4110	1670	1200	391	227	
3	176	223	461	e530	624	e540	6970	4810	2150	1130	379	232	
4	175	233	438	e450	e480	e520	7430	2920	2970	1060	382	231	
5	174	266	403	e330	e400	e610	8370	2130	3060	1570	490	216	
6	170	388	404	e320	e390	e770	7030	2440	2960	1750	658	209	
7	166	629	385	e310	e390	e700	5360	6940	2910	1210	535	205	
8	170	594	371	e360	e360	e630	4410	8190	2140	1140	478	203	
9	175	489	358	e510	e330	e610	3710	6510	1700	985	391	195	
10	180	406	e320	e690	e320	e620	3080	9130	2320	820	333	195	
11	188	348	e300	e650	e300	e600	2630	26100	2190	690	322	195	
12	195	333	e280	e580	e290	e580	2270	22700	1490	610	298	195	
13	215	318	e240	e490	e290	e560	1950	15300	2000	546	279	199	
14	216	304	e220	e440	e290	e540	1940	9840	3090	514	276	201	
15	211	351	e210	e410	e300	e530	1910	7530	11400	497	276	377	
16	200	372	e240	e380	e440	e1360	1840	16500	14900	487	276	672	
17	194	370	e230	e360	e490	1360	1640	14800	12500	476	415	661	
18	191	372	e230	e330	e520	1390	1600	8520	9060	459	266	738	
19	190	372	e250	e320	e420	2550	1590	6240	4410	435	251	570	
20	192	375	e260	e310	e380	1440	1610	4520	8450	1570	251	501	
21	197	617	e290	e280	e690	1200	1200	3440	23900	1880	268	439	
22	223	1170	e310	e280	e2660	1140	1100	2990	10900	1110	282	387	
23	266	945	e360	e260	2000	986	977	2380	12800	1100	289	445	
24	378	777	e390	e240	e1200	1420	988	4060	10700	934	262	723	
25	367	671	e460	e260	e800	8000	974	3460	8200	745	248	675	
26	309	578	e500	e270	e820	6470	954	2320	5550	593	231	610	
27	267	555	e530	e290	e780	5040	913	2150	3500	601	219	537	
28	255	553	e480	e510	e700	4910	863	2070	2540	650	216	435	
29	243	531	e610	595	---	6860	791	1680	2350	540	216	380	
30	239	518	e860	557	---	12900	773	1440	1820	487	216	355	
31	239	---	e700	557	---	17500	---	1440	---	459	216	---	
TOTAL	6731	14127	12063	13049	17882	83526	98033	207437	175060	27678	10044	11428	
MEAN	217	471	389	421	639	2694	3268	6692	5835	893	324	381	
MAX	378	1170	860	690	2660	17500	14900	26100	23900	1880	658	738	
MIN	166	223	210	240	290	520	773	777	1430	435	216	195	
CFSM	.11	.23	.19	.21	.32	1.34	1.63	3.34	2.91	.45	.16	.19	
IN.	.12	.26	.22	.24	.33	1.55	1.82	3.85	3.25	.51	.19	.21	
CAL YR	1988	TOTAL	404223	MEAN	1104	MAX	16100	MIN	131	CFSM	.55	IN.	7.50
WTR YR	1989	TOTAL	677058	MEAN	1855	MAX	26100	MIN	166	CFSM	.92	IN.	12.56

e Estimated

SUSQUEHANNA RIVER BASIN
01530500 NEWTOWN CREEK AT ELMIRA, NY

51

LOCATION.--Lat 42°06'16", long 76°47'54", Chemung County, Hydrologic Unit 02050105, on left bank 200 ft downstream from bridge on Linden Place in Elmira, and 1.5 mi upstream from mouth.

DRAINAGE AREA.--77.5 mi².

PERIOD OF RECORD.--May 1938 to current year.

REVISED RECORDS.--WSP 1502: 1956. WSP 2103: Drainage area. WRD NY 1974: 1973.

GAGE.--Water-stage recorder. Datum of gage is 838.35 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at low flow caused by numerous industrial operations upstream. Since August 1989, high flows regulated by detention in upstream reservoir. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 85.7 ft³/s, 15.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 4,000 ft³/s, June 23, 1972 (backwater from Chemung River); maximum gage height, 19.28 ft, June 23, 1972, from floodmarks (backwater from Chemung River); minimum daily discharge, 1.7 ft³/s, Sept. 16, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	1630	1,330	10.60	May 11	0645	*1,550	*11.27

Minimum daily discharge, 3.5 ft³/s, Oct. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	9.6	6.8	25	24	24	e24	405	26	47	37	16	8.5	
2	8.4	7.0	23	27	29	e23	249	111	45	36	15	9.0	
3	9.4	9.8	22	24	22	e26	275	83	47	33	15	7.1	
4	9.5	11	20	e16	15	29	260	61	205	32	13	6.9	
5	9.6	21	19	e15	e14	108	454	53	96	47	13	7.8	
6	9.1	222	18	e15	e13	88	271	106	157	44	12	8.3	
7	9.1	99	18	e16	e13	48	194	318	104	34	12	8.6	
8	6.3	62	17	35	e12	37	148	279	80	30	11	8.1	
9	6.1	47	15	58	e12	e30	121	202	71	28	11	8.6	
10	6.2	39	e13	e25	e12	e28	103	402	73	25	11	8.4	
11	6.1	34	e12	e22	e12	e26	85	1260	58	23	11	11	
12	5.5	30	e10	e20	e11	e25	75	566	49	22	11	11	
13	8.1	28	e9.0	21	e11	24	70	270	75	22	12	11	
14	5.0	31	e8.6	14	13	27	71	174	76	20	11	12	
15	3.7	26	e8.8	19	19	43	62	155	196	19	10	15	
16	3.9	23	e9.0	18	43	55	57	679	298	19	10	15	
17	4.1	22	e9.2	16	e23	43	52	321	715	19	10	14	
18	3.5	21	e9.4	16	e20	81	58	196	263	18	10	12	
19	5.8	20	e9.6	17	e18	73	56	138	145	18	11	12	
20	7.1	38	e10	16	e17	51	49	95	105	18	11	30	
21	7.5	104	16	e12	163	51	44	78	397	18	10	17	
22	15	56	18	e11	177	47	41	66	182	17	9.3	12	
23	30	42	15	e10	92	46	38	61	141	18	9.2	28	
24	89	36	18	e11	50	236	35	203	119	16	8.6	43	
25	53	32	47	12	e40	520	33	103	84	15	8.8	24	
26	24	29	32	13	e35	281	33	80	67	15	8.6	16	
27	16	27	26	14	e30	198	30	71	56	17	8.3	15	
28	12	29	29	14	e25	207	27	60	50	17	7.8	14	
29	9.3	33	49	16	---	310	26	51	44	17	8.9	13	
30	8.0	27	32	18	---	709	26	49	39	15	8.6	12	
31	7.2	---	25	22	---	641	---	49	---	15	8.2	---	
TOTAL	407.1	1212.6	592.6	587	965	4135	3448	6366	4084	724	332.3	418.3	
MEAN	13.1	40.4	19.1	18.9	34.5	133	115	205	136	23.4	10.7	13.9	
MAX	89	222	49	58	177	709	454	1260	715	47	16	43	
MIN	3.5	6.8	8.6	10	11	23	26	26	39	15	7.8	6.9	
CFSM	.17	.52	.25	.24	.44	1.72	1.48	2.65	1.76	.30	.14	.18	
IN.	.20	.58	.28	.28	.46	1.98	1.66	3.06	1.96	.35	.16	.20	
CAL YR	1988	TOTAL	15998.8	MEAN	43.7	MAX	350	MIN	3.5	CFSM	.56	IN.	7.68
WTR YR	1989	TOTAL	23271.9	MEAN	63.8	MAX	1260	MIN	3.5	CFSM	.82	IN.	11.17

e Estimated

SUSQUEHANNA RIVER BASIN
01531000 CHEMUNG RIVER AT CHEMUNG, NY

LOCATION.--Lat 42°00'08", long 76°38'06", Chemung County, Hydrologic Unit 02050105, on right bank 100 ft upstream from bridge on State Highway 427, 0.7 mi southwest of Chemung, and 10.0 mi upstream from mouth.

DRAINAGE AREA.--2,506 mi².

PERIOD OF RECORD.--September 1903 to current year (gage heights only for some winter periods).

REVISED RECORDS.--WSP 891: 1935-39. WSP 1432: 1904, 1907, 1915. WSP 2103: Drainage area. WRD NY 1974: 1973.

GAGE.--Water-stage recorder. Datum of gage is 778.63 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Jan. 10, 1930, nonrecording gage on highway bridge 60 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. High flows significantly regulated by upstream reservoirs. During each year a large part of flow from 45.5 mi² of drainage area is diverted upstream from Lake Lamoka on Mud Creek, an upstream tributary, into Keuka Lake (Oswego River basin) for power development. For table of diversion, see station 01528700. Telephone and satellite gage-height telemeter at station.

AVERAGE DISCHARGE.--83 years (water years 1906-13, 1915-89), 2,526 ft³/s, 13.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s, June 23, 1972, gage height, 31.62 ft, from floodmark, from rating curve extended above 65,000 ft³/s, on basis of slope-area and velocity-area studies at gage height 19.57 ft, and slope-area and contracted opening measurements at gage heights 23.97 and 31.62 ft; minimum, 49 ft³/s, Aug. 14, 1911, gage height, 1.47 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	1500	*37,900	*14.63	June 21	1700	32,200	13.47
Minimum discharge, 184 ft ³ /s, Sept. 11, 13, gage height, 2.99 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	236	331	617	e840	722	e820	20900	923	2110	2440	558	242	
2	237	334	582	e740	823	e750	11400	2930	2240	2070	529	251	
3	231	328	564	e700	e880	e720	8300	6000	2750	e1500	490	250	
4	227	321	537	e600	e650	e680	9090	4040	3510	e1360	469	251	
5	223	353	512	e450	e540	e800	10200	2850	4540	e1930	505	246	
6	211	978	468	e430	e520	e1000	10000	3070	3790	e2180	661	234	
7	204	1010	464	e410	e510	e940	6990	7770	4470	e1740	719	224	
8	202	1000	440	e480	e480	e900	5980	10300	3200	e1700	600	214	
9	201	825	423	e660	e440	e820	5000	8180	2590	e1390	530	207	
10	214	719	403	e900	e420	e800	4250	8990	2640	e1080	462	200	
11	226	623	371	e860	e400	e780	3600	31900	3140	e850	415	191	
12	237	552	e370	e780	e390	e760	3110	29000	2380	853	401	198	
13	239	531	e320	e660	e390	e740	2580	20600	2280	750	371	195	
14	274	554	e300	e580	e380	e720	2490	12500	4000	685	349	208	
15	274	536	e280	e540	e400	e700	2430	9010	10600	640	348	232	
16	259	559	e320	e500	e580	e1700	2340	19300	18900	625	340	457	
17	241	558	e310	e470	e640	1790	2070	20100	19400	592	332	684	
18	226	558	e300	e440	e700	1600	1960	11900	13800	577	429	750	
19	220	548	e330	e430	e580	2890	1950	7800	7150	550	325	720	
20	217	599	e350	e410	e510	2190	2020	6100	5150	560	327	773	
21	225	1000	e380	e380	e880	1630	1660	4880	26400	2610	307	589	
22	297	1370	e410	e370	e3200	1460	1380	4140	15600	1490	319	481	
23	347	1350	479	e350	e3000	1330	1240	3530	13800	1250	330	537	
24	479	1150	529	e320	e1700	1960	1180	4940	13700	1240	326	786	
25	708	974	620	e340	e1100	9280	1190	5150	10600	1050	298	874	
26	574	847	672	e360	e1050	8570	1170	3720	7460	852	282	740	
27	469	704	704	e380	e1000	6540	1120	3150	5420	718	265	668	
28	413	677	654	e660	e920	5950	1040	2910	4070	777	253	561	
29	383	667	805	746	---	7310	991	2570	3690	748	251	458	
30	354	653	1120	610	---	12800	912	2190	3170	636	251	420	
31	344	---	e940	617	---	23500	---	2120	---	583	246	---	
TOTAL	9192	21209	15574	17013	23805	102430	128543	262563	222550	36026	12288	12841	
MEAN	297	707	502	549	850	3304	4285	8470	7418	1162	396	428	
MAX	708	1370	1120	900	3200	23500	20900	31900	26400	2610	719	874	
MIN	201	321	280	320	380	680	912	923	2110	550	246	191	
CFSM	.12	.28	.20	.22	.34	1.32	1.71	3.38	2.96	.46	.16	.17	
IN.	.14	.31	.23	.25	.35	1.52	1.91	3.90	3.30	.53	.18	.19	
CAL YR	1988	TOTAL	553199	MEAN	1511	MAX	22700	MIN	201	CFSM	.60	IN.	8.21
WTR YR	1989	TOTAL	864034	MEAN	2367	MAX	31900	MIN	191	CFSM	.94	IN.	12.83

e Estimated

SUSQUEHANNA RIVER BASIN
01531000 CHEMUNG RIVER AT CHEMUNG, NY--Continued

53

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 1953-54, July 1962, March 1970-78, Water years 1988 to current year.
CHEMICAL DATA: 1953-54 (a), 1962 (a), 1970-71 (a), 1972 (b), 1974 (b), 1975-77 (d), 1988-89 (b).
MINOR ELEMENT DATA: 1953-54 (a), 1972 (b), 1973 (a), 1974 (b), 1975-77 (d), 1988-89 (b).
PESTICIDE DATA: 1972 (a).
ORGANIC DATA: 1972 (a), 1974 (a), 1975-77 (d).
NUTRIENT DATA: 1953-54 (a), 1970-71 (a), 1972 (b), 1974 (a), 1975-77 (d).
BIOLOGICAL DATA:
 Bacterial--1974 (a), 1975-77 (d).
 Phytoplankton--1974 (a), 1975 (d), 1976-77 (c).
SEDIMENT: 1972 (a), 1975 (b), 1976 (a), 1988-89 (a).

COOPERATION.--Water samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 05	1130	228	8.60	17.5	--	9.0	180	52	13
APR 26	1200	1160	9.16	13.5	746	10.9	110	33	7.6
JUN 26	1115	7260	7.68	23.0	746	7.8	76	23	4.6
JUL 24	1100	1220	7.96	25.5	770	7.5	120	37	7.7

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 05	27	3.2	125	43	46	0.1	330	<1	6
APR 26	14	1.9	77	29	24	0.2	90	1	8
JUN 26	6.8	1.2	56	18	10	0.1	1900	<1	7
JUL 24	14	2.5	94	25	25	0.1	240	<1	8

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT 05	350	<5	70	--	3	<10	11	6.8
APR 26	170	<5	40	<0.1	6	20	4	13
JUN 26	3800	5	200	<0.1	10	30	89	1740
JUL 24	450	2	50	<0.1	3	10	11	36

SUSQUEHANNA RIVER BASIN
LAKES AND RESERVOIRS IN SUSQUEHANNA RIVER BASIN

01499500 EAST SIDNEY LAKE.--Lat 42°19'40", long 75°13'42", Delaware County, Hydrologic Unit 02050101, at East Sidney Dam, on Ouleout Creek, 0.3 mi upstream from bridge on County Highway 44 at East Sidney, 4.0 mi upstream from mouth, and 4.5 mi east of Unadilla. DRAINAGE AREA, 103 mi². PERIOD OF RECORD, November 1949 to September 1952 (monthend elevations and contents), October 1952 to September 1985 (mean daily elevations and monthend contents), October 1986 to current year (monthend elevations and contents). Prior to October 1970, published as "East Sidney Reservoir at East Sidney". REVISED RECORDS, WSP 2103: Drainage area. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1979, at datum 0.05 ft lower.

REMARKS.--Lake is formed by concrete dam and rockfill dike, completed by Corps of Engineers in June 1950; regulation of outflow began in November 1949; first used for flood regulation on Mar. 28, 1950. Useable capacity, 33,550 acre-ft between elevations 1,115.0 ft (sill of conduits) and 1,203.0 ft (crest of spillway). Dead storage 56 acre-ft. Discharge is controlled by the operation of five gates. Water is stored during high flows and released when downstream conditions warrant. Lake is used for flood control and recreation. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 25,100 acre-ft, Apr. 6, 1960, elevation 1,194.4 ft; minimum 56 acre-ft, Aug. 31, 1953, Sept. 7-26, Nov. 4, 1964, elevation, 1,115.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,040 acre-ft, May 12, elevation, 1,175.22 ft; minimum, 1,367 acre-ft, Mar. 25, elevation, 1,137.78 ft.

01511000 WHITNEY POINT LAKE.--Lat 42°20'34", long 75°57'57", Broome County, Hydrologic Unit 02050102, on left bank at control-gate structure for Whitney Point Dam on Otselic River, 0.3 mi upstream from spillway, 0.9 mi upstream from mouth, and 1.0 mi north of Whitney Point. DRAINAGE AREA, 257 mi². PERIOD OF RECORD, October 1942 to September 1985 (mean daily elevations and monthend contents), October 1985 to current year (monthend elevations and contents). REVISED RECORDS, WSP 2103: Drainage area. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to October 1970, published as "Whitney Point Reservoir at Whitney Point".

REMARKS.--Lake is formed by earthfill dam with concrete spillway, completed by Corps of Engineers in 1942 for flood control; first used for flood regulation on Mar. 9, 1942. Useable capacity 86,440 acre-ft between elevations 950.0 ft (sill of gates) and 1,010.0 ft (crest of spillway). Dead storage, 28 acre-ft. Figures given herein represent total contents. Discharge is controlled by operation of three gates. Water is stored during high flows and released when downstream conditions warrant. Lake is used for flood control and recreation. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,440 acre-ft, Mar. 23, 1948, elevation 1,005.0 ft; minimum, 36 acre-ft, Sept. 2-4, 1953, elevation, 950.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 25,640 acre-ft, May 12, elevation, 982.20 ft; minimum, 5,120 acre-ft, Mar. 17, elevation, 965.90 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in cfs)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in cfs)
<u>01499500 East Sidney Lake</u>				<u>01511000 Whitney Point Lake</u>		
Sept. 30.....	1,150.50	3,386	--	973.10	12,812	--
Oct. 31.....	1,150.69	3,427	+ 0.7	973.10	12,812	0.0
Nov. 30.....	1,150.30	3,344	- 1.4	973.02	12,710	- 1.7
Dec. 31.....	1,140.67	1,717	- 26.5	966.31	5,520	- 117
CAL YR 1988.....	--	--	0.0	--	--	+ 0.3
Jan. 31.....	1,140.97	1,756	+ 0.6	966.32	5,530	+ 0.2
Feb. 28.....	1,141.48	1,826	+ 1.3	966.13	5,343	- 3.4
Mar. 31.....	1,144.10	2,213	+ 6.3	976.37	17,145	+ 192
Apr. 30.....	1,150.53	3,393	+ 19.8	973.44	13,244	- 65.6
May 31.....	1,150.49	3,384	- 0.1	973.60	13,447	+ 3.3
June 30.....	1,150.45	3,376	- 0.1	973.24	12,990	- 7.7
July 31.....	1,150.62	3,412	+ 0.6	973.44	13,244	+ 4.1
Aug. 31.....	1,150.55	3,397	- 0.2	973.35	13,129	- 1.9
Sept. 30.....	1,150.23	3,330	- 1.1	973.30	13,066	- 1.1
WTR YR 1989.....	--	--	- 0.1	--	--	+ 0.4

SUSQUEHANNA RIVER BASIN

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Lakes and Reservoirs in Susquehanna River basin--Continued

01517900 TIOGA LAKE.--Lat 41°53'57", long 77°08'21", Tioga County, Hydrologic Unit 02050104, at Tioga Dam on Tioga River, 0.8 mi south of Tioga, and 1.7 mi upstream from Crooked Creek. DRAINAGE AREA, 280 mi². PERIOD OF RECORD, November 1979 to current year. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by rolled earth and rockfill dam. Flood flows are routed to Hammond Lake through a connecting channel with weir at elevation 1,101.0 ft and to Hammond Dam spillway with crest at elevation 1,131.0 ft. Storage began in November 1979. Capacity at elevation 1,131.0 ft is 62,000 acre-ft. Recreation lake elevation is 1,081.0 ft, capacity 9,500 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Flow is regulated by two service gates and low-flow by-pass system. U.S. Army Corps of Engineers satellite and landline telemeters at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 32,560 acre-ft, Feb. 16, 1984, elevation, 1,109.34 ft; minimum, 2,210 acre-ft, Oct. 25, 1980, elevation, 1,060.05 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,010 acre-ft, June 22, elevation, 1,090.59 ft; minimum, 8,020 acre ft, Feb. 15, elevation, 1,077.68 ft.

01518498 HAMMOND LAKE.--Lat 41°53'56", long 77°08'52", Tioga County, Hydrologic Unit 02050104, at Hammond Dam on Crooked Creek, 3 mi upstream from mouth, and 0.8 mi southwest of Tioga. DRAINAGE AREA, 122 mi². PERIOD OF RECORD, November 1979 to current year. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by rolled earth and rockfill dam with concrete chute spillway with uncontrolled weir at elevation 1,131.0 ft. Storage began in November 1979. Capacity at elevation 1,131.0 ft is 63,000 acre-ft. Recreation lake elevation is 1,086.0 ft, capacity 8,850 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Flow is regulated by two gates through a connecting channel that discharges into Tioga Lake, and a low-flow outlet to Crooked Creek. U.S. Army Corps of Engineers satellite and landline telemeters at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 30,620 acre-ft, Feb. 16, 1984, elevation, 1,109.34 ft; minimum, 2,430 acre-ft, Oct. 24, 1980, elevation, 1,074.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,220 acre-ft, June 22, elevation, 1,089.43 ft; minimum, 7,900 acre-ft, Feb. 15, elevation, 1,084.68 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in cfs)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in cfs)
01517900 Tioga Lake				01518498 Hammond Lake		
Sept. 30.....	1,080.46	9,260	--	1,085.92	8,790	--
Oct. 31.....	1,080.20	9,140	- 2.0	1,085.51	8,480	- 5.0
Nov. 30.....	1,082.41	10,200	+ 17.8	1,086.11	8,920	+ 7.4
Dec. 31.....	1,081.08	9,540	- 10.7	1,085.93	8,800	- 2.0
CAL YR 1988.....	--	--	- 1.8	--	--	- 1.4
Jan. 31.....	1,078.60	8,420	- 18.2	1,084.87	8,020	- 12.7
Feb. 28.....	1,081.73	9,860	+ 25.9	1,086.24	9,000	+ 17.6
Mar. 31.....	1,081.52	9,760	- 1.6	1,086.50	9,160	+ 2.6
Apr. 30.....	1,082.24	10,110	+ 5.9	1,087.12	9,550	+ 6.6
May 31.....	1,081.55	9,770	- 5.5	1,086.72	9,290	- 4.2
June 30.....	1,081.70	9,840	+ 1.2	1,086.70	9,280	- 0.2
July 31.....	1,081.15	9,570	- 4.4	1,086.49	9,150	- 2.1
Aug. 31.....	1,079.65	8,890	- 11.1	1,086.07	8,890	- 4.2
Sept. 30.....	1,081.12	9,560	+ 11.3	1,085.86	8,740	- 2.5
WTR YR 1989.....	--	--	+ 0.4	--	--	- 0.1

SUSQUEHANNA RIVER BASIN

Lakes and Reservoirs in Susquehanna River basin--Continued

01519995 COWANESQUE LAKE.--Lat 41°59'05", long 77°09'05", Tioga County, Hydrologic Unit 02050104, at Cowanesque Dam on Cowanesque River, 1.8 mi southwest of Lawrenceville, and 2.5 mi upstream from mouth. DRAINAGE AREA, 298 mi². PERIOD OF RECORD, December 1979 to current year. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by rolled earth and rockfill dam with concrete chute spillway with uncontrolled weir at elevation 1,117.0 ft. Storage began in December 1979. Capacity at elevation 1,117.0 ft is 89,110 acre-ft. Recreation lake elevation is 1,045.0 ft, capacity 7,330 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Flow is regulated by two service gates and low-flow by-pass system. U.S. Army Corps of Engineers satellite and landline telemeters at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 32,110 acre-ft, Feb. 16, 1984, elevation, 1,079.57 ft; minimum, 65 acre-ft, June 23, 1980, elevation, 1,011.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,350 acre-ft, June 22, elevation, 1,067.17 ft; minimum, 6,800 acre-ft, Oct. 13, elevation, 1,043.89 ft.

01521000 ARKPORT RESERVOIR.--Lat 42°23'45", long 77°43'08", Steuben County, Hydrologic Unit 02050104, on right bank 1,000 ft upstream from Arkport Dam on Canisteo River, 1.3 mi west of Arkport, and 2.3 mi upstream from small tributary. DRAINAGE AREA, 30.5 mi². PERIOD OF RECORD, January 1951 to September 1985 (mean daily elevations and monthend contents), October 1985 to current year (monthend elevations and contents). REVISED RECORDS, WSP 1552: 1951-57. WRD NY 1974: 1973. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway, completed by Corps of Engineers in 1940 for flood control; first used for flood regulation on Mar. 31, 1940. Usable capacity, 7,936 acre-ft between elevations 1,218.0 ft (sill of conduit) and 1,304.0 ft (crest of spillway). No dead storage. The flood control works consist of a pressure conduit and a side-channel spillway and are not provided with gates. Water is stored during high flows and released gradually. Satellite gage-height and precipitation telemeter at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 7,944 acre-ft, June 23, 1972, elevation, 1,304.04 ft; minimum contents, 0.3 acre-ft, one or more days during water years 1978-81 and 1984-87; minimum elevation, 1,226.26 ft, several days in October 1980.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,472 acre-ft, June 21, elevation, 1,255.61 ft; minimum recorded, 0.55 acre-ft, Oct. 1-9, and Nov. 20-25, elevation, 1,226.55 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in cfs)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in cfs)
<u>01519995 Cowanesque Lake</u>				<u>01521000 Arkport Reservoir</u>		
Sept. 30.....	1,044.45	7,100	--	1,226.55	0.6	--
Oct. 31.....	1,045.30	7,460	+ 5.9	1,226.56	0.6	0.0
Nov. 30.....	1,045.32	7,460	0	1,226.57	0.6	0.0
Dec. 31.....	1,045.18	7,400	- 1.0	1,226.66	0.7	0.0
CAL YR 1988.....	--	--	0	--	--	0.0
Jan. 31.....	1,045.29	7,450	+ 0.8	1,226.74	0.7	0.0
Feb. 28.....	1,045.44	7,520	+ 1.3	1,226.74	0.7	0.0
Mar. 31.....	1,046.60	8,010	+ 8.0	1,226.95	1.0	0.0
Apr. 30.....	1,046.22	7,840	- 2.9	1,226.90	0.9	0.0
May 31.....	1,046.07	7,780	- 1.0	1,226.94	0.9	0.0
June 30.....	1,046.05	7,770	- 0.2	1,227.54	4.8	0.1
July 31.....	1,045.69	7,620	- 2.4	1,227.40	3.8	0.0
Aug. 31.....	1,045.55	7,560	- 1.0	1,227.38	3.7	0.0
Sept. 30.....	1,046.31	7,880	+ 5.4	1,227.37	3.6	0.0
WTR YR 1989.....	--	--	+ 1.1	--	--	0.0

SUSQUEHANNA RIVER BASIN
Lakes and Reservoirs in Susquehanna River basin--Continued

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01523000 ALMOND LAKE NEAR ALMOND, NY

LOCATION.--Lat 42°20'56", long 77°42'10", Steuben County, Hydrologic Unit 02050104, at Almond Dam on Canacadea Creek, 2 mi northeast of Almond, and 3 mi upstream from mouth.

DRAINAGE AREA.--55.8 mi².

PERIOD OF RECORD.--July 1949 to September 1952 (monthly elevations and contents), October 1952 to September 1985 (mean daily elevations and monthend contents), October 1985 to current year (monthend elevations and contents). Prior to October 1970, published as "Almond Reservoir near Almond".

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Lake is formed by earthfill dam with concrete spillway, completed by Corps of Engineers in June 1949 for flood control; first used for flood regulation on Mar. 28, 1950. Usable capacity, 14,800 acre-ft between elevations 1,229.0 ft (sill of gates) and 1,300.0 ft (crest of spillway). No dead storage. Figures given herein represent usable contents. Discharge is controlled by the operation of three gates. Water is stored during high flows and released when downstream conditions warrant. Lake is used for flood control and recreation. Telephone and satellite gage-height telemeters at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 14,100 acre-ft, June 23, 1972, elevation, 1,298.58 ft; no contents for many days each year 1949-65.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 6,680 acre-ft, June 22, elevation, 1,280.34 ft; minimum, 1,600 acre-ft, Mar. 20, elevation, 1,258.98 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in cfs)
Sept. 30.....	1,260.81	1,880	--
Oct. 31.....	1,260.79	1,876	- 0.1
Nov. 30.....	1,260.62	1,849	- 0.4
Dec. 31.....	1,260.54	1,836	- 0.2
CAL YR 1988.....	--	--	- 0.1
Jan. 31.....	1,260.39	1,812	- 0.4
Feb. 28.....	1,259.99	1,748	- 1.2
Mar. 31.....	1,261.85	2,054	5.0
Apr. 30.....	1,260.76	1,872	- 3.1
May 31.....	1,260.74	1,868	- 0.1
June 30.....	1,260.36	1,808	- 1.0
July 31.....	1,260.83	1,883	1.2
Aug. 31.....	1,260.24	1,788	- 1.5
Sept. 30.....	1,260.07	1,761	- 0.4
WTR YR 1989.....	--	--	- 0.2

DIVERSION OF WATER AFFECTING THE SUSQUEHANNA RIVER BASIN

01528700 Diversion from Waneta Lake to Keuka Lake at Keuka, NY (see station for daily discharge).

OHIO RIVER MAIN STEM
03011020 ALLEGHENY RIVER AT SALAMANCA, NY

LOCATION.--Lat 42°09'23", long 78°42'56", Cattaraugus County, Hydrologic Unit 05010001, on left bank 230 ft upstream from Main Street bridge in Salamanca, 1.3 mi downstream from Great Valley Creek, and 1.6 mi upstream from Little Valley Creek.

DRAINAGE AREA.--1,608 mi².

PERIOD OF RECORD.--September 1903 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1964, published as "at Red House."

REVISED RECORDS.--WSP 1385: 1907, 1909-12, 1913(M), 1914-15, 1916-17(M), 1925, 1927. WSP 1907: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,358.00 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Sept. 3, 1917, nonrecording gage and Sept. 4, 1917 to Sept. 30, 1964, water-stage recorder at site 7.5 mi downstream at different datum. Oct. 1, 1964 to Sept. 30, 1967, at present site at datum 0.04 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. U.S. Army Corps of Engineers telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--86 years, 2,778 ft³/s, 23.46 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s, June 23, 1972, gage height, 24.01 ft, from floodmarks; minimum daily, 79 ft³/s, Sept. 10, 11, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 17,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 1	0900	17,100	9.98	June 23	0700	*35,800	*15.44
May 12	0100	17,900	10.24				

Minimum daily discharge, 171 ft³/s, Oct. 3-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e185	624	1230	3640	3590	e1700	16800	1020	2290	2840	479	250
2	e178	581	1160	3080	3720	e1500	15600	2430	3210	2290	460	304
3	e171	551	1070	2590	3340	e1400	14300	4240	3290	1900	449	268
4	e171	685	1020	2000	2760	e1350	13500	3640	4460	1620	478	254
5	e171	1160	965	e1350	2500	e1700	12200	3230	4600	1780	832	236
6	e172	3790	909	e1200	e2200	e2700	10300	3190	3720	2110	728	216
7	172	3130	881	e1400	e1800	e1800	8430	5600	3230	1580	660	204
8	172	2070	852	e2300	e1400	e1400	6820	8010	2610	1280	533	211
9	172	1870	804	3480	e1100	e1400	5550	8580	2230	1120	464	211
10	183	1740	744	2610	e1100	1380	4700	10100	3540	1000	415	204
11	677	1990	e630	2030	e1150	1320	3980	16200	3120	918	386	209
12	1120	1960	e600	1940	e1200	1310	3440	16900	2330	841	361	210
13	900	1780	e640	1840	e1200	1170	3070	14000	3750	779	345	200
14	651	1990	e640	1390	e1250	1180	3030	11100	4780	733	357	212
15	516	1970	e680	1520	e1400	2180	2720	9000	8930	689	346	797
16	436	1610	e700	1610	e1600	3020	2430	9170	12200	643	330	841
17	382	1450	e680	1360	e1500	2470	2210	8420	14900	627	320	1580
18	627	1320	e660	1240	e1400	4250	2180	7030	14700	660	295	1320
19	987	1160	e640	1220	e1300	5340	2100	5720	10800	644	278	816
20	957	1200	e680	1190	e1300	3890	1890	4750	11500	1260	271	596
21	861	3050	e2400	842	e2250	3290	1710	4410	23400	1690	311	485
22	786	3620	3020	904	6530	2870	1590	3900	24500	1440	325	434
23	970	2740	2440	1000	5460	2530	1470	3270	31700	1200	377	1680
24	1110	2210	2570	1040	3850	2620	1370	3730	23800	959	380	1960
25	1250	1860	4650	971	3000	4090	1290	3390	14700	808	349	1330
26	1070	1620	4290	2510	e2800	4680	1250	3150	8750	681	294	900
27	872	1470	3360	6610	e2500	4610	1230	3320	5760	610	259	712
28	779	1450	4790	4710	e2100	5680	1150	2760	6580	590	239	593
29	813	1450	7100	3590	---	9680	1070	2280	5070	592	232	520
30	758	1340	5270	3350	---	11700	1040	2110	3610	537	233	470
31	699	---	4080	3510	---	16700	---	2090	---	500	231	---
TOTAL	18968	53441	60155	68027	65300	110910	148420	186740	268060	34921	12017	18223
MEAN	612	1781	1940	2194	2332	3578	4947	6024	8935	1126	388	607
MAX	1250	3790	7100	6610	6530	16700	16800	16900	31700	2840	832	1960
MIN	171	551	600	842	1100	1170	1040	1020	2230	500	231	200
CFSM	.38	1.11	1.21	1.36	1.45	2.22	3.08	3.75	5.56	.70	.24	.38
IN.	.44	1.24	1.39	1.57	1.51	2.57	3.43	4.32	6.20	.81	.28	.42
CAL YR	1988	TOTAL	679218	MEAN	1856	MAX	12600	MIN	142	CFSM	1.15	IN. 15.71
WTR YR	1989	TOTAL	1045182	MEAN	2864	MAX	31700	MIN	171	CFSM	1.78	IN. 24.18

e Estimated

OHIO RIVER MAIN STEM

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03011020 ALLEGHENY RIVER AT SALAMANCA, NY--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--July to September 1967, March 1971-1974, Water years 1988 to current year.

CHEMICAL DATA: 1967 (a), 1971-72 (a), 1988-89 (b).

MINOR ELEMENT DATA: 1967 (a), 1971 (a), 1972-74 (a), 1988-89 (b).

NUTRIENT DATA: 1967 (a), 1971-72 (a).

COOPERATION.--Water samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM, DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	
OCT													
17	1030	391	289	8.0	11.0	764	10.0	90	88	26	5.7	25	
MAR													
28	1300	5720	120	6.9	11.0	761	10.4	94	32	9.3	2.1	6.2	
APR													
11	0900	4010	120	6.8	4.0	770	11.6	88	38	11	2.5	5.9	
MAY													
02	0900	1840	150	7.0	10.0	759	8.6	76	60	18	3.7	15	
23	0900	3170	105	6.8	15.0	758	8.2	82	41	12	2.7	6.1	
JUN													
13	1300	4030	125	7.1	15.5	754	8.2	83	41	12	2.7	7.4	
JUL													
12	1200	846	205	7.8	22.0	761	8.2	94	73	22	4.4	11	
AUG													
15	0900	349	317	7.9	18.5	726	7.9	89	93	28	5.5	19	
SEP													
13	1230	199	280	6.9	22.0	767	8.8	100	98	30	5.7	23	
DATE		POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT													
17	1.8	60	20	40	0.1	200	--	--	1	--	3	580	
MAR													
28	1.0	19	19	11	<0.1	790	--	--	<1	--	4	1400	
APR													
11	1.0	22	13	9.3	0.1	220	<10	<1	1	<1	4	530	
MAY													
02	1.2	41	13	22	0.1	270	--	--	<1	--	5	600	
23	0.90	27	12	10	0.1	350	<10	<1	<1	2	4	710	
JUN													
13	1.2	30	11	10	0.1	1700	--	--	<1	--	7	2800	
JUL													
12	1.4	60	13	17	0.1	50	--	--	<1	--	3	200	
AUG													
15	1.6	72	14	34	0.1	190	--	--	<1	--	4	490	
SEP													
13	1.7	77	14	37	0.1	180	--	--	<1	--	4	340	

OHIO RIVER MAIN STEM

03011020 ALLEGHENY RIVER AT SALAMANCA, NY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT 17	-	-	<5	80	-	<0.1	-	6	-	<10	-	-
MAR 28	-	-	<5	70	-	0.1	-	2	-	10	41	633
APR 11	57	<5	<5	60	39	<0.1	2	3	11	20	13	141
MAY 02	-	-	3	80	-	<0.1	-	4	-	10	10	50
23	120	1	3	70	35	<0.1	<1	3	<3	<10	15	128
JUN 13	-	-	6	140	-	<0.1	-	5	-	40	80	870
JUL 12	-	-	2	20	-	<0.1	-	5	-	<10	4	9.1
AUG 15	-	-	1	90	-	<0.1	-	1	-	<10	12	10
SEP 13	-	-	3	120	-	<0.1	-	3	-	<10	5	2.7

CHEMICAL QUALITY OF BOTTOM MATERIAL, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SOLIDS, VOLA- TILE IN BOTTOM MA- TERIAL (MG/KG)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)
AUG 15	0900	14300	1900	<1	4	<10	420	10	30	5800	0.02

ALLEGHENY RIVER BASIN

61

03013000 CONEWANGO CREEK AT WATERBORO, N.Y.

LOCATION.--Lat 42°10'15", long 79°04'10", Chautauqua County, Hydrologic Unit 05010002, on right bank 300 ft downstream from bridge on State Highway 394 at Waterboro, 0.2 mi downstream from Davis Brook, 0.4 mi upstream from Harris Brook, and 1.9 mi northeast of Kennedy.

DRAINAGE AREA.--290 mi².

PERIOD OF RECORD.--September 1938 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,255.30 ft above National Geodetic Vertical Datum of 1929 (U. S. Army Corps of Engineers bench mark). Prior to Nov. 7, 1939, nonrecording gages at site 1,300 ft upstream at various datums. Nov. 7, 1939 to Nov. 4, 1940, nonrecording gage at site 1,100 ft upstream at datum 0.79 ft higher, and Nov. 5, 1940 to May 28, 1948, nonrecording gage at site 700 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. U. S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 537 ft³/s, 25.15 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,600 ft³/s, Apr. 7, 1947; maximum gage height, 12.13 ft, Feb. 22, 1981; minimum discharge observed, 22 ft³/s, Aug. 18, 1940, Sept. 27, 29, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 2	1800	2,380	8.28	May 13	0850	2,660	8.66
Apr. 5	1600	*2,920	*9.00				

Minimum discharge, 46 ft³/s, Sept. 13, 14, gage height, 3.05 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	88	428	438	809	1140	e330	2310	249	433	289	101	55	
2	86	394	423	602	1040	e290	2360	491	539	248	101	59	
3	84	373	401	489	e700	e280	2490	595	439	212	101	56	
4	82	417	417	399	e500	e330	2720	464	716	189	108	54	
5	86	557	399	e350	e430	e900	2910	368	591	211	157	51	
6	94	890	372	e340	e350	e1000	2850	361	445	210	100	50	
7	101	829	357	e340	e310	e700	2590	567	357	173	80	49	
8	100	760	348	e640	e290	e430	2130	1080	307	150	72	49	
9	105	836	328	1000	e270	e360	1600	1440	306	133	68	51	
10	136	800	314	793	e270	e320	1270	1800	703	126	63	48	
11	645	972	284	641	e260	e300	1020	2230	570	110	62	49	
12	802	928	e290	495	e250	e290	795	2550	388	104	62	50	
13	662	867	e270	570	e240	318	576	2640	470	103	59	48	
14	454	944	e270	461	e290	333	482	2560	521	99	60	99	
15	324	811	e280	466	e450	615	429	2270	683	91	59	341	
16	236	647	e270	417	e500	786	408	1950	619	86	62	340	
17	183	551	e270	374	e450	639	374	1640	1130	89	59	392	
18	843	470	e260	350	e380	1140	418	1300	1210	90	57	278	
19	1250	407	e280	346	e340	1500	416	1000	1030	88	57	166	
20	1160	426	e340	e360	e310	1420	368	715	1110	e200	56	110	
21	918	876	e1200	e330	e600	1180	332	524	1610	e260	65	87	
22	692	1010	1430	e360	e1200	945	303	417	1650	e220	66	80	
23	932	866	1420	347	e1200	730	283	389	1740	e200	70	245	
24	959	669	1410	331	e940	683	268	577	1500	e190	77	346	
25	850	531	1460	332	e600	774	258	505	1120	e140	61	245	
26	700	457	1300	787	e480	755	256	532	813	116	56	157	
27	638	418	1100	1540	e400	691	256	618	565	109	54	115	
28	684	447	1250	1570	e350	876	244	466	570	109	50	92	
29	763	488	1420	1380	---	1410	237	370	458	106	51	83	
30	620	464	1290	1250	---	1750	245	346	347	106	52	72	
31	496	---	1080	1180	---	2100	---	367	---	105	52	---	
TOTAL	15773	19533	20971	19649	14540	24175	31198	31381	22940	4662	2198	3917	
MEAN	509	651	676	634	519	780	1040	1012	765	150	70.9	131	
MAX	1250	1010	1460	1570	1200	2100	2910	2640	1740	289	157	392	
MIN	82	373	260	330	240	280	237	249	306	86	50	48	
CFM	1.75	2.25	2.33	2.19	1.79	2.69	3.59	3.49	2.64	.52	.24	.45	
IN.	2.02	2.51	2.69	2.52	1.87	3.10	4.00	4.03	2.94	.60	.28	.50	
CAL YR	1988	TOTAL	166233	MEAN	454	MAX	1960	MIN	42	CFM	1.57	IN.	21.32
WTR YR	1989	TOTAL	210937	MEAN	578	MAX	2910	MIN	48	CFM	1.99	IN.	27.06

e Estimated

ALLEGHENY RIVER BASIN
03013946 CHAUTAUQUA LAKE AT BEMUS POINT, NY

LOCATION.--Lat 42°09'23", long 79°23'39", Chautauqua County, Hydrologic Unit 05010002, 6 ft east of lake shore, 30 ft south of the intersection of Pauline Avenue and Lakeside Avenue, and 950 ft southeast of the ferry landing, at Bemus Point.

DRAINAGE AREA.--189 mi².

PERIOD OF RECORD.--October 1972 to September 1973; November 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 1974 at site 950 ft northwest at same datum.

REMARKS.--Lake regulated for flood control by Warner Dam. Area of water surface, 20.98 mi². Telephone gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,311.23 ft, Mar. 5, 1976; minimum, 1,306.34 ft, Feb. 27-28, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,309.43 ft, May 12, minimum, 1,307.05 ft, Mar. 18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1307.51	1308.14	1307.65	1307.88	1307.82	1307.41	1308.56	1308.16	1308.52	1308.15	1307.94	1307.63
2	1307.51	1308.07	1307.68	1307.82	1307.87	1307.36	1308.58	1308.25	1308.51	1308.14	1307.92	1307.63
3	1307.51	1307.99	1307.61	1307.80	1307.85	1307.33	1308.79	1308.26	1308.53	1308.13	1307.90	1307.61
4	1307.50	1307.99	1307.57	1307.77	1307.81	1307.30	1309.11	1308.23	1308.51	1308.13	1307.90	1307.58
5	1307.51	1308.02	1307.53	1307.71	1307.77	1307.39	1309.23	1308.24	e1308.46	1308.13	1307.94	1307.54
6	1307.49	1308.10	1307.49	1307.68	1307.74	1307.44	1309.19	1308.27	1308.38	1308.13	1307.92	1307.52
7	1307.48	1308.08	1307.47	e1307.67	1307.69	1307.42	1309.12	1308.34	1308.34	1308.12	1307.89	1307.51
8	1307.49	1308.07	1307.45	e1307.66	1307.65	1307.39	1309.04	1308.55	1308.30	1308.10	1307.85	1307.50
9	1307.49	1308.07	1307.44	1307.65	1307.66	1307.35	1308.94	1308.77	1308.29	1308.09	1307.83	1307.49
10	1307.54	1308.06	1307.42	1307.65	1307.64	1307.31	1308.83	1308.98	1308.36	1308.07	1307.81	1307.48
11	1307.78	1308.11	1307.40	1307.65	1307.60	1307.27	1308.74	1309.34	1308.35	1308.06	1307.80	1307.46
12	1307.98	1308.09	1307.38	1307.67	1307.54	1307.25	1308.65	1309.40	1308.33	1308.04	1307.78	1307.44
13	1308.05	1308.08	1307.35	1307.68	1307.48	1307.21	1308.57	1309.36	1308.35	1308.02	1307.78	1307.42
14	1308.06	1308.09	1307.32	1307.63	1307.46	1307.19	1308.50	1309.28	1308.34	1307.99	1307.79	1307.43
15	1308.07	1308.05	1307.30	1307.61	1307.49	1307.23	1308.43	1309.21	1308.36	1307.97	1307.78	1307.50
16	1308.08	1308.00	1307.29	1307.58	1307.52	1307.27	1308.36	1309.26	1308.34	1307.95	1307.78	1307.51
17	1308.08	1307.96	1307.26	1307.56	1307.50	1307.28	1308.28	1309.22	1308.40	1307.92	1307.76	1307.54
18	1308.40	1307.89	1307.26	1307.52	1307.46	1307.52	1308.24	1309.13	1308.40	1307.90	1307.73	1307.54
19	1308.64	1307.84	1307.24	1307.48	1307.42	1307.73	1308.17	1309.03	1308.36	1307.89	1307.72	1307.52
20	1308.65	1307.80	1307.21	1307.51	1307.37	1307.78	1308.14	1308.94	1308.42	1307.97	1307.72	1307.51
21	1308.61	1307.92	1307.43	1307.54	1307.37	1307.80	1308.13	1308.85	1308.60	1308.04	1307.75	1307.49
22	1308.58	1307.92	1307.55	1307.53	1307.52	1307.80	1308.11	1308.76	1308.59	1308.08	1307.75	1307.49
23	1308.62	1307.94	1307.56	1307.47	1307.61	1307.80	1308.09	1308.71	1308.56	1308.11	1307.78	1307.56
24	1308.60	1307.91	1307.68	1307.45	1307.58	1307.81	1308.08	1308.71	1308.50	1308.11	1307.78	1307.55
25	1308.54	1307.87	1307.77	1307.42	1307.55	1307.82	1308.08	1308.65	1308.43	1308.10	1307.76	1307.53
26	1308.48	1307.82	1307.78	1307.44	1307.51	1307.83	1308.09	1308.71	1308.35	1308.09	1307.73	1307.51
27	1308.44	1307.80	1307.73	1307.86	1307.49	1307.85	1308.10	1308.74	1308.28	1308.08	1307.70	1307.48
28	1308.39	1307.76	1307.78	1307.86	1307.45	1307.95	1308.11	1308.66	1308.24	1308.07	1307.68	1307.46
29	1308.36	1307.74	1307.98	1307.85	---	1308.15	1308.11	1308.57	1308.18	1308.03	1307.66	1307.44
30	1308.29	1307.68	1307.97	1307.84	---	1308.30	1308.13	1308.53	1308.16	1308.00	1307.64	1307.42
31	1308.21	---	1307.92	1307.85	---	1308.49	---	1308.49	---	1307.96	1307.62	---
MEAN	1308.06	1307.96	1307.53	1307.65	1307.59	1307.58	1308.48	1308.76	1308.39	1308.05	1307.79	1307.51
MAX	1308.65	1308.14	1307.98	1307.88	1307.87	1308.49	1309.23	1309.40	1308.60	1308.15	1307.94	1307.63
MIN	1307.48	1307.68	1307.21	1307.42	1307.37	1307.19	1308.08	1308.16	1308.16	1307.89	1307.62	1307.42
CAL YR	1988	MEAN	1307.76	MAX	1308.65	MIN	1307.01					
WTR YR	1989	MEAN	1307.95	MAX	1309.40	MIN	1307.19					

e Estimated

ALLEGHENY RIVER BASIN

63

03014500 CHADAKOIN RIVER AT FALCONER, NY

LOCATION.--Lat 42°06'45", long 79°12'15", Chautauqua County, Hydrologic Unit 05010002, on left bank 10 ft downstream from South Dow Street Bridge in Falconer, 1.8 mi upstream from mouth, and 6 mi downstream from Chautauqua Lake.

DRAINAGE AREA.--194 mi².

PERIOD OF RECORD.--November 1934 to current year.

REVISED RECORDS.--WSP 803: 1936(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,256.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Chautauqua Lake. Diurnal fluctuation caused by mills upstream from station. Monthly figures for 1951-66 water years adjusted for regulation. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--54 years (water years 1936-89), 357 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,250 ft³/s, Sept. 14, 1979, gage height, 4.93 ft; minimum, 2.7 ft³/s, Nov. 20, 21, 1960, gage height, 0.15 ft; minimum daily, 3.0 ft³/s, Nov. 20, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,170 ft³/s, June 22 at 1900 hours, gage height, 2.99 ft; minimum, 37 ft³/s, Jan. 11, gage height, 0.55 ft, (due to regulation at Warner Dam).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	678	482	622	444	495	875	73	836	61	73	99
2	71	678	445	611	565	466	840	228	824	61	74	84
3	70	648	512	516	589	457	884	423	816	61	92	82
4	70	633	441	588	581	459	1010	367	856	61	114	81
5	70	597	420	443	575	477	1040	90	808	62	97	81
6	68	629	348	335	569	479	1050	86	735	61	96	80
7	65	629	290	499	422	387	1020	224	468	60	97	80
8	63	638	288	519	158	443	988	808	435	59	94	80
9	64	651	388	513	355	442	975	851	308	58	65	85
10	75	648	438	506	534	435	960	954	337	56	52	97
11	94	676	435	449	528	429	896	1070	335	74	58	95
12	74	640	385	540	523	419	856	1100	406	73	63	93
13	67	634	372	561	502	384	849	1070	609	73	71	92
14	65	659	335	557	519	364	798	1050	624	72	110	153
15	65	635	385	561	500	378	770	1040	612	70	92	90
16	64	610	378	409	520	271	753	1030	610	73	77	99
17	65	640	373	454	512	150	729	1010	642	94	115	96
18	438	633	369	495	502	151	718	1010	615	86	58	87
19	764	590	366	322	490	244	648	1030	603	86	57	86
20	769	603	344	147	478	244	252	1040	744	130	57	87
21	766	637	374	210	530	344	215	1050	764	89	69	86
22	803	559	397	393	534	405	215	934	811	62	55	100
23	803	550	514	430	534	403	215	969	773	60	51	97
24	797	569	557	448	527	407	161	950	750	60	50	88
25	787	556	592	443	517	404	70	882	727	81	90	87
26	772	540	588	531	513	315	69	935	691	75	110	87
27	755	531	477	622	513	173	67	952	578	105	111	87
28	759	544	497	631	500	443	67	907	495	132	111	86
29	759	573	627	625	---	640	67	836	233	145	110	86
30	733	549	654	631	---	794	69	830	62	143	105	86
31	700	---	643	626	---	840	---	813	---	151	91	---
TOTAL	11586	18357	13714	15237	14034	12742	18126	24612	18107	2534	2565	2717
MEAN	374	612	442	492	501	411	604	794	604	81.7	82.7	90.6
MAX	803	678	654	631	589	840	1050	1100	856	151	115	153
MIN	63	531	288	147	158	150	67	73	62	56	50	80
CAL YR	1988	TOTAL	122314	MEAN	334	MAX	827	MIN	55			
WTR YR	1989	TOTAL	154331	MEAN	423	MAX	1100	MIN	50			

ALLEGHENY RIVER BASIN
LAKES IN ALLEGHENY RIVER BASIN

03013946 CHAUTAUQUA LAKE AT BEMUS POINT, NY (see station for daily mean elevation).

STREAMS TRIBUTARY TO LAKE ERIE
04213500 CATTARAUGUS CREEK AT GOWANDA, NY
(National stream-quality accounting network station)

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LOCATION.--Lat 42°27'50", long 78°56'07", Erie County, Hydrologic Unit 04120102, on right bank 380 ft downstream from bridge on State Highways 39 and 62 at Gowanda, 4.2 mi downstream from South Branch, and 17.8 mi upstream from mouth. Water-quality sampling site at discharge station.

DRAINAGE AREA.--436 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1939 to current year.

REVISED RECORDS.--WSP 1912;WDR NY-82-3: Drainage area. WRD NY 1971: 1956(M). WRD NY 1974: 1940-42 (M, P).

GAGE.--Water-stage recorder. Datum of gage is 738.85 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1969, at datum 0.11 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at low and medium flow caused by powerplant 20 mi upstream from station. Telephone gage-height telemeter at station.

AVERAGE DISCHARGE.--49 years (water years 1941-89), 739 ft³/s, 23.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,600 ft³/s, Mar. 7, 1956, gage height, 14.14 ft; minimum, about 6 ft³/s, Aug. 21, 1941, result of regulation; minimum gage height, 0.90 ft, Oct. 26, 1951; minimum daily discharge, 52 ft³/s, Sept. 13, 1945, Aug. 1, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 20	2100	9,990	7.93	June 23	0930	*14,000	*9.29

Minimum discharge, 58 ft³/s, gage height, 1.11 ft, Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	278	445	e700	1210	e420	2390	384	2030	470	162	127
2	112	282	442	672	1060	e340	2120	1250	1110	423	167	167
3	120	273	430	e560	e700	e380	4410	1170	765	389	181	158
4	111	294	558	e360	e500	e600	4220	747	1080	381	182	124
5	147	416	454	e320	e480	1850	3040	574	813	415	202	118
6	154	1140	404	e460	e480	1280	1870	560	597	427	188	115
7	133	695	456	e500	e460	e600	1430	803	482	358	161	111
8	121	561	446	e1100	e360	e460	1200	1660	413	333	153	99
9	126	845	386	e980	e320	e440	1040	2790	404	310	147	95
10	192	755	e300	e600	e340	e450	937	3980	990	292	140	102
11	1290	1100	e240	e500	e400	e460	865	5020	645	288	137	110
12	911	761	e180	e460	e440	e500	851	4300	465	266	117	113
13	463	732	e300	e480	e360	e400	840	2050	896	260	139	90
14	312	671	e480	e480	e560	490	804	1410	853	254	139	103
15	237	524	e420	e500	e800	1320	708	1330	1180	246	133	612
16	210	445	e400	e500	e740	1190	682	2260	923	233	141	339
17	196	405	e380	e480	e480	866	616	1420	3050	228	144	404
18	1400	351	e380	457	e400	2580	863	1020	1710	217	125	316
19	1210	320	e400	480	e380	1640	728	826	978	219	119	220
20	613	381	e900	551	e400	974	598	716	3630	281	133	177
21	418	1290	e3200	e420	e1000	878	533	727	5040	266	149	155
22	446	852	1340	e400	1720	727	485	605	2120	258	139	141
23	959	588	1040	495	e960	687	449	612	6290	276	134	441
24	738	482	1190	495	e600	828	428	829	1940	216	129	360
25	624	420	1600	471	e500	1120	416	655	1150	196	120	244
26	536	382	986	1830	606	1100	427	640	904	189	110	194
27	497	361	797	2240	519	1000	412	590	761	193	107	174
28	512	472	2400	1050	e460	1710	387	488	706	197	107	152
29	518	467	1590	945	---	3680	368	425	618	184	115	140
30	375	425	e1000	1180	---	3610	394	522	526	172	132	127
31	316	---	e860	1180	---	3410	---	540	---	167	122	---
TOTAL	14106	16968	24404	21846	17235	35990	34511	40903	43069	8604	4374	5828
MEAN	455	566	787	705	616	1161	1150	1319	1436	278	141	194
MAX	1400	1290	3200	2240	1720	3680	4410	5020	6290	470	202	612
MIN	109	273	180	320	320	340	368	384	404	167	107	90
CFSM	1.04	1.30	1.81	1.62	1.41	2.66	2.64	3.03	3.29	.64	.32	.45
IN.	1.20	1.45	2.08	1.86	1.47	3.07	2.94	3.49	3.67	.73	.37	.50
CAL YR	1988	TOTAL	205337	MEAN	561	MAX	5030	MIN	80	CFSM	1.29	IN. 17.52
WTR YR	1989	TOTAL	267838	MEAN	734	MAX	6290	MIN	90	CFSM	1.68	IN. 22.85

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE
04213500 CATTARAUGUS CREEK AT GOWANDA, NY--Continued
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959, 1963-64, 1972 to current year.

CHEMICAL DATA: 1959 (e), 1963 (b), 1972 (a), 1975 (b), 1976-78 (c), 1979-80 (d), 1981-82 (c), 1983-89 (b).

MINOR ELEMENTS DATA: 1972-74 (a), 1975 (b), 1976-77 (c), 1978-89 (b).

ORGANIC DATA: OC--1975 (b), 1976-77 (c), 1978-80 (d), 1981 (c).

NUTRIENT DATA: 1975 (b), 1976-77 (c), 1978-80 (d), 1981-82 (c), 1983-89 (b).

BIOLOGICAL DATA:

Bacterial--1978-80 (d), 1981-82 (c), 1983-89 (b).

Phytoplankton--1978 (b), 1979-80 (c), 1981 (b).

SEDIMENT DATA: 1964 (b), 1978-82 (c), 1983-89 (b).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1958 to September 1959, unpublished; January 1978 to September 1981.

pH: October 1958 to September 1959, unpublished.

WATER TEMPERATURES: October 1958 to September 1959, January 1978 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 952 microsiemens Oct. 7, 1958; minimum daily, 150 microsiemens Feb. 19, 1981.

WATER TEMPERATURES: Maximum daily, 29.0 C Aug. 19, 1978; minimum daily, 0.0 C on many days during winter periods.

COOPERATION.--Water-quality analyses identified by an (*) were collected by the New York State Department of Environmental Conservation.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	
OCT												
*06	0900	161	--	435	8.40	10.0	15	772	11.0	--	--	
NOV												
01	1100	276	368	--	8.32	5.0	6.3	741	13.5	109	38	
*17	0945	406	--	346	8.00	6.0	13	760	11.8	--	--	
MAR												
14	1100	446	333	--	8.15	3.0	11	743	13.6	104	K22	
APR												
*10	0930	970	300	--	7.60	2.0	--	765	13.0	94	--	
MAY												
*22	1000	607	318	--	8.30	17.0	--	766	9.8	101	--	
JUN												
*12	1000	452	380	--	8.10	17.0	--	759	8.0	83	--	
28	1100	691	337	--	8.25	21.0	34	745	8.0	92	310	
AUG												
*16	1000	144	480	--	8.20	23.5	--	764	6.6	78	--	
21	1100	144	441	--	8.27	21.0	4.0	746	9.8	113	130	
		STREP- TOCOCCI KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT												
06	--	190	59	10	16	1.9	--	148	45	20	0.1	
NOV												
01	51	180	54	9.9	12	1.6	138	--	37	17	<0.1	
17	--	150	47	8.4	9.9	1.7	--	115	36	14	0.1	
MAR												
14	K17	150	47	8.3	11	2.5	122	--	36	17	0.1	
APR												
10	--	130	40	6.9	8.0	1.3	--	94	23	12	0.1	
MAY												
22	--	140	45	7.9	8.2	1.3	--	114	25	12	0.1	
JUN												
12	--	150	48	8.5	11	1.5	--	127	22	15	0.1	
28	--	160	51	8.0	8.0	1.8	132	--	23	12	0.1	
AUG												
16	--	170	52	10	18	1.9	--	137	34	26	0.1	
21	K22	190	56	11	18	1.8	166	--	34	27	0.1	

K Results based on colony count outside the ideal range (non-ideal colony count).

STREAMS TRIBUTARY TO LAKE ERIE

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04213500 - CATTARAUGUS CREEK AT GOWANDA, NY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)
OCT 06.....	--	--	--	--	--	--	--	--	--	--
NOV 01.....	3.5	230	247	0.75	0.23	0.23	<0.01	0.40	0.01	0.01
17.....	--	--	--	--	--	--	--	--	--	--
MAR 14.....	4.0	203	205	1.3	0.13	0.14	<0.01	0.50	<0.01	<0.01
APR 10.....	--	--	148	--	--	--	--	--	--	--
MAY 22.....	--	--	168	--	--	--	--	--	--	--
JUN 12.....	--	--	182	--	--	--	--	--	--	--
28.....	5.3	201	219	1.3	0.05	0.04	0.02	0.20	0.01	0.01
AUG 16.....	--	--	224	--	--	--	--	--	--	--
21.....	3.7	208	282	1.1	0.26	0.24	0.03	0.90	0.02	<0.01

DATE	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)
OCT 06.....	--	340	20	--	--	--	<1	1	--	--
NOV 01.....	<0.01	--	<10	<1	57	<0.5	3	--	<1	<3
17.....	--	410	--	--	--	--	--	1	--	--
MAR 14.....	<0.01	--	<10	<1	49	<0.5	<1	--	<1	<3
APR 10.....	--	780	--	--	--	--	--	1	--	--
MAY 22.....	--	350	--	--	--	--	--	<1	--	--
JUN 12.....	--	730	--	--	--	--	--	<1	--	--
28.....	<0.01	--	30	<1	57	<0.5	<1	--	<1	<3
AUG 16.....	--	350	--	--	--	--	--	<1	--	--
21.....	<0.01	--	10	<1	67	<0.5	<1	--	<1	<3

STREAMS TRIBUTARY TO LAKE ERIE
 .04213500 - CATTARAUGUS CREEK AT GOWANDA, NY--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT										
06.....	<1	3	640	14	<5	<5	--	30	11	--
NOV										
01.....	3	--	--	13	<5	--	5	--	13	<0.1
17.....	--	3	760	--	--	<5	--	30	--	--
MAR										
14.....	1	--	--	11	<5	--	5	--	8	<0.1
APR										
10.....	--	5	1500	--	--	<5	--	30	--	--
MAY										
22.....	--	5	540	--	--	1	--	10	--	--
JUN										
12.....	--	4	700	--	--	3	--	20	--	--
28.....	2	--	--	25	<1	--	5	--	9	<0.1
AUG										
16.....	--	5	760	--	--	2	--	30	--	--
21.....	2	--	--	10	<1	--	6	--	5	0.3
DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT										
06.....	<0.1	--	1	4	--	--	--	--	4	10
NOV										
01.....	--	<10	2	--	<1	1.0	89	<6	18	--
17.....	<0.1	--	--	<1	--	--	--	--	--	<10
MAR										
14.....	--	<10	4	--	<1	<1.0	79	<6	3	--
APR										
10.....	0.1	--	--	5	--	--	--	--	--	30
MAY										
22.....	<0.1	--	--	5	--	--	--	--	--	<10
JUN										
12.....	<0.1	--	--	2	--	--	--	--	--	10
28.....	--	<10	1	--	<1	<1.0	89	<6	<3	--
AUG										
16.....	<0.1	--	--	3	--	--	--	--	--	10
21.....	--	<10	<1	--	<1	<1.0	110	<6	17	--

STREAMS TRIBUTARY TO LAKE ERIE

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04213500 - CATTARAUGUS CREEK AT GOWANDA, NY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
NOV								
01.....	1105	20	1.1	1.0	368	8.32	5.0	13.5
01.....	1110	40	1.2	1.0	372	8.30	5.0	13.6
01.....	1115	60	1.3	1.0	370	8.31	5.0	13.2
01.....	1120	80	1.0	1.0	365	8.36	5.0	13.3
01.....	1125	100	1.2	1.0	367	8.35	4.5	13.5
01.....	1130	120	1.2	1.0	370	8.34	5.0	13.7
MAR								
14.....	1105	20	1.4	1.0	333	8.15	3.0	13.6
14.....	1110	40	1.5	1.0	336	8.20	3.0	13.5
14.....	1115	60	1.6	1.0	335	8.18	2.5	13.2
14.....	1120	80	1.4	1.0	332	8.17	3.0	13.4
14.....	1125	100	1.6	1.0	330	8.15	2.5	13.1
14.....	1130	120	1.5	1.0	333	8.15	3.0	13.0
JUN								
28.....	1105	20	1.7	1.0	337	8.25	21.0	8.0
28.....	1110	40	1.8	1.0	335	8.27	20.5	8.3
28.....	1115	60	1.8	1.0	340	8.21	20.5	8.4
28.....	1120	80	1.7	1.0	343	8.26	20.0	8.1
28.....	1125	100	2.0	1.0	341	8.27	20.5	8.0
28.....	1130	120	1.7	1.0	338	8.22	21.0	8.0
AUG								
21.....	1105	20	1.0	0.5	442	8.27	21.0	9.8
21.....	1110	40	1.1	0.5	440	8.31	20.5	9.9
21.....	1115	60	1.3	1.0	445	8.37	20.5	9.9
21.....	1120	80	1.2	0.5	441	8.35	20.5	10.1
21.....	1125	100	1.2	0.5	443	8.40	20.5	9.8
21.....	1130	120	1.3	1.0	444	8.31	20.5	9.7

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT					
06.....	0900	161	15	6.5	--
NOV					
01.....	1100	276	11	8.2	95
17.....	0945	406	16	18	--
MAR					
14.....	1100	446	22	26	98
APR					
10.....	0930	970	37	97	--
MAY					
22.....	1000	607	16	26	--
JUN					
12.....	1000	452	16	20	--
28.....	1100	691	60	112	99
AUG					
16.....	1000	144	23	8.9	--
21.....	1100	144	36	14	95

STREAMS TRIBUTARY TO LAKE ERIE
0421402001 CATTARAUGUS CREEK BELOW IRVING, NY

LOCATION.--Lat 42°33'53", long 79°07'30", Chautauqua County, Hydrologic Unit 04120102, on left bank at downstream side of Conrail railroad bridge, 0.6 mi west of Irving, and 0.9 mi upstream from mouth.

DRAINAGE AREA.--554 mi².

PERIOD OF RECORD.--February 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is International Great Lakes Datum (IGLD) of 1955.

COOPERATION.--Station established and maintained in cooperation with U.S. Army Corps of Engineers, Buffalo District, to evaluate magnitude and frequency of peak stages after breakwater construction.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded elevation, 582.46 ft, Feb. 25, 1985; minimum recorded, 569.98 ft, Nov. 12, 15, 16, 18, 19, 26, and Dec. 19, 1988, but may have been lower during period of no gage-height record, Dec. 20, 1988 to Jan. 4, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 574.75 ft, Nov. 10; minimum recorded, 569.98 ft, Nov. 12, 15, 16, 18, 19, 26, and Dec. 19, but may have been lower during period of no gage-height record, Dec. 20 to Jan. 4.

ELEVATION (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	570.36	570.61	---	570.52	570.88	571.38	570.77	571.88	571.79	571.49	571.48
2	---	570.48	571.54	---	570.23	570.35	571.11	571.12	571.72	571.74	571.84	571.17
3	---	570.14	571.07	---	570.35	570.07	571.88	571.19	571.61	571.76	571.81	570.98
4	---	570.20	570.93	---	570.44	570.34	571.95	570.91	571.82	571.73	571.95	570.92
5	---	570.43	570.61	570.14	570.51	571.85	571.62	570.93	571.64	571.71	571.63	571.10
6	---	570.92	570.62	570.22	571.17	571.18	571.22	571.03	571.66	571.73	571.73	571.02
7	---	570.63	570.50	570.31	571.18	570.51	571.10	571.49	571.67	571.87	571.59	571.02
8	---	570.49	570.29	---	572.06	570.41	570.85	571.54	571.65	571.74	571.57	571.08
9	---	570.28	570.65	---	571.53	570.78	571.26	571.44	571.64	571.77	571.41	571.06
10	---	571.04	570.53	---	571.20	570.81	571.57	571.75	572.08	572.14	571.45	571.15
11	---	570.82	570.30	---	570.92	570.64	571.00	572.23	571.79	571.83	571.33	570.96
12	---	570.15	570.73	---	570.77	570.56	570.98	572.12	571.51	571.58	571.33	570.99
13	570.42	571.00	570.70	---	570.35	570.47	571.02	571.28	571.75	571.64	571.33	570.75
14	570.51	570.69	570.49	---	570.50	570.29	570.86	571.17	571.65	571.64	571.31	570.32
15	570.36	570.04	570.99	---	570.82	571.12	570.90	571.20	571.66	571.54	571.39	570.72
16	570.27	570.75	570.39	---	570.87	570.77	570.83	571.40	571.76	571.55	571.38	570.66
17	570.15	571.77	570.27	---	570.45	570.15	570.89	571.28	572.23	571.61	571.15	571.07
18	571.10	570.34	570.65	---	570.29	570.96	570.96	571.13	572.12	571.54	570.86	570.88
19	570.66	570.07	570.26	570.72	570.34	570.87	571.02	571.07	571.80	571.47	571.11	570.86
20	570.29	570.32	---	570.88	570.26	570.39	570.93	571.10	572.11	571.10	571.35	570.90
21	570.22	570.86	---	570.35	570.53	570.59	570.94	571.34	572.69	571.38	571.49	570.84
22	570.44	570.38	---	570.44	571.96	570.37	570.88	571.09	572.00	571.53	571.30	570.94
23	570.59	570.25	---	570.29	571.06	570.24	570.87	570.86	572.77	571.59	571.29	571.70
24	571.53	570.24	---	570.23	570.69	570.36	570.88	571.17	572.01	571.64	571.03	570.98
25	571.17	570.28	---	570.03	570.55	570.52	570.83	571.14	571.92	571.64	570.83	570.95
26	570.83	570.20	---	570.93	570.75	570.43	570.83	571.38	571.87	571.69	570.91	571.12
27	570.38	570.68	---	571.48	570.75	570.50	570.87	571.42	571.97	571.85	570.98	570.74
28	571.47	571.19	---	570.72	570.54	570.86	570.72	571.33	572.00	571.73	571.05	570.87
29	570.65	570.80	---	570.55	---	571.48	570.73	571.27	571.73	571.54	571.32	571.22
30	570.33	570.99	---	570.76	---	571.33	570.86	571.38	571.75	571.46	571.44	570.66
31	570.11	---	---	570.80	---	571.58	---	571.53	---	571.42	571.14	---
MEAN	---	570.56	---	---	570.77	570.70	571.06	571.29	571.88	571.64	571.35	570.97
MAX	---	571.77	---	---	572.06	571.85	571.95	572.23	572.77	572.14	571.95	571.70
MIN	---	570.04	---	---	570.23	570.07	570.72	570.77	571.51	571.10	570.83	570.32

STREAMS TRIBUTARY TO LAKE ERIE
04214500 BUFFALO CREEK AT GARDENVILLE, NY

71

LOCATION.--Lat 42°51'17", long 78°45'19", Erie County, Hydrologic Unit 04120103, on left bank 300 ft downstream from bridge on Union Road in Gardenville, 2 mi upstream from Cayuga Creek, and 10.1 mi upstream from mouth.

DRAINAGE AREA.--142 mi².

PERIOD OF RECORD.--October 1938 to current year.

REVISED RECORDS.--WSP 1337: 1939-52. WSP 1912; WDR NY-82-3: Drainage area. WRD NY-78-1: 1939-1976 (P).

GAGE.--Water-stage recorder. Datum of gage is 603.65 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 26, 1968, water-stage recorder at site 400 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 202 ft³/s, 19.32 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s, Mar. 1, 1955, Mar. 7, 1956, from rating curve extended above 3,200 ft³/s on basis of slope-area measurement at gage height 7.07 ft; maximum gage height, 14.34 ft, Mar. 21, 1978 (ice jam); minimum discharge, 0.2 ft³/s, Sept. 1, 1964; minimum gage height, 0.50 ft, Aug. 23, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,750 ft³/s and maximum (*);

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 1	1100	5,240	6.49	June 23	0800	5,140	6.43
June 21	0100	*5,420	*6.59				

Minimum discharge, 10 ft³/s, Oct. 1-2; minimum gage height, 0.57 ft, Aug. 28-29

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	10	93	314	e120	362	e80	774	80	2310	94	20	23	
2	12	83	249	e100	253	e78	780	353	616	84	20	45	
3	16	77	190	e70	131	e80	1690	473	328	76	21	45	
4	18	70	293	e62	e90	e110	1470	218	377	72	34	25	
5	26	79	178	e60	e90	e480	792	149	242	76	315	18	
6	21	315	140	e80	e88	e280	438	192	184	69	73	16	
7	21	174	179	e110	e86	e180	317	445	135	65	41	16	
8	19	131	174	e350	e84	e150	253	1130	107	67	32	15	
9	17	205	e100	e200	e82	e140	215	1400	139	59	28	15	
10	28	196	e80	e170	e80	e120	198	1170	301	50	24	16	
11	262	291	e70	e160	e78	e100	192	1400	169	46	21	17	
12	249	165	e90	e140	e76	e98	220	1400	108	43	20	21	
13	98	196	e120	e300	e74	e90	221	537	224	41	20	17	
14	57	190	230	e160	e74	e86	208	348	242	39	19	20	
15	39	122	223	e150	e140	843	173	371	241	36	18	56	
16	31	99	e180	e140	e100	437	175	735	233	34	25	62	
17	26	92	e170	e120	e90	284	148	396	1010	32	34	75	
18	275	76	e160	e110	e84	904	221	239	719	30	23	82	
19	323	64	e150	e100	e80	430	187	179	265	30	19	48	
20	137	94	235	e90	e76	243	140	151	1650	52	21	31	
21	91	581	693	e88	e110	254	118	187	2080	54	28	25	
22	96	262	316	e86	e100	203	103	143	533	58	32	23	
23	394	149	211	e82	e96	188	92	165	2140	37	23	75	
24	218	115	286	e80	e94	253	87	371	462	33	20	84	
25	389	95	503	e110	e90	355	90	190	265	31	18	44	
26	695	89	214	744	e88	325	95	165	225	26	16	32	
27	564	86	159	876	e86	265	86	157	163	25	15	26	
28	466	151	536	291	e82	325	79	116	193	27	14	22	
29	339	218	395	287	---	763	74	95	147	25	14	20	
30	163	196	e190	468	---	1110	77	124	108	23	21	18	
31	113	---	e150	396	---	933	---	308	---	21	22	---	
TOTAL	5213	4754	7178	6300	2964	10187	9713	13387	15916	1455	1051	1032	
MEAN	168	158	232	203	106	329	324	432	531	46.9	33.9	34.4	
MAX	695	581	693	876	362	1110	1690	1400	2310	94	315	84	
MIN	10	64	70	60	74	78	74	80	107	21	14	15	
CFM	1.18	1.12	1.63	1.43	.75	2.31	2.28	3.04	3.74	.33	.24	.24	
IN.	1.37	1.25	1.88	1.65	.78	2.67	2.54	3.51	4.17	.38	.28	.27	
CAL YR	1988	TOTAL	57210.9	MEAN	156	MAX	1810	MIN	5.0	CFM	1.10	IN.	14.99
WTR YR	1989	TOTAL	79150	MEAN	217	MAX	2310	MIN	10	CFM	1.53	IN.	20.74

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE
04215000 CAYUGA CREEK NEAR LANCASTER, NY

LOCATION.--Lat 42°53'24", long 78°38'43", Erie County, Hydrologic Unit 04120103, on right bank 150 ft upstream from low dam in Como Lake Park, 700 ft downstream from bridge on Bowen Road, 800 ft downstream from Little Buffalo Creek, 2 mi southeast of Lancaster, and 8.7 mi upstream from mouth.

DRAINAGE AREA.--96.4 mi².

PERIOD OF RECORD.--September 1938 to September 1968. October 1971 to April 1974 (peak discharges only). May 1974 to current year.

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder and low concrete dam as control. Datum of gage is 672.02 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since August 1962, undetermined amount of flow diverted by Lancaster Country Club for irrigation upstream from station. Concrete dam configuration modified in September 1974 resulting in a lower point of zero flow. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years (water years 1939-68, 1975-89) 132 ft³/s, 18.60 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,440 ft³/s, Sept. 14, 1979, gage height, 10.48 ft; maximum gage height, 12.58 ft, Mar. 30, 1960 (ice jam); practically no flow part of Aug. 8, 9, 1939, when stoplogs were installed in the dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 1	0700	4,600	7.83	June 20	2300	*5,350	*8.25

Minimum discharge, 2.8 ft³/s, Sept. 10, gage height, 2.61 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	4.1	63	227	e70	229	e58	535	39	1700	44	6.6	4.8	
2	4.3	55	175	e54	142	e56	610	260	391	38	6.7	14	
3	7.1	49	123	e45	e56	e54	1210	306	219	33	7.6	9.7	
4	8.2	44	165	e38	e50	e60	996	145	277	31	7.0	5.8	
5	10	46	106	e40	e47	e400	493	98	155	31	131	4.3	
6	11	183	87	e45	e45	e260	262	183	131	27	28	3.8	
7	9.1	110	88	e52	e43	e150	219	306	89	24	15	3.5	
8	11	87	80	e300	e42	e84	181	929	63	22	11	3.4	
9	9.6	125	e45	e170	e41	e80	148	1250	55	20	9.8	3.3	
10	17	126	e37	e100	e40	e76	135	948	203	18	10	3.2	
11	111	188	e31	e90	e40	e75	134	1320	98	16	7.6	3.8	
12	77	106	e28	e86	e39	e74	147	1150	58	15	6.7	3.7	
13	36	126	e30	e180	e38	e72	137	352	94	15	6.3	3.4	
14	23	146	39	e96	e50	e70	125	222	109	14	6.2	3.9	
15	17	91	52	e90	e120	e350	110	222	110	12	4.4	16	
16	17	69	e50	e80	e92	328	111	373	109	11	7.3	16	
17	12	64	47	e70	e80	221	92	210	716	11	6.8	26	
18	95	52	40	e64	e66	667	146	137	486	10	5.1	25	
19	116	43	39	e60	e60	270	113	105	162	9.3	4.9	13	
20	54	58	66	e54	e56	177	83	89	1850	15	6.4	7.6	
21	34	449	372	e54	e100	186	68	119	1100	17	9.7	6.1	
22	44	191	125	e52	e90	154	56	83	358	30	7.8	5.5	
23	215	116	118	e50	e90	136	49	80	801	14	7.1	32	
24	111	87	176	e50	e80	187	45	194	195	11	5.0	31	
25	223	71	278	e70	e70	262	45	104	127	9.4	4.4	14	
26	490	66	103	575	e66	236	46	96	98	8.4	3.8	9.2	
27	425	60	88	577	e62	186	39	95	78	8.2	3.4	6.6	
28	401	111	337	193	e60	235	37	65	157	12	3.2	5.8	
29	230	158	233	186	---	446	35	49	84	10	3.3	5.2	
30	117	133	e120	370	---	875	39	64	53	7.7	4.5	4.8	
31	79	---	e90	257	---	653	---	215	---	7.0	4.1	---	
TOTAL	3018.4	3273	3595	4218	1994	7138	6446	9808	10126	551.0	350.7	294.4	
MEAN	97.4	109	116	136	71.2	230	215	316	338	17.8	11.3	9.81	
MAX	490	449	372	577	229	875	1210	1320	1850	44	131	32	
MIN	4.1	43	28	38	38	54	35	39	53	7.0	3.2	3.2	
CFSM	1.01	1.13	1.20	1.41	.74	2.39	2.23	3.28	3.50	.18	.12	.10	
IN.	1.16	1.26	1.39	1.63	.77	2.75	2.49	3.78	3.91	.21	.14	.11	
CAL YR	1988	TOTAL	34542.5	MEAN	94.4	MAX	1320	MIN	1.9	CFSM	.98	IN.	13.33
WTR YR	1989	TOTAL	50812.5	MEAN	139	MAX	1850	MIN	3.2	CFSM	1.44	IN.	19.61

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE
04215500 CAZENOVIA CREEK AT EBENEZER, NY

73

LOCATION.--Lat 42°49'47", long 78°46'31", Erie County, Hydrologic Unit 04120103, on right bank 30 ft upstream from bridge on Ridge Road in Ebenezer, 4.0 mi upstream from mouth, and 5 mi southeast of Buffalo.

DRAINAGE AREA.--135 mi².

PERIOD OF RECORD.--June 1940 to current year.

REVISED RECORDS.--WSP 1912: Drainage area. WRD NY 1973: 1972 (M). WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 604.86 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1955, at datum 2.00 ft higher. Apr. 4 to Oct. 12, 1955, nonrecording gage at temporary site 1.3 mi downstream at different datum.

REMARKS.--Records fair. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--49 years (water years 1941-89), 231 ft³/s, 23.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft³/s, Mar. 1, 1955, gage height, 15.82 ft, present datum, from rating curve extended above 7,700 ft³/s; minimum, 2.6 ft³/s, Nov. 7, 1953; minimum gage height, 1.87 ft, June 28.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 1	0645	*8,650	*11.37	No other peak greater than base discharge.			
Minimum discharge, 12 ft ³ /s, Aug. 28, 29, gage height 1.95 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	14	134	315	e150	422	e92	688	85	3240	82	17	29	
2	19	118	247	e130	281	e90	691	424	641	71	16	81	
3	29	102	215	e110	e140	e90	1710	478	362	63	25	45	
4	23	93	294	e100	e125	e120	1460	200	454	62	182	22	
5	45	107	199	e100	e115	e500	763	150	264	64	381	17	
6	35	423	172	e96	e110	e310	417	191	206	60	76	15	
7	30	195	224	e190	e100	e200	296	472	158	55	39	14	
8	26	159	221	e500	e100	e180	233	1120	128	51	29	14	
9	26	321	e150	e180	e96	e170	199	1390	196	46	25	14	
10	85	267	e120	e170	e92	e150	185	1460	259	41	21	18	
11	798	325	e110	e160	e90	e140	179	1600	161	37	19	17	
12	321	186	e130	e300	e86	e130	195	1520	120	35	19	17	
13	145	260	e150	e490	e84	e120	231	534	284	34	18	14	
14	92	230	231	e170	e130	e115	217	344	250	32	17	24	
15	66	153	276	e150	e190	e952	176	323	249	29	16	69	
16	49	134	e250	e140	e140	389	173	776	237	27	24	66	
17	39	119	e200	e130	e110	254	149	363	966	25	31	118	
18	605	99	e190	e120	e100	948	268	222	762	24	20	85	
19	360	86	e180	e110	e92	383	194	171	274	25	17	39	
20	165	128	376	e105	e86	223	145	148	1260	70	18	27	
21	112	556	1470	e100	e140	220	124	164	1230	52	28	24	
22	146	240	385	e98	e120	177	115	131	552	66	27	23	
23	408	159	345	e96	e115	165	104	185	745	34	19	115	
24	248	129	408	e90	e110	207	97	312	301	28	17	96	
25	609	113	559	e300	e105	278	97	162	201	24	15	46	
26	897	106	248	1430	e100	289	99	159	159	22	14	31	
27	646	100	178	849	e98	246	95	152	137	21	13	24	
28	1000	201	808	296	e96	399	87	115	158	23	13	20	
29	556	244	452	280	---	778	80	98	130	22	17	18	
30	236	222	e230	504	---	1100	81	125	97	19	24	17	
31	164	---	e180	396	---	856	---	189	---	17	19	---	
TOTAL	7994	5709	9513	8040	3573	10271	9548	13763	14181	1261	1216	1159	
MEAN	258	190	307	259	128	331	318	444	473	40.7	39.2	38.6	
MAX	1000	556	1470	1430	422	1100	1710	1600	3240	82	381	118	
MIN	14	86	110	90	84	90	80	85	97	17	13	14	
CFSM	1.91	1.41	2.27	1.92	.95	2.45	2.36	3.29	3.50	.30	.29	.29	
IN.	2.20	1.57	2.62	2.22	.98	2.83	2.63	3.79	3.91	.35	.34	.32	
CAL YR	1988	TOTAL	68900.4	MEAN	188	MAX	1950	MIN	8.9	CFSM	1.39	IN.	18.99
WTR YR	1989	TOTAL	86228	MEAN	236	MAX	3240	MIN	13	CFSM	1.75	IN.	23.76

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE

04215790 BUFFALO RIVER AT OHIO STREET AT BUFFALO, NY

LOCATION.--Lat 42°51'42", long 78°52'04", Erie County, Hydrologic Unit 04120103, at Ohio Street bridge, 1.0 mi upstream of mouth.

DRAINAGE AREA.--427 mi²

PERIOD OF RECORD.--Water years 1971-74, 1987 to current year.

CHEMICAL DATA: 1987-89 (c).

MINOR ELEMENT DATA: 1972 (b), 1973-74 (a), 1987-89 (c).

SEDIMENT DATA: 1987-89 (c).

COOPERATION.--Water samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTASSIUM, DIS-SOLVED (MG/L AS K)
OCT 04	0915	458	7.40	16.0	763	5.6	57	170	48	11	27	3.5
NOV 15	0800	372	7.95	6.0	763	10.8	87	140	44	8.4	17	2.7
APR 12	1300	450	8.60	6.0	769	11.0	88	150	47	8.7	22	2.0
MAY 24	1100	385	7.40	18.0	758	5.8	62	150	46	9.3	19	2.1
JUN 14	1200	460	7.40	19.0	763	5.2	56	160	48	9.0	21	2.7
AUG 16	1400	430	7.70	25.0	764	3.0	36	140	42	9.1	19	3.3

DATE	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	CADMIUM DIS-SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, DIS-SOLVED (UG/L AS CU)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT 04	109	57	40	0.1	400	10	<1	<1	1	9	830
NOV 15	96	47	25	0.1	640	--	--	<1	--	7	1300
APR 12	104	33	35	0.1	210	--	--	1	--	6	540
MAY 24	112	31	30	0.1	420	--	--	<1	--	6	940
JUN 14	129	32	30	0.1	850	--	--	<1	--	5	1300
AUG 16	107	35	30	0.1	140	--	--	<1	--	7	360

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	ZINC, DIS-SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)
OCT 04	17	<5	<5	50	7	<0.1	1	6	4	20	28
NOV 15	--	--	<5	70	--	<0.1	--	4	--	20	32
APR 12	--	--	5	60	--	<0.1	--	3	--	20	11
MAY 24	--	--	4	90	--	<0.1	--	5	--	<10	21
JUN 14	--	--	5	90	--	<0.1	--	4	--	10	26
AUG 16	--	--	3	80	--	<0.1	--	2	--	10	9

LAKE ERIE

75

04215900 LAKE ERIE AT BUFFALO, NY

LOCATION.--Lat 42°52'39", long 78°53'26", Erie County, Hydrologic Unit 04120200, near outer end of Buffalo River South Pier, at Buffalo.

DRAINAGE AREA.--263,700 mi².

PERIOD OF RECORD.--January 1860 to current year. Records prior to October 1960 in files of Lake Survey Center.

REVISED RECORDS.--WDR NY-75-1: 1974.

GAGE.--Water-stage recorder. Elevations are in feet International Great Lakes Datum (IGLD) of 1955. Prior to Feb. 5, 1899, nonrecording gages.

COOPERATION.--Records furnished by U.S. Department of Commerce, NOAA-NOS, Lake Survey Center, Detroit, Mich.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 580.65 ft, Dec. 2, 1985; minimum, 564.17 ft, Mar. 10, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 575.86 ft, Nov. 10; minimum elevation, 568.62 ft, Jan. 25.

ELEVATION (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570.56	570.46	570.66	570.11	570.37	570.80	570.96	570.85	571.63	571.90	571.66	571.62
2	570.55	570.51	572.08	571.40	569.71	570.24	570.67	571.14	571.83	571.88	572.07	571.29
3	570.37	570.14	571.29	570.17	570.26	569.22	570.70	571.26	571.66	571.88	572.00	571.06
4	570.56	570.12	570.96	570.19	570.38	569.96	570.84	570.95	571.94	571.84	572.18	571.06
5	570.72	570.37	570.74	570.07	570.47	570.14	571.10	571.04	571.72	571.82	571.81	571.29
6	570.44	571.01	570.88	570.05	571.34	569.18	571.09	571.10	571.77	571.87	571.89	571.14
7	570.40	570.72	570.56	570.17	571.50	569.11	571.04	571.70	571.78	571.98	571.68	571.12
8	570.31	570.54	570.32	572.71	572.54	570.00	570.78	571.38	571.75	571.87	571.72	571.22
9	570.45	570.21	570.74	571.24	571.87	570.25	571.42	570.94	571.77	571.90	571.54	571.20
10	571.62	571.25	570.48	570.72	571.40	570.20	571.74	570.80	572.19	572.36	571.58	571.24
11	571.14	570.62	570.21	569.97	570.99	570.21	571.06	571.02	571.93	571.94	571.45	571.08
12	570.63	570.03	570.22	570.76	570.66	570.15	571.09	571.13	571.60	571.71	571.43	571.10
13	570.46	571.22	570.65	570.83	570.27	570.21	571.14	570.98	571.81	571.73	571.46	570.74
14	570.78	570.85	570.51	570.44	570.28	570.21	570.92	571.09	571.69	571.75	571.45	570.33
15	570.50	569.96	571.00	571.08	570.23	571.10	570.97	571.15	571.72	571.69	571.52	570.76
16	570.35	571.06	570.49	571.04	570.35	570.61	570.90	571.18	571.85	571.68	571.47	570.78
17	570.23	572.27	570.39	571.08	570.30	569.70	571.00	571.19	572.15	571.74	571.22	571.14
18	570.98	570.37	570.81	570.51	570.20	570.30	571.03	571.14	572.13	571.67	570.93	570.96
19	570.29	570.05	570.38	570.77	570.32	570.44	571.11	571.10	571.87	571.57	571.24	570.95
20	570.23	570.32	570.58	570.94	570.22	570.23	571.03	571.18	571.86	571.07	571.58	571.01
21	570.29	570.56	570.40	570.43	570.32	570.54	571.03	571.47	571.81	571.52	571.60	570.94
22	570.42	570.23	569.72	570.62	570.42	570.34	570.94	571.17	571.90	571.72	571.47	571.13
23	570.58	570.26	570.65	570.35	570.30	570.17	570.97	570.89	571.93	571.76	571.38	571.66
24	571.97	570.24	570.24	570.20	570.34	570.29	571.01	571.21	571.95	571.77	571.09	571.08
25	571.47	570.35	571.06	569.42	570.29	570.37	570.89	571.23	571.98	571.78	570.89	571.09
26	571.01	570.25	570.32	570.69	570.49	570.24	570.94	571.49	571.96	571.83	571.01	571.12
27	570.41	570.90	570.10	571.23	570.49	570.45	570.96	571.54	572.08	572.01	571.15	570.83
28	571.77	571.37	571.07	570.74	570.30	570.68	570.74	571.45	572.04	571.80	571.16	571.05
29	570.70	570.85	570.89	570.55	---	570.37	570.81	571.37	571.87	571.66	571.52	571.43
30	570.35	571.32	570.65	570.80	---	570.36	570.98	571.54	571.85	571.57	571.59	570.77
31	570.19	---	570.48	570.86	---	570.75	---	571.65	---	571.59	571.28	---
MEAN	570.67	570.61	570.63	570.65	570.59	570.22	571.00	571.20	571.87	571.77	571.48	571.07
MAX	571.97	572.27	572.08	572.71	572.54	571.10	571.74	571.70	572.19	572.36	572.18	571.66
MIN	570.19	569.96	569.72	569.42	569.71	569.11	570.67	570.80	571.60	571.07	570.89	570.33
CAL YR	1988	MEAN	571.18	MAX	573.17	MIN	569.72					
WTR YR	1989	MEAN	570.98	MAX	572.71	MIN	569.11					

ST. LAWRENCE RIVER MAIN STEM
04216000 NIAGARA RIVER AT BUFFALO, NY

LOCATION.--Lat 42°52'40", long 78°55'00", Erie County, Hydrologic Unit 04120104, at head of Niagara River at Buffalo, and 34.3 mi upstream from mouth.

DRAINAGE AREA.--263,700 mi².

PERIOD OF RECORD.--January 1860 to September 1960 (monthly discharges only published in WSP 1912), October 1960 to current year. Records of January 1926 to September 1960 daily discharges available in files of U.S. Department of Commerce and U.S. Geological Survey.

REVISED RECORDS.--WSP 1912: 1862(M), 1955 (M), 1936 (M), WDR NY-77-1: Drainage area.

GAGE.--Discharge determined from several powerplants at Niagara Falls and discharge over the falls. Discharge before 1926 determined from records of Corps of Engineers gages at Buffalo and Cleveland.

REMARKS.--Records do not include water diverted from Lake Michigan by Illinois and Michigan Canal during period of its operation prior to 1910 and by Chicago Sanitary and Ship Canal, which began operation in 1900, and from Lake Erie by Welland and New York State Canals before 1918. Records include water diverted into Lake Superior from Hudson Bay drainage by the Long Lake project, which began operation in July 1939, and by the Ogoki project, which began operation in July 1943. Figures of monthly mean discharge for 1860 to 1960 and daily discharge for 1961 to 1965, published in WSP 1912, are the official records of the U.S. Lake Survey, and have been coordinated with and concurred by the counterpart Canadian agencies, as have been the extremes for period of record through December 1976 and records October 1977 to current year.

COOPERATION.--Records of daily discharge furnished by Detroit District Corps of Engineers and Canada Department of the Environment.

AVERAGE DISCHARGE.--129 years, 205,600 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 347,000 ft³/s, Dec. 2, 1985, result of high, storm-generated Lake Erie level; minimum daily, 90,000 ft³/s, Jan. 13, 1964, Aug. 29, 1984. Maximum monthly mean discharge, 268,400 ft³/s, June 1986; minimum monthly mean, 116,200 ft³/s, February 1936.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 239,000 ft³/s, Nov. 17; minimum daily, 162,000 ft³/s, Mar. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194000	194000	200000	186000	195000	198000	207000	204000	225000	216000	217000	220000
2	197000	193000	226000	213000	179000	190000	203000	209000	227000	214000	226000	211000
3	192000	189000	222000	194000	189000	172000	201000	214000	225000	214000	226000	208000
4	194000	188000	203000	189000	194000	177000	206000	209000	230000	214000	230000	206000
5	198000	192000	202000	187000	199000	188000	214000	209000	224000	213000	221000	209000
6	192000	210000	205000	184000	213000	162000	213000	210000	224000	215000	225000	209000
7	192000	201000	198000	190000	206000	163000	211000	225000	224000	216000	218000	208000
8	191000	197000	191000	237000	233000	187000	201000	224000	222000	215000	219000	209000
9	192000	191000	199000	222000	202000	191000	213000	213000	226000	217000	217000	209000
10	220000	211000	197000	199000	202000	187000	223000	209000	238000	229000	217000	211000
11	209000	201000	190000	191000	190000	189000	211000	212000	228000	217000	213000	204000
12	198000	186000	190000	197000	200000	187000	206000	221000	221000	214000	215000	208000
13	192000	213000	198000	204000	181000	187000	211000	213000	221000	215000	215000	200000
14	200000	205000	193000	194000	184000	189000	205000	214000	219000	216000	215000	191000
15	196000	186000	210000	209000	186000	193000	206000	215000	219000	216000	216000	198000
16	189000	203000	195000	207000	185000	189000	204000	214000	222000	215000	215000	198000
17	192000	239000	194000	210000	173000	173000	207000	214000	230000	217000	210000	208000
18	202000	199000	202000	195000	187000	176000	208000	212000	232000	216000	204000	204000
19	192000	185000	194000	201000	187000	187000	211000	211000	224000	214000	208000	204000
20	190000	191000	198000	206000	186000	184000	209000	212000	226000	205000	217000	204000
21	189000	202000	195000	196000	186000	191000	207000	220000	224000	209000	219000	204000
22	192000	192000	181000	198000	191000	186000	203000	212000	225000	217000	212000	206000
23	196000	192000	199000	193000	190000	185000	205000	205000	227000	219000	214000	220000
24	223000	192000	191000	189000	190000	186000	205000	213000	227000	218000	207000	208000
25	225000	192000	208000	172000	194000	190000	204000	212000	225000	220000	202000	207000
26	207000	192000	195000	198000	195000	190000	203000	218000	223000	221000	204000	208000
27	196000	204000	186000	212000	196000	192000	204000	219000	223000	224000	207000	200000
28	222000	215000	208000	204000	190000	196000	200000	217000	222000	220000	209000	205000
29	203000	210000	207000	198000	---	195000	200000	216000	212000	217000	214000	217000
30	193000	213000	200000	205000	---	192000	205000	218000	215000	214000	218000	199000
31	188000	---	200000	205000	---	200000	---	222000	---	216000	211000	---
TOTAL	6156000	5978000	6177000	6185000	5403000	5772000	6206000	6636000	6730000	6703000	6661000	6193000
MEAN	198600	199300	199300	199500	193000	186200	206900	214100	224300	216200	214900	206400
MAX	225000	239000	226000	237000	233000	200000	223000	225000	238000	229000	230000	220000
MIN	188000	185000	181000	172000	173000	162000	200000	204000	212000	205000	202000	191000
CAL YR	1988	TOTAL	76072000	MEAN	207800	MAX	243000	MIN	176000			
WTR YR	1989	TOTAL	74800000	MEAN	204900	MAX	239000	MIN	162000			

ST. LAWRENCE RIVER MAIN STEM
04216052 BLACK ROCK CANAL AT PORTER AVENUE, BUFFALO, NY

LOCATION.--Lat 42°53'52", long 78°54'07", Erie County, Hydrologic Unit 04120104, on right bank at U. S. Navy Installation at Porter Avenue, Buffalo and 0.6 mi upstream from Peace bridge.

DRAINAGE AREA.--263,700 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is International Great Lakes Datum (IGLD) of 1955.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 578.90 ft, Dec. 2, 1985; minimum recorded 568.28 ft, Jan. 25, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 575.77 ft, Nov. 10; minimum, 568.28 ft, Jan. 25.

ELEVATION, (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570.75	570.56	570.73	570.18	570.46	570.81	571.02	570.91	571.72	571.99	571.74	571.58
2	570.72	570.50	572.09	571.42	569.75	570.30	570.74	571.17	571.88	571.95	572.13	571.17
3	570.64	570.21	571.39	570.26	570.30	569.30	570.76	571.33	571.75	571.96	572.06	571.03
4	570.76	570.09	571.00	570.24	570.45	569.99	570.90	571.05	571.98	571.94	572.27	571.04
5	570.94	570.32	570.81	570.13	570.52	570.21	571.14	571.11	571.79	571.91	571.83	571.26
6	570.67	571.02	570.96	570.11	571.36	569.25	571.14	571.18	571.84	571.95	571.99	571.16
7	570.63	570.66	570.66	570.25	571.51	569.18	571.09	571.72	571.85	572.07	571.73	571.34
8	570.60	570.52	570.38	572.66	572.52	570.03	570.82	571.45	571.82	571.93	571.74	571.42
9	570.68	570.29	570.78	571.26	571.88	570.31	571.41	570.99	571.81	571.98	571.62	571.24
10	571.92	571.24	570.53	570.78	571.42	570.27	571.77	570.87	572.26	572.43	571.66	571.24
11	571.50	570.77	570.27	570.04	571.01	570.28	571.14	571.08	571.99	572.03	571.52	571.13
12	570.98	570.10	570.28	570.79	570.71	570.22	571.14	571.20	571.68	571.75	571.52	571.30
13	570.81	571.32	570.73	570.89	570.30	570.27	571.21	571.05	571.88	571.83	571.55	570.97
14	571.13	570.92	570.53	570.50	570.31	570.28	571.00	571.16	571.77	571.81	571.52	570.45
15	570.91	570.07	571.09	571.12	570.26	571.17	571.04	571.23	571.79	571.75	571.60	570.82
16	570.73	571.11	570.55	571.09	570.39	570.63	570.97	571.26	571.91	571.75	571.57	570.74
17	570.62	572.38	570.46	571.15	570.33	569.82	571.08	571.28	572.17	571.82	571.30	571.22
18	571.30	570.48	570.88	570.56	570.24	570.14	571.09	571.22	572.20	571.74	571.02	571.02
19	570.67	570.12	570.45	570.84	570.36	570.41	571.20	571.20	571.93	571.67	571.32	571.00
20	570.61	570.36	570.67	571.00	570.25	570.15	571.10	571.26	571.94	571.19	571.64	571.05
21	570.63	570.67	570.49	570.46	570.34	570.36	571.11	571.57	571.89	571.53	571.73	570.99
22	570.77	570.33	569.80	570.70	570.46	570.18	571.00	571.26	571.97	571.78	571.43	571.12
23	570.87	570.32	570.74	570.42	570.34	570.07	571.05	570.98	572.00	571.83	571.30	571.81
24	572.12	570.33	570.30	570.28	570.37	570.21	571.08	571.32	572.03	571.85	570.99	571.08
25	571.66	570.42	571.13	569.45	570.34	570.33	570.99	571.30	572.06	571.86	570.85	571.11
26	571.08	570.35	570.39	570.73	570.52	570.22	570.98	571.58	572.04	571.91	571.00	571.20
27	570.52	570.97	570.17	571.26	570.52	570.44	571.04	571.60	572.16	572.11	571.13	570.87
28	571.76	571.42	571.13	570.81	570.31	570.72	570.82	571.52	572.14	571.88	571.20	571.05
29	570.81	570.96	570.95	570.60	---	570.47	570.86	571.45	571.88	571.74	571.48	571.48
30	570.45	571.37	570.70	570.85	---	570.43	571.04	571.58	571.96	571.68	571.60	570.85
31	570.24	---	570.58	570.92	---	570.78	---	571.70	---	571.63	571.20	---
MEAN	570.92	570.67	570.70	570.70	570.63	570.23	571.06	571.28	571.94	571.85	571.52	571.12
MAX	572.12	572.38	572.09	572.66	572.52	571.17	571.77	571.72	572.26	572.43	572.27	571.81
MIN	570.24	570.07	569.80	569.45	569.75	569.18	570.74	570.87	571.68	571.19	570.85	570.45
CAL YR	1988	MEAN	571.27	MAX	573.14	MIN	569.80					
WTR YR	1989	MEAN	571.05	MAX	572.66	MIN	569.18					

ST. LAWRENCE RIVER MAIN STEM

04216060 NIAGARA RIVER AT ANDERSON PARK, BUFFALO, NY

LOCATION.--Lat 42°54'53", long 78°54'12", Erie County, Hydrologic Unit 04120104, at Anderson Park (Broderick Park) dock at foot of Ferry Street on Squaw Island, Buffalo, 0.6 mi downstream from Peace Bridge.

DRAINAGE AREA.--263,700 mi².

PERIOD OF RECORD.--October 1984 to current year. Prior to October 1987, published as "at Bird Island."

GAGE.--Water-stage recorder. Datum of gage is International Great Lakes Datum (IGLD) of 1955.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 572.05 ft, Dec. 2, 1985; minimum recorded, 564.35 ft, Sept. 29, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 568.45 ft, Nov. 10, but may have been higher during periods of no gage-height record Jan. 21-Feb. 6, Feb. 9-10, and Feb. 12-28; minimum, 563.64 ft, Mar. 3.

ELEVATION (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	565.51	565.33	565.33	564.93	e565.30	565.52	565.79	565.54	566.25	566.21	566.16	e566.20
2	565.49	565.45	566.31	565.84	e564.80	565.16	565.59	565.77	566.30	566.16	566.46	e565.90
3	565.40	565.17	565.89	565.06	e565.20	564.16	e565.60	565.92	566.22	566.18	566.46	e565.80
4	565.44	565.13	565.47	564.98	e565.30	564.78	e565.70	565.67	566.41	566.18	566.67	565.87
5	565.64	565.37	565.40	564.76	e565.10	565.02	e565.90	e565.60	566.22	566.17	566.49	565.88
6	565.41	e565.60	565.43	564.88	e565.70	564.52	e565.70	565.75	566.19	566.18	566.42	565.81
7	565.37	565.59	565.29	565.02	565.99	564.50	e565.60	566.16	566.15	566.29	566.27	565.78
8	565.33	565.42	565.11	566.78	567.07	564.94	e565.50	566.04	566.19	566.18	566.27	565.84
9	565.36	565.20	565.38	565.95	e566.60	564.89	e565.80	565.54	566.23	566.23	566.10	565.86
10	566.21	565.96	565.20	565.26	e566.40	565.00	e566.20	565.47	566.77	566.55	566.12	565.99
11	565.93	565.58	565.07	564.85	566.12	565.00	565.68	565.63	566.54	566.27	566.18	565.76
12	565.55	565.03	565.00	565.13	e565.80	565.00	565.60	565.77	566.06	566.08	566.15	565.75
13	565.37	565.94	565.33	565.49	e565.10	565.00	565.75	565.70	566.21	566.22	566.04	565.54
14	565.61	565.64	565.12	565.14	e565.10	564.96	565.54	565.77	566.14	566.17	566.01	565.15
15	565.48	565.03	565.77	565.64	e565.10	565.82	565.63	565.79	566.17	566.08	566.07	565.51
16	565.31	565.54	565.19	565.61	e565.20	565.58	565.54	565.76	566.35	566.12	566.10	565.62
17	565.26	e566.60	565.10	565.65	e565.20	564.67	565.57	565.76	566.52	566.16	565.92	565.90
18	565.74	e565.40	565.43	565.06	e565.10	565.03	565.57	565.71	566.64	566.09	565.63	565.73
19	565.35	e565.10	565.09	565.40	e565.30	565.23	565.64	565.73	566.24	566.05	565.81	565.68
20	565.22	e565.20	565.23	565.76	e565.20	564.84	565.51	565.75	566.27	565.92	566.09	565.71
21	565.20	e565.50	565.18	e565.10	e565.30	565.13	565.53	566.04	566.19	566.03	566.26	565.69
22	565.38	e565.20	564.72	e565.40	e565.30	565.02	565.60	565.88	566.26	566.18	e566.00	565.75
23	565.44	e565.20	565.33	e565.20	e565.20	564.97	565.64	565.55	566.29	566.25	e566.00	566.53
24	566.40	e565.20	565.11	e565.10	e565.40	565.06	565.64	565.83	566.25	566.24	e565.80	566.41
25	566.27	e565.30	565.77	e564.60	e565.20	565.11	565.58	565.86	566.29	566.25	e565.70	566.09
26	565.79	e565.20	e565.30	e565.40	e565.10	565.05	565.58	566.13	566.27	566.27	e565.70	565.92
27	565.38	e565.50	e565.00	e565.90	e565.10	565.06	565.62	566.14	566.35	566.52	e565.80	565.72
28	566.19	e565.90	565.68	e565.50	e565.00	565.34	565.49	565.94	566.37	566.42	e565.90	565.70
29	565.59	565.53	565.51	e565.40	---	565.30	565.46	565.90	566.26	566.30	e566.00	566.00
30	565.36	565.69	565.26	e565.50	---	565.31	565.58	566.00	566.20	566.10	566.17	565.45
31	565.15	---	565.21	e565.40	---	565.50	---	566.18	---	566.12	565.87	---
MEAN	565.55	565.45	565.33	565.34	565.44	565.05	565.64	565.82	566.29	566.20	566.08	565.82
MAX	566.40	566.60	566.31	566.78	567.07	565.82	566.20	566.18	566.77	566.55	566.67	566.53
MIN	565.15	565.03	564.72	564.60	564.80	564.16	565.46	565.47	566.06	565.92	565.63	565.15
WTR YR 1989	MEAN		565.67	MAX	567.07	MIN	564.16					

e Estimated

NIAGARA RIVER BASIN
04216200 SCAJAQUADA CREEK AT BUFFALO, NY

79

LOCATION.--Lat 42°54'41", long 78°47'45", Erie County, Hydrologic Unit 04120104, on right bank 58 ft upstream from point where stream goes underground in concrete-lined tunnel, 86 ft upstream from Pine Ridge Road, 0.2 mi east of boundary line of city of Buffalo, and 6.2 mi upstream from mouth.

DRAINAGE AREA.--15.4 mi².

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

REVISED RECORDS.--WSP 1912; WDR NY-82-3: Drainage area. WRD NY 1974: 1973.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 626.26 ft above National Geodetic Vertical Datum of 1929 (city of Buffalo bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to July 1982 discharge included flow diverted from Lake Erie and Niagara River as sewage-plant effluent entering basin upstream from station. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

COOPERATION.--Town of Cheektowaga maintains records of sewage-plant discharge.

AVERAGE DISCHARGE.--32 years, 32.3 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,820 ft³/s, June 22, 1987, gage height, 15.17 ft; minimum, 0.64 ft³/s, July 4, 1988, gage height, 1.34 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 9	1930	*1,780	*10.76	June 20	1245	734	5.81
June 17	0400	681	5.53	June 28	0445	634	5.28

Minimum discharge, 0.83 ft³/s, Oct. 1; minimum gage height, 1.34 ft, July 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.94	4.4	15	e6.0	11	4.6	116	8.8	81	3.5	3.0	73
2	16	3.9	10	e5.0	6.3	4.4	50	47	35	2.9	2.1	12
3	7.0	3.5	7.0	e4.2	e4.8	4.1	82	22	25	2.7	2.5	2.4
4	3.7	6.4	5.1	e3.6	e3.6	32	123	10	40	6.0	2.5	1.6
5	40	38	4.5	e3.3	e3.3	67	27	14	9.9	3.9	3.0	1.6
6	4.2	25	4.2	e3.0	e3.0	e20	13	30	6.1	3.1	2.4	1.8
7	6.2	12	3.8	7.0	e2.8	e7.0	12	164	4.6	10	2.2	1.7
8	3.8	22	3.5	133	e2.7	e5.0	9.4	130	3.9	4.0	2.1	1.8
9	1.9	13	e3.0	22	e2.6	e5.8	8.1	26	458	2.5	1.9	1.5
10	76	19	e2.6	e7.0	e2.5	e7.0	8.7	41	116	2.3	2.1	2.7
11	31	10	e2.3	e5.0	e2.4	10	7.0	174	11	2.7	1.9	1.9
12	5.8	6.5	e2.0	e7.0	e2.3	13	5.8	106	6.2	2.2	1.6	1.5
13	4.0	92	e2.1	e8.0	e2.2	9.3	8.5	18	24	2.1	1.6	1.5
14	2.4	25	e4.0	e3.6	31	20	5.7	17	9.2	2.1	1.6	20
15	1.8	11	11	e4.2	22	42	10	14	8.6	1.9	3.6	19
16	1.7	8.0	e3.0	e5.0	12	17	6.5	27	16	1.6	23	26
17	2.8	6.5	e2.5	e4.6	e7.0	11	9.8	10	203	1.6	2.3	20
18	49	5.2	e2.0	5.6	e5.0	83	24	6.4	58	2.9	1.7	4.9
19	5.4	4.3	e2.8	5.1	e4.6	18	8.3	5.1	11	2.0	1.6	3.6
20	3.6	51	4.8	26	e4.0	13	6.0	7.3	220	18	2.2	2.1
21	3.8	52	6.5	e3.4	59	20	4.4	6.1	51	4.0	40	1.9
22	33	14	5.4	e3.2	33	13	3.7	4.0	28	2.4	3.1	14
23	17	9.1	18	4.5	e11	9.3	3.3	34	20	2.0	2.1	25
24	11	6.5	18	4.6	e7.0	11	3.4	13	8.2	2.1	2.0	3.8
25	188	5.4	16	4.2	e5.0	15	7.7	6.4	5.2	2.1	1.9	3.3
26	47	5.0	7.3	63	e4.8	12	3.9	25	4.5	2.5	1.9	1.8
27	16	6.9	8.4	24	e4.8	9.4	3.7	8.2	3.9	2.7	1.2	1.6
28	43	32	95	9.1	e4.6	19	4.2	4.7	116	4.5	1.2	1.5
29	14	17	20	11	---	29	3.3	3.5	8.3	2.2	2.2	1.4
30	8.2	12	11	20	---	212	3.1	30	4.6	1.8	1.8	1.4
31	5.3	---	e7.0	14	---	72	---	93	---	1.7	1.5	---
TOTAL	653.54	526.6	307.8	429.2	264.3	814.9	581.5	1105.5	1596.2	106.0	123.8	256.3
MEAN	21.1	17.6	9.93	13.8	9.44	26.3	19.4	35.7	53.2	3.42	3.99	8.54
MAX	188	92	95	133	59	212	123	174	458	18	40	73
MIN	.94	3.5	2.0	3.0	2.2	4.1	3.1	3.5	3.9	1.6	1.2	1.4
CAL YR	1988	TOTAL	5028.32	MEAN	13.7	MAX	220	MIN	.78			
WTR YR	1989	TOTAL	6765.64	MEAN	18.5	MAX	458	MIN	.94			

e Estimated

ST. LAWRENCE RIVER MAIN STEM

04216218 BLACK ROCK CANAL AT BLACK ROCK LOCK, BUFFALO, NY

LOCATION.--Lat 42°56'01", long 78°54'18", Erie County, Hydrologic Unit 04120104, at Black Rock Lock adjacent to U.S. Army Corps of Engineers installation at foot of Hamilton Street, Buffalo and 0.2 mi downstream from International railroad bridge.

DRAINAGE AREA.--263,700 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water stage recorder. Datum of gage is International Great Lakes Datum (IGLD) of 1955.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 579.26 ft, Dec. 2, 1985; minimum recorded, 568.15 ft, Jan. 25, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 575.71 ft, Nov. 10; minimum, 568.15 ft, Jan. 25.

ELEVATION (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570.56	570.47	e570.70	570.11	570.37	570.74	570.93	570.81	571.66	571.90	571.64	571.66
2	570.52	570.46	e572.00	571.37	569.66	570.21	570.65	571.08	571.81	571.86	572.05	571.24
3	570.41	570.13	e571.30	570.19	570.22	569.20	570.68	571.24	571.63	571.87	571.99	571.07
4	570.52	570.13	e570.90	570.16	570.36	569.89	570.85	570.96	571.89	571.85	572.18	571.04
5	570.70	570.36	e570.70	570.04	570.45	570.11	571.10	571.01	571.69	571.81	571.76	571.26
6	570.42	571.02	e570.90	570.02	571.27	569.19	571.07	571.08	571.74	571.87	571.91	571.15
7	570.37	570.71	e570.60	570.16	571.42	569.11	570.97	571.64	571.77	571.99	571.69	571.13
8	570.32	570.51	e570.30	572.60	572.43	570.02	570.74	571.37	571.75	571.83	571.69	571.21
9	e570.50	570.19	e570.70	571.18	571.80	570.20	571.35	570.90	571.71	571.89	571.55	571.19
10	e571.70	571.17	e570.50	570.69	571.35	570.17	571.67	570.76	572.18	572.35	571.59	571.26
11	e571.30	570.63	e570.20	569.95	570.93	570.18	571.04	570.97	571.90	571.92	571.44	571.04
12	e570.80	569.98	e570.20	570.70	570.63	570.10	571.04	571.11	571.59	571.67	571.43	571.11
13	e570.60	571.23	570.72	570.80	570.22	570.19	571.14	570.96	571.78	571.73	571.46	570.77
14	e571.00	570.83	570.47	570.42	570.25	570.22	570.92	571.06	571.67	571.71	571.44	570.29
15	e570.80	569.94	571.02	571.04	570.19	571.08	570.96	571.13	571.69	571.67	571.52	570.75
16	e570.70	571.01	570.48	571.00	570.31	570.57	570.89	571.15	571.82	571.66	571.47	570.71
17	e570.60	572.28	570.39	571.05	570.26	569.63	570.99	571.20	572.10	571.74	571.21	571.12
18	e571.20	570.42	570.81	570.47	570.16	e570.10	571.00	571.13	572.12	571.66	570.93	570.94
19	e570.60	570.18	570.38	570.75	570.28	e570.30	571.13	571.10	571.84	571.57	e571.20	570.93
20	e570.50	570.26	570.58	570.92	570.18	e570.10	571.02	571.16	571.84	571.09	e571.60	570.98
21	e570.50	570.57	570.40	570.37	570.27	e570.30	571.02	571.49	571.79	571.46	e571.70	570.91
22	e570.60	570.23	569.71	570.61	570.38	e570.10	570.90	571.17	571.88	571.71	e571.50	571.05
23	e570.80	570.22	570.69	570.33	570.26	e570.00	570.96	570.87	571.91	571.75	e571.50	571.69
24	e571.90	570.24	570.22	570.18	570.29	e570.10	571.00	571.22	571.94	571.76	571.09	571.03
25	e571.50	570.32	571.12	569.38	570.25	e570.30	570.91	571.19	571.97	571.77	570.89	571.06
26	e570.90	570.25	570.32	570.65	570.44	e570.20	570.90	571.50	571.95	571.82	571.00	571.13
27	e570.40	570.89	570.09	571.20	570.46	570.46	570.95	571.50	572.08	572.02	571.11	570.77
28	571.72	571.36	571.06	570.73	570.25	570.70	570.72	571.44	572.05	571.77	571.18	571.02
29	570.72	e570.90	570.87	570.53	---	570.36	570.77	571.35	571.79	571.65	571.47	571.46
30	570.37	e571.30	570.63	570.79	---	570.34	570.95	571.50	571.87	571.58	571.61	570.75
31	570.18	---	570.49	570.85	---	570.72	---	571.61	---	571.55	571.24	---
MEAN	570.76	570.61	570.63	570.62	570.55	570.16	570.97	571.18	571.85	571.76	571.49	571.06
MAX	571.90	572.28	572.00	572.60	572.43	571.08	571.67	571.64	572.18	572.35	572.18	571.69
MIN	570.18	569.94	569.71	569.38	569.66	569.11	570.65	570.76	571.59	571.09	570.89	570.29
CAL YR	1988	MEAN	571.16	MAX	573.01	MIN	569.71					
WTR YR	1989	MEAN	570.97	MAX	572.60	MIN	569.11					

e Estimated

ST. LAWRENCE RIVER MAIN STEM

04216220 NIAGARA RIVER AT BLACK ROCK LOCK, BUFFALO, NY

LOCATION.--Lat 42°56'02", long 78°54'17", Erie County, Hydrologic Unit 04120104, at Black Rock Lock adjacent to U.S. Army Corps of Engineers installation at foot of Hamilton Street, Buffalo and 0.2 mi downstream from International railroad bridge.

DRAINAGE AREA.--263,700 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is International Great Lakes Datum (IGLD) of 1955.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 570.48 ft, Dec. 2, 1985; minimum, 563.04 ft, Mar. 3, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 567.39 ft, Feb. 8; minimum recorded, 563.04 ft, Mar. 3.

ELEVATION (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	564.70	564.47	564.61	564.24	564.43	564.67	565.01	564.76	565.35	565.40	565.34	565.37
2	564.66	564.61	565.50	565.05	563.89	564.49	564.87	564.97	565.45	565.33	565.58	565.08
3	564.58	564.36	565.13	564.38	564.34	563.50	564.84	565.08	565.36	565.36	565.54	565.01
4	564.61	564.33	564.72	564.29	564.40	564.09	564.94	564.89	565.54	565.34	565.70	564.96
5	564.79	564.38	564.68	564.06	564.25	564.31	565.16	564.82	565.35	565.32	565.39	565.09
6	564.60	564.86	564.70	564.20	564.84	563.95	564.95	564.95	565.32	565.35	565.56	565.01
7	564.56	564.70	564.56	564.35	565.19	563.93	564.89	565.34	565.29	565.43	565.39	565.01
8	564.52	564.58	564.38	565.95	566.27	564.27	564.72	565.23	565.34	565.32	565.37	565.06
9	564.54	564.40	564.66	565.23	565.82	564.16	565.04	564.76	565.39	565.38	565.30	565.07
10	565.29	565.06	564.50	564.53	565.60	564.29	565.39	564.70	565.72	565.65	565.31	565.15
11	565.08	564.72	564.37	564.17	565.30	564.30	564.89	564.82	565.48	565.41	565.26	565.00
12	564.71	564.23	564.31	564.37	564.90	564.29	564.79	564.96	565.23	565.21	565.27	564.98
13	564.55	565.04	564.61	564.74	564.28	564.29	564.95	564.94	565.34	565.32	565.26	564.78
14	564.76	564.77	564.43	564.40	564.21	564.25	564.76	565.00	565.28	565.29	565.23	564.41
15	564.67	564.23	564.98	564.87	564.21	564.90	564.84	565.00	565.30	565.27	565.28	564.75
16	564.51	564.66	564.46	564.83	564.33	564.90	564.78	564.94	565.38	565.28	565.29	564.70
17	564.45	565.70	564.40	564.86	564.33	564.03	564.78	564.95	565.54	565.35	565.14	565.06
18	564.87	564.51	564.70	564.28	564.21	564.08	564.76	564.91	565.63	565.28	564.89	564.98
19	564.55	564.21	564.40	564.62	564.34	564.52	564.83	564.96	565.36	565.24	565.03	564.92
20	564.41	564.36	564.51	564.86	564.26	564.13	564.70	564.96	565.39	565.00	565.29	564.95
21	564.38	564.67	564.46	564.18	564.30	564.37	564.71	565.16	565.33	565.16	565.42	564.94
22	564.55	564.35	564.05	564.53	564.37	564.31	564.81	564.94	565.37	565.37	565.23	564.98
23	564.60	564.36	564.60	564.36	564.27	564.28	564.85	564.77	565.45	565.45	565.27	565.48
24	565.41	564.37	564.33	564.27	564.40	564.33	564.86	565.03	565.42	565.43	565.05	564.97
25	565.39	564.41	564.95	563.66	564.31	564.40	564.78	565.01	565.45	565.43	564.90	564.94
26	564.92	564.36	564.46	564.52	564.20	564.32	564.78	565.20	565.40	565.41	564.93	565.04
27	564.57	564.67	564.22	564.99	564.23	564.34	564.83	565.21	565.41	565.56	565.00	564.74
28	565.21	565.07	564.86	564.61	564.09	564.59	564.72	565.13	565.46	565.39	565.06	564.95
29	564.75	564.77	564.77	564.49	---	564.47	564.68	565.10	565.29	565.30	565.21	565.21
30	564.54	564.91	564.53	564.62	---	564.37	564.80	565.17	565.39	565.27	565.36	564.71
31	564.33	---	564.49	564.53	---	564.72	---	565.31	---	565.20	565.08	---
MEAN	564.71	564.60	564.59	564.55	564.56	564.32	564.86	565.00	565.40	565.34	565.26	564.98
MAX	565.41	565.70	565.50	565.95	566.27	564.90	565.39	565.34	565.72	565.65	565.70	565.48
MIN	564.33	564.21	564.05	563.66	563.89	563.50	564.68	564.70	565.23	565.00	564.89	564.41
WTR YR	1989	MEAN	564.85	MAX	566.27	MIN	563.50					

NIAGARA RIVER BASIN
04216418 TONAWANDA CREEK AT ATTICA, NY

LOCATION.--Lat 42°51'50", long 78°17'02", Wyoming County, Hydrologic Unit 04120104, on right bank behind Village Hall and fire station, 150 ft downstream from bridge on State Highway 238 (Main Street) at Attica, and 0.4 mi upstream from Tannery Creek.

DRAINAGE AREA.--76.9 mi².

PERIOD OF RECORD.--October 1977 to current year.

REVISED RECORDS.--WDR NY-79-1: 1978 (M). WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder, crest-stage gages, and concrete weir. Datum of gage is 954.63 ft above National Geodetic Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 116 ft³/s, 20.48 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,700 ft³/s, Dec. 29, 1984, gage height, 9.25 ft; maximum gage height, 12.40 ft, Feb. 18, 1979 (backwater from ice); minimum discharge, 5.4 ft³/s, July 27, 28, 29, 1983; minimum gage height, 3.34 ft, July 27, 28, 29, 1983, Aug. 14, 15, 16, 1985, and Aug. 17, 22, 23, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 6,000 ft³/s, June 23, 1972, gage height, about 12.0 ft, from information supplied by Village of Attica.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 3	1800	1,560	6.15	June 20	2015	*3,520	*8.21
May 11	1915	1,770	6.40	June 23	0345	3,350	8.05
June 1	1645	2,330	7.03				

Minimum discharge, 11 ft³/s, Aug. 26-27, gage height, 3.38 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	12	49	78	e66	216	e46	304	41	954	61	14	14	
2	14	48	73	e60	126	e42	352	172	260	54	15	36	
3	22	47	70	e50	72	e40	893	159	154	50	18	23	
4	18	43	90	e34	e55	e120	696	91	171	46	85	16	
5	16	58	63	e30	e50	e350	397	70	118	46	125	17	
6	16	172	58	e34	e56	e170	237	82	100	41	37	19	
7	16	86	69	e40	e50	e70	188	133	78	37	26	18	
8	16	77	62	e90	e45	e80	150	287	64	35	22	22	
9	19	101	e42	e115	e40	e80	126	670	93	31	19	27	
10	25	98	e36	e75	e45	e70	113	669	324	31	18	29	
11	126	103	e30	e65	e50	e100	113	1240	117	32	17	32	
12	65	72	e24	e70	e45	e70	123	710	79	29	16	26	
13	40	65	e30	e60	e40	e40	127	292	184	30	16	21	
14	31	63	e38	e55	e50	e100	112	231	143	28	14	20	
15	28	51	e44	e70	e90	e420	95	230	154	24	13	59	
16	25	47	e38	e50	e70	191	92	401	125	23	23	31	
17	23	43	e36	e46	e50	133	80	203	496	23	18	48	
18	197	38	e30	e44	e40	427	102	139	292	22	13	44	
19	107	35	e34	e42	e50	172	84	112	137	20	13	26	
20	55	71	e60	e40	e60	112	70	95	1130	42	20	20	
21	41	267	e250	e30	e200	107	64	103	638	32	28	17	
22	97	116	106	e45	e240	83	56	79	338	27	20	17	
23	187	77	95	e70	e110	86	52	76	1270	24	16	68	
24	131	63	143	e80	e70	126	50	149	278	22	14	41	
25	138	54	175	e60	e60	198	51	96	168	20	14	28	
26	155	53	79	398	e70	202	51	83	126	18	12	24	
27	151	52	71	235	e60	177	45	74	101	17	12	21	
28	164	68	262	124	e50	255	42	62	102	18	12	19	
29	112	74	136	124	---	372	41	53	82	16	13	16	
30	70	64	e90	242	---	587	41	168	68	14	19	15	
31	55	---	e78	177	---	400	---	146	---	15	14	---	
TOTAL	2172	2255	2490	2721	2160	5426	4947	7116	8344	928	716	814	
MEAN	70.1	75.2	80.3	87.8	77.1	175	165	230	278	29.9	23.1	27.1	
MAX	197	267	262	398	240	587	893	1240	1270	61	125	68	
MIN	12	35	24	30	40	40	41	41	64	14	12	14	
CFSM	.91	.98	1.04	1.14	1.00	2.28	2.14	2.99	3.62	.39	.30	.35	
IN.	1.05	1.09	1.20	1.32	1.04	2.62	2.39	3.44	4.04	.45	.35	.39	
CAL YR	1988	TOTAL	29546.4	MEAN	80.7	MAX	888	MIN	6.5	CFSM	1.05	IN.	14.29
WTR YR	1989	TOTAL	40089	MEAN	110	MAX	1270	MIN	12	CFSM	1.43	IN.	19.39

e Estimated

NIAGARA RIVER BASIN

83

04216500 LITTLE TONAWANDA CREEK AT LINDEN, NY

LOCATION.--Lat 42°52'37", long 78°09'48", Genesee County, Hydrologic Unit 04120104, on right bank at upstream side of bridge on County Highway 13A (Depot Road) in Linden and 9.3 mi upstream from mouth.

DRAINAGE AREA.--22.1 mi².

PERIOD OF RECORD.--July 1912 to November 1919, April 1920 to September 1968, October 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gages. Concrete control since Oct. 15, 1930. Datum of gage is 1,081.62 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1943, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--67 years (water years 1913-19, 1921-68, 1978-89), 27.5 ft³/s, 16.90 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,900 ft³/s, June 23, 1989, from rating curve extended above 1,500 ft³/s on basis of critical-depth computation of peak flow at gage height 16.99 ft; maximum gage height, 16.99 ft, from floodmark; minimum discharge, 0.08 ft³/s, Aug. 3, 4, 1955; minimum gage height, -0.14 ft, Jan. 17, 1966 (siphonic action).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 530 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	2345	607	5.78	June 23	unknown	*a2,900	*b16.99
June 1	1030	915	7.35				

a From rating curve extended as explained above.

b From floodmark.

Minimum discharge, 0.58 ft³/s, Oct. 1, 2, gage height, 0.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	.68	6.2	13	12	55	e13	106	11	444	14	2.0	1.4	
2	.73	6.0	12	12	34	e12	115	53	100	12	2.1	1.7	
3	.89	6.3	11	e10	e16	e11	272	56	53	10	2.1	1.2	
4	.85	5.7	11	e8.0	e14	e20	256	35	55	9.9	8.9	1.1	
5	.84	5.6	9.7	e7.8	e14	e100	136	23	38	10	16	1.1	
6	.84	16	9.0	e8.8	15	e55	76	22	33	8.7	4.5	1.0	
7	.84	12	8.8	9.9	13	e25	65	35	25	7.7	2.5	1.1	
8	.85	10	8.0	26	e11	e17	54	87	19	6.8	2.7	.89	
9	.91	11	6.8	e27	e9.0	e14	43	199	19	6.3	2.3	.87	
10	1.0	11	e6.4	e17	e10	e14	38	237	117	5.3	2.0	.91	
11	2.1	12	e5.6	e14	e12	17	40	401	39	4.8	1.9	1.0	
12	2.5	10	e5.2	e13	e11	e17	42	321	24	4.7	2.1	.92	
13	1.4	8.5	e5.8	e23	e8.0	e14	39	107	44	4.7	2.0	.86	
14	1.2	8.1	e6.2	e14	e17	e30	34	75	44	4.2	1.9	1.3	
15	1.0	7.2	e8.0	e13	21	106	29	97	46	3.6	1.9	3.1	
16	.92	6.9	6.3	13	16	77	28	179	38	3.3	2.1	1.6	
17	.93	6.0	4.6	12	e11	47	25	81	145	3.4	1.8	2.6	
18	5.8	5.2	3.5	10	e10	72	28	50	96	3.2	1.6	2.6	
19	7.0	5.0	e4.0	11	e9.0	56	24	38	43	2.9	1.8	1.5	
20	3.1	7.9	7.3	e10	e9.5	37	21	33	140	3.4	2.4	1.5	
21	1.6	47	25	e9.6	40	37	18	33	259	3.3	3.5	1.4	
22	6.1	25	15	e9.2	75	27	17	25	128	2.9	2.2	2.0	
23	18	16	12	9.5	e32	29	15	25	e680	2.8	2.0	13	
24	13	13	16	11	e23	45	14	47	e300	2.7	1.9	6.5	
25	15	11	27	10	e17	70	14	29	e130	2.3	1.7	3.3	
26	16	10	13	50	e18	70	14	26	e90	2.6	1.6	2.3	
27	16	9.8	11	72	e16	57	12	23	e60	2.4	1.4	2.2	
28	14	11	33	35	e14	66	11	18	e27	3.1	1.2	2.0	
29	12	12	e27	34	---	99	11	15	21	2.6	1.5	1.9	
30	9.1	11	18	60	---	158	11	29	17	2.3	1.6	1.7	
31	6.9	---	15	49	---	146	---	38	---	2.1	1.2	---	
TOTAL	162.08	332.4	364.2	620.8	550.5	1558	1608	2448	3274	158.0	84.4	64.55	
MEAN	5.23	11.1	11.7	20.0	19.7	50.3	53.6	79.0	109	5.10	2.72	2.15	
MAX	18	47	33	72	75	158	272	401	680	14	16	13	
MIN	.68	5.0	3.5	7.8	8.0	11	11	11	17	2.1	1.2	.86	
CFSM	.24	.50	.53	.91	.89	2.27	2.43	3.57	4.94	.23	.12	.10	
IN.	.27	.56	.61	1.04	.93	2.62	2.71	4.12	5.51	.27	.14	.11	
CAL YR	1988	TOTAL	6469.82	MEAN	17.7	MAX	272	MIN	.47	CFSM	.80	IN.	10.89
WTR YR	1989	TOTAL	11224.93	MEAN	30.8	MAX	680	MIN	.68	CFSM	1.39	IN.	18.89

c Estimated

NIAGARA RIVER BASIN
04217000 TONAWANDA CREEK AT BATAVIA, NY

LOCATION.--Lat 42°59'51", long 78°11'20", Genesee County, Hydrologic Unit 04120104, on right bank 150 ft downstream from municipal dam, 500 ft upstream from bridge on Walnut Street in Batavia, and 5.0 mi downstream from Little Tonawanda Creek.

DRAINAGE AREA.--171 mi².

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1627: 1956-57. WSP 1912: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 876.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diversion upstream from station by city of Batavia for municipal supply; sewage, which may include water from municipal and industrial wells upstream from gage, enters creek downstream from gage. Gage-height telemeter at station. Several measurements of water temperature were made during the year.

COOPERATION.--City of Batavia maintains records of diversion.

AVERAGE DISCHARGE.--45 years, 211 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,200 ft³/s, Mar. 31, 1960, gage height, 12.70 ft; maximum gage height, 13.85 ft, Apr. 6, 1947; minimum discharge, 0.4 ft³/s, Aug. 5-7, 1955; minimum gage height, 0.59 ft, July 26, 27, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--From records of city of Batavia, maximum stage, 14.5 ft, in March 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 4	1430	1,960	6.11	June 21	2230	2,770	7.49
May 12	1630	2,930	7.73	June 23	2230	*3,960	*9.35
June 2	0530	2,530	7.10				

Minimum discharge, 14 ft³/s, Oct. 2, Aug. 27-28, 29-30, gage height, 1.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	87	e120	e135	371	e115	986	85	963	163	24	18
2	17	80	e129	e130	330	e95	709	209	2030	136	24	24
3	21	e74	131	e95	e150	e90	937	405	859	116	28	39
4	26	e71	146	e70	e110	e100	1700	274	442	102	36	23
5	24	e77	130	e60	e125	e460	1480	184	342	96	229	19
6	22	e123	108	e65	e120	e600	832	171	269	90	93	18
7	24	e206	105	e90	e110	e300	487	212	210	78	52	17
8	27	e130	107	169	e100	e170	394	541	161	71	38	19
9	24	e132	87	394	e90	e140	318	882	139	64	34	21
10	25	e153	e55	e190	e85	e130	279	1260	517	57	31	26
11	61	e149	e50	e165	e90	e150	264	1580	377	55	28	31
12	150	e147	e40	e135	e80	e140	276	2630	216	53	27	32
13	71	e116	e45	e130	e70	e120	275	1520	218	50	28	26
14	48	e105	e55	e120	e90	190	264	688	343	49	26	25
15	39	e97	e65	150	e160	587	221	661	320	43	22	47
16	34	e84	e58	148	e150	714	207	689	294	40	21	65
17	31	e75	e54	117	e110	386	185	691	542	39	29	48
18	44	e68	e50	110	e80	452	194	388	857	35	22	70
19	257	e61	e50	117	e85	635	200	291	510	35	20	50
20	109	e78	e56	e110	e90	324	164	244	432	39	25	34
21	66	e210	e250	e75	128	313	144	236	1680	58	37	28
22	61	e353	300	e85	e530	250	131	202	1940	47	39	24
23	257	e170	159	104	e350	215	116	163	2730	41	27	47
24	218	e124	190	106	e220	283	106	257	2780	38	23	97
25	210	e103	316	107	e150	379	101	230	962	34	21	50
26	306	e94	e170	155	e170	441	107	182	437	30	19	36
27	290	e92	142	614	e150	375	99	175	322	30	17	30
28	245	e100	238	437	e120	384	88	147	312	32	15	28
29	253	e113	e320	317	---	613	83	122	272	32	15	26
30	150	e120	e190	360	---	601	87	128	199	28	17	21
31	107	---	e140	414	---	1150	---	327	---	26	20	---
TOTAL	3234	3592	4056	5474	4414	10902	11434	15774	21675	1807	1087	1039
MEAN	104	120	131	177	158	352	381	509	722	58.3	35.1	34.6
MAX	306	353	320	614	530	1150	1700	2630	2780	163	229	97
MIN	17	61	40	60	70	90	83	85	139	26	15	17
CAL YR	1988	TOTAL	53128.8	MEAN	145	MAX	1260	MIN	7.0			
WTR YR	1989	TOTAL	84488	MEAN	231	MAX	2780	MIN	15			

e Estimated

NIAGARA RIVER BASIN

85

04217500 TONAWANDA CREEK NEAR ALABAMA, NY

LOCATION.--Lat 43°05'28", long 78°27'15", Genesee County, Hydrologic Unit 04120104, on right bank 15 ft downstream from bridge on Meadville Road, 0.4 mi downstream from inoperable canal feeder connecting Tonawanda and Oak Orchard Creeks, 1.1 mi upstream from small tributary, and 3.2 mi west of Alabama.

DRAINAGE AREA.--231 mi².

PERIOD OF RECORD.--October 1955 to September 1989 (discontinued).

REVISED RECORDS.--WSP 1912: Drainage area. WRD NY 1974: 1973. WDR NY-75-1: 1959 (P).

GAGE.--Water-stage recorder. Datum of gage is 605.93 ft above National Geodetic Vertical Datum of 1929. Prior to October 1965, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--34 years, 286 ft³/s, 16.81 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft³/s, Mar. 31, 1960, gage height, 14.28 ft; maximum gage height, 15.95 ft, Jan. 23, 1959 (ice jam); minimum daily, 7.7 ft³/s, Sept. 14, 15, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 4	2230	2,280	10.36	June 3	unknown	e2,500	unknown
May 13	0300	3,460	11.78	June 23	unknown	*e4,200	unknown

e Estimated by runoff comparison with other stations on Tonawanda Creek.

Minimum discharge, 23 ft³/s, Aug. 31, Sept. 1, gage height, 5.05 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	e22	124	155	e220	464	e150	1440	108	e800	202	34	28	
2	e20	108	173	e150	e460	e140	1140	165	e1960	168	33	33	
3	e20	100	173	e130	e250	e140	1140	518	e1600	144	35	32	
4	e25	98	149	e110	e160	e150	1830	454	e800	130	37	40	
5	e36	96	173	e100	e150	e350	1990	290	e520	119	105	36	
6	37	107	145	e120	e140	e800	1290	279	e390	114	195	30	
7	34	282	128	e130	e130	e500	797	322	e320	104	83	28	
8	31	185	129	e170	e120	e300	633	793	e250	102	60	26	
9	33	160	e110	e400	e110	e180	505	1240	e210	86	48	26	
10	34	192	e80	e350	e120	e170	425	1400	e590	79	44	27	
11	38	186	e70	e270	e130	e160	382	1720	e420	72	39	29	
12	113	212	e60	e230	e120	e150	369	2780	e380	68	36	33	
13	135	165	e65	e190	e110	e140	374	2620	e320	65	35	37	
14	84	144	e70	e170	e130	e170	373	1170	e370	62	33	36	
15	65	140	e80	e190	e150	557	324	892	e430	59	34	41	
16	56	121	e80	e200	e200	995	288	883	e420	51	33	59	
17	51	107	e75	189	e180	663	265	985	e560	49	30	74	
18	54	98	e70	166	e140	516	259	656	e920	48	30	56	
19	167	88	e65	148	e140	886	280	451	e840	45	31	68	
20	195	87	e75	e150	e150	592	234	355	e640	47	32	56	
21	111	171	e100	e120	e160	446	195	310	e1800	53	37	42	
22	89	497	e320	e130	e440	385	171	294	e2330	65	44	35	
23	138	272	e250	e135	e600	302	153	231	e3750	57	47	38	
24	307	188	203	e140	e350	335	137	236	e3130	57	39	59	
25	235	152	280	e140	e220	462	130	338	e1930	49	33	79	
26	311	133	e350	181	e200	596	128	251	e830	44	30	52	
27	356	127	289	588	e180	563	128	223	e515	41	28	40	
28	322	127	202	849	e160	518	115	195	e430	40	25	34	
29	303	141	e350	467	---	733	104	e180	375	40	25	31	
30	237	166	e300	405	---	927	106	e170	263	40	25	29	
31	158	---	e280	591	---	1340	---	e300	---	37	25	---	
TOTAL	3817	4774	5049	7529	5864	14316	15705	20809	28093	2337	1365	1234	
MEAN	123	159	163	243	209	462	523	671	936	75.4	44.0	41.1	
MAX	356	497	350	849	600	1340	1990	2780	3750	202	195	79	
MIN	20	87	60	100	110	140	104	108	210	37	25	26	
CFSM	.53	.69	.71	1.05	.91	2.00	2.27	2.91	4.05	.33	.19	.18	
IN.	.61	.77	.81	1.21	.94	2.31	2.53	3.35	4.52	.38	.22	.20	
CAL YR	1988	TOTAL	70545	MEAN	193	MAX	1450	MIN	16	CFSM	.83	IN.	11.36
WTR YR	1989	TOTAL	110892	MEAN	304	MAX	3750	MIN	20	CFSM	1.32	IN.	17.86

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE
04217750 MURDER CREEK NEAR AKRON, NY

LOCATION.--Lat 43°02'49", long 78°30'47", Erie County, Hydrologic Unit 04120104, on left bank at downstream side of bridge on State Highway 93, 2.0 mi northwest of Akron and 5.7 mi upstream from mouth.

DRAINAGE AREA.--58.8 mi².

PERIOD OF RECORD.--Occasional low flow discharge measurements, water years 1964-65. November 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 623.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE--6 years (water years 1984-89), 69.4 ft³/s, 16.03 in/yr.

EXTREMES FOR PERIOD OF RECORD--Maximum discharge, 3,000 ft³/s, Feb. 25, 1985, gage height, 7.16 ft; minimum discharge, 1.2 ft³/s, Oct. 12, 1985; minimum gage height, 1.48 ft, Sept. 21, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 5	0400	542	4.12	June 22	1800	*1,200	*5.27
May 13	1100	560	4.16				

Minimum discharge, 2.8 ft³/s, Sept. 22, 30; minimum gage height, 1.61 ft, Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	4.2	30	47	e40	e110	e26	430	24	138	57	9.5	6.8	
2	4.9	23	50	e34	e76	e24	368	37	246	47	10	5.1	
3	5.3	18	52	e31	e54	e22	324	96	382	41	9.6	3.5	
4	3.8	15	47	e24	e40	e40	447	120	220	37	9.6	3.4	
5	5.9	17	42	e20	e37	e80	495	100	135	35	8.2	4.0	
6	4.4	16	35	e22	e34	e60	344	105	100	31	8.7	4.1	
7	3.9	21	30	e24	e30	e50	224	130	70	32	15	4.0	
8	3.4	32	26	e30	e28	e42	167	281	54	43	12	4.2	
9	3.3	28	24	e60	e26	e36	134	434	52	41	8.8	4.0	
10	5.7	26	18	e57	e24	e32	106	458	55	33	8.2	3.9	
11	8.6	28	e16	e53	e30	e28	87	406	55	26	6.9	4.7	
12	5.5	33	e15	e42	e27	e32	77	499	52	23	5.7	3.9	
13	4.9	43	e11	e34	e25	e36	78	526	45	21	5.6	3.6	
14	8.1	42	e12	e38	e30	45	79	342	43	18	6.0	4.4	
15	7.2	42	e13	e34	e50	98	77	202	50	16	5.6	6.1	
16	5.6	41	e13	e31	e37	146	70	149	53	16	8.2	4.4	
17	5.7	33	e12	e28	e30	237	68	131	135	16	5.9	5.5	
18	9.8	27	e11	e26	e25	196	68	118	184	14	4.9	4.8	
19	6.8	25	e11	e24	e30	147	63	83	236	13	4.6	4.0	
20	5.6	26	e12	e23	e35	175	52	64	299	14	5.6	3.8	
21	6.4	39	e13	e21	e40	139	41	58	450	14	6.5	3.8	
22	11	67	e17	e18	e50	106	37	56	917	13	5.6	3.6	
23	11	78	e22	e20	e40	87	33	50	642	16	5.4	5.1	
24	12	59	e26	e22	e35	82	31	48	280	17	4.8	3.6	
25	33	47	e31	e24	e30	97	31	55	183	14	4.6	3.5	
26	37	39	e30	36	e35	113	30	54	114	12	3.6	3.6	
27	59	34	e36	68	e30	123	29	50	77	11	3.6	3.2	
28	73	33	e43	89	e28	121	27	45	63	10	4.2	3.3	
29	62	38	e50	157	---	138	25	39	86	9.3	4.4	3.3	
30	50	44	e47	112	---	229	24	39	84	9.2	4.4	3.1	
31	40	---	e43	97	---	362	---	54	---	9.4	3.8	---	
TOTAL	507.0	1044	855	1339	1066	3149	4066	4853	5500	708.9	209.5	124.3	
MEAN	16.4	34.8	27.6	43.2	38.1	102	136	157	183	22.9	6.76	4.14	
MAX	73	78	52	157	110	362	495	526	917	57	15	6.8	
MIN	3.3	15	11	18	24	22	24	24	43	9.2	3.6	3.1	
CFSM	.28	.59	.47	.73	.65	1.73	2.30	2.66	3.12	.39	.11	.07	
IN.	.32	.66	.54	.85	.67	1.99	2.57	3.07	3.48	.45	.13	.08	
CAL YR	1988	TOTAL	14558.6	MEAN	39.8	MAX	300	MIN	2.3	CFSM	.68	IN.	9.21
WTR YR	1989	TOTAL	23421.7	MEAN	64.2	MAX	917	MIN	3.1	CFSM	1.09	IN.	14.82

e Estimated

NIAGARA RIVER BASIN
04218000 TONAWANDA CREEK AT RAPIDS, NY

87

LOCATION.--Lat 43°05'35", long 78°38'11", Niagara County, Hydrologic Unit C4120104, on right bank at downstream side of bridge on Rapids Road at Rapids, 4.6 mi east of Pendleton, 4.9 mi downstream from Beeman Creek, and 5.9 mi upstream from Mud Creek.

DRAINAGE AREA.--349 mi², includes 0.76 mi² in Mud Creek from which flow is diverted into Black Creek.

PERIOD OF RECORD.--August 1955 to September 1965, March 1978 to September 1979 (seasonal gage-height records only), October 1979 to current year.

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 571.19 ft above National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--20 years (water years 1956-65, 1980-89), 392 ft³/s, 15.25 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,280 ft³/s, Apr. 1, 1960, gage height, 16.96 ft; minimum 4.5 ft³/s, July 28, 1983, gage height, 0.91 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 6	0600	2,620	9.16	June 24	0030	*4,440	*12.87
May 14	0600	3,420	11.01				

Minimum discharge, 29 ft³/s, Oct. 1, 2, Aug. 28, 29, 30, 31, Sept. 10-11; minimum gage height, 1.19 ft, Aug. 28, 29, 30, 31, Sept. 1 and 10-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	30	188	218	e250	699	e230	1890	175	869	398	48	31	
2	32	148	215	e200	e600	e220	2190	244	1290	318	46	40	
3	32	126	234	e170	e500	e180	1940	461	1990	264	44	42	
4	32	115	228	e140	e220	e170	1960	700	1980	225	44	37	
5	32	112	208	e110	e200	e250	2380	585	1190	200	47	43	
6	38	116	216	e120	e190	e520	2560	482	730	185	147	40	
7	40	160	188	e125	e180	e860	2030	529	514	173	177	36	
8	38	264	169	e200	e170	e640	1320	1110	400	184	100	33	
9	34	215	e160	e290	e160	e380	943	1630	433	180	74	30	
10	36	194	e120	e400	e170	e270	727	1870	885	149	58	29	
11	43	218	e90	e380	e160	e240	603	2090	760	128	51	29	
12	47	225	e80	e300	e150	e250	534	2580	658	111	46	32	
13	114	246	e75	e250	e140	e240	513	3100	420	103	42	36	
14	129	231	e80	e210	e150	e260	521	3260	384	96	40	42	
15	84	204	e90	e220	e170	437	516	2160	497	88	39	44	
16	64	191	e95	e230	e210	872	489	1390	491	82	42	52	
17	54	167	e90	e220	e240	1150	441	1210	824	74	41	73	
18	52	145	e85	e190	e220	1040	450	1160	1180	71	36	82	
19	55	129	e75	e184	e170	967	444	828	1370	68	34	65	
20	161	119	e80	e170	e180	1070	416	566	1430	65	37	75	
21	185	149	e90	e140	e180	848	355	465	2170	69	39	62	
22	115	301	e140	e160	e240	674	304	419	2550	76	46	49	
23	96	469	e350	e150	e500	546	268	383	3960	84	50	45	
24	162	339	285	e160	e650	475	240	334	4230	83	54	48	
25	273	249	249	173	e480	546	220	371	3810	83	45	71	
26	257	203	315	191	e320	684	211	398	3010	68	37	88	
27	322	178	317	300	e270	783	208	353	1450	60	33	60	
28	365	169	251	646	e250	738	201	316	676	54	30	47	
29	350	173	292	839	---	752	184	276	513	50	29	40	
30	331	196	e400	682	---	1050	173	243	498	50	29	36	
31	261	---	e330	620	---	1510	---	335	---	49	30	---	
TOTAL	3864	5939	5815	8420	7769	18852	25231	30023	41162	3888	1615	1437	
MEAN	125	198	188	272	277	608	841	968	1372	125	52.1	47.9	
MAX	365	469	400	839	699	1510	2560	3260	4230	398	177	88	
MIN	30	112	75	110	140	170	173	175	384	49	29	29	
CFSM	.36	.57	.54	.78	.80	1.74	2.41	2.78	3.93	.36	.15	.14	
IN.	.41	.63	.62	.90	.83	2.01	2.69	3.20	4.39	.41	.17	.15	
CAL YR	1988	TOTAL	97036	MEAN	265	MAX	1900	MIN	24	CFSM	.76	IN.	10.34
WTR YR	1989	TOTAL	154015	MEAN	422	MAX	4230	MIN	29	CFSM	1.21	IN.	16.42

e Estimated

NIAGARA RIVER BASIN

04218518 ELLICOTT CREEK BELOW WILLIAMSVILLE, NY

LOCATION.--Lat 42°58'40", long 78°45'50", Erie County, Hydrologic Unit 04120104, on right bank 15 ft upstream from bridge on State Highway 324 (Sheridan Drive), 0.8 mi upstream from sewage treatment plant, 1.4 mi northwest of Williamsville, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--81.6 mi².

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 586.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Regulation by seasonal manipulation of dam at Island Park 2.4 mi upstream by Village of Williamsville and by intermittent pumping from stone quarries into stream upstream from station. Records at medium and high flows may be comparable with those obtained at station 04218500 between October 1955 and September 1972. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 130 ft³/s, 21.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 ft³/s, Feb. 25, 1985, gage height, 11.19 ft; no flow for part of July 27, 1976, gage height, 0.73 ft, result of pipeline construction.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 12	2100	1,150	5.66	June 21	2200	1,260	5.97
June 9	1915	*1,270	*6.00				

Minimum discharge, 3.4 ft³/s, Sept. 19, 25, gage height, 1.34 ft, (result of regulation).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	15	82	160	e80	185	e60	590	60	305	74	42	38	
2	23	82	180	e70	158	e58	535	103	683	61	41	21	
3	25	76	142	e52	e100	e54	531	275	327	57	42	16	
4	40	75	114	e42	e80	e60	727	226	222	61	42	13	
5	41	70	103	e34	e70	e150	676	148	190	58	42	17	
6	17	91	e86	e36	e66	e120	343	192	134	58	48	26	
7	16	125	e76	e42	e62	e86	235	311	107	60	51	22	
8	15	124	e62	e120	e60	e70	215	628	84	55	43	11	
9	15	115	e50	e140	e56	e60	172	909	449	56	40	10	
10	58	118	e44	e120	e54	e54	147	631	272	62	37	10	
11	65	107	e36	e98	e52	e62	134	543	151	63	36	11	
12	55	121	e30	e84	e50	e80	127	953	109	64	35	15	
13	53	147	e32	e80	e50	e70	123	667	107	63	33	21	
14	28	193	e34	e90	e62	e80	122	287	106	62	33	16	
15	17	167	e38	e70	e90	e230	119	209	111	61	37	19	
16	16	126	e42	e60	e80	456	118	198	97	56	43	38	
17	20	109	e38	e52	e70	256	113	201	322	55	16	34	
18	53	100	e36	e50	e66	271	123	149	533	50	13	33	
19	32	88	e32	e48	e64	342	135	118	342	49	13	18	
20	29	103	e33	e46	e60	218	111	102	349	57	13	31	
21	26	196	e38	e44	e80	185	94	101	941	52	41	15	
22	55	260	e54	e42	e100	171	83	106	751	56	39	32	
23	63	171	e64	e48	e86	145	75	99	504	46	30	28	
24	90	121	e68	e56	e80	142	69	105	324	43	17	21	
25	156	87	e98	e64	e74	177	67	120	153	40	18	10	
26	214	76	e90	e120	e70	199	64	106	108	43	21	32	
27	242	73	e70	309	e68	183	63	106	89	45	13	20	
28	220	90	e120	288	e64	162	61	92	115	45	12	13	
29	195	151	e150	168	---	258	58	75	165	43	14	13	
30	142	149	e120	161	---	417	57	78	90	43	24	13	
31	99	---	e90	213	---	754	---	113	---	43	13	---	
TOTAL	2135	3593	2330	2927	2157	5630	6087	8011	8240	1681	942	617	
MEAN	68.9	120	75.2	94.4	77.0	182	203	258	275	54.2	30.4	20.6	
MAX	242	260	180	309	185	754	727	953	941	74	51	38	
MIN	15	70	30	34	50	54	57	60	84	40	12	10	
CFSM	.84	1.47	.92	1.16	.94	2.23	2.49	3.17	3.37	.66	.37	.25	
IN.	.97	1.64	1.06	1.33	.98	2.57	2.77	3.65	3.76	.77	.43	.28	
CAL YR	1988	TOTAL	30570.5	MEAN	83.5	MAX	700	MIN	9.7	CFSM	1.02	IN.	13.94
WTR YR	1989	TOTAL	44350	MEAN	122	MAX	953	MIN	10	CFSM	1.49	IN.	20.22

e Estimated

NIAGARA RIVER BASIN

89

04219000 ERIE (BARGE) CANAL AT LOCK 30, MACEDON, NY

LOCATION.--Lat 43°04'20", long 77°17'45", Wayne County, Hydrologic Unit 04140201, on left bank in Macedon, 500 ft downstream from headgate in old Erie Canal, 700 ft downstream from bridge on State Highway 350, 0.2 mi downstream from Lock 30, and 2.6 mi upstream from Ganargua Creek.

PERIOD OF RECORD.--November 1919 to December 1920, October 1950 to September 1977, October 1977 to current year (navigation seasons only). Prior to October 1956, published as "Barge Canal at Lock 30, Macedon."

REVISED RECORDS.--WSP 1237: 1951

GAGE.--Water-stage recorder. Datum of gage is 447.58 ft above National Geodetic Vertical Datum of 1929. Nov. 1, 1919 to Dec. 28, 1920, nonrecording gage at same site at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. This record represents net diversion from Niagara River basin into Oswego River basin through Erie (Barge) Canal. During the non-navigation period, when the pool upstream from Lock 30 is drained, discharge consists of leakage through guard gates, runoff from small areas tributary to canal upstream from station, or diversion for use downstream in the Canal system. Record is not published during the non-navigation period, which this year extended from Nov. 7 to May 3. Several measurements of water temperature were made during the year.

COOPERATION.--Records of gate openings, lockages, lock-valve openings, and elevations of water surface in Erie (Barge) Canal upstream and downstream from Lock 30 furnished by New York State Department of Transportation.

AVERAGE DISCHARGE.--27 years (water years 1951-77), 200 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 874 ft³/s, Dec. 3, 1969; no significant flow at times in many years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	155	---	---	---	---	---	e53	169	240	220	195
2	224	152	---	---	---	---	---	e54	170	238	223	226
3	206	139	---	---	---	---	---	e95	194	230	225	224
4	200	107	---	---	---	---	---	e127	184	212	216	209
5	199	73	---	---	---	---	---	145	172	224	236	188
6	199	34	---	---	---	---	---	130	181	264	241	193
7	201	e4.0	---	---	---	---	---	124	184	246	226	179
8	202	e3.0	---	---	---	---	---	135	180	258	226	171
9	205	e3.0	---	---	---	---	---	138	179	256	231	175
10	194	e3.0	---	---	---	---	---	139	186	228	215	182
11	189	e2.0	---	---	---	---	---	136	228	254	223	164
12	183	e2.0	---	---	---	---	---	146	191	257	221	169
13	188	e1.0	---	---	---	---	---	147	174	261	247	158
14	182	e.01	---	---	---	---	---	145	180	255	223	168
15	193	e.01	---	---	---	---	---	153	177	265	217	170
16	209	e.01	---	---	---	---	---	154	181	264	208	164
17	191	e.01	---	---	---	---	---	169	198	247	214	170
18	185	e.01	---	---	---	---	---	164	198	232	217	165
19	185	e.01	---	---	---	---	---	157	183	232	214	176
20	177	e.12	---	---	---	---	---	171	179	224	227	177
21	174	e.12	---	---	---	---	---	165	189	230	217	215
22	177	e.03	---	---	---	---	---	167	184	249	190	247
23	175	e.02	---	---	---	---	---	166	189	261	202	222
24	169	e.02	---	---	---	---	---	162	203	251	209	215
25	170	e.02	---	---	---	---	---	161	222	236	204	208
26	174	e.02	---	---	---	---	---	171	197	248	210	211
27	167	e.02	---	---	---	---	---	173	202	225	221	207
28	154	e.02	---	---	---	---	---	201	201	233	197	207
29	148	e.02	---	---	---	---	---	215	211	244	201	210
30	140	e.02	---	---	---	---	---	168	216	247	187	214
31	147	---	---	---	---	---	---	173	---	228	195	---
TOTAL	5738	678.49	---	---	---	---	---	4604	5702	7539	6703	5779
MEAN	185	22.6	---	---	---	---	---	149	190	243	216	193
MAX	231	155	---	---	---	---	---	215	228	265	247	247
MIN	140	.01	---	---	---	---	---	53	169	212	187	158

e Estimated

ST. LAWRENCE RIVER MAIN STEM

04219640 NIAGARA RIVER (LAKE ONTARIO) AT FORT NIAGARA, NY
(National stream-quality accounting network station)

WATER QUALITY RECORDS

LOCATION.--Lat 43°16'10", long 79°03'52", Niagara County, Hydrologic Unit 04120104, water samples collected about 2 mi upstream from Coast Guard wharf, at Fort Niagara and 1.5 mi south of Youngstown.

DRAINAGE AREA.--265,000 mi².

PERIOD OF RECORD.--Water years 1971 to current year.

CHEMICAL DATA: 1971 (a), 1973-74 (b), 1975-82 (c), 1983-89 (b).

MINOR ELEMENT DATA: 1971 (a), 1972-89 (b).

ORGANIC DATA: OC--1973 (a), 1974-75 (b), 1978-80 (c), 1981 (b).

NUTRIENT DATA: 1971 (a), 1973-74 (b), 1975-82 (c), 1983-89 (b).

BIOLOGICAL DATA:

Bacteria--1973 (b), 1974 (d), 1975-82 (c), 1983-89 (b).

Phytoplankton--1973 (b), 1974 (d), 1975-77 (c), 1978-81 (c).

Periphyton--1974 (a), 1975-80 (b).

SEDIMENT DATA: 1975-77 (c), 1978 (b), 1979-82 (c), 1983-89 (b).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1973 to June 1980.

WATER TEMPERATURE: September 1973 to June 1980.

REMARKS.--Published in 1971 as "at Youngstown". Discharge is the daily mean reported by The Corps of Engineers Detroit for the Niagara River at Queenstown. Water-quality samples collected by New York State Department of Environmental Conservation were grab samples collected from the Coast Guard wharf at Fort Niagara.

COOPERATION.-- Water-quality analyses identified by an (*) were collected by the New York State Department of Environmental Conservation.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
*03	0938	197000	--	8.10	18.0	2.0	763	9.0	--	--	--
NOV											
09	0800	194000	282	8.26	8.5	2.6	753	12.0	104	56	54
*14	0930	213000	--	8.35	8.0	12	763	11.4	--	--	--
APR											
*12	0900	211000	260	8.00	3.0	--	769	12.4	91	--	--
MAY											
03	1200	213000	288	8.31	5.5	0.50	757	12.2	98	--	--
*24	1000	220000	260	8.30	12.0	--	758	11.0	103	--	--
JUN											
*14	1000	222000	320	8.10	17.5	--	763	9.8	102	--	--
JUL											
06	0900	219000	285	8.40	21.0	1.4	755	10.0	113	100	K12
AUG											
*16	1200	214000	320	8.40	24.0	--	764	7.2	85	--	--
23	1500	217000	280	8.38	22.5	1.7	757	10.3	120	100	K6

DATE	HARD- NESS TOTAL (MG/L AS CaCO ₃)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CaCO ₃)	ALKA- LITY LAB (MG/L AS CaCO ₃)	SULFATE DIS- SOLVED (MG/L AS SO ₄)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT										
03	130	36	8.7	9.0	1.4	--	96	30	14	0.1
NOV										
09	130	37	9.1	9.3	1.4	134	--	27	14	0.1
14	130	36	8.8	8.7	1.4	--	97	27	14	0.1
APR										
12	120	34	8.2	9.3	1.4	--	91	24	14	0.1
MAY										
03	130	38	8.7	9.0	1.5	126	--	25	15	0.2
24	130	36	8.6	9.3	1.3	--	94	25	14	0.2
JUN										
14	120	34	8.3	9.7	1.4	--	93	25	16	0.1
JUL										
06	130	37	8.5	9.3	1.4	101	--	24	14	0.1
AUG										
16	110	33	7.9	8.9	1.4	--	95	23	14	0.1
23	130	36	8.6	9.4	1.4	102	--	24	14	0.1

K Results based on colony count outside the ideal range (non-ideal colony count).

ST. LAWRENCE RIVER MAIN STEM

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04219640 - NIAGARA RIVER (LAKE ONTARIO) AT FORT NIAGARA, NY--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SILICA, DIS- SOLVED (MG/L AS SIO ₂)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)
OCT 03.....	--	--	157	--	--	--	--	--	0.01	--
NOV 09.....	0.11	160	180	0.14	0.02	0.02	0.01	0.40	0.02	0.01
14.....	--	--	154	--	--	--	--	--	0.04	--
APR 12.....	--	--	146	--	--	--	--	--	--	--
MAY 03.....	0.14	166	175	0.23	0.05	0.03	0.03	0.20	0.01	<0.01
24.....	--	--	151	--	--	--	--	--	--	--
JUN 14.....	--	--	150	--	--	--	--	--	--	--
JUL 06.....	0.19	157	157	0.22	0.02	0.03	<0.01	0.20	<0.01	<0.01
AUG 16.....	--	--	145	--	--	--	--	--	--	--
23.....	0.14	155	186	0.11	0.02	0.02	<0.01	0.70	0.02	<0.01

DATE	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)
OCT 03.....	--	230	<10	--	--	--	<1	<1	--	--
NOV 09.....	<0.01	--	<10	1	21	0.7	1	--	<1	<3
14.....	0.01	460	--	--	--	--	--	<1	--	--
APR 12.....	--	460	--	--	--	--	--	1	--	--
MAY 03.....	<0.01	--	<10	<1	22	<0.5	<1	--	<1	<3
24.....	--	100	--	--	--	--	--	<1	--	--
JUN 14.....	--	230	--	--	--	--	--	<1	--	--
JUL 06.....	<0.01	--	<10	<1	21	<0.5	<1	--	<1	<3
AUG 16.....	--	20	--	--	--	--	--	<1	--	--
23.....	<0.01	--	10	<1	22	<0.5	<1	--	<1	<3

ST. LAWRENCE RIVER MAIN STEM

04219640 - NIAGARA RIVER (LAKE ONTARIO) AT FORT NIAGARA, NY--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT 03.....	1	4	420	9	<5	<5	--	10	2	--
NOV 09.....	5	--	--	6	<5	--	4	--	3	<0.1
14.....	--	8	950	--	--	<5	--	30	--	--
APR 12.....	--	4	760	--	--	<5	--	20	--	--
MAY 03.....	3	--	--	4	<5	--	6	--	<1	<0.1
24.....	--	4	140	--	--	1	--	10	--	--
JUN 14.....	--	3	140	--	--	2	--	10	--	--
JUL 06.....	2	--	--	4	1	--	5	--	1	<0.1
AUG 16.....	--	3	60	--	--	1	--	<10	--	--
23.....	3	--	--	3	<1	--	<4	--	1	<0.1

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 03.....	<0.1	--	2	6	--	--	--	--	5	<10
NOV 09.....	--	<10	2	--	<1	<1.0	170	<6	5	--
14.....	<0.1	--	--	5	--	--	--	--	--	<10
APR 12.....	<0.1	--	--	7	--	--	--	--	--	20
MAY 03.....	--	<10	3	--	<1	<1.0	160	<6	16	--
24.....	<0.1	--	--	6	--	--	--	--	--	<10
JUN 14.....	<0.1	--	--	3	--	--	--	--	--	<10
JUL 06.....	--	<10	1	--	<1	<1.0	160	<6	4	--
AUG 16.....	<0.1	--	--	2	--	--	--	--	--	<10
23.....	--	<10	2	--	<1	<1.0	170	<6	14	--

ST. LAWRENCE RIVER MAIN STEM
04219640 - NIAGARA RIVER (LAKE ONTARIO) AT FORT NIAGARA, NY--Continued
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

93

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
NOV								
09.....	0805	1000	44.0	3.0	281	--	8.5	11.8
09.....	0810	1000	44.0	10.0	281	--	8.5	11.7
09.....	0815	1000	44.0	25.0	281	--	8.5	11.8
09.....	0820	1000	44.0	40.0	281	--	8.5	11.9
09.....	0825	1700	60.0	3.0	282	--	8.5	12.1
09.....	0830	1700	60.0	10.0	282	--	8.5	12.2
09.....	0835	1700	60.0	30.0	282	--	8.5	12.2
09.....	0840	1700	60.0	50.0	282	--	8.5	12.2
MAY								
03.....	1205	1000	48.0	3.0	289	8.34	5.5	11.3
03.....	1210	1000	48.0	10.0	288	8.51	5.5	11.9
03.....	1215	1000	48.0	25.0	286	8.56	5.5	12.1
03.....	1220	1000	48.0	40.0	285	8.63	5.5	10.8
03.....	1225	1700	46.0	3.0	288	8.42	5.5	--
03.....	1230	1700	46.0	10.0	288	8.75	5.5	--
03.....	1235	1700	46.0	25.0	286	8.71	5.5	--
03.....	1240	1700	46.0	40.0	285	8.71	5.5	--
JUL								
06.....	0905	1000	48.0	3.0	285	8.45	21.0	10.2
06.....	0910	1000	48.0	10.0	285	8.44	21.0	10.0
06.....	0915	1000	48.0	25.0	283	8.40	21.0	9.9
06.....	0920	1000	48.0	40.0	282	8.35	21.0	9.8
06.....	0925	1700	44.0	3.0	284	8.34	21.0	10.1
06.....	0930	1700	44.0	10.0	284	8.33	21.0	9.8
06.....	0935	1700	44.0	25.0	283	8.30	21.0	9.8
06.....	0940	1700	44.0	40.0	281	8.12	21.0	9.7

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT					
03.....	0938	197000	5	2590	--
NOV					
09.....	0800	194000	11	6470	86
14.....	0930	213000	30	17300	--
APR					
12.....	0900	211000	23	13000	--
MAY					
03.....	1200	213000	3	1720	67
24.....	1000	220000	4	2380	--
JUN					
14.....	1000	222000	4	2400	--
JUL					
06.....	0900	219000	5	2960	82
AUG					
16.....	1200	214000	4	2310	--
23.....	1500	217000	6	3520	83

STREAMS TRIBUTARY TO LAKE ONTARIO
04221000 GENESEE RIVER AT WELLSVILLE, NY

LOCATION.--Lat 42°07'20", long 77°57'27", Allegany County, Hydrologic Unit 04130002, on left bank 35 ft upstream from concrete weir at Wellsville, 0.5 mi upstream from bridge on State Highway 17, 0.6 mi upstream from Crowner Brook and sewage treatment plant, 0.6 mi downstream from Dyke Creek, and 140.9 mi upstream from mouth.

DRAINAGE AREA.--288 mi².

PERIOD OF RECORD.--August 1955 to September 1958, October 1972 to current year.

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,470.00 ft above National Geodetic Vertical Datum of 1929. October 1957 to September 1958, nonrecording gage at site 0.4 mi upstream at datum 3.00 ft higher. August 1955 to September 1957, at same site at datum 8.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Record for station 04221500 Genesee River at Scio, 5.2 mi downstream, published for June 1916 to September 1972. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years (water years 1956-58, 1973-89), 391 ft³/s, 18.44 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft³/s, Mar. 8, 1956, from graph based on gage readings and Oct. 28, 1981; maximum gage height, 13.60 ft, October 28, 1981; minimum daily, 18 ft³/s, Sept. 9, 1957, and Aug. 21-22, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since June 1916, 38,500 ft³/s, June 23, 1972, gage height, 20.7 ft, present datum, from floodmark, on basis of contracted-opening measurement of peak flow 0.5 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	1530	3,680	8.00	May 16	0230	3,960	8.18
Mar. 31	1700	3,680	8.00	June 20	2300	*14,400	*13.26
May 11	0130	4,768	8.70				

Minimum discharge, 22 ft³/s, Oct. 1, 3-10, gage height, 4.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	22	42	91	e205	231	e153	2220	201	325	311	84	33	
2	21	37	86	e178	252	e145	1460	1250	487	268	79	35	
3	22	35	76	e145	e185	e133	1440	657	337	235	80	35	
4	22	35	73	e94	e114	e125	1320	527	629	214	79	31	
5	22	56	66	e84	e141	e420	1530	465	407	344	118	29	
6	22	214	70	e84	e137	e368	1100	511	457	249	88	29	
7	22	112	67	e91	e133	e160	932	1430	374	191	75	29	
8	22	89	65	e104	e84	e160	776	1310	316	176	69	29	
9	22	87	58	e129	e74	e145	675	1200	340	150	64	29	
10	25	85	e50	e122	e75	e137	595	2560	529	135	58	29	
11	38	85	e56	e133	e84	e135	509	4500	348	123	54	29	
12	44	83	e104	e137	e87	152	454	3280	283	111	51	29	
13	38	84	e69	e133	e100	124	441	1890	610	105	51	27	
14	33	123	e66	e118	e137	139	435	1380	824	98	50	36	
15	31	96	e69	e120	e133	299	383	1570	2060	91	46	168	
16	31	84	e81	e118	e118	282	360	2720	2080	85	46	123	
17	28	81	e56	e118	e100	209	322	1590	1700	84	45	171	
18	44	80	e56	e104	e94	537	338	1150	1110	78	41	95	
19	57	72	e65	e91	e94	406	315	919	834	74	43	68	
20	47	107	62	e84	e97	289	280	751	5460	392	57	59	
21	37	264	159	e91	e580	289	258	670	8390	329	53	53	
22	48	174	130	e94	e710	253	235	540	3220	177	47	51	
23	84	135	95	e75	e345	242	221	522	1780	147	46	119	
24	68	118	156	e66	e330	555	207	589	1300	121	45	119	
25	61	102	339	e70	e321	876	205	446	940	103	39	82	
26	52	104	256	e160	e225	712	210	423	736	96	37	66	
27	48	99	219	e360	e196	629	192	374	596	171	35	59	
28	47	97	418	e190	e174	891	177	308	571	116	33	54	
29	46	97	e460	e160	--	1380	167	263	462	97	35	49	
30	46	93	e315	195	--	2410	164	283	366	86	36	46	
31	43	--	e260	224	--	2930	--	274	--	84	34	--	
TOTAL	1193	2970	4193	4077	5351	15685	17921	34553	37871	5041	1718	1811	
MEAN	38.5	99.0	135	132	191	506	597	1115	1262	163	55.4	60.4	
MAX	84	264	460	360	710	2930	2220	4500	8390	392	118	171	
MIN	21	35	50	66	74	124	164	201	283	74	33	27	
CFSM	.13	.34	.47	.46	.66	1.76	2.07	3.87	4.38	.56	.19	.21	
IN.	.15	.38	.54	.53	.69	2.03	2.31	4.46	4.89	.65	.22	.23	
CAL YR	1988	TOTAL	84596	MEAN	231	MAX.	3060	MIN	18	CFSM	.80	IN.	10.93
WTR YR	1989	TOTAL	132384	MEAN	363	MAX.	8390	MIN	21	CFSM	1.26	IN.	17.10

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04223000 GENESEE RIVER AT PORTAGEVILLE, NY

95

LOCATION.--Lat 42°34'13", long 78°02'33", Wyoming County, Hydrologic Unit 04130002, on left bank at Portageville, 500 ft downstream from bridge on State Highway 436, 800 ft upstream from abandoned railroad bridge piers, 0.9 mi upstream from Upper Falls, and 89.8 mi upstream from mouth.

DRAINAGE AREA.--984 mi².

PERIOD OF RECORD.--August 1908 to current year. Prior to December 1945, published as "at St. Helena". Records published for both sites December 1945 to September 1950.

REVISED RECORDS.--WSP 264: 1908. WSP 564: 1916(M). WSP 2112; WDR NY-82-3: Drainage area. WRD NY 1972: 1950(M), 1951(M), 1956(M), 1959(M), 1964(M), 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 1,080.00 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 24, 1911, nonrecording gage and Aug. 24, 1911 to Sept. 30, 1946, water-stage recorder at site 8 mi downstream at different datum. Oct. 1, 1946 to June 21, 1972, water-stage recorder at site 1,200 ft downstream at datum 2.60 ft higher (destroyed by flood of June 1972). July 12, 1972 to May 18, 1973, nonrecording gage at site 500 ft upstream at datum 11.48 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since July 1928, some seasonal regulation by Rushford Lake. Diurnal fluctuation at low flow caused by powerplant. Monthly figures of discharge and runoff 1952 to 1966 water years adjusted for change in contents in Rushford Lake. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--81 years (water years 1909-89), 1,253 ft³/s, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 90,000 ft³/s, June 23, 1972, gage height, 35.25 ft, site and datum then in use, from high-water mark, from rating curve extended above 25,000 ft³/s on basis of contracted-opening measurement of 71,000 ft³/s, at highway bridge 0.4 mi upstream and contracted-opening measurement of 98,200 ft³/s, 0.7 mi downstream from gage; minimum, 18 ft³/s, Oct. 5, 17, 1913, gage height, 1.70 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	1445	19,100	16.93	June 21	1130	*33,000	*21.58

Minimum discharge, 100 ft³/s, Sept. 14, gage height, 8.22 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	248	196	550	e800	1370	e460	7210	510	1930	957	232	145
2	245	185	548	e640	1370	e420	4560	2280	1900	828	216	220
3	242	176	521	e520	e900	e400	5510	2880	1460	732	213	195
4	247	179	531	e430	e560	e500	6230	1790	2310	662	208	229
5	247	219	504	e420	e600	e1200	5240	1260	1940	727	355	181
6	248	852	484	e460	e560	e1700	3810	1180	1430	913	512	168
7	300	742	484	e520	e480	e800	3030	2170	1370	686	338	164
8	448	524	478	e700	e400	e600	2350	3870	981	671	277	138
9	455	526	442	e1200	e380	e620	1930	4450	876	571	243	108
10	482	494	421	e700	e360	e640	1750	6060	3330	512	219	105
11	709	491	e360	e600	e400	651	1550	17300	1940	456	199	111
12	789	475	e330	e500	e430	657	1380	11900	1210	393	178	109
13	633	416	e360	e440	e460	528	1260	6070	2480	369	166	104
14	565	445	e400	e400	e500	627	1320	4270	2890	344	174	134
15	528	445	e420	e380	e550	1950	1160	3980	6200	320	163	1700
16	504	380	e440	e370	e520	1920	1090	8640	6940	304	160	985
17	485	349	e400	e360	e480	1210	996	5080	10000	488	152	1460
18	599	340	e380	e350	e460	3160	1020	3780	4720	334	138	1040
19	689	316	e420	e330	e480	2900	1030	2850	2950	282	138	576
20	602	326	e460	e310	e520	1760	925	2230	7810	392	181	404
21	555	894	e1200	e300	e570	1560	888	2060	27200	809	267	328
22	603	944	e1100	e290	e2700	978	793	1790	10800	682	225	307
23	706	660	816	e280	e1600	918	681	1500	7510	1490	196	1400
24	470	528	862	e270	e900	1240	645	2560	4540	729	179	1120
25	390	440	e1700	e300	e700	3260	617	1910	3160	500	161	581
26	332	395	e1100	e540	e600	2990	639	1480	2280	386	145	473
27	331	381	e900	2470	e560	2500	618	1540	1820	337	128	404
28	671	373	e1500	1170	e500	3190	573	1170	1840	366	125	269
29	684	390	e2000	936	---	6100	534	993	1570	306	132	240
30	659	502	e1200	1020	---	8120	520	962	1260	268	151	611
31	312	---	e900	1180	---	9410	---	1060	---	245	133	---
TOTAL	14978	13583	22211	19186	19910	62969	59859	109575	126647	17059	6304	14009
MEAN	483	453	716	619	711	2031	1995	3535	4222	550	203	467
MAX	789	944	2000	2470	2700	9410	7210	17300	27200	1490	512	1700
MIN	242	176	330	270	360	400	520	510	876	245	125	104
CAL YR	1988	TOTAL 302444	MEAN 826	MAX 9840	MIN 67							
WTR YR	1989	TOTAL 486290	MEAN 1332	MAX 27200	MIN 104							

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04224000 MOUNT MORRIS LAKE NEAR MOUNT MORRIS, NY

LOCATION.--Lat 42°44'00", long 77°54'40", Livingston County, Hydrologic Unit 04130002, at Mount Morris Dam on Genesee River, 2.0 mi northwest of Mount Morris, 5 mi upstream from Canaseraga Creek, and 69.3 mi upstream from mouth.

DRAINAGE AREA.--1,080 mi².

PERIOD OF RECORD.--January 1952 to current year. Prior to October 1970, published as "Mount Morris Reservoir near Mount Morris."

REVISED RECORDS.--WSP 1437: 1955. WSP 2112; WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U. S. Army Corps of Engineers). Prior to Apr. 8, 1952, reference point at same site and datum.

REMARKS.--Lake is formed by a concrete gravity-type dam with overflow spillway, completed by U. S. Army Corps of Engineers in 1951 for flood control; first used for flood regulation on Nov. 24, 1951. Usable capacity, 336,800 acre-ft between elevation 585.0 ft, sill of conduits, and 760.0 ft, crest of spillway. Dead storage, 609 acre-ft. Discharge is controlled by the operation of nine gates. Water is stored during high flows and released when downstream conditions warrant.

COOPERATION.--Capacity table provided by U. S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 755.46 ft, June 25, 1972, contents, 322,600 acre-ft; minimum, 584.23 ft, Sept. 2, 1976, contents, 475.8 acre-ft.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 693.22 ft, June 24, contents, 150,000 acre-ft; minimum, 586.26 ft, Sept. 14, contents 838.2 acre-ft.

Capacity table (elevation, in feet, and usable contents, in acre-feet)
(Furnished by U. S. Army Corps of Engineers in 1953)

584.00	436	605.00	8,250	660.00	78,200
586.00	782	610.00	11,600	680.00	119,800
588.00	1,210	620.00	19,800	700.00	166,300
590.00	1,730	630.00	30,500	730.00	245,200
595.00	3,410	640.00	43,700	750.00	305,100
600.00	5,610				

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	588.73	590.44	589.77	616.02	615.83	610.64	661.03	589.67	596.04	666.33	591.09	586.56
2	588.47	589.40	589.89	615.14	617.15	607.89	664.67	595.15	601.32	661.38	590.82	587.16
3	588.30	588.67	589.72	613.92	617.51	603.83	665.83	607.73	596.96	657.21	590.73	587.64
4	588.18	588.50	589.68	611.66	616.16	596.12	668.55	606.10	597.10	650.86	590.60	587.89
5	588.08	588.36	589.64	607.96	613.96	600.32	671.74	597.69	602.37	643.57	591.19	589.17
6	588.00	590.32	589.48	603.35	611.81	609.56	671.72	594.02	595.54	637.18	594.21	588.02
7	587.93	591.67	589.44	596.49	609.58	612.78	669.23	596.26	594.21	629.34	593.55	587.58
8	588.56	589.97	589.40	595.24	606.64	611.18	664.37	606.67	592.64	621.60	592.02	587.06
9	589.00	589.56	589.31	601.96	601.72	609.41	659.53	612.73	591.59	612.93	591.32	586.76
10	589.23	589.62	589.32	604.41	593.21	607.80	653.02	619.19	602.79	607.35	590.82	586.55
11	590.06	589.40	589.28	602.18	592.93	606.27	646.55	636.37	607.64	607.44	590.35	586.49
12	591.57	589.45	588.90	597.45	593.95	604.71	639.45	655.32	600.91	607.15	590.03	586.42
13	590.57	589.28	588.57	594.48	593.57	602.33	632.70	663.38	596.78	606.56	589.75	586.34
14	590.05	589.25	588.67	593.87	593.29	597.10	627.93	664.85	606.78	605.80	589.80	586.27
15	589.74	589.29	588.98	593.93	594.27	602.71	621.97	663.21	616.05	604.87	589.71	591.10
16	589.59	589.25	589.04	594.24	594.43	613.98	614.21	663.64	627.31	603.62	589.56	589.20
17	589.44	589.21	588.94	593.65	594.30	616.56	602.62	668.91	636.91	602.82	589.48	590.55
18	589.64	589.12	588.89	593.51	594.29	618.59	593.02	669.54	645.60	602.63	589.20	590.29
19	590.82	589.04	588.86	593.77	594.19	626.17	593.36	667.15	646.09	601.66	589.17	588.61
20	590.33	588.95	588.88	593.63	593.91	628.68	592.58	663.42	645.54	601.72	589.94	588.35
21	590.19	590.52	591.86	592.41	594.06	629.55	592.44	658.84	663.75	603.62	590.32	587.97
22	590.06	593.37	597.30	590.84	605.92	628.75	591.93	654.44	681.60	606.17	591.97	587.77
23	591.00	591.02	597.15	592.05	617.26	626.98	591.07	649.51	688.86	609.11	589.95	589.95
24	589.68	590.11	594.14	593.05	618.28	625.24	590.73	645.26	692.80	609.48	588.89	593.47
25	589.30	589.57	601.62	593.01	617.11	626.42	590.53	641.33	692.20	607.23	588.50	589.87
26	589.27	589.25	606.37	593.21	615.73	629.43	590.50	635.96	689.19	603.78	587.83	589.36
27	589.24	589.25	605.00	606.36	614.48	631.19	590.37	630.15	685.22	598.91	586.91	589.26
28	590.13	589.26	605.37	614.01	612.65	632.52	590.13	623.17	681.76	594.70	586.72	589.01
29	590.57	589.26	613.21	614.38	---	637.21	589.83	613.30	677.02	592.62	586.52	588.62
30	590.53	589.43	616.70	614.16	---	642.47	589.67	595.92	671.33	591.93	586.49	588.66
31	590.44	---	616.66	614.91	---	653.16	---	593.05	---	591.39	586.45	---
MEAN	589.57	589.66	594.52	601.14	604.94	617.73	624.04	631.68	634.13	614.22	589.80	588.40
MAX	591.57	593.37	616.70	616.02	618.28	653.16	671.74	669.54	692.80	666.33	594.21	593.47
MIN	587.93	588.36	588.57	590.84	592.93	596.12	589.67	589.67	591.59	591.39	586.45	586.27
CAL YR	1988	MEAN	596.92	MAX	637.76	MIN	586.65					
WTR YR	1989	MEAN	606.64	MAX	692.80	MIN	586.27					

STREAMS TRIBUTARY TO LAKE ONTARIO
04224775 CANASERAGA CREEK ABOVE DANSVILLE, NY

97

LOCATION.--Lat 42°32'08", long 77°42'16", Livingston County, Hydrologic Unit 04130002, on right bank on Poags Hole Road, 0.7 mi upstream from Stony Brook, and 1.7 mi south of Dansville.

DRAINAGE AREA.--88.9 mi².

PERIOD OF RECORD.--August 1974 to current year.

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 715.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 94.6 ft³/s, 14.45 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,050 ft³/s, June 20, 1989, gage height, 5.70 ft, from rating curve extended above 1,400 ft³/s; minimum discharge, 6.7 ft³/s, Aug. 27, Sept 7, 8, 1985; minimum gage height, 0.70 ft, several days in August, September, and October 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	1400	1,830	3.40	June 17	0815	1,390	2.95
May 11	1815	1,670	3.24	June 20	2300	*a4,050	*5.70

a From rating curve extended above 1,400 ft³/s.

Minimum daily discharge, 10 ft³/s, Oct. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e13	14	27	e40	e60	e49	417	38	111	e66	16	15
2	e12	14	27	e30	e46	e46	299	166	116	e52	17	19
3	e12	13	25	e24	e40	e43	444	143	112	e45	17	18
4	e11	15	25	e18	e35	e45	436	102	119	e43	18	18
5	e14	18	24	e16	e32	e130	333	80	112	e90	34	20
6	e13	59	23	e16	e29	e90	227	79	94	e70	27	16
7	e11	41	24	e40	e27	e70	178	139	71	e48	29	14
8	e10	32	23	e80	e26	e60	169	196	53	e38	21	13
9	e10	31	e19	e110	e26	e54	163	279	56	e34	18	12
10	e12	29	e15	e130	e26	e50	152	528	307	e30	17	13
11	e16	27	e11	e120	e25	e47	140	1200	137	e26	15	14
12	e18	25	e11	e70	e25	e43	127	893	95	e24	15	13
13	e16	24	e12	e45	e25	e42	121	292	188	e22	14	13
14	e15	23	e15	e40	e35	e60	114	185	233	e20	32	21
15	e15	23	25	e35	e35	216	98	152	417	e18	22	283
16	e14	22	e20	e33	e34	166	92	251	387	e22	18	92
17	e14	22	e16	e31	e33	132	83	162	625	e20	16	168
18	e18	21	e14	e29	e33	371	95	122	244	e18	14	112
19	30	20	e16	e29	e33	e160	86	118	169	e42	19	65
20	22	23	e25	e24	e35	e110	76	117	1110	e200	33	50
21	19	66	73	e18	e60	e94	69	117	1470	e100	60	39
22	26	57	65	e25	162	e84	62	106	656	e60	42	32
23	44	39	46	e26	110	80	57	99	331	e78	23	91
24	37	32	59	e25	e70	178	53	124	199	e50	19	70
25	29	29	108	e26	e60	265	49	114	155	e38	17	45
26	24	28	56	59	e56	219	49	107	e130	e28	15	36
27	22	27	51	131	e54	190	43	91	e120	e22	14	31
28	20	27	100	68	e52	241	40	74	e110	e20	14	27
29	17	28	130	54	---	400	38	61	e96	e18	17	24
30	17	27	e70	74	---	835	37	82	e74	18	17	23
31	15	---	e50	81	---	685	---	85	---	17	15	---
TOTAL	566	856	1205	1547	1284	5255	4347	6302	8097	1377	665	1407
MEAN	18.3	28.5	38.9	49.9	45.9	170	145	203	270	44.4	21.5	46.9
MAX	44	66	130	131	162	835	444	1200	1470	200	60	283
MIN	10	13	11	16	25	42	37	38	53	17	14	12
CFSM	.21	.32	.44	.56	.52	1.91	1.63	2.29	3.04	.50	.24	.53
IN.	.24	.36	.50	.65	.54	2.20	1.82	2.64	3.39	.58	.28	.59
CAL YR	1988	TOTAL 23764.9	MEAN 64.9	MAX 881	MIN 8.0	CFSM .73	IN. 9.94					
WTR YR	1989	TOTAL 32908	MEAN 90.2	MAX 1470	MIN 10	CFSM 1.01	IN. 13.77					

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04227000 CANASERAGA CREEK AT SHAKERS CROSSING, NY

LOCATION.--Lat 42°44'13", long 77°50'27", Livingston County, Hydrologic Unit 04130002, on right bank 100 ft upstream from bridge on State Highway 408 at Shakers Crossing, 1.4 mi upstream from mouth, and 1.5 mi northeast of Mount Morris.

DRAINAGE AREA.--335 mi².

PERIOD OF RECORD.--July 1915 to September 1922 (gage height only), November 1958 to September 1970, October 1974 to current year.

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 545.52 ft above National Geodetic Vertical Datum of 1929. Prior to July 1981 at site 250 ft east on left bank of old filled-in channel at same datum and prior to November 1958 at site 250 ft east and 40 ft north at datum 5.52 ft lower. April 1968 to September 1970, and since October 1974, auxiliary water-stage recorder 0.6 mi downstream from base gage.

REMARKS.--No estimated daily discharges. Records good. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--26 years (water years 1960-70, 1975-89), 286 ft³/s, 11.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,270 ft³/s, Mar. 4, 1976, gage height, 13.33 ft; maximum gage height, 23.62 ft, present datum, May 17, 1916 (backwater from Genesee River); minimum discharge, 4.3 ft³/s, Aug. 19, 1970, gage height, 2.26 ft, result of temporary regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1972 reached an estimated discharge of 11,200 ft³/s from U. S. Army Corps of Engineers publication (Tropical Storm Agnes, June 1972).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	2200	3,760	a11.17	June 21	0030	*4,720	*a12.52
June 17	1230	3,160	a10.76				

a Backwater from Genesee River.

Minimum discharge, 33 ft³/s, Dec. 12, gage height, 3.48 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	40	51	78	100	150	82	1820	127	493	167	77	57	
2	39	50	79	90	110	80	1520	466	372	156	78	77	
3	42	52	74	70	80	80	2030	435	303	136	87	67	
4	42	52	72	54	70	110	2010	296	377	126	77	59	
5	41	59	72	50	62	400	1640	226	301	137	126	58	
6	43	159	70	50	58	500	1010	221	263	148	104	56	
7	45	134	70	70	56	160	665	345	230	110	114	61	
8	52	105	67	100	54	140	451	659	186	102	87	52	
9	45	91	60	150	52	120	414	777	182	83	77	50	
10	53	87	55	120	52	100	277	1140	1250	115	68	51	
11	79	81	45	110	50	90	253	2930	456	106	65	66	
12	114	76	39	90	50	80	263	2790	287	98	63	55	
13	72	72	39	80	60	70	247	1630	574	96	64	51	
14	55	73	50	66	70	130	246	999	639	93	77	63	
15	47	67	56	66	84	412	202	785	1240	87	77	1150	
16	45	63	56	80	80	444	184	1870	1080	86	68	397	
17	42	64	53	70	64	277	180	1120	2350	86	62	663	
18	46	62	49	70	62	652	246	622	1310	81	58	558	
19	82	60	51	76	60	549	233	372	608	84	60	281	
20	64	67	58	74	60	312	202	288	1770	597	130	200	
21	54	165	116	50	110	304	186	263	4250	322	154	156	
22	71	166	143	50	500	244	170	216	3290	195	146	136	
23	132	124	101	68	260	218	157	194	1900	176	84	274	
24	121	101	98	70	140	343	148	377	1190	152	74	283	
25	94	87	210	70	120	896	146	266	765	122	68	198	
26	73	83	139	78	100	676	147	217	493	107	62	135	
27	63	80	120	260	92	494	137	192	372	102	59	114	
28	58	79	150	149	86	532	130	161	416	94	57	103	
29	56	80	250	133	---	973	125	134	258	94	61	96	
30	56	78	140	136	---	1700	130	206	184	83	74	88	
31	53	---	110	167	---	2190	---	309	---	82	59	---	
TOTAL	1919	2568	2770	2867	2792	13358	15569	20633	27389	4223	2517	5655	
MEAN	61.9	85.6	89.4	92.5	99.7	431	519	666	913	136	81.2	188	
MAX	132	166	250	260	500	2190	2030	2930	4250	597	154	1150	
MIN	39	50	39	50	50	70	125	127	182	81	57	50	
CFSM	.18	.26	.27	.28	.30	1.29	1.55	1.99	2.73	.41	.24	.56	
IN.	.21	.29	.31	.32	.31	1.48	1.73	2.29	3.04	.47	.28	.63	
CAL YR	1988	TOTAL	65449	MEAN	179	MAX	2760	MIN	30	CFSM	.53	IN.	7.27
WTR YR	1989	TOTAL	102260	MEAN	280	MAX	4250	MIN	39	CFSM	.84	IN.	11.36

STREAMS TRIBUTARY TO LAKE ONTARIO
04227500 GENESEE RIVER NEAR MOUNT MORRIS, NY

99

LOCATION.--Lat 42°46'00", long 77°50'21", Livingston County, Hydrologic Unit 04130002, on right bank 100 ft north of Jones Bridge Road, 0.8 mi downstream from Canaseraga Creek, 2.8 mi northeast of Mount Morris and 63.0 mi upstream from mouth.

DRAINAGE AREA.--1,424 mi².

PERIOD OF RECORD.--May 1903 to April 1906, August 1908 to April 1914, July 1915 to current year. Prior to 1968, published as "at Jones Bridge."

REVISED RECORDS.--WSP 1277: 1952. WSP 1387: 1913. WSP 1437: 1955. WSP 2112; WDR NY-82-3: Drainage area. WDR NY-78-1: 1974-77 (M, m).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 540.12 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 11, 1915, nonrecording gage on bridge at datum 2.85 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at low flow caused by powerplant. Flow regulated to some extent by Rushford Lake since July 1928, and at high flows since November 1951 by Mount Morris Lake (see station 04224000). Monthly figures of discharge and runoff 1952 to 1966 water years adjusted for change in contents in Rushford Lake and Mount Morris Lake. Telephone and satellite gage-height telemeters at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--79 years (water years 1909-13, 1916-89), 1,671 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,100 ft³/s, May 17, 1916, gage height, 25.44 ft; maximum gage height, 25.80 ft, present datum, Mar. 13, 1920 (ice jam); minimum discharge, 12 ft³/s, July 23, 1955, gage height, 0.22 ft, partially obstructed intake; minimum daily, 30 ft³/s, Aug. 8, 1909.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,780 ft³/s, May 16 at 1030 hours, gage height, 14.62 ft; minimum, 157 ft³/s, Sept. 10, gage height, 1.73 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	319	313	668	e1200	1300	e1100	4620	676	2040	e6940	361	206
2	319	300	690	e1200	1330	e1000	4880	1530	2620	e6610	347	280
3	317	280	660	e1100	e1200	e900	7210	3010	2220	e6290	350	312
4	316	276	646	e1100	e1200	e800	6460	2810	2070	e5960	332	283
5	318	297	646	e1000	e1150	e1100	5650	2150	2610	e5640	399	291
6	321	756	616	e980	e1100	e1100	7490	1450	2060	e5280	588	248
7	324	1130	609	e940	e1000	e1300	8260	1770	1710	e4860	570	248
8	476	756	606	e800	e940	e1300	8500	3110	1350	4690	429	244
9	534	652	576	e1000	e800	e1200	8550	3590	1120	3200	375	204
10	561	667	e500	e1100	e600	e1100	8750	4120	3210	693	328	165
11	674	620	e490	e1100	e500	e1100	8330	6450	3110	648	303	202
12	1040	625	e490	e1000	e540	e1000	7710	5390	2570	625	279	178
13	811	567	e480	e800	e500	1110	6160	4090	2160	616	265	173
14	689	546	e480	e700	e490	902	3770	5600	3150	602	279	185
15	634	587	e470	e560	e580	1250	4650	7240	4200	583	278	2400
16	605	525	e470	e540	e580	1580	3700	7750	4640	568	263	1580
17	580	476	e480	e520	e580	1440	2930	3740	6270	554	250	2070
18	613	454	e480	e500	e560	1810	1380	5280	4670	549	236	1980
19	865	440	e470	e480	e560	1890	1400	6880	5010	476	209	1010
20	756	433	e480	e460	e550	1650	1220	7410	5800	961	339	691
21	676	775	e800	e440	e580	1900	1150	7190	7370	720	367	539
22	699	1440	e1400	e420	e1200	2250	1050	6920	6060	695	466	476
23	945	967	e1340	e400	e1400	2180	915	6590	4760	931	326	1180
24	722	740	e1000	e400	e1400	2250	845	6550	4240	1310	292	1780
25	574	625	e1440	e440	e1360	2810	810	6270	e6310	1210	262	922
26	482	557	e1800	e480	e1300	2680	812	5900	e7220	1080	236	641
27	425	525	e1700	e840	e1200	2560	795	5510	e7900	897	224	627
28	634	508	1050	e1200	e1200	2610	750	5060	e7920	481	208	433
29	794	517	1350	1240	---	3440	706	4400	e7570	467	211	388
30	788	574	e1250	1240	---	4340	690	2450	e7240	411	234	446
31	629	---	e1200	1280	---	4830	---	1490	---	387	233	---
TOTAL	18440	17928	25337	25460	25700	56482	120143	142376	129180	64934	9839	20382
MEAN	595	598	817	821	918	1822	4005	4593	4306	2095	317	679
MAX	1040	1440	1800	1280	1400	4830	8750	7750	7920	6940	588	2400
MIN	316	276	470	400	490	800	690	676	1120	387	208	165
CAL YR	1988	TOTAL	425895	MEAN	1164	MAX	5750	MIN	87			
WTR YR	1989	TOTAL	656201	MEAN	1798	MAX	8750	MIN	165			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04227510 GENESEE RIVER NEAR GENESEO, NY

LOCATION.--Lat 42°46'37", long 77°50'31", Livingston County, Hydrologic Unit 04130003, at bridge on U.S. Highway 20A, and State Highway 39, 1.0 mi west of intersection with State Highway 63 and 1.5 mi southwest of Geneseo.

DRAINAGE AREA.--1,425 mi²

PERIOD OF RECORD.--May 1972-1974, Water years 1988 to current year.

CHEMICAL DATA: 1988-89 (b).

MINOR ELEMENT DATA: 1972-74 (a), 1988-89 (b).

REMARKS.--Water-discharge data are based on records for station 04227500 Genesee River near Mount Morris.

COOPERATION.--Water samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON- DUCT- ANCE (US/CM)	SPE-CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CaCO ₃)
OCT										
03	0930	316	--	321	8.50	15.0	--	8.1	--	140
MAR										
23	1100	2160	--	212	8.11	4.0	760	10.5	80	78
APR										
06	1100	7230	--	201	8.00	6.0	744	10.0	82	72
27	1000	795	--	322	8.11	12.0	760	--	--	130
MAY										
18	1000	4680	--	187	7.70	10.0	753	9.6	86	75
JUN										
07	1000	1780	--	396	8.10	18.5	745	8.4	91	100
28	1100	8570	--	197	7.67	19.5	744	8.5	94	75
AUG										
15	1700	282	443	--	8.30	25.5	746	11.0	138	170
SEP										
13	1100	172	--	447	8.28	20.0	752	7.9	89	180

DATE	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CaCO ₃)	SULFATE DIS- SOLVED (MG/L AS SO ₄)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS Al)
OCT									
03	40	9.0	12	2.0	105	27	18	0.1	900
MAR									
23	23	5.0	9.5	1.6	52	21	16	0.1	3100
APR									
06	21	4.7	7.8	1.9	47	26	13	0.1	6400
27	38	8.7	12	1.8	94	29	19	0.1	930
MAY									
18	22	4.8	6.3	1.6	52	20	9.5	0.1	7400
JUN									
07	30	6.4	9.1	1.5	82	23	14	0.1	2500
28	23	4.3	4.9	1.6	64	14	7.8	0.1	6100
AUG									
15	50	12	16	2.2	140	33	26	0.1	470
SEP									
13	51	12	16	2.3	146	34	26	0.1	820

STREAMS TRIBUTARY TO LAKE ONTARIO
04227510 GENESEE RIVER NEAR GENESEO, NY--Continued

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 03	--	--	<1	--	6	1000	--	--	<5
MAR 23	--	--	1	--	12	5200	--	--	<5
APR 06	210	<1	<1	3	17	11000	83	<5	6
27	--	--	1	--	7	1700	--	--	<5
MAY 18	30	1	<1	6	11	14000	69	1	12
JUN 07	--	--	<1	--	10	5200	--	--	5
28	--	--	<1	--	10	13000	--	--	9
AUG 15	--	--	<1	--	4	940	--	--	2
SEP 13	--	--	<1	--	5	1600	--	--	3

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT 03	80	--	--	--	<1	--	50	21	18
MAR 23	140	--	<0.1	--	5	--	30	--	--
APR 06	260	31	<0.1	4	10	<3	50	396	7730
27	70	--	<0.1	--	4	--	20	51	109
MAY 18	320	19	<0.1	3	13	5	40	399	5040
JUN 07	140	--	<0.1	--	7	--	40	111	533
28	220	--	0.4	--	12	--	40	291	6730
AUG 15	60	--	<0.1	--	2	--	<10	29	22
SEP 13	90	--	<0.1	--	2	--	<10	37	17

CHEMICAL QUALITY OF BOTTOM MATERIAL, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SOLIDS, VOLA- TILE IN BOTTOM MA- TERIAL (MG/KG)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)
AUG 15	1700	17300	3800	<1	8	<10	340	10	30	9900	0.01

STREAMS TRIBUTARY TO LAKE ONTARIO
04227980 CONESUS LAKE NEAR LAKEVILLE, NY

LOCATION.--Lat 42°47'39", long 77°43'15", Livingston County, Hydrologic Unit 04130003, on west shore of Conesus Lake at Geneseo Water Works pumping station, 300 ft east of State Highway 256, and 3.0 mi south of Lakeville.

DRAINAGE AREA.--69.8 mi².

PERIOD OF RECORD.--July 1963 to current year. Since 1930 in files of village of Geneseo.

REVISED RECORDS.--WSP 2112; WDR NY-82-3: Drainage area:

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Oct. 1, 1970 to Sept. 30, 1975, at datum 800.00 ft higher. Prior to Oct. 1, 1970, nonrecording gage at site 200 ft downstream at datum 796.59 ft higher.

REMARKS.--Lake elevation regulated by gates at outlet. Area of water surface, 5.08 mi². Daily average of about 2 ft³/s diverted from lake for water supply for Avon, Geneseo, and Lakeville Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 822.50 ft, June 24, 1972; minimum, 816.11 ft, Dec. 22, 24, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 819.54 ft, May 12; minimum, 816.11 ft, Dec. 22, 24.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	817.21	816.84	816.38	816.20	816.31	816.64	818.41	818.95	818.99	818.48	818.17	817.98
2	817.21	816.81	816.37	816.20	816.32	816.64	818.58	818.98	818.91	818.46	818.16	817.98
3	817.20	816.79	816.35	816.20	816.33	816.64	818.85	818.94	818.79	818.44	818.15	817.96
4	817.19	816.77	816.33	816.20	816.34	816.66	819.10	818.97	818.80	818.44	818.17	817.94
5	817.18	816.71	816.32	816.20	816.35	816.74	819.19	818.98	818.80	818.43	818.25	817.92
6	817.16	816.66	816.31	816.20	816.36	816.82	819.14	818.99	818.80	818.42	818.24	817.90
7	817.15	816.58	816.29	816.21	816.37	816.84	819.07	819.10	818.80	818.41	818.21	817.89
8	817.13	816.55	816.28	816.23	816.38	816.86	819.02	819.20	818.79	818.40	818.18	817.88
9	817.11	816.55	816.27	816.24	816.38	816.87	818.99	819.35	818.80	818.38	818.16	817.88
10	817.11	816.55	816.25	816.24	816.38	816.88	818.97	819.39	818.92	818.36	818.14	817.88
11	817.10	816.53	816.24	816.24	816.38	816.89	818.96	819.42	818.86	818.34	818.13	817.89
12	817.07	816.52	816.23	816.24	816.38	816.90	818.97	819.51	818.82	818.32	818.11	817.88
13	817.05	816.51	816.22	816.24	816.38	816.91	818.99	819.34	818.83	818.31	818.10	817.87
14	817.03	816.48	816.19	816.24	816.39	816.92	819.00	819.11	818.81	818.29	818.10	817.87
15	817.00	816.47	816.18	816.24	816.41	816.96	819.01	819.03	818.83	818.27	818.09	818.01
16	817.00	816.46	816.17	816.24	816.42	817.01	819.02	819.14	818.83	818.25	818.09	818.03
17	816.99	816.45	816.15	816.25	816.42	817.05	819.03	819.21	818.90	818.24	818.06	818.09
18	817.00	816.42	816.14	816.24	816.42	817.13	819.06	819.22	818.79	818.22	818.04	818.12
19	816.99	816.41	816.13	816.25	816.42	817.21	819.03	819.24	818.62	818.22	818.04	818.12
20	816.98	816.42	816.13	816.26	816.42	817.26	818.98	819.24	818.64	818.28	818.10	818.12
21	816.96	816.45	816.12	816.25	816.46	817.32	818.98	819.25	818.91	818.28	818.10	818.11
22	816.98	816.44	816.12	816.25	816.52	817.34	818.97	819.23	818.91	818.28	818.09	818.10
23	817.00	816.43	816.14	816.25	816.55	817.37	818.96	819.21	818.78	818.30	818.08	818.05
24	816.99	816.43	816.13	816.25	816.57	817.41	818.96	819.12	818.61	818.31	818.07	817.95
25	816.96	816.42	816.15	816.25	816.58	817.50	818.96	818.95	818.54	818.30	818.05	817.86
26	816.95	816.41	816.15	816.26	816.60	817.59	818.95	818.84	818.54	818.29	818.03	817.82
27	816.93	816.41	816.15	816.28	816.62	817.66	818.95	818.82	818.52	818.27	818.01	817.79
28	816.91	816.41	816.18	816.28	816.63	817.73	818.94	818.81	818.54	818.25	818.00	817.77
29	816.89	816.40	816.20	816.28	---	817.81	818.94	818.80	818.51	818.23	818.00	817.75
30	816.87	816.39	816.20	816.29	---	817.93	818.95	818.85	818.50	818.21	817.99	817.73
31	816.86	---	816.19	816.30	---	818.17	---	818.92	---	818.19	817.98	---
MEAN	817.04	816.52	816.21	816.24	816.43	817.15	818.96	819.10	818.76	818.32	818.10	817.94
MAX	817.21	816.84	816.38	816.30	816.63	818.17	819.19	819.51	818.99	818.48	818.25	818.12
MIN	816.86	816.39	816.12	816.20	816.31	816.64	818.41	818.80	818.50	818.19	817.98	817.73
CAL YR	1988	MEAN	817.61	MAX	819.28	MIN	816.12					
WTR YR	1989	MEAN	817.57	MAX	819.51	MIN	816.12					

STREAMS TRIBUTARY TO LAKE ONTARIO
04228500 GENESEE RIVER AT AVON, NY

103

LOCATION.--Lat 42°55'04", long 77°45'27", Livingston County, Hydrologic Unit 04130003, on right bank 250 ft downstream from bridge on U.S. Highway 20 (State Highway 5), 0.3 mi west of Avon, 0.8 mi downstream from Conesus Creek, and 35.6 mi upstream from mouth.

DRAINAGE AREA.--1,673 mi².

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

REVISED RECORDS.--WSP 2112; WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 500.11 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at low flow caused by powerplant. Flow regulated to some extent by Rushford Lake, at high flows by Mount Morris Lake (see station 04224000), and by Conesus Lake (see station 04227980). Monthly figures of discharge and runoff August 1955 to September 1965 adjusted for change in contents in Rushford Lake and Mount Morris Lake. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--34 years (water years 1956-89), 1,936 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft³/s, June 25, 1972, gage height, 40.67 ft; minimum, 47 ft³/s, Oct. 10-11, 1980, gage height, 13.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,680 ft³/s, June 21 at 0930 hours, gage height, 31.80 ft; minimum, 212 ft³/s, Sept. 11, gage height, 14.23 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	522	671	e1350	e1300	e1400	5600	875	2160	7150	432	276
2	336	349	743	e1270	e1400	e1380	5490	1300	3200	6850	409	256
3	336	347	743	e1210	e1380	e1300	6930	2890	3020	6560	400	329
4	333	334	703	e1140	e1320	e1280	8490	3140	2160	6260	399	325
5	336	446	706	e1100	e1250	e1400	6870	2760	2630	5980	474	322
6	341	515	687	e1080	e1240	e1500	7320	1850	2560	5670	537	308
7	341	1220	658	e1040	e1180	e1600	8010	1810	1910	5330	698	282
8	365	1030	659	e1000	e1020	e1620	8360	3470	1660	4840	568	277
9	536	773	641	e1100	e980	e1620	8180	4450	1320	3770	457	275
10	565	747	e560	e1400	e850	e1620	8330	4900	2820	1860	405	239
11	613	712	e560	e1180	e760	e1500	8140	6990	3830	836	363	226
12	901	690	e560	e1100	e680	1550	7660	9080	3170	773	340	235
13	1000	671	e550	e990	e600	1370	6810	6490	2440	742	316	223
14	823	606	e550	e820	e600	1360	5020	6070	3180	722	315	225
15	720	615	e550	e760	e610	1250	4330	6880	4030	697	327	1010
16	670	623	e550	e660	e620	1720	4220	8500	4670	672	318	2180
17	640	548	e540	e610	e620	1640	3600	6050	7190	649	317	1640
18	637	499	e540	e580	e620	1710	2360	4940	6700	639	288	2210
19	796	481	e550	e540	e620	2320	1680	6100	5560	617	274	1520
20	898	481	e600	e510	e620	1950	1570	6960	5780	736	304	967
21	783	579	e800	e490	e680	1870	1370	6990	9310	925	405	721
22	759	1270	e1600	e470	1380	2270	1300	6740	8970	780	480	614
23	894	1260	e1580	e460	1980	2330	1190	6460	8100	792	457	788
24	1000	945	e1400	e460	e1650	2340	1080	6510	6030	1230	354	1830
25	721	780	1440	e510	e1550	2900	1010	6470	6170	1280	321	1520
26	590	664	1850	640	e1530	3070	987	6130	7330	1140	291	911
27	500	607	e1900	853	e1510	2900	982	5580	7880	1090	274	724
28	483	581	e1450	e1500	e1450	2810	958	5170	8060	764	268	642
29	823	556	e1480	e1300	---	3150	909	4670	7880	569	251	477
30	865	568	e1500	e1350	---	4170	887	3790	7470	519	265	431
31	835	---	e1440	e1350	---	5520	---	1930	---	464	270	---
TOTAL	19778	20019	28761	28823	30000	64420	129643	155945	147190	70906	11577	21983
MEAN	638	667	928	930	1071	2078	4321	5030	4906	2287	373	733
MAX	1000	1270	1900	1500	1980	5520	8490	9080	9310	7150	698	2210
MIN	333	334	540	460	600	1250	887	875	1320	464	251	223
CAL YR	1988	TOTAL	468770	MEAN	1281	MAX	6810	MIN	152			
WTR YR	1989	TOTAL	729045	MEAN	1997	MAX	9310	MIN	223			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04228845 HONEOYE LAKE NEAR HONEOYE, NY

LOCATION.--Lat 42°45'44", long 77°30'26", Ontario County, Hydrologic Unit 04130003, on east shore of Honeoye Lake, at Trident Marina on East Lake Road, 1.9 mi south of U.S. Highway 20A, and 2.0 mi southeast of Honeoye.

DRAINAGE AREA.--41.0 mi².

PERIOD OF RECORD.--July to December 1963. Occasional readings January to August 1964. October 1964 to current year.

REVISED RECORD.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. July 10, 1963 to Sept. 28, 1967, nonrecording gage and Sept. 29, 1967 to Sept. 30, 1969, recording gage at datum 800.35 ft higher. Oct. 1, 1969 to Sept. 30, 1975, at datum 800.00 ft higher.

REMARKS.--Area of water surface, 2.71 mi².

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 806.91 ft, June 23, 1972; minimum observed, 802.15 ft present datum, Oct. 5, 1965, Oct. 1, 2, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 804.73 ft, May 12; minimum, 802.62 ft, Oct. 1-3.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	802.63	802.89	803.19	803.25	803.28	803.37	804.27	803.44	803.62	803.79	803.32	803.13
2	802.62	802.89	803.19	803.24	803.28	803.35	804.29	803.53	803.64	803.73	803.29	803.16
3	802.64	802.93	803.18	803.24	803.29	803.34	804.40	803.59	803.62	803.68	803.29	803.11
4	802.66	802.95	803.17	803.24	803.30	803.36	804.53	803.60	803.64	803.66	803.30	803.08
5	802.66	803.00	803.17	803.24	803.30	803.40	804.57	803.60	803.62	803.64	803.36	803.05
6	802.66	803.13	803.17	803.23	803.31	803.44	804.53	803.58	803.64	803.60	803.38	803.03
7	802.68	803.12	803.16	803.24	803.31	803.45	804.43	803.69	803.67	803.55	803.35	803.01
8	802.70	803.12	803.16	803.26	803.30	803.43	804.36	803.81	803.72	803.49	803.30	802.99
9	802.70	803.13	803.16	803.24	803.30	803.42	804.25	803.92	803.74	803.56	803.28	802.97
10	802.72	803.15	803.17	803.24	803.30	803.41	804.19	804.06	803.95	803.56	803.26	802.96
11	802.75	803.13	803.16	803.24	803.29	803.40	804.16	804.41	803.82	803.54	803.24	803.01
12	802.72	803.13	803.17	803.23	803.29	803.41	804.11	804.70	803.76	803.50	803.23	803.01
13	802.72	803.16	803.16	803.23	803.29	803.40	804.03	804.69	803.91	803.47	803.22	802.98
14	802.72	803.14	803.17	803.22	803.29	803.40	803.97	804.58	803.92	803.43	803.22	803.03
15	802.70	803.13	803.17	803.23	803.30	803.44	803.93	804.53	803.98	803.39	803.21	803.66
16	802.71	803.15	803.18	803.22	803.30	803.48	803.89	804.50	803.93	803.35	803.21	803.58
17	802.71	803.15	803.18	803.22	803.30	803.48	803.85	804.42	803.97	803.33	803.20	803.64
18	802.75	803.14	803.19	803.22	803.29	803.56	803.83	804.31	803.90	803.30	803.18	803.54
19	802.79	803.13	803.19	803.21	803.29	803.60	803.77	804.19	803.83	803.30	803.19	803.51
20	802.75	803.23	803.19	803.22	803.28	803.61	803.73	804.09	803.99	803.39	803.25	803.49
21	802.76	803.11	803.20	803.22	803.31	803.61	803.69	804.01	804.34	803.38	803.24	803.42
22	802.79	803.12	803.19	803.21	803.36	803.60	803.61	803.92	804.38	803.43	803.24	803.38
23	802.84	803.14	803.19	803.21	803.38	803.59	803.55	803.85	804.33	803.54	803.25	803.37
24	802.85	803.15	803.20	803.20	803.38	803.62	803.53	803.81	804.25	803.52	803.21	803.34
25	802.85	803.15	803.22	803.20	803.37	803.68	803.53	803.76	804.15	803.51	803.20	803.33
26	802.85	803.16	803.22	803.23	803.37	803.72	803.52	803.72	804.06	803.47	803.18	803.28
27	802.84	803.18	803.22	803.24	803.37	803.74	803.49	803.71	803.99	803.47	803.16	803.23
28	802.86	803.18	803.23	803.25	803.37	803.78	803.47	803.66	804.03	803.47	803.14	803.15
29	802.85	803.19	803.25	803.25	---	803.83	803.45	803.66	803.93	803.43	803.17	803.08
30	802.86	803.20	803.25	803.26	---	803.96	803.45	803.60	803.85	803.37	803.15	803.05
31	802.87	---	803.25	803.28	---	804.15	---	803.53	---	803.35	803.12	---
MEAN	802.75	803.11	803.19	803.23	803.31	803.55	803.95	803.95	803.91	803.49	803.24	803.22
MAX	802.87	803.23	803.25	803.28	803.38	804.15	804.57	804.70	804.38	803.79	803.38	803.66
MIN	802.62	802.89	803.16	803.20	803.28	803.34	803.45	803.44	803.62	803.30	803.12	802.96
CAL YR	1988	MEAN	803.26	MAX	804.37	MIN	802.53					
WTR YR	1989	MEAN	803.41	MAX	804.70	MIN	802.62					

STREAMS TRIBUTARY TO LAKE ONTARIO
04229500 HONEOYE CREEK AT HONEOYE FALLS, NY

105

LOCATION.--Lat 42°57'26", long 77°35'21", Monroe County, Hydrologic Unit 04130003, on right bank 25 ft downstream from bridge on State Highway 65 at Honeoye Falls, and 15.3 mi upstream from mouth.

DRAINAGE AREA.--196 mi².

PERIOD OF RECORD.--October 1945 to September 1970, October 1972 to current year.

REVISED RECORDS.--WSP 2112; WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 610.00 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1970, water-stage recorder at same site at datum 609.76 ft NGVD.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Outlet of Honeoye Lake not controlled (see station 04228845). Some diversion from and regulation of Hemlock and Canadice Lakes for water supply of city of Rochester. Diurnal fluctuation at low flow caused by mills upstream from station. Prior to 1967 water year, published monthly figures adjusted for change in contents in, and diversion from, Hemlock and Canadice Lakes. During low-water periods the village of Honeoye Falls pumps water from two deep wells with maximum pumping capacity of 600 gal/min (1.33 ft³/s). This pumped water enters creek upstream from gage. Satellite gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years (water years 1946-70, 1973-89), 122 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,630 ft³/s, Mar. 28, 1950, gage height, 6.42 ft, datum then in use, from rating curve extended above 2,700 ft³/s by logarithmic plotting; minimum, 0.06 ft³/s, Aug. 28, 1949.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1972, reached a stage of about 6.3 ft, current datum; discharge, about 6,600 ft³/s, from rating curve extended above 2,700 ft³/s by logarithmic plotting.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,510 ft³/s, May 12 at 0530 hours, gage height, 3.68 ft; minimum, 1.3 ft³/s, Oct. 2, 3-4, gage height, 0.14 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	4.3	16	32	55	e41	592	63	184	165	18	8.0
2	1.5	4.3	15	26	e54	e37	556	167	199	133	17	7.6
3	1.3	6.3	14	e25	e52	e37	866	281	169	111	16	7.6
4	1.3	7.3	13	e24	e50	e54	1020	173	162	92	18	7.2
5	1.5	9.2	12	e23	e47	e150	729	123	162	83	52	6.3
6	2.1	16	11	e22	e45	e140	525	107	133	76	57	5.7
7	2.9	33	11	e25	e43	e110	409	176	117	66	43	5.2
8	2.9	26	11	e36	e42	e90	341	690	103	59	29	4.5
9	2.8	19	e9.6	e100	e40	e70	290	918	88	53	22	3.9
10	3.6	18	e8.6	145	e38	e56	252	772	224	47	19	4.7
11	3.1	17	e8.0	e100	e37	e47	226	922	249	43	17	4.3
12	2.8	16	e7.4	e70	e35	e49	195	1420	137	38	15	3.2
13	3.7	14	e6.6	e58	e33	e56	174	947	138	32	14	3.1
14	3.4	12	e6.0	e43	e32	50	162	581	238	29	13	4.7
15	3.2	11	e5.8	e35	e35	101	145	608	301	28	11	28
16	2.9	9.1	e6.2	e30	e45	134	130	701	325	25	11	58
17	2.2	9.0	e6.4	e27	e40	e90	119	615	376	23	9.0	49
18	2.8	8.4	e7.0	e25	e35	e130	119	452	410	22	8.2	74
19	2.8	8.2	e9.0	e25	e32	e180	120	362	305	20	8.7	45
20	2.4	10	9.9	e24	e30	e120	105	304	362	20	11	29
21	3.6	38	9.4	e24	e52	e100	92	261	1150	25	19	22
22	8.1	61	19	e23	e120	e90	81	223	1160	29	18	18
23	28	39	24	e23	e100	e80	75	183	881	63	14	18
24	41	26	22	e24	e88	108	70	175	670	61	12	32
25	28	21	23	e25	e70	253	66	169	541	40	10	27
26	19	18	32	29	e60	241	64	166	434	47	9.1	22
27	14	18	29	45	e52	195	62	178	336	33	8.1	18
28	10	18	27	50	e45	177	58	138	275	28	7.4	16
29	8.0	17	40	41	---	201	56	115	292	26	7.6	14
30	7.2	16	43	41	---	287	59	107	213	23	8.0	12
31	6.4	---	34	51	---	632	---	146	---	20	8.1	---
TOTAL	224.0	530.1	495.9	1271	1407	4106	7758	12243	10334	1560	530.2	558.0
MEAN	7.23	17.7	16.0	41.0	50.2	132	259	395	344	50.3	17.1	18.6
MAX	41	61	43	145	120	632	1020	1420	1160	165	57	74
MIN	1.3	4.3	5.8	22	30	37	56	63	88	20	7.4	3.1
CAL YR	1988	TOTAL 21046.3	MEAN 57.5	MAX 751	MIN 1.0							
WTR YR	1989	TOTAL 41017.2	MEAN 112	MAX 1420	MIN 1.3							

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04230380 OATKA CREEK AT WARSAW, NY

LOCATION.--Lat 42°44'39", long 78°08'16", Wyoming County, Hydrologic Unit 04130003, on right bank 400 ft downstream from bridge on Court Street, Warsaw.

DRAINAGE AREA.--39.1 mi².

PERIOD OF RECORD.--December 1963 to current year.

REVISED RECORDS.--WSP 2112; WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 987.15 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharge, which are fair. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1965-89), 53.7 ft³/s, 18.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,010 ft³/s, June 23, 1972, gage height, 9.75 ft, from rating curve extended above 1,770 ft³/s on basis of slope-area measurement of peak discharge; minimum, 0.90 ft³/s, Aug. 1, 1965; minimum gage height, 0.91 ft, July 11, 14, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 690 ft³/s and maximum(*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Apr. 3	1900	720	3.75	June 20	2030	958	4.32
May 11	1945	828	4.01	June 23	0015	*2,080	*6.62
June 17	0530	871	4.11				

Minimum discharge, 7.0 ft³/s, Aug. 11, gage height, 0.97 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	7.9	18	34	e32	96	e23	190	e31	231	e38	7.6	9.7	
2	8.3	18	31	e30	59	e22	226	e61	92	e34	7.6	15	
3	9.7	18	32	e27	e43	e21	456	e63	56	e30	7.6	9.7	
4	8.8	17	40	e26	e38	e70	372	e44	87	e31	33	8.4	
5	8.4	31	28	e25	e34	199	243	36	50	e31	33	7.8	
6	8.1	66	27	e24	e32	e90	181	41	40	e27	14	7.6	
7	8.1	32	31	e24	e31	e40	150	61	30	e25	10	7.5	
8	8.1	29	26	e76	e30	e35	127	123	26	e22	9.0	7.4	
9	8.1	36	21	e56	e29	e30	110	187	36	e21	7.9	7.5	
10	9.0	35	e20	e46	e28	e26	89	242	153	e19	7.4	7.6	
11	40	38	e20	e36	e27	e24	84	706	49	e18	7.8	8.1	
12	19	28	e19	e42	e26	e22	82	389	29	e18	8.3	7.8	
13	11	25	e19	e60	e25	e20	74	e176	162	e18	8.2	7.6	
14	10	23	e19	e30	e45	e40	69	e123	115	e16	11	13	
15	10	19	e19	e30	e54	e160	59	e119	126	e15	8.2	43	
16	10	18	e18	29	e45	130	57	e277	97	e14	12	17	
17	9.8	18	e18	30	e40	70	54	e123	501	e15	9.3	35	
18	70	16	e17	27	e36	205	59	72	e170	e14	8.2	19	
19	40	15	e17	27	e34	96	e56	54	82	e13	11	13	
20	20	49	e46	30	e30	70	e54	50	420	e15	15	11	
21	17	139	e140	e29	e100	56	e47	51	382	e16	16	10	
22	77	62	49	e27	140	47	e45	35	e338	e14	11	22	
23	93	40	43	26	e50	51	e44	58	782	e13	10	83	
24	57	32	76	27	e35	78	e41	93	e386	e13	9.4	20	
25	47	27	90	28	e30	128	e38	47	e185	e11	8.6	12	
26	39	28	49	140	e28	121	e36	45	e111	e13	8.0	10	
27	36	27	37	111	e27	102	e35	35	e82	e11	7.8	8.9	
28	41	30	121	59	e25	153	e34	28	e49	e14	7.6	8.4	
29	34	30	e60	57	---	182	e33	23	e48	e11	9.5	8.0	
30	23	29	e50	106	---	305	e32	95	e43	e10	9.8	7.7	
31	19	---	e41	80	---	228	---	62	---	8.7	7.9	---	
TOTAL	807.3	993	1258	1397	1217	2861	3177	3550	4958	568.7	341.7	452.7	
MEAN	26.0	33.1	40.6	45.1	43.5	92.3	106	115	165	18.3	11.0	15.1	
MAX	93	139	140	140	140	305	456	706	782	38	33	83	
MIN	7.9	15	17	24	25	20	32	23	26	8.7	7.4	7.4	
CFSM	.67	.85	1.04	1.15	1.11	2.36	2.71	2.93	4.23	.47	.28	.39	
IN.	.77	.94	1.20	1.33	1.16	2.72	3.02	3.38	4.72	.54	.33	.43	
CAL YR	1988	TOTAL	16538.2	MEAN	45.2	MAX	487	MIN	4.3	CFSM	1.16	IN.	15.73
WTR YR	1989	TOTAL	21581.4	MEAN	59.1	MAX	782	MIN	7.4	CFSM	1.51	IN.	20.53

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04230500 OATKA CREEK AT GARBUTT, NY

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LOCATION.--Lat 43°00'36", long 77°47'30", Monroe County, Hydrologic Unit 04130003, on right bank 40 ft downstream from bridge on Union Street in Garbutt, 1.5 mi west of Scottsville, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--200 mi².

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

REVISED RECORDS.--WSP 2112; WDR NY-82-3: Drainage area. WRD NY 1971: 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 560.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--44 years, 214 ft³/s, 14.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,050 ft³/s, Mar. 31, 1960, gage height, 8.64 ft; minimum, 3.3 ft³/s, Sept. 11, 12, 1958; minimum gage height, 1.88 ft, June 19, 1959, result of regulation; minimum daily, 13 ft³/s, Oct. 30 to Nov. 1, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 13	0115	2,050	6.00	June 23	1130	*3,500	*7.06

Minimum discharge, 32 ft³/s, Oct. 17, gage height, 2.30 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	36	70	84	e93	257	e100	912	124	864	281	75	55	
2	36	64	86	e90	246	e96	903	181	913	249	74	54	
3	37	63	88	e82	e170	e90	956	341	681	229	71	52	
4	37	63	78	e60	e98	e100	1190	276	392	209	70	51	
5	36	63	88	e54	e88	e320	1420	210	347	198	81	51	
6	36	72	82	e50	e82	e430	1080	182	279	192	127	50	
7	36	127	74	e64	e78	e440	745	222	237	176	93	49	
8	34	102	74	e76	e74	e260	525	447	205	162	80	49	
9	34	88	e64	e110	e72	e160	439	698	187	149	72	49	
10	34	88	e54	e140	e70	e140	382	696	481	142	70	51	
11	33	91	e46	e120	e68	e140	350	980	529	140	68	50	
12	33	100	e42	e100	e66	e150	333	1690	340	128	66	50	
13	46	91	e39	e90	e66	e140	316	1800	258	123	65	49	
14	41	82	e38	e90	e76	e150	292	1050	388	119	64	53	
15	36	74	e43	e86	e90	307	268	728	432	115	61	58	
16	34	72	e42	96	e110	499	249	698	416	110	63	57	
17	33	66	e41	91	e100	396	236	757	860	106	61	76	
18	36	61	e40	82	e82	329	225	698	1010	104	60	68	
19	36	59	e46	82	e78	451	222	464	1030	100	62	80	
20	93	63	48	84	e72	413	204	372	823	105	67	63	
21	61	100	58	e72	e94	294	190	330	1160	127	64	55	
22	61	253	143	e70	e220	254	176	304	1330	121	72	52	
23	93	181	157	72	e280	224	165	266	2730	108	69	63	
24	178	127	105	78	e220	242	156	279	2850	100	64	122	
25	132	105	124	81	e150	337	152	336	1640	95	60	105	
26	122	93	165	92	e140	422	148	272	794	91	58	75	
27	112	91	105	212	e130	397	144	256	484	87	57	63	
28	100	84	121	298	e110	360	135	232	436	85	55	57	
29	91	82	141	225	---	417	129	204	376	83	54	54	
30	98	86	165	207	---	563	125	193	322	79	53	52	
31	80	---	e95	258	---	786	---	296	---	77	52	---	
TOTAL	1905	2761	2576	3405	3387	9407	12767	15582	22794	4190	2108	1813	
MEAN	61.5	92.0	83.1	110	121	303	426	503	760	135	68.0	60.4	
MAX	178	253	165	298	280	786	1420	1800	2850	281	127	122	
MIN	33	59	38	50	66	90	125	124	187	77	52	49	
CFSM	.31	.46	.42	.55	.60	1.52	2.13	2.51	3.80	.68	.34	.30	
IN.	.35	.51	.48	.63	.63	1.75	2.37	2.90	4.24	.78	.39	.34	
CAL YR	1988	TOTAL	50646	MEAN	138	MAX	1100	MIN	33	CFSM	.69	IN.	9.42
WTR YR	1989	TOTAL	82695	MEAN	227	MAX	2850	MIN	33	CFSM	1.13	IN.	15.38

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

04230650 GENESEE RIVER AT BALLANTYNE BRIDGE, NEAR MORTIMER, NY

LOCATION.--Lat 43°05'32", long 77°40'50", Monroe County, Hydrologic Unit 04130003, on right bank 400 ft upstream from Ballantyne Bridge on State Highway 252, 1.6 mi west of Mortimer, and 2.8 mi upstream from Erie (Barge) Canal.

DRAINAGE AREA.--2,210 mi².

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORD.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--River regulated for operation of Erie (Barge) Canal, downstream powerplants, and at high stages by Mount Morris Lake (see station 04224000). Satellite gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 19.33 ft, Mar. 5, 1976; minimum recordable, 8.20 ft, Nov. 9, 1979, result of regulation.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 16.22 ft, May 12; minimum, 9.50 ft, Apr. 25.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.63	11.45	10.99	10.47	12.12	11.29	13.99	12.12	12.24	13.94	11.88	11.71
2	11.60	11.29	10.74	10.52	12.01	11.78	13.28	12.22	12.76	13.75	11.84	11.87
3	11.38	11.28	11.18	10.52	12.02	11.58	14.05	12.56	12.45	13.57	11.91	11.86
4	11.83	11.13	10.70	10.40	11.95	11.33	15.29	12.42	11.99	13.52	11.87	11.90
5	12.02	11.15	10.45	10.61	12.01	12.35	14.69	12.45	12.34	13.33	11.84	11.95
6	11.91	11.49	10.40	10.60	11.95	12.53	14.50	12.05	12.38	13.23	11.95	11.98
7	11.84	11.70	10.50	10.67	11.67	12.25	14.47	12.31	11.74	13.22	12.09	11.96
8	11.93	11.64	10.47	10.49	11.52	12.22	14.37	13.00	11.63	12.95	11.93	11.81
9	11.55	11.42	10.44	10.14	11.72	11.99	14.12	13.75	11.56	12.58	11.86	11.67
10	11.26	11.42	10.37	10.64	11.69	11.97	14.07	13.80	12.23	12.01	11.83	11.66
11	11.43	11.44	10.30	10.91	11.72	12.00	13.97	14.51	12.61	11.93	11.91	11.59
12	11.39	11.50	10.36	11.22	11.96	12.02	13.65	15.95	12.02	11.98	11.92	11.52
13	12.08	11.34	10.48	10.93	12.05	11.84	13.29	15.26	11.86	11.81	11.93	11.54
14	11.99	11.36	10.44	10.49	11.93	11.86	12.72	14.22	12.18	11.77	11.95	11.58
15	11.92	11.43	10.26	10.45	11.93	11.88	12.33	14.20	12.62	11.85	12.02	11.76
16	11.83	11.56	10.56	10.07	11.98	12.20	12.38	14.70	12.89	11.77	12.07	12.26
17	12.08	10.96	10.59	10.21	11.99	12.06	12.39	13.86	14.02	11.79	11.97	11.92
18	11.85	10.57	10.22	11.00	12.14	11.71	11.82	12.84	14.23	11.87	11.80	12.25
19	12.04	10.38	10.18	11.41	12.07	12.18	12.24	13.61	13.44	11.94	11.66	11.91
20	11.98	10.40	10.27	11.54	11.88	12.05	12.14	14.13	13.53	12.03	11.71	11.64
21	11.92	10.71	10.22	11.89	11.76	12.04	12.11	13.97	15.32	12.03	11.89	11.62
22	11.70	11.34	10.68	11.17	11.91	12.13	12.04	13.78	15.88	11.86	12.07	11.46
23	11.94	11.02	10.72	11.26	12.24	12.28	11.99	13.73	15.72	11.97	11.94	11.21
24	11.97	11.25	10.56	11.38	12.10	12.29	10.54	13.83	15.22	12.04	11.84	11.70
25	11.45	11.86	10.71	11.55	12.10	12.58	9.55	13.81	14.57	12.04	11.90	11.50
26	11.51	11.58	10.94	11.31	12.10	12.73	9.64	13.68	14.60	11.90	11.87	11.59
27	11.47	12.04	11.13	11.32	12.08	12.52	10.74	13.05	14.19	11.93	11.78	11.52
28	11.45	11.90	10.69	11.95	11.39	12.57	11.93	12.86	14.06	11.84	11.72	11.41
29	11.56	11.10	10.33	11.97	---	12.67	12.00	12.56	13.96	11.86	11.75	11.56
30	11.44	10.62	10.55	12.16	---	13.12	12.18	12.18	13.83	11.84	11.78	11.51
31	11.46	---	10.48	12.03	---	13.73	---	11.84	---	11.76	11.67	---
MEAN	11.72	11.28	10.55	11.01	11.93	12.19	12.75	13.40	13.27	12.32	11.88	11.71
MAX	12.08	12.04	11.18	12.16	12.24	13.73	15.29	15.95	15.88	13.94	12.09	12.26
MIN	11.26	10.38	10.18	10.07	11.39	11.29	9.55	11.84	11.56	11.76	11.66	11.21
CAL YR	1988	MEAN	11.83	MAX	14.91	MIN	10.18					
WTR YR	1989	MEAN	12.00	MAX	15.95	MIN	9.55					

STREAMS TRIBUTARY TO LAKE ONTARIO
04231000 BLACK CREEK AT CHURCHVILLE, NY

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LOCATION.--Lat 43°06'02", long 77°52'57", Monroe County, Hydrologic Unit 04130003, on right bank at east end of Carrol Street in Churchville, 100 ft downstream from mainline tracks of Penn Central Transportation Co., and 0.3 mi downstream from Black Creek Dam.

DRAINAGE AREA.--130 mi².

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

REVISED RECORDS.--WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 551.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to May 1952, small diversion by Penn Central Transportation Co. and slight regulation by pumping operations upstream from station. Telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--44 years, 114 ft³/s, 11.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,880 ft³/s, Mar. 31, 1960, gage height, 9.44 ft; minimum, 0.22 ft³/s, Aug. 19, 1970; minimum gage height, 0.93 ft, Aug. 5-7, Sept. 15, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 9	2000	866	4.78	June 24	1830	*1,900	*6.91
May 13	2000	1,050	5.23				

Minimum discharge, 7.0 ft³/s, Sept. 13, gage height, 1.27 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	20	23	27	93	e32	580	74	258	94	17	17
2	15	21	23	e23	82	e30	549	130	293	81	19	23
3	12	17	21	e20	49	e25	536	207	480	70	22	22
4	11	17	20	e19	e40	e28	573	199	286	65	30	17
5	11	22	18	e16	e32	e50	693	134	168	65	54	14
6	11	36	19	16	e30	e90	563	111	131	63	55	13
7	11	40	18	16	e28	e105	373	160	103	58	36	12
8	12	38	17	e20	e26	e90	271	433	84	51	27	11
9	11	37	16	32	e24	e54	225	809	74	46	23	10
10	11	36	e12	35	e24	43	184	748	108	43	19	11
11	11	30	e11	33	e20	42	156	603	157	38	17	9.5
12	13	27	e10	31	e20	e40	140	787	152	36	16	9.8
13	13	28	e9.0	29	e20	e40	126	1020	103	35	16	8.0
14	12	26	e8.4	24	22	e50	118	821	110	33	15	12
15	11	24	e8.4	23	28	107	112	495	120	30	14	20
16	11	23	e8.2	24	e28	168	108	433	125	27	14	26
17	11	21	e8.2	23	e26	185	102	370	283	26	14	29
18	13	18	e8.6	22	e24	155	101	295	392	26	13	32
19	14	17	e9.0	22	e20	171	102	210	450	25	15	28
20	16	23	11	e22	e20	196	93	165	376	27	23	23
21	16	41	18	e21	e28	162	83	144	484	31	26	19
22	26	57	21	19	e48	144	75	129	892	31	29	19
23	36	53	21	18	e60	124	67	115	835	28	27	35
24	40	40	25	e19	e70	129	63	115	1560	26	23	56
25	37	32	29	e20	e56	156	61	114	1270	23	19	48
26	32	28	26	29	e44	179	62	112	492	20	16	34
27	35	28	23	48	e38	175	60	109	243	23	14	24
28	37	26	30	76	e34	159	58	99	157	24	13	22
29	29	24	34	83	---	177	57	89	128	23	13	19
30	26	24	33	75	---	276	69	90	117	19	13	15
31	23	---	31	82	---	408	---	123	---	18	12	---
TOTAL	584	874	569.8	967	1034	3790	6360	9443	10431	1205	664	638.3
MEAN	18.8	29.1	18.4	31.2	36.9	122	212	305	348	38.9	21.4	21.3
MAX	40	57	34	83	93	408	693	1020	1560	94	55	56
MIN	11	17	8.2	16	20	25	57	74	74	18	12	8.0
CFSM	.14	.22	.14	.24	.28	.94	1.63	2.34	2.67	.30	.16	.16
IN.	.17	.25	.16	.28	.30	1.08	1.82	2.70	2.98	.34	.19	.18
CAL YR	1988	TOTAL 22072.0	MEAN	60.3	MAX	592	MIN	1.4	CFSM	.46	IN.	6.32
WTR YR	1989	TOTAL 36560.1	MEAN	100	MAX	1560	MIN	8.0	CFSM	.77	IN.	10.46

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04232000 GENESEE RIVER AT ROCHESTER, NY

LOCATION.--Lat 43°10'50", long 77°37'40", Monroe County, Hydrologic Unit 04130003, on right bank 40 ft downstream from Rochester Gas and Electric Corp. plant 5, 100 ft upstream from bridge on Driving Park Avenue in Rochester, and 6.4 mi upstream from mouth.

DRAINAGE AREA.--2,467 mi².

PERIOD OF RECORD.--April 1904 to September 1918, December 1919 to current year. Published as "at Driving Park Avenue," 1919-68.

REVISED RECORDS.--WSP 1912; WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 246.24 ft above National Geodetic Vertical Datum of 1929 (247.00 ft, Barge Canal datum). April 1904 to December 1910, nonrecording gage and December 1910 to September 1918, water-stage recorder at site 5 mi upstream at datum 506.85 ft, Barge Canal datum. December 1919 to Apr. 4, 1927, water-stage recorder in plant 5, and Apr. 4, 1927 to June 19, 1956, at present site at datum 3.00 ft higher.

REMARKS.--Records poor. Extensive diurnal fluctuation caused by powerplants upstream from station. New York State Erie (Barge) Canal crosses river 5.4 mi upstream from station. Water diverted by the canal from Lake Erie is discharged into river from the west, the canal again diverting a smaller amount of water from river to the east. Additional regulation is provided by Rushford Lake, Mount Morris Lake (see station 04224000), and Conesus Lake (see station 04227980).

AVERAGE DISCHARGE.--82 years (water years 1905-18, 1921-89), 2,794 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,300 ft³/s, Mar. 30, 1916, gage height, 15.3 ft, site and datum then in use; maximum at present site, 34,400 ft³/s, Mar. 19, 1942; maximum gage height, 17.08 ft, Apr. 2, 1940, present datum; minimum discharge, less than 10 ft³/s, occurred during low-water periods in some years when power plant was shut down; minimum daily, 91 ft³/s, Jan. 9, 29, Feb. 1, 8, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Discharge on Mar. 18, 1865, was about 54,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,000 ft³/s, May 11 at 1000 hours, gage height, 15.22 ft, result of regulation; minimum daily 483 ft³/s, Sept. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e590	1220	825	1440	1920	1490	8030	1260	3700	7440	e742	e556
2	864	957	965	1520	1870	1400	8610	1920	5150	7470	e719	e540
3	879	e632	899	1350	1680	1430	9070	4400	5170	7000	e709	e611
4	e582	e621	900	1090	1420	1060	11200	4460	3910	6810	e717	e600
5	e584	687	901	1080	1300	1950	10400	3970	3330	6430	853	e593
6	784	687	882	1140	1670	2710	9790	3130	4020	5840	1070	e577
7	e590	1230	809	1030	1480	2310	9930	2750	3060	5810	922	e548
8	e614	1130	865	1190	1030	1980	9730	5520	2710	5430	1090	e541
9	1300	1010	947	1080	908	1740	9390	7580	2120	4480	769	e538
10	754	1040	695	1140	1110	1560	9190	7860	3440	3070	e713	e506
11	922	690	688	1360	798	1600	8990	10100	5680	1180	e665	e490
12	833	784	687	1150	708	1600	8460	12400	4750	1330	e637	e498
13	1190	819	695	1370	857	1430	7330	11600	3630	1170	e611	e483
14	1120	746	692	931	844	1510	5840	9820	4070	1200	e607	e495
15	1140	689	833	1010	868	1740	4750	9720	5020	1120	e613	e1300
16	e918	865	710	751	921	2520	4780	10300	5970	1110	e606	2330
17	910	917	714	840	968	2580	4400	9600	8390	1040	e601	2120
18	1240	e786	690	689	842	2650	3350	6570	9200	962	e569	2240
19	1030	694	689	e929	952	3170	2090	6910	7270	e962	e560	2170
20	1210	687	721	689	1010	3140	2310	8040	7270	1040	e605	1370
21	1110	696	775	840	952	2640	1780	8310	10200	1270	e714	927
22	1310	1160	880	775	1520	2870	1830	7650	11400	1220	773	1150
23	1430	2050	1790	713	1980	2960	1610	7330	11500	1050	988	1160
24	1660	815	1410	694	2000	2930	1230	7450	11000	1520	e653	1660
25	1460	1040	1170	929	1620	3610	722	7420	9750	1560	e610	2140
26	1000	866	1700	925	1620	4260	713	7280	9490	1620	e574	1080
27	1070	738	1560	1070	1870	3930	749	6860	8730	1300	e553	1090
28	1040	920	1910	1470	1590	3740	823	6150	8610	1250	e543	e937
29	1310	912	1350	1550	---	4010	714	5820	8390	847	e526	e764
30	1270	832	1640	1770	---	4970	906	5160	7770	e840	e539	e710
31	1220	---	1460	1860	---	7360	---	3230	---	e779	e542	---
TOTAL	31934	26920	31452	34375	36308	82850	158717	210570	194700	84150	21393	30724
MEAN	1030	897	1015	1109	1297	2673	5291	6793	6490	2715	690	1024
MAX	1660	2050	1910	1860	2000	7360	11200	12400	11500	7470	1090	2330
MIN	582	621	687	689	708	1060	713	1260	2120	779	526	483
CAL YR 1988	TOTAL	602707	MEAN	1647	MAX	9170	MIN	396				
WTR YR 1989	TOTAL	944093	MEAN	2587	MAX	12400	MIN	483				

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

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04232006 GENESEE RIVER AT CHARLOTTE DOCKS AT ROCHESTER, NY
(National stream-quality accounting network station)

WATER QUALITY RECORDS

LOCATION.--Lat 43°13'26", long 77°36'59", Monroe County, Hydrologic Unit 04130003, at Charlotte Docks, at the Rochester Cement Corp., in Rochester, 0.4 mi upstream from Rattlesnake Point, 1.6 mi upstream from Stutson Street Bridge, and 3.6 mi downstream from gaging station (04232000) at Rochester.

DRAINAGE AREA.--2,467 mi at station 04232000.

PERIOD OF RECORD.--Water years 1971 to current year.

CHEMICAL DATA: 1971-72 (a), 1974 (b), 1975-82 (c), 1983-89 (b).

MINOR ELEMENTS DATA: 1971-73 (a), 1974-89 (b).

ORGANIC DATA: OC--1974 (a), 1975 (b), 1977 (b), 1978-80 (c), 1981 (b).

NUTRIENT DATA: 1971 (a), 1974 (b), 1975-82 (c), 1983-89 (b).

BIOLOGICAL DATA:

Bacteria--1974 (b), 1975-82 (c), 1983-89 (b).

Phytoplankton--1974 (b), 1975-77 (c), 1978-81 (b).

Periphyton--1975-80 (b).

SEDIMENT DATA: 1974 (b), 1975-82 (c), 1983-89 (b).

REMARKS.--Water-discharge data are based on records for station 04232000 Genesee River at Rochester. Water-quality samples collected by the New York State Department of Environmental Conservation were grab samples collected from the dock at Genesee Docks.

COOPERATION.--Water-quality analyses identified by an (*) were collected by the New York State Department of Environmental Conservation.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (FTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100ML)
OCT											
*03	1200	879	--	855	7.90	16.5	--	--	7.0	--	--
NOV											
08	1200	1130	1060	--	7.93	9.0	10	748	10.8	95	390
MAR											
*21	1100	2640	--	558	8.77	2.0	--	749	--	--	--
APR											
*04	1000	11200	--	437	8.37	7.5	--	752	10.3	--	--
*27	1100	749	--	710	7.93	14.0	--	760	8.7	--	--
MAY											
04	1200	4460	711	--	8.46	9.5	29	760	12.0	106	730
*18	1200	6570	--	449	8.20	18.5	--	753	10.1	--	--
JUN											
*08	1000	2710	--	540	8.10	21.5	--	745	8.8	--	--
*27	1400	8730	--	353	8.12	24.5	--	743	8.8	--	--
JUL											
05	1200	6430	307	--	7.96	20.5	87	752	8.1	91	310
AUG											
*16	2000	606	824	--	8.40	25.5	--	755	12.5	--	--
23	1100	988	902	--	7.58	24.0	5.7	758	8.1	97	460
SEP											
*12	1300	498	--	789	7.79	24.0	--	751	6.4	78	--

DATE	STREP- TOCOC FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	ALKA- LITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT											
03	--	240	71	15	73	3.4	--	125	100	130	0.2
NOV											
08	170	290	87	18	100	3.8	150	--	140	170	0.2
MAR											
21	--	190	57	12	39	2.8	--	97	68	69	0.1
APR											
04	--	160	45	11	23	2.9	--	93	50	41	0.1
27	--	220	66	14	55	4.3	--	124	94	87	0.2
MAY											
04	700	230	67	16	53	2.8	138	--	76	93	0.2
18	--	170	50	12	23	2.4	--	113	53	36	0.1

STREAMS TRIBUTARY TO LAKE ONTARIO
04232006 GENESEE RIVER AT CHARLOTTE DOCKS, ROCHESTER, NY--Continued
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	ALKA- LITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
JUN											
08	--	190	56	11	32	2.5	--	122	63	50	0.2
27	--	120	36	7.2	15	1.4	--	97	34	24	0.1
JUL											
05	65	120	37	7.0	13	2.3	84	--	31	18	0.1
AUG											
16	--	--	--	--	--	--	--	125	120	110	0.2
23	K24	270	79	17	73	4.0	142	--	130	120	0.2
SEP											
12	--	250	75	15	58	3.2	--	135	110	90	0.2
	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	
OCT											
03	--	--	--	--	--	--	--	--	--	--	
NOV											
08	2.6	613	614	0.66	0.66	0.62	0.04	1.2	0.07	0.05	
MAR											
21	--	--	306	--	--	--	--	--	--	--	
APR											
04	--	--	229	--	--	--	--	--	--	--	
27	--	--	395	--	--	--	--	--	--	--	
MAY											
04	2.5	423	395	1.0	0.16	0.14	0.02	0.70	0.07	0.02	
18	--	--	244	--	--	--	--	--	--	--	
JUN											
08	--	--	288	--	--	--	--	--	--	--	
27	--	--	176	--	--	--	--	--	--	--	
JUL											
05	5.1	180	176	1.0	0.03	0.06	0.03	0.50	0.06	0.02	
AUG											
16	--	--	--	--	--	--	--	--	--	--	
23	0.17	508	513	0.76	0.16	0.15	0.02	1.3	0.08	0.01	
SEP											
12	--	--	432	--	--	--	--	--	--	--	
	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	
OCT											
03	--	880	--	--	--	--	--	1	--	--	
NOV											
08	0.03	--	<10	1	50	<0.5	3	--	<1	<3	
MAR											
21	--	2600	--	--	--	--	--	2	--	--	
APR											
04	--	8600	40	--	--	--	<1	1	--	--	
27	--	710	--	--	--	--	--	1	--	--	
MAY											
04	<0.01	--	<10	<1	47	<0.5	<1	--	<1	<3	
18	--	3000	20	--	--	--	<1	<1	--	--	
JUN											
08	--	900	--	--	--	--	--	<1	--	--	
27	--	7800	--	--	--	--	--	<1	--	--	
JUL											
05	0.02	--	10	1	31	<0.5	<1	--	<1	<3	
AUG											
16	--	150	--	--	--	--	--	<1	--	--	
23	<0.01	--	20	1	58	<0.5	1	--	<1	<3	
SEP											
12	--	570	--	--	--	--	--	1	--	--	

K. Results based on colony count outside the ideal range (non-ideal colony count).

STREAMS TRIBUTARY TO LAKE ONTARIO

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04232006 GENESEE RIVER AT CHARLOTTE DOCKS, ROCHESTER, NY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT 03.....	--	30	1000	--	--	<5	--	130	--	--
NOV 08.....	6	--	--	24	<5	--	28	--	91	<0.1
MAR 21.....	--	10	4500	--	--	6	--	110	--	--
APR 04.....	2	18	15000	32	<5	8	--	420	88	--
27.....	--	9	1700	--	--	9	--	90	--	--
MAY 04.....	5	--	--	18	<5	--	14	--	12	<0.1
18.....	5	9	5800	39	1	8	--	140	10	--
JUN 08.....	--	6	1600	--	--	4	--	70	--	--
27.....	--	12	17000	--	--	13	--	330	--	--
JUL 05.....	7	--	--	21	4	--	7	--	4	<0.1
AUG 16.....	--	12	330	--	--	2	--	90	--	--
23.....	8	--	--	16	1	--	23	--	58	0.2
SEP 12.....	--	10	1300	--	--	6	--	170	--	--

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 03.....	--	--	--	7	--	--	--	--	--	50
NOV 08.....	--	<10	6	--	<1	<1.0	1200	<6	25	--
MAR 21.....	<0.1	--	--	13	--	--	--	--	--	30
APR 04.....	0.2	--	5	14	--	--	--	--	<3	70
27.....	0.1	--	--	5	--	--	--	--	--	60
MAY 04.....	--	<10	1	--	<1	<1.0	590	<6	6	--
18.....	0.2	--	2	7	--	--	--	--	7	20
JUN 08.....	0.3	--	--	4	--	--	--	--	--	30
27.....	0.4	--	--	16	--	--	--	--	--	60
JUL 05.....	--	<10	2	--	<1	<1.0	240	<6	5	--
AUG 16.....	<0.1	--	--	3	--	--	--	--	--	30
23.....	--	<10	2	--	<1	<1.0	1100	<6	40	--
SEP 12.....	0.2	--	--	4	--	--	--	--	--	50

CHEMICAL QUALITY OF BOTTOM MATERIAL, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SOLIDS, VOLA- TILE IN BOTTOM MA- TERIAL (MG/KG)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)
AUG 16.....	2000	42800	6700	<1	20	20	420	20	70	15000	0.05

STREAMS TRIBUTARY TO LAKE ONTARIO
04232006 GENESEE RIVER AT CHARLOTTE DOCKS, ROCHESTER, NY--Continued
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
NOV								
08.....	1205	70	22.0	3.0	1070	--	9.0	10.9
08.....	1210	70	22.0	10.0	1070	--	9.0	10.5
08.....	1215	70	22.0	15.0	1070	--	8.5	10.7
08.....	1220	70	22.0	20.0	1070	--	8.5	10.6
08.....	1225	140	13.0	3.0	1060	--	9.0	11.0
08.....	1230	140	13.0	8.0	1060	--	9.0	11.1
08.....	1235	140	13.0	12.0	1060	--	9.0	10.8
MAY								
04.....	1205	40	25.0	3.0	714	8.47	10.0	12.8
04.....	1210	40	25.0	10.0	711	8.46	9.5	12.2
04.....	1215	40	25.0	15.0	711	8.46	9.5	12.1
04.....	1220	40	25.0	20.0	711	8.47	9.5	12.0
04.....	1225	100	16.0	3.0	703	8.42	10.0	12.1
04.....	1230	100	16.0	10.0	703	8.41	9.5	11.6
04.....	1235	100	16.0	15.0	703	8.39	9.5	12.2
04.....	1240	180	14.0	3.0	703	8.42	9.5	12.3
04.....	1245	180	14.0	8.0	703	8.42	10.0	12.4
04.....	1250	180	14.0	13.0	702	8.42	9.5	12.2
JUL								
05.....	1205	40	26.0	3.0	307	8.00	20.5	7.7
05.....	1210	40	26.0	10.0	307	8.01	20.5	8.0
05.....	1215	40	26.0	15.0	306	8.01	20.5	8.1
05.....	1220	40	26.0	20.0	306	8.00	20.5	8.6
05.....	1225	100	20.0	3.0	307	7.96	20.5	--
05.....	1230	100	20.0	10.0	307	7.95	20.5	--
05.....	1235	100	20.0	15.0	307	7.94	20.5	--
05.....	1240	100	20.0	20.0	307	7.94	20.5	--
05.....	1245	140	15.0	3.0	309	7.86	20.5	--
05.....	1250	140	15.0	7.0	308	7.87	20.5	--
05.....	1255	140	15.0	11.0	307	7.88	20.5	--
05.....	1300	140	15.0	14.0	308	7.87	20.5	--
AUG								
23.....	1105	40	25.0	3.0	906	--	24.5	--
23.....	1110	40	25.0	10.0	902	--	24.0	--
23.....	1115	40	25.0	15.0	854	--	23.5	--
23.....	1120	40	25.0	20.0	830	--	23.0	--
23.....	1125	100	16.0	3.0	911	--	24.5	--
23.....	1130	100	16.0	8.0	921	--	24.0	--
23.....	1135	100	16.0	11.0	898	--	24.0	--
23.....	1140	100	16.0	14.0	866	--	23.5	--
23.....	1145	140	14.0	3.0	906	--	24.0	--
23.....	1150	140	14.0	8.0	907	--	24.0	--
23.....	1155	140	14.0	12.0	891	--	24.0	--

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS CHARGE IN CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. DIS- CHARGE, SUS- PENDED (T/DAY)	SIEVE DIAM. % FINER THAN .062 MM
NOV					
08.....	1200	1130	27	82	94
MAR					
21.....	1100	2640	133	948	--
APR					
04.....	1000	11200	475	14400	--
27.....	1100	749	49	99	--
MAY					
04.....	1200	4460	69	831	98
18.....	1200	6570	155	2750	--
JUN					
08.....	1000	2710	38	278	--
27.....	1400	8730	408	9620	--
JUL					
05.....	1200	6430	163	2830	99
AUG					
16.....	2000	606	11	23	--
23.....	1100	988	20	53	96
SEP					
12.....	1300	498	52	106	--

STREAMS TRIBUTARY TO LAKE ONTARIO
04232040 IRONDEQUOIT CREEK NEAR PITTSFORD, NY

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LOCATION.--Lat 43°03'15", long 77°29'28", Monroe County, Hydrologic Unit 04140101, on right bank 140 ft upstream from bridge on Thomell Road, 0.9 mi south of creek passage under Erie (Barge) Canal, and 2.7 mi southeast of Pittsford.

DRAINAGE AREA.--44.4 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1955, 1961-62, 1964-66, 1968, and annual maximum, water years 1962-63, 1965-66, 1968-70, 1972. March 1980 to current year.

REVISED RECORDS.--WDR NY-81-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Prior to March 1980, nonrecording gage and crest-stage gage at site 150 ft downstream at same datum. Elevation of gage is 405 ft above National Geodetic Vertical Datum of 1929, from Corps of Engineers river-profile map.

REMARKS.--Records fair. Unpublished water-quality records are available in files of Monroe County Department of Health. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years (water years 1981-89), 39.6 ft³/s, 12.11 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,140 ft³/s, Mar. 12, 1962, gage height, 8.6 ft, at site then in use; minimum discharge measured, 8.10 ft³/s, Sept. 17, 1964; minimum gage height at present site, 2.98 ft, Sept. 12, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 360 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 8	1400	*297	*5.79	No peak greater than base discharge.			
Minimum discharge, 10 ft ³ /s, Sept. 6, gage height, 3.00 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	19	21	e17	32	e21	137	34	53	24	13	12
2	14	22	22	e18	29	e21	138	101	44	22	13	15
3	15	26	24	e17	e22	e20	201	85	36	20	14	13
4	16	24	22	e16	e22	36	186	48	31	19	18	12
5	20	25	21	e15	e21	101	118	37	29	19	27	11
6	19	37	22	e14	e20	65	73	37	27	20	20	10
7	18	30	21	20	e19	e40	60	93	25	18	15	11
8	18	26	20	27	e18	e24	51	260	23	17	14	11
9	16	27	20	e31	e18	e22	46	187	24	16	14	11
10	16	26	19	e29	e17	e20	39	97	77	18	13	11
11	17	24	18	22	e17	23	38	190	44	18	12	12
12	17	23	16	21	e17	24	37	231	31	16	12	13
13	17	22	e16	22	e19	e23	39	132	34	16	12	13
14	19	22	e16	24	22	26	38	92	39	16	12	14
15	17	22	e15	21	24	42	35	106	41	16	12	30
16	19	21	e14	21	24	40	35	109	36	16	15	26
17	17	22	e14	21	e20	32	35	84	78	18	13	32
18	18	21	e14	20	e18	61	39	54	56	18	13	34
19	19	20	e13	e20	e17	56	38	46	38	17	14	21
20	19	26	e16	e19	e17	38	34	42	77	17	22	18
21	18	62	24	e18	44	39	32	42	194	18	17	16
22	34	41	23	e18	73	34	30	39	76	20	16	15
23	56	33	21	e19	e33	32	29	36	42	43	15	18
24	33	30	24	21	e26	38	29	39	34	24	14	18
25	25	29	28	21	e24	59	29	38	31	18	14	17
26	21	28	23	26	e23	52	29	37	28	15	13	17
27	22	27	22	34	e23	43	29	36	26	14	13	16
28	20	29	28	28	e22	45	27	31	52	15	13	15
29	19	27	29	26	---	49	28	28	41	16	13	15
30	18	23	e20	29	---	81	31	30	29	14	13	15
31	18	---	e17	31	---	128	---	42	---	14	11	---
TOTAL	628	814	623	686	681	1335	1710	2463	1396	572	450	492
MEAN	20.3	27.1	20.1	22.1	24.3	43.1	57.0	79.5	46.5	18.5	14.5	16.4
MAX	56	62	29	34	73	128	201	260	194	43	27	34
MIN	13	19	13	14	17	20	27	28	23	14	11	10
CFSM	.46	.61	.45	.50	.55	.97	1.28	1.79	1.05	.42	.33	.37
IN.	.53	.68	.52	.57	.57	1.12	1.43	2.06	1.17	.48	.38	.41
CAL YR 1988	TOTAL 10290.9	MEAN 28.1	MAX 250	MIN 9.3	CFSM .63	IN. 8.62						
WTR YR 1989	TOTAL 11850	MEAN 32.5	MAX 260	MIN 10	CFSM .73	IN. 9.93						

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04232046 THOMAS CREEK AT FAIRPORT, NY

LOCATION.--Lat 43°06'22", long 77°27'44", Monroe County, Hydrologic Unit 04140101, on right bank 48 ft upstream from culvert on Foreman Center Road, 0.5 mi northwest of Fairport, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--28.5 mi², flow from 0.86 mi² noncontributing.

PERIOD OF RECORD.--March 1980 to current year.

REVISED RECORDS.--WDR NY-81-3: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 403 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair. Unpublished water-quality records are available in files of Monroe County Health Department. Discharge subsequent to July 20, 1983 includes undetermined diversion (maximum 25 ft³/s) from Erie (Barge) Canal upstream from station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years (water years 1981-89), 16.1 ft³/s, 7.92 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 232 ft³/s, Feb. 15, 1984, gage height, 2.71 ft; maximum gage height, 3.62 ft, Jan. 12, 1982 (ice jam); minimum discharge, 1.2 ft³/s, Sept. 12, 1989; minimum gage height, 1.22 ft, June 7, 8, 13, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 8	1145	ice jam	*2.71	No peak greater than base discharge.			
Apr. 4	0930	*132	2.30				

Minimum discharge, 1.2 ft³/s, Sept. 12, gage height, 1.29 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	4.3	6.9	4.4	e5.6	11	e5.6	82	17	43	6.8	2.2	3.6	
2	4.9	8.9	3.6	e5.0	e8.0	e5.2	82	45	34	5.8	2.7	4.1	
3	5.6	9.1	2.9	e4.6	e6.0	e5.0	110	52	24	4.8	2.7	2.3	
4	5.7	8.2	2.5	e4.2	e5.5	e18	123	38	20	4.6	9.1	2.1	
5	8.5	12	2.2	e3.8	e5.0	e26	106	30	14	4.7	19	2.1	
6	11	16	2.5	e3.6	e4.7	e20	74	27	12	4.9	22	2.0	
7	8.9	9.5	2.4	e4.0	e4.4	e13	52	59	11	4.5	7.8	1.9	
8	9.7	10	1.6	e10	e4.0	e8.0	42	118	9.4	3.9	5.0	1.7	
9	7.1	8.8	2.2	e8.5	e3.8	e7.5	34	101	15	3.4	3.6	1.8	
10	6.8	6.8	e2.2	e7.0	e3.6	e7.0	30	82	44	7.0	2.9	1.8	
11	6.6	4.9	e2.2	e6.0	e3.4	e6.6	26	92	27	7.8	2.5	2.0	
12	6.7	4.9	e2.1	e5.0	e3.2	e6.2	25	96	16	4.8	5.0	1.6	
13	6.4	4.8	e2.0	e4.5	e3.0	e6.0	24	74	20	3.9	6.1	1.6	
14	6.0	4.1	e2.0	e4.0	e6.0	e13	23	62	18	3.6	2.4	8.2	
15	5.9	3.2	e1.9	5.1	e8.0	e26	22	54	21	3.3	2.2	17	
16	7.1	2.8	e1.8	4.8	e6.0	e20	21	50	22	3.0	4.4	6.0	
17	5.9	3.2	e1.8	4.8	e5.0	e18	19	43	68	3.2	2.6	18	
18	8.5	2.9	e1.7	5.5	e4.8	35	20	35	73	3.1	2.2	8.1	
19	6.8	2.6	e1.7	4.9	e4.4	e32	18	28	51	2.8	3.7	4.2	
20	5.8	6.7	4.3	e4.7	e4.0	e28	16	24	55	4.0	5.5	2.9	
21	5.7	19	5.2	e4.5	e16	e26	14	22	79	3.8	3.3	2.5	
22	33	11	e4.6	e5.0	e24	e23	11	20	73	2.9	2.7	2.7	
23	71	9.5	e6.0	e5.5	e13	e21	9.7	19	48	2.9	3.0	6.8	
24	34	7.7	6.6	e6.0	e10	25	8.1	20	30	2.9	2.6	3.5	
25	17	6.5	7.3	e5.8	e8.0	32	8.1	18	20	2.7	2.4	3.0	
26	11	5.8	e6.0	9.2	e7.4	32	8.9	20	15	2.6	2.2	3.1	
27	9.5	5.4	e5.0	12	e6.8	28	10	18	11	2.5	2.1	2.6	
28	9.7	5.3	e8.0	11	e6.2	27	10	16	13	2.8	2.1	2.1	
29	8.6	4.8	e9.0	9.3	---	29	12	15	9.2	2.4	2.4	2.0	
30	7.2	4.5	e7.5	11	---	48	15	22	8.1	2.2	2.4	2.1	
31	7.0	---	e6.5	11	---	78	---	21	---	2.2	2.6	---	
TOTAL	351.9	215.8	119.7	195.9	195.2	675.1	1055.8	1338	903.7	119.8	141.4	123.4	
MEAN	11.4	7.19	3.86	6.32	6.97	21.8	35.2	43.2	30.1	3.86	4.56	4.11	
MAX	71	19	9.0	12	24	78	123	118	79	7.8	22	18	
MIN	4.3	2.6	1.6	3.6	3.0	5.0	8.1	15	8.1	2.2	2.1	1.6	
CFSM	.41	.26	.14	.23	.25	.79	1.28	1.56	1.09	.14	.17	.15	
IN.	.47	.29	.16	.26	.26	.91	1.42	1.80	1.22	.16	.19	.17	
CAL YR	1988	TOTAL	3476.9	MEAN	9.50	MAX	87	MIN	1.6	CFSM	.34	IN.	4.69
WTR YR	1989	TOTAL	5435.7	MEAN	14.9	MAX	123	MIN	1.6	CFSM	.54	IN.	7.33

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

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04232047 IRONDEQUOIT CREEK AT LINDEN AVENUE, EAST ROCHESTER, NY

LOCATION.--Lat 43°07'16", long 77°28'36", Monroe County, Hydrologic Unit 04140101, on left bank 200 ft upstream from bridge on Linden Avenue, 2.2 mi upstream from Allen Creek, and 7.8 mi upstream from mouth.

DRAINAGE AREA.--101 mi², flow from 4.95 mi² noncontributing.

PERIOD OF RECORD.--August 1973 to March 1989 (discontinued).

REVISED RECORDS.--WDR NY-78-1: 1977. WDR NY-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 341.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to 1980, flow of undetermined magnitude diverted from Erie (Barge) Canal into Thomas Creek, a tributary upstream from station; diversion resumed July 20, 1983.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft³/s, Oct. 29, 1974, gage height, 15.64 ft (result of dewatering of Erie (Barge) Canal through accidental break in canal wall at Bushnell Basin); minimum discharge, 13 ft³/s, Aug. 19, 1985; minimum gage height, 11.15 ft, July 19, 1981, Aug. 6, 1985.

EXTREMES FOR CURRENT YEAR.--Oct. 1988 to March 1989: Maximum discharge, 309 ft³/s, Oct. 23, maximum gage height, 13.57 ft, Jan. 10 (ice jam); minimum discharge, 31 ft³/s, Oct. 1, 2, gage height, 11.36 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	31	36	48	42	66	34	---	---	---	---	---	---	
2	33	46	45	41	62	33	---	---	---	---	---	---	
3	40	50	43	40	50	30	---	---	---	---	---	---	
4	39	44	40	e30	e47	56	---	---	---	---	---	---	
5	57	59	38	e28	e45	181	---	---	---	---	---	---	
6	66	103	40	e28	43	120	---	---	---	---	---	---	
7	52	68	40	e30	41	83	---	---	---	---	---	---	
8	54	60	39	e60	e40	59	---	---	---	---	---	---	
9	44	57	38	e62	e38	43	---	---	---	---	---	---	
10	44	49	38	e56	e37	33	---	---	---	---	---	---	
11	48	42	35	46	e37	32	---	---	---	---	---	---	
12	51	39	e34	40	37	33	---	---	---	---	---	---	
13	46	38	e33	e38	36	30	---	---	---	---	---	---	
14	46	37	e33	35	e38	39	---	---	---	---	---	---	
15	44	39	e32	43	e42	76	---	---	---	---	---	---	
16	55	e45	e31	40	48	81	---	---	---	---	---	---	
17	46	e38	e31	39	45	62	---	---	---	---	---	---	
18	69	e35	e30	37	e43	138	---	---	---	---	---	---	
19	55	e34	e30	e36	e40	129	---	---	---	---	---	---	
20	47	e50	40	e35	e38	82	---	---	---	---	---	---	
21	45	e120	58	e34	e90	91	---	---	---	---	---	---	
22	138	e76	53	e36	e150	---	---	---	---	---	---	---	
23	235	e66	53	38	e100	---	---	---	---	---	---	---	
24	96	e58	66	40	e75	---	---	---	---	---	---	---	
25	62	e52	63	39	e55	---	---	---	---	---	---	---	
26	50	46	45	67	42	---	---	---	---	---	---	---	
27	48	45	42	84	39	---	---	---	---	---	---	---	
28	45	49	69	63	36	---	---	---	---	---	---	---	
29	42	59	68	59	---	---	---	---	---	---	---	---	
30	38	57	56	66	---	---	---	---	---	---	---	---	
31	36	---	45	67	---	---	---	---	---	---	---	---	
TOTAL	1802	1597	1356	1399	1460	---	---	---	---	---	---	---	
MEAN	58.1	53.2	43.7	45.1	52.1	---	---	---	---	---	---	---	
MAX	235	120	69	84	150	---	---	---	---	---	---	---	
MIN	31	34	30	28	36	---	---	---	---	---	---	---	
CFSM	.61	.55	.46	.47	.54	---	---	---	---	---	---	---	
IN.	.70	.62	.53	.54	.57	---	---	---	---	---	---	---	
CAL YR	1988	TOTAL	22816	MEAN	62.3	MAX	478	MIN	22	CFSM	.65	IN.	8.84

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04232050 ALLEN CREEK NEAR ROCHESTER, NY

LOCATION.--Lat 43°07'49", long 77°31'08", Monroe County, Hydrologic Unit C4140101, on right bank 525 ft downstream from Penn Central Transportation Co. bridge, near Rochester, and about 1.3 mi upstream from Irondequoit Creek.

DRAINAGE AREA.--30.1 mi², flow from 3.5 mi² noncontributing.

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

REVISED RECORDS.--WRD NY 1974: 1972(M), 1973(M, P). WDR NY-76-1: 1960-75 (M, P), 1960-63, 1972-74.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 323.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Discharge prior to January 1980 included undetermined diversion (maximum 20 ft³/s) from Erie (Barge) Canal upstream from station. January 1980 to present, diversion reduced to a maximum of 3 ft³/s for use by several golf courses adjacent to stream. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years (water years 1961-89), 32.1 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,280 ft³/s, May 17, 1974, gage height, 7.42 ft, from rating curve extended above 1,000 ft³/s on basis of contracted-opening measurement of peak discharge and step-backwater analysis; minimum daily, 1.7 ft³/s, Jan. 24, 1963; minimum gage height, 1.16 ft, Feb. 19, 1962.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 17	0600	*654	*4.49	No other peak greater than base discharge.			

Minimum discharge, 2.6 ft³/s, Sept. 9, gage height, 1.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	13	5.3	7.3	11	e7.0	163	22	95	6.9	11	19
2	15	15	5.0	e6.5	9.6	e6.5	146	160	43	6.0	15	17
3	21	12	4.5	e6.0	e7.0	e6.0	184	63	32	5.3	14	8.6
4	17	8.4	4.2	e5.5	e6.0	e36	166	39	30	7.0	21	6.7
5	19	19	4.3	e5.1	e5.8	70	93	32	25	7.6	45	5.8
6	23	30	4.7	e5.0	e5.7	e26	63	30	23	11	22	5.8
7	15	14	4.4	e5.5	e5.6	e16	52	201	21	11	18	6.0
8	15	12	4.3	e25	e5.4	e12	39	225	21	10	16	5.5
9	14	11	4.1	e12	e5.2	e9.0	31	83	45	9.6	15	4.3
10	13	7.6	4.0	e8.0	e5.0	e8.6	26	73	88	18	14	5.3
11	14	6.4	e4.0	e7.0	e4.8	e8.4	24	231	30	16	14	5.8
12	16	5.9	e3.8	e6.6	e4.6	e8.2	23	150	24	16	14	5.5
13	14	5.7	e3.7	e6.3	e4.6	e8.0	25	72	50	16	14	5.7
14	13	5.5	e3.6	e6.0	e9.0	15	22	56	36	16	13	27
15	13	4.8	e3.5	8.5	e10	31	23	55	34	14	15	49
16	22	5.3	e3.4	7.2	e8.0	22	23	55	29	13	17	21
17	14	5.6	e3.3	7.1	e6.4	20	22	42	318	13	14	30
18	35	5.6	e3.1	6.9	e6.0	75	33	33	73	13	13	13
19	17	5.1	e3.0	7.1	e5.7	38	22	30	41	14	38	9.7
20	14	25	6.3	e6.6	e5.4	30	19	31	114	18	21	8.9
21	14	46	8.5	e6.4	56	e28	15	30	231	16	13	7.9
22	74	14	6.2	e6.6	39	e26	11	26	75	14	8.3	12
23	76	10	8.2	6.9	e16	e24	10	27	44	13	7.6	40
24	28	8.3	e10	7.3	e14	38	9.4	32	34	12	6.0	16
25	20	7.0	e13	6.6	e10	46	10	26	28	13	6.0	13
26	17	6.4	e7.3	28	e9.0	36	9.7	36	25	12	5.2	11
27	16	6.2	e6.7	20	e8.0	31	11	26	21	13	5.8	11
28	16	6.5	28	12	e7.5	34	9.6	23	24	16	5.4	12
29	14	6.3	15	11	---	38	10	21	10	13	6.3	13
30	14	6.1	9.8	14	---	128	14	41	11	12	6.5	12
31	13	---	8.3	12	---	119	---	45	---	11	5.6	---
TOTAL	637	333.7	203.5	286.0	290.3	1000.7	1308.7	2016	1675	386.4	439.7	407.5
MEAN	20.5	11.1	6.56	9.23	10.4	32.3	43.6	65.0	55.8	12.5	14.2	13.6
MAX	76	46	28	28	56	128	184	231	318	18	45	49
MIN	11	4.8	3.0	5.0	4.6	6.0	9.4	21	10	5.3	5.2	4.3
CAL YR	1988	TOTAL	6822.7	MEAN	18.6	MAX	245	MIN	3.0			
WTR YR	1989	TOTAL	8984.5	MEAN	24.6	MAX	318	MIN	3.0			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

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0423205010 IRONDEQUOIT CREEK AT BLOSSOM ROAD, ROCHESTER, NY

LOCATION.--Lat 43°08'50", long 77°30'48", Monroe County, Hydrologic Unit 04140101, on right bank 120 ft downstream from bridge on Blossom Road, 1.6 mi east of Rochester, 2.5 mi downstream from Allen Creek, and 3.6 mi upstream from mouth.

DRAINAGE AREA.--143 mi², flow from 8.45 mi² noncontributing.

PERIOD OF RECORD.--Occasional discharge measurements water years 1977-80. December 1980 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 246.31 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Discharge includes undetermined diversion from Erie (Barge) Canal. Unpublished water-quality records are available in files of Monroe County Department of Health. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years (water years 1982-89), 123 ft³/s, 12.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,370 ft³/s, Feb. 14, 1984, gage height, 7.91 ft; maximum gage height, 8.01 ft, Jan. 20, 1987 (backwater from ice); minimum discharge, 28 ft³/s, Sept. 11, 14, 1982, gage height, 1.69 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	2315	*820	*7.30	No peak greater than base discharge.			

Minimum discharge, 34 ft³/s, Sept. 10, gage height, 2.03 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	59	60	e54	80	60	518	92	232	81	43	53
2	48	67	56	e50	74	58	525	384	150	78	47	63
3	59	73	54	e47	63	54	648	302	123	72	49	42
4	53	60	53	e46	e59	113	697	180	111	73	67	39
5	69	70	50	e46	e56	279	449	139	96	74	153	37
6	79	129	52	e52	e54	202	371	128	88	78	102	36
7	61	79	54	61	e52	e160	309	388	79	76	60	36
8	61	66	52	97	e50	e130	222	726	78	74	52	36
9	54	63	51	93	e48	e90	174	587	95	71	47	36
10	51	57	51	e78	e46	67	147	377	294	89	46	36
11	52	52	e50	e64	e44	66	134	589	143	96	45	38
12	57	50	e49	e54	e42	67	123	736	98	71	46	38
13	52	49	e48	e48	e40	60	123	492	145	63	50	37
14	50	48	e47	52	e43	75	120	331	123	62	45	74
15	49	48	e47	58	e46	135	114	331	127	58	42	162
16	64	49	e46	53	e52	142	110	297	117	57	48	76
17	51	41	e44	51	e50	115	102	259	545	56	46	123
18	92	40	e42	50	e46	247	125	184	314	57	44	81
19	63	39	e40	e46	e44	202	106	160	185	56	61	54
20	54	59	e49	e44	e42	146	95	147	330	66	103	48
21	51	156	66	e42	144	166	86	138	649	63	55	45
22	187	82	59	e43	203	147	77	127	411	55	44	45
23	323	107	59	e47	e125	114	74	120	220	70	43	104
24	142	114	73	51	e90	131	73	137	158	59	41	62
25	99	84	82	51	e82	177	72	123	130	50	40	55
26	81	67	61	90	e74	163	72	131	116	47	38	52
27	75	60	54	102	67	138	72	110	104	48	37	48
28	72	61	92	79	64	133	71	96	117	52	37	48
29	68	65	85	72	---	151	71	87	116	51	38	48
30	61	62	e68	81	---	312	84	127	94	47	39	46
31	59	---	e58	83	---	440	---	140	---	43	37	---
TOTAL	2382	2056	1752	1885	1880	4540	5964	8165	5588	1993	1645	1698
MEAN	76.8	68.5	56.5	60.8	67.1	146	199	263	186	64.3	53.1	56.6
MAX	323	156	92	102	203	440	697	736	649	96	153	162
MIN	45	39	40	42	40	54	71	87	78	43	37	36
CAL YR	1988	TOTAL	31954	MEAN	87.3	MAX	664	MIN	32			
WTR YR	1989	TOTAL	39548	MEAN	108	MAX	736	MIN	36			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04232100 STERLING CREEK AT STERLING, NY

LOCATION.--Lat 43°19'31", long 76°38'51", Cayuga County, Hydrologic Unit 04140101, on right bank at Sterling, 25 ft downstream from bridge on State Highway 104A, 1.8 mi southwest of Sterling Valley, and 1.9 mi upstream from Sterling Valley Creek.

DRAINAGE AREA.--44.4 mi².

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

REVISED RECORDS.--WDR NY-85-3: 1960(M), 1979-80(M).

GAGE.--Water-stage recorder. Datum of gage is 264.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--32 years (water years 1958-89), 64.7 ft³/s, 19.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,760 ft³/s, revised, Mar. 22, 1980, gage height, 5.99 ft; minimum, 0.32 ft³/s, Sept. 14, 1966, gage height, 1.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 416 ft³/s, Apr. 1 at 0630 hours, gage height, 3.31 ft; minimum, 1.7 ft³/s, many days in Aug. and Sept., gage height 1.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	15	32	e50	122	e35	404	38	31	23	2.9	1.8
2	2.2	34	30	e48	e96	e32	353	82	37	19	2.8	2.7
3	2.7	65	31	e47	e74	e28	276	96	36	15	2.8	2.2
4	4.2	62	30	e46	e56	e27	256	77	29	13	5.6	2.2
5	3.4	57	26	e45	e48	e50	245	67	25	16	21	2.6
6	5.4	92	25	e44	e43	e80	198	65	23	13	14	2.0
7	6.6	91	25	e43	e41	e70	170	99	19	11	11	1.9
8	3.9	80	26	e60	e39	e52	147	137	15	10	8.4	1.8
9	3.6	73	26	e75	e38	e38	121	126	12	9.6	5.9	1.8
10	3.1	63	e23	e65	e36	e33	107	113	21	8.1	4.7	1.9
11	3.6	56	e22	e56	e35	e31	94	186	17	7.1	3.7	1.8
12	6.8	49	e21	e44	e34	e30	90	228	13	6.1	3.6	1.8
13	7.6	43	e21	e48	e34	e29	82	188	14	5.6	3.3	1.8
14	6.2	42	e22	e50	e34	40	81	137	20	5.0	2.9	2.3
15	5.1	36	e24	e52	e33	88	73	127	22	4.5	2.9	4.3
16	4.6	32	e30	e50	e33	98	68	140	18	4.1	5.4	3.5
17	5.3	30	e25	e48	e32	93	62	110	30	3.6	3.6	4.9
18	5.3	27	e25	e47	e30	108	68	81	30	3.6	2.6	5.3
19	4.7	25	e22	e52	e28	e90	63	65	25	3.5	2.5	4.6
20	4.4	25	24	e43	e26	e80	56	56	22	7.6	3.2	4.5
21	5.3	48	73	e37	e36	e70	50	48	45	11	3.1	4.0
22	17	52	78	e40	e90	e64	66	41	112	8.8	2.6	3.3
23	49	49	64	e44	e100	e62	44	34	80	7.0	2.5	5.3
24	37	42	64	e47	e76	77	38	42	54	5.9	2.2	6.8
25	33	38	83	e49	e60	103	34	38	43	4.9	2.0	5.6
26	25	36	73	49	e50	112	33	36	35	4.0	1.9	4.9
27	20	34	62	75	e43	106	31	35	28	3.9	1.9	3.2
28	18	37	e58	66	e37	100	30	29	59	4.9	1.9	2.8
29	17	39	e56	74	---	105	29	25	47	4.1	1.7	2.6
30	16	36	e54	89	---	156	36	21	31	3.6	1.8	2.3
31	16	---	e52	105	---	286	---	27	---	3.2	1.7	---
TOTAL	344.1	1408	1227	1688	1404	2373	3405	2594	993	249.7	136.1	96.5
MEAN	11.1	46.9	39.6	54.5	50.1	76.5	113	83.7	33.1	8.05	4.39	3.22
MAX	49	92	83	105	122	286	404	228	112	23	21	6.8
MIN	2.1	15	21	37	26	27	29	21	12	3.2	1.7	1.0
CFSM	.25	1.06	.89	1.23	1.13	1.72	2.56	1.88	.75	.18	.10	.07
IN.	.29	1.18	1.03	1.41	1.18	1.99	2.85	2.17	.83	.21	.11	.08
CAL YR	1988	TOTAL 13353.8	MEAN 36.5	MAX 273	MIN 1.1	CFSM .82	IN. 11.19					
WTR YR	1989	TOTAL 15918.4	MEAN 43.6	MAX 404	MIN 1.7	CFSM .98	IN. 13.34					

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04232400 SENECA LAKE AT WATKINS GLEN, NY

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LOCATION.--Lat 42°23'00", long 76°52'05", Schuyler County, Hydrologic Unit 04140201, on east bank about 300 ft from lake on shorter of two boat slips at Watkins Glen.

DRAINAGE AREA.--704 mi².

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datm of 1929 (1.59 ft Barge Canal datum). Prior to Oct. 1, 1975, at datum 438.41 ft higher.

REMARKS.--Area of water surface, 67.6 mi². Diversion from Susquehanna River basin enters lake through Keuka Lake Outlet at Dresden. For table of diversion, see station 01528700. Lake elevation regulated by taintor gates on Seneca River at Lock 4, Waterloo, for operation of Erie (Barge) Canal and power generation by New York State Electric and Gas Corp.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 448.88 ft, June 25, 1972; minimum, 442.64 ft, Mar. 14, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 446.50 ft, May 16, 17, 18; minimum, 443.38 ft, Feb. 15 and Mar. 15.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444.53	444.21	444.10	443.76	443.59	443.56	444.47	445.13	446.02	445.37	444.91	444.58
2	444.51	444.27	444.07	443.75	443.60	443.56	444.53	445.26	445.99	445.42	444.88	444.71
3	444.57	444.27	444.07	443.77	443.62	443.58	444.61	445.30	445.94	445.41	444.92	444.65
4	444.55	444.20	444.09	443.78	443.60	443.54	444.70	445.31	445.93	445.42	444.91	444.57
5	444.49	444.19	444.06	443.74	443.59	443.62	444.80	445.30	445.87	445.46	444.99	444.54
6	444.53	444.24	444.02	443.72	443.59	443.67	444.87	445.33	445.85	445.43	445.00	444.51
7	444.49	444.26	444.01	443.67	443.59	443.66	444.91	445.34	445.78	445.38	445.03	444.55
8	444.48	444.24	443.98	443.68	443.57	443.62	444.94	445.40	445.73	445.45	444.97	444.51
9	444.47	444.21	443.95	443.72	443.57	443.62	444.96	445.43	445.68	445.41	444.90	444.54
10	444.40	444.14	443.95	443.66	443.54	443.62	444.96	445.50	445.69	445.37	444.90	444.56
11	444.41	444.18	443.96	443.70	443.53	443.60	444.97	445.85	445.69	445.43	444.89	444.60
12	444.45	444.19	443.91	443.64	443.54	443.65	444.97	446.08	445.63	445.34	444.91	444.56
13	444.41	444.15	443.86	443.68	443.49	443.59	444.99	446.16	445.61	445.21	444.88	444.57
14	444.35	444.16	443.85	443.62	443.52	443.56	444.99	446.19	445.59	445.22	444.87	444.62
15	444.33	444.16	443.88	443.65	443.54	443.60	444.99	446.25	445.61	445.16	444.84	444.80
16	444.36	444.11	443.85	443.65	443.57	443.63	445.03	446.40	445.61	445.13	444.87	444.78
17	444.32	444.13	443.84	443.62	443.53	443.66	445.01	446.46	445.59	445.16	444.89	444.85
18	444.31	444.10	443.82	443.62	443.53	443.70	445.06	446.47	445.56	445.11	444.83	444.93
19	444.39	444.09	443.80	443.62	443.52	443.70	445.05	446.44	445.52	445.08	444.83	444.86
20	444.36	444.14	443.78	443.63	443.51	443.68	445.05	446.41	445.53	445.13	444.78	444.93
21	444.30	444.20	443.82	443.63	443.54	443.73	445.07	446.39	445.62	445.08	444.80	444.90
22	444.40	444.17	443.81	443.57	443.59	443.70	445.08	446.36	445.62	445.03	444.85	444.88
23	444.43	444.15	443.72	443.58	443.61	443.70	445.07	446.33	445.60	445.10	444.80	444.88
24	444.35	444.15	443.76	443.60	443.61	443.72	445.07	446.35	445.61	445.08	444.85	444.93
25	444.32	444.13	443.80	443.60	443.57	443.82	445.07	446.29	445.57	445.05	444.78	444.82
26	444.35	444.12	443.79	443.55	443.57	443.87	445.08	446.26	445.52	445.04	444.76	444.83
27	444.32	444.13	443.74	443.59	443.58	443.87	445.09	446.23	445.46	445.00	444.73	444.91
28	444.28	444.18	443.78	443.57	443.57	443.91	445.10	446.18	445.50	445.04	444.72	444.76
29	444.31	444.16	443.79	443.58	---	443.99	445.09	446.11	445.53	445.01	444.68	444.74
30	444.31	444.12	443.77	443.59	---	444.09	445.11	446.06	445.41	444.91	444.71	444.81
31	444.25	---	443.77	443.56	---	444.30	---	446.04	---	444.95	444.71	---
MEAN	444.40	444.17	443.88	443.65	443.56	443.71	444.96	445.96	445.66	445.21	444.85	444.72
MAX	444.57	444.27	444.10	443.78	443.62	444.30	445.11	446.47	446.02	445.46	445.03	444.93
MIN	444.25	444.09	443.72	443.55	443.49	443.54	444.47	445.13	445.41	444.91	444.68	444.51
CAL YR	1988	MEAN	444.51	MAX	445.33	MIN	443.72					
WTR YR	1989	MEAN	444.57	MAX	446.47	MIN	443.49					

STREAMS TRIBUTARY TO LAKE ONTARIO
04232450 KEUKA INLET (KEUKA LAKE) AT HAMMONDSPORT, NY
(Formerly published as Keuka Lake at Hammondsport)

LOCATION.--Lat 42°24'22", long 77°13'08", Steuben County, Hydrologic Unit 04140201, on left bank of Keuka Inlet at end of Liberty Street extension at Hammondsport, and 300 ft upstream from mouth.

DRAINAGE AREA.--Keuka Inlet 25.0 mi²; Keuka Lake at mouth 182 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2112: Drainage area. WRD NY 1974: 1973.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to October 1, 1975, at datum 710.00 ft higher.

REMARKS.--Lake regulated by village of Penn Yan; prior to July 1962, by New York State Electric and Gas Corp. Area of water surface, 18.3 mi². During each year, a large part of flow from 45.5 mi² of drainage area of Mud Creek (Susquehanna River basin) is diverted into Keuka Lake for power development. For table of diversion, see station 01528700.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 719.35 ft, June 24, 1972; minimum daily, 711.40 ft, Feb. 2, 3, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 715.81 ft, May 17; minimum, 711.96 ft, Jan. 26.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	713.38	713.15	712.59	712.13	712.10	712.18	713.54	714.49	715.21	714.99	714.04	713.83
2	713.36	713.16	712.54	712.11	712.12	712.20	713.65	714.66	715.17	714.92	714.01	713.87
3	713.38	713.17	712.50	712.14	712.12	712.21	713.76	714.73	715.11	714.86	714.01	713.84
4	713.37	713.17	712.47	712.14	712.12	712.20	713.90	714.73	715.09	714.80	714.01	713.81
5	713.33	713.19	712.44	712.13	712.13	712.28	714.04	714.72	715.04	714.78	714.08	713.78
6	713.34	713.23	712.39	712.14	712.13	712.37	714.13	714.72	715.01	714.73	714.08	713.77
7	713.32	713.24	712.37	712.13	712.12	712.47	714.20	714.74	714.94	714.67	714.09	713.76
8	713.32	713.25	712.35	712.11	712.12	712.30	714.26	714.79	714.88	714.64	714.06	713.74
9	713.30	713.27	712.32	712.11	712.13	712.29	714.30	714.79	714.84	714.54	714.03	713.75
10	713.28	713.24	712.29	712.10	712.14	712.29	714.32	714.84	714.83	714.44	714.02	713.76
11	713.28	713.22	712.27	712.12	712.15	712.29	714.36	715.20	714.80	714.41	714.02	713.76
12	713.28	713.18	712.23	712.08	712.14	712.32	714.39	715.45	714.74	714.33	714.02	713.74
13	713.27	713.12	712.20	712.09	712.14	712.30	714.42	715.49	714.78	714.27	713.99	713.75
14	713.24	713.09	712.20	712.08	712.13	712.29	714.45	715.48	714.77	714.21	713.98	713.77
15	713.23	713.07	712.20	712.08	712.12	712.32	714.47	715.50	714.84	714.12	713.97	713.93
16	713.24	713.02	712.18	712.07	712.12	712.35	714.49	715.70	714.90	714.07	713.97	713.92
17	713.21	713.01	712.18	712.05	712.11	712.39	714.50	715.77	714.92	714.03	713.96	713.96
18	713.21	712.98	712.19	712.06	712.11	712.43	714.53	715.76	714.90	714.00	713.94	713.96
19	713.25	712.94	712.19	712.06	712.11	712.44	714.52	715.72	714.88	714.01	713.93	713.92
20	713.24	712.93	712.15	712.06	712.10	712.45	714.50	715.67	714.99	714.11	713.93	713.91
21	713.23	712.92	712.12	712.07	712.14	712.48	714.49	715.62	715.36	714.10	713.95	713.88
22	713.27	712.90	712.13	712.06	712.18	712.49	714.47	715.57	715.44	714.09	713.96	713.86
23	713.29	712.85	712.07	712.05	712.19	712.50	714.44	715.53	715.44	714.12	713.96	713.83
24	713.25	712.82	712.10	712.07	712.19	712.54	714.42	715.52	715.41	714.11	713.96	713.79
25	713.22	712.78	712.13	712.08	712.18	712.65	714.42	715.48	715.36	714.11	713.93	713.71
26	713.23	712.74	712.12	712.04	712.18	712.71	714.43	715.43	715.29	714.10	713.91	713.68
27	713.23	712.71	712.10	712.06	712.19	712.74	714.45	715.40	715.21	714.09	713.89	713.67
28	713.19	712.70	712.13	712.06	712.19	712.80	714.45	715.35	715.18	714.11	713.88	713.60
29	713.20	712.66	712.14	712.07	---	712.92	714.45	715.29	715.15	714.09	713.88	713.56
30	713.19	712.61	712.13	712.07	---	713.08	714.47	715.25	715.06	714.05	713.87	713.55
31	713.17	---	712.13	712.05	---	713.32	---	715.23	---	714.05	713.86	---
MEAN	713.27	713.01	712.24	712.09	712.14	712.47	714.31	715.25	715.05	714.32	713.97	713.79
MAX	713.38	713.27	712.59	712.14	712.19	713.32	714.53	715.77	715.44	714.99	714.09	713.96
MIN	713.17	712.61	712.07	712.04	712.10	712.18	713.54	714.49	714.74	714.00	713.86	713.55
CAL YR	1988	MEAN	713.37	MAX	714.47	MIN	712.07					
WTR YR	1989	MEAN	713.50	MAX	715.77	MIN	712.04					

.STREAMS TRIBUTARY TO LAKE ONTARIO
04232482 KEUKA LAKE OUTLET AT DRESDEN, NY

123

LOCATION.--Lat 42°40'49", long 76°57'15", Yates County, Hydrologic Unit 04140201, on right bank at upstream side of bridge on Milo Street in Dresden, and 0.4 mi upstream from mouth.

DRAINAGE AREA.--207 mi².

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

REVISED RECORD.--WDR NY-86-3: 1984 (P).

GAGE.--Water-stage recorder. Datum of gage is 444.67 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1982, at datum 2.00 ft higher.

REMARKS.--Records fair. Flow regulated by village of Penn Yan. During each year a large part of flow from 45.5 mi² of Mud Creek drainage area (Susquehanna River basin) is diverted into Keuka Lake (Oswego basin) for power development. For table of diversion, see station 01528700. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1966-89), 193 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft³/s June 22, 1972, gage height, 10.37 ft, present datum, from rating curve extended above 2,100 ft³/s on basis of contracted-opening measurement at Mays Mill, adjusted for intervening area; minimum, 3.2 ft³/s, Sept. 6, 7, 8, 9, 10, 1982, gage height, 1.47 ft; minimum gage height, 1.44 ft, Mar. 22, 23, 1989, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft³/s, May 11 at 1300 hours, gage height, 4.28 ft; minimum daily, 11 ft³/s, Oct. 19-21; minimum gage height, 1.44 ft, Mar. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	12	174	e25	e22	e25	118	33	491	495	21	19
2	20	13	172	e25	e20	e25	73	62	472	488	21	18
3	19	12	170	e26	e18	e23	70	162	452	454	20	18
4	18	12	166	e27	e16	e30	77	264	462	434	21	18
5	17	13	163	e28	e15	e30	84	262	442	425	22	18
6	16	15	162	e29	e14	e28	62	251	442	417	21	18
7	16	12	160	e30	e14	e24	48	291	437	414	20	18
8	15	12	158	e31	e13	e20	41	403	428	403	20	21
9	15	12	157	e32	e13	e19	37	486	426	393	20	19
10	17	114	155	e30	e12	e20	33	548	457	388	20	22
11	17	210	151	e29	e15	e24	30	945	417	370	19	20
12	16	224	152	e29	e18	e25	28	817	405	356	19	19
13	16	228	e150	e28	e20	e26	28	706	424	348	19	19
14	15	217	e140	e28	e26	26	27	668	429	327	19	26
15	14	209	e25	e25	e28	31	27	657	461	313	18	132
16	15	211	e25	e24	e28	27	26	800	461	300	18	158
17	14	209	e24	e24	e27	21	25	712	452	141	18	178
18	14	205	e26	e17	e27	26	79	662	423	21	18	150
19	11	200	e27	e18	e26	23	152	632	408	21	18	141
20	11	208	e28	e18	e25	22	150	619	490	24	18	144
21	11	211	e28	e24	e30	21	144	604	557	22	19	140
22	16	204	e24	e20	e30	20	141	596	536	23	18	207
23	14	200	e23	e19	e28	19	140	593	632	22	19	352
24	13	193	e23	e19	e28	29	135	551	604	21	19	337
25	12	191	e22	e18	e27	50	118	523	573	20	19	219
26	12	188	e22	e18	e25	39	88	525	556	20	18	128
27	12	187	e23	e18	e24	34	33	502	552	20	18	121
28	12	183	e24	e18	e26	34	32	493	541	20	19	121
29	12	180	e25	e18	---	34	32	482	515	19	19	119
30	12	179	e24	e20	---	88	31	484	504	19	19	114
31	12	---	e24	e21	---	122	---	460	---	19	19	---
TOTAL	454	4264	2647	736	615	985	2109	15793	14449	6757	596	3034
MEAN	14.6	142	85.4	23.7	22.0	31.8	70.3	509	482	218	19.2	101
MAX	20	228	174	32	30	122	152	945	632	495	22	352
MIN	11	12	22	17	12	19	25	33	405	19	18	18
CAL YR	1988	TOTAL	31267	MEAN	85.4	MAX	406	MIN	11			
WTR YR	1989	TOTAL	52439	MEAN	144	MAX	945	MIN	11			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04233000 CAYUGA INLET NEAR ITHACA, NY

LOCATION.--Lat 42°23'35", long 76°32'43", Tompkins County, Hydrologic Unit 04140201, on left bank 0.8 mi upstream from Enfield (formerly Butternut) Creek, and 5 mi south of Ithaca.

DRAINAGE AREA.--35.2 mi².

PERIOD OF RECORD.--March 1937 to current year.

REVISED RECORDS.--WSP 2112: Drainage area. WRD NY 1974: 1973.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 437.16 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the water year.

AVERAGE DISCHARGE.--52 years (water years 1938-89), 38.0 ft³/s, 14.66 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,800 ft³/s, June 23, 1972, gage height, 8.10 ft, from rating curve extended above 1,600 ft³/s on basis of slope-area measurements at gage heights 5.5 ft and 7.58 ft; minimum discharge, 1.7 ft³/s, July 22, 1955; minimum gage height, 0.42 ft, Aug. 30, 31, Sept. 1, 2, 1939, July 22, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	0130	*957	*3.47	No peak greater than base discharge.			
Minimum daily discharge, 4.5 ft ³ /s, Oct. 4.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	8.5	13	e11	14	e12	149	19	e32	e22	e10	e5.5
2	4.6	11	12	e10	14	e15	101	67	e31	e20	e9.1	e7.0
3	4.6	11	11	e9.4	9.9	e13	113	38	e28	e19	e9.0	e6.8
4	4.5	10	11	e8.0	e9.0	e13	107	29	e82	e18	e8.4	e6.1
5	4.9	18	10	e7.5	e9.6	e21	157	27	e45	e34	e13	e5.8
6	4.9	42	9.8	e7.0	e10	e24	107	45	e62	e30	e14	e5.4
7	4.7	26	9.7	e9.0	e9.5	e17	82	98	e43	e22	e13	e5.2
8	4.6	20	9.2	e14	e8.5	e13	67	95	e35	e33	e11	e4.8
9	5.0	18	8.8	e18	e7.5	e12	58	72	e35	e21	e9.7	e5.0
10	6.1	16	8.3	e15	e7.0	e12	50	150	e34	e19	e9.6	e4.9
11	5.9	14	e7.4	e10	e8.0	e15	44	510	e30	e17	e8.6	e6.3
12	5.5	13	e7.0	e9.4	e9.0	e14	40	e191	e25	e15	e8.8	e6.2
13	5.3	13	e6.6	e10	e10	e12	38	e122	e33	e14	e9.0	e6.3
14	5.5	13	e7.0	e9.5	e11	e14	35	e85	e35	e13	e8.2	e6.5
15	5.0	12	e7.2	e9.0	e14	e35	33	e77	e61	e12	e7.8	e11
16	4.8	12	e7.4	e9.0	e15	32	32	e186	e85	e12	e7.4	e12
17	4.6	12	e7.7	e9.2	e16	25	29	e105	e157	e12	e7.2	e13
18	6.2	11	e8.0	9.7	e9.2	35	34	e72	e77	e13	e7.1	e12
19	6.4	11	e8.2	9.9	e7.8	29	31	e55	e52	e12	e7.1	e11
20	6.0	21	9.5	9.8	e9.6	25	27	e43	e44	e12	e7.6	e35
21	5.9	31	13	e7.0	e40	25	25	e43	e90	e14	e7.9	e19
22	25	21	10	e6.0	e52	22	23	e38	e62	e13	e8.0	e14
23	33	19	9.0	e6.5	e32	22	21	e33	e52	e12	e7.1	e24
24	34	17	12	e7.0	e22	103	20	e62	e67	e11	e6.6	e32
25	23	15	15	8.2	e19	132	20	e39	e43	e10	e6.3	e19
26	16	14	11	10	e17	87	19	e36	e39	e9.0	e6.1	e14
27	13	14	10	12	e15	72	18	e32	e31	e10	e5.6	e12
28	12	16	16	9.6	e14	80	18	e28	e30	e12	e5.5	e12
29	11	15	16	9.6	---	116	18	e27	e28	e14	e5.8	e11
30	9.4	14	13	13	---	253	18	e29	e23	e11	e6.1	e9.6
31	8.5	---	e12	13	---	208	---	e32	---	e11	e5.7	---
TOTAL	294.7	488.5	315.8	306.3	419.6	1508	1534	2485	1491	497.0	256.3	342.4
MEAN	9.51	16.3	10.2	9.88	15.0	48.6	51.1	80.2	49.7	16.0	8.27	11.4
MAX	34	42	16	18	52	253	157	510	157	34	14	35
MIN	4.5	8.5	6.6	6.0	7.0	12	18	19	23	9.0	5.5	4.8
CFSM	.27	.46	.29	.28	.43	1.38	1.45	2.28	1.41	.46	.23	.32
IN.	.31	.52	.33	.32	.44	1.59	1.62	2.63	1.58	.53	.27	.36

CAL YR	1988	TOTAL	7909.4	MEAN	21.6	MAX	189	MIN	3.0	CFSM	.61	IN.	8.36
WTR YR	1989	TOTAL	9938.6	MEAN	27.2	MAX	510	MIN	4.5	CFSM	.77	IN.	10.50

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04233500 CAYUGA INLET (CAYUGA LAKE) AT ITHACA, NY
(Formerly published as Cayuga Lake at Ithaca)

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LOCATION.--Lat 42°26'45", long 76°30'45", Tompkins County, Hydrologic Unit 04140201, on left bank of natural channel 40 ft upstream from flood-control channel of Cayuga Inlet, at north end of Taughannock Boulevard, and 1 mi upstream from mouth of Inlet, at Ithaca.

DRAINAGE AREA.--Cayuga Inlet 143 mi²; Cayuga Lake at mouth 1,564 mi²; Cayuga Lake portion 785 mi².

PERIOD OF RECORD.--August 1905 to December 1909, August 1956 to current year in reports of Geological Survey. January 1910 to September 1925 in reports of State Engineer and Surveyor.

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (1.43 ft Barge Canal datum). Prior to September 1925, nonrecording gage at several sites within 1 mi of present site. Prior to October 1968, at datum 378.57 ft higher. October 1968 to September 1975, at datum 376.57 ft higher.

REMARKS.--Lake elevation regulated at Mud Lock by New York State Department of Transportation. Area of water surface, 66.9 mi². Seneca River (Cayuga and Seneca Canal) enters lake 0.5 mi upstream from Mud Lock and is included in second drainage area given above.

EXTREMES FOR PERIOD OF RECORD.--(1905-25 and since 1956): Maximum elevation, 386.33 ft, June 26, 1972; minimum daily, 377.64 ft, present datum, Mar. 28, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 383.70 ft, May 16; minimum, 379.18 ft, Dec. 23.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	381.95	381.47	380.67	379.53	379.49	379.71	381.37	382.39	382.74	382.33	382.31	381.97
2	381.92	381.61	380.61	379.52	379.53	379.71	381.48	382.53	382.73	382.25	382.31	382.14
3	382.01	381.54	380.55	379.57	379.57	379.73	381.64	382.60	382.73	382.13	382.32	382.05
4	381.96	381.46	380.53	379.59	379.55	379.68	381.83	382.62	382.81	382.04	382.32	381.98
5	381.92	381.41	380.40	379.52	379.52	379.78	382.00	382.60	382.83	382.05	382.44	381.92
6	381.94	381.49	380.32	379.48	379.54	379.88	382.13	382.68	382.85	382.14	382.40	381.93
7	381.89	381.52	380.31	379.43	379.54	379.87	382.19	382.78	382.81	382.24	382.48	381.93
8	381.89	381.53	380.28	379.44	379.51	379.81	382.23	382.91	382.77	382.34	382.40	381.90
9	381.85	381.56	380.21	379.52	379.54	379.81	382.21	382.93	382.73	382.30	382.35	381.92
10	381.78	381.47	380.15	379.46	379.49	379.82	382.20	382.95	382.76	382.29	382.31	381.94
11	381.83	381.54	380.10	379.52	379.49	379.80	382.19	383.33	382.78	382.49	382.33	381.99
12	381.85	381.46	379.96	379.40	379.51	379.88	382.16	383.57	382.64	382.51	382.33	381.92
13	381.83	381.37	379.86	379.54	379.42	379.78	382.18	383.61	382.63	382.50	382.31	381.94
14	381.75	381.40	379.81	379.43	379.47	379.74	382.20	383.56	382.60	382.62	382.30	381.97
15	381.72	381.36	379.83	379.47	379.50	379.80	382.21	383.55	382.61	382.54	382.27	382.18
16	381.73	381.24	379.75	379.48	379.55	379.88	382.26	383.62	382.61	382.48	382.32	382.12
17	381.68	381.31	379.68	379.45	379.51	379.93	382.23	383.64	382.68	382.47	382.31	382.22
18	381.69	381.25	379.64	379.44	379.50	380.00	382.31	383.57	382.72	382.40	382.27	382.29
19	381.77	381.14	379.55	379.46	379.49	380.02	382.31	383.47	382.69	382.36	382.24	382.23
20	381.72	381.12	379.50	379.49	379.47	379.96	382.31	383.35	382.67	382.46	382.23	382.37
21	381.62	381.21	379.56	379.51	379.51	380.08	382.34	383.26	382.73	382.48	382.25	382.37
22	381.78	381.13	379.53	379.40	379.64	380.06	382.38	383.13	382.74	382.45	382.27	382.30
23	381.78	381.09	379.38	379.41	379.75	380.04	382.36	382.99	382.74	382.50	382.25	382.30
24	381.71	381.04	379.48	379.44	379.76	380.09	382.34	382.90	382.75	382.45	382.27	382.30
25	381.71	380.94	379.55	379.45	379.71	380.25	382.34	382.80	382.68	382.44	382.20	382.07
26	381.73	380.86	379.55	379.35	379.70	380.36	382.34	382.80	382.60	382.44	382.18	382.08
27	381.68	380.79	379.44	379.46	379.71	380.39	382.34	382.81	382.54	382.40	382.13	382.09
28	381.61	380.80	379.54	379.42	379.71	380.47	382.35	382.78	382.58	382.49	382.13	381.91
29	381.66	380.76	379.56	379.44	---	380.61	382.34	382.72	382.64	382.43	382.08	381.90
30	381.63	380.66	379.53	379.46	---	380.73	382.37	382.71	382.47	382.36	382.14	381.91
31	381.53	---	379.54	379.43	---	381.10	---	382.73	---	382.36	382.11	---
MEAN	381.78	381.25	379.88	379.47	379.56	380.02	382.17	383.03	382.70	382.38	382.28	382.07
MAX	382.01	381.61	380.67	379.59	379.76	381.10	382.38	383.64	382.85	382.62	382.48	382.37
MIN	381.53	380.66	379.38	379.35	379.42	379.68	381.37	382.39	382.47	382.04	382.08	381.90
CAL YR	1988	MEAN	381.43	MAX	382.96	MIN	379.04					
WTR YR	1989	MEAN	381.39	MAX	383.64	MIN	379.35					

STREAMS TRIBUTARY TO LAKE ONTARIO
04234000 FALL CREEK NEAR ITHACA, NY

LOCATION.--Lat 42°27'12", long 76°28'23", Tompkins County, Hydrologic Unit 04140201, on left bank in Forest Home, 0.2 mi east of Ithaca, 0.5 mi upstream from Cornell University dam, and 2.2 mi upstream from mouth.

DRAINAGE AREA.--126 mi².

PERIOD OF RECORD.--July 1908 to June 1909 (gage heights only), February 1925 to current year.

REVISED RECORDS.--WSP 874: 1935-38. WSP 1912: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 795.13 ft above National Geodetic Vertical Datum of 1929. July 1908 to June 1909, nonrecording gage at bridge 1.2 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diversion from point about 1 mi upstream from station by Cornell University for water supply and at several sites for irrigation purposes. Records of diversion from Fall Creek are in files of Cornell University. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--64 years (water years 1926-89), 184 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s, July 8, 1935, gage height, 9.52 ft, from average of computed flow over each of four dams; maximum gage height, 11.16 ft, Feb. 21, 1971 (ice jam); minimum discharge, about 3 ft³/s, Aug. 25, 1927, result of regulation; minimum daily, 3.6 ft³/s, Aug. 17, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	0930	*2,150	*3.86	No other peak greater than base discharge.			
Minimum discharge, 10 ft ³ /s, Sept. 11, gage height, 0.28 ft, result of momentary regulation.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	19	64	117	e94	e170	e80	824	93	214	99	41	20	
2	18	88	109	e90	e190	e74	556	339	211	89	37	33	
3	18	194	104	e86	e120	e76	674	263	160	87	36	38	
4	20	146	97	e56	e84	e76	752	172	432	81	35	28	
5	19	137	94	e56	e80	e110	783	137	306	263	92	22	
6	19	408	96	e62	e90	e190	601	282	309	223	115	19	
7	21	305	93	e72	e84	e90	445	916	234	115	92	17	
8	21	209	85	e100	e64	e76	364	709	172	398	62	16	
9	20	187	e74	e150	e70	e80	308	565	151	166	49	16	
10	21	165	e50	e110	e56	e80	291	486	167	117	47	16	
11	26	167	e44	e100	e64	e84	245	1830	137	108	40	23	
12	29	149	e34	e84	e66	e90	221	1190	108	92	41	23	
13	29	130	e40	e90	e54	e60	209	708	144	83	45	22	
14	27	147	e50	e70	e80	e80	226	468	178	76	38	22	
15	25	121	e54	e76	e86	e230	195	368	236	69	34	60	
16	24	106	e58	e80	e94	272	185	520	388	65	31	75	
17	21	116	e60	e74	e60	173	171	457	702	67	29	89	
18	21	119	e62	e70	e56	236	170	302	383	68	28	79	
19	23	98	e64	e74	e60	e230	169	236	230	67	27	56	
20	23	138	e74	e76	e64	e130	149	201	178	73	32	497	
21	21	437	e100	e45	e130	e130	135	187	217	92	39	267	
22	132	267	e105	e62	e410	e100	118	179	227	78	42	128	
23	257	183	e80	e70	e220	e110	111	153	202	70	31	196	
24	341	159	e78	e70	e100	e210	109	195	457	56	27	305	
25	282	143	e120	73	e96	711	102	182	238	47	24	152	
26	178	132	e92	73	e90	439	99	171	172	42	23	108	
27	134	125	e78	148	e86	347	92	155	139	39	21	88	
28	102	141	e80	114	e80	374	89	132	152	56	21	76	
29	88	159	e150	112	---	432	88	112	150	92	21	65	
30	78	132	e120	e150	---	776	99	163	110	63	24	57	
31	70	---	e96	e190	---	1110	---	210	---	48	22	---	
TOTAL	2127	5072	2558	2777	2904	7256	8580	12081	7104	3089	1246	2613	
MEAN	68.6	169	82.5	89.6	104	234	286	390	237	99.6	40.2	87.1	
MAX	341	437	150	190	410	1110	824	1830	702	398	115	497	
MIN	18	64	34	45	54	60	88	93	108	39	21	16	
CFSM	.54	1.34	.65	.71	.82	1.86	2.27	3.09	1.88	.79	.32	.69	
IN.	.63	1.50	.76	.82	.86	2.14	2.53	3.57	2.10	.91	.37	.77	
CAL YR	1988	TOTAL	44839	MEAN	123	MAX	1320	MIN	12	CFSM	.97	IN.	13.24
WTR YR	1989	TOTAL	57407	MEAN	157	MAX	1830	MIN	16	CFSM	1.25	IN.	16.95

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04234500 CANANDAIGUA LAKE AT CANANDAIGUA, NY

127

LOCATION.--Lat 42°52'19", long 77°16'22", Ontario County, Hydrologic Unit 04140201, at comfort station in middle of city pier at northern end of Canandaigua Lake, 1 mi southeast of Canandaigua.

DRAINAGE AREA.--184 mi².

PERIOD OF RECORD.--November 1939 to current year. December 1927 to November 1939, records for site on west side of E. T. Waldorf's boathouse collected by, and in files of, city of Canandaigua.

REVISED RECORDS.--WSP 2112: Drainage area. WRD NY 1971: 1970. WDR NY-86-3: 1985.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. June 26, 1946 to Sept. 30, 1975, at datum 681.17 ft higher, and prior to June 26, 1946, nonrecording gage at E. T. Waldorf's boathouse at same datum.

REMARKS.--Lake elevation regulated by one gate on West outlet, which is a 1.5 mi long canal, and by two gates on East outlet, which is the natural outlet. Sill elevations of West and East outflow structures are 684.37 ft and 684.94 ft, respectively. Water diverted for municipal supply for villages of Newark, Palmyra, and Gorham. Records of diversion in files of city of Canandaigua. Area of water surface, 16.6 mi².

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 692.11 ft, June 24, 1972; minimum daily, 685.62 ft, Jan. 30, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 689.78 ft, May 17; minimum, 686.53 ft, Mar. 18, due to wave action.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	687.67	687.30	687.21	686.94	686.79	686.75	687.98	688.58	688.87	688.71	688.41	688.09
2	687.67	687.25	687.20	686.94	686.77	686.73	688.12	688.70	688.84	688.69	688.40	688.03
3	687.64	687.26	687.17	686.91	686.79	686.72	688.30	688.76	688.80	688.67	688.38	688.03
4	687.62	687.29	687.15	686.90	686.79	686.75	688.50	688.78	688.75	688.66	688.39	688.02
5	687.61	687.32	687.15	686.91	686.79	686.77	688.58	688.81	688.69	688.64	688.42	688.02
6	687.59	687.31	687.15	686.91	686.80	686.78	688.62	688.75	688.63	688.63	688.44	687.99
7	687.59	687.30	687.13	686.96	686.79	686.77	688.62	688.81	688.59	688.62	688.40	687.97
8	687.57	687.30	687.12	686.97	686.80	686.78	688.59	688.90	688.52	688.60	688.38	687.97
9	687.57	687.28	687.11	686.89	686.77	686.78	688.58	688.94	688.49	688.61	688.36	687.94
10	687.60	687.33	687.10	686.92	686.76	686.78	688.56	688.99	688.58	688.62	688.35	687.94
11	687.56	687.27	687.08	686.86	686.74	686.78	688.51	689.24	688.55	688.56	688.32	687.94
12	687.54	687.27	687.08	686.96	686.74	686.78	688.48	689.53	688.55	688.56	688.30	687.94
13	687.50	687.30	687.08	686.84	686.75	686.79	688.48	689.59	688.53	688.54	688.29	687.91
14	687.50	687.24	687.06	686.86	686.72	686.82	688.50	689.57	688.52	688.52	688.29	687.91
15	687.47	687.23	687.01	686.83	686.72	686.85	688.51	689.60	688.54	688.52	688.29	688.09
16	687.47	687.27	687.01	686.83	686.72	686.86	688.51	689.69	688.54	688.50	688.27	688.12
17	687.46	687.22	687.01	686.84	686.72	686.86	688.53	689.72	688.57	688.48	688.23	688.16
18	687.47	687.19	686.99	686.81	686.70	686.91	688.52	689.69	688.57	688.47	688.22	688.17
19	687.42	687.19	686.99	686.81	686.70	686.97	688.54	689.64	688.52	688.47	688.22	688.17
20	687.41	687.20	686.98	686.80	686.69	687.00	688.54	689.57	688.61	688.49	688.25	688.17
21	687.42	687.23	686.95	686.79	686.72	687.01	688.54	689.50	688.93	688.51	688.23	688.15
22	687.41	687.24	686.95	686.79	686.74	687.03	688.53	689.41	689.02	688.52	688.22	688.15
23	687.46	687.24	687.05	686.78	686.74	687.04	688.54	689.34	689.02	688.53	688.20	688.14
24	687.48	687.24	686.95	686.77	686.74	687.09	688.54	689.28	688.98	688.52	688.18	688.08
25	687.45	687.24	686.94	686.77	686.73	687.14	688.55	689.23	688.92	688.51	688.16	688.05
26	687.41	687.24	686.94	686.85	686.73	687.20	688.55	689.17	688.88	688.50	688.14	687.98
27	687.40	687.25	686.97	686.79	686.74	687.26	688.55	689.10	688.84	688.51	688.12	687.95
28	687.40	687.23	686.95	686.80	686.74	687.31	688.55	689.01	688.85	688.47	688.10	687.95
29	687.34	687.23	686.95	686.79	---	687.37	688.56	688.94	688.77	688.46	688.11	687.93
30	687.31	687.24	686.96	686.79	---	687.52	688.57	688.90	688.73	688.45	688.08	687.90
31	687.31	---	686.93	686.82	---	687.75	---	688.86	---	688.43	688.06	---
MEAN	687.49	687.26	687.04	686.85	686.75	686.97	688.50	689.18	688.71	688.55	688.26	688.03
MAX	687.67	687.33	687.21	686.97	686.80	687.75	688.62	689.72	689.02	688.71	688.44	688.17
MIN	687.31	687.19	686.93	686.77	686.69	686.72	687.98	688.58	688.49	688.43	688.06	687.90
CAL YR	1988	MEAN	687.85	MAX	688.77	MIN	686.93					
WTR YR	1989	MEAN	687.80	MAX	689.72	MIN	686.69					

STREAMS TRIBUTARY TO LAKE ONTARIO
04235000 CANANDAIGUA OUTLET AT CHAPIN, NY

LOCATION.--Lat 42°55'05", long 77°13'59", Ontario County, Hydrologic Unit 04140201, on right bank at Chapin, 25 ft upstream from bridge on State Highway 488, and 4.1 mi downstream from Canandaigua Lake.

DRAINAGE AREA.--195 mi².

PERIOD OF RECORD.--November 1939 to current year. Prior to October 1964, published as "Canandaigua Lake Outlet."

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 671.44 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1974, at site 0.1 mi upstream at datum 676.90 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Canandaigua Lake (see station 04234500), from which water is diverted for municipal supply by villages of Newark, Palmyra, and Gorham. Monthly runoff adjusted for change in contents in Canandaigua Lake from October 1945 to September 1966. Telephone gage-height telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--49 years (water years 1941-89), 152 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,710 ft³/s, June 24, 1972, gage height, 11.08 ft, present datum, at site then in use; minimum, 4.6 ft³/s, Sept. 17, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 901 ft³/s, May 17 at 0100 hours, gage height, 5.73 ft; minimum, 19 ft³/s, Mar. 10, 11, 12, 13, 14, gage height, 3.06 ft

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	48	27	30	28	e36	74	37	655	216	38	40
2	33	48	27	29	30	e36	85	77	640	149	38	37
3	34	48	26	31	e32	36	119	59	626	147	38	34
4	32	50	26	e30	e32	50	194	52	612	148	39	32
5	32	52	26	e32	e36	e50	504	196	594	145	45	31
6	24	55	26	e35	e36	e46	523	524	576	133	39	31
7	22	50	26	60	38	e50	519	605	560	82	38	31
8	23	38	26	40	e38	e60	507	649	532	46	38	34
9	22	36	26	38	e36	36	501	591	391	42	38	44
10	22	35	26	e60	e38	21	497	588	211	43	38	45
11	23	32	e30	e30	e38	20	485	746	158	42	38	45
12	24	31	e50	40	e40	20	389	792	185	41	37	46
13	28	31	e100	31	e40	21	137	862	515	40	37	45
14	28	29	e50	e50	36	20	114	852	545	39	37	48
15	50	28	e30	30	36	24	70	861	552	39	37	73
16	52	28	e30	e28	35	22	65	888	539	39	37	55
17	52	28	e30	e27	e36	21	64	895	496	39	37	64
18	52	27	e30	28	e36	36	62	883	484	39	37	56
19	51	27	e30	28	e36	29	40	866	469	38	37	53
20	50	30	31	29	34	25	38	847	591	40	37	53
21	50	37	29	e100	50	24	38	824	782	39	29	94
22	56	30	28	e200	47	22	38	803	672	40	31	300
23	58	29	29	52	39	21	38	777	650	40	40	331
24	52	28	29	28	47	26	38	755	636	38	41	320
25	51	28	30	27	59	36	38	736	622	38	40	300
26	50	28	29	29	36	30	37	723	608	37	40	97
27	49	27	30	29	36	27	37	702	601	37	40	49
28	49	28	29	28	37	27	37	676	621	37	40	47
29	48	28	31	28	---	27	37	657	585	38	40	47
30	48	28	31	29	---	76	38	645	547	38	40	46
31	47	---	30	28	---	74	---	642	---	38	39	---
TOTAL	1245	1042	998	1284	1062	1049	5363	19810	16255	1967	1180	2528
MEAN	40.2	34.7	32.2	41.4	37.9	33.8	179	639	542	63.5	38.1	84.3
MAX	58	55	100	200	59	76	523	895	782	216	45	331
MIN	22	27	26	27	28	20	37	37	158	37	29	31
CAL YR	1988	TOTAL	23398	MEAN	63.9	MAX	501	MIN	15			
WTR YR	1989	TOTAL	53783	MEAN	147	MAX	895	MIN	20			

c Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04235250 FLINT CREEK AT PHELPS, NY

129

LOCATION.--Lat 42°57'28", long 77°04'06", Ontario County, Hydrologic Unit 04140201, on right bank 25 ft downstream from bridge on Eagle Street at Phelps, and 1.1 mi upstream from Canandaigua Outlet.

DRAINAGE AREA.--102 mi².

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

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 523.14 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Small diversion (during periods of low ground-water level) by Phelps Cement Products, Inc., located about 0.2 mile upstream. Since 1967, flow from Canandaigua Lake diverted into Flint Creek for municipal supply of village of Gorham; presently not exceeding 0.3 ft³/s. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--30 years, 87.0 ft³/s, 11.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,940 ft³/s, Mar. 30, 1960, gage height, 5.83 ft; maximum gage height, 6.20 ft, Mar. 17, 1963 (ice jam); no flow for many days 1962-65, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 11	2200	*1,120	*4.48	No other peak greater than based discharge.			

Minimum discharge, 2.0 ft³/s, Oct. 1-2; minimum gage height, 0.98 ft, Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	7.2	13	18	26	e17	545	34	138	68	6.9	4.7
2	2.4	10	12	17	28	e16	450	102	165	55	6.2	5.9
3	2.6	9.2	12	16	20	e15	477	165	117	44	7.0	5.4
4	2.6	8.7	11	13	e20	e30	485	122	99	39	9.4	4.0
5	2.9	9.3	9.8	e12	e19	e70	418	91	91	37	26	3.8
6	3.1	15	12	e11	e19	e70	320	82	81	38	15	4.0
7	2.9	18	12	e13	e17	e60	233	168	80	33	12	3.5
8	2.7	17	10	e17	e16	e40	174	352	67	31	9.4	2.7
9	2.6	14	8.3	e20	e15	e25	143	295	61	28	7.9	2.9
10	2.9	13	e7.0	e18	e13	e20	120	267	110	26	7.4	4.0
11	3.4	13	e6.8	e16	e15	e20	103	797	107	25	6.9	4.4
12	4.1	13	e6.6	e15	e16	24	91	1030	76	20	5.5	5.5
13	4.1	12	e6.4	e14	e16	27	85	636	88	19	5.3	5.0
14	4.3	11	e6.8	e13	e17	24	80	387	119	18	6.0	6.1
15	4.6	9.9	e7.6	e12	e15	45	73	585	195	16	5.6	5.1
16	4.6	9.7	e8.0	e10	e14	57	69	640	217	14	5.1	5.2
17	3.8	9.8	e8.4	e9.8	e13	59	65	492	201	14	5.4	4.5
18	3.8	9.3	e9.0	e9.6	e13	63	65	327	178	12	5.2	4.9
19	3.5	9.2	e9.2	e9.4	e12	74	62	217	128	12	4.5	3.2
20	4.0	12	e11	e9.2	e10	59	55	165	147	17	5.9	2.3
21	4.3	20	e12	e9.0	e30	53	49	135	548	24	6.7	2.0
22	9.8	28	15	e10	e40	42	44	111	483	22	6.4	1.7
23	14	26	16	e11	e30	40	40	95	317	27	12	2.8
24	17	21	18	e12	e26	48	38	104	172	18	8.0	3.7
25	14	17	18	14	e20	112	36	107	125	15	5.2	3.1
26	12	15	15	15	e19	137	35	102	99	11	4.7	2.2
27	11	14	e12	18	e19	129	32	96	99	10	4.2	1.8
28	9.6	14	e15	17	e18	112	30	81	224	10	4.3	1.5
29	8.8	14	17	19	---	121	30	69	131	9.4	5.1	1.4
30	8.0	13	16	22	---	232	32	70	88	9.5	4.9	1.3
31	7.8	---	22	22	---	417	---	93	---	8.8	4.6	---
TOTAL	183.7	412.3	362.9	442.0	536	2258	4479	8017	4751	730.7	228.7	528.9
MEAN	5.93	13.7	11.7	14.3	19.1	72.8	149	259	158	23.6	7.38	17.6
MAX	17	28	22	22	40	417	545	1030	548	68	26	5.2
MIN	2.4	7.2	6.4	9.0	10	15	30	34	61	8.8	4.2	2.7
CFM	.06	.13	.11	.14	.19	.71	1.46	2.54	1.55	.23	.07	.17
IN.	.07	.15	.13	.16	.20	.82	1.63	2.92	1.73	.27	.08	.19
CAL YR	1988	TOTAL 13112.65	MEAN	35.8	MAX	326	MIN	.39	CFM	.35	IN.	4.78
WTR YR	1989	TOTAL 22930.2	MEAN	62.8	MAX	1030	MIN	2.4	CFM	.62	IN.	8.36

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04235276 BLACK BROOK AT TYRE, NY

LOCATION.--Lat 42°59'30", long 76°48'13", Seneca County, Hydrologic Unit 04140201, on right bank 25 ft upstream from bridge on County Highway 101 in village of Tyre, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--19.0 mi².

PERIOD OF RECORD.--Low-flow measurements, water years 1964-66, 1970-72, 1974, and annual maximum, water years 1965-73, 1975-85, November 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 391.12 ft above National Geodetic Vertical Datum of 1929. December 9, 1964 to November 21, 1985, crest-stage gage at same site and datum.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 786 ft³/s, Dec. 14, 1977, gage height, 5.02 ft; maximum gage height, 6.68 ft, Nov. 5, 1970, discharge not determined; minimum daily discharge, 0.36 ft³/s, Oct. 1, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 160 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 31	0130	171	2.13	May 11	1930	*243	*2.58
Apr. 1	0230	238	2.55	May 15	0930	171	2.13

Minimum discharge, 0.36 ft³/s, Oct. 1, 2, gage height, 0.23 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	.36	.94	2.5	e4.0	13	e4.0	205	3.6	43	9.1	.90	.77	
2	.42	2.0	2.3	2.5	e9.2	e4.0	117	16	44	6.5	.85	.86	
3	.55	2.8	2.2	e2.4	e8.4	e4.0	94	29	29	4.9	.89	.69	
4	.53	2.2	2.1	e2.5	e3.2	e6.0	115	18	19	4.6	2.1	.61	
5	.58	2.2	2.1	e2.0	e2.0	e15	103	13	15	3.4	15	.58	
6	.58	17	2.0	e1.8	2.1	e20	65	11	12	3.5	10	.59	
7	.58	13	1.9	1.8	1.9	e20	46	34	11	4.1	4.2	.59	
8	.58	10	1.8	3.1	1.8	e10	31	73	8.0	2.9	2.8	.57	
9	.54	9.5	1.8	e5.0	1.6	e8.0	23	62	6.0	2.0	1.9	.60	
10	.54	8.0	e1.1	e4.1	1.4	e7.6	18	53	14	1.8	1.4	.73	
11	.63	6.8	e1.0	2.5	1.5	e6.0	16	178	17	1.6	1.1	.80	
12	.72	3.2	e.90	2.4	1.5	5.7	14	206	10	1.3	1.1	.78	
13	.73	2.5	e.90	2.0	1.4	6.2	12	125	11	1.2	1.0	.69	
14	.70	2.3	e1.0	2.1	1.5	5.5	12	65	16	1.2	.94	1.1	
15	.73	2.3	e1.0	1.7	1.7	10	11	141	34	1.1	.85	3.9	
16	.70	2.1	e1.1	1.7	1.6	19	9.4	110	31	1.1	.82	3.6	
17	.70	2.1	e1.7	1.6	e2.0	19	8.3	64	23	1.1	.76	12	
18	.76	1.8	e1.7	1.6	1.8	30	8.5	41	18	.95	.72	8.7	
19	.76	1.8	e1.9	1.6	1.9	34	8.6	27	12	2.1	.78	3.5	
20	.70	2.9	2.0	1.6	1.6	30	7.6	19	13	6.6	1.1	2.6	
21	.70	13	2.5	e1.5	e10	24	6.6	14	46	6.7	.89	2.2	
22	1.5	14	e2.0	e1.4	e15	24	5.9	11	40	4.5	.85	1.5	
23	1.9	10	2.3	1.6	e14	20	5.2	8.7	25	3.4	.83	1.9	
24	1.8	5.8	2.6	1.6	e14	26	4.7	9.0	14	2.2	.81	3.6	
25	1.5	3.7	3.4	1.5	e10	50	5.3	9.6	8.5	2.2	.76	2.5	
26	1.5	2.9	e3.0	1.8	e8.0	46	5.7	11	5.8	3.0	.71	1.7	
27	1.3	2.5	e2.6	3.1	e4.1	37	5.3	9.3	5.8	2.8	.66	1.5	
28	1.1	2.6	3.7	e2.5	e4.0	32	4.6	7.5	11	2.8	.63	1.2	
29	1.0	2.5	5.1	3.7	---	31	3.6	5.9	26	2.4	.66	1.1	
30	.97	2.5	4.5	7.2	---	79	3.4	5.8	14	1.5	.72	.90	
31	.97	---	e4.2	11	---	170	---	9.8	---	1.1	.66	---	
TOTAL	26.63	154.94	68.90	84.9	140.2	803.0	974.7	1390.2	582.1	93.65	57.39	62.36	
MEAN	.86	5.16	2.22	2.74	5.01	25.9	32.5	44.8	19.4	3.02	1.85	2.08	
MAX	1.9	17	5.1	11	15	170	205	206	46	9.1	15	12	
MIN	.36	.94	.90	1.4	1.4	4.0	3.4	3.6	5.8	.95	.63	.57	
CFSM	.05	.27	.12	.14	.26	1.36	1.71	2.36	1.02	.16	.10	.11	
IN.	.05	.30	.13	.17	.27	1.57	1.91	2.72	1.14	.18	.11	.12	
CAL YR	1988	TOTAL	2388.91	MEAN	6.53	MAX	105	MIN	.36	CFSM	.34	IN.	4.68
WTR YR	1989	TOTAL	4438.97	MEAN	12.2	MAX	206	MIN	.36	CFSM	.64	IN.	8.69

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04235396 OWASCO LAKE NEAR AUBURN, NY

131

LOCATION.--Lat 42°53'56", long 76°32'17", Cayuga County, Hydrologic Unit 04140201, on east side of breakwater at city of Auburn water intake and pumping station, 1 mi south of city limits of Auburn, and 1.8 mi upstream from State dam.

DRAINAGE AREA.--205 mi².

PERIOD OF RECORD.--October 1967 to current year. Records since 1912 collected by, and in files of, city of Auburn.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 1, 1982, nonrecording gage read once daily by employees of city of Auburn Water Division at same site and datum from reference mark at elevation 718.59 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Lake elevation regulated by gates on outlet at State dam. Area of water surface, 10.6 mi².

COOPERATION.--Records furnished by city of Auburn until April 30, 1982.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed elevation, 716.88 ft, June 25, 1972; minimum observed, 708.58 ft, Feb. 17, 18, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum observed elevation since 1912, 716.91 ft, Mar. 23, 1936, Apr. 9, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 713.40 ft, May 12; minimum daily, 709.22 ft, Jan. 11.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	711.36	711.24	711.29	709.56	709.72	710.64	713.10	712.11	712.74	712.48	712.45	712.18
2	711.32	711.36	711.23	709.51	709.75	710.65	713.07	712.19	712.81	712.41	712.45	712.07
3	711.28	711.49	711.19	709.44	709.83	710.66	713.04	712.23	712.73	712.33	712.38	712.07
4	711.26	711.54	711.08	e709.47	709.88	710.71	713.10	712.21	712.79	712.27	712.42	712.09
5	711.26	711.53	711.05	e709.42	709.93	710.83	713.08	712.12	712.88	712.25	712.46	712.13
6	711.24	711.88	711.03	e709.39	709.95	710.93	713.05	712.18	712.84	712.21	712.51	712.05
7	711.23	711.97	710.94	e709.38	709.99	710.95	712.95	712.33	712.74	712.26	712.43	712.03
8	711.20	712.02	710.86	e709.49	710.01	710.89	712.96	712.62	712.68	712.42	712.39	712.03
9	711.21	711.99	710.81	e709.35	710.02	710.87	712.96	712.84	712.67	712.52	712.42	712.00
10	711.22	711.86	710.72	e709.32	710.04	710.91	712.94	712.92	712.66	712.54	712.42	711.96
11	711.19	711.94	710.65	e709.22	710.06	710.94	712.90	713.11	712.60	712.51	712.35	711.95
12	711.16	711.87	710.57	e709.44	710.07	710.97	712.88	713.30	712.59	712.52	712.34	711.94
13	711.14	711.69	710.36	e709.25	710.10	710.98	712.87	713.31	712.59	712.54	712.35	711.92
14	711.17	711.82	710.40	e709.28	710.10	711.01	712.87	713.17	712.60	712.52	712.34	711.93
15	711.17	711.77	710.34	e709.28	710.12	711.08	712.87	713.03	712.66	712.55	712.38	712.22
16	711.18	711.48	710.29	e709.27	710.14	711.18	712.84	712.93	712.71	712.56	712.32	712.29
17	711.13	711.65	710.24	e709.32	710.15	711.24	712.83	712.91	712.89	712.52	712.29	712.40
18	711.05	711.59	710.15	e709.31	710.16	711.34	712.80	712.90	712.98	712.58	712.28	712.46
19	711.12	711.59	710.07	e709.31	710.18	711.43	712.77	712.86	712.84	712.59	712.27	712.49
20	711.11	711.57	710.03	e709.37	710.19	711.48	712.74	712.80	712.75	712.59	712.34	712.76
21	711.10	711.63	709.96	e709.38	710.25	711.55	712.68	712.77	712.71	712.62	712.29	712.86
22	711.16	711.65	709.92	e709.44	710.41	711.59	712.63	712.74	712.70	712.55	712.26	712.83
23	711.28	711.63	709.69	e709.44	710.49	711.62	712.57	712.71	712.69	712.46	712.24	712.67
24	711.35	711.60	709.83	e709.42	710.54	711.67	712.51	712.73	712.70	712.38	712.22	712.65
25	711.43	711.58	709.76	709.30	710.56	711.81	712.51	712.75	712.70	712.39	712.20	712.68
26	711.42	711.56	709.70	709.26	710.57	711.96	712.45	712.70	712.66	712.36	712.18	712.56
27	711.44	711.44	709.58	709.39	710.60	712.09	712.36	712.64	712.65	712.40	712.16	712.48
28	711.32	711.44	709.65	709.46	710.63	712.23	712.30	712.61	712.63	712.39	712.14	712.46
29	711.38	711.41	709.65	709.48	---	712.40	712.22	712.61	712.58	712.45	712.20	712.37
30	711.34	711.34	709.66	709.55	---	712.56	712.16	712.61	712.54	712.47	712.11	712.24
31	711.33	---	709.59	709.64	---	712.92	---	712.59	---	712.44	712.10	---
MEAN	711.24	711.64	710.33	709.39	710.16	711.36	712.77	712.69	712.71	712.45	712.31	712.29
MAX	711.44	712.02	711.29	709.64	710.63	712.92	713.10	713.31	712.98	712.62	712.51	712.86
MIN	711.05	711.24	709.58	709.22	709.72	710.64	712.16	712.11	712.54	712.21	712.10	711.92
CAL YR 1988	MEAN	711.29	MAX	712.97	MIN	709.41						
WTR YR 1989	MEAN	711.62	MAX	713.31	MIN	709.22						

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04235500 OWASCO OUTLET NEAR AUBURN, NY

LOCATION.--Lat 42°56'48", long 76°35'56", Cayuga County, Hydrologic Unit 04140201, on left bank 2.5 mi downstream from center of Auburn, and 4 mi downstream from State dam at outlet of Owasco Lake.

DRAINAGE AREA.--206 mi².

PERIOD OF RECORD.--November 1912 to current year. Prior to October 1966, published as "Owasco Lake Outlet".

REVISED RECORDS.--WSP 824: 1913-14, 1916, 1920(M), 1922(M), 1928(M), 1929, 1932(M). WSP 2112: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 533.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation caused by mills in Auburn; regulation at State dam at outlet of lake. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--76 years (water years 1914-89), 286 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,250 ft³/s, June 23, 1972, gage height, 6.28 ft; minimum, about 2 ft³/s, Dec. 5, 1936; minimum gage height, 1.02 ft, Oct. 22, 23, 1986; minimum daily discharge, 5 ft³/s, Nov. 11, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,530 ft³/s, May 12 at 0945 hours, gage height, 3.67 ft; minimum recorded, 25 ft³/s, Oct. 21, gage height, 1.10 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	77	342	293	48	47	e700	377	381	385	72	51
2	38	75	295	288	49	48	e1100	403	685	381	81	48
3	38	32	347	290	49	47	e1100	398	686	372	59	47
4	34	37	341	291	49	58	1100	381	422	355	77	47
5	32	66	340	291	49	54	1140	379	413	355	139	47
6	32	192	334	291	48	52	1110	384	774	171	146	48
7	31	324	289	291	49	50	722	420	648	74	156	48
8	30	357	291	298	49	50	451	421	378	65	113	47
9	30	341	292	292	47	50	450	497	372	68	57	47
10	31	331	288	283	53	50	460	731	366	70	52	48
11	30	369	287	279	53	50	424	1140	361	67	69	46
12	30	373	287	203	50	48	330	1390	358	67	58	46
13	29	361	289	44	47	48	293	1370	381	71	57	45
14	30	275	288	43	48	47	287	1300	369	70	57	90
15	29	300	288	45	49	48	286	1190	365	70	57	59
16	29	345	282	44	49	47	284	909	361	69	60	66
17	29	340	274	44	45	47	288	646	383	68	57	63
18	35	273	276	44	45	57	297	539	826	67	57	53
19	29	168	277	45	45	e50	293	516	880	67	60	57
20	28	370	273	46	46	e50	291	507	852	215	56	119
21	28	363	288	45	64	e50	290	458	860	377	56	377
22	49	360	290	47	57	e50	290	355	481	382	56	789
23	36	354	301	46	52	e50	289	368	358	374	55	857
24	37	340	300	48	50	e50	277	361	361	176	55	479
25	34	335	295	48	46	e50	151	505	374	62	54	405
26	32	335	290	52	48	e50	401	404	377	62	53	378
27	51	333	289	49	48	e50	390	340	407	58	52	373
28	112	339	295	48	46	e50	386	374	491	53	53	373
29	141	335	296	48	---	e200	384	371	385	50	51	369
30	137	338	290	50	---	e370	375	372	382	48	49	368
31	101	---	289	48	---	e370	---	364	---	68	54	---
TOTAL	1384	8438	9203	4274	1378	2338	14639	18170	14737	4837	2128	5890
MEAN	44.6	281	297	138	49.2	75.4	488	586	491	156	68.6	196
MAX	141	373	347	298	64	370	1140	1390	880	385	156	857
MIN	28	32	273	43	45	47	151	340	358	48	49	45
CAL YR	1988	TOTAL	69396	MEAN	190	MAX	672	MIN	26			
WTR YR	1989	TOTAL	87416	MEAN	239	MAX	1390	MIN	28			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04236000 SKANEATELES LAKE AT SKANEATELES, NY

133

LOCATION.--Lat 42°56'42", long 76°25'46", Onondaga County, Hydrologic Unit 04140201, on east side of breakwater, enclosed in city of Syracuse boathouse, at Skaneateles.

DRAINAGE AREA.--72.7 mi².

PERIOD OF RECORD.--October 1967 to current year. Records since September 1890 collected by, and in files of, city of Syracuse.

GAGE.--Nonrecording gages read once daily by employees of Syracuse Water Division. Datum of gage is National Geodetic Vertical Datum of 1929. October 1967 to September 1975, at same site at datum 801.75 ft higher.

REMARKS.--Lake elevation regulated by gates at outlet by Syracuse Water Division. Area of water surface, 13.6 mi².

COOPERATION.--Records furnished by city of Syracuse.

EXTREMES FOR PERIOD OF RECORD.--(since 1890): Maximum observed elevation, 866.95 ft, June 25, 26, 1972; minimum observed, 858.90 ft, Nov. 15, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum observed elevation, 862.52 ft, July 11; minimum observed, 858.66 ft, Mar. 4.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	859.50	858.91	859.38	858.92	858.78	858.75	859.36	859.93	861.40	862.49	862.38	861.80
2	859.49	858.87	859.35	858.94	858.75	858.74	859.38	860.07	861.45	862.50	862.37	861.80
3	859.45	859.08	859.33	858.95	858.79	858.70	859.45	860.10	861.53	862.48	862.34	861.78
4	859.40	859.15	859.29	858.95	858.82	858.66	859.61	860.10	861.65	862.48	862.32	861.77
5	859.37	859.15	859.26	858.92	858.82	858.76	859.64	860.12	861.70	862.47	862.40	861.75
6	859.33	859.35	859.26	858.92	858.81	858.74	859.67	860.16	861.75	862.46	862.39	861.70
7	859.33	859.33	859.24	858.90	858.84	858.73	859.79	860.20	861.77	862.44	862.36	861.68
8	859.30	859.29	859.22	858.90	858.83	858.72	859.84	860.33	861.75	862.50	862.33	861.65
9	859.25	859.33	859.20	858.90	858.83	858.73	859.85	860.40	861.75	862.49	862.31	861.62
10	859.22	859.33	859.20	858.90	858.83	858.73	859.87	860.48	861.79	862.48	862.30	861.59
11	859.19	859.36	859.19	858.85	858.84	858.76	859.89	860.61	861.75	862.52	862.28	861.56
12	859.15	859.35	859.10	858.85	858.76	858.73	859.89	860.80	861.77	862.49	862.24	861.57
13	859.11	859.35	859.12	858.80	858.79	858.74	859.89	860.90	861.83	862.46	862.22	861.55
14	859.07	859.35	859.10	858.82	858.76	858.71	859.92	860.89	861.86	862.45	862.23	861.53
15	859.02	859.34	859.07	858.80	858.75	858.71	859.95	860.97	861.93	862.44	862.21	861.73
16	858.99	859.34	859.05	858.80	858.73	858.72	859.95	861.01	861.99	862.41	862.19	861.70
17	858.97	859.30	859.05	858.82	858.72	858.72	859.95	861.05	862.06	862.40	862.17	861.75
18	859.00	859.29	859.02	858.83	858.70	858.76	859.93	861.07	862.11	862.40	862.14	861.77
19	858.95	859.28	858.99	858.80	858.68	858.76	859.96	861.07	862.15	862.39	862.11	861.79
20	858.90	859.29	858.91	858.80	858.67	858.78	859.96	861.07	862.20	862.43	862.10	862.00
21	858.87	859.37	858.90	858.79	858.71	858.83	859.96	861.08	862.27	862.45	862.08	862.00
22	858.91	859.38	858.88	858.77	858.74	858.80	859.94	861.07	862.32	862.45	862.05	861.99
23	859.09	859.35	858.87	858.77	858.74	858.81	859.93	861.05	862.35	862.45	862.05	862.10
24	859.21	859.32	858.85	858.75	858.74	858.80	859.96	861.12	862.37	862.44	862.02	862.08
25	859.19	859.32	858.82	858.72	858.73	858.83	859.94	861.15	862.38	862.43	862.00	862.07
26	859.14	859.30	858.85	858.72	858.74	858.82	859.95	861.18	862.40	862.41	861.97	862.07
27	859.10	859.31	858.93	858.77	858.76	858.85	859.97	861.20	862.38	862.40	861.95	862.04
28	859.10	859.34	858.90	858.82	858.76	858.88	859.93	861.15	862.45	862.41	861.92	862.02
29	859.06	859.37	858.98	858.79	---	859.00	859.93	861.14	862.47	862.43	861.89	862.00
30	859.00	859.40	858.97	858.75	---	859.03	859.96	861.15	862.49	862.42	861.86	861.97
31	858.95	---	858.95	858.78	---	859.20	---	861.29	---	862.40	861.83	---
MEAN	859.15	859.28	859.07	858.83	858.76	858.79	859.84	860.77	862.00	862.45	862.16	861.81
MAX	859.50	859.40	859.38	858.95	858.84	859.20	859.97	861.29	862.49	862.52	862.40	862.10
MIN	858.87	858.87	858.82	858.72	858.67	858.66	859.36	859.93	861.40	862.39	861.83	861.53
CAL YR 1988	MEAN	860.38	MAX	861.59	MIN	858.82						
WTR YR 1989	MEAN	860.25	MAX	862.52	MIN	858.66						

c Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

04237410' SENECA RIVER AT JACKS' REEF NEAR MEMPHIS, NY

LOCATION.--Lat 43°05'55", long 76°25'24", Onondaga County, Hydrologic Unit 04140201, at bridge on Plainville Road, 200 ft from intersection with State Highway 31, 2.3 mi upstream from Cross Lake and 2.6 mi northwest of Memphis.

DRAINAGE AREA.--3,091 mi²

PERIOD OF RECORD.--Water years 1988 to current year.

CHEMICAL DATA: 1988-89 (b).

MINOR ELEMENT DATA: 1988-89 (b).

REMARKS.--Water-discharge data are based on records for station 04237500 Seneca River at Baldwinsville.

COOPERATION.--Water samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTASSIUM, DIS-SOLVED (MG/L AS K)
OCT												
05	1000	310	--	17.5	764	7.1	74	220	60	16	78	2.6
MAR												
28	1200	890	7.8	5.5	748	13.7	112	330	95	22	62	2.7
APR												
12	1300	688	7.8	6.0	761	12.3	100	260	77	17	37	2.8
MAY												
03	1200	734	8.3	10.5	751	11.0	100	280	81	19	52	2.4
24	0930	567	7.8	17.0	749	8.0	84	200	58	13	42	2.3
JUN												
14	0900	644	7.6	18.5	753	7.3	79	200	56	14	50	2.4
JUL												
12	1400	604	8.3	25.0	749	8.9	110	220	64	15	43	2.3
26	1000	736	8.5	26.5	758	10.9	137	200	55	14	63	2.5
SEP												
20	0800	845	8.1	19.0	760	7.8	84	240	68	16	72	2.6

DATE	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	CADMIUM DIS-SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, DIS-SOLVED (UG/L AS CU)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT											
05	118	99	130	0.1	80	--	--	<1	--	8	170
MAR											
28	168	140	110	0.2	110	--	--	1	--	9	240
APR											
12	151	92	63	0.2	150	10	<1	1	6	4	310
MAY											
03	159	100	88	0.2	150	--	--	<1	--	5	320
24	126	59	67	0.1	210	10	<1	<1	3	4	300
JUN											
14	130	60	86	0.1	330	--	--	<1	--	11	550
JUL											
12	136	80	71	0.1	190	--	--	<1	--	9	340
26	116	81	110	0.1	150	--	--	<1	--	14	260
SEP											
20	116	110	120	0.1	120	--	--	<1	--	3	240

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	ZINC, DIS-SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)
OCT											
05	--	--	<5	40	--	<0.1	--	<1	--	20	--
MAR											
28	--	--	<5	50	--	<0.1	--	2	--	10	9
APR											
12	25	<5	<5	40	17	<0.1	1	2	13	<10	9
MAY											
03	--	--	7	50	--	0.3	--	2	--	10	10
24	16	1	2	20	2	0.4	<1	1	7	<10	7
JUN											
14	--	--	6	50	--	<0.1	--	15	--	10	21
JUL											
12	--	--	2	40	--	0.8	--	3	--	20	1
26	--	--	3	40	--	<0.1	--	3	--	40	16
SEP											
20	--	--	1	30	--	0.4	--	1	--	<10	5

STREAMS TRIBUTARY TO LAKE ONTARIO
04237500 SENECA RIVER AT BALDWINVILLE, NY

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LOCATION.--Lat 43°09'25", long 76°19'55", Onondaga County, Hydrologic Unit 04140201, on left bank 200 ft downstream from bridge on State Highways 31 and 48 in Baldwinsville, and 400 ft downstream from navigation dam at Lock 24 of New York State Erie (Barge) Canal.

DRAINAGE AREA.--3,138 mi².

PERIOD OF RECORD.--November 1949 to current year in reports of Geological Survey. November 1898 to December 1908, prior to construction of Erie (Barge) Canal, not equivalent to later records at same site because of extensive development of Erie (Barge) Canal system. January 1909 to September 1925 (gage heights only) in reports of State Engineer and Surveyor.

REVISED RECORDS.--WDR NY-78-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 361.38 ft above National Geodetic Vertical Datum of 1929 (362.60 ft Erie (Barge) Canal Datum). Prior to Dec. 31, 1908, nonrecording gage at same site at different datum. Auxiliary water-stage recorder 1,500 ft downstream from base gage at same datum. Telephone gage-height telemeter at base and auxiliary gages.

REMARKS.--No estimated daily discharges. Records good except those below 2,000 ft³/s, which are fair. Discharge from 1898 to 1908 determined on basis of head on dam, flow through 10 mills nearby, lockages at Oswego Canal lock, estimated leakage of dam, wheel gates, flumes, and penstocks; not adjusted for inflow from Lake Erie through Erie (Barge) Canal. Discharge, since November 1949, computed by using fall as determined by auxiliary water-stage recorder. Published discharge represents the total flow at Baldwinsville and includes flow in Erie (Barge) Canal.

A large amount of natural storage and some artificial regulation is afforded by many large lakes and the Erie (Barge) Canal system in the river basin. Large diurnal fluctuations at low and medium flows caused by powerplants upstream from station. Seneca River basin receives water from Erie (Barge) Canal through Lock 32 near Pittsford. During part of year, entire flow from 45.5 mi² of Mud Creek drainage area may be diverted from Chemung River basin into Keuka Lake in Oswego River basin. Several measurements of water temperature were made during the year.

COOPERATION.--Records of lockages at Lock 24 furnished by New York State Department of Transportation (since November 1949).

AVERAGE DISCHARGE.--39 years (water years 1951-89), 3,373 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 17,200 ft³/s, Apr. 4, 1960, June 28, 1972; maximum gage height, 9.21 ft, Apr. 4, 1960, June 30, 1972; minimum daily discharge, 34 ft³/s, Sept. 17, 1985, result of extreme regulation; minimum gage height, 0.70 ft, Feb. 20, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 10,700 ft³/s, May 15; maximum gage height, 6.02 ft, May 14; minimum daily discharge, 131 ft³/s, Oct. 3; minimum gage height, 0.85 ft, July 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1270	1640	2710	1060	1590	1120	6350	1390	5710	5690	1010	620
2	647	2250	3020	1590	1520	1000	6390	2210	6090	5130	988	430
3	131	2460	3350	1320	1410	669	6840	2770	6100	4570	542	393
4	542	2020	3310	927	1220	627	7330	3080	5910	3650	480	390
5	899	2230	2890	746	797	1240	7620	3030	5720	3140	1980	526
6	235	2600	2400	944	852	2000	7790	4500	5610	2510	2670	1100
7	406	2910	2010	1200	1250	2090	7800	5000	5370	1340	2070	1140
8	986	3020	2640	1300	1070	1600	7400	6650	5410	458	1700	973
9	521	3030	3040	1420	896	941	6810	7320	5480	869	693	844
10	216	2980	3250	1420	624	1200	5640	7840	5780	1090	700	282
11	331	2820	3010	1370	567	913	4040	8720	5740	1070	1120	343
12	433	2350	2630	1340	617	654	3140	9550	5450	676	1130	311
13	721	2260	2750	1050	914	809	3060	10200	5500	1100	759	482
14	327	2400	2570	716	586	1200	2980	10600	5380	1900	294	606
15	273	2450	2080	811	930	1520	2480	10700	4690	2040	486	1200
16	312	2460	1650	1110	1180	1490	2060	10500	5290	2090	980	1050
17	672	3100	1720	739	870	1430	1880	10200	5700	1330	1100	1260
18	1020	3650	1990	671	586	1800	2330	9860	6010	1200	608	1140
19	750	3460	1900	641	525	2170	2330	9380	6160	2020	595	765
20	336	3010	2210	1000	814	2150	1870	8840	6190	2110	725	1760
21	642	2420	2150	1060	1220	1990	1590	8500	6140	2470	872	2220
22	1320	2720	1920	739	1760	1870	1530	8220	6440	1810	1520	2330
23	1900	2770	1170	931	2390	1500	1500	7960	6950	1740	658	4840
24	1880	2790	767	1220	2350	1110	1100	7710	7310	1710	595	4480
25	2300	3000	727	939	1570	1590	1010	7360	7360	1760	850	3530
26	2210	3230	1060	688	1060	1820	1060	6940	6980	1440	563	3180
27	1680	3180	1140	1020	732	1920	1090	6540	6590	796	455	2370
28	1240	3120	1490	1300	879	2900	1080	6270	6210	1440	681	1560
29	1510	2900	2040	1210	---	2680	1450	5920	5960	1540	868	1670
30	1450	2790	1640	1350	---	2640	1720	5410	5890	851	860	1680
31	1130	---	680	1490	---	5400	---	5450	---	746	881	---
TOTAL	28290	82020	65914	33322	30779	52043	109270	218620	179120	60286	29433	43475
MEAN	913	2734	2126	1075	1099	1679	3642	7052	5971	1945	949	1449
MAX	2300	3650	3350	1590	2390	5400	7800	10700	7360	5690	2670	4840
MIN	131	1640	680	641	525	627	1010	1390	4690	458	294	282
CAL YR	1988	TOTAL	650464	MEAN	1777	MAX	5660	MIN	131			
WTR YR	1989	TOTAL	932572	MEAN	2555	MAX	10700	MIN	131			

STREAMS TRIBUTARY TO LAKE ONTARIO
04238500 ONONDAGA RESERVOIR NEAR NEDROW, NY

LOCATION.--Lat 42°55'51", long 76°10'24", Onondaga County, Hydrologic Unit 04140201, at Onondaga Dam on Onondaga Creek, 3.5 mi southwest of Nedrow, 4 mi south of Syracuse, and 10.5 mi upstream from Onondaga Lake.

DRAINAGE AREA.--67.7 mi².

PERIOD OF RECORD.--June 1949 to September 1952 (monthly elevations and contents), October 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by a rolled earthfill dam, completed by Corps of Engineers in August 1949 for flood control; first used for flood regulation about a year prior to completion. Usable capacity, 18,200 acre-ft between elevations 457.0 ft, conduit invert at intake, and 504.5 ft crest of spillway. No dead storage. The flood-control works consist of a pressure conduit and a side-channel spillway and are not provided with gates. Water is stored during high flows and released gradually. Storage includes minor diversion from Gate House Pond in headwaters of West Branch Tioughnioga River basin.

COOPERATION.--Capacity curve furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 485.9 ft, Apr. 1, 1960, contents, 5,960 acre-ft; no contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 468.26 ft, June 1, contents, 392 acre-ft; minimum elevation, 459.02 ft, Oct. 4-11, no contents many days.

Capacity table (elevation, in feet, and contents, in acre-feet)

460.00	0	470.00	700
461.00	5	473.00	1,420
462.00	15	478.00	2,880
464.00	50	482.00	4,230
467.00	225	486.00	6,010

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	459.04	459.45	460.22	460.23	460.95	460.01	466.64	460.06	465.32	460.74	459.77	459.27
2	459.03	460.53	460.12	460.17	460.98	459.92	464.52	462.40	466.02	460.46	459.70	459.26
3	459.03	463.24	460.05	460.15	460.68	459.89	463.69	461.87	462.33	460.23	459.67	459.25
4	459.02	461.74	459.97	459.99	460.36	459.85	464.38	461.03	463.82	460.07	459.67	459.23
5	459.02	461.04	459.89	459.87	460.24	460.50	464.59	460.64	463.10	460.26	461.61	459.21
6	459.02	463.91	459.85	459.83	460.21	460.89	463.85	460.97	462.25	460.34	460.96	459.20
7	459.02	462.93	459.87	459.81	460.18	460.44	463.10	463.25	461.74	460.26	460.25	459.18
8	459.02	461.63	459.87	460.15	460.14	460.26	462.49	463.16	461.34	461.06	459.93	459.17
9	459.02	461.18	459.81	461.24	460.10	460.06	462.07	462.93	461.07	460.54	459.79	459.16
10	459.02	460.85	459.74	461.08	460.06	459.96	461.93	462.34	461.75	460.21	459.69	459.14
11	459.02	460.64	459.69	460.55	460.03	459.92	461.69	464.72	461.29	460.60	459.63	459.14
12	459.03	460.37	459.72	460.15	459.99	459.87	461.54	466.82	460.81	460.15	459.59	459.13
13	459.03	460.25	459.69	460.29	459.94	459.83	461.37	465.52	461.86	459.97	459.58	459.12
14	459.03	460.29	459.62	460.19	459.92	459.87	461.46	463.12	462.64	459.87	459.55	459.14
15	459.03	460.09	459.60	460.17	459.96	460.35	461.21	462.61	463.01	459.79	459.52	463.09
16	459.03	459.98	459.59	460.24	460.00	460.86	461.11	462.29	463.10	459.72	459.79	461.62
17	459.03	460.08	459.57	460.16	459.98	460.56	460.93	461.95	464.61	459.70	459.80	461.75
18	459.03	460.03	459.55	460.04	459.96	460.46	460.96	461.55	464.71	459.67	459.68	460.91
19	459.03	459.86	459.53	459.99	459.93	460.71	460.82	461.26	462.48	459.64	459.61	460.01
20	459.03	460.02	459.54	460.01	459.91	460.45	460.58	461.01	461.83	460.90	459.58	465.01
21	459.03	462.64	460.23	460.01	460.45	460.31	460.44	460.85	461.87	461.68	459.55	465.16
22	460.16	462.16	460.51	460.17	462.86	460.17	460.31	460.77	461.72	460.47	459.52	461.23
23	461.49	461.16	460.20	460.10	461.84	460.06	460.24	460.59	461.38	460.06	459.48	461.76
24	461.08	460.71	460.03	460.00	460.70	460.11	460.20	460.95	461.64	459.91	459.45	462.70
25	460.69	460.49	460.40	459.95	460.66	460.74	460.12	461.14	461.38	459.80	459.42	461.47
26	459.98	460.36	460.39	459.93	460.31	461.04	460.05	460.79	460.95	459.72	459.39	460.83
27	459.71	460.26	460.13	460.50	460.17	460.99	459.97	460.56	460.82	460.03	459.36	460.58
28	459.60	460.31	460.42	460.50	460.06	461.09	459.94	460.37	461.66	462.89	459.34	460.40
29	459.54	460.48	461.51	460.42	---	461.95	459.91	460.18	461.72	460.96	459.32	460.21
30	459.50	460.35	460.87	460.49	---	462.68	460.09	460.13	461.11	460.11	459.31	460.04
31	459.47	---	460.41	460.91	---	466.43	---	460.60	---	459.86	459.29	---
MEAN	459.38	460.90	460.02	460.24	460.38	460.65	461.67	461.82	462.31	460.31	459.70	460.51
MAX	461.49	463.91	461.51	461.24	462.86	466.43	466.64	466.82	466.02	462.89	461.61	465.16
MIN	459.02	459.45	459.53	459.81	459.91	459.83	459.91	460.06	460.81	459.64	459.29	459.12
†	0	1.40	1.75	4.65	0.30	187	0.55	4.55	4.55	0	0	0
††	0	+0.02	+0.01	+0.05	-0.08	+3.04	-3.14	+0.06	0	-0.07	0	0
CAL YR	1988	MEAN	460.13	MAX	466.21	MIN	459.01	††	0			
WTR YR	1989	MEAN	460.65	MAX	466.82	MIN	459.02	††	0			

† Contents, in acre-ft, at end of month.

†† Change in contents, equivalent in cubic feet per second.

STREAMS TRIBUTARY TO LAKE ONTARIO

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04239000 ONONDAGA CREEK AT DORWIN AVENUE, SYRACUSE, NY

LOCATION.--Lat 42°59'00", long 76°09'04", Onondaga County, Hydrologic Unit 04140201, on left bank 550 ft upstream from bridge on Dorwin Avenue, at Syracuse, and 4 mi downstream from Onondaga Reservoir.

DRAINAGE AREA.--88.5 mi².

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

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 414.19 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. High flows regulated by Onondaga Reservoir (see station 04238500).

Discharge includes minor diversion from Gate House Pond in headwaters of West Branch Tioughnioga River basin. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years, 124 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,260 ft³/s, July 3, 1974, gage height, 6.48 ft; minimum daily, 5.5 ft³/s, Aug. 17, 1965; minimum gage height, 1.15 ft, Sept. 16, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 816 ft³/s, Sept. 20 at 0630 hours, gage height, 3.90 ft; minimum, 23 ft³/s, Oct. 1, 2; gage height, 1.54 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	42	92	89	146	e85	660	82	600	106	59	33
2	24	172	89	90	137	e85	419	279	566	95	57	38
3	26	348	85	89	103	85	352	210	278	85	62	34
4	25	196	81	e74	e96	91	396	144	401	83	65	32
5	27	159	78	e72	e102	160	426	121	319	171	220	31
6	31	447	80	e75	e108	e110	353	149	240	129	120	30
7	29	296	84	e80	e100	e88	296	340	202	97	84	30
8	27	191	80	e95	e90	e82	245	281	173	148	69	30
9	26	163	74	e130	e85	e80	209	272	153	96	60	29
10	27	140	e68	e110	e90	e82	199	241	207	77	54	29
11	31	126	e55	99	e100	85	184	550	162	97	51	32
12	31	110	e54	e90	e90	84	172	617	129	78	54	31
13	30	104	e58	99	e88	78	161	456	250	70	56	31
14	28	105	e64	e92	85	91	165	290	284	66	50	38
15	27	93	e69	92	98	150	148	253	305	62	46	358
16	27	86	e68	95	92	136	143	219	303	60	63	143
17	26	96	e67	84	e84	108	131	198	502	61	51	152
18	27	88	e66	79	e79	136	133	169	413	56	45	107
19	30	80	e68	81	e80	127	127	151	272	52	42	78
20	26	107	73	87	e88	104	115	136	214	181	54	661
21	26	276	123	e84	170	108	109	131	222	165	48	474
22	130	192	102	e86	309	93	102	123	200	92	42	168
23	182	139	75	e91	189	91	98	112	176	77	41	222
24	151	121	84	e93	e108	115	96	156	185	64	40	266
25	121	111	121	e89	e98	165	87	146	166	58	37	167
26	81	103	93	86	e92	155	84	125	138	53	36	130
27	62	98	e82	139	e88	160	79	115	132	118	35	115
28	52	113	e120	106	e86	169	77	105	189	327	35	102
29	50	111	155	109	---	241	77	94	182	131	35	89
30	46	99	111	134	---	417	89	99	128	82	37	80
31	44	---	104	151	---	700	---	141	---	64	33	---
TOTAL	1494	4512	2623	2970	3081	4461	5932	6505	7691	3101	1781	3760
MEAN	48.2	150	84.6	95.8	110	144	198	210	256	100	57.5	125
MAX	182	447	155	151	309	700	660	617	600	327	220	661
MIN	24	42	54	72	79	78	77	82	128	52	33	29
CAL YR 1988	TOTAL	32877	MEAN	89.8	MAX	564	MIN	20				
WTR YR 1989	TOTAL	47911	MEAN	131	MAX	700	MIN	24				

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

04240010 ONONDAGA CREEK AT SPENCER STREET, SYRACUSE, NY

LOCATION.--Lat 43°03'27", long 76°09'46", Onondaga County, Hydrologic Unit 04140201, on right bank 250 ft upstream from bridge on Spencer Street in Syracuse, 1,000 ft upstream from Erie (Barge) Canal terminal, and 1.0 mi upstream from mouth.

DRAINAGE AREA.--110 mi².

PERIOD OF RECORD.--Occasional discharge measurements, water years 1958-70. September 1970 to current year.

REVISED RECORDS.--WRD NY 1972: 1971(M). WRD NY 1975: 1972(M), 1974(M). WDR NY-81-3: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 362.29 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. High flows regulated by Onondaga Reservoir (see station 04238500). Discharge includes minor diversion from Gate House Pond in headwaters of West Branch Tioughnioga River basin. Flow may be affected by backwater from Onondaga Lake at times when the lake elevation exceeds 364.75 ft. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 184 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,050 ft³/s, July 3, 1974, gage height, 8.73 ft; minimum, 20 ft³/s, Sept. 26, 1985, gage height, 2.16 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,420 ft³/s, Sept. 19 at 2330 hours, gage height, 6.32 ft; minimum, 38 ft³/s, Oct. 1-2, gage height, 2.35.

REVISIONS.--The maximum discharges for some water years have been revised, as shown in the following table. They supercede figures published in corresponding annual reports and in Professional Paper 924.

Water Year	Date	Discharge (ft ³ /s)	Gage height (ft)	Water Year	Date	Discharge (ft ³ /s)	Gage height (ft)	Water Year	Date	Discharge (ft ³ /s)	Gage height (ft)
1971	Mar. 15, 1971	1,670	6.74	1977	July 16, 1977	3,330	8.37	1983	Apr. 30, 1983	1,790	6.95
1972	June 23, 1972	2,850	8.09	1978	Oct. 17, 1977	2,340	7.62	1984	July 4, 1984	1,800	6.96
1974	July 3, 1974	4,050	8.73	1979	Mar. 6, 1979	2,960	8.16	1986	June 7, 1986	2,210	7.47
1975	July 24, 1975	3,300	8.35	1980	Mar. 21, 1980	1,940	7.15	1988	July 21, 1988	2,340	7.62
1976	Apr. 16, 1976	2,890	8.12	1982	Oct. 28, 1981	3,640	8.53				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	66	114	113	172	e98	629	135	531	128	81	58
2	41	199	110	113	164	e98	468	356	549	119	95	62
3	41	370	107	112	129	e105	405	260	276	111	86	60
4	42	223	101	82	e110	118	455	199	412	106	142	56
5	45	215	98	e80	118	177	479	170	333	192	259	55
6	46	478	99	e84	121	e160	416	227	254	125	149	54
7	46	324	102	93	116	e100	350	402	222	143	105	54
8	43	219	100	138	e100	e96	304	351	194	154	90	52
9	42	187	94	169	e94	e100	268	333	187	110	82	53
10	44	162	e80	117	104	105	255	299	227	99	76	56
11	48	146	e60	116	110	110	239	590	182	117	73	52
12	51	128	e60	104	106	109	229	655	152	92	73	52
13	49	120	e68	123	97	98	215	558	278	88	77	52
14	47	122	76	103	109	121	219	e400	287	85	73	165
15	45	111	81	117	119	202	204	e350	317	81	69	397
16	44	106	80	120	116	229	199	e300	319	76	82	185
17	44	114	78	110	e88	187	186	e260	533	79	73	174
18	56	107	77	105	e85	207	187	e230	425	76	66	137
19	46	98	76	104	e90	172	181	e210	269	74	76	176
20	43	149	83	e110	98	139	167	e200	226	249	75	665
21	40	287	139	e90	219	144	158	184	236	176	71	476
22	198	215	119	96	339	124	147	170	217	132	65	201
23	203	160	95	102	218	120	142	156	192	96	65	270
24	176	142	119	102	e120	132	142	204	220	85	63	285
25	145	132	144	100	e115	200	137	190	181	79	60	188
26	103	126	115	110	e110	193	133	166	155	75	60	153
27	83	123	94	167	e105	175	127	153	157	157	58	150
28	76	132	153	133	e100	192	124	139	222	326	59	136
29	75	133	184	135	---	257	126	130	175	149	58	124
30	70	122	135	156	---	440	137	143	139	104	59	111
31	68	---	120	181	---	660	---	177	---	88	57	---
TOTAL	2138	5216	3161	3585	3572	5368	7428	8297	8067	3771	2577	4709
MEAN	69.0	174	102	116	128	173	248	268	269	122	83.1	157
MAX	203	478	184	181	339	660	629	655	549	326	259	665
MIN	38	66	60	80	85	96	124	130	139	74	57	52
CAL YR	1988	TOTAL	42471	MEAN	116	MAX	560	MIN	38			
WTR YR	1989	TOTAL	57889	MEAN	159	MAX	665	MIN	38			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04240100 HARBOR BROOK AT SYRACUSE, NY

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LOCATION.--Lat 43°02'09", long 76°10'55", Onondaga County, Hydrologic Unit 04140201, on left bank 160 ft upstream from bridge on Holden Street at Syracuse, 220 ft downstream from gated outlet of Velasko Road Detention Basin, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--10.0 mi².

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

REVISED RECORDS.--WSP 2112: Drainage area. WDR NY-82-3: 1981 (M), WDR-NY-88-3: 1986-87 (M).

GAGE.--Water-stage recorder. Datum of gage is 391.16 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1978, at site 1,660 ft upstream and Oct. 1, 1978 to May 31, 1980, at site 1,800 ft upstream at datum 3.63 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow includes some sewage and storm sewer inflow, some originating outside the basin. Flows can be regulated at detention basin by Onondaga County. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--30 years, 8.70 ft³/s, 11.81 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 726 ft³/s, July 3, 1974, gage height, 8.34 ft, datum then in use, from rating curve extended above 180 ft³/s on basis of slope-area measurements of peak flow; minimum discharge, 0.11 ft³/s, Aug. 8, 1980, result of regulation; minimum gage height, 0.73 ft, Jan. 7, 9 and Feb. 24, 1989, result of regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 177 ft³/s, Sept. 19 at 2400 hours, gage height, 4.53 ft, from rating curve extended above 50 ft³/s on basis of indirect measurement of peak flow; minimum daily, 1.2 ft³/s, Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	1.6	3.5	4.0	4.9	4.2	27	7.4	13	4.4	e3.8	e2.9
2	3.6	10	3.3	4.0	4.4	3.9	19	15	11	4.5	e6.7	e2.9
3	3.2	5.3	3.6	4.0	4.4	4.0	21	7.8	8.7	4.6	e4.2	e2.7
4	3.7	1.2	3.9	4.1	4.2	5.9	18	7.0	15	4.7	e11	e2.6
5	4.7	5.5	4.4	4.1	4.3	10	21	6.8	7.2	10	e11	e2.7
6	4.4	17	4.7	4.0	4.4	5.1	14	9.6	6.5	4.8	e4.3	e2.9
7	4.1	2.7	4.6	4.2	4.4	4.4	14	14	5.5	6.4	e3.8	e2.8
8	4.4	2.0	4.6	8.0	4.3	4.3	12	12	5.1	4.5	e3.6	e2.7
9	4.4	1.7	4.5	5.2	4.2	4.2	11	10	6.7	4.4	e3.3	e2.9
10	4.8	1.5	4.2	4.2	4.4	4.4	10	11	5.8	4.6	e3.4	e3.3
11	4.3	1.6	4.2	4.2	3.8	4.2	9.8	34	4.6	e4.0	e3.3	e3.1
12	4.8	1.5	4.2	4.3	3.8	4.2	9.4	21	4.6	e3.9	e3.4	e3.1
13	3.9	1.6	4.3	4.0	3.8	4.0	9.3	15	8.5	e3.9	e3.4	e3.4
14	3.8	1.6	4.2	4.2	4.4	4.7	9.0	13	6.6	e3.7	e3.3	e21
15	3.5	1.6	4.3	4.7	4.2	9.5	8.7	12	6.5	e3.6	e3.0	e25
16	3.4	1.6	4.1	4.3	3.9	5.1	8.2	12	5.9	e3.6	e3.0	e9.0
17	3.2	1.7	3.9	4.1	3.8	4.0	7.9	11	21	e3.6	e2.9	e6.0
18	3.8	1.6	3.8	4.0	3.7	11	8.1	10	6.4	e3.6	e2.9	e5.0
19	2.6	1.5	3.7	4.0	3.7	4.7	7.6	9.7	5.6	e3.6	e4.6	e22
20	2.5	6.0	3.9	4.4	3.7	4.5	7.5	9.1	5.8	e15	e3.9	e79
21	2.4	7.2	5.2	4.2	19	4.7	7.6	9.1	7.2	e4.5	e3.2	e9.6
22	12	4.5	3.9	4.2	15	4.4	7.3	8.8	5.4	e8.8	e3.0	e7.3
23	4.5	3.7	3.7	4.0	7.1	4.8	7.1	8.9	5.2	e4.6	e2.9	e15
24	5.0	3.6	6.1	4.0	4.9	5.0	6.7	11	6.0	e3.9	e2.9	e9.2
25	3.5	3.5	5.4	4.0	4.6	6.1	6.6	8.7	4.6	e3.8	e2.8	e7.2
26	2.4	3.8	4.2	5.6	4.4	5.1	6.4	8.4	4.6	e3.8	e3.0	e7.2
27	2.2	4.0	4.0	5.7	4.3	4.6	6.3	8.2	5.2	e10	e2.8	e6.9
28	2.0	4.7	7.1	4.5	4.3	5.0	7.0	8.0	5.4	e5.4	e2.6	e6.5
29	1.8	4.3	5.3	4.6	---	5.3	7.3	8.1	4.5	e4.4	e2.5	e6.1
30	1.7	4.1	4.4	6.8	---	32	6.6	9.4	4.4	e4.0	e2.6	e5.8
31	1.6	---	4.2	5.6	---	35	---	9.6	---	e3.9	e2.6	---
TOTAL	115.3	112.2	135.4	141.2	146.3	218.3	321.4	345.6	212.5	158.5	119.7	285.8
MEAN	3.72	3.74	4.37	4.55	5.22	7.04	10.7	11.1	7.08	5.11	3.86	9.53
MAX	12	17	7.1	8.0	19	35	27	34	21	15	11	79
MIN	1.6	1.2	3.3	4.0	3.7	3.9	6.3	6.8	4.4	3.6	2.5	2.6
CFSM	.37	.37	.44	.46	.52	.70	1.07	1.11	.71	.51	.39	.95
IN.	.43	.42	.50	.53	.54	.81	1.20	1.29	.79	.59	.45	1.06
CAL YR 1988	TOTAL	1889.6	MEAN	5.16	MAX	36	MIN	1.2	CFSM	.52	IN.	7.03
WTR YR 1989	TOTAL	2312.2	MEAN	6.33	MAX	79	MIN	1.2	CFSM	.63	IN.	8.60

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO

04240105 HARBOR BROOK AT HIAWATHA BOULEVARD, SYRACUSE, NY

LOCATION.--Lat 43°03'22", long 76°11'07", Onondaga County, Hydrologic Unit 04140201, on left bank 250 ft downstream from culvert on Hiawatha Boulevard, in Syracuse, and 0.5 mi upstream from mouth.

DRAINAGE AREA.--11.3 mi².

PERIOD OF RECORD.--Occasional discharge measurements, water years 1958-70. October 1970 to current year.

REVISED RECORDS.--WDR NY-76-1: 1971-75 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 365.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow includes some sewage and storm sewer inflow, some originating outside the basin. Flow can be regulated at Velasco Road Detention Basin 2.1 mi upstream. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 13.0 ft³/s, 15.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 824 ft³/s, July 3, 1974, gage height, 7.91 ft, from rating curve extended above 160 ft³/s on basis of step-backwater computations; maximum gage height, 8.15 ft, Sept. 26, 1975 (backwater from debris jam); no flow for part of each day Oct. 26, 27, 1987, result of regulation for maintenance work in the channel.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 490 ft³/s, Sept. 19 at 2315 hours, gage height, 6.25 ft; minimum daily, 1.3 ft³/s, Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	e4.0	e1.9	e4.1	e4.8	5.7	4.9	30	9.0	16	5.1	4.3	3.2	
2	e4.2	e12	e3.9	e4.7	5.2	4.9	19	17	11	5.1	8.1	3.1	
3	e3.7	e6.2	e4.2	e4.7	5.2	4.9	22	8.4	e9.5	5.1	4.6	2.9	
4	e4.3	e1.3	e4.6	e4.8	5.2	7.4	19	7.3	17	5.3	15	2.8	
5	e5.5	e6.2	e5.2	e4.8	5.3	10	22	7.1	7.8	17	13	2.9	
6	e5.2	e21	e5.5	e4.7	5.4	6.1	15	13	7.6	5.2	4.7	3.1	
7	e4.8	e3.2	e5.4	e5.0	5.4	5.1	14	14	6.9	8.7	4.2	3.0	
8	e5.1	e2.2	e5.4	8.7	5.6	5.0	12	12	7.1	5.2	4.0	2.9	
9	e5.2	e2.0	e5.3	6.1	6.3	4.9	12	11	9.1	4.9	3.6	3.1	
10	e5.6	e1.8	e4.9	5.0	6.7	5.0	11	13	8.6	4.9	3.7	3.6	
11	e5.1	e1.9	e4.9	4.9	6.4	4.9	11	43	6.8	4.7	3.6	3.4	
12	e5.6	e1.7	e4.9	4.9	6.6	4.9	9.9	25	6.7	4.5	3.7	3.4	
13	e4.6	e1.9	e5.1	4.9	5.7	4.9	9.8	17	12	4.5	3.7	3.7	
14	e4.5	e1.8	e4.9	5.0	5.7	5.3	9.4	15	9.5	4.4	3.6	27	
15	e4.1	e1.8	e5.0	5.7	5.3	12	9.5	13	9.1	4.1	3.3	22	
16	e4.0	e1.8	e4.8	5.1	5.2	6.0	9.0	e13	8.3	4.0	3.3	11	
17	e3.8	e2.0	e4.6	5.0	4.9	5.4	8.8	e12	30	4.0	3.2	6.9	
18	e4.5	e1.9	e4.5	5.1	4.9	16	9.3	11	9.3	4.0	3.1	5.7	
19	e3.0	e1.7	e4.3	4.9	4.9	6.1	8.4	10	8.0	4.0	5.3	32	
20	e2.9	e7.0	e4.6	5.5	4.9	5.7	8.1	9.6	8.1	22	4.4	85	
21	5.2	e8.5	e6.1	5.1	28	5.7	8.1	9.7	9.7	4.9	3.5	11	
22	19	e7.0	e4.6	5.0	16	5.2	7.8	9.3	7.5	11	3.3	8.7	
23	e5.3	e5.1	e4.3	4.9	8.2	5.6	7.7	9.6	6.9	5.1	3.2	20	
24	e5.6	e4.3	e7.2	4.9	5.8	5.9	7.5	12	11	4.4	3.2	11	
25	e4.0	e4.2	e6.4	4.9	5.3	7.0	7.5	9.5	6.3	4.3	3.0	8.5	
26	e2.9	e4.5	e4.9	6.7	5.2	6.1	7.3	9.1	6.0	4.2	3.3	8.6	
27	e2.6	e4.7	e4.6	7.1	5.2	5.6	7.2	8.9	7.0	13	3.0	8.2	
28	e2.4	e5.5	e8.5	5.5	5.1	6.1	7.8	8.6	7.2	6.1	2.8	7.6	
29	e2.1	e5.0	e6.3	5.4	—	6.7	8.7	8.5	5.5	4.9	2.7	7.2	
30	e2.0	e4.8	e5.1	7.3	—	42	7.5	11	5.2	4.5	2.8	6.7	
31	e1.9	—	e4.9	6.5	—	42	—	10	—	4.4	2.8	—	
TOTAL	142.7	134.9	159.0	167.6	189.3	267.3	346.3	386.6	280.7	193.5	136.0	328.2	
MEAN	4.60	4.50	5.13	5.41	6.76	8.62	11.5	12.5	9.36	6.24	4.39	10.9	
MAX	19	21	8.5	8.7	28	42	30	43	30	22	15	85	
MIN	1.9	1.3	3.9	4.7	4.9	4.9	7.2	7.1	5.2	4.0	2.7	2.8	
CFSM	.41	.40	.45	.48	.60	.76	1.02	1.10	.83	.55	.39	.97	
IN.	.47	.44	.52	.55	.62	.88	1.14	1.27	.92	.64	.45	1.08	
CAL YR	1988	TOTAL	2410.0	MEAN	6.58	MAX	76	MIN	1.3	CFSM	.58	IN.	7.93
WTR YR	1989	TOTAL	2732.1	MEAN	7.49	MAX	85	MIN	1.3	CFSM	.66	IN.	8.99

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04240120 LEY CREEK AT PARK STREET, SYRACUSE, NY

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LOCATION.--Lat 43°04'38", long 76°10'14", Onondaga County, Hydrologic Unit 04140201, on left bank 0.2 mi upstream from bridge on Park Street, and 0.4 mi upstream from mouth.

DRAINAGE AREA.--29.9 mi².

PERIOD OF RECORD.--Occasional discharge measurements water years 1959-72. December 1972 to current year.

REVISED RECORDS.--WDR NY 76-1: 1975 (M).

GAGE.--Water-stage recorder, crest-stage gage and, since July 9, 1984, steel "I" beam control. Datum of gage is 362.76 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, at same site at datum 0.08 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow may be affected by backwater from Onondaga Lake at times when the lake elevation exceeds 364.4 ft. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1974-89), 43.2 ft³/s, 19.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,310 ft³/s, Sept. 26, 1975, gage height, 6.17 ft, from rating curve extended above 530 ft³/s; minimum discharge, 1.9 ft³/s, Aug. 19, 1987; minimum gage height, 0.28 ft, Feb. 6-8, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Sept. 20	0500	*587	*3.97	No other peak greater than base discharge.			
Minimum discharge, 7.1 ft ³ /s, Oct. 2, gage height, 1.08 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	8.8	16	e16	e18	e20	18	228	e40	108	21	10	13	
2	9.0	112	e17	e18	e19	17	132	e66	60	17	16	17	
3	11	110	e18	e17	e18	17	108	e40	38	17	22	11	
4	9.6	54	e18	e17	e17	36	113	e35	92	18	37	11	
5	14	66	e20	e17	e18	57	e140	e38	45	51	199	12	
6	11	185	e22	e16	e19	35	e79	e52	36	26	50	15	
7	9.4	112	e22	e17	e20	24	e75	e43	28	39	30	13	
8	8.7	81	e19	e35	e19	19	e72	e54	23	28	22	14	
9	8.2	65	e17	e24	e18	19	e58	e80	23	17	17	13	
10	11	48	e16	e18	e17	20	e48	e150	40	20	15	13	
11	17	39	e14	e17	e18	18	40	e190	21	20	16	17	
12	39	32	e13	e17	e20	20	37	e140	21	14	17	13	
13	21	28	e12	e16	e30	19	38	e80	41	13	17	9.5	
14	12	25	e12	e17	e47	23	37	e55	32	15	16	23	
15	10	23	e16	e20	36	42	31	e40	42	14	17	207	
16	9.6	22	15	e18	28	45	31	e40	41	14	15	57	
17	9.5	27	13	e17	22	36	30	e65	174	16	15	48	
18	23	22	13	e16	19	99	36	e55	80	16	12	27	
19	14	20	14	e17	15	63	29	e50	50	13	13	30	
20	9.9	e17	e15	e18	15	45	26	e44	34	132	30	340	
21	8.9	e20	e23	e17	120	46	26	e40	60	43	13	108	
22	156	e25	e30	e16	110	34	23	e38	35	30	14	50	
23	109	e18	e25	e16	69	32	22	e32	30	36	11	82	
24	78	e18	e30	e17	37	38	23	58	47	21	12	52	
25	46	e18	e23	e19	26	56	24	32	48	15	11	31	
26	30	e18	e18	e26	21	52	21	28	32	12	12	24	
27	23	e20	e17	e32	21	49	21	24	32	15	12	21	
28	20	e22	e25	e22	21	49	20	20	134	26	12	20	
29	18	e21	e22	e26	---	53	e21	20	57	13	13	17	
30	18	e18	e19	e31	---	184	e22	41	33	10	13	16	
31	17	---	e18	e25	---	235	---	40	---	11	11	---	
TOTAL	789.6	1302	572	617	860	1500	1611	1730	1537	753	720	1324.5	
MEAN	25.5	43.4	18.5	19.9	30.7	48.4	53.7	55.8	51.2	24.3	23.2	44.1	
MAX	156	185	30	35	120	235	228	190	174	132	199	340	
MIN	8.2	16	12	16	15	17	20	20	21	10	10	9.5	
CFM	.85	1.45	.62	.67	1.03	1.62	1.80	1.87	1.71	.81	.78	1.48	
IN.	.98	1.62	.71	.77	1.07	1.87	2.00	2.15	1.91	.94	.90	1.65	
CAL YR	1988	TOTAL	13378.4	MEAN	36.6	MAX	241	MIN	6.6	CFM	1.22	IN.	16.64
WTR YR	1989	TOTAL	13316.1	MEAN	36.5	MAX	340	MIN	8.2	CFM	1.22	IN.	16.57

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04240180 NINEMILE CREEK NEAR MARIETTA, NY

LOCATION.--Lat 42°55'15", long 76°19'47", Onondaga County, Hydrologic Unit 04140201, on right bank 25 ft upstream from bridge on Schuyler Road, 0.9 mi north of Marietta, and 1.8 mi downstream from Otisco Lake.

DRAINAGE AREA.--45.1 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1955, 1963. June 1964 to current year.

REVISED RECORDS.--WRD NY 1971: 1966(M), 1968, 1969. WDR NY-82-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 748.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Otisco Lake from which water is diverted for city of Syracuse water supply. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1965-89), 38.6 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,030 ft³/s, June 23, 1972, gage height, 8.65 ft; minimum, 0.80 ft³/s, Sept. 13, 18, 19, 1966, gage height, 0.61 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 266 ft³/s, May 12 at 1900 hours, gage height, 5.17 ft; minimum daily, 3.3 ft³/s, Nov. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	5.4	44	30	22	12	41	5.1	87	91	11	8.0
2	15	32	43	30	21	12	19	9.9	107	73	9.1	9.0
3	18	13	42	27	19	11	19	6.7	117	58	8.9	8.0
4	18	5.1	41	14	18	15	22	5.9	144	50	11	7.2
5	19	9.0	39	12	17	20	24	6.6	133	45	25	6.8
6	19	25	39	11	17	16	18	9.6	121	36	16	6.7
7	17	6.0	40	11	16	12	16	14	108	32	13	5.7
8	14	5.1	39	17	16	11	12	14	92	33	11	3.7
9	12	5.0	37	16	e14	11	8.4	19	82	28	8.8	4.6
10	12	5.0	36	12	15	11	8.7	28	73	25	7.9	7.0
11	16	6.9	36	10	15	11	8.5	173	54	22	7.8	9.5
12	16	6.2	39	6.3	14	11	8.3	250	47	18	8.4	11
13	14	5.4	38	11	14	10	7.2	246	61	15	8.9	13
14	12	5.0	39	17	14	11	4.9	213	62	12	9.3	22
15	11	4.7	39	19	15	16	4.6	191	73	10	9.5	32
16	10	4.8	38	19	14	15	5.0	171	81	8.9	11	14
17	12	4.3	37	18	e12	14	5.3	160	128	7.3	11	15
18	15	3.7	37	18	13	18	6.5	145	120	6.3	11	12
19	18	3.3	36	18	12	17	6.7	121	106	6.8	11	13
20	17	5.2	38	e18	12	13	7.1	105	96	21	12	52
21	15	16	40	e18	22	12	7.6	91	94	22	11	29
22	31	15	35	18	24	11	8.5	70	83	20	9.8	61
23	21	13	34	17	17	12	6.9	53	77	18	9.0	100
24	15	12	36	18	13	13	4.6	54	113	16	8.8	96
25	10	12	37	17	12	15	5.5	48	100	14	9.1	92
26	7.9	12	33	19	12	14	6.2	40	91	12	9.4	92
27	6.5	10	32	20	12	14	6.8	36	114	18	9.1	90
28	6.2	10	41	18	12	16	6.9	31	145	26	8.8	90
29	5.9	23	36	18	---	28	4.7	28	135	21	8.4	89
30	5.8	46	33	22	---	66	5.1	28	113	17	8.3	89
31	5.8	---	31	22	---	69	---	31	---	15	7.8	---
TOTAL	428.1	329.1	1165	541.3	434	537	315.0	2403.8	2957	797.3	321.1	1088.2
MEAN	13.8	11.0	37.6	17.5	15.5	17.3	10.5	77.5	98.6	25.7	10.4	36.3
MAX	31	46	44	30	24	69	41	250	145	91	25	100
MIN	5.8	3.3	31	6.3	12	10	4.6	5.1	47	6.3	7.8	3.7
CAL YR	1988	TOTAL	7152.2	MEAN	19.5	MAX	94	MIN	3.3			
WTR YR	1989	TOTAL	11316.9	MEAN	31.0	MAX	250	MIN	3.3			

e Estimated

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LOCATION.--Lat 43°02'20", long 76°18'30", Onondaga County, Hydrologic Unit 04140201, on right bank 150 ft downstream from highway bridge on State Highway 5 (Main Street) in Camillus, 7.2 mi upstream from Onondaga Lake.

DRAINAGE AREA.--84.3 mi².

PERIOD OF RECORD.--July 1958 to September 1982, June 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 398.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated by Otisco Lake from which water is diverted for city of Syracuse water supply.

AVERAGE DISCHARGE.--25 years (1959-82, 1989), 112 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,760 ft³/s, Mar. 30, 1960, gage height, 8.25 ft; maximum gage height, 10.83 ft, Sept. 26, 1975, backwater from construction activities; minimum discharge, 16 ft³/s, Sept. 30, Oct. 1, 2, 1961.

EXTREMES FOR CURRENT PERIOD.--June to September 1988: Maximum discharge during period, 386 ft³/s, July 21 at 1830 hours; gage height, 3.63 ft; minimum daily, 20 ft³/s, Sept. 29-30.

Water year 1989: Maximum discharge, 542 ft³/s, May 11 at 2400 hours, gage height, 4.40 ft; minimum daily, 17 ft³/s, Oct. 16-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	45	38	33
2	---	---	---	---	---	---	---	---	---	42	36	33
3	---	---	---	---	---	---	---	---	---	41	35	31
4	---	---	---	---	---	---	---	---	---	40	30	34
5	---	---	---	---	---	---	---	---	---	39	30	33
6	---	---	---	---	---	---	---	---	---	37	32	32
7	---	---	---	---	---	---	---	---	---	38	32	27
8	---	---	---	---	---	---	---	---	---	39	33	25
9	---	---	---	---	---	---	---	---	---	40	33	24
10	---	---	---	---	---	---	---	---	---	41	33	23
11	---	---	---	---	---	---	---	---	---	47	33	22
12	---	---	---	---	---	---	---	---	---	45	33	23
13	---	---	---	---	---	---	---	---	---	43	32	27
14	---	---	---	---	---	---	---	---	---	43	32	28
15	---	---	---	---	---	---	---	---	---	43	31	24
16	---	---	---	---	---	---	---	---	---	41	33	22
17	---	---	---	---	---	---	---	---	---	47	40	24
18	---	---	---	---	---	---	---	---	---	44	37	25
19	---	---	---	---	---	---	---	---	---	43	35	24
20	---	---	---	---	---	---	---	---	---	39	34	24
21	---	---	---	---	---	---	---	---	---	160	34	28
22	---	---	---	---	---	---	---	---	---	86	33	22
23	---	---	---	---	---	---	---	---	---	47	34	33
24	---	---	---	---	---	---	---	---	---	117	36	26
25	---	---	---	---	---	---	---	---	---	174	44	21
26	---	---	---	---	---	---	---	---	---	63	38	21
27	---	---	---	---	---	---	---	---	---	54	37	21
28	---	---	---	---	---	---	---	---	41	45	49	21
29	---	---	---	---	---	---	---	---	42	40	51	20
30	---	---	---	---	---	---	---	---	45	39	43	20
31	---	---	---	---	---	---	---	---	---	40	36	---
TOTAL	---	---	---	---	---	---	---	---	---	1702	1107	771
MEAN	---	---	---	---	---	---	---	---	---	54.9	35.7	25.7
MAX	---	---	---	---	---	---	---	---	---	174	51	34
MIN	---	---	---	---	---	---	---	---	---	37	30	20

STREAMS TRIBUTARY TO LAKE ONTARIO
04240200 NINEMILE CREEK AT CAMILLUS, NY --continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	33	83	90	86	e58	e320	65	215	159	60	42
2	20	110	82	89	79	e56	e280	119	205	137	57	43
3	20	165	81	89	70	e52	e200	99	208	121	57	42
4	20	74	80	75	67	e50	e170	78	277	112	58	41
5	20	60	79	71	e66	e60	182	71	240	108	125	41
6	20	211	80	71	e64	e90	138	82	210	100	67	41
7	19	117	82	75	e62	e110	121	157	185	96	56	42
8	19	89	81	100	e60	e78	108	186	162	97	51	46
9	19	83	79	104	e58	e60	98	143	146	87	48	42
10	19	73	78	84	e57	e56	94	150	171	81	46	43
11	19	69	76	80	e56	e50	90	371	132	84	45	45
12	18	65	e76	72	e56	e50	88	504	114	74	46	44
13	18	64	e74	70	e56	e49	85	422	190	70	47	44
14	18	62	80	65	e59	e50	86	332	190	66	46	49
15	18	58	83	68	e64	e80	79	301	211	61	46	201
16	17	56	80	68	e60	e110	78	278	206	60	47	83
17	17	57	78	65	e55	e90	75	247	321	58	45	94
18	17	55	79	63	e59	e125	79	229	255	55	43	76
19	17	53	79	64	e57	e155	77	200	203	53	43	64
20	17	65	85	67	e55	e140	69	171	185	88	52	297
21	17	135	102	63	e80	e110	66	163	208	85	45	110
22	69	95	92	64	e170	e98	63	137	177	73	43	103
23	80	78	85	64	e140	e98	66	112	158	68	43	187
24	67	71	91	64	e104	e110	66	134	199	63	42	184
25	53	68	99	64	e86	e120	67	119	182	59	41	150
26	45	65	90	69	e75	e130	62	104	157	57	40	137
27	40	64	86	82	e66	e130	61	96	176	59	41	130
28	39	69	107	73	e59	e140	60	89	222	90	41	125
29	37	68	110	74	---	e150	63	82	218	77	42	121
30	34	82	96	85	---	e190	67	88	185	66	42	118
31	33	---	92	89	---	e260	---	99	---	62	41	---
TOTAL	886	2414	2645	2321	2026	3105	3158	5428	5908	2526	1546	2785
MEAN	28.6	80.5	85.3	74.9	72.4	100	105	175	197	81.5	49.9	92.8
MAX	80	211	110	104	170	260	320	504	321	159	125	297
MIN	17	33	74	63	55	49	60	65	114	53	40	41
WTR YR	1989	TOTAL	34748	MEAN	95.2	MAX	504	MIN	17.			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04240300 NINEMILE CREEK AT LAKELAND, NY

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LOCATION.--Lat 43°04'51", long 76°13'36", Onondaga County, Hydrologic Unit 04140201, on left bank 30 ft downstream from bridge on State Highway 48, 0.6 mi downstream from Geddes Brook, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--115 mi².

PERIOD OF RECORD.--Occasional measurements, water years 1959-70. November 1970 to September 1973, July 1975 to current year.

REVISED RECORDS.--WDR NY-83-3: 1972 (M), 1976 (M), 1979 (M), 1982 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 360.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow regulated by Otisco Lake from which water is diverted for city of Syracuse water supply. Flow affected by backwater from Onondaga Lake whenever lake level exceeds about 362 ft NGVD. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (1972-73, 1976-89), 194 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,110 ft³/s, June 23, 1972; maximum gage height, 8.75 ft, Sept. 26, 1975 (backwater from Onondaga Lake); minimum daily discharge, 13 ft³/s, Aug. 18, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 786 ft³/s, May 12; maximum gage height, 5.63 ft, May 15; minimum daily discharge, 36 ft³/s, Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e44	138	e91	104	106	64	549	75	297	218	e66	e49
2	e48	159	e92	101	98	66	396	193	297	191	e64	e52
3	e52	236	e92	104	86	55	345	185	290	164	e62	e51
4	e56	133	e94	114	80	55	370	129	330	148	e80	e50
5	e62	99	e94	e110	e78	87	404	104	311	e140	193	e48
6	e60	237	e92	93	e76	117	342	136	280	e130	112	e47
7	e58	214	e90	87	73	128	252	292	268	e120	e67	e49
8	e55	132	e89	e110	e72	122	e200	347	257	e115	e58	e52
9	53	e120	e90	150	e70	68	e185	328	235	104	e54	e50
10	e47	e110	e90	107	e68	64	e170	308	252	e98	e52	e49
11	e52	e95	e88	98	e66	63	e160	589	207	e96	e51	e52
12	e54	e85	e88	e80	e64	e59	e150	786	187	e90	e53	e51
13	62	e82	e88	76	63	e58	145	752	235	e84	e52	e53
14	54	e80	e90	71	67	61	136	639	241	e78	e52	69
15	48	e79	e95	86	75	106	131	570	250	e70	e51	246
16	47	e78	e92	71	71	136	107	531	259	e67	e54	e100
17	e60	e75	e90	73	61	104	111	499	378	e64	e52	e115
18	e48	e74	e92	68	67	141	e120	465	368	e62	e50	e98
19	e42	e76	e94	72	64	166	e130	420	316	e60	e56	e88
20	38	104	e100	73	63	153	e120	352	275	102	e62	386
21	36	220	117	e71	101	132	96	320	292	101	e58	185
22	106	175	117	e70	194	115	96	268	257	e80	e52	e140
23	122	117	96	69	165	110	e92	228	232	e75	e51	224
24	e105	102	110	e70	141	119	92	266	264	e70	e50	246
25	e75	79	120	e71	105	136	89	232	259	e65	e48	193
26	e68	e80	108	80	e88	146	80	193	232	e65	e47	168
27	e62	e82	101	101	e78	146	75	177	241	e70	e48	159
28	58	e84	112	82	e68	141	71	e165	287	e100	e49	143
29	63	e90	146	89	---	175	75	e155	278	e88	e50	131
30	79	e92	122	99	---	299	75	148	237	e80	e51	129
31	59	---	117	117	---	540	---	155	---	e68	e50	---
TOTAL	1873	3527	3097	2767	2408	3932	5364	10007	8112	3063	1895	3473
MEAN	60.4	118	99.9	89.3	86.0	127	179	323	270	98.8	61.1	116
MAX	122	237	146	150	194	540	549	786	378	218	193	386
MIN	36	74	88	68	61	55	71	75	187	60	47	47
CAL YR	1988	TOTAL	34581	MEAN	94.5	MAX	335	MIN	35			
WTR YR	1989	TOTAL	49518	MEAN	136	MAX	786	MIN	36			

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04240495 ONONDAGA LAKE AT LIVERPOOL, NY

LOCATION.--Lat 43°06'01", long 76°12'34", Onondaga County, Hydrologic Unit 04140201, on north shore of Onondaga Lake at Onondaga Park Marina basin, 200 ft southwest of Onondaga Lake Parkway, and 1.9 mi upstream from outlet of lake.

DRAINAGE AREA.--285 mi².

PERIOD OF RECORD.--October 1970 to current year. Elevation records, at Barge Canal datum, since February 1927 collected by, and in files of, New York State Department of Transportation at Syracuse.

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

REMARKS.--Lake elevation regulated by operation of Erie (Barge) Canal. Area of water surface, 4.60 mi².

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 369.21 ft, June 30, 1972; minimum, 361.54 ft, Mar. 13, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 366.12 ft, May 15-16; minimum, 362.15 ft, Sept. 12.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363.06	363.08	363.18	362.51	363.19	362.85	364.30	363.18	363.59	363.36	362.94	362.91
2	362.89	363.33	363.20	362.65	363.21	362.88	364.11	363.15	363.67	363.22	362.96	362.82
3	362.58	363.49	363.33	362.78	363.15	362.77	364.08	363.33	363.57	363.02	362.88	362.76
4	362.75	363.18	363.38	362.89	363.09	362.70	364.35	363.39	363.51	362.92	362.82	362.74
5	362.97	363.04	363.32	362.82	362.94	362.80	364.54	363.35	363.41	362.91	363.17	362.78
6	362.78	363.35	363.16	362.79	362.84	363.11	364.65	363.40	363.35	362.99	363.12	363.09
7	362.66	363.51	363.00	362.89	362.92	363.20	364.70	363.84	363.47	362.67	363.13	363.14
8	362.90	363.49	363.06	362.98	362.93	363.19	364.58	363.90	363.52	362.44	363.36	363.00
9	362.84	363.51	363.17	363.07	362.88	362.90	364.32	364.26	363.52	362.87	363.03	363.09
10	362.69	363.51	363.34	363.06	362.77	362.85	363.96	364.46	363.64	362.99	362.86	362.56
11	362.79	363.42	363.36	363.03	362.69	362.83	363.57	364.84	363.57	362.99	362.88	362.73
12	362.88	363.30	363.28	363.01	362.65	362.71	363.35	365.36	363.49	362.87	362.90	362.52
13	362.98	363.18	363.41	362.95	362.73	362.63	363.20	365.69	363.42	363.06	362.79	362.35
14	362.92	363.20	363.21	362.79	362.73	362.83	363.14	365.92	363.30	363.21	362.55	362.61
15	362.86	363.31	363.06	362.75	362.74	363.19	363.13	366.08	363.40	363.26	362.70	363.21
16	362.85	363.10	362.99	362.87	362.87	363.14	362.93	366.10	363.56	363.24	362.84	363.06
17	362.91	363.28	362.94	362.82	362.87	363.10	363.02	365.95	363.66	363.09	362.99	363.21
18	363.05	363.55	363.00	362.75	362.74	363.21	363.46	365.78	363.74	363.08	362.91	363.17
19	363.08	363.48	362.99	362.70	362.65	363.37	363.34	365.54	363.67	363.21	362.83	362.84
20	362.95	363.28	363.00	362.77	362.63	363.34	363.15	365.12	363.60	363.33	362.91	363.31
21	362.92	363.18	363.11	362.92	362.90	363.22	362.96	364.73	363.75	363.14	362.95	363.39
22	363.19	363.27	363.06	362.81	363.21	363.10	362.98	364.48	363.85	363.02	363.16	362.80
23	363.23	363.29	362.86	362.77	363.32	362.97	362.99	364.29	363.87	362.97	362.91	363.14
24	363.28	363.26	362.61	362.87	363.29	362.80	362.96	364.04	363.95	362.92	362.84	363.53
25	363.53	363.25	362.55	362.86	363.06	362.83	362.98	363.84	363.93	362.90	363.07	363.20
26	363.39	363.30	362.49	362.76	362.78	362.99	363.01	363.67	363.70	362.83	362.95	363.00
27	363.21	363.31	362.72	362.82	362.64	363.05	363.02	363.63	363.53	362.76	362.82	362.90
28	362.98	363.23	363.19	362.96	362.70	363.30	363.03	363.63	363.40	363.11	362.82	362.65
29	363.04	363.06	363.40	362.98	---	363.50	363.02	363.70	363.52	363.02	362.90	362.88
30	363.16	363.17	363.29	363.04	---	363.53	363.16	363.36	363.38	362.77	362.94	362.94
31	363.00	---	362.75	363.12	---	364.18	---	363.21	---	362.73	362.95	---
MEAN	362.98	363.30	363.08	362.86	362.90	363.07	363.53	364.36	363.58	363.00	362.93	362.94
MAX	363.53	363.55	363.41	363.12	363.32	364.18	364.70	366.10	363.95	363.36	363.36	363.53
MIN	362.58	363.04	362.49	362.51	362.63	362.63	362.93	363.15	363.30	362.44	362.55	362.35
CAL YR	1988	MEAN	363.00	MAX	363.94	MIN	362.39					
WTR YR	1989	MEAN	363.21	MAX	366.10	MIN	362.35					

STREAMS TRIBUTARY TO LAKE ONTARIO
04242500 EAST BRANCH FISH CREEK AT TABERG, NY

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LOCATION.--Lat 43°18'06", long 75°37'09", Oneida County, Hydrologic Unit 04140202, on left bank at downstream side of bridge on Main Street at Taberg, just downstream from Furnace Creek, 300 ft upstream from bridge on State Highway 69, and 2.8 mi upstream from confluence of East and West Branches near Blossvale.

DRAINAGE AREA.--188 mi².

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 604: 1924. WSP 759: Drainage area. WSP 1034: 1944. WSP 1054: 1923-45. WDR NY-83-3: 1980 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 490.12 ft above National Geodetic Vertical Datum of 1929. Prior to May 20, 1969, at datum 1.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversion upstream from station for municipal water supply by cities of Rome and Oneida. Diurnal fluctuation at low flow caused by power-generating operations upstream. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--66 years (water years 1924-89), 539 ft³/s, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s, Dec. 29, 1984, gage height, 13.81 ft, from slope-area indirect measurement of peak flow and result of release of upstream debris jam (constructed maximum discharge, about 16,000 ft³/s on same date at earlier time when adjusted for storage effects); minimum discharge, 4.9 ft³/s, Aug. 15, 16, 1949.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 29	1415	*4,330	*6.06	No peak greater than base discharge.			
Minimum discharge, 42 ft ³ /s, Sept. 6, gage height, 0.65 ft, (result of regulation).							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	534	458	e270	407	e240	2370	507	471	177	103	261
2	120	559	450	e240	464	e220	1590	887	407	149	95	364
3	144	668	426	e220	e410	e200	1540	1360	434	130	91	301
4	169	670	418	e180	e360	e210	1800	1140	428	119	138	273
5	178	816	324	e170	e320	e230	2520	749	370	127	2230	234
6	225	3250	307	e160	e280	e240	2200	920	306	125	1250	92
7	205	2140	307	e180	e270	e230	1660	1560	278	130	619	74
8	176	1390	307	e250	e250	e220	1280	1310	234	136	386	73
9	158	1360	299	e360	e240	e200	1050	1090	205	115	258	88
10	150	1210	e260	e340	e230	e190	944	831	671	115	191	95
11	543	1590	e190	e330	e220	e180	801	1120	641	115	156	98
12	1550	1300	e135	e310	e210	e170	705	1360	403	105	141	88
13	892	976	e130	e300	e200	e165	713	1100	346	99	140	82
14	565	1260	e130	e290	e220	e190	719	794	370	98	137	85
15	423	884	e150	e310	e260	395	806	639	453	94	125	434
16	367	678	e160	e330	e250	654	1090	547	512	85	114	483
17	301	689	e165	e290	e210	675	1170	476	879	87	110	530
18	386	646	e170	e270	e180	730	1510	404	879	82	102	455
19	700	546	e165	e260	e170	742	1420	346	562	81	89	331
20	493	492	e190	e230	e180	663	1190	300	407	101	209	3040
21	374	509	e240	e200	e230	559	1080	298	351	112	473	1790
22	827	512	e300	e180	e300	413	1010	286	334	103	321	794
23	1040	520	e290	e170	e450	387	791	240	295	116	250	1460
24	1300	498	e280	e160	e420	381	662	271	330	110	190	1610
25	1600	451	e350	e190	e370	424	616	305	312	93	164	822
26	1010	419	e320	e210	e330	647	621	308	228	99	151	570
27	785	420	e300	e270	e300	1060	640	398	191	87	141	449
28	693	488	e360	e280	e270	1690	602	333	468	434	140	370
29	827	551	e400	e310	---	3650	543	263	361	337	173	322
30	791	500	e340	327	---	3210	515	224	227	193	239	271
31	631	---	e300	366	---	2910	---	291	---	131	236	---
TOTAL	17742	26526	8621	7953	8001	22075	34158	20657	12353	4085	9162	15939
MEAN	572	884	278	257	286	712	1139	666	412	132	296	531
MAX	1600	3250	458	366	464	3650	2520	1560	879	434	2230	3040
MIN	119	419	130	160	170	165	515	224	191	81	89	73
CAL YR	1988	TOTAL 156660	MEAN 428	MAX 3690	MIN 34							
WTR YR	1989	TOTAL 187272	MEAN 513	MAX 3650	MIN 73							

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04243500 ONEIDA CREEK AT ONEIDA, NY

LOCATION.--Lat 43°05'51", long 75°38'22", Oneida County, Hydrologic Unit 04140202, on right bank 70 ft upstream from bridge on Sconondoa Street at Oneida, and 500 ft downstream from Sconondoa Creek.

DRAINAGE AREA.--113 mi².

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

REVISED RECORDS.--WSP 2112: Drainage area. WDR NY-78-1: 1951, 1956, 1958, 1961, 1963, 1964, 1972, 1976 (P). WDR NY-83-3: 1950 (M), 1977 (M), 1979 (M).

GAGE.--Water-stage recorder. Datum of gage is 409.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Occasional regulation by small mills upstream from station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--40 years, 163 ft³/s, 19.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,110 ft³/s, Oct. 9, 1976, gage height, 15.01 ft; minimum, 12 ft³/s, Aug. 5, 6, 1962, Oct. 28, 1964; minimum gage height, 1.30 ft, Aug. 3, 6, 1955, Aug. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	2000	*1,710	*7.57	No peak greater than base discharge.			
Minimum discharge, 21 ft ³ /s, Oct. 19-20; minimum gage height, 1.51 ft, Sept. 8, 9.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	51	100	e100	231	e82	860	85	184	96	42	35
2	29	345	98	e96	230	e78	497	250	159	84	41	41
3	31	601	97	e92	e140	e76	457	182	140	76	50	37
4	32	236	94	e88	e130	e80	559	137	243	85	61	36
5	33	269	83	e84	e130	e120	751	110	180	141	312	35
6	34	1040	87	e82	e125	e140	556	327	160	98	94	35
7	28	461	93	e100	e125	e120	446	782	136	85	89	33
8	27	260	95	e130	e110	e110	327	374	119	88	61	23
9	28	214	85	e200	e100	e96	263	285	109	70	49	25
10	30	169	e70	e170	e96	e86	247	248	159	67	49	31
11	33	149	e56	e160	e94	e80	225	1080	116	72	46	32
12	38	132	e46	e150	e90	e76	211	749	95	59	47	33
13	43	117	e44	e145	e86	e74	189	453	342	57	49	32
14	42	116	e44	e140	e130	e80	177	317	305	54	46	41
15	39	101	e45	e180	e180	228	160	245	409	51	43	212
16	36	92	e46	e160	e140	204	153	203	607	50	85	75
17	33	126	e48	e140	e110	132	136	182	337	50	56	98
18	32	113	e50	e100	e90	184	130	157	233	47	45	80
19	22	94	e52	e94	e80	146	126	140	183	46	43	64
20	23	147	e54	e86	e90	113	117	126	142	65	54	801
21	31	499	e80	e80	e150	e100	110	122	146	66	49	267
22	122	243	e120	e74	e240	e90	104	111	130	54	44	139
23	149	168	e100	e70	e180	e94	99	101	114	51	43	304
24	188	139	e110	e74	e140	125	96	168	160	47	40	290
25	164	121	e120	e80	e130	297	93	152	201	46	38	146
26	116	112	e100	e88	e120	225	88	129	117	42	37	109
27	89	106	e90	e96	e100	201	85	113	107	43	36	94
28	73	135	e130	e110	e90	237	81	100	273	72	36	81
29	66	120	e160	120	---	337	72	88	155	51	36	73
30	58	97	e140	196	---	822	86	97	115	45	39	66
31	55	---	e120	208	---	1020	---	119	---	42	35	---
TOTAL	1753	6573	2657	3693	3657	5853	7501	7732	5876	2000	1795	3368
MEAN	56.5	219	85.7	119	131	189	250	249	196	64.5	57.9	112
MAX	188	1040	160	208	240	1020	860	1080	607	141	312	801
MIN	22	51	44	70	80	74	72	85	95	42	35	23
CFSM	.50	1.94	.76	1.05	1.16	1.67	2.21	2.21	1.73	.57	.51	.99
IN.	.58	2.16	.87	1.22	1.20	1.93	2.47	2.55	1.93	.66	.59	1.11
CAL YR 1988	TOTAL	35549	MEAN	97.1	MAX	1040	MIN	19	CFSM	.86	IN.	11.70
WTR YR 1989	TOTAL	52458	MEAN	144	MAX	1080	MIN	22	CFSM	1.27	IN.	17.27

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04245200 BUTTERNUT CREEK NEAR JAMESVILLE, NY

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LOCATION.--Lat 42°56'02", long 76°03'44", Onondaga County, Hydrologic Unit 04140202, on left bank 15 ft downstream from bridge on Walberger Road, 125 ft downstream from tributary from Stebbins Gulf, 2.2 mi upstream from Jamesville Reservoir, and 4 mi south of Jamesville.

DRAINAGE AREA.--32.2 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1955-58. July 1958 to current year.

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 717.93 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 48.9 ft³/s, 20.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,820 ft³/s, July 3, 1974, gage height, 7.84 ft; maximum gage height, 8.46 ft, Oct. 28, 1981; minimum discharge, 2.0 ft³/s, Sept. 27, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 1	0330	*924	*7.88	No other peak greater than base discharge.			
Minimum discharge, 8.0 ft ³ /s, Oct. 1-2, and Sept. 9, 10; minimum gage height, 5.13 ft, Sept. 9, 10.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	19	36	34	55	e28	192	32	384	34	17	11
2	8.7	101	35	33	52	e27	142	114	165	30	19	14
3	10	90	33	e30	e40	e26	162	64	100	28	21	11
4	9.3	60	31	e26	e38	e30	172	48	207	27	29	9.7
5	12	103	29	e24	e36	e38	207	42	121	68	63	9.2
6	13	187	31	e27	e34	e36	148	77	101	38	25	9.1
7	12	103	33	e30	e30	e34	131	184	78	33	26	8.9
8	10	74	30	e34	e26	e34	105	127	66	36	21	8.7
9	9.4	61	27	e30	e24	e35	92	101	60	27	19	8.5
10	11	55	e24	e33	e22	e37	85	101	74	25	17	9.0
11	13	52	e20	e32	e22	e39	79	307	53	29	16	9.9
12	13	43	e21	e30	e20	e37	73	215	44	23	18	9.4
13	12	42	e20	e32	e20	e35	71	141	103	22	20	9.0
14	12	41	e22	e28	e22	e37	67	111	86	21	17	17
15	10	37	e26	e34	e24	58	59	94	97	19	15	100
16	10	34	e25	34	e22	55	57	84	101	18	33	35
17	9.8	48	e22	31	e24	40	53	74	191	18	19	42
18	12	38	e20	29	e23	54	55	63	111	17	16	27
19	12	33	e18	e28	e22	46	50	56	81	15	15	27
20	11	59	e25	e27	e25	38	45	51	74	52	21	240
21	11	109	50	e27	85	37	42	48	77	34	18	78
22	85	68	32	e28	92	35	40	44	64	23	15	43
23	59	52	28	e30	e50	35	38	41	62	20	14	64
24	68	47	35	e29	e40	45	37	66	55	17	13	60
25	44	43	42	e25	e35	67	35	98	49	15	12	41
26	31	41	e29	e31	e33	61	33	96	44	14	11	34
27	25	39	e28	e38	e31	59	32	84	42	62	11	33
28	23	47	e48	33	e29	74	31	71	79	68	11	29
29	21	44	e44	34	---	101	31	62	47	29	11	26
30	20	38	37	49	---	230	34	76	39	22	12	24
31	20	---	38	50	---	253	---	121	---	19	10	---
TOTAL	625.3	1808	939	980	976	1761	2398	2893	2855	903	585	1047.4
MEAN	20.2	60.3	30.3	31.6	34.9	56.8	79.9	93.3	95.2	29.1	18.9	34.9
MAX	85	187	50	50	92	253	207	307	384	68	63	240
MIN	8.1	19	18	24	20	26	31	32	39	14	10	8.5
CFSM	.63	1.87	.94	.98	1.08	1.76	2.48	2.90	2.96	.90	.59	1.08
IN.	.72	2.09	1.08	1.13	1.13	2.03	2.77	3.34	3.30	1.04	.68	1.21
CAL YR	1988	TOTAL 12586.0	MEAN 34.4	MAX 348	MIN 5.5	CFSM 1.07	IN. 14.54					
WTR YR	1989	TOTAL 17770.7	MEAN 48.7	MAX 384	MIN 8.1	CFSM 1.51	IN. 20.53					

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04245236 MEADOW BROOK AT HURLBURT ROAD, SYRACUSE, NY

LOCATION.--Lat 43°02'30", long 76°06'02", Onondaga County, Hydrologic Unit 04140202, on right bank 170 ft downstream from culvert at intersection of Hurlburt Road and Meadowbrook Drive, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--2.90 mi².

PERIOD OF RECORD.--December 1970 to March 1973, April 1973 to September 1978 (annual maximum only), October 1978 to current year.

REVISED RECORDS.--WDR NY-75-1: 1974 (M); WDR NY-78-1: 1977 (M).

GAGE.--Water-stage recorder, crest-stage gage, and artificial control. Datum of gage is 511.50 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Flow includes storm sewer inflow, some originating outside the basin. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years (water years 1972, 1979-89), 2.11 ft³/s, 9.88 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 595 ft³/s, Oct. 21, 1976, gage height, 5.31 ft; maximum gage height, 6.51 ft, July 3, 1974 (backwater from downstream channel conditions; Type IV flow); minimum discharge, 0.02 ft³/s, Sept. 11, 1972.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
July 20	0145	*156	*3.27	Sept. 14	2215	125	3.05
July 27	1815	120	3.01	Sept. 19	2245	125	3.05

Minimum discharge, 0.37 ft³/s, Aug. 4, Sept. 13-14; minimum gage height 1.13 ft, July 11, 14, and 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	2.2	e1.2	2.2	2.2	2.4	3.7	6.5	e3.6	e6.0	1.6	1.1	e1.7	
2	2.7	11	e2.1	2.0	2.3	3.7	3.6	e6.8	4.3	1.6	2.6	e1.5	
3	2.6	3.6	e2.2	2.0	e1.8	3.9	5.2	e4.4	1.8	1.7	1.2	e1.3	
4	2.5	e1.0	e2.5	e1.9	e1.7	6.6	3.9	e4.1	8.0	1.8	9.8	e1.1	
5	4.2	e6.0	e2.8	e1.9	e1.6	5.9	6.4	e4.0	1.9	7.4	7.6	e.98	
6	3.1	8.1	e1.9	e1.9	e1.5	3.6	3.5	e4.7	1.9	1.5	1.5	e.96	
7	2.9	e2.5	e1.8	e1.8	e1.5	e3.9	3.7	e9.2	1.5	4.8	.86	e.94	
8	2.9	e1.7	e1.7	3.8	e1.5	e3.8	3.3	e5.0	1.4	1.7	.56	e.94	
9	2.9	e1.5	e1.6	2.2	e1.5	3.7	3.7	e4.3	2.9	1.4	.45	e1.0	
10	3.6	e1.3	e1.6	2.0	e1.5	3.8	3.8	e4.0	2.7	1.3	.45	1.7	
11	3.6	e1.4	e1.5	2.0	e1.5	3.7	4.0	e16	1.5	1.2	.45	.86	
12	4.1	e1.3	e1.4	2.5	e1.6	4.5	3.6	e11	1.5	1.2	.70	.49	
13	3.2	e1.5	e1.3	2.2	e2.0	3.8	4.2	e8.0	5.2	1.2	.63	.42	
14	2.9	e1.4	e1.2	2.4	e3.3	4.1	3.8	e5.8	3.8	1.1	.60	13	
15	2.7	e1.4	e1.2	3.4	e2.9	4.2	4.0	e4.4	2.8	1.0	.60	17	
16	2.6	e1.4	1.2	2.5	e2.7	4.0	4.0	e3.7	2.4	1.1	.67	3.5	
17	2.6	e1.5	1.1	2.1	e2.5	4.0	e3.7	e3.1	10	1.1	.60	1.8	
18	3.6	e1.4	1.0	2.1	e2.4	9.5	e3.8	e2.8	2.1	1.1	.60	.76	
19	2.3	e1.4	1.0	2.4	e2.4	4.3	e3.6	e2.7	2.0	1.2	1.9	8.8	
20	2.0	9.2	1.7	3.1	e2.5	4.3	e3.3	e2.6	2.1	19	2.1	19	
21	1.9	4.5	1.6	e2.8	15	5.0	e3.0	e2.6	3.1	1.0	.92	1.2	
22	17	2.3	1.1	2.5	4.9	4.2	e2.8	e2.0	2.0	7.6	.80	1.0	
23	5.5	2.1	1.2	2.4	4.3	4.3	e2.6	e2.4	2.0	1.7	.78	5.6	
24	5.3	2.1	4.5	2.4	e3.6	5.0	e2.5	e4.3	2.3	.61	.78	1.5	
25	2.5	2.1	2.3	2.3	e3.4	5.0	e2.4	e3.6	1.9	.45	.84	.72	
26	e2.0	2.1	2.0	4.3	e3.3	4.2	e2.4	e3.2	1.8	.45	1.0	.60	
27	e1.6	2.2	2.0	2.9	e3.2	4.5	e2.6	e3.0	2.1	8.5	1.0	.60	
28	e1.5	3.1	4.7	2.5	e3.1	5.6	e3.0	e2.8	2.7	4.1	e.96	.60	
29	e1.3	2.1	2.6	2.5	---	5.3	e3.2	e2.7	1.5	.77	e.96	.60	
30	e1.2	2.1	2.3	2.7	---	16	e2.8	e3.2	1.5	.69	e.98	.60	
31	e1.2	---	2.3	2.7	---	11	---	e4.0	---	.69	e1.2	---	
TOTAL	100.2	84.5	59.6	76.4	81.9	159.1	108.9	144.0	86.7	80.56	45.19	90.77	
MEAN	3.23	2.82	1.92	2.46	2.92	5.13	3.63	4.65	2.89	2.60	1.46	3.03	
MAX	17	11	4.7	4.3	15	16	6.5	16	10	19	9.8	19	
MIN	1.2	1.0	1.0	1.8	1.5	3.6	2.4	2.0	1.4	.45	.45	.42	
CFM	1.11	.97	.66	.85	1.01	1.77	1.25	1.60	1.00	.90	.50	1.04	
IN.	1.29	1.08	.76	.98	1.05	2.04	1.40	1.85	1.11	1.03	.58	1.16	
CAL YR	1988	TOTAL	1083.75	MEAN	2.96	MAX	56	MIN	.47	CFM	1.02	IN.	13.90
WTR YR	1989	TOTAL	1117.82	MEAN	3.06	MAX	19	MIN	.42	CFM	1.06	IN.	14.34

e Estimated

STREAMS TRIBUTARY TO LAKE ONTARIO
04246000 ONEIDA LAKE AT BREWERTON, NY

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LOCATION.--Lat 43°14'25", long 76°08'30", Onondaga County, Hydrologic Unit 04140202, at west end of Oneida Lake, 100 ft west of bridge on U.S. Highway 11, at Brewerton.

DRAINAGE AREA.--1,382 mi², at dam at Caughdenoy.

PERIOD OF RECORD.--November 1951 to current year. April 1904 to September 1925 in reports of State Engineer and Surveyor, published as "Oneida River at Brewerton."

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (1.01 ft Barge Canal datum). November 1951 to September 1975, at datum 360.99 ft higher.

REMARKS.--Lake elevation regulated by taintor-gate dam on Oneida River at Caughdenoy and gates on Oneida Canal and Erie (Barge) Canal. Lake volume at elevation 369 ft NGVD, 1.135 million acre-ft. Area of water surface, 79.8 mi²; axes, 20.9 mi by 5.5 mi; shoreline length, 54.7 mi.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 372.83 ft, June 26, 1972; minimum daily, 366.12 ft, Feb. 11, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 29, 1936, reached a water surface elevation of 373.5 ft, from Corps of Engineers report "Flood Plain Information, Oneida Creek, New York."

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 370.63 ft, Sept. 23, result of surge; minimum, 366.90 ft, Mar. 15.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369.73	369.45	369.04	367.72	367.38	367.37	369.07	369.41	369.95	369.99	369.83	369.76
2	369.68	369.15	369.00	367.67	367.42	367.35	369.41	369.48	369.95	369.97	369.83	369.75
3	369.68	369.36	368.92	367.65	367.47	367.33	369.56	369.54	370.02	369.97	369.85	369.79
4	369.69	369.59	368.82	367.60	367.48	367.34	369.67	369.82	370.01	369.98	369.86	369.84
5	369.65	369.66	369.05	367.57	367.47	367.28	369.78	369.97	370.10	370.04	370.08	369.83
6	369.63	369.71	369.00	367.57	367.46	367.28	369.90	369.97	370.09	370.00	370.27	369.79
7	369.66	369.91	368.91	367.56	367.44	367.26	369.93	370.13	370.05	369.95	370.24	369.76
8	369.64	370.01	368.87	367.48	367.41	367.24	369.99	370.29	369.98	369.95	370.15	369.73
9	369.61	370.01	368.81	367.43	367.38	367.21	369.95	370.31	370.05	370.01	370.07	369.69
10	369.58	370.04	368.83	367.42	367.36	367.18	369.84	370.28	369.71	369.93	370.00	369.63
11	369.44	369.90	368.75	367.41	367.33	367.17	369.84	370.24	369.64	369.94	369.97	369.60
12	369.49	370.11	368.68	367.39	367.29	367.12	369.80	370.30	369.72	370.00	369.91	369.62
13	369.59	370.00	368.59	367.38	367.29	367.12	369.68	370.31	369.83	370.00	369.86	369.62
14	369.63	369.85	368.46	367.40	367.28	367.10	369.63	370.28	369.89	369.97	369.88	369.60
15	369.71	369.86	368.23	367.39	367.29	367.09	369.53	370.21	370.02	369.99	369.90	369.74
16	369.76	369.86	368.27	367.41	367.28	367.18	369.42	370.16	369.85	370.01	369.85	369.92
17	369.73	369.57	368.18	367.40	367.29	367.25	369.40	370.11	369.89	370.00	369.86	369.79
18	369.65	369.46	368.10	367.40	367.26	367.34	369.28	370.05	369.98	370.02	369.92	369.73
19	369.69	369.58	368.03	367.38	367.24	367.44	369.25	370.04	370.06	370.02	369.96	369.75
20	369.70	369.50	367.95	367.39	367.22	367.52	369.21	370.05	370.07	370.09	369.93	369.91
21	369.87	369.28	367.88	367.41	367.24	367.54	369.13	369.96	370.08	370.13	369.91	370.17
22	369.81	369.44	367.87	367.39	367.33	367.56	369.04	369.95	370.00	370.05	369.93	370.25
23	369.89	369.41	367.84	367.37	367.40	367.56	369.01	370.01	369.90	370.01	369.87	369.97
24	370.00	369.34	367.79	367.34	367.45	367.59	368.96	370.00	369.83	369.99	369.85	370.00
25	369.94	369.30	367.72	367.34	367.46	367.58	369.08	370.04	369.76	369.96	369.83	370.06
26	369.89	369.25	367.76	367.32	367.47	367.62	369.15	370.01	369.71	369.92	369.79	369.90
27	369.87	369.15	367.80	367.34	367.44	367.69	369.20	369.87	369.73	369.89	369.78	369.85
28	369.62	369.02	367.71	367.33	367.42	367.79	369.25	369.89	369.81	369.85	369.75	369.79
29	369.53	369.03	367.77	367.34	---	367.95	369.43	369.95	369.90	369.85	369.79	369.64
30	369.50	369.10	367.77	367.34	---	368.50	369.39	369.94	369.96	369.86	369.63	369.67
31	369.49	---	367.74	367.36	---	368.73	---	369.94	---	369.86	369.71	---
MEAN	369.69	369.56	368.33	367.44	367.37	367.46	369.46	369.46	369.92	369.97	369.91	369.80
MAX	370.00	370.11	369.05	367.72	367.48	368.73	369.99	370.31	370.10	370.13	370.27	370.25
MIN	369.44	369.02	367.71	367.32	367.22	367.09	368.96	369.41	369.64	369.85	369.63	369.60
CAL YR 1988	MEAN	368.99	MAX	370.17	MIN	367.00						
WTR YR 1989	MEAN	369.08	MAX	370.31	MIN	367.09						

STREAMS TRIBUTARY TO LAKE ONTARIO
04246500 ONEIDA RIVER AT CAUGHDENY, NY

LOCATION.--Lat 43°14'49", long 76°10'12", Oswego County, Hydrologic Unit 04140202, on left bank at point of diversion to New York State Erie (Barge) Canal, 1.6 mi downstream from Oneida Lake, and 2.6 mi upstream from navigation dam at Caughdeny.

DRAINAGE AREA.--1,382 mi²; 1902-9, 1,439 mi².

PERIOD OF RECORD.--September 1902 to December 1909 (published as "near Euclid"), January 1910 to December 1912, and October 1947 to current year in reports of Geological Survey. September 1902 to December 1909 and January 1910 to September 1925 in reports of State Engineer and Surveyor.

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Base gage: Water-stage recorder. Datum of gage is 360.98 ft above National Geodetic Vertical Datum of 1929 (362.00 ft Barge Canal datum). Prior to June 5, 1907, headwater readings, and June 5, 1907 to Dec. 31, 1909, nonrecording gage readings at former Oak Orchard State Dam 5.5 mi downstream at different datum. Jan. 1, 1910 to Dec. 31, 1912, nonrecording gage at site 2.5 mi downstream from present site at different datum. From Oct. 9, 1947 to Nov. 7, 1951, water-stage recorder at site 2.5 mi downstream at present datum.

Auxiliary gage: Water-stage recorder at site 2.5 mi downstream, 350 ft upstream from navigation dam at present datum (base gage site 1947-51).

Supplementary gage: Water-stage recorder at site 2.6 mi downstream, 180 ft downstream from navigation dam at present datum.

REMARKS.--No estimated daily discharges. Records fair. Jan. 1, 1910 to Dec. 31, 1912: Flow over dam computed on basis of coefficient determined for model of dam of same general type; flow through gate and diversion through lock culverts estimated by theoretical calculations.

1947 to current year: Record represents total discharge at Caughdeny, including flow in Oneida and Erie (Barge) Canals. Considerable seasonal regulation by operation of gates in Oneida and Erie (Barge) Canals with a large amount of natural storage in Oneida Lake. Occasional large diurnal fluctuations caused by seiche in Oneida Lake. Water may be diverted into or received from Mohawk River basin through summit level of Erie (Barge) Canal between New London and Utica. Nearly all of flow from 14 mi² of Tioughnioga River basin may be diverted into De Ruyter Reservoir, in Oswego River basin. Several measurements of water temperature were made during the year.

COOPERATION.--Records of gate openings, lockages, and elevations of water surface in Erie (Barge) Canal above and below Lock 23, furnished by New York State Department of Transportation.

AVERAGE DISCHARGE.--52 years (water years 1903-12, 1948-89), 2,529 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13,800 ft³/s, Mar. 25-27, 1903; minimum daily, 52 ft³/s, Oct. 24, 1910.

1947 to current year: Maximum daily discharge, 10,100 ft³/s, June 25, 1972; minimum daily, 62 ft³/s, July 29, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 6,370 ft³/s, Sept. 22; minimum daily, 95 ft³/s, Sept. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	702	3910	2230	2470	2020	2010	4400	341	1860	1320	502	175
2	682	3290	2220	2400	2070	1980	4980	324	1870	1290	213	168
3	652	3040	2220	2370	2130	1960	5250	395	1880	1280	195	158
4	665	3080	2230	2300	2150	1990	5380	952	1880	1280	209	152
5	674	3180	2220	2250	2140	1910	5520	1260	1880	1300	372	877
6	652	3040	2290	2210	2110	1900	5760	1270	2970	1320	486	1360
7	639	3760	2350	2170	2090	1870	5810	1370	3640	582	2960	1350
8	655	4500	2340	2110	2050	1870	5930	3140	3640	136	3800	1310
9	644	4680	2320	2080	2010	1830	5850	5040	3690	207	3800	1340
10	627	4780	2310	2090	2000	1800	5640	5790	3640	239	2740	1250
11	624	4620	2310	2050	1960	1790	5640	6000	3620	220	2020	742
12	628	4780	3190	2060	1920	1730	5560	6320	2210	195	2010	113
13	639	4690	3620	2010	1930	1740	5330	6340	1210	259	840	95
14	636	4600	3480	2050	1920	1730	5240	6300	1220	317	129	108
15	644	4600	3170	2040	1920	1700	5060	5900	2780	363	151	821
16	649	4600	3210	2040	1910	1790	4860	4830	3270	359	180	1580
17	639	4360	3120	2050	1920	1870	4830	4090	2580	279	207	3460
18	642	4270	3000	2060	1890	1960	4630	4070	2590	288	189	3390
19	642	4360	2920	2020	1870	2080	4560	2990	2500	355	208	2680
20	633	4310	2810	2020	1840	2180	4500	1860	3020	407	215	2750
21	650	4160	2670	2050	1870	2210	4380	1830	3920	1070	920	3470
22	668	4260	2640	2060	1970	2230	4220	1830	3900	1410	1430	6370
23	662	4230	2670	2020	2050	2250	4170	1830	3870	1380	1360	5810
24	3080	4180	2560	1960	2100	2280	1580	1830	3870	1370	1350	5880
25	4200	4150	2470	1970	2120	2260	274	1850	3870	1360	1390	4830
26	4180	4110	2470	1980	2130	2310	275	1850	2440	1340	1370	3880
27	4170	4030	2600	1950	2090	2400	282	1840	672	1090	1340	3840
28	4070	2900	2430	1980	2070	2520	281	1870	261	1000	641	3800
29	4000	2220	2510	1970	---	2750	282	1870	298	998	170	2730
30	3940	2240	2520	1970	---	3520	336	1850	672	967	183	1850
31	3960	---	2470	2000	---	3850	---	1850	---	958	185	---
TOTAL	46548	118930	81570	64760	56250	66270	120810	88882	75723	24939	31765	66339
MEAN	1502	3964	2631	2089	2009	2138	4027	2867	2524	804	1025	2211
MAX	4200	4780	3620	2470	2150	3850	5930	6340	3920	1410	3800	6370
MIN	624	2220	2220	1950	1840	1700	274	324	261	136	129	95
CAL YR	1988	TOTAL	644204	MEAN	1760	MAX	4900	MIN	206			
WTR YR	1989	TOTAL	842786	MEAN	2309	MAX	6370	MIN	95			

STREAMS TRIBUTARY TO LAKE ONTARIO
04248250 OSWEGO RIVER AT LOCK 5, MINETTO, NY

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LOCATION.--Lat 43°24'01", long 76°28'25", Oswego County, Hydrologic Unit 04140203, at bridge on Oswego River in Minetto, 0.1 mi upstream of lock 5.

DRAINAGE AREA.--5,097 mi²

PERIOD OF RECORD.-- Water years 1988 to current year

CHEMICAL DATA: 1988-89 (b).

MINOR ELEMENT DATA: 1988-89 (b).

REMARKS.--Water-discharge data are based on records for station 04249000 Oswego River at Lock 7 Oswego.

COOPERATION.--Water samples were collected by the New York State Department of Environmental Conservation, and were analyzed by the USGS Central Laboratory at Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)
OCT										
05	1215	1300	330	--	7.7	15.0	764	8.6	85	230
MAR										
28	0900	5390	723	7.9	--	5.5	751	14.2	115	220
APR										
12	1200	10300	582	7.6	--	5.0	761	13.3	105	210
MAY										
03	1000	3540	920	8.0	--	10.5	750	9.9	90	300
24	1200	11700	620	8.2	--	17.5	751	8.2	87	210
JUN										
14	1100	7360	709	7.5	--	19.5	755	7.0	77	210
JUL										
12	1200	1810	659	7.6	--	25.5	749	6.3	78	220
24	1500	3510	796	7.9	--	27.0	762	7.9	100	230
SEP										
20	1000	4400	689	7.9	--	19.5	762	7.3	80	210

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)
OCT									
05	68	15	79	2.9	112	88	150	0.1	400
MAR									
28	66	14	56	2.5	116	78	100	0.2	50
APR									
12	61	13	40	2.4	110	63	75	0.1	130
MAY									
03	92	18	78	3.4	150	98	150	0.2	100
24	62	13	49	2.4	128	60	84	0.1	430
JUN									
14	61	14	56	2.6	129	62	110	0.1	230
JUL									
12	63	14	54	2.7	125	66	100	0.2	170
24	68	14	65	2.9	123	76	130	0.1	190
SEP									
20	63	13	53	2.4	102	78	100	0.1	170

STREAMS TRIBUTARY TO LAKE ONTARIO
04248250 OSWEGO RIVER AT LOCK 5, MINETTO, NY
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 05	--	--	<1	--	8	670	--	--	<5
MAR 28	--	--	1	--	5	160	--	--	<5
APR 12	10	<1	1	5	7	270	12	<5	<5
MAY 03	--	--	<1	--	7	200	--	--	3
24	<10	<1	<1	6	7	650	25	<1	3
JUN 14	--	--	<1	--	7	360	--	--	3
JUL 12	--	--	1	--	15	220	--	--	3
24	--	--	9	--	8	310	--	--	4
SEP 20	--	--	<1	--	4	340	--	--	2

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT 05	80	--	<0.1	--	1	--	20	--	--
MAR 28	40	--	<0.1	--	5	--	<10	3	44
APR 12	40	3	<0.1	1	<1	11	10	9	250
MAY 03	60	--	<0.1	--	3	--	30	6	57
24	50	4	<0.1	6	3	14	10	23	727
JUN 14	60	--	<0.1	--	2	--	20	11	219
JUL 12	60	--	<0.1	--	3	--	20	5	24
24	60	--	<0.1	--	32	--	40	12	114
SEP 20	60	--	<0.1	--	2	--	10	--	--

STREAMS TRIBUTARY TO LAKE ONTARIO
04249000 OSWEGO RIVER AT LOCK 7, OSWEGO, NY
(National stream-quality accounting network station)

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LOCATION.--Lat 43°27'06", long 76°30'20", Oswego County, Hydrologic Unit 04140203, on right bank at New York State Barge Canal (Oswego Canal) Lock 7 in Oswego, 0.8 mi upstream from mouth. Water-quality sampling site at discharge station.

DRAINAGE AREA.--5,100 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1900 to April 1906, October 1933 to current year. Monthly discharge only for some periods, published in WSP 1307. Prior to January 1904, published as "above Minetto" or "near Minetto." January 1904 to April 1906, published as "at Battle Island." Records for April 1897 to September 1900, published in WSP 65 and for October 1927 to September 1928, published in WSP 644, have been found to be unreliable and should not be used.

REVISED RECORDS.--WDR NY 78-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 245.12 ft above National Geodetic Vertical Datum of 1929. Prior to 1933, nonrecording gage at site about 6 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records fair. Prior to 1933 and subsequent to 1972, flow in Oswego (Barge) Canal not included. A large amount of natural storage and some artificial regulation is afforded by the many large lakes and the Erie (Barge) and Oswego (Barge) Canal systems in the river basin. Large diurnal fluctuations at low and medium flow caused by powerplants upstream from station. Oswego River basin receives water from Erie (Barge) Canal through Lock 32 near Pittsford. Water may be diverted into or received from Mohawk River basin through Erie (Barge) Canal between New London and Utica. During part of year, entire flow from 45.5 mi² of Mud Creek drainage area may be diverted from Chemung River basin into Keuka Lake in Oswego River basin. Nearly all of the flow from 14 mi² of the Tioughnioga River basin may be diverted into De Ruyter Reservoir, in Oswego River basin. Telephone gage-height telemeter at station.

COOPERATION.--Records of lockages at Lock 7 furnished by New York State Department of Transportation, record of elevations of Lake Ontario by Corps of Engineers, daily discharge records for Oswego River High Dam upstream by Niagara Mohawk Power Corp.

AVERAGE DISCHARGE.--56 years (1933-89), 6,620 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,500 ft³/s, Mar. 28, 1936, includes daily mean discharge of canals; maximum gage height, 13.46 ft, Apr. 10, 1940; minimum discharge (river only), 30 ft³/s, Nov. 6, 1944; minimum daily, 261 ft³/s, Sept. 18, 1985; minimum gage height, 0.97 ft, Aug. 24, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 18,200 ft³/s, May 15; maximum gage height, 8.99 ft, May 15; minimum daily, 302 ft³/s, Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	5810	5100	4230	4550	3040	14800	2780	8080	7220	1340	1510
2	2810	5950	5140	4320	4470	3630	14200	2740	9540	7220	1390	1110
3	1380	6690	5240	3740	4350	3150	13800	3540	9430	6140	1270	724
4	1070	6910	5290	3460	3890	3070	14400	3880	9300	5510	1350	772
5	1300	6820	5510	3670	3650	3010	14700	5940	9120	4590	3030	885
6	2110	6690	5330	3400	3410	3840	15000	4890	9140	3770	3800	1550
7	1330	7250	4680	3360	3600	4340	15000	6940	9510	3200	3930	2650
8	953	8700	4510	3980	3580	3990	14800	10100	9750	1260	5520	1890
9	2210	8850	5020	3860	3270	3550	14200	12800	9770	1510	5960	1750
10	1280	8690	4940	4060	3500	3270	13300	14100	9880	1900	4460	2740
11	972	8630	5460	4260	2800	3390	11600	15300	9860	1740	2730	826
12	1290	8430	5490	3750	2890	2860	10300	16800	9480	1810	3150	1840
13	1250	8250	6120	3860	2880	2720	10100	17600	7370	1720	2870	1210
14	1950	7780	7200	3490	2980	2270	9140	17900	7360	1920	962	302
15	970	7280	6310	3190	3180	3620	9360	18200	7350	2260	788	2260
16	1060	8440	5000	3530	3310	4690	8880	18000	10100	2350	1130	2830
17	1300	7290	5250	3620	3540	4250	6590	17100	10100	1720	1190	3810
18	1590	7730	5340	3270	3150	4370	7280	16500	10200	1970	1310	5560
19	1970	8120	5060	3090	2260	4790	8000	15700	10300	1810	1190	4590
20	1070	8800	4880	3480	3160	5230	7790	14000	10100	3310	1230	4400
21	1670	8160	6020	3490	3290	5730	7240	13200	10900	3530	1550	6730
22	2140	7510	5580	3660	4270	5240	6380	12100	11500	3390	2360	9030
23	3710	8210	5270	3500	5340	4840	6130	11900	12000	3160	2960	10100
24	3720	7870	4300	3290	5740	4840	4020	11700	11900	3510	1520	10900
25	6830	7790	4270	3570	5110	4630	1270	11100	12000	2620	1210	11100
26	7280	7790	4120	3480	4440	4810	1390	10100	11200	3020	2570	8560
27	7240	7760	3400	3260	3520	5450	1510	9810	8490	1970	1850	7730
28	6820	7470	3670	3730	3020	5390	1750	7760	7920	2260	1360	6550
29	5260	5270	4510	3710	---	6950	1610	9410	6790	2820	812	4540
30	5830	5340	6170	4040	---	7400	1690	9130	7040	2530	1270	3900
31	5460	---	4920	4130	---	11300	---	8200	---	1420	1130	---
TOTAL	85215	226280	159100	113480	103150	139660	266230	349220	285480	93160	67192	122349
MEAN	2749	7543	5132	3661	3684	4505	8874	11270	9516	3005	2167	4078
MAX	7280	8850	7200	4320	5740	11300	15000	18200	12000	7220	5960	11100
MIN	953	5270	3400	3090	2260	2270	1270	2740	6790	1260	788	302
CAL YR	1988	TOTAL 1490373	MEAN 4072	MAX 12200	MIN 494							
WTR YR	1989	TOTAL 2010516	MEAN 5508	MAX 18200	MIN 302							

STREAMS TRIBUTARY TO LAKE ONTARIO
04249000 OSWEGO RIVER AT LOCK 7, OSWEGO, NY--Continued
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957, 1964-66, 1971 to current year.

CHEMICAL DATA: 1957 (a), 1958-60 (a) unpublished, 1984 (b), 1965 (c), 1966 (a), 1971-72 (a), 1974 (a), 1975 (c), 1976-81 (d), 1982 (c), 1983-89 (b).

MINOR ELEMENTS DATA: 1971-73 (a), 1975 (b), 1976 (a), 1977-89 (b).

ORGANIC DATA: OC--1975 (b), 1978-81 (d).

NUTRIENT DATA: 1971 (a), 1974 (a), 1975 (c), 1976-81 (d), 1982 (c), 1983-89 (b).

BIOLOGICAL DATA:

Bacteria--1974 (a), 1975 (c), 1976-81 (d), 1982 (c), 1983-89 (b).

Phytoplankton--1974 (a), 1975 (c), 1976 (d), 1977-81 (c).

Periphyton--1975-80 (a).

SEDIMENT DATA: 1974 (a), 1975 (c), 1976 (d), 1977 (b), 1978-79 (c), 1980-81 (d), 1982 (c), 1983-89 (b).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1975 to September 1981.

WATER TEMPERATURES: July 1975 to September 1981

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (Water years 1975-78, 1981): Maximum recorded, 2,290 microsiemens Oct. 25, 1980; minimum recorded, 430 microsiemens Apr. 19, 1976.

WATER TEMPERATURES (Water years 1975-78, 1981): Minimum, 0.0 C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
02	0900	5800	541	7.97	8.0	4.3	742	10.6	92	4100	490
MAR											
15	0900	2880	735	8.12	4.5	1.6	745	13.7	109	K170	K53
JUN											
29	0900	5920	708	8.07	23.5	5.1	767	7.6	89	K1700	--
AUG											
22	0900	1370	867	7.87	23.5	4.7	761	7.2	85	K730	K4

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV											
02	190	80	56	12	33	1.9	108	66	60	0.1	0.30
MAR											
15	250	110	73	15	57	2.5	140	88	110	0.2	0.78
JUN											
29	220	54	66	14	55	2.9	168	60	100	0.1	2.2
AUG											
22	230	110	66	15	76	3.1	123	86	150	0.2	0.08

K. Results based on colony count outside the ideal range (non-ideal colony count).

STREAMS TRIBUTARY TO LAKE ONTARIO

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04249000 OSWEGO RIVER AT LOCK 7, OSWEGO, NY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)
NOV 02.....	316	297	0.16	0.12	0.11	0.02	0.5	0.04	0.03	<0.01
MAR 15.....	438	433	0.68	0.22	0.23	0.01	0.6	0.03	0.01	<0.01
JUN 29.....	430	407	0.89	0.14	0.13	0.06	0.6	0.05	0.02	<0.01
AUG 22.....	463	471	0.17	0.07	0.07	0.02	1.5	0.11	0.01	<0.01

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 02.....	<10	1	40	<0.5	4	<1	<3	<1	10	<5
MAR 15.....	<10	<1	45	<0.5	<1	<1	<3	1	14	<5
JUN 29.....	20	<1	42	<0.5	<1	<1	<3	2	10	<1
AUG 22.....	10	<1	30	<0.5	<1	<1	<3	1	9	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 02.....	9	6	<0.1	<10	1	<1	<1.0	720	<6	3
MAR 15.....	16	13	<0.1	<10	3	<1	<1.0	850	<6	9
JUN 29.....	12	5	<0.1	<10	3	<1	<1.0	590	<6	3
AUG 22.....	15	8	<0.1	<10	1	<1	<1.0	840	<6	11

STREAMS TRIBUTARY TO LAKE ONTARIO

04249000 OSWEGO RIVER AT LOCK 7, OSWEGO, NY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
NOV								
02.....	0905	20	11.4	3.0	532	7.97	9.0	10.2
02.....	0910	20	11.4	7.0	530	7.95	9.0	9.9
02.....	0915	50	12.5	3.0	536	7.87	9.0	10.1
02.....	0920	50	12.5	7.0	540	7.92	9.0	10.3
02.....	0925	80	11.7	3.0	528	7.96	9.0	10.1
02.....	0930	80	11.7	7.0	531	7.90	9.0	10.3
02.....	0935	180	4.7	2.0	533	7.93	9.0	10.4
MAR								
15.....	0905	20	10.3	3.0	735	--	4.5	13.7
15.....	0910	20	10.3	7.0	739	--	4.0	13.5
15.....	0915	50	11.5	3.0	742	--	4.5	13.6
15.....	0920	50	11.5	7.0	737	--	4.5	13.7
15.....	0925	80	10.6	3.0	736	--	4.5	13.9
15.....	0930	80	10.6	7.0	735	--	4.5	13.4
15.....	0935	180	3.5	2.0	740	--	5.0	12.9
JUN								
29.....	0905	20	11.7	3.0	708	8.07	23.5	7.6
29.....	0910	20	11.7	7.0	704	8.10	23.5	7.7
29.....	0915	50	12.4	3.0	706	8.05	23.5	7.8
29.....	0920	50	12.4	7.0	714	8.09	23.0	7.5
29.....	0925	80	11.9	3.0	721	8.11	23.5	7.4
29.....	0930	80	11.9	7.0	707	8.05	23.5	7.6
29.....	0935	180	4.7	2.0	711	8.13	24.5	8.1
AUG								
22.....	0905	20	11.5	3.0	867	7.87	23.5	7.2
22.....	0910	20	11.5	7.0	870	7.84	23.5	7.4
22.....	0915	50	12.3	3.0	871	7.85	23.5	7.1
22.....	0920	50	12.3	7.0	873	7.89	23.0	7.6
22.....	0925	80	12.0	3.0	865	7.86	23.0	7.3
22.....	0930	80	12.0	7.0	866	7.91	23.5	7.4

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV					
02.....	0900	5800	9	141	89
MAR					
15.....	0900	2880	3	23	68
JUN					
29.....	0900	5920	13	208	96
AUG					
22.....	0900	1370	10	37	95

STREAMS TRIBUTARY TO LAKE ONTARIO
LAKES AND RESERVOIRS IN STREAMS TRIBUTARY TO LAKE ONTARIO

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- 04224000 MOUNT MORRIS LAKE NEAR MOUNT MORRIS, NY (see station for daily mean elevation, skeleton capacity table, monthly contents, and change in contents).
- 04227980 CONESUS LAKE NEAR LAKEVILLE, NY (see station for daily mean elevation).
- 04228845 HONEOYE LAKE NEAR HONEOYE, NY (see station for daily mean elevation).
- 04232400 SENECA LAKE AT WATKINS GLEN, NY (see station for daily mean elevation).
- 04232450 KEUKA INLET (KEUKA LAKE) AT HAMMONDSPORT, NY (see station for daily mean elevation).
- 04233500 CAYUGA INLET (CAYUGA LAKE) AT ITHACA, NY (see station for daily mean elevation).
- 04234500 CANANDAIGUA LAKE AT CANANDAIGUA, NY (see station for daily mean elevation).
- 04235396 OWASCO LAKE NEAR AUBURN, NY (see station for daily elevation).
- 04236000 SKANEATELES LAKE AT SKANEATELES, NY (see station for daily elevation).
- 04238500 ONONDAGA RESERVOIR NEAR NEDROW, NY (see station for daily mean elevation, skeleton capacity table, monthly contents, and change in contents).
- 04240495 ONONDAGA LAKE AT LIVERPOOL, NY (see station for daily mean elevation).
- 04246000 ONEIDA LAKE AT BREWERTON, NY (see station for daily mean elevation).

LAKE ONTARIO
04249010 LAKE ONTARIO AT OSWEGO, NY

LOCATION.--Lat 43°27'51", long 76°30'42" Oswego County, Hydrologic Unit 04150200, in southwest corner of Port of Oswego Authority building at mouth of Oswego River at Oswego.

DRAINAGE AREA.--295,800 mi².

PERIOD OF RECORD.--January 1860 to current year. Records prior to October 1960 in files of Lake Survey Center.

GAGE.--Water-stage recorder. Elevations are in feet International Great Lakes Datum (IGLD) of 1955. Prior to Jan. 1, 1933, nonrecording gages.

COOPERATION.--Records furnished by U.S. Department of Commerce, NOAA-NOS, Lake Survey Center, Detroit, Mich.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 248.96 ft, June 6, 1952; minimum observed, 240.94 ft, Dec. 23, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 246.70 ft, June 28; minimum, 242.63 ft, Mar. 18.

ELEVATION (FEET IGLD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244.15	243.91	244.05	243.57	243.75	243.72	243.97	244.92	245.96	246.49	245.82	245.34
2	244.22	244.24	244.15	243.70	243.74	243.60	243.92	245.04	246.05	246.48	245.82	245.39
3	244.18	244.05	244.09	243.68	243.82	243.45	243.97	245.05	246.06	246.45	245.85	245.30
4	244.13	243.87	244.10	243.70	243.73	243.38	244.05	245.00	246.11	246.44	245.90	245.22
5	244.22	243.86	243.89	243.58	243.74	243.53	244.15	244.97	246.08	246.41	245.96	245.14
6	244.22	243.97	243.89	243.48	243.79	243.48	244.25	245.10	246.08	246.38	245.97	245.15
7	244.18	244.02	243.97	243.46	243.81	243.40	244.34	245.25	246.06	246.38	245.98	245.11
8	244.20	244.02	243.92	243.74	243.94	243.39	244.34	245.25	246.08	246.34	245.94	245.08
9	244.16	244.05	243.95	243.77	243.94	243.44	244.41	245.26	246.08	246.32	245.83	245.08
10	244.14	244.01	243.89	243.57	243.79	243.43	244.50	245.32	246.22	246.39	245.76	245.13
11	244.36	244.17	243.87	243.63	243.78	243.39	244.49	245.41	246.22	246.40	245.74	245.12
12	244.33	243.97	243.74	243.55	243.85	243.44	244.47	245.44	246.16	246.35	245.69	245.10
13	244.28	243.99	243.67	243.82	243.57	243.37	244.58	245.47	246.16	246.31	245.65	245.09
14	244.14	244.09	243.66	243.58	243.69	243.34	244.56	245.50	246.14	246.29	245.65	244.99
15	244.05	244.02	244.06	243.66	243.67	243.44	244.62	245.55	246.15	246.23	245.64	244.95
16	244.00	243.94	243.73	243.70	243.81	243.47	244.65	245.60	246.18	246.16	245.71	244.86
17	243.98	244.18	243.70	243.72	243.66	243.45	244.66	245.64	246.23	246.13	245.67	244.91
18	244.06	244.15	243.70	243.61	243.61	243.52	244.76	245.67	246.24	246.10	245.59	244.87
19	244.07	243.95	243.58	243.66	243.61	243.57	244.76	245.68	246.27	246.07	245.52	244.83
20	244.02	244.05	243.58	243.80	243.57	243.50	244.76	245.70	246.32	246.04	245.49	244.86
21	243.86	244.22	243.76	243.70	243.59	243.67	244.83	245.76	246.37	245.98	245.56	244.83
22	244.08	244.07	243.59	243.63	243.65	243.58	244.86	245.75	246.42	245.98	245.50	244.84
23	243.98	244.06	243.48	243.61	243.64	243.51	244.85	245.77	246.47	245.93	245.56	245.21
24	243.97	244.03	243.62	243.66	243.59	243.50	244.87	245.81	246.48	245.92	245.49	245.04
25	244.05	244.00	243.82	243.56	243.53	243.58	244.84	245.76	246.49	245.92	245.40	244.89
26	244.07	243.97	243.71	243.65	243.52	243.56	244.87	245.83	246.48	245.95	245.37	245.01
27	244.00	243.96	243.48	243.80	243.57	243.57	244.87	245.89	246.50	245.99	245.30	244.92
28	244.14	244.10	243.78	243.69	243.53	243.63	244.88	245.87	246.60	246.06	245.26	244.85
29	244.14	244.07	243.72	243.69	---	243.69	244.86	245.84	246.58	246.02	245.21	244.88
30	244.09	243.98	243.64	243.75	---	243.70	244.90	245.86	246.53	245.96	245.36	244.83
31	243.96	---	243.72	243.71	---	243.87	---	245.93	---	245.87	245.30	---
MEAN	244.11	244.03	243.79	243.66	243.70	243.52	244.56	245.51	246.26	246.19	245.63	245.03
MAX	244.36	244.24	244.15	243.82	243.94	243.87	244.90	245.93	246.60	246.49	245.98	245.39
MIN	243.86	243.86	243.48	243.46	243.52	243.34	243.92	244.92	245.96	245.87	245.21	244.83
CAL YR	1988	MEAN	244.50	MAX	245.40	MIN	243.48					
WTR YR	1989	MEAN	244.67	MAX	246.60	MIN	243.34					

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in the following table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a second table.

Crest-stage partial-record stations

The following table contains annual maximum stage and discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1989

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Susquehanna River basin							
01497805	Little Elk Creek near Westford, NY	Lat 42°38'01", long 74°47'45", Otsego County, Hydrologic Unit 02050101, at culvert on Greenbush Road, 1.2 mi south of Westford, and 2.2 mi upstream from mouth.	3.73	1978-89	5-11-89	16.03	78
01498620	Susquehanna River southwest of Oneonta, NY	Lat 42°26'24", long 75°06'01", Otsego County, Hydrologic Unit 02050101, on right bank at the downstream side of bridge on County Highway 48B, at Oneonta, and 1.7 mi upstream from Otego Creek.	678	1988-89	5- 6-89	7.79	7,000
01502632	Susquehanna River at Bainbridge, NY	Lat 42°17'29", long 75°28'36", Chenango County, Hydrologic Unit 02050101, on right bank at the downstream side of bridge on State highway 206 over the Susquehanna River, at Bainbridge.	1,610	1988-89	5- 7-89	13.45	18,900
01502701	Susquehanna River at Afton, NY	Lat 42°13'38", long 75°31'27", Chenango County, Hydrologic Unit 02050101, on right bank at the downstream side of bridge on State Highway 41, 0.1 mi southeast of Afton and intersection of State Highways 7 and 41, and 0.2 mi downstream from Kelsey Brook.	1,716	1972,77, 1979-89	5- 7-89	11.40	19,100
01502731	Susquehanna River at Windsor, NY	Lat 42°04'28", long 75°38'17", Broome County, Hydrologic Unit 02050101, on right bank at downstream side of bridge on County Highway 315 over the Susquehanna River, at Windsor.	1,820	1988-89	5- 7-89	13.39	19,900
01503495	Susquehanna River at Binghamton, NY	Lat 42°06'03", long 75°55'51", Broome County, Hydrologic Unit 02050101, on right bank at the upstream side of bridge on State Highway 7 over the Susquehanna River, at Binghamton.	2,265	1988-89	5- 7-89	7.57	25,800

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES
Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Susquehanna River basin--Continued							
01503980	Chenango River at Eaton, NY	Lat 42°51'02", long 75°36'21", Madison County, Hydrologic Unit 02050102, at bridge on Landon Road at Eaton, 0.1 mi upstream from Eaton Brook, and 0.1 mi downstream from State Highway 26.	24.3	1964-65, 1967-89	11- 6-88	7.06	630
01507000	Chenango River at Greene, NY	Lat 42°19'28", long 75°46'18", Chenango County, Hydrologic Unit 02050102, on left bank 1,700 ft downstream from bridge on State Highway 206 at Greene, and 0.6 mi downstream from Birdsall Creek.	593	1937-70‡, 1971-89	5-11-89	10.95	6,740
01508803	West Branch Tioughnioga River at Homer, NY	Lat 42°38'18", long 76°10'36", Cortland County, Hydrologic Unit 02050102, on left bank at downstream side of bridge on Wall Street at Homer and 3.4 mi upstream from confluence with East Branch.	71.5	1967-68‡, 1973-86‡, 1987-89	5-11-89	4.76	695
01509520	Tioughnioga River at Lisle, NY	Lat 42°20'58", long 75°59'58", Broome County, Hydrologic Unit 02050102, on left bank 50 ft downstream from bridge on State Highway 79, at Lisle, and 2.3 mi upstream from Otselic River.	470	1988-89	3-31-89	5.12	5,070
01510610	Merrill Creek tributary near Texas Valley, NY	Lat 42°28'03", long 75°59'19", Cortland County, Hydrologic Unit 02050102, at bridge on town road, 0.3 mi upstream from mouth, and 1.4 mi southwest of Texas Valley.	5.32	1976-81, 1983-89	3-30-89	1.14	292
01511500	Tioughnioga River at Itaska, NY	Lat 42°17'53", long 75°54'33", Broome County, Hydrologic Unit 02050102, on right bank at Itaska, 3.8 mi downstream from Otselic River and village of Whitney Point, and 6 mi upstream from mouth.	730	1930-67‡, 1968-89	5-12-89	6.74	7,480
01513500	Susquehanna River at Vestal, NY	Lat 42°05'27", long 76°03'23", Broome County, Hydrologic Unit 02050103, on left bank 400 ft downstream from highway bridge, at Vestal, and 800 ft upstream from Choconut Creek.	3,941	1936, 1937-67‡, 1968-72, 1974-89	5-11-89	17.67	41,600
01513831	Susquehanna River at Owego, NY	Lat 42°06'05", long 76°15'41", Tioga County, Hydrologic Unit 02050103, on left bank at the upstream side of bridge on State Highway 96 over the Susquehanna River, at Owego.	4,216	1988-89	R5-20-88 5-11-89	R24.69 25.39	R39,200 41,800

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES
Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

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Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Susquehanna River basin--Continued							
01514000	Owego Creek near Owego, NY	Lat 42°07'45", long 76°16'15", Tioga County, Hydrologic Unit 02050103, on right bank of right channel 300 ft upstream from bridge on State Highway 96, 0.5 mi upstream from Catatonk Creek, and 1.5 mi north of Owego.	185	1930-78‡, 1979-89	5-11-89	6.78	4,620
01514801	Catatonk Creek near Owego, NY	Lat 42°08'18", long 76°17'23", Tioga County, Hydrologic Unit 02050103, on right bank 0.4 mi downstream from bridge on County Highway 23, 1.2 mi upstream from mouth, and 1.4 mi north of Owego.	151	1988-89	12-23-87 5-11-89	7.96 9.47	R1,910 2,980
01521596	Big Creek near Howard, NY	Lat 42°22'01", long 77°34'33", Steuben County, Hydrologic Unit 02050104, at culvert on town road, 0.1 mi south of State Highway 70, 1.3 mi north of Butch Corner, 3.4 mi west of Howard, and 6.2 mi upstream from mouth.	6.32	1977-89	6-21-89	15.95	549
01525500	Canisteo River at West Cameron, NY	Lat 42°13'20", long 77°25'05", Steuben County, Hydrologic Unit 02050104, on right bank 250 ft downstream from bridge on County Highway 119, 0.3 mi southeast of West Cameron, and 1.7 mi north of Cameron.	340	1930-31‡, 1937-70‡, 1971-72, 1974-89	6-21-89	15.10	11,600
01525981	Tuscarora Creek above South Addison, NY	Lat 42°04'20", long 77°17'57", Steuben County, Hydrologic Unit 02050104, on right bank 500 ft downstream from bridge on State Highway 417, 200 ft upstream from Elk Creek, and 1.7 mi southwest of South Addison.	102	1989	6-20-89	9.28	7,800
01527000	Cohocton River at Cohocton, NY	Lat 42°30'00", long 77°30'02", Steuben County, Hydrologic Unit 02050105, on left bank 450 ft downstream from bridge on U.S. Highway 15 at Cohocton, 800 ft downstream from small tributary, and 1.4 mi upstream from Reynolds Creek.	52.2	1951-81‡, 1982-89	5-11-89	4.82	371
01528320	Cohocton River at Bath, NY	Lat 42°20'36", long 77°20'39", Steuben County, Hydrologic Unit 02050104, on left bank 150 ft upstream from bridge on Veterans Avenue at Bath and 0.6 mi downstream from Harrisburg Hollow Creek.	340	1988-89	6-21-89	9.24	5,320

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES
Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Susquehanna River basin--Continued							
01530301	Cuthrie Run near Big Flats, NY	Lat 42°10'43", long 75°55'32", Chemung County, Hydrologic Unit 02050105, at culvert on Breed Hollow Road, 0.9 mi north of intersection of Eachers Hollow Road and Breed Hollow Road, 2.3 mi north of State Highway 17, and 3.0 mi north of Big Flats.	5.39	1976, 1979-81, 1983-89	3-30-89	14.19	172
01530332	Chemung River at Elmira, NY	Lat 42°05'11", long 76°48'05", Chemung County, Hydrologic Unit 02050105, on right bank 350 ft upstream from bridge on Pennsylvania Avenue at the north end of George Place, at Elmira, and 1.0 mi downstream from Hoffman Brook.	2,170	1988-89	5-11-89	12.06	30,800
Allegheny River basin							
03010734	Ischua Creek tributary near Machias, NY	Lat 42°24'28", long 78°33'33", Cattaraugus County, Hydrologic Unit 05010001, at culvert on Very Road, 0.2 mi upstream from mouth, 0.7 mi north of State Highway 242, and 1.5 mi west of Machias.	5.12	1978-81, 1983-89	6-23-89	10.41	393
03010800	Olean Creek near Olean, NY	Lat 42°07'12", long 78°25'12", Cattaraugus County, Hydrologic Unit 05010001, on right bank at upstream side of highway bridge, 1,000 ft west of State Highway 16, 1.4 mi northeast of Olean, and 4.6 mi upstream from mouth.	198	1958-68‡, 1969-89	6-22-89	9.07	3,890
03011000	Great Valley Creek near Salamanca, NY	Lat 42°10'28", long 78°41'28", Cattaraugus County, Hydrologic Unit 05010001, at bridge on old State Highway 98, 275 ft upstream from bridge on U. S. Highway 219, 1.5 mi northeast of Salamanca, and 2.1 mi upstream from mouth.	137	1951-68‡, 1972, 1977-89	6-22-89	18.16	9,910
03013110	Hatch Creek at Gerry, NY	Lat 42°11'42", long 79°15'03", Chautauqua County, Hydrologic Unit 05010002, at bridge on State Highway 60 in Gerry, and 1.2 mi upstream from mouth.	6.11	1979b, 1984b, 1986, 1989	10-18-88	26.69	1,290
03013800	Ball Creek at Stow, NY	Lat 42°09'13", long 79°24'27", Chautauqua County, Hydrologic Unit 05010002, on left bank 75 ft upstream from bridge on State Highway 394 at Stow, and 0.4 mi upstream from mouth.	9.06	1955-64‡, 1965, 1967-68b, 1974‡, 1975-89	10-18-88	18.33	1,190
Streams tributary to Lake Erie							
04213376	Canadaway Creek at Fredonia, NY	Lat 42°27'02", long 79°21'03", Chautauqua County, Hydrologic Unit 04120102, at bridge on Van Buren Road (Matteson Street), 0.8 mi northwest of Fredonia corporate boundary, and 1.2 mi upstream from Beaver Creek.	32.9	1962-63b, 1987-89	4- 5-87 4- 3-89	R4.65 3.81	c c

‡ Operated as a continuous-record gaging station.

§ Operated as a low-flow partial-record station.

b Miscellaneous measurements made.

c Discharge not determined.

R Revised.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES
Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

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Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Streams tributary to Lake Erie--Continued							
04213490	South Branch Cattaraugus Creek near Otto, NY	Lat 42°21'54", long 78°48'04", Cattaraugus County, Hydrologic Unit 04120102, at highway bridge, 0.2 mi upstream from Mansfield Creek, 1.7 mi northeast of Otto, and 5.5 mi upstream from mouth.	25.1	1963-89	6-23-89	6.07	1,450
0421402003	Cattaraugus Creek at Sunset Bay below Irving, NY	Lat 42°33'52", long 79°07'47", Cattaraugus County, Hydrologic Unit 04120102, on left bank at east end of Erie Street in Sunset Bay, at mouth of unnamed tributary, and 0.9 mi west of Irving.	557	1985-89	11-10-88	6.09	d
0421402004	Cattaraugus Creek at Sunset Bay near Silver Creek, NY	Lat 42°34'05", long 79°08'09", Cattaraugus County, Hydrologic Unit 04120102, on left bank at Sunset Bay, at north end of Allegany Road, and 1.9 mi northeast of Silver Creek.	558	1985-89	11-10-88	6.30	d
Streams tributary to Niagara River							
04216212	Delaware Park Lake at Buffalo, NY	Lat 42°56'03", long 78°52'28", Erie County, Hydrologic Unit 04120104, on north shore of Delaware Park Lake at downstream side of bridge on Scajaquada Expressway (SH 198), and 1.7 mi upstream from mouth of Scajaquada Creek.	1.14	1985-89	6- 9-89	8.70	d
04216214	Scajaquada Creek below Delaware Park Lake at Buffalo, NY	Lat 42°56'15", long 78°53'07", Erie County, Hydrologic Unit 04120104, on left bank, 400 ft east of Grant Street (North) exit from Scajaquada Expressway (SH 198), at Buffalo.	25.7	1985-89	6- 9-89	7.90	d
Streams tributary to Lake Ontario							
04219900	Johnson Creek near Lyndonville, NY	Lat 43°20'21", long 78°20'55", Orleans County, Hydrologic Unit 04130001, at bridge on Woodworth Road, 3.3 mi downstream from dam at Lyndonville, and 4.4 mi upstream from mouth.	87.7	1962-70, 1972-73, 1976-89	6-23-89	6.94	1,840
04221769	Black Creek at Hyder Flats Road at Black Creek, NY	Lat 42°16'03", long 78°13'38", Allegany County, Hydrologic Unit 04130002, at culvert on Hyder Flats Road, 0.6 mi south of Black Creek, and 11.3 mi upstream from mouth.	10.7	1978-89	3-31-89 6-21-89	5.73 7.06	1,070 760
04224807	Stony Brook tributary at South Dansville, NY	Lat 42°28'16", long 77°40'21", Steuben County, Hydrologic Unit 04130002, at culvert on Willey Road, 0.6 mi upstream from mouth, and 0.9 mi west of South Dansville.	3.15	1977-82, 1984-89	6-20-89	11.64	329

d No stage-discharge relationship defined at this site.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES
Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Streams tributary to Lake Ontario--Continued							
042320578	Bear Creek at Ontario, NY	Lat 43°13'30", long 77°17'00", Wayne County, Hydrologic Unit 04140101, at culvert on New Street in Ontario, 100 ft west of Furnaceville Road, and 4.0 mi upstream from mouth.	6.74	1971-73, 1975-89	4- 1-89	11.35	59
04232200	Catharine Creek at Montour Falls, NY	Lat 42°19'42", long 76°50'39", Schuyler County, Hydrologic Unit 04140201, on left bank 12 ft downstream from bridge on Town Road, 0.4 mi south of village line of Montour Falls, and 0.6 mi upstream from diversion channel.	41.1	1957-62§, 1964-66§, 1970§, 1976-77‡, 1987-89	5-11-89	4.95	425
04232460	Sugar Creek at Guyanoga, NY	Lat 42°37'23", long 77°09'30", Yates County, Hydrologic Unit 04140201, at bridge on Sid White Road, 0.4 mi east of Guyanoga, and 2.3 mi upstream from mouth.	28.9	1966-89	5-11-89	4.04	321
04232630	Kendig Creek near MacDougall, NY	Lat 42°50'57", long 76°53'33", Seneca County, Hydrologic Unit 04140201, at downstream side of bridge on County Highway 120, 3.0 mi north of MacDougall, 3.5 mi southwest of Waterloo, and 4.6 mi upstream from mouth.	13.8	1965-68‡, 1969-89	5-11-89	5.01	450
04233255	Cayuga Inlet at Ithaca, NY	Lat 42°25'38", long 76°31'19", Tompkins County, Hydrologic Unit 04140201, on upstream abutment face of flood-control weir, at east end of Burr Place, south of Ithaca city line, 0.3 mi east of State Highway 13a, 0.9 mi downstream from Buttermilk Creek, and 2.4 mi upstream from mouth.	86.7	1971-72, 1975-89	5-11-89	8.16	2,110
04233258	Coy Glen Creek at Ithaca, NY	Lat 42°25'45", long 76°31'18", Tompkins County, Hydrologic Unit 04140201, on right bank at double drop structure 200 ft upstream from mouth at Ithaca.	3.56	1983-89	3-30-89	18.46	104
04234138	Schaeffer Creek near Canandaigua, NY	Lat 42°54'25", long 72°22'14", Ontario County, Hydrologic Unit 04140201, at culvert on McCann Road, 0.8 mi upstream from Mud Creek, 1.7 mi north of U.S. Highway 20, and 3.2 mi west of Canandaigua.	7.84	1980-89	6-21-89	10.56	149
04234200	Mud Creek at East Victor, NY	Lat 42°58'28", long 77°22'58", Ontario County, Hydrologic Unit 04140201, 25 ft downstream from bridge on State Highway 96 at East Victor, 0.3 mi upstream from Fish Creek, and 0.5 mi upstream from mouth.	64.2	1958-68‡, 1972, 1976-89	4- 1-89	4.88	736

‡ Operated as a continuous-record gaging station.

§ Operated as a low-flow partial-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES
Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

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Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Streams tributary to Lake Ontario--Continued							
04235255	Canandaigua Outlet tributary near Alloway, NY	Lat 43°00'21", long 77°00'54", Ontario County, Hydrologic Unit 04140201, at bridge on Pre-Emption Road, 0.5 mi south of Wayne-Ontario County line, 1.8 mi southwest of Alloway, and 2.9 mi upstream from mouth.	2.94	1978-89	5-12-89	5.50	35
04245000	Limestone Creek at Fayetteville, NY	Lat 43°01'48", long 76°00'49", Onondaga County, Hydrologic Unit 04140202, on left bank, 100 ft downstream from bridge on Genesee Street at Fayetteville, and 8 mi upstream from mouth.	85.5	1940-86‡, 1987-89	9-20-89	4.12	1,130
04245840	Scriba Creek near Constantia, NY	Lat 43°15'35" long 76°00'11", Oswego County, Hydrologic Unit 04140202, on right bank, 8 ft upstream from road to Ingersol Road, and about 0.8 mi north of village of Constantia.	38.4	1966-68‡, 1969, 1971-89	4- 1-89	5.02	508
04249050	Catfish Creek at New Haven, NY	Lat 43°29'00", long 76°19'34", Oswego County, Hydrologic Unit 04140102, at bridge on State Highway 104B, at New Haven, and 1.4 mi upstream from mouth.	31.7	1962-66, 1968-89	4- 1-89	4.94	385

Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Susquehanna River basin						
*01498620 Susquehanna River	Atlantic Ocean	Lat 42°26'24", long 75°06'01", Otsego County, Hydrologic Unit 02050101, on right bank at the downstream side of bridge on County Highway 48B, at Oneonta, and 1.7 mi upstream from Otsego Creek.	678	1988	11- 9-88	2,370
					12- 13-88	617
					2- 14-89	305
					4- 5-89	3,040
					4- 7-89	4,280
					6- 7-89	1,180
8- 8-89	163					
*01502632 Susquehanna River	Atlantic Ocean	Lat 42°17'29", long 75°28'36", Chenango County, Hydrologic Unit 02050101, on right bank at the downstream side of bridge on State Highway 206 over the Susquehanna River, at Bainbridge.	1,610	1970-71, 1987-88	11- 3-88	3,230
					3- 21-89	2,080
					4- 4-89	8,810
					6- 15-89	6,980
					8- 9-89	611

‡ Operated as a continuous-record gaging station.

* Also a crest-stage partial-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Susquehanna River basin--Continued						
*01502701 Susquehanna River	Atlantic Ocean	Lat 42°13'38", long 75°31'27", Chenango County, Hydrologic Unit 02050101, on right bank at the downstream side of bridge on State Highway 41, 0.1 mi south- east of Afton and intersection of State Highways 7 and 41, and 0.2 mi downstream from Kelsey Brook.	1,716	1972, 77, 1979-80, 1982-83, 1985-86, 1988	11- 3-88 4- 4-89 5- 12-89 7- 3-89 8- 10-89	3,030 9,070 15,800 1,430 590
*01502731 Susquehanna River	Atlantic Ocean	Lat 42°04'28", long 75°38'17", Broome County, Hydrologic Unit 02050101, on right bank at the downstream side of the bridge on County Highway 315 over the Susquehanna River, at Windsor.	1,820	1987-88	10- 31-88 3- 30-89 6- 10-89 8- 10-89 8- 17-89	1,990 8,100 1,560 648 573
*01503495 Susquehanna River	Atlantic Ocean	Lat 42°06'03", long 75°55'51", Broome County, Hydrologic Unit 02050101, on right bank at the upstream side of bridge on State Highway 7 over the Susquehanna River, at Binghamton.	2,265	1987-88	10- 25-88 4- 3-89 6- 9-89 8- 2-89	2,930 12,800 3,610 821
*01507000 Chenango River	Susquehanna River	Lat 42°19'28", long 75°46'18", Chenango County, Hydrologic Unit 02050102, on left bank 1,700 ft downstream from bridge on State Highway 206, at Greene, and 0.6 mi downstream from Birdsall Creek.	593	1937-70‡, 1971-79, 1982-83, 1986, 1988	11- 3-88 2- 2-89 3- 21-89 7- 3-89 8- 3-89	915 1,140 808 397 144
*01509520 Tioughnioga River	Chenango River	Lat 42°20'58", long 75°59'58", Broome County, Hydologic Unit 02050102, on left bank 50 ft downstream from bridge on State Highway 79, at Lisle, and 2.3 mi upstream from Otselic River.	470	1987-88	10- 24-88 12- 19-88 2- 2-89 2- 15-89 3- 15-89 3- 31-89 4- 5-89 5- 24-89 6- 2-89 8- 3-89 8- 14-89	1,430 272 1,090 417 762 4,420 3,260 676 2,310 188 170
*01511500 Tioughnioga River	Chenango River	Lat 42°17'53", long 75°54'33", Broome County, Hydrologic Unit 02050102, on right bank at Itaska, 3.8 mi downstream from Otselic River and village of Whitney Point, and 6 mi up- stream from mouth.	730	1930-67‡, 1968-79, 1982-84, 1986-88	11- 4-88 12- 15-88 2- 15-89 3- 15-89 6- 22-89 8- 2-89	1,340 502 666 1,100 1,470 242
01512850 Chenango River	Susquehanna River	Lat 42°06'11", long 75°54'55", Broome County, Hydrologic Unit 02050102, at bridge on Clinton Street, at Binghamton, and 0.7 mi upstream from mouth.	1,602	1988	10- 25-88 5- 12-89 7- 10-89 8- 16-89	4,850 14,100 1,510 391

‡ Operated as a continuous-record gaging station.

* Also a crest-stage partial-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Susquehanna River basin--Continued						
*01513500 Susquehanna River	Atlantic Ocean	Lat 42°05'27", long 76°03'23", Broome County, Hydrologic Unit 02050103, on left bank 400 ft downstream from highway bridge, at Vestal, and 800 ft up- stream from Choconut Creek.	3,941	1937-67‡, 1968-78, 1980, 1982-83, 1986, 1988	10- 21-88 4- 5-89 6- 9-89 8- 17-89	752 22,500 6,540 1,090
*01513831 Susquehanna River	Atlantic Ocean	Lat 42°06'05", long 76°15'41", Tioga County, Hydrologic Unit 02050103, on left bank at the upstream side of bridge on State Highway 96 over the Susquehanna River, at Owego.	4,216	1987-88	10- 26-88 1- 31-89 3- 29-89 4- 11-89 5- 12-89 6- 8-89 8- 11-89	8,100 4,160 15,900 13,300 40,400 7,150 1,340
*01514000 Owego Creek	Susquehanna River	Lat 42°07'45", long 76°16'15", Tioga County, Hydrologic Unit 02050103, on right bank of right channel 300 ft upstream from bridge on State Highway 96, 0.5 mi upstream from Catatonk Creek, and 1.5 mi north of Owego.	185	1930-78‡, 1979-88	10- 24-88 3- 16-89 5- 25-89 8- 11-89	388 345 208 43.2
*01514801 Catatonk Creek	Susquehanna River	Lat 42°08'18", long 76°17'23", Tioga County, Hydrologic Unit 02050103, on right bank 0.4 mi downstream from bridge on County Highway 23, 1.2 mi up- stream from mouth, and 1.4 mi north of Owego.	151	1987-88	10- 20-88 12- 6-88 1- 31-89 3- 15-89 3- 31-89 4- 11-89 5- 11-89 6- 8-89 7- 25-89	16.0 79.6 87.9 122 1,960 309 2,900 135 41.5
01514937 Susquehanna River	Atlantic Ocean	Lat 42°01'41", long 76°23'07", Tioga County, Hydrologic Unit 02050103, at bridge on Route 282, 1.2 mi west of Nichols, and 1.2 mi east of Smithboro.	4,725	1988	10- 26-89 5- 12-89 5- 25-89 8- 14-89	8,320 45,500 7,990 1,420
01516000 Cayuta Creek	Susquehanna River	Lat 42°00'32", long 76°31'37", Tioga County, Hydrologic Unit 02050103, at bridge on Ithaca Street, at Waverly, and 2.4 mi up- stream from mouth.	137	1937, 1953-76, 1978-80, 1983, 1988	5- 12-89 9- 28-89	1,920 33.9
*01525500 Canisteo River	Tioga River	Lat 42°13'20", long 77°25'05", Steuben County, Hydrologic Unit 02050104, on right bank 250 ft downstream from bridge on County Highway 119, 0.3 mi southeast of West Cameron, and 1.7 mi north of Cameron.	340	1930-31‡, 1937-70‡, 1972-76, 1987, 1988	3- 30-89 4- 4-89 8- 1-89	2,970 1,440 74.8
01525981 Tuscarora Creek	Susquehanna River	Lat 42°04'20", long 77°17'57", Steuben County, Hydrologic Unit 02050104, on right bank 500 ft downstream from bridge on State Highway 417, 200 ft upstream from Elk Creek, and 1.7 mi southwest of South Addison.	102	1988	10- 18-88 11- 14-88 1- 18-89 3- 30-89 4- 1-89 4- 25-89 5- 11-89 6- 13-89 8- 1-89 9- 25-89	3.41 13.9 10.3 724 604 24.6 1,920 361 10.2 16.8

‡ Operated as a continuous-record gaging station.

* Also a crest-stage partial-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Susquehanna River basin--Continued						
01528320 Cohocton River	Chemung River	Lat 42°20'36", long 77°20'39" Steuben County, Hydrologic Unit 02050104, on left bank 150 ft upstream from bridge on Veterans Avenue, at Bath, and 0.6 mi downstream from Harrisburg Hollow Creek.	340	1988	10- 12-88	65.4
					11- 29-88	109
					1- 19-89	78.6
					3- 1-89	109
					3- 31-89	2,090
					4- 24-89	189
					5- 12-89	3,210
					6- 5-89	297
					7- 24-89	194
9- 19-89	173					
*01530301 Cuthrie Run	Sing Sing Creek	Lat 42°10'43", long 76°55'32", Chemung County, Hydrologic Unit 02050105, at culvert on Breed Hollow Road, 0.9 mi north of intersection of Eachers Hollow Road and Breed Hollow Road, 2.3 mi north of State Highway 17, and 3.0 mi north of Big Flats.	5.39	1976, 1983-84, 1988	3- 29-89	36.0
					3- 30-89	142
*01530332 Chemung River	Susquehanna River	Lat 42°04'11", long 76°48'05", Chemung County, Hydrologic Unit 02050105, on right bank 350 ft upstream from bridge on Pennsylvania Avenue at the north end of George Place, at Elmira, and 1.0 mi downstream from Hoffman Brook.	2,170	1988	10- 3-88	185
					11- 18-88	434
					1- 17-89	419
					3- 31-89	18,100
					4- 1-89	17,000
					7- 11-89	782
9- 28-89	439					
Ohio River Main Stem						
03010632 Allegheny River	Ohio River	Lat 42°01'05", long 78°20'31", Cattaraugus County, Hydrologic Unit 05010001, at bridge on West River Road, at Mill Grove and 0.9 mi upstream from Oswayo Creek.	638	--	4- 10-89	1,690
					4- 12-89	1,270
					6- 7-89	1,140
					6- 24-89	9,570
					7- 24-89	312
Streams tributary to Lake Erie						
*04213376 Canadaway Creek	Lake Erie	Lat 42°27'02", long 79°21'03", Chautauqua County, Hydrologic Unit 04120102, at bridge on Van Buren Road (Matteson Street), 0.8 mi northwest of Fredonia corporate boundary, and 1.2 mi upstream from Beaver Creek.	32.9	1962-63, 1973, 1988	10- 12-88	41.9
					11- 23-88	59.8
04214020 Cattaraugus Creek	Lake Erie	Lat 42°34'12", long 79°06'45", Erie County, Hydrologic Unit 04120102, at bridge on Buffalo Road, 0.1 mi north of Irving, and 1.5 mi upstream from mouth.	554	1963-64, 1975-76, 1988	10- 6-88	264
					11- 17-88	573
Streams tributary to Lake Ontario						
04219767 Eighteenmile Creek	Lake Ontario	Lat 43°16'43", long 78°42'32", Niagara County, Hydrologic Unit 04130001, at bridge on Jaques Road, at Corwin, and approximately 4.0 mi upstream from Lake Ontario.	75.4	--	5- 4-89	149
					5- 16-89	160
					7- 30-89	85.0
					8- 24-89	99.8

*Also a crest-stage partial-record station.

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Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Streams tributary to Lake Ontario--Continued						
0422016550 Oak Orchard Creek	Lake Ontario	Lat 43°18'04", long 78°18'39", Orleans County, Hydrologic Unit 04130001, at bridge on Knowlesville Road, 1.0 mi southwest of Kenyonville and 2.0 upstream from Otter Creek.	f	--	5- 4-89 6- 30-89 8- 24-89	310 744 215
04220250 West Creek	Lake Ontario	Lat 43°18'10", long 77°48'50", Monroe County, Hydrologic Unit 04130001, at bridge on Collamer Road, 0.5 mi north of Collamer, and 1.5 mi northwest of Hilton.	31.0	1957-65, 1968, 1972, 1988	3- 22-89 5- 04-89 9- 26-89	57.7 67.7 11.1
0422026250 Northrup Creek	Lake Ontario	Lat 43°15'13", long 77°43'33", Monroe county, Hydrologic Unit 04130001, at bridge on State Highway 18 and 0.5 mi west of North Greece.	11.7	1974, 1988	9- 26-89	14.7
0422028490 Slater Creek	Lake Ontario	Lat 43°15'10", long 77°38'55", Monroe County, Hydrologic Unit 04130001, at bridge on Latta Road, 0.6 mi upstream from Fleming Creek, and 3.9 mi northeast of Greece.	1.52	1988	10- 25-88 5- 4-89	0.28 0.96
04230520 Oatka Creek	Genesee River	Lat 43°00'33", long 77°45'57", Monroe County, Hydrologic Unit 04130003, at bridge on Bowerman Road, 0.5 mi south- west of Scottsville, and 2.7 mi upstream from mouth.	203	--	5- 12-89 6- 23-89	2,000 3,820
0423205025 Irondequoit Creek	Lake Ontario	Lat 43°10'34", long 77°31'37", Monroe County, Hydrologic Unit 04140101, on right bank 25 ft upstream of bridge on Empire Blvd., and 200 ft upstream of mouth of Irondequoit Bay.	151	1980-81	10- 26-88	84.3
042326305 Kendig Creek	Seneca River	Lat 42°52'20", long 76°53'55", Seneca County, Hydrologic Unit 04140201, on left bank 50 ft downstream from bridge on Marshall Road, 5.0 mi north of McDougall, 2.5 mi southwest of Waterloo, and 2.3 mi upstream from mouth.	14.1	--	3- 20-89 3- 27-89 3- 31-89 4- 18-89 5- 11-89 6- 29-89 8- 10-89	5.86 13.3 87.5 6.04 348 14.8 0.54
04237957 Onondaga Creek	Onondaga Lake	Lat 42°37'57", long 76°09'14", Onondaga County, Hydrologic Unit 04140201, at bridge on Webster Road, 0.4 mi south of Bailey's Settlement, and 13.5 mi upstream of Onondaga Lake.	f	--	5- 11-89 5- 11-89 5- 25-89 7- 28-89 9- 15-89	229 238 54.9 46.6 125

GROUND-WATER LEVELS

BROOME COUNTY

420646075531201. Local number, Bm 100.

LOCATION.--Lat 42°06'46", long 75°53'12", Hydrologic Unit 02050103, at Moeller and Frederick Streets, Binghamton. Owner: U.S. Geological Survey.

AQUIFER.--Water-table aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 52 ft, cased to 52 ft, slotted 40 ft to 45 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel, Oct. 1 to Feb. 27; digital recorder--60-minute punch Feb. 27 to Sept. 30.

DATUM.--Elevation of land-surface datum is 851.05 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of shelter base, 2.86 ft above land-surface datum.

REMARKS.--Lowest water level recorded on June 25, 1985 due to water-level decline for several hours, possibly from nearby pumping.

PERIOD OF RECORD.--October 1946 to July 1955, April 1966 to current year. Records for October 1946 to July 1955 (intermittent), April 1966 to April 1968 (intermittent) and May 1968 to September 1977 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.29 ft below land-surface datum, May 4, 1983; lowest, 13.18 ft below land-surface datum, June 25, 1985.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 10.17 ft below land-surface datum, May 20; lowest recorded, 12.13 ft below land-surface datum, Mar. 16, 19-20.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	11.98	11.57	11.18	10.47	10.61	11.12	11.64
2	---	---	---	---	---	11.99	11.50	11.11	10.48	10.64	11.13	11.68
3	---	---	---	---	---	11.99	11.39	11.11	10.52	10.67	11.15	11.72
4	---	---	---	---	---	12.00	11.34	11.12	10.52	10.70	11.17	11.74
5	---	---	---	---	---	11.98	11.32	11.09	10.55	10.68	11.17	11.74
6	---	---	---	---	---	12.01	11.24	11.03	10.54	10.65	11.17	11.74
7	---	---	---	---	---	12.03	11.18	10.92	10.57	10.64	11.18	11.76
8	---	---	---	---	---	12.04	11.13	10.82	10.58	10.64	11.20	11.77
9	---	---	---	---	---	12.03	11.11	10.77	10.59	10.64	11.23	11.79
10	---	---	---	---	---	12.03	11.11	10.69	10.60	10.64	11.25	11.81
11	---	---	---	---	---	12.02	11.09	10.57	10.65	10.69	11.26	11.84
12	---	---	---	---	---	12.04	11.06	10.43	10.66	10.72	11.26	11.86
13	---	---	---	---	---	12.05	11.04	10.35	10.63	10.72	11.28	11.87
14	---	---	---	---	---	12.05	11.03	10.28	10.67	10.76	11.30	11.87
15	---	---	---	---	---	12.05	11.01	10.23	10.64	10.81	11.31	11.87
16	---	---	---	---	---	12.12	11.01	10.21	10.58	10.83	11.34	11.87
17	---	---	---	---	---	12.11	11.02	10.20	10.52	10.84	11.38	11.84
18	---	---	---	---	---	12.08	11.01	10.21	10.49	10.88	11.42	11.87
19	---	---	---	---	---	12.12	11.02	10.20	10.47	10.90	11.41	11.86
20	---	---	---	---	---	12.09	11.03	10.18	10.47	10.90	11.41	11.79
21	---	---	---	---	---	12.06	11.03	10.20	10.47	10.93	11.42	11.74
22	---	---	---	---	---	12.10	11.04	10.23	10.47	10.94	11.46	11.68
23	---	---	---	---	---	12.08	11.05	10.24	10.48	10.96	11.47	11.69
24	---	---	---	---	---	12.03	11.07	10.24	10.48	10.98	11.52	11.72
25	---	---	---	---	---	11.94	11.08	10.27	10.48	11.01	11.53	11.68
26	---	---	---	---	---	11.89	11.09	10.29	10.48	11.02	11.54	11.66
27	11.78z	---	---	---	11.95	11.82	11.11	10.34	10.49	11.03	11.57	11.72
28	---	11.50z	---	---	11.97	11.77	11.13	10.39	10.52	11.03	11.58	11.71
29	---	---	11.89z	---	---	11.76	11.16	10.40	10.57	11.06	11.58	11.70
30	---	---	---	11.97z	---	11.70	11.17	10.40	10.60	11.07	11.60	11.76
31	---	---	---	---	---	11.61	---	10.44	---	11.10	11.65	---
MEAN	---	---	---	---	---	11.99	11.14	10.52	10.54	10.83	11.36	11.77
LOW	---	---	---	---	---	12.12	11.57	11.18	10.67	11.10	11.65	11.87
HIGH	---	---	---	---	---	11.61	11.01	10.18	10.47	10.61	11.12	11.64

z Measured by USGS personnel.

GROUND-WATER LEVELS
BROOME COUNTY

173

420657075583501. Local number, Bm 121.

LOCATION.--Lat 42°06'57", long 75°58'35", Hydrologic Unit 02050103, at Camden and Main Streets, Johnson City. Owner: U.S. Geological Survey.

AQUIFER.--Water-table aquifer in sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 53 ft, cased to 53 ft open end.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 833.62 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of shelter base, 3.42 ft above land-surface datum.

REMARKS.--Well cleaned from 46 ft, to original depth on Oct. 19, 1970. Water level affected by floods of Susquehanna River and by pumping from municipal well field 1,100 ft south.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.73 ft below land-surface datum, Apr. 8, 1956; lowest, 33.47 ft below land-surface datum, Sept. 23, 1965.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 20.69 ft below land-surface datum, May 13, but may have been higher during period of no water-level record May 13-31; lowest, 28.92 ft below land-surface datum, Sept. 16.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.38	27.22	24.71	26.66	27.15	26.65	23.77	25.92	24.44	24.47	27.01	28.32
2	27.40	27.20	24.77	26.68	27.07	26.71	22.82	25.98	24.47	24.65	27.08	28.37
3	27.42	27.17	24.83	26.71	26.97	26.78	22.37	25.90	24.35	24.86	27.14	28.41
4	27.47	27.10	24.91	26.77	26.88	26.85	22.22	25.76	24.32	25.06	27.19	28.45
5	27.50	26.95	24.98	26.84	26.83	26.89	22.16	25.69	24.32	25.17	27.24	28.50
6	27.55	26.84	25.03	26.93	26.80	26.91	22.01	25.62	24.35	25.19	27.26	28.55
7	27.62	26.43	25.11	27.05	26.78	26.91	21.86	24.95	24.41	25.18	27.23	28.60
8	27.66	25.81	25.22	27.12	26.78	26.93	21.87	23.78	24.44	25.09	27.18	28.66
9	27.67	25.33	25.31	27.15	26.82	26.97	22.04	22.99	24.48	25.01	27.17	28.72
10	27.70	25.06	25.40	27.14	26.87	27.03	22.28	22.66	24.55	25.08	27.22	28.77
11	27.76	24.96	25.52	27.14	26.92	27.09	22.52	22.25	24.56	25.20	27.27	28.81
12	27.81	24.97	25.64	27.16	26.96	27.14	22.76	21.36	24.52	25.33	27.32	28.83
13	27.84	25.01	25.77	27.19	26.97	27.18	22.97	---	24.56	25.43	27.36	28.85
14	27.87	25.01	25.92	27.20	26.99	27.22	23.20	---	24.59	25.54	27.40	28.88
15	27.91	24.99	26.04	27.20	27.04	27.28	23.42	---	24.45	25.68	27.44	28.89
16	27.96	24.92	26.16	27.21	27.05	27.29	23.62	---	24.11	25.81	27.49	28.91
17	28.01	24.93	26.26	27.19	26.99	27.16	23.80	---	23.60	25.93	27.54	28.89
18	28.05	25.00	26.36	27.15	26.97	27.07	23.96	---	23.17	26.05	27.59	28.88
19	28.10	25.01	26.46	27.16	27.00	26.99	24.13	---	22.99	26.16	27.65	28.86
20	28.15	25.00	26.55	27.19	27.06	26.89	24.30	---	23.03	26.28	27.71	28.78
21	28.19	24.90	26.62	27.23	27.09	26.85	24.45	---	23.17	26.35	27.75	28.64
22	28.21	24.67	26.69	27.25	26.99	26.89	24.61	---	23.32	26.38	27.80	28.49
23	28.18	24.44	26.74	27.27	26.69	26.94	24.76	---	23.44	26.37	27.85	28.43
24	28.03	24.36	26.76	27.30	26.50	26.98	24.91	---	23.50	26.40	27.90	28.34
25	27.87	24.36	26.78	27.33	26.44	26.83	25.06	---	23.46	26.45	27.94	28.23
26	27.62	24.40	26.77	27.35	26.44	26.47	25.22	---	23.49	26.55	27.99	28.16
27	27.41	24.48	26.73	27.38	26.52	26.10	25.36	---	23.65	26.68	28.04	28.16
28	27.32	24.58	26.73	27.37	26.59	25.89	25.51	---	23.88	26.80	28.10	28.17
29	27.27	24.66	26.75	27.31	---	25.70	25.65	---	24.11	26.87	28.15	28.21
30	27.25	24.66	26.69	27.27	---	25.41	25.79	---	24.29	26.91	28.21	28.27
31	27.23	---	26.64	27.22	---	24.78	---	24.32	---	26.95	28.26	---
MEAN	27.72	25.35	25.96	27.13	26.86	26.73	23.65	---	24.00	25.80	27.56	28.57
LOW	28.21	27.22	26.78	27.38	27.15	27.29	25.79	---	24.59	26.95	28.26	28.91
HIGH	27.23	24.36	24.71	26.66	26.44	24.78	21.86	---	22.99	24.47	27.01	28.16
CAL YR	1988	MEAN	25.76	HIGH	22.29	LOW	28.21					

GROUND-WATER LEVELS
BROOME COUNTY

421138075511301. Local number, Bm 128.

LOCATION.--Lat 42°11'38", long 75°51'13", Hydrologic Unit 02050102, at end of Jeffery Drive on Chenango Forks School District property at Kattelville.

Owner: U.S. Geological Survey.

AQUIFER.--Water-table aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 53 ft, cased to 48.5 ft, screened 48.5 to 53 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 908.58 ft above National Geodetic Vertical Datum of 1929. Measuring point: Double file mark on top of coupling, 3.20 ft above land-surface datum.

REMARKS.--Water level may be affected by pumping in nearby village and school wells.

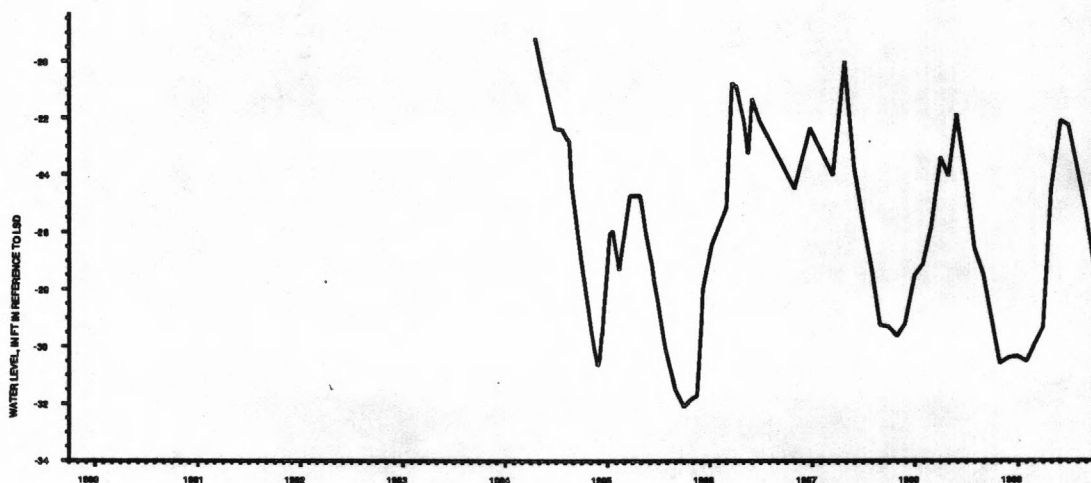
PERIOD OF RECORD.-- September 1980 to current year. Records for September 1980 to February 1982 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.17 ft below land-surface datum, Apr. 16, 1984; lowest measured, 32.48 ft below land-surface datum, Oct. 27, 1981.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 22.08 ft below land-surface datum, May 31; lowest measured, 30.58 ft below land-surface datum, Oct. 27.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	30.58	JAN 30	30.51	APR 27	24.52	JUL 28	23.67
NOV 28	30.37	FEB 27	29.92	MAY 31	22.08	AUG 30	25.37
DEC 29	30.33	MAR 30	29.32	JUN 28	22.25	SEP 28	27.29



GROUND-WATER LEVELS
BROOME COUNTY

175

421157075535401. Local number, Bm 129.

LOCATION.--Lat 42°11'57", long 75°53'54", Hydrologic Unit 02050102, near Castle Creek. Owner: New York State Department of Transportation.

AQUIFER.--Aquifer in shales of Middle to Upper Devonian age.

WELL CHARACTERISTICS.--Drilled water supply well, diameter 6 in, depth approximately 252 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 1105.75 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of coupling, 2.00 ft above land-surface datum.

REMARKS.--Well drilled by New York State Department of Transportation, originally intended as water-supply well for proposed rest area on Interstate Highway I-81.

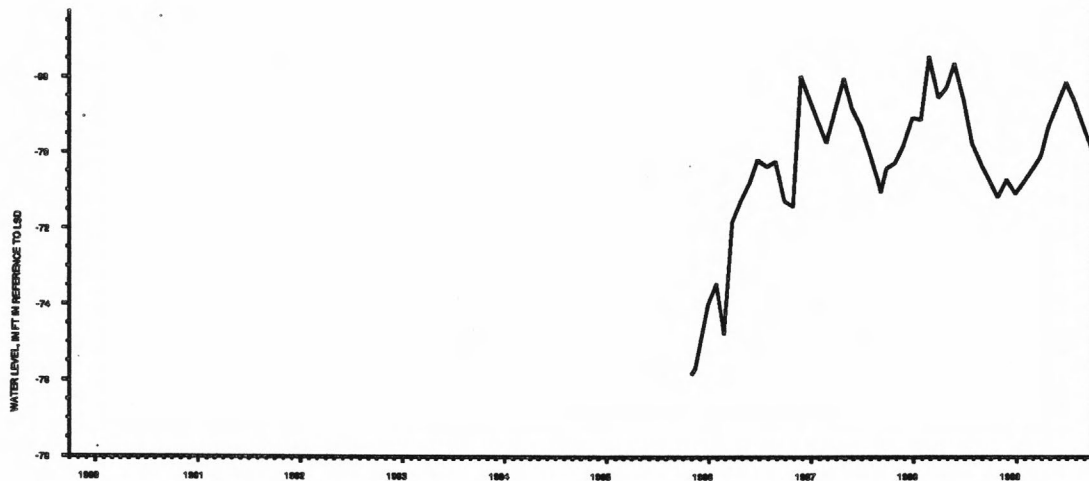
PERIOD-OF-RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.45 ft below land-surface datum, Feb. 26, 1988; lowest measured, 75.83 ft below land-surface datum, Nov. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 68.14 ft below land-surface datum, June 28; lowest measured, 77.17 ft below land-surface datum, Oct. 27.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	71.17	JAN 30	70.76	APR 27	69.29	JUL 28	68.64
NOV 28	70.71	FEB 27	70.45	MAY 31	68.66	AUG 30	69.33
DEC 29	71.08	MAR 30	70.09	JUN 28	68.14	SEP 28	69.92



GROUND-WATER LEVELS
CATTARAUGUS COUNTY

420530078445201. Local number, Ct 121.

LOCATION.--Lat 42°05'30", long 78°44'52", Hydrologic Unit 05010001, near Red House. Owner: New York State Department of Environmental Conservation.

AQUIFER.--Confined aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 6 in, depth 53 ft, cased to 53 ft, open end.

INSTRUMENTATION.--Float tape read weekly by observer.

DATUM.--Elevation of land-surface datum is 1,467.08 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.30 ft above land-surface datum.

REMARKS.--Well is located in a New York State owned and operated campground area. A new central water system for the campground, utilizing a well about 1.5 mi from the observation well was put in operation in 1980. Extreme low levels occurred from 1969 to 1979 due to the effect of pumping at the campground area.

PERIOD OF RECORD.--September 1950 to current year.

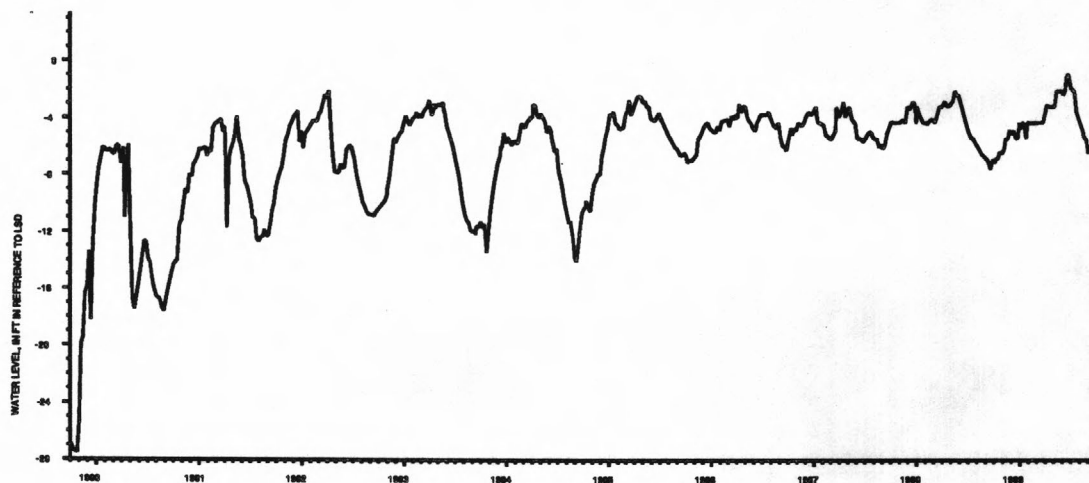
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.97 ft below land-surface datum, June 26, 1989; lowest measured, 34.87 ft below land-surface datum, Nov. 21, 1972.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 0.97 ft below land-surface datum, June 26; lowest measured, 7.10 ft below land-surface datum, Oct. 7.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	6.93	JAN 02	4.30	MAR 27	4.25	JUN 20	1.02
07	7.10z	05	4.72z	APR 10	3.06z	26	.97
11	6.83	12	4.31	11	3.16	JUL 04	1.83
17	6.83	17	4.30	17	3.15	13	2.09
24	6.34	26	5.35	24	3.18	17	2.12
31	6.48	31	4.27	MAY 02	3.19	24	3.54z
NOV 09	6.14	FEB 06	4.28	08	3.18	AUG 15	4.83
14	5.41	18	4.32	15	2.10	21	5.37
22	5.39	22	4.30	26	2.09	28	5.41
28	4.83	27	4.29z	29	2.12	SEP 04	6.45
DEC 05	5.06	MAR 01	4.29	JUN 05	2.09	06	5.89z
13	4.84	08	4.29	07	2.36z	12	6.17
20	5.38	13	4.28	14	2.07	18	6.46
27	5.35	20	4.28				

z Measured by USGS personnel.



GROUND-WATER LEVELS
CAYUGA COUNTY

177

424158076251901. Local number, Cy 7.

LOCATION.--Lat 42°41'58", long 76°25'19", Hydrologic Unit 04140201, near Moravia. Owner: Earl Van Pelt.

AQUIFER.--Water-table aquifer in clayey gravel of Pleistocene age.

WELL CHARACTERISTICS.--Bored observation well, diameter 2.5 in, depth 28 ft, cased to 26 ft 1.25-in well point (60-gauze screen 26 ft to 28 ft).

INSTRUMENTATION.--Weekly measurement with chalked tape by observer Oct. 1 to Feb. 21; electronic data recorder--60-minute average Feb. 22, 1989 to Sept. 30.

DATUM.--Elevation of land-surface datum is 760.70 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of shelter base, 3.08 ft above land-surface datum.

PERIOD OF RECORD.--December 1965 to current year. Records for December 1965 to September 1976 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.91 ft below land-surface datum, June 26, 1972; lowest measured, 25.00 ft below land-surface datum, Sept. 19, 1983.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 15.13 ft below land-surface datum, May 15; lowest measured, 22.78 ft below land-surface datum, Oct. 10, but may have been lower during period of no gage-height record Aug. 26 to Sept. 18.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.16y	---	---	---	17.69	17.01	17.35	16.54	16.52	19.18	---
2	---	---	---	17.68y	17.67z	17.74	16.72	17.29	16.49	16.62	19.37	---
3	22.22y	---	---	---	---	17.77	16.48	17.21	16.46	16.74	19.64	---
4	---	---	---	---	---	17.81	16.26	17.16	16.43	16.93	19.91	22.34y
5	---	---	17.55z	---	---	17.73	16.05	17.13	16.39	17.16	20.09	---
6	---	---	---	---	17.66y	17.62	15.86	17.10	16.34	17.25	19.92	---
7	---	---	---	---	---	17.58	15.74	17.02	16.34	17.30	19.60	---
8	---	18.02y	---	---	---	17.58	15.71	16.86	16.35	17.28	19.34	---
9	---	---	---	17.64y	---	17.62	15.75	16.61	16.36	17.15	19.28	---
10	22.78y	---	---	---	---	17.67	15.87	16.34	16.38	17.05	19.40	---
11	---	---	---	---	---	17.71	16.02	16.10	16.40	17.02	19.63	22.77y
12	---	---	17.80y	---	---	17.75	16.14	15.79	16.44	17.03	19.91	---
13	22.74z	---	---	---	17.70y	17.79	16.25	15.42	16.47	17.13	20.17	---
14	---	17.28y	---	---	---	17.81	16.38	15.19	16.51	17.30	20.35	---
15	---	---	---	---	---	17.83	16.47	15.14	16.52	17.52	20.51	---
16	---	---	---	17.52y	---	17.84	16.56	15.18	16.48	17.78	20.67	---
17	22.39y	---	---	---	---	17.83	16.67	15.28	16.41	18.06	20.85	---
18	---	---	---	---	---	17.81	16.75	15.41	16.26	18.28	21.02	21.45
19	---	---	18.05y	---	---	17.82	16.81	15.55	16.14	18.51	21.19	21.50
20	---	---	---	---	---	17.83	16.87	15.68	16.09	18.77	21.36	21.06
21	---	17.43y	---	---	17.92y	17.81	16.92	15.80	16.07	18.92	21.50	20.48
22	---	---	---	---	17.73	17.84	16.96	15.93	16.06	18.82	21.53	19.98
23	---	---	---	17.84y	17.67	17.87	17.01	16.05	16.06	18.81	21.53	19.35
24	21.62y	---	---	---	17.61	17.85	17.07	16.15	16.08	18.93	21.60	18.85
25	---	---	---	---	17.58	17.82	17.12	16.22	16.10	19.11	21.71	18.60
26	---	---	18.02y	---	17.56	17.79	17.17	16.29	16.15	19.35	---	18.28
27	---	---	---	---	17.59	17.74	17.22	16.35	16.21	19.59	---	18.06
28	---	17.31y	---	---	17.65	17.67	17.25	16.43	16.31	19.80	21.94y	17.94
29	---	---	---	---	---	17.59	17.28	16.50	16.37	19.69	---	17.74
30	---	---	---	17.72y	---	17.49	17.32	16.56	16.44	19.33	22.21z	17.70
31	---	---	---	---	---	17.29	---	16.58	---	19.14	---	---
MEAN	---	---	---	---	---	17.73	16.59	16.25	16.32	18.03	---	---
LOW	---	---	---	---	---	17.87	17.32	17.35	16.54	19.80	---	---
HIGH	---	---	---	---	---	17.29	15.71	15.14	16.06	16.52	---	---

y Measured by observer.

z Measured by USGS personnel.

GROUND-WATER LEVELS
CHAUTAUQUA COUNTY

420326079295801. Local number, Cu 5.

LOCATION.--Lat 42°03'26", long 79°29'58", Hydrologic Unit 05010002, near Panama. Owner: State Department of Environmental Conservation.

AQUIFER.--Water-table aquifer in till of Pleistocene age.

WELL CHARACTERISTICS.--Dug unused well, diameter 36 in, depth 33 ft, stone-lined.

INSTRUMENTATION.--Periodic measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land surface datum is 1,752.51 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of 0.25-in steel-plate well cover, inside shelter door, 0.44 ft below land-surface datum.

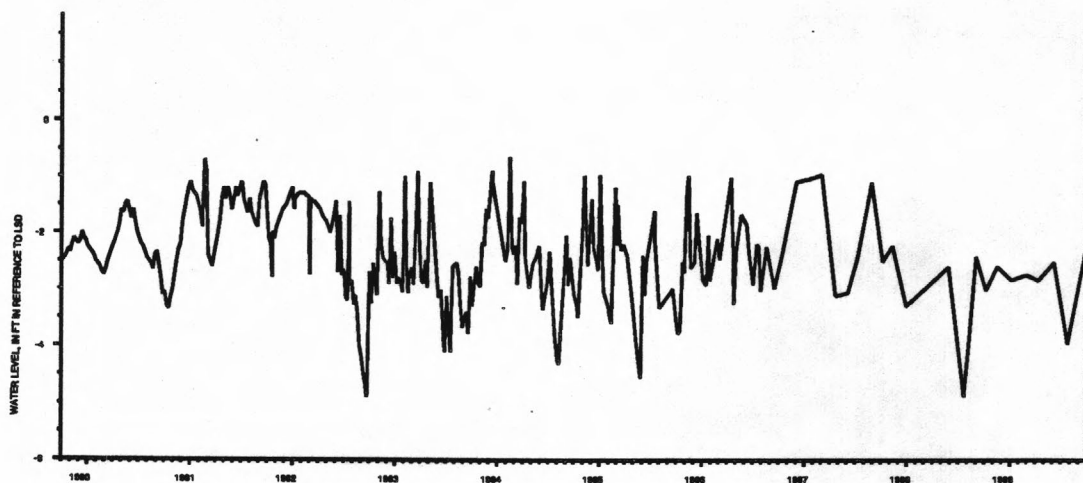
PERIOD OF RECORD.--May 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.65 ft below land-surface datum, Feb. 13, 1984; lowest measured, 9.41 ft below land-surface datum, May 24, 1949.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 2.36 ft below land-surface datum, Sept. 25; lowest measured, 3.97 ft below land-surface datum, July 25.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	3.02	JAN 04	2.84	APR 11	2.85	JUL 25	3.97
NOV 16	2.60	FEB 28	2.75	JUN 06	2.53	SEP 25	2.36



GROUND-WATER LEVELS
CHAUTAUQUA COUNTY

179

420815079121401. Local number, Cu 10.

LOCATION.--Lat 42°08'15", long 79°12'14", Hydrologic Unit 05010002, at Falconer. Owner: City of Jamestown.

AQUIFER.--Confined aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 12 in to 10 in, depth 232 ft, filled in from original depth of 240 ft, cased 12 in 0 ft to 130 ft, 10 in 130 ft to 240 ft, slotted 130 ft to 144 ft, open end.

INSTRUMENTATION.--Twice-daily measurements by City of Jamestown personnel, every fifth day published.

DATUM.--Elevation of land-surface datum is 1,252.52 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of plywood sheet, 5.52 ft above land-surface datum.

REMARKS.--Water level affected by pumping from municipal well field. Digital recorder installed Dec. 18, 1978, removed Sept. 16, 1982.

PERIOD OF RECORD.--November 1939 to September 1943, August 1946 to current year. Records for November 1939 to September 1943, August 1946 to September 1976 are unpublished and available in files of the Geological Survey.

REVISED RECORD.--WDR NY-87-3: 1983-86.

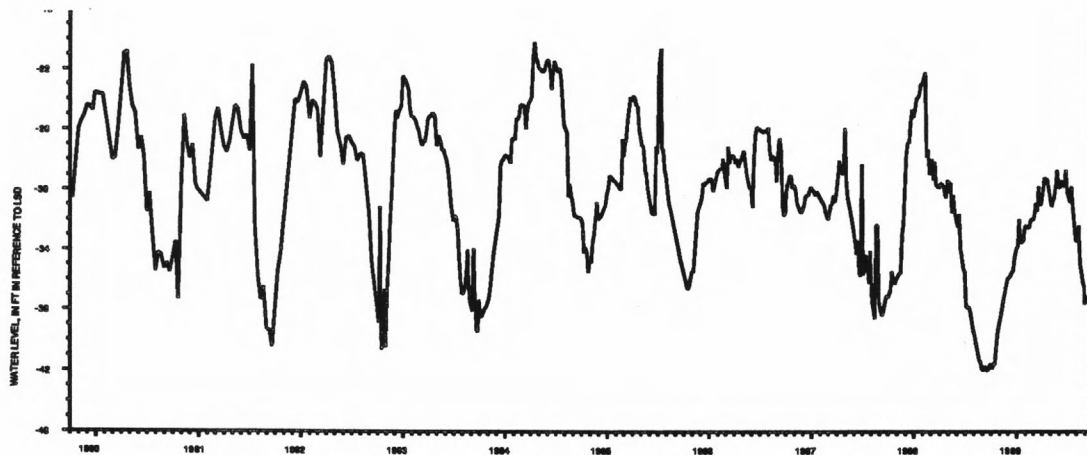
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.2 ft above land-surface datum, Mar. 14, 1942; lowest measured, 66.6 ft below land-surface datum, Nov. 3, 1971.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 21.94 ft below land-surface datum, May 24; lowest measured, 41.97 ft below land-surface datum, Oct. 7, 12, 17.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05	41.82	JAN 05	33.79	APR 10	29.22	JUL 10	30.86
06	29.07z	10	32.00	15	29.37	15	29.81
10	41.58	15	33.54	20	29.32	20	31.22
15	41.53	20	33.47	25	29.93	25	32.25
20	40.45	25	33.47	MAY 01	30.68	30	33.37
25	39.52	31	32.43	05	31.12	AUG 05	33.47
NOV 01	38.79	FEB 05	32.44	10	30.78	10	32.42
05	38.45	10	32.54	15	30.54	15	34.93
10	37.89	15	32.54	20	29.76	20	35.50
15	37.33	20	32.03	25	28.73	25	36.15
20	36.89	25	32.00	31	29.83	30	36.50
25	36.40	MAR 01	32.00	JUN 05	29.90	31	37.62
30	35.95	05	31.76	10	29.41	SEP 05	37.33
DEC 05	35.89	10	30.93	15	29.78	10	37.52
10	35.76	15	31.44	20	29.78	15	37.16
15	35.50	20	29.83	25	28.73	20	36.94
20	35.40	25	31.03	30	30.20	25	36.84
25	34.54	30	30.95	JUL 05	30.54	30	36.84
31	33.98	APR 05	30.10				

z Measured by USGS personnel.



GROUND-WATER LEVELS
CHAUTAUQUA COUNTY

420748079062701. Local number, Cu 104.

LOCATION.--Lat 42°07'48", long 79°06'27", Hydrologic Unit 05010002, 59 ft west of Conewango Creek, 20 ft north of County Highway 325 and 1 mi southeast of Poland Center. Owner: City of Jamestown.

AQUIFER.--Water-table aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 79 ft, screened 69 ft to 79 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 1,247.62 ft above National Geodetic Vertical Datum of 1929. Measuring point: Chisled marks at top of metal shelter base, 6.22 ft above land-surface datum.

REMARKS.--Well drilled by the U.S.G.S. The water level is affected by pumping from municipal well field and by river stages in Conewango Creek, which is within 100 ft of the well.

PERIOD OF RECORD.--March 1983 to current year.

REVISED RECORDS.--WDR NY-88-3: 1987.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.09 ft above land-surface datum, Feb. 20, 1984; lowest, 19.35 ft below land-surface datum, Oct. 16, 1985.

EXTREMES FOR CURRENT YEAR.--Highest water level, 0.30 ft above land-surface datum, Apr. 6; lowest, 15.21 ft below land-surface datum, Oct. 9.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.64	10.34	7.89	4.76	6.43	7.91	3.27	9.62	7.37	6.94	11.59	13.22
2	12.30	10.48	8.09	4.28	6.51	8.09	2.38	9.50	7.74	6.82	11.83	13.01
3	12.79	10.52	7.87	5.35	6.64	8.47	1.28	9.56	7.77	7.40	12.08	12.75
4	12.95	10.67	7.65	5.93	6.72	8.63	1.13	8.74	6.50	7.05	12.40	12.53
5	13.21	10.15	7.58	6.27	6.00	8.18	.80	9.48	7.14	7.42	12.01	12.26
6	13.39	9.53	8.07	6.52	6.90	8.14	.44	8.87	7.60	8.08	12.16	12.75
7	13.99	9.57	8.44	6.70	7.19	8.27	.44	8.22	7.97	8.42	12.22	12.99
8	13.88	9.43	8.72	5.81	7.41	8.50	.53	7.21	9.28	8.31	12.93	13.22
9	14.87	9.40	8.88	6.18	7.25	9.02	.93	7.03	9.00	8.16	12.77	13.33
10	14.59	9.35	8.14	6.35	7.58	9.46	1.02	7.38	8.83	8.81	12.84	12.80
11	14.15	8.82	7.84	6.74	6.87	9.76	2.03	5.55	7.39	9.19	12.85	13.08
12	13.68	9.04	8.48	6.79	6.83	8.64	3.07	4.21	7.06	9.65	12.87	13.27
13	13.92	7.87	8.82	7.15	7.09	9.02	4.14	2.08	7.24	10.21	12.12	13.45
14	13.11	8.14	8.82	6.99	7.95	9.70	4.80	1.44	7.35	10.29	12.30	13.59
15	13.16	8.20	9.43	6.40	8.04	10.07	5.38	2.02	7.65	10.82	12.49	13.25
16	12.01	8.27	10.28	7.11	7.92	9.61	5.31	1.78	7.68	9.86	12.63	12.15
17	12.21	8.41	10.33	7.73	7.96	9.72	5.98	2.13	6.62	10.39	12.80	11.17
18	12.65	8.68	9.28	7.80	8.11	9.30	6.64	2.90	5.49	10.66	13.08	11.40
19	12.40	9.00	9.63	8.08	7.46	8.15	6.46	3.32	6.29	11.36	13.06	11.59
20	12.20	8.02	10.20	8.50	7.52	7.99	7.00	3.33	6.15	11.02	12.12	11.73
21	11.80	8.15	9.84	7.97	7.98	7.85	7.21	4.21	5.30	10.41	12.64	11.70
22	11.61	8.11	9.20	7.74	7.54	7.81	7.22	5.79	5.16	10.82	12.80	11.74
23	10.84	8.01	9.03	8.08	7.47	7.81	8.88	6.77	5.83	10.54	12.74	11.93
24	10.49	7.18	7.88	8.30	7.54	7.54	8.35	7.22	5.22	10.54	12.90	12.29
25	10.90	6.65	7.18	8.51	7.68	6.43	8.69	7.02	4.35	10.61	12.91	12.65
26	10.98	7.17	6.21	8.54	7.23	6.27	8.94	7.08	5.40	11.00	13.07	12.53
27	10.63	6.58	6.75	7.80	7.51	6.26	9.59	5.85	6.26	11.25	12.08	12.20
28	10.79	7.07	5.56	6.71	7.68	6.48	9.66	6.08	6.61	11.35	12.26	12.34
29	10.34	7.41	5.56	6.61	---	6.07	9.14	5.86	6.62	11.92	12.97	12.32
30	9.76	7.74	4.63	6.32	---	5.49	8.53	6.86	7.11	11.11	13.01	11.81
31	10.03	---	4.19	6.46	---	4.44	---	7.16	---	11.10	13.11	---
MEAN	12.33	8.60	8.08	6.92	7.32	8.03	4.97	5.94	6.87	9.73	12.57	12.50
LOW	14.87	10.67	10.33	8.54	8.11	10.07	9.66	9.62	9.28	11.92	13.11	13.59
HIGH	9.76	6.58	4.19	4.28	6.00	4.44	.44	1.44	4.35	6.82	11.59	11.17

CAL YR	1988	MEAN	10.08	HIGH	2.39	LOW	15.84
WTR YR	1989	MEAN	8.67	HIGH	.44	LOW	14.87

GROUND-WATER LEVELS
CHEMUNG COUNTY

181

420829076484801. Local number, Cn 46.

LOCATION.--Lat 42°08'29", long 76°48'48", Hydrologic Unit 02050105, near Horseheads. Owner: Unknown.

AQUIFER.--Water-table aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 6 in, depth 34 ft, cased to 34 ft, open end.

INSTRUMENTATION.--Electronic data recorder--60-minute average.

DATUM.--Elevation of land-surface datum is 885.69 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of pipe flange, 3.44 ft above land-surface datum.

REMARKS.--Water level affected by stage of Newtown Creek.

PERIOD OF RECORD.--October 1955 to current year. Records for October 1955 to September 1976 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.93 ft below land-surface datum, April 25, 1961; lowest measured, 26.30 ft below land-surface datum, July 18, 1980.

EXTREMES FOR CURRENT YEAR.--Highest water level, 21.36 ft below land-surface datum, May 11; lowest, 25.84 ft below land-surface datum, Oct. 1, 2.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.83	25.48	24.93	24.90	25.02	24.72	22.62	24.43	23.77	23.88	24.99	25.25
2	25.83	25.48	24.93	24.89	24.97	24.77	22.95	24.17	23.79	23.95	25.02	25.24
3	25.82	25.47	24.94	24.89	24.98	24.78	23.07	24.03	23.87	24.00	25.06	25.25
4	25.82	25.46	24.97	24.93	25.02	24.80	23.05	24.12	23.42	24.06	25.09	25.27
5	25.82	25.42	25.00	24.97	25.03	24.66	22.82	24.16	23.41	24.06	25.11	25.29
6	25.82	24.84	25.02	24.98	25.02	24.38	22.89	24.04	23.38	24.06	25.14	25.31
7	25.81	24.78	25.02	25.00	25.02	24.53	23.09	23.56	23.40	24.12	25.12	25.33
8	25.81	24.85	25.03	24.95	25.06	24.61	23.27	23.38	23.56	24.16	25.12	25.35
9	25.81	24.90	25.04	24.76	25.07	24.65	23.41	23.41	23.68	24.21	25.14	25.37
10	25.81	24.95	25.06	24.82	25.07	24.69	23.52	23.24	23.75	24.25	25.15	25.37
11	25.80	24.97	25.08	24.86	25.08	24.72	23.63	21.54	23.84	24.29	25.16	25.37
12	25.79	25.01	25.10	24.90	25.07	24.71	23.73	21.75	23.93	24.32	25.16	25.38
13	25.75	25.03	25.08	24.90	25.08	24.76	23.80	22.23	23.89	24.35	25.20	25.38
14	25.69	25.02	25.08	24.96	25.10	24.77	23.85	22.56	23.89	24.39	25.20	25.37
15	25.68	25.02	25.07	24.97	25.06	24.73	23.90	22.75	23.46	24.43	25.20	25.34
16	25.66	25.05	25.07	24.97	24.90	24.63	23.95	21.88	22.98	24.47	25.21	25.33
17	25.63	25.05	25.07	24.99	24.89	24.65	24.01	22.15	22.22	24.51	25.21	25.25
18	25.60	25.06	25.08	25.00	24.89	24.57	24.03	22.43	22.44	24.54	25.21	25.26
19	25.58	25.07	25.10	25.01	24.91	24.45	24.04	22.66	22.83	24.58	25.21	25.29
20	25.56	25.01	25.12	25.02	24.93	24.53	24.09	22.85	23.04	24.60	25.18	25.13
21	25.56	24.70	25.08	25.03	24.71	24.54	24.13	23.03	22.65	24.63	25.20	25.12
22	25.57	24.69	25.05	25.06	24.23	24.57	24.16	23.17	22.75	24.68	25.21	25.20
23	25.41	24.73	25.05	25.06	24.31	24.59	24.20	23.27	22.99	24.71	25.21	25.08
24	25.21	24.78	25.05	25.08	24.48	24.36	24.24	22.99	23.11	24.73	25.20	24.91
25	25.11	24.89	24.90	25.08	24.57	23.34	24.28	23.07	23.29	24.75	25.20	25.00
26	25.20	24.92	24.87	25.07	24.61	23.47	24.31	23.24	23.45	24.72	25.21	25.08
27	25.27	24.94	24.90	25.06	24.65	23.63	24.33	23.34	23.57	24.72	25.21	25.12
28	25.32	24.92	24.91	25.07	24.70	23.68	24.37	23.46	23.65	24.71	25.23	25.17
29	25.44	24.90	24.82	25.07	---	23.49	24.40	23.56	23.71	24.79	25.24	25.20
30	25.47	24.92	24.84	25.05	---	22.93	24.43	23.63	23.80	24.88	25.25	25.21
31	25.48	---	24.88	25.03	---	22.38	---	23.69	---	24.97	25.25	---
MEAN	25.61	25.01	25.00	24.98	24.87	24.33	23.75	23.15	23.38	24.44	25.17	25.24
LOW	25.83	25.48	25.12	25.08	25.10	24.80	24.43	24.43	23.93	24.97	25.25	25.38
HIGH	25.11	24.69	24.82	24.76	24.23	22.38	22.62	21.54	22.22	23.88	24.99	24.91
WTR YR	1989	MEAN	24.58	HIGH	21.54	LOW	25.83					

GROUND-WATER LEVELS
CHENANGO COUNTY

421556075281602. Local number, Cn 12.

LOCATION.--Lat 42°15'56", long 75°28'16", Hydrologic Unit 02050101, 400 ft south of intersection of County Highways 39 and 12, 0.5 mi east of Susquehanna River, and 2.0 mi south of Bainbridge. Owner: Ilse Machlman.

AQUIFER.--Water-table aquifer in gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 13 ft, cased to 13 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel, Oct. 1 to Feb. 26; digital recorder--60-minute punch Feb. 27 to Sept. 30.

DATUM.--Elevation of land-surface datum is 979.28 ft above National Geodetic Vertical Datum of 1929. Measuring point: File mark at top of shelter base, 1.37 ft above land-surface datum.

REMARKS.--This well drilled April 1974 as a replacement for 421556075281601 (local number Cn 11), located 90 ft north, which has a period of record from October 1965 to September 1972 (unpublished).

PERIOD OF RECORD.--April 1975 to current year. Records for April 1975 to September 1976 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.79 ft below land-surface datum, Mar. 7, 1979; lowest, 11.81 ft below land-surface datum, Sept. 26-29, 1982.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 4.29 ft below land-surface datum, May 13-14; lowest recorded, 11.36 ft below land-surface datum, Sept. 16-18.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	9.14	7.89	9.48	9.04	8.53	9.51	10.91
2	---	---	---	---	---	9.21	6.91	9.53	9.10	8.69	9.55	10.97
3	---	---	---	---	---	9.28	6.29	9.54	9.15	8.85	9.61	11.02
4	---	---	---	---	---	9.36	6.09	9.52	9.18	8.99	9.69	11.06
5	---	---	---	---	---	9.42	6.05	9.47	9.20	9.10	9.76	11.08
6	---	---	---	---	---	9.48	6.05	9.37	9.22	9.19	9.79	11.09
7	---	---	---	---	---	9.53	6.05	8.38	9.23	9.22	9.78	11.10
8	---	---	---	---	---	9.56	6.06	6.81	9.23	9.24	9.72	11.12
9	---	---	---	---	---	9.59	6.11	5.72	9.22	9.23	9.65	11.14
10	---	---	---	---	---	9.62	6.22	5.34	9.20	9.22	9.60	11.18
11	---	---	---	---	---	9.65	6.39	5.04	9.16	9.23	9.57	11.21
12	---	---	---	---	---	9.67	6.62	4.58	9.10	9.25	9.58	11.25
13	---	---	---	---	---	9.70	6.88	4.34	9.04	9.29	9.61	11.29
14	---	---	---	---	---	9.73	7.17	4.29	8.98	9.34	9.64	11.32
15	---	---	---	---	---	9.76	7.45	4.38	8.91	9.40	9.66	11.34
16	---	---	---	---	---	9.78	7.73	4.59	8.50	9.46	9.67	11.36
17	---	---	---	---	---	9.78	7.97	4.91	7.59	9.53	9.71	11.36
18	---	---	---	---	---	9.76	8.18	5.31	6.87	9.61	9.76	11.36
19	---	---	---	---	---	9.74	8.35	5.77	6.54	9.69	9.85	11.32
20	---	---	---	---	---	9.72	8.50	6.23	6.49	9.78	9.95	11.23
21	---	---	---	---	---	9.69	8.64	6.68	6.60	9.85	10.06	11.05
22	---	---	---	---	---	9.67	8.76	7.10	6.82	9.83	10.15	10.63
23	---	---	---	---	---	9.66	8.87	7.48	7.10	9.72	10.20	10.24
24	---	---	---	---	---	9.65	8.98	7.82	7.41	9.58	10.25	10.04
25	---	---	---	---	---	9.61	9.07	8.11	7.67	9.47	10.31	9.91
26	---	---	---	---	---	9.52	9.16	8.34	7.85	9.41	10.39	9.80
27	9.69z	---	---	---	9.02	9.38	9.23	8.52	7.97	9.40	10.47	9.73
28	---	8.27z	---	---	9.07	9.16	9.31	8.67	8.08	9.42	10.57	9.69
29	---	---	9.65z	---	---	8.99	9.37	8.78	8.20	9.45	10.66	9.68
30	---	---	---	9.63z	---	8.86	9.43	8.88	8.36	9.47	10.75	9.71
31	---	---	---	---	---	8.63	---	8.97	---	9.48	10.83	---
MEAN	---	---	---	---	---	9.49	7.66	7.16	8.30	9.35	9.95	10.81
LOW	---	---	---	---	---	9.78	9.43	9.54	9.23	9.85	10.83	11.36
HIGH	---	---	---	---	---	8.63	6.05	4.29	6.49	8.53	9.51	9.68

z Measured by USGS personnel.

GROUND-WATER LEVELS
CHENANGO COUNTY

183

423849075315701. Local number, Cn 13.

LOCATION.--Lat 42°38'49", long 75°31'57", Hydrologic Unit 02050102, at junction of Chenango County Road 23 and Erie-Lackawanna Railroad tracks, 2.1 mi north of North Norwich and 2.7 mi south of NYS Rt. 80 near Sherburne. Owner: U. S. Geological Survey.

AQUIFER.--Confined aquifer in sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 125 ft, cased to 123 ft, screened 123 ft to 125 ft.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1065.77 ft above National Geodetic Vertical Datum of 1929. Measuring point: Double file mark on top of coupling, 4.00 ft above land-surface datum.

REMARKS.--Water level may be affected by pumping from nearby farm well.

PERIOD OF RECORD.--April 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.00 ft below land-surface datum, Mar. 12, 1986; lowest measured, 10.17 ft below land-surface datum, Nov. 1, 1988.

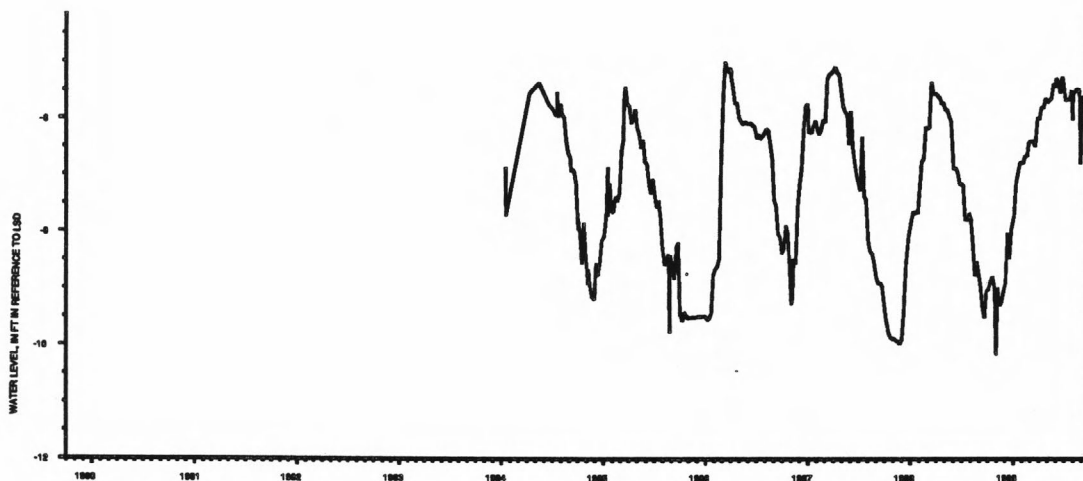
EXTREMES OUTSIDE PERIOD OF RECORD.--Lowest water level measured, 10.61 ft below land-surface datum, Jan. 27, 1981.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 5.27 ft below land-surface datum, June 25; lowest measured, 10.17 ft below land-surface datum, Nov. 1.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05	9.02	JAN 12	7.14	APR 19	5.82	JUL 21	5.68
12	8.88	19	6.96	26	5.65z	28	5.51
19	8.80	26	6.78	MAY 04	5.72	AUG 01	6.03z
26	8.97	FEB 06	6.80	11	5.68	04	5.57
NOV 01	10.17z	13	6.66	18	5.64	11	5.52
07	8.99	20	6.68	25	5.39	18	5.48
14	9.30	27	6.41z	30	5.46z	25	5.51
21	9.24	MAR 07	6.42	JUN 04	5.29	30	6.80z
28	9.04	14	6.40	11	5.36	SEP 05	5.62
DEC 05	8.90	21	6.50	18	5.56	12	5.64
12	8.03z	28	6.08	25	5.27	19	5.61
19	8.48	30	5.99z	28	5.32z	26	5.65
26	7.96	APR 05	6.02	JUL 07	5.69	28	7.35z
JAN 05	7.71	12	5.80	14	5.66		

z Measured by USGS personnel.



GROUND-WATER LEVELS
CORTLAND COUNTY

423541076114701. Local number, C 102.

LOCATION.--Lat 42°35'41", long 76°11'47", Hydrologic Unit 02050102, at Municipal Water Works, Cortland. Owner: City of Cortland.

AQUIFER.--Water-table aquifer in gravel of Pleistocene age.

WELL CHARACTERISTICS.--Driven unused well, diameter 1.25 in, depth 45 ft, 1.25 in well point.

INSTRUMENTATION.--Weekly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 1136.59 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of coupling, 2.0 ft above land-surface datum.

REMARKS.--Water level is affected by pumping from adjacent municipal supply wells. This well is a replacement for 423539076114801 (local number C 19), located 80 ft southwest, which has a period of record from February 1947 to May 1976.

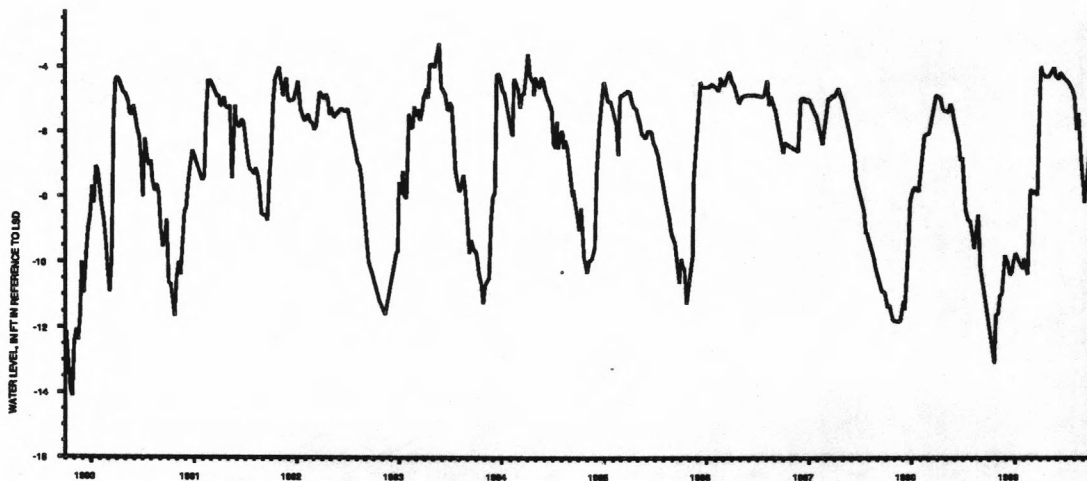
PERIOD OF RECORD.--October 1975 to current year. Records for October 1975 to September 1977 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.07 ft below land-surface datum, Sept. 25, 1977; lowest measured, 14.50 ft below land-surface datum, Dec. 14, 1978.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 3.98 ft below land-surface datum, Apr. 7; lowest measured, 13.07 ft below land-surface datum, Oct. 21.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	13.07	JAN 13	9.88	MAR 29	6.18	JUN 28	4.32
27	11.60	18	9.98	APR 07	3.98	JUL 14	4.45
NOV 04	11.55	30	10.18	13	4.18	28	4.69
10	10.99	FEB 03	9.87	27	4.29	AUG 04	4.90
17	10.97	09	10.06	MAY 04	4.29	11	5.90
28	9.79	17	10.35	24	4.01	18	5.42
DEC 08	9.97	27	7.77	30	4.27	25	6.55
16	10.36	MAR 10	7.88	JUN 09	4.35	30	7.18
23	10.28	16	7.79	15	4.16	SEP 08	8.16
28	9.96	24	7.93	23	4.25	28	6.40
JAN 05	9.72						



GROUND-WATER LEVELS

185

MADISON COUNTY

430056075354102. Local number, M 178.

LOCATION.--Lat 43°00'56", long 75°35'41", Hydrologic Unit 04140202, at Valley Mills. Owner: Donald L. Greene.

AQUIFER.--Water-table aquifer in gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 15.3 ft, cased to 16 ft, open end.

INSTRUMENTATION.--Float tape read weekly by observer Oct. 1 to Dec. 19; electronic data recorder--60-minute average Dec. 20 to Sept. 30.

DATUM.--Elevation of land-surface datum is 573.76 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of flange, 3.06 ft above land-surface datum.

REMARKS.--Well drilled April 1974 as a replacement for 430056075354101 (local number M 177), located 10 ft west, which has a period of record from October 1965 to September 1973 (unpublished).

PERIOD OF RECORD.--April 1975 to current year. Records for April 1975 to September 1976 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.60 ft below land-surface datum, Mar. 5, 1979; lowest, 10.97 ft below land-surface datum, Oct. 24, 25, 1980.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 4.70 ft below land-surface datum, Apr. 6; lowest observed, 10.26 ft below land-surface datum, Oct. 13.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.20y	---	7.56	7.36	6.79	5.40	7.38	7.61	7.69	9.05	9.53
2	---	---	---	7.58	7.34	6.89	5.20	7.40	7.67	7.74	9.08	9.60
3	10.14y	---	---	7.62	7.35	6.98	5.17	7.42	7.74	7.82	9.12	9.59
4	---	---	---	7.66	7.40	7.05	5.09	7.47	7.76	7.88	9.15	9.61
5	---	---	---	7.72	7.45	7.08	4.88	7.50	7.78	7.94	8.92	9.62
6	---	---	7.27y	7.75	7.50	7.02	4.71	7.49	7.81	7.99	8.77	9.65
7	---	---	---	7.81	7.56	7.06	4.74	7.18	7.85	8.01	8.70	9.66
8	---	---	---	7.82	7.57	7.13	4.79	6.88	7.89	8.07	8.67	9.66
9	---	---	---	7.71	7.61	7.21	4.93	6.80	7.93	8.12	8.69	9.69
10	---	---	7.49y	7.62	7.63	7.27	5.03	6.79	7.96	8.16	8.72	9.71
11	---	---	---	7.61	7.64	7.30	5.15	6.41	8.00	8.22	8.76	9.71
12	---	---	---	7.62	7.66	7.35	5.26	5.71	8.03	8.27	8.85	9.72
13	10.26y	---	---	7.64	7.68	7.42	5.37	5.60	8.01	8.31	8.90	9.73
14	---	---	---	7.67	7.67	7.47	5.50	5.64	7.90	8.36	8.95	9.72
15	---	8.04y	7.76y	7.66	7.52	7.51	5.62	5.74	7.80	8.41	8.99	9.67
16	---	---	---	7.58	7.42	7.56	5.76	5.85	7.59	8.45	8.96	9.56
17	---	---	---	7.54	7.37	7.59	5.90	5.97	7.38	8.50	8.91	9.55
18	---	---	---	7.55	7.37	7.59	6.02	6.13	7.29	8.54	8.92	9.49
19	---	---	---	7.59	7.39	7.60	6.15	6.27	7.26	8.59	8.95	9.33
20	---	---	7.85	7.61	7.42	7.59	6.28	6.41	7.29	8.62	9.01	9.06
21	---	6.49y	7.93	7.63	7.17	7.60	6.39	6.54	7.34	8.67	9.07	8.47
22	10.25y	---	7.90	7.62	6.59	7.62	6.49	6.68	7.39	8.70	9.10	8.12
23	---	---	7.86	7.64	6.43	7.66	6.62	6.81	7.45	8.74	9.15	7.90
24	---	---	7.86	7.68	6.36	7.69	6.73	6.92	7.50	8.78	9.21	7.49
25	---	---	7.82	7.73	6.39	7.62	6.82	7.01	7.44	8.81	9.23	7.24
26	9.29z	6.59y	7.78	7.73	6.46	7.50	6.94	7.10	7.45	8.85	9.26	7.17
27	---	---	7.74	7.59	6.59	7.42	7.02	7.20	7.51	8.89	9.30	7.26
28	---	---	7.71	7.55	6.71	7.37	7.11	7.29	7.56	8.91	9.35	7.31
29	---	---	7.67	7.53	---	7.33	7.19	7.38	7.58	8.95	9.42	7.34
30	---	---	7.59	7.47	---	7.11	7.28	7.46	7.64	8.99	9.48	7.44
31	---	---	7.55	7.42	---	6.06	---	7.54	---	9.03	9.47	---
MEAN	---	---	---	7.63	7.24	7.30	5.85	6.77	7.65	8.42	9.04	8.92
LOW	---	---	---	7.82	7.68	7.69	7.28	7.54	8.03	9.03	9.48	9.73
HIGH	---	---	---	7.42	6.36	6.06	4.71	5.60	7.26	7.69	8.67	7.17

y Measured by observer.

z Measured by USGS personnel.

GROUND-WATER LEVELS
NIAGARA COUNTY

430655079022001. Local number, Ni 69.

LOCATION.--Lat 43°06'55", long 79°02'20", Hydrologic Unit 04120104, 20th Street and Beech Avenue, Niagara Falls. Owner: City of Niagara Falls.

AQUIFER.--Confined and water-table aquifer in Lockport Dolomite of Middle Silurian age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 8 in to 6 in, depth 36 ft, cased 8 in 0 ft to 17 ft, open hole 6 in 17 ft to 36 ft.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer Oct. 1 to Mar. 24.

DATUM.--Elevation of land-surface datum is 595.61 ft National Geodetic Vertical Datum of 1929. Measuring point: top of 2 in opening in 6 in plug of 8 in extended casing, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--October 1958 to current year. Records for October 1958 to September 1976 are unpublished and available in files of the Geological Survey.

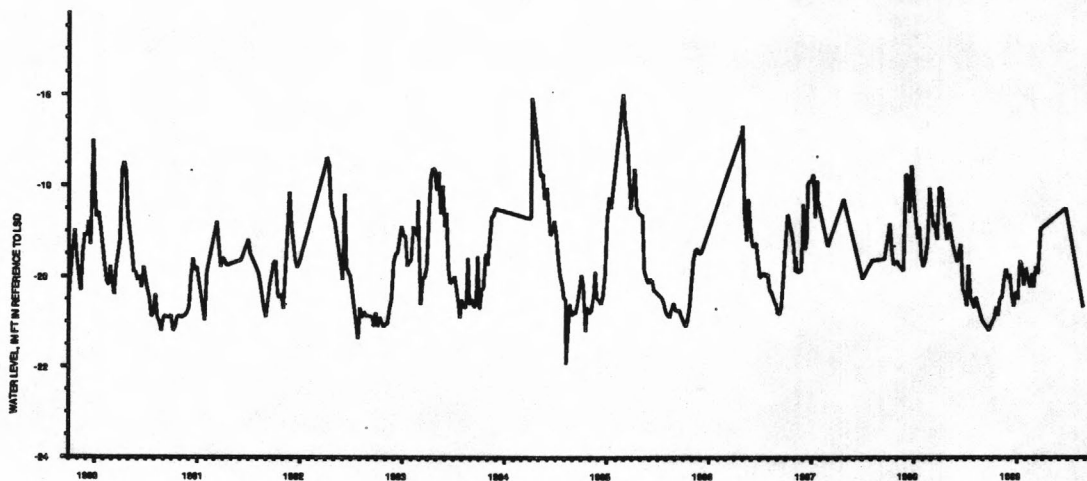
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.00 ft below land-surface datum, Feb. 25, 1985; lowest measured, 22.21 ft below land-surface datum, Aug. 3, 1959.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 18.49 ft below land-surface datum, June. 21; lowest measured, 20.90 ft below land-surface datum, Oct. 11.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	20.90	NOV 28	20.01z	JAN 10	19.66	FEB 28	20.23
17	20.67	30	20.03	16	19.73	MAR 07	19.78z
24	20.85	DEC 05	19.95	23	20.15	15	19.93
31	20.48	12	20.42	25	20.18z	24	18.95
NOV 07	20.45	19	20.64	31	19.82	APR 24	18.79z
14	20.07	27	20.33	FEB 16	20.23	JUN 21	18.49z
21	19.84	JAN 03	20.49	21	19.94	AUG 23	20.67z

z Measured by USGS personnel.



GROUND-WATER LEVELS
NIAGARA COUNTY

187

431308078544501. Local number, Ni 70.

LOCATION.--Lat 43°13'08", long 78°54'45", Hydrologic Unit 04130001, near Ransomville. Owner: Calvin C. Schultz.

AQUIFER.--Water-table aquifer in sand of Pleistocene age.

WELL CHARACTERISTICS.--Dug unused well, diameter 4 ft to 5 ft (reported), stone-lined, depth 24 ft.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 336.66 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of 1 in hole in steel cover, at land-surface datum.

PERIOD OF RECORD.--August 1972 to current year. Records for August 1972 to September 1976 are unpublished and available in files of the Geological Survey.

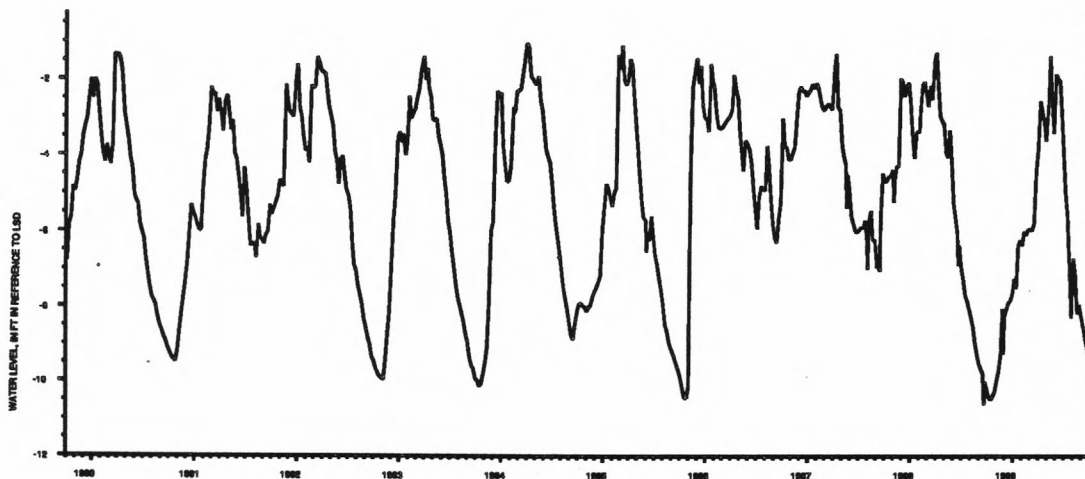
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.05 ft below land-surface datum, Mar. 31, 1984; lowest measured, 10.64 ft below land-surface datum, Sept. 21, 1988.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 1.42 ft below land-surface datum, May 13; lowest measured, 10.50 ft below land-surface datum, Oct. 15.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	10.21	DEC 31	7.68	APR 08	2.59	JUL 08	5.03
08	10.44	JAN 07	7.27	15	2.83	15	5.61
15	10.50	14	7.52	22	3.15	22	6.88
22	10.42	21	6.38	29	3.64	29	8.31
29	10.30	28	6.25	MAY 06	2.83	AUG 05	6.74
NOV 05	10.00	FEB 04	6.37	13	1.42	12	7.13
12	9.75	11	6.02	20	2.69	19	8.20
19	9.33	18	6.10	27	3.43	26	7.97
26	8.80	25	5.96	JUN 03	1.89	SEP 02	8.27
29	9.27z	MAR 04	5.96	10	2.01	10	8.58
DEC 03	8.27	11	5.98	17	2.08	17	8.90
10	8.08	18	5.80	21	2.57z	23	9.11
17	7.90	25	4.45	24	2.99	30	9.42
24	7.86	APR 01	3.85	JUL 01	4.04		

z Measured by USGS personnel.



GROUND-WATER LEVELS
ONTARIO COUNTY

425840077133901. Local number, Ot 900.

LOCATION.--Lat 42°58'40", long 77°13'39", Hydrologic Unit 04140201, at New York State Thruway Interchange 43, near Manchester. Owner: New York State Thruway Authority.

AQUIFER.--Confined aquifer in Camillus Shale of the Salina Group of Late Silurian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in, depth 139 ft, cased to 11 ft, open hole.

INSTRUMENTATION.--Float tape read weekly by observer.

DATUM.--Elevation of land-surface datum is 556.70 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of instrument shelf, 11.63 ft above land-surface datum.

REMARKS.--Water in well is subject to freezing during extreme cold periods. No record during period of frozen well Feb. 20 to Mar. 13.

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

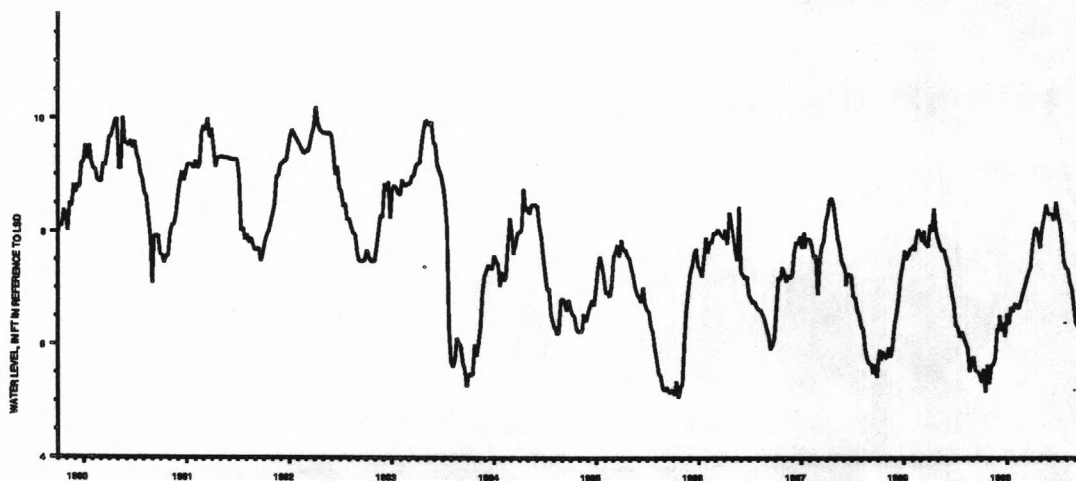
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.14 ft above land-surface datum, Mar. 15, 1976; lowest measured, 4.59 ft above land-surface datum, Nov. 11, 1957.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 8.52 ft above land-surface datum, June 26; lowest measured, 5.17 ft above land-surface datum, Oct. 17.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	5.34	DEC 26	6.14	MAY 01	7.72	JUL 17	7.82
10	5.57	JAN 02	6.54	03	7.88z	24	7.46
17	5.17	09	6.37	08	8.09	31	7.36
24	5.63	16	6.66	15	8.27	AUG 07	7.23
25	5.60z	23	6.58	22	8.47	08	7.31z
31	5.31	30	6.73	29	8.31	14	7.10
NOV 07	5.63	FEB 06	6.68	JUN 05	8.32	21	6.99
14	5.64	13	6.64	12	8.31	28	6.69
21	5.77	MAR 20	7.29	14	8.25z	SEP 04	6.37
28	6.28	27	7.37	19	8.21	11	6.33
DEC 05	6.31	APR 03	7.76	26	8.52	18	6.31
07	6.51z	10	8.01	JUL 03	8.27	25	6.28
12	6.26	17	8.07	10	8.14	26	6.47z
19	6.38	24	7.91				

z Measured by USGS personnel.



GROUND-WATER LEVELS
OTSEGO COUNTY

189

424136075025101. Local number, Og 23.

LOCATION.--Lat 42°41'36", long 75°02'51", Hydrologic Unit 02050101, at "Wild Creek Farm", 0.6 mi northeast of intersection of State Highway 205 and Kallan Road, 2.2 mi north of Hartwick, and 3.2 mi southeast of Oaksville. Owner: Thomas Kallan.

AQUIFER.--Water-table aquifer in till of Pleistocene age.

WELL CHARACTERISTICS.--Dug unused well, diameter 36 in, depth 15 ft, stone-lined.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,432.44 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of hole drilled through concrete well cover, at land-surface datum.

PERIOD OF RECORD.--May 1953 to current year. Records for May 1953 to September 1976 are unpublished and available in files of the Geological Survey.

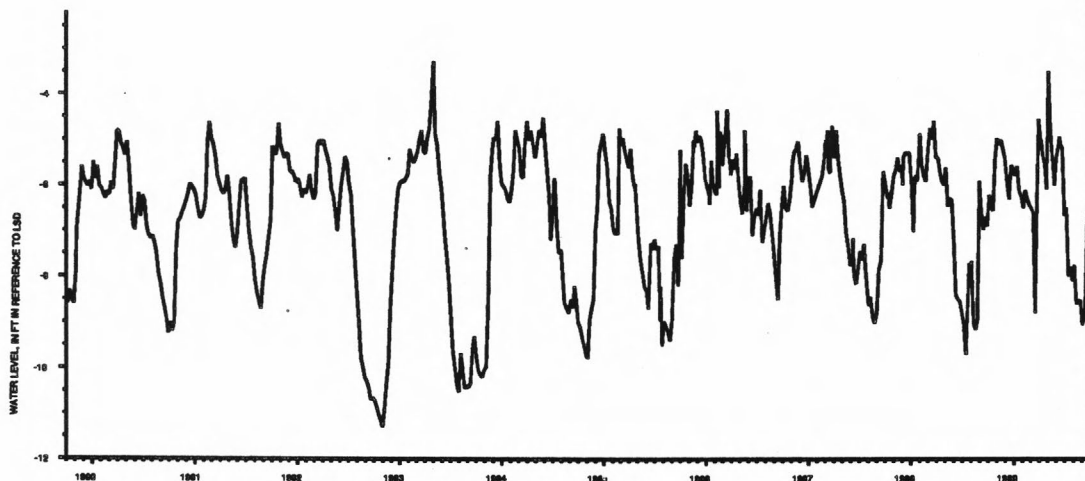
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.98 ft below land-surface datum, Apr. 2, 1960, Sept. 19, 1977; lowest measured, 12.66 ft below land-surface datum, Nov. 14, 1964.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 3.50 ft below land-surface datum, May 6; lowest measured, 9.06 ft below land-surface datum, Sept. 2.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 06	6.22	JAN 13	5.60	APR 11	5.03z	JUL 01	6.67
13	6.43	21	6.14	15	5.32	08	6.51
20	6.56	28	6.26	22	5.56	15	8.00
27	5.44	FEB 04	6.50	29	6.08	22	7.80
NOV 03	4.98	11	6.12	MAY 06	3.50	29	8.10
10	5.10	18	6.30	13	4.80	AUG 05	7.76
17	5.01	25	6.43	20	5.42	12	8.60
24	5.20	MAR 04	6.50	27	6.00	19	8.56
DEC 01	5.40	11	6.60	JUN 03	5.40	26	8.52
09	5.98	18	8.80	10	5.12	SEP 02	9.06
16	6.30	25	6.48	14	4.95z	11	8.89
23	5.56	APR 01	4.56	17	5.11	20	6.80
30	5.65	08	5.01	24	5.20	25	6.29
JAN 05	5.78						

z Measured by USGS personnel.



GROUND-WATER LEVELS
STEUBEN COUNTY

422445077203301. Local number, Sb 472.

LOCATION.--Lat 42°24'45", long 77°20'33", Hydrologic Unit 02050105, near Kanona. Owner: David Owens.

AQUIFER.--Water-table aquifer in gravel of Pleistocene age.

WELL CHARACTERISTICS.--Bored observation well, diameter 2.5 in, depth 17 ft, filled in from original depth of 18 ft, cased to 16 ft, 1.25 in well point (60-gauze screen 16 ft to 18 ft, damaged during well installation).

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,209.78 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1965 to current year. Records for November 1965 to September 1976 are unpublished and available in files of the Geological Survey.

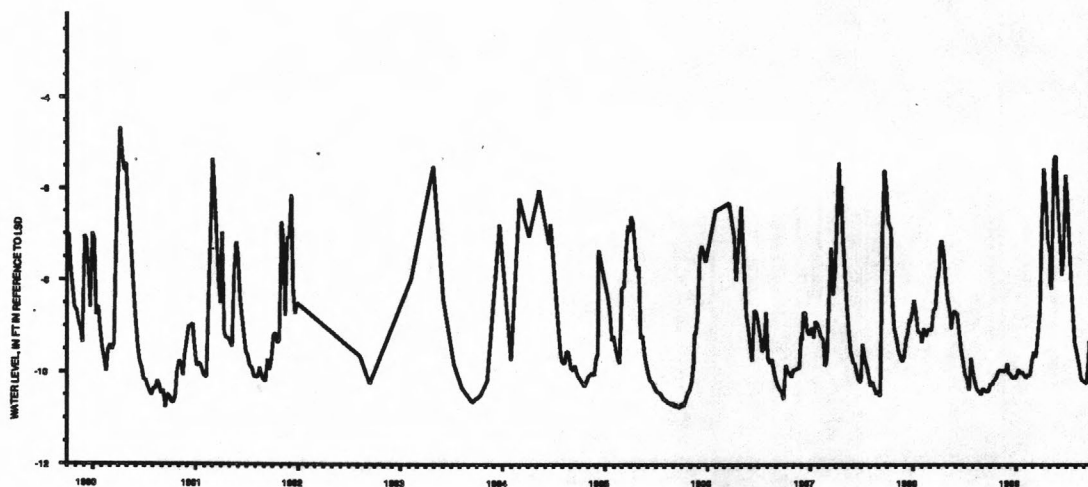
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.64 ft below land-surface datum, June 25, 1972; lowest measured, 10.84 ft below land-surface datum, Sept. 22, 1966.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 5.26 ft below land-surface datum, May 21; lowest measured, 10.27 ft below land-surface datum, Oct. 9.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	10.24	JAN 08	9.94	APR 09	5.55	JUL 09	7.20
09	10.27	15	9.99	16	6.19	16	8.13
12	10.17z	19	10.02z	23	7.13	23	8.79
16	10.17	22	9.98	30	7.38	24	8.91z
23	10.10	29	10.06	MAY 02	8.07z	29	9.36
30	9.97	FEB 05	10.11	07	8.19	AUG 06	9.59
NOV 06	9.95	12	10.05	14	5.36	13	9.82
21	9.97	19	10.06	21	5.26	20	10.11
27	9.91	27	9.70	29	6.34	27	10.19
DEC 01	9.81z	MAR 01	9.69z	JUN 04	7.00	SEP 03	10.20
04	10.01	05	9.55	12	7.88	10	10.24
11	10.02	12	9.66	18	7.53	17	9.63
18	10.12	19	9.18	25	5.70	19	9.32z
26	10.10	26	8.70	JUL 02	6.24	24	9.34
JAN 01	10.11	APR 02	6.70				

z Measured by USGS personnel.



GROUND-WATER LEVELS
WYOMING COUNTY

191

423739077595501, Local number, Wo 1.

LOCATION.--Lat 42°37'39", long 77°59'55", Hydrologic Unit 04130002, Letchworth State Park, near Castile. Owner: New York State Department of Environmental Conservation.

AQUIFER.--Water-table aquifer in till of Pleistocene age.

WELL CHARACTERISTICS.--Driven unused well, diameter 2 in, depth 14 ft, well point (60-gauze screen 12 ft to 14 ft).

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,045.44 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of 2 in by 1 in reducing coupling, 3.33 ft above land-surface datum.

PERIOD OF RECORD.--November 1942 to current year.

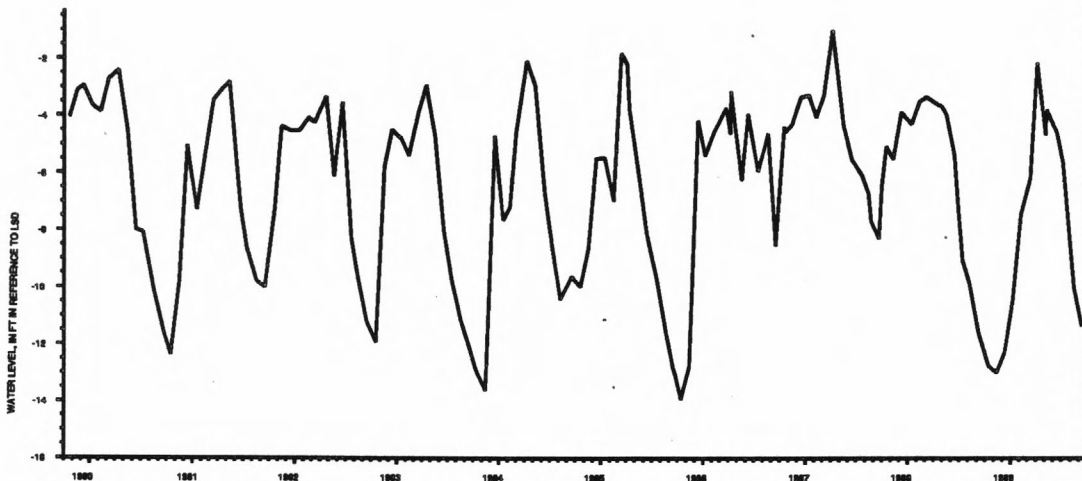
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.5 ft below land-surface datum, Apr. 5, 1947; lowest measured, dry, Dec. 6-27, 1964, Jan. 2, 1965.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 2.17 ft below land-surface datum, Apr. 3; lowest measured, 13.01 ft below land-surface datum, Nov. 11.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	12.63	JAN 07	10.51	MAY 03	4.69z	JUL 04	5.65
13	12.77z	FEB 05	7.45	07	3.82	AUG 13	10.02
NOV 11	13.01	MAR 10	6.20	JUN 12	4.60	SEP 10	11.37
DEC 10	12.28	APR 03	2.17				

z Measured by USGS personnel.



GROUND-WATER LEVELS
WYOMING COUNTY

423743078070802. Local number, Wo 4.

LOCATION.--Lat 42°37'43", long 78°07'08", Hydrologic Unit 04130002, near Gainesville. Owner: Letchworth Central School.

AQUIFER.--Water-table aquifer in sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 20 ft, cased to 20 ft, open end.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 1,606.76 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.60 ft above land-surface datum.

REMARKS.--Well drilled May 1974 as a replacement for 423743078070801 (local number Wo 2), located 25 ft southeast, which has a period of record from November 1965 to May 1974 (unpublished). Water level may be affected by periodic water-quality sampling from health department.

PERIOD OF RECORD.--May 1974 to current year. Records for May 1974 to September 1976 are unpublished and available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.89 ft, below land-surface datum, Mar. 5, 1976; lowest, 14.00 ft, below land-surface datum, Nov. 3, 1974.

EXTREMES FOR CURRENT YEAR.--Highest water level, 10.30 ft, below land-surface datum, June 24-25; lowest, 13.74 ft, below land-surface datum, Oct. 8-9, but may have been lower during period of no gage-height record Feb. 20 to Mar. 15.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.67	13.33	13.41	13.11	12.97	---	12.09	12.65	12.04	10.98	12.71	13.23
2	13.69	13.36	13.41	13.11	12.95	---	11.98	12.60	11.98	11.09	12.74	13.20
3	13.70	13.38	13.42	13.12	12.97	---	11.82	12.61	11.99	11.19	12.74	13.22
4	13.71	13.40	13.42	13.12	13.00	---	11.51	12.63	12.01	11.29	12.76	13.25
5	13.71	13.41	13.42	13.11	13.03	---	11.28	12.66	12.05	11.38	12.76	13.27
6	13.73	13.37	13.42	13.15	13.06	---	11.21	12.69	12.09	11.47	12.78	13.29
7	13.73	13.35	13.43	13.20	13.09	---	11.23	12.72	12.14	11.54	12.81	13.31
8	13.73	13.35	13.43	13.19	13.12	---	11.29	12.70	12.19	11.60	12.83	13.33
9	13.74	13.34	13.44	13.14	13.15	---	11.38	12.68	12.21	11.65	12.86	13.35
10	13.71	13.33	13.44	13.13	13.17	---	11.46	12.62	12.16	11.71	12.90	13.37
11	13.62	13.33	13.46	13.15	13.19	---	11.54	12.31	12.19	11.79	12.92	13.39
12	13.52	13.32	13.47	13.16	13.22	---	11.60	11.84	12.23	11.85	12.95	13.41
13	13.48	13.32	13.46	13.16	13.24	---	11.66	11.56	12.14	11.90	12.97	13.42
14	13.48	13.33	13.47	13.17	13.25	---	11.72	11.52	12.11	11.95	12.93	13.42
15	13.49	13.34	13.48	13.19	13.22	---	11.78	11.54	12.05	12.02	12.92	13.23
16	13.52	13.35	13.49	13.21	13.21	12.79	11.86	11.51	12.00	12.08	12.94	13.19
17	13.55	13.38	13.48	13.23	13.21	12.80	11.92	11.53	11.74	12.14	12.97	13.15
18	13.53	13.40	13.48	13.25	13.23	12.80	11.97	11.58	11.39	12.20	12.99	13.12
19	13.47	13.41	13.50	13.27	13.26	12.80	12.03	11.63	11.30	12.24	13.01	13.11
20	13.45	13.42	13.52	13.28	---	12.80	12.09	11.68	11.24	12.27	12.98	13.12
21	13.45	13.38	13.43	13.30	---	12.81	12.14	11.74	10.86	12.31	13.00	13.13
22	13.42	13.33	13.34	13.31	---	12.81	12.20	11.79	10.63	12.35	13.02	13.15
23	13.36	13.31	13.30	13.32	---	12.81	12.26	11.83	10.48	12.40	13.04	13.04
24	13.31	13.31	13.28	13.32	---	12.81	12.31	11.83	10.32	12.44	13.07	12.97
25	13.27	13.33	13.24	13.33	---	12.78	12.36	11.88	10.31	12.48	13.09	12.95
26	13.26	13.35	13.24	13.23	---	12.68	12.41	11.93	10.40	12.51	13.11	12.96
27	13.27	13.36	13.21	12.99	---	12.65	12.46	11.99	10.51	12.52	13.14	12.99
28	13.27	13.38	13.17	12.96	---	12.63	12.51	12.04	10.63	12.56	13.16	13.02
29	13.28	13.39	13.14	12.98	---	12.57	12.55	12.09	10.76	12.60	13.18	13.05
30	13.29	13.40	13.11	12.99	---	12.46	12.60	12.13	10.88	12.63	13.19	13.09
31	13.31	---	13.11	12.97	---	12.26	---	12.16	---	12.67	13.21	---
MEAN	13.51	13.36	13.37	13.17	---	---	11.91	12.09	11.50	11.99	12.96	13.19
LOW	13.74	13.42	13.52	13.33	---	---	12.60	12.72	12.23	12.67	13.21	13.42
HIGH	13.26	13.31	13.11	12.96	---	---	11.21	11.51	10.31	10.98	12.71	12.95

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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