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by Richard Lumia and Richard B. Moore

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CONVERSION FACTORS AND ABBREVIATIONS

The following factors may be used to convert inch-pound units of measurement to the International System of Units (SI).

Multiply	by	To obtain
inch (in)	2.54×10^{1}	millimeter (mm)
	2.54×10^{-2}	meter (m)
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609	kilometer (km)
Area		
square mile (mi^2)	2.590	square kilometer (km^2)
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-3}	square kilometer (km^2)
Volume		
acre-foot (acre-ft)	1.233×10^{3}	cubic meter (m^3)
	1.233×10^{-6}	cubic kilometer (km^3)
Flow		
cubic foot per second (ft^3/s)	2.832×10^{-2}	cubic meter per second (m^3/s)
gallon per day (gal/d)	2.642×10^{-1}	liter per day (L/d)

Computation of Inflows and Outflows of Eight Regulated Lakes in the Oswego River Basin, New York, 1930-79

By Richard Lumia and Richard B. Moore

ABSTRACT

Estimates of daily inflows and outflows of eight regulated lakes in the Oswego River basin and discharges of three rivers draining these lakes were computed and compiled for use in evaluating lake-regulation procedures in the basin's stream and reservoir system and are stored on computer. This report includes a table of monthly flows at these sites from 1930-79.

Computations were based on records from the 1930-79 water years. Daily net inflow estimates (lake inflow minus evaporation and possible ground-water seepage) were computed from the outflows and changes in lake storage. Lake storage was estimated from lake-level data and elevation-capacity curves for each lake. A smoothing technique was applied to plots of daily lake levels before net inflows were computed. Where lake-level or outflow data were missing, net inflows were estimated from linear-regression equations.

Analysis of results indicates that (1) smoothing the plots of daily lake levels significantly reduces random fluctuations resulting from seiche or wind action; (2) continuous lake-stage recorders provide a more reliable record than staff gages (once-daily, lake-level readings) for computing daily changes in lake storage; and (3) the effect of smoothing decreases as the computational period is increased.

INTRODUCTION

Most regulated lakes and rivers in the Oswego River basin serve multiple purposes, including flood control, low-flow augmentation, water supply, Barge Canal use, hydroelectric power, and recreation. Sound management of these resources depends on an extensive and reliable data base of flows. In 1980-81, the U.S. Geological Survey compiled and computed estimates of daily inflows and outflows of eight regulated lakes in the Oswego River basin and discharges of three rivers draining the lakes for the 1930-79 water years. Several approximating procedures were used to obtain best estimates of daily flows. The resulting data are on file at the office of the U.S. Geological Survey in Albany, N.Y., and are available for inspection.

Purpose and Scope

This report describes (1) methods of computation used to obtain the daily lake inflows and outflows and river discharges; (2) sources of error and their implications for reliability of the computed values; and (3) a technique for smoothing lake-level hydrographs that minimizes the effect of random fluctuations in daily lake-levels resulting from seiche or wind action.

Acknowledgments

This study was done in cooperation with the U.S. Army Corps of Engineers, Buffalo District. Data were provided by New York State Department of Transportation; the New York State Department of Environmental Conservation; the cities of Auburn, Syracuse, Canandaigua, and Rome; the Onondaga County Water Authority; the villages of Penn Yan, Newark, Gorham, and Palmyra; the Niagara Mohawk Corporation; and the New York Electric and Gas Coporation.

Terminology

Water year.--a continuous 12-month period from October 1 to September 30, arbitrarily selected for the presentation of data relative to hydrologic or meteorologic trends. For example, October 1, 1929 to September 30, 1930 is the 1930 water year. All periods referred to in this report are water years.

NGVD.--most elevation data in this report are referenced to National Geodetic Vertical Datum of 1929, which is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada, formerly called mean sea level. NGVD of 1929 is referred to as sea level in this report.

OSWEGO RIVER BASIN

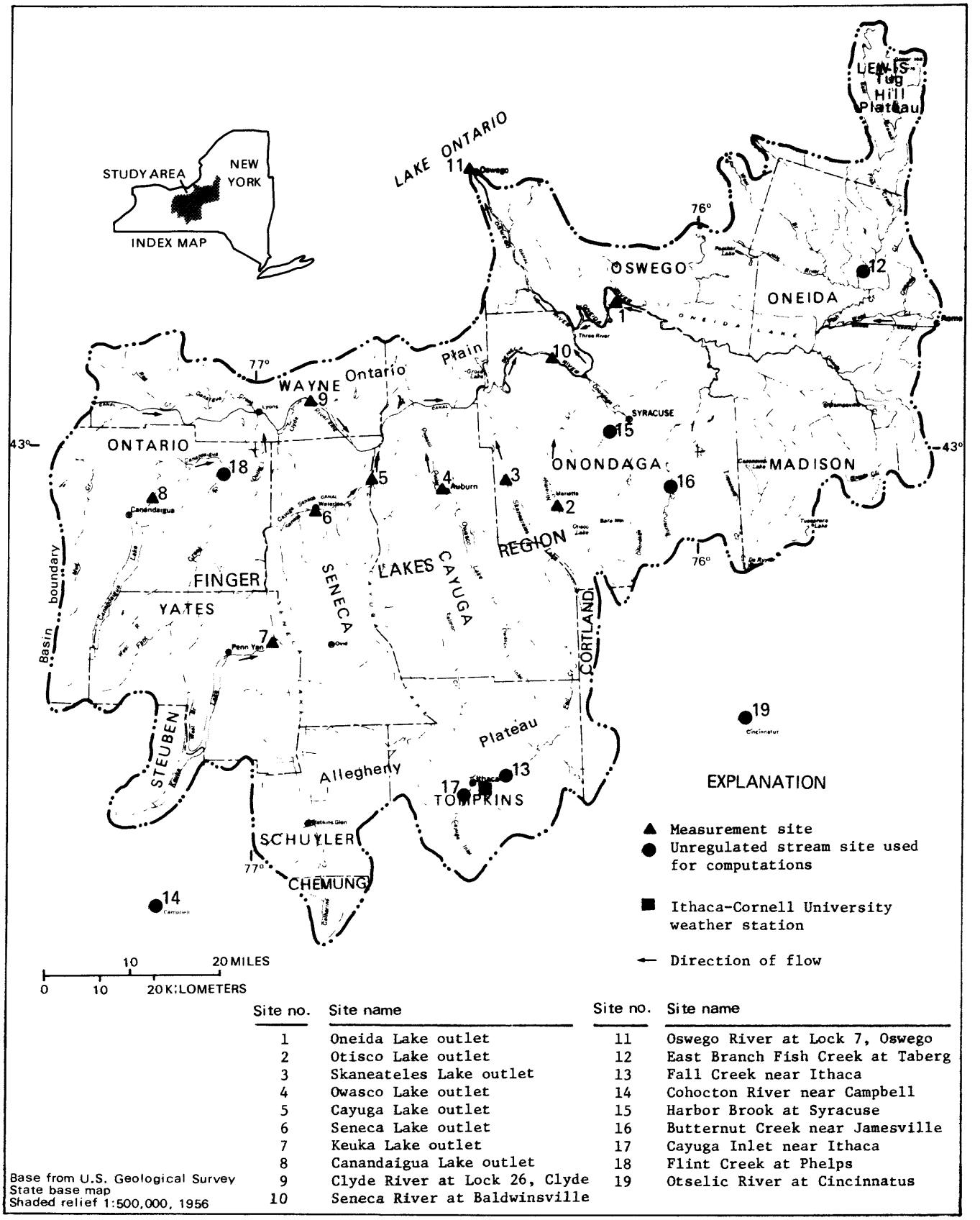
The Oswego River basin, in west-central New York (fig. 1), has a maximum width of 100 mi and a maximum length (north-south) of 75 mi. The basin drains 5,100 mi^2 (Greeson and Williams, 1970). The Oneida and Seneca Rivers join to form the Oswego River, which flows northwestward into Lake Ontario at Oswego.

The New York State Barge Canal, maintained and operated by the New York State Department of Transportation, traverses the basin from west to east. The Cayuga-Seneca Canal connects Seneca and Cayuga Lakes to the canal system, and the Oswego Canal permits access to Lake Ontario.

The basin extends across three major physiographic provinces--the nearly level Ontario Plain in the northern part; the steep, hilly Allegheny Plateau in the southern part; and the southern slope of the Tug Hill Plateau in the northeastern part (fig. 1).

The Ontario Plain area is characterized by low relief, meandering streams, and extensive swampy areas. Land-surface elevation ranges from 500 to 600 ft above sea level.

The Allegheny Plateau is characterized by rolling uplands, deep north-south oriented lakes (the Finger Lakes), and short, steep, east-west trending valleys containing streams tributary to the lakes. The Finger Lakes occupy former stream valleys that were deepened by southward-moving glacial ice. Streams draining the southern part of these valleys, which are now blocked by glacial debris, have sustained flow derived from ground water within the coarse glacial sediments.



Site no.	Site name	Site no.	Site name
1	Oneida Lake outlet	11	Oswego River at Lock 7, Oswego
2	Otisco Lake outlet	12	East Branch Fish Creek at Taberg
3	Skaneateles Lake outlet	13	Fall Creek near Ithaca
4	Owasco Lake outlet	14	Cohocton River near Campbell
5	Cayuga Lake outlet	15	Harbor Brook at Syracuse
6	Seneca Lake outlet	16	Butternut Creek near Jamesville
7	Keuka Lake outlet	17	Cayuga Inlet near Ithaca
8	Canandaigua Lake outlet	18	Flint Creek at Phelps
9	Clyde River at Lock 26, Clyde	19	Otselic River at Cincinnatus
10	Seneca River at Baldwinsville		

Base from U.S. Geological Survey
State base map
Shaded relief 1:500,000, 1956

Figure 1.--Major geographic features of Oswego River basin and location of selected hydrologic monitoring sites.

The Tug Hill Plateau reaches elevations of more than 2,000 ft above sea level within the basin. Below about 1,800 ft, major streams are well entrenched in shallow, northwest-southeast trending valleys.

The climate of the Oswego River basin is continental but modified somewhat by its proximity to the Great Lakes. The principal storms affecting the area are associated with eastward-moving air masses whose northward shift during summer allows moisture-laden air to move in from the south. Average annual precipitation ranges from 32 in/yr on the western lowlands to almost 60 in/yr on Tug Hill; distribution is fairly uniform throughout the year (Dethier, 1966).

DATA COMPILATION AND PRELIMINARY COMPUTATIONS

The data computed and compiled during this study include outflows (flows leaving lake-outlet structures), net inflows (all inflow to the lakes upstream from outlet structures and the effects of precipitation on the lakes, evaporation from the lakes, and possible ground-water seepage), and diversions to or from the lake basins. Also given are flows of three rivers draining the lakes. Locations of hydrologic-monitoring sites are given in fig. 1; drainage areas and lake-surface areas are given in table 1. Data available from files of the Geological Survey or obtained from State and local agencies and private companies include lake levels, outflows, diversions into or out of each lake basin, rating curves for outlet structures, and lake elevation-storage curves. The sources and types of data used are summarized in table 2.

Only minor adjustments were needed to standardize discharge units and to convert lake levels to sea level. Outflow records from Seneca and Otisco Lakes were incomplete, however, and it was necessary to compute the discharges from several sources of related data, as outlined below.

Seneca Lake

Daily outflows from January 1969 through September 1979 were computed as the sum of the flow through the electric powerplant, locks, and tainter gate at Waterloo. Flow through the powerplant was computed from (1) daily power-output records supplied by New York Electric and Gas Corporation, (2) records of water-surface elevations upstream and downstream from the powerplant, supplied by New York State Department of Transportation (Division of Canals and Waterways), and (3) a set of rating curves supplied by New York Electric and Gas Corporation relating items (1) and (2) to discharge. Flow through the locks was computed from the size of each lock and the number of lockages per day; this value was significant only for periods of low flow. Flow through the tainter gate was computed from records of daily gate openings, lake levels, and a rating curve supplied by New York State Department of Transportation.

Otisco Lake

Records of gate openings and lake levels were supplied by Onondaga County Water Authority. Rating curves relating lake level to discharge over the spillway or through the gate openings, and outflow to downstream pool elevation, were furnished by the Corps of Engineers. From daily lake levels, the discharge over the spillway was computed through a direct application of the supplied rating curve, but computation of daily discharges through the gates was more complicated because these flows were a function of gate openings, lake levels, and downstream pool elevations. The downstream pool elevations were not provided, although a curve relating them to total discharge was available. Downstream pool elevation is a function of total discharge, and conversely, the part of this discharge passing through the gates is a function of the downstream pool elevation. An iterative procedure was thus required and developed whereby solutions for daily outflows were determined within 5 percent of the unique solution.

Table 1.--Drainage area and surface areas of lakes and river-monitoring sites, Oswego River basin, New York

[Site locations are given in fig. 1.]

Site	Drainage area[1] (mi^2)	Surface area (mi^2)
Oneida Lake	1,382	79.8
Otisco Lake	42.7	3.46
Skaneateles Lake	72.7	13.6
Owasco Lake	206	10.6
Cayuga Lake	[2]1,564	66.9
Seneca Lake	[3]742	67.6
Keuka Lake	207	18.3
Canandaigua Lake	195	16.6
Clyde River at Lock 26, Clyde	845	--
Seneca River at Baldwinsville	3,138	--
Oswego River at Lock 7, Oswego	5,100	--

1 Drainage areas above point of gaged outflow.
2 Includes drainage area of Keuka and Seneca Lakes.
3 Includes drainage area of Keuka Lake.

Table 2.--Sources and types of data used in study.
[Locations are shown in fig. 1.]

Site and type of data	Source of data[1]	Period of record (month/year)	Remarks[2]
Oneida Lake:			
Lake levels	NYSDOT	10/29-10/51	Once daily readings.
	U.S. Geological Survey	11/51-09/79	Gaging station 04246000 at Brewerton, daily mean values.
Outflows	NYSDOT	10/29-09/47	At Caughdenoy.
	U.S. Geological Survey	10/47-09/79	Gaging station 04246500 at Caughdenoy.
Diversions	city of Rome	10/29-09/79	Monthly diversion values for city of Rome.
Otisco Lake:			
Lake levels	OCWA	10/29-09/79	Once-daily readings at outlet structure.
Outflows	OCWA	10/29-05/64	Daily mean values computed for study.
	U.S. Geological Survey	06/64-09/79	Gaging station 04240180 at Marietta.
Diversions	OCWA	10/29-09/79	Daily diversion values for city of Syracuse.
Skaneateles Lake:			
Lake levels	city of Syracuse	10/29-09/79	Once-daily readings (station 04236000).
Outflows	do.	10/29-09/79	Determined at lake outlet.
Diversions	do.	10/29-09/79	Daily diversion values for city of Syracuse and village of Skaneateles.
Owasco Lake:			
Lake levels	city of Auburn	10/29-09/79	Once daily readings (station 04235396).
Outflows	U.S. Geological Survey	10/29-09/79	Gaging station 04235500 near Auburn.
Cayuga Lake:			
Lake levels	NYSDEC	10/29-07/56	Once-daily readings at outlet structure.
	U.S. Geological Survey	08/56-09/79	Gaging station 04233500 at Ithaca, daily mean values.
Outflows	NYSDEC	10/29-12/65	Determined at lake outlet.
	NYSDOT	01/66-09/79	Do.

Seneca Lake:			
Lake levels	NYSDEC	01/31-09/56	Once-daily readings at outlet.
	U.S. Geological Survey	10/56-09/79	Gaging station 04232400 at Watkins Glen, daily mean values.
Outflows	NYSDEC	01/31-06/45	Determined at lake outlet.
	NYSDEC	01/46-12/66	Do.
	NYE&G and NYSDOT	01/69-09/79	Daily mean values computed for study.
Keuka Lake:			
Lake levels	NYE&G	06/31-08/60	Once-daily readings (intermittent record).
	U.S. Geological Survey	09/60-09/79	Gaging station 04232450 at Hammondsport, daily mean values.
Outflows	U.S. Geological Survey	04/65-09/79	Gaging station 04232482 at Dresden.
Diversions	NYE&G	06/31-09/79	Daily diversion values into Keuka Lake from Susquehanna River Basin (Waneta and Lamoka Lakes) for power development (station 01528700).
Canandaigua Lake:			
Lake levels	city of Canandaigua	12/39-06/46	Once-daily readings at outlet.
	U.S. Geological Survey	07/46-09/79	Gaging station 04234500 at Canandaigua, daily values.
Outflows	U.S. Geological Survey	12/39-09/79	Gaging station 04235000 at Chapin.
Diversions	city of Canandaigua, villages of Newark, Palmyra, Gorham, and Rushville	01/48-09/79	Monthly diversions for municipal supplies.
Clyde River Lock 26, Clyde (river flows).	NYSDEC	01/35-12/66	Sporadic record before 1935.
	NYSDOT	01/67-09/79	
Seneca River at Baldwinsville (river flows).	NYSDOT	10/29-03/50	
	U.S. Geological Survey	04/50-09/79	Gaging station 04237500 at Baldwinsville.
Oswego River at Lock 7, Oswego (river flows).	U.S. Geological Survey	11/33-09/79	Gaging station 04249000 at Lock 7, Oswego.

[1] NYSDOT, New York State Department of Transportation; OCWA, Onondaga County Water Authority; NYSDEC, New York State Department of Environmental Conservation; NYE&G, New York Electric and Gas Corp.

[2] Data from stations assigned a Geological Survey station number were accessed through WATSTORE (Daily Values computer file).

A 50-year (1930-79) daily outflow record, excluding 5 months when repair work was being done on the dam, was calculated by the iterative procedure. The 1965-79 part of this computed record was highly correlated ($r^2 = 0.88$) with outflows recorded at gaging station 04240180 near Marietta, 1.8 mi downstream from Otisco Lake. The coefficient of determination (r^2) gives an indication of the strength of the relationship (Haan, 1977). The 15 years of gaged flows at station 04240180 were used as lake outflow for 1965-79. A regression of computed daily outflows on gaged daily outflows for the 15-year period had a standard error of estimate of $\pm$ 24 ft^3/s, which is equivalent to about $\pm$ 0.02 ft in daily lake-level change for Otisco Lake. The standard error of estimate for a regression of monthly outflows (1965-79) is $\pm$ 20 ft^3/s, or $\pm$ 0.02 ft change in lake level.

The strength of the correlation between the computed and gaged daily outflows for the 15-year period provides confidence in the computed outflows for the other 35 years.

LAKE-INFLOW COMPUTATIONS

The following equation was used for computing daily net inflows to the lakes studied:

$$I_i = O_i + (S_i - S_{i-1}) + D_{i_{out}} - D_{i_{in}} \qquad (1)$$

where: I_i is net inflow on the ith day

O_i is outflow on the ith day

$S_i - S_{i-1}$ is change in lake storage from the ith to the ith-1 day

D_i is water diverted into or out of the basin on the ith day.

Daily diversions for municipal supplies, power generation, etc. were applied in computing net inflows to each lake as follows:

Oneida Lake.--Inflow computations include addition of diversions out of the basin for the city of Rome.

Otisco Lake.--Inflow computations include addition of diversions out of the basin for the city of Syracuse.

Skaneateles Lake.--Inflow computations include addition of diversions out of the basin for the city of Syracuse and the village of Skaneateles.

Owasco Lake.--Inflow computations included no diversions.

Cayuga Lake.--Inflow computations include addition of outflows from Seneca Lake.

Seneca Lake.--Inflow computations include addition of outflows from Keuka Lake.

Keuka Lake.--Inflow computations include subtraction of diversions into the basin from Waneta and Lamoka Lakes.

Canandaigua Lake.--Inflow computations include addition of diversions out of the basin for the city of Canadaigua and villages of Newark, Palmyra, Gorham, and Rushville.

All terms in equation 1 are in units of volume. To compute lake storage for a given day, the authors developed lake elevation-storage curves for each of the eight lakes being studied. The relationships were determined from Geological Survey 7.5-minute topographic maps. A detailed analysis of the inflow computations is presented in the following sections.

Sources and Magnitude of Errors

Each term in equation 1 has an associated error, and net inflow is the residual term in which errors in the measured components are reflected. Because measured inflows to each lake are not available, direct statistical analyses of lake-inflow errors are not possible. To provide an indication of the possible errors involved in estimating the net inflows to the lakes, an estimate of errors for each measured component in equation 1 is needed.

Computed inflows are approximate at best but are considered the most accurate that could be determined from the data. Also, the inflows and outflows are not intended for use in daily computations but are to be combined into longer duration periods. The inherent errors are minimized as the period of application increases.

For lakes having continuous-record gaging stations at or near their outlets, the computed outflows are generally considered to have errors of 5 to 10 percent, as inferred from several studies made on current-meter discharge measurements and stage-discharge relationships (Winter, 1981). For lakes without gaged outlets, outflows were computed from theoretical ratings based on either the dimensions of the outlet structure and (or) power-generation output records. These theoretical rating curves are verified by current-meter discharge measurements; therefore, the resulting errors should not be excessive.

Errors associated with computation of flow diversion into or out of the lake basins are generally insignificant. Measurement errors are similar in magnitude to those for theoretically derived outflows. However, the diversions are a minor component of the total water budget for all lakes studied except Skaneateles Lake, from which the diversions to the city of Syracuse form a significant "outflow."

Most errors associated with calculation of changes in lake storage can be attributed to two sources. First, a minor error results from the lake elevation-storage curve determined from the topographic maps. The error results from the large contour interval and the placement of contour lines on the maps. The flood-plain area of the lakes ranges from 1 to 16 percent of

the total water-surface area (as determined from the topographic maps); therefore, errors in computed lake-surface area at high stages are small compared with the total surface area of the lake. Thus, the lake elevation-storage curves are reliable for this study.

The second source of error results from use of observed lake levels as a measure of changes in lake volume. This is the most significant source of error in the computation of lake inflows, as is evident in the plots of the lake-level records described later. For example, during periods of once-daily lake-level readings, Oneida Lake indicates maximum random fluctuations of about $\pm$ 0.07 ft and Keuka Lake about $\pm$ 0.05 ft, whereas the random fluctuation for periods of daily mean lake stage (computed from hourly recorded readings) is generally less than half these values. Available data indicate that the random fluctuations, for the most part, cannot be attributed to erratic regulation of the outflows nor to evaporation or precipitation because the fluctuations are evident even when outflows and estimated evaporation are nearly constant and precipitation is insignificant or zero. Figure 2 illustrates that random lake-level fluctuations of approximately the same magnitude as described above are apparent in recorded hourly data. Because these fluctuations are too rapid and large to be attributed to changes in hourly inflow or outflow, an individual lake-level measurement cannot be directly used as an indicator of the volume of water in lake storage. Lake-level observations are subject to error from waves and seiches, which are common in the eight lakes studied, and, for once-daily measurements, human error is also a factor. Errors from lake-level fluctuations become significant when translated to daily net inflows. When weekly or monthly inflows are calculated, however, the effect is minimized. Table 3 gives two examples to illustrate this point.

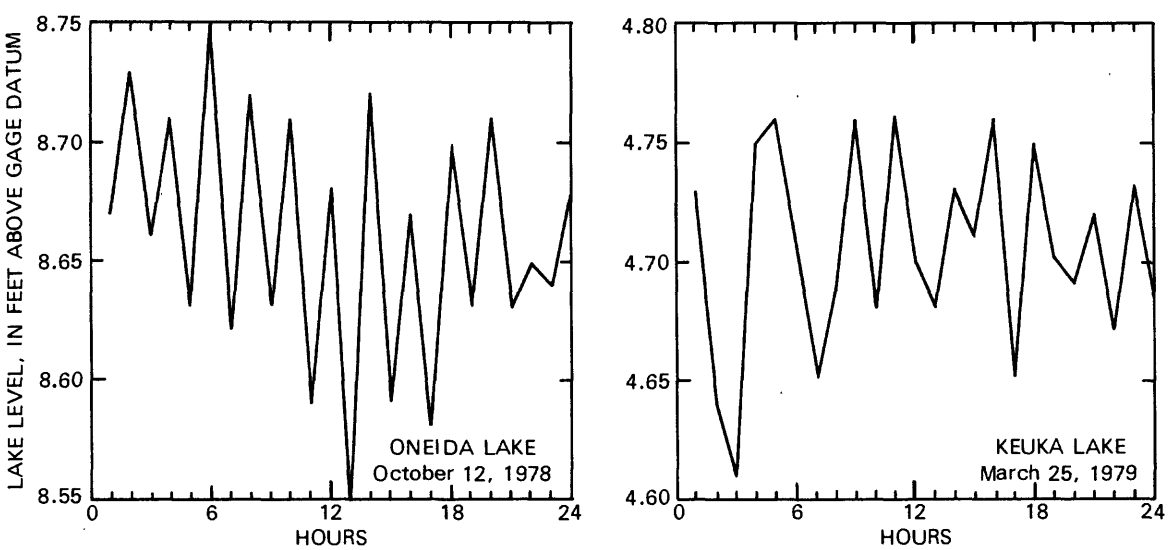


Figure 2.--Example of random fluctuations in plot of hourly recorded lake levels.

Table 3.--Effect of random lake-level fluctuations on computed net inflows to two representative lakes.

Lake	Maximum random fluctuation (ft)[1]	Resultant maximum error in computed net inflow for indicated period		
		Period	Maximum error (ft^3/s)	Maximum error as percentage of mean net inflow (1930-79)[2]
Oneida	± 0.07	Daily	± 1,810	74
		Weekly	± 258	11
		Monthly	± 60	2
Keuka	± 0.05	Daily	± 295	160
		Weekly	± 42	23
		Monthly	± 10	5

[1] Estimated from plots of daily lake-level readings.
[2] Percentages for Oneida Lake are less than those for Keuka Lake primarily because once-daily lake-levels for Oneida Lake are average of three lake gages.

Lake-Level Hydrograph-Smoothing Technique

A lake-level hydrograph smoothing technique was developed in this study to reduce the errors introduced into the net inflows from the observed lake-level data. The main consideration in developing the smoothing technique was to distinguish random fluctuations from real changes in lake volume. As a guide in smoothing the observed lake-level hydrographs, "theoretical" lake levels were computed and were plotted concurrently (offset by 2 ft) with the observed lake levels. To determine the theoretical levels, daily changes in lake storage were computed from the rearranged equation 1 as follows:

$$(S_i - S_{i-1}) = I_i - O_i - D_{i_{out}} + D_{i_{in}} \qquad (2)$$

Daily changes in lake storage were converted to daily changes in lake-surface elevation through the lake elevation-storage curves. Daily inflows (I_i) were approximated by multiplying gaged daily discharges at a nearby unregulated stream by a drainage-area factor. These flows (I_i) were estimated from streamflows from Cohocton River near Campbell (for Canandaigua Lake), East Branch Fish Creek at Taberg (for Oneida Lake) and Fall Creek near Ithaca (for the remaining six lakes). These unregulated streams were three of the few in the study area that had daily streamflow records for 1930-79.

A major assumption in applying the foregoing procedure is that variations in flow from a nearby unregulated stream are representative of variations in total inflow to the lake in question. The validity of this assumption depends on the similarity of the hydrologic characteristics of a lake basin and a nearby stream basin. Most of the study area is underlain by shale bedrock

covered by till, both of which probably yield little ground water to the system. The total area of unregulated inflow to the eight lakes studied is about 3,100 mi^2. Of this total, about 70 percent is carried by unregulated streams having drainage areas at their mouths (lake inlet) greater than 25 mi^2. Streams draining areas greater than 5 mi^2 represent 80 percent of the area of unregulated inflow. These factors suggest that surface runoff controls day-to-day fluctuations of lake levels and that correlation of daily lake inflow with concurrent daily streamflow at a nearby stream is reasonable.

Weather patterns are also uniform throughout the area, except in the Tug Hill area and during local thunderstorms in summer. Because a detailed analysis of daily rainfall over the basin for 1930-79 was not feasible, an analysis of correlations between daily streamflows from unregulated streams in the study area was made. Results are presented in table 4. The table indicates strong correlations except for East Branch Fish Creek at Taberg, an area of anomalous hydrologic characteristics. The strength of the other correlations suggests that use of Fall Creek and Cohocton River as index streams to develop the theoretical lake levels is reasonable.

Using the shape of the theoretical lake-level trace as a guide, the authors manually smoothed plots of the observed daily lake levels. The result for 6 months of once-daily measurements on Cayuga Lake is illustrated in figure 3. In general, very little smoothing was needed for periods of significant runoff because the random errors during high lake inflows become small in relation to total lake inflow. Therefore, smoothing was done mainly for

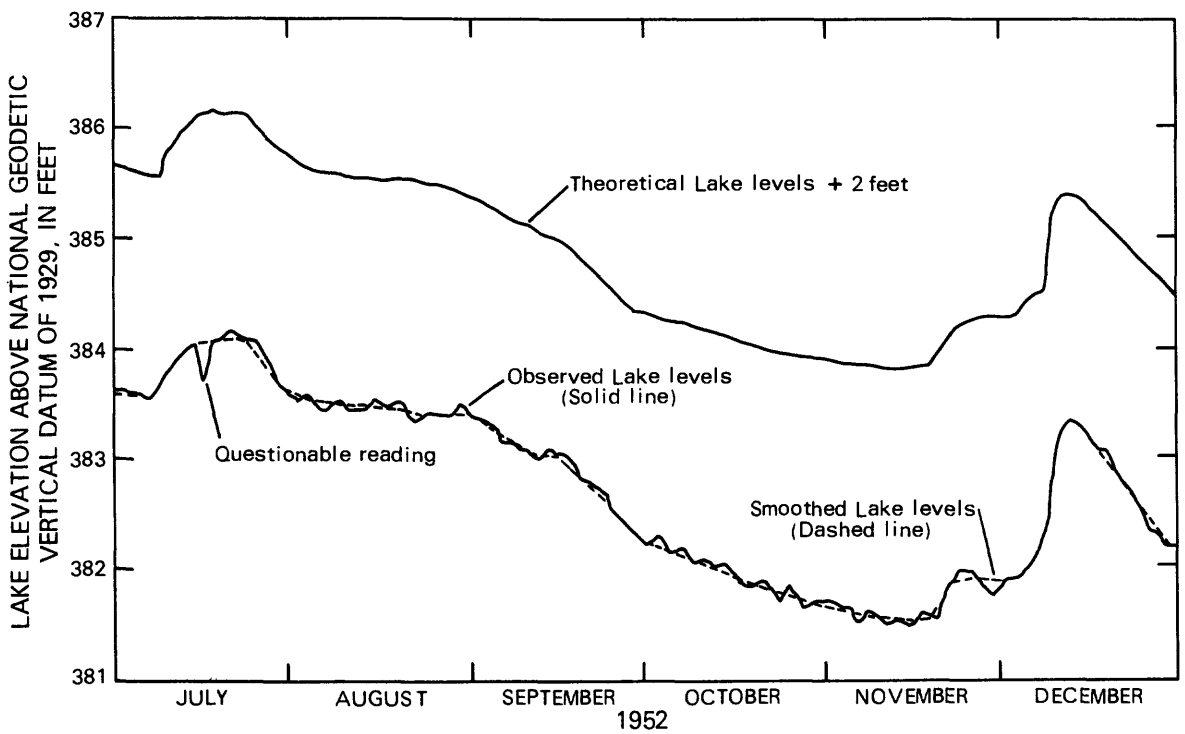


Figure 3.--Example of lake-level hydrograph-smoothing technique, Cayuga Lake, July to December 1952.

recession periods, when rainfall is insignificant or zero. Because O_i (observed lake outflow) is used in equation 2, lake-level fluctuations resulting from regulation of the lake outlet are also reflected in the theoretical lake-level trace. Where significant fluctuations were indicated in one trace but not the other, rainfall records were inspected for those days, and the smoothing procedure was applied or omitted accordingly.

The purpose of the lake-level hydrograph smoothing technique is not to predict daily lake inflows from concurrent streamflows but to reduce error in interpretation of the observed lake levels, thus providing a better estimate of daily net inflows.

Table 4.--Correlations of daily streamflows, October 1, 1959, to September 30, 1980.
[Locations are shown in fig. 1.]

Stream	Drainage area (mi^2)	Value of r^2 (percent)[1]
[2] 13 - Fall Creek near Ithaca	126	
correlated with:		
18 - Flint Creek at Phelps	102	66
17 - Cayuga Inlet near Ithaca	35.2	78
15 - Harbor Brook at Syracuse	10.0	67
16 - Butternut Creek near Jamesville	32.2	76
19 - Otselic River at Cincinnatus	147	81
12 - East Branch Fish Creek at Taberg	188	29
14 - Cohocton River near Campbell	470	
correlated with:		
13 - Fall Creek near Ithaca	126	74
18 - Flint Creek at Phelps	102	74
12 - East Branch Fish Creek at Taberg	188	24

[1] Coefficient of determination (r^2) x 100 (percent of variance explained by the correlation).
[2] Site numbers refer to those shown in fig. 1.

Evaluation of Smoothing Technique

Because inflows to the lakes are unknown, direct statistical evaluation of the computed inflows and the lake-level hydrograph-smoothing technique is impossible. To evaluate the technique, the authors made several statistical correlations between streamflows at nearby unregulated streams and the computed net inflows to the lake in question. The degree of correlation between streamflows and inflows is expressed by the coefficient of determination, r^2.

Daily streamflows at gaging stations on nearby unregulated streams were correlated with concurrent daily net inflows computed from both the original (unsmoothed) lake-level data and the smoothed lake-level data. Results of the correlations for four of the lakes are presented in table 5. Canandaigua Lake was equipped with a recording gage (daily-mean lake levels) during 85 percent of its period of record; Otisco and Skaneateles Lakes were equipped with a nonrecording staff gage (once-daily lake level readings) for their entire

Table 5.--Effects of smoothing daily lake-level data on computed daily net inflows to four selected lakes.
[Locations are shown in fig. 1.]

Lake	Stream used for correlation	Number of years and type of lake-level data[1]	Type of net inflow data	Value of r^2 (percent)[2]	Improvement (r^2 smoothed minus r^2 unsmoothed)
Canandaigua	Cohocton River near Campbell	40 (C)	Smoothed	76	12
			Unsmoothed	64	
		6 (NR)	(not run separately)		
		34 (R)			
Otisco	Fall Creek near Ithaca	50 (NR)	Smoothed	69	20
			Unsmoothed	49	
Skaneateles	Fall Creek near Ithaca	50 (NR)	Smoothed	68	36
			Unsmoothed	32	
Cayuga	Fall Creek near Ithaca	50 (C)	Smoothed	65	23
			Unsmoothed	42	
		27 (NR)	Smoothed	63	31
			Unsmoothed	32	
		23 (R)	Smoothed	68	6
			Unsmoothed	62	

[1] C, combined periods of nonrecording and recording gages;
NR, nonrecording gage (once-daily lake-level readings);
R, recording gage (daily mean lake-level values).

[2] Coefficient of determination (r^2) x 100 (percentage of variance explained by correlation).

period of record; and Cayuga Lake was equipped with a recording gage during 46 percent of its period of record. The daily net inflows were also correlated with daily streamflows from other nearby gaging stations with shorter periods of record. Results were similar. For example, correlation of daily net inflows to Otisco Lake with concurrent daily streamflows at Harbor Brook at Syracuse for 1959-79 gave r^2 values of 0.44 and 0.70 for unsmoothed and smoothed inflows, respectively.

The r^2 values for the unsmoothed net inflows indicate that a significant amount of the variance is explained by the correlation. This is despite the large amount of random error in the observed lake levels and measurement errors in the remaining components of the lake's mass-balance equation. If random "noise" (the major source of error in the mass balance equation) in observed lake-level fluctuations is minimized by smoothing, the correlation between daily net inflows and daily streamflows at a nearby unregulated stream should improve. The r^2 values in table 5 indicate significant improvement. In most cases, much more of the variance is explained by the correlation with smoothed inflows. The greatest improvement is in daily net inflows computed from once-daily (nonrecording) lake-level data. Daily inflows computed from daily-mean (recording) lake-level data would be expected to show less improvement because the random fluctuations (from time sampling and human error) are substantially reduced.

Similar correlations were done for three of the lakes on a monthly basis; results are presented in table 6. Here smoothing produces little improvement, primarily because the effects of waves and seiches are nearly equalized over the longer computation interval.

Table 6.--Effects of smoothing daily lake-level data on computed monthly net inflows to three selected lakes.

[Locations are shown in fig. 1.]

Lake	Stream used for correlation	Number of years	Type of net inflow data	Value of r^2 (percent)[1]	Improvement (r^2 smoothed minus r^2 unsmoothed)
Canandaigua	Cohocton River near Campbell	40	Smoothed	89	0
			Unsmoothed	89	
Otisco	Fall Creek near Ithaca	50	Smoothed	84	1
			Unsmoothed	83	
Skaneateles	Fall Creek near Ithaca	50	Smoothed	88	1
			Unsmoothed	87	

[1] Coefficient of determination (r^2) x 100 (percentage of variance explained by the correlation).

To illustrate the effectiveness of the smoothing procedure, a 6-month period (July-December 1952) was chosen for Cayuga Lake; inflow computations with and without smoothing are plotted in figure 4, which includes related factors for comparison. The computation period (July-December 1952) corresponds to the period used to illustrate the hydrograph-smoothing technique for Cayuga Lake (fig. 3). The observed lake levels were once-daily (nonrecording) readings. The regulated daily outflows from Seneca Lake and the daily streamflows at Fall Creek near Ithaca are both part of the total inflow to Cayuga Lake. The daily rainfall record is from the Ithaca-Cornell University Weather Bureau station (fig. 1), near the southeast end of Cayuga Lake.

Random fluctuations are prominent in the plot (fig. 4) of "unsmoothed" daily net inflows. The extreme fluctuation in mid-July is a result of an erroneous lake-level measurement, and most fluctuations in the "unsmoothed" plot have no apparent relation to water entering or leaving the lake.

Daily changes in lake levels are measured to the nearest 0.01 ft. For a large lake such as Cayuga, a 0.01-ft change in lake level represents a change in lake storage of 428 acre-ft, which means that a computed daily net inflow value for Cayuga Lake is accurate, at best, to within $\pm$ 216 ft^3/s and, for a small lake such as Otisco Lake, to within $\pm$ 11 ft^3/s. In contrast, the errors in monthly mean net inflow values are much less for a 0.01-ft error in lake-level measurement. Even if monthly lake-level data were accurate to only $\pm$ 0.05 ft, the error in monthly mean net inflow values would be only 36 ft^3/s and 2 ft^3/s for Cayuga and Otisco Lakes, respectively. This improvement reflects the preservation of total mass balance as errors in computed daily net inflows offset each other through time.

The errors incurred through daily net inflow computations are not critical to most hydrologic applications. For example, in simulating responses to lake regulation, the amount of water available is the primary concern. The 216 ft^3/s error in computed daily net inflows for Cayuga Lake would translate into only 0.01-ft error in lake level; thus, lake levels simulated from the flow values should be sufficiently accurate for most purposes.

Estimation of Net Inflows for Periods of Missing Record

Net inflow values could not be computed directly from equation 1 when either daily outflows or daily lake levels were unknown. Inflow values during periods of missing record were estimated from a regression of lake inflows against concurrent flows at other sites. This technique produces a straight line representing the "best fit" to the two sets of values. Several regressions were made for each lake having missing periods of record to determine which station's flows correlated best with inflows to the lake in question. The coefficient of determination (r^2) was used to evaluate the strength of each correlation. For two lakes (Otisco and Seneca), the best correlation resulted from relating net inflows to the sum of net inflows to nearby lakes.

Results of the regression analyses are given in table 7. The slope of the regression line (X-coefficient in each equation) is approximately equal to the drainage-area ratio, as expected. The standard error of estimate (SE_y) is given in ft^3/s and converted to change in lake level, in feet, for daily and monthly computations.

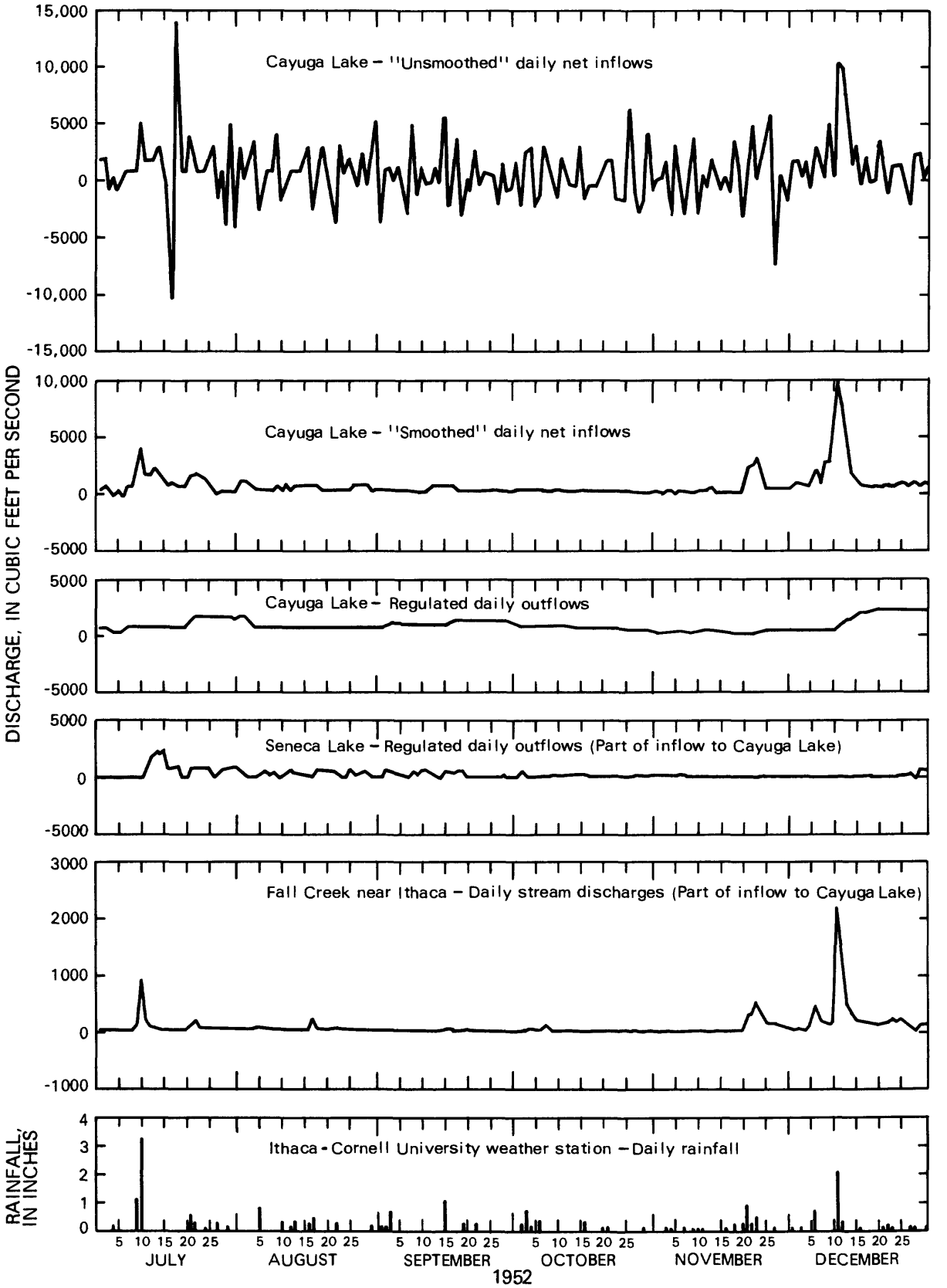


Figure 4.--Example of inflow and outflow data used to evaluate lake-level hydrograph-smoothing technique. [Locations are shown in fig. 1.]

Table 7.--Summary of regression analyses to estimate inflows.
[Locations are shown in fig. 1.]

Lake and period of missing record	Site(s) providing best correlation	Drainage-area ratios[1]	Y-value in regression equation[2]	r^2 (percent)[3]	Standard error of estimate SE_y (ft^3/s)	SE_y converted to lake level (ft)
Otisco 7/61-12/61	Sum of inflows to Owasco and Skaneateles Lakes	0.15	0.14X + 2.7	93	Daily ± 37.8 Monthly ± 15.8	Daily ± 0.03 Monthly ± .01
Seneca 10/29-1/31, 7/45-12/45 1/67-12/68	Sum of inflows to Owasco, Skaneateles, Cayuga Lakes	.39	.35X - 123	90	Daily ± 560 Monthly ± 214	Daily ± .02 Monthly ± .01
Keuka 10/29-3/65	Discharge for Cohocton River near Campbell	.43	.41X - 23	92	Daily ± 220 Monthly ± 60.7	Daily ± .04 Monthly ± .01
Canandaigua 10/29-11/39	Discharge for Cohocton River near Campbell	.40	.37X - 18	89	Daily ± 170 Monthly ± 67.7	Daily ± .03 Monthly ± .01

[1] Drainage area of station with missing record divided by drainage area (or sum of drainage areas) of station(s) providing best correlation.
[2] Example: Y = 0.14X + 2.7; Y is net inflow to lake with missing record; X is flow at station(s) providing best correlation.
[3] Coefficient of determination (r^2) X 100 (percentage of variance explained by the correlation).

OSWEGO RIVER BASIN RUNOFF COMPUTATIONS

Monthly mean flows of the eight lakes and three rivers were computed from the daily values and are presented in table 9 (at end of report). Monthly flows are more reliable and are suitable for general use. Monthly outflow values were not computed for periods where daily data were missing. Negative inflow values occur primarily because the sum of evapotration and ground-water seepage from the lake was greater than the total lake inflow.

To check for major inconsistencies in the net inflow computations, the monthly values for the eight lakes were converted to $(ft^3/s)/mi^2$ and plotted together on semilog coordinates. Individual lake-inflow plots were offset two log cycles to facilitate comparison. Monthly net inflows of the eight lakes and Cohocton River discharges over 10-year intervals from 1930-79 are shown in figures 6A-6E (at the end of report); the plot of the easternmost lake (Oneida Lake) is at the bottom of each figure, and the westernmost lake (Canandaigua Lake) is second from top. Discharge of Cohocton River near Campbell, a nearby unregulated stream (top plot), is included for comparison with lake inflow values. Computed flows of 0.1 $(ft^3/s)/mi^2$ were used as a lower limit; any lesser flows were set to that value to avoid plotting extremely small or even negative numbers. No major inconsistencies were found in the 50-year period.

Table 8 lists mean annual runoff values of the eight lakes over a 45-year (1935-79) base period; flows at the three river sites and from intervening areas are included. The 1935-79 base period was used because no record was available for Clyde River for most of 1930-35. The runoff values listed in table 8 reflect the general distribution of mean annual precipitation and are included in the mean annual precipitation map (fig. 5). As an example, the mean annual runoff value for the Oneida Lake basin is significantly higher than for the other lake basins. As expected, this basin is within the area of highest mean annual precipitation in the Oswego River basin. Mean annual precipitation values for each subbasin (table 8) were computed by superimposing individual subbasin drainage divides on a statewide mean annual precipitation map (Zembrzuski and Dunn, 1979). The precipitation pattern over each subbasin is illustrated in figure 5. The difference between mean annual runoff and mean annual precipitation (table 8) reflects the large amount of evapotranspiration from each subbasin.

Climatic maps for 1946-55 (U.S. Environmental Data Service, 1968) indicate that lake-evaporation estimates are consistent with the runoff and precipitation values in table 8. These maps also indicate that 80 percent of the annual evaporation in the region occurs between May and October, which is consistent with the monthly lake-inflow patterns in figure 5.

Also shown in table 8 are mean annual runoff values for intervening areas (areas between gaged river sites). Runoff from these areas was calculated by subtracting the runoff values at the upstream station(s) from that at the gaged river site. The mean annual runoff values from intervening areas seem consistent with the computed runoff and precipitation patterns.

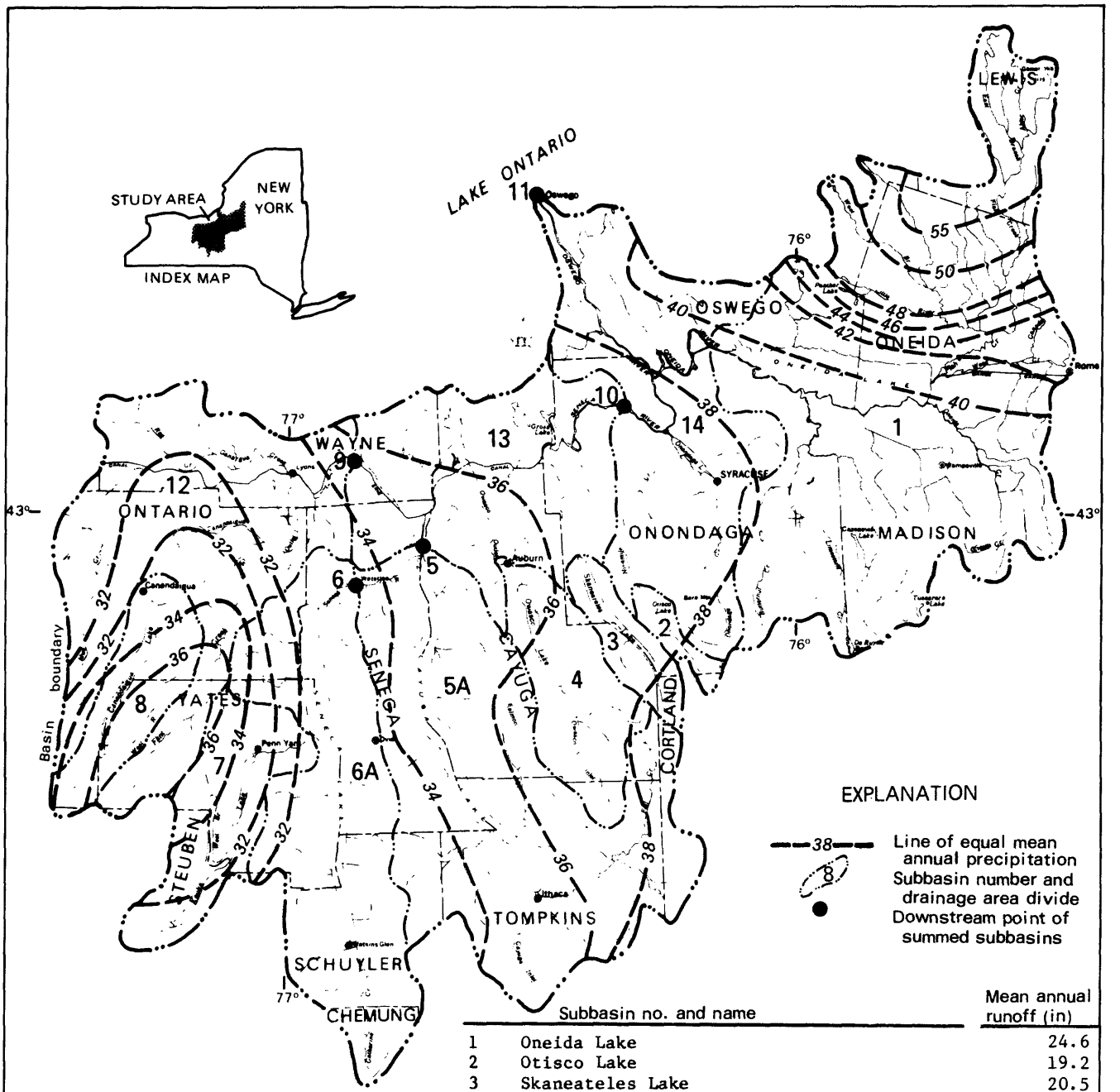
The distribution of mean annual precipitation is reflected in the inflow plots in figure 6. The lowest mean annual precipitation is in the western part of the Oswego basin and gradually increases eastward. In general, the mean annual runoff values also increase from west to east.

This report presents only monthly inflows and outflows (table 9); the daily flow values are stored as card images on magnetic tape (10 values per card) and are available at the Albany, N.Y. office of the Geological Survey. Some of the data (as indicated in table 2) are accessible through the Geological Survey's WATSTORE (National Water Data Storage and Retrievel System) daily-values computer file in Reston, Va.

Table 8.--Mean annual runoff values in selected subbasins of Oswego River basin, 1935-79.

Subassin number and name (Locations shown in fig. 5)		Drainage area[1] (mi^2)	Mean annual runoff (ft^3/s)	Mean annual runoff [(ft^3/s)/mi^2)]	Mean annual runoff (in)	Mean annual precipitation over subbasin (in)
1	Oneida Lake	1,382	2,500	1.81	24.6	45
2	Otisco lake	42.7	60.0	1.41	19.2	38
3	Skaneateles Lake	72.7	110	1.51	20.5	37
4	Owasco Lake	206	296	1.44	19.6	37
5	Cayuga Lake	1,564	1,560	1.00	13.6	34
5A	Cayuga Lake minus Seneca Lake	822	993	1.21	16.4	35
6	Seneca Lake	742	567	.76	10.3	33
6A	Seneca Lake minus Keuka Lake	535	389	.73	9.9	33
7	Keuka Lake	207	178	.86	11.7	34
8	Canandaigua Lake	195	164	.84	11.4	34
9	Clyde River at Lock 26	845	889	1.05	14.3	34
10	Seneca River at Baldwinsville	3,138	3,380	1.08	14.7	34
11	Oswego River at Lock 7	5,100	6,850	1.34	18.2	37
		Intervening Areas of River Sites				
12	Subbasin 9 minus subbasin 8	650	720	1.11	15.1	34
13	Subbasin 10 minus subbasins 3, 4, 5, and 9	450	530	1.18	16.0	35
14	Subbasins 11 minus subbasins 1, 2, and 10	537	910	1.69	23.0	38

[1] Drainage area of lake subbasin is determined at point of gaged outflow.



Subbasin no.	Subbasin no. and name	Mean annual runoff (in)
1	Oneida Lake	24.6
2	Otisco Lake	19.2
3	Skaneateles Lake	20.5
4	Owasco Lake	19.6
5	Cayuga Lake (sum of subbasins 5A, 6A, 7)	13.6
5A	Cayuga Lake minus Seneca Lake	16.4
6	Seneca Lake (sum of subbasins 6A. 7)	10.3
6A	Seneca Lake minus Keuka Lake	9.9
7	Keuka Lake	11.7
8	Canandaigua Lake	11.4
9	Clyde River at Lock 26 (sum of subbasins 8, 12)	14.3
10	Seneca River at Baldwinsville (sum of subbasins 3, 4, 5A, 6A, 7, 8, 12, 13)	14.7
11	Oswego River at Lock 7 (sum of all subbasins)	18.2
12	Subbasin 9 minus subbasin 8	15.1
13	Subbasin 10 minus subbasins 3, 4, 5, 9	16.0
14	Subbasin 11 minus subbasins 1, 2, 10	23.0

Base from U.S. Geological Survey
State base map
Shaded relief 1:500,000, 1956

Figure 5.--Distribution of mean annual precipitation and mean annual runoff within Oswego River subbasins.

SUMMARY AND CONCLUSIONS

This report presents inflows and outflows of eight regulated lakes and discharges at three river sites in the Oswego River basin. These data were computed and compiled by the Geological Survey from records collected during the 1930-79 water years.

Daily lake outflows were compiled from data available in files of the U.S. Geological Survey and of State, local, and private agencies. Some were computed from rating curves supplied by these agencies. Daily net inflows to lakes (lake inflow minus evaporation and possible ground-water seepage) were computed from daily outflows (flows leaving the outlet structure), daily lake levels, daily diversions into or out of the lake basin, and lake elevation-storage curves. Much of the lake-level and diversion data were obtained from various agencies; the lake elevation-storage curves were developed from U.S. Geological Survey 7½-minute topographic maps.

Major sources of error in the observed lake levels are waves, seiches, and human judgment (where once-daily lake level readings are being taken). To reduce these errors and obtain more accurate estimates of daily lake levels, a technique for smoothing lake-level hydrographs was developed and applied. The smoothed lake-level hydrographs, together with lake elevation-storage curves, outflows, and diversions, were applied to the basic mass balance equation to compute daily net inflows to each lake. Analysis of the lake-level hydrograph smoothing technique indicates that the procedure reduces the random lake-level errors inherent in observed daily lake-level readings. Effects of measurement errors are significantly reduced as the computational period is increased.

For periods when either daily outflows or changes in daily lake levels were unknown, linear regression analyses were used to develop an equation from which daily net inflows could be computed. Strong correlations between net lake inflows and gaged streamflows at an index station were indicated, and the net inflows were computed accordingly.

Plots of monthly net inflow to the eight lakes reveal no major inconsistencies. Inflow values correspond well with one another and with concurrent gaged streamflows from unregulated stations within hydrologically similar areas.

The data from this study provide a base for assessing lake-regulation procedures within the Oswego River basin's stream-reservoir system. Lake levels (water available for management) simulated from the given inflows and outflows should be sufficiently accurate for most hydrologic purposes.

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Figure 6.--Monthly values of discharge of Cohocton River and net inflows to eight lakes in Oswego River basin, 1930-79.

[Lakes are listed in west-to-east order.]

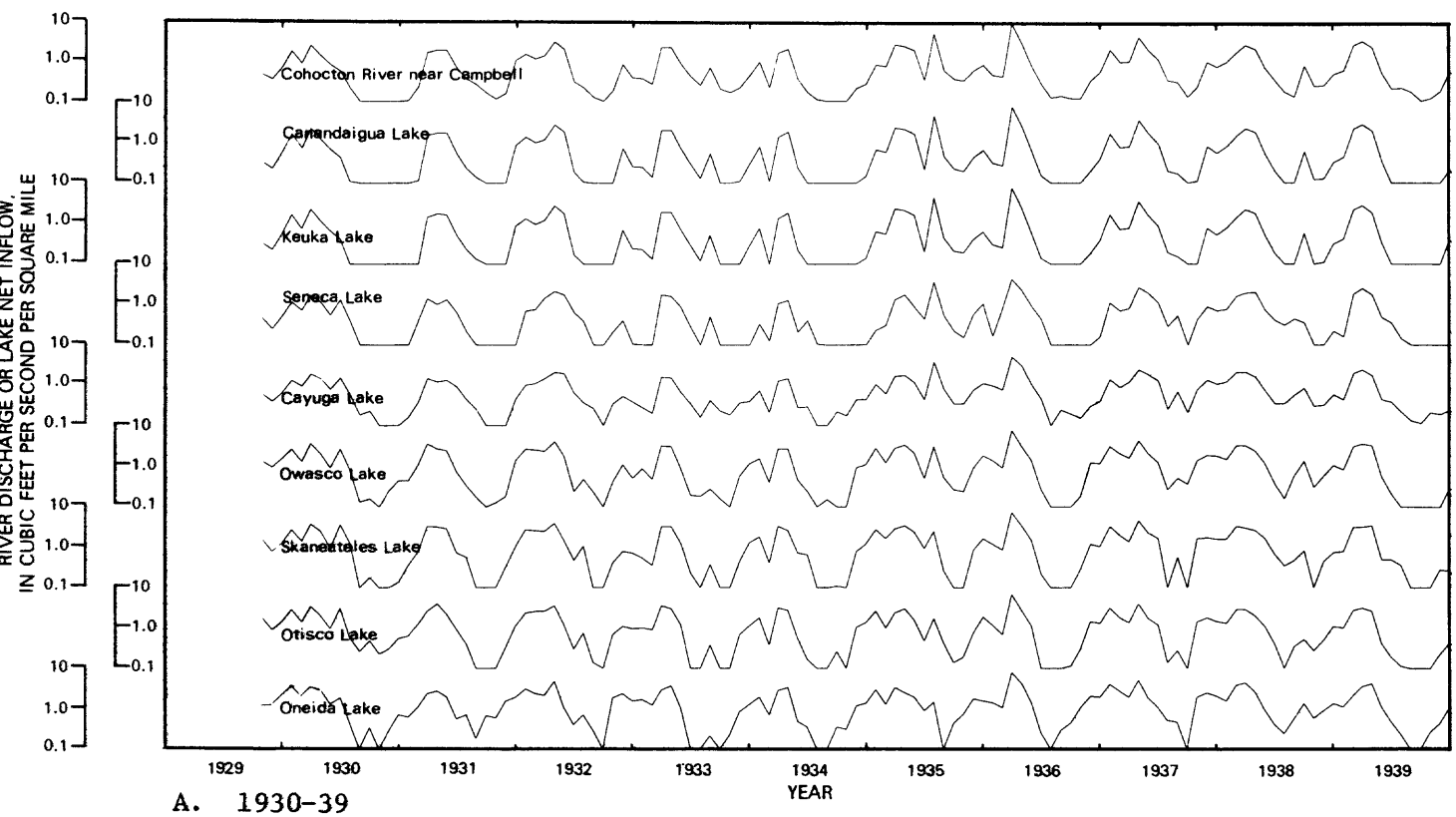
A. 1930-39

B. 1940-49

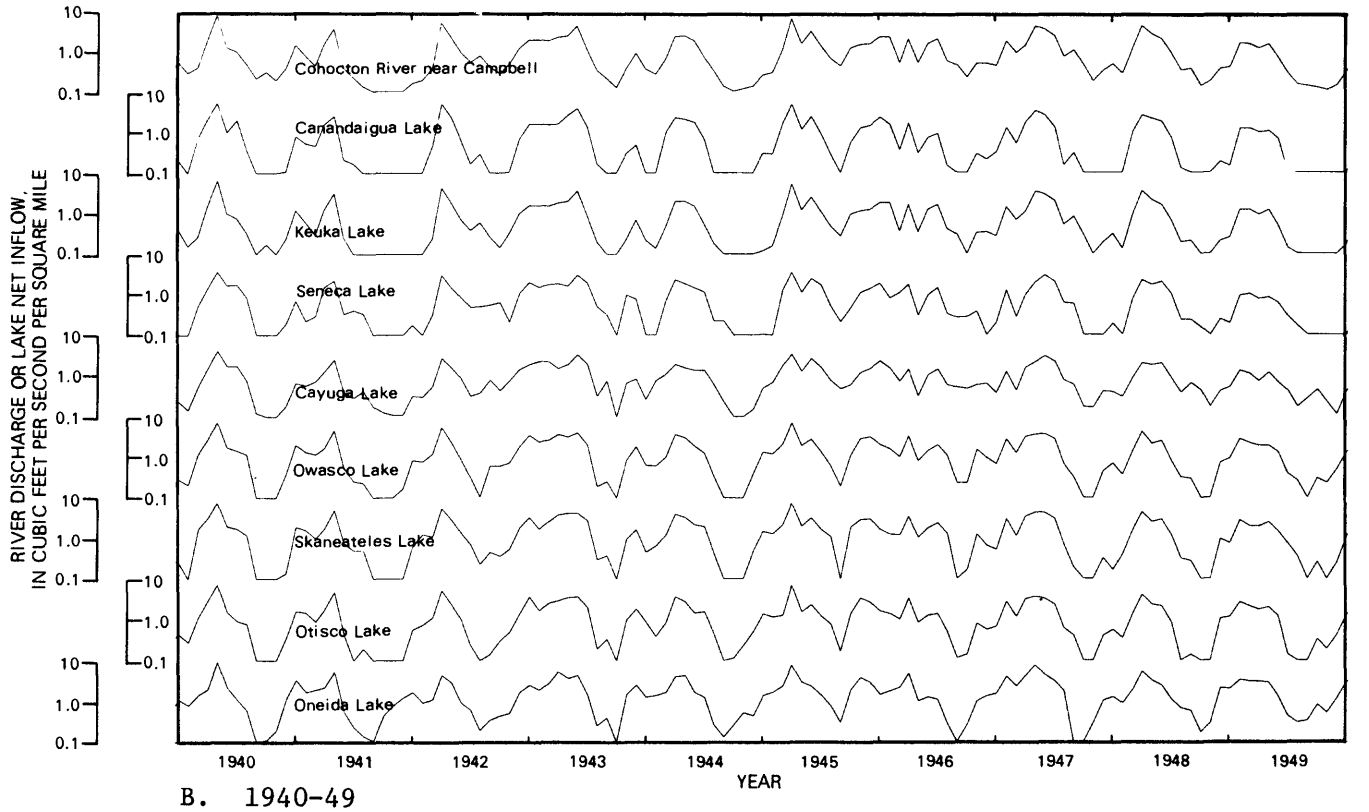
C. 1950-59

D. 1960-69

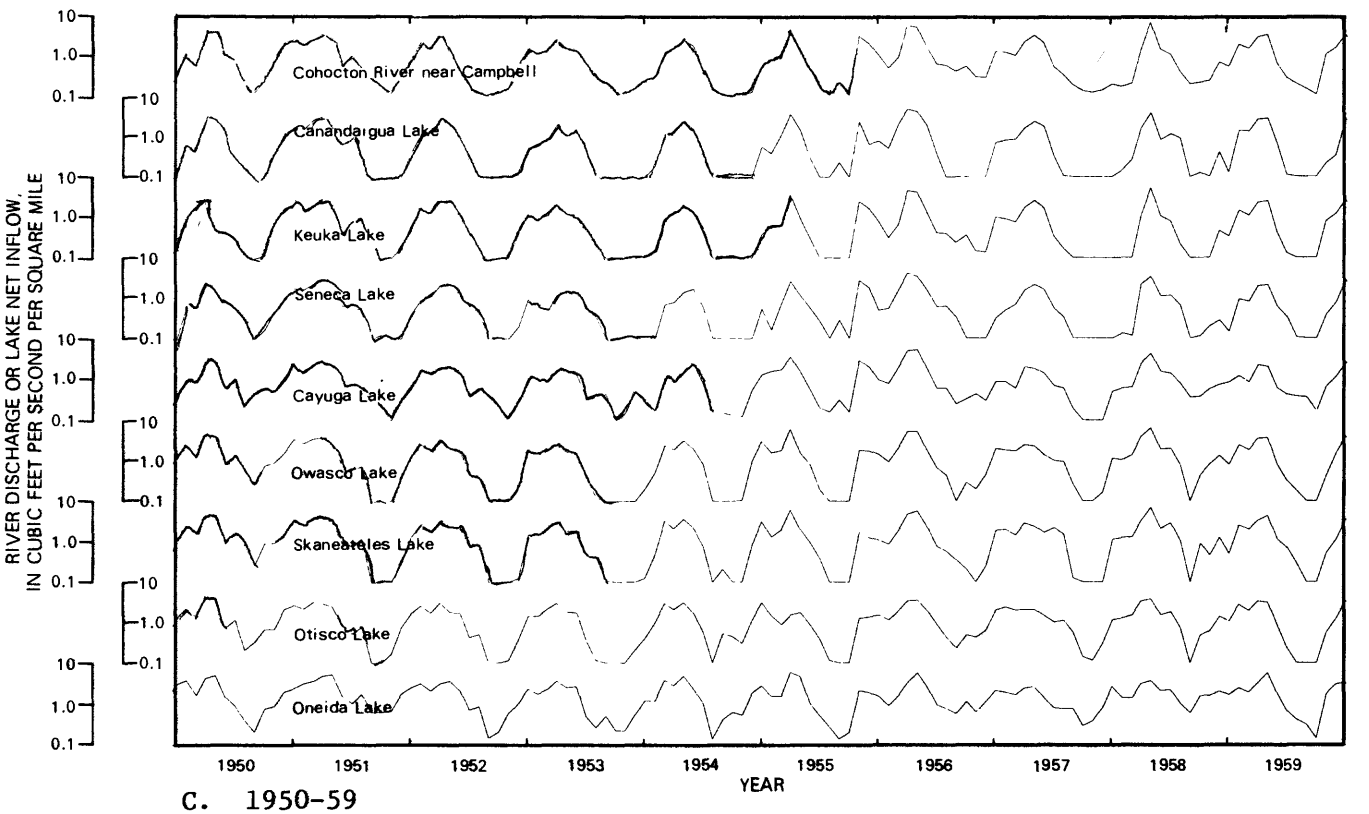
E. 1970-79



A. 1930-39

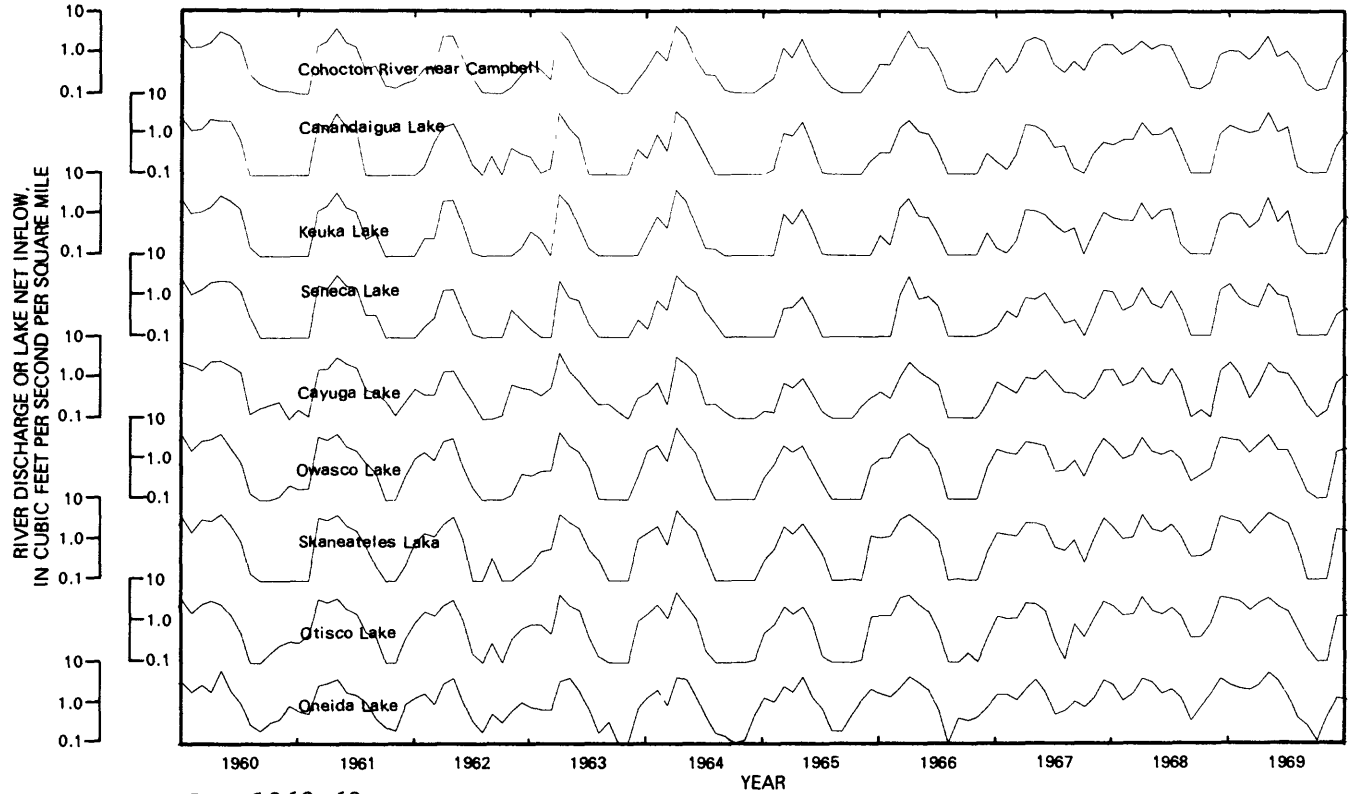


B. 1940-49

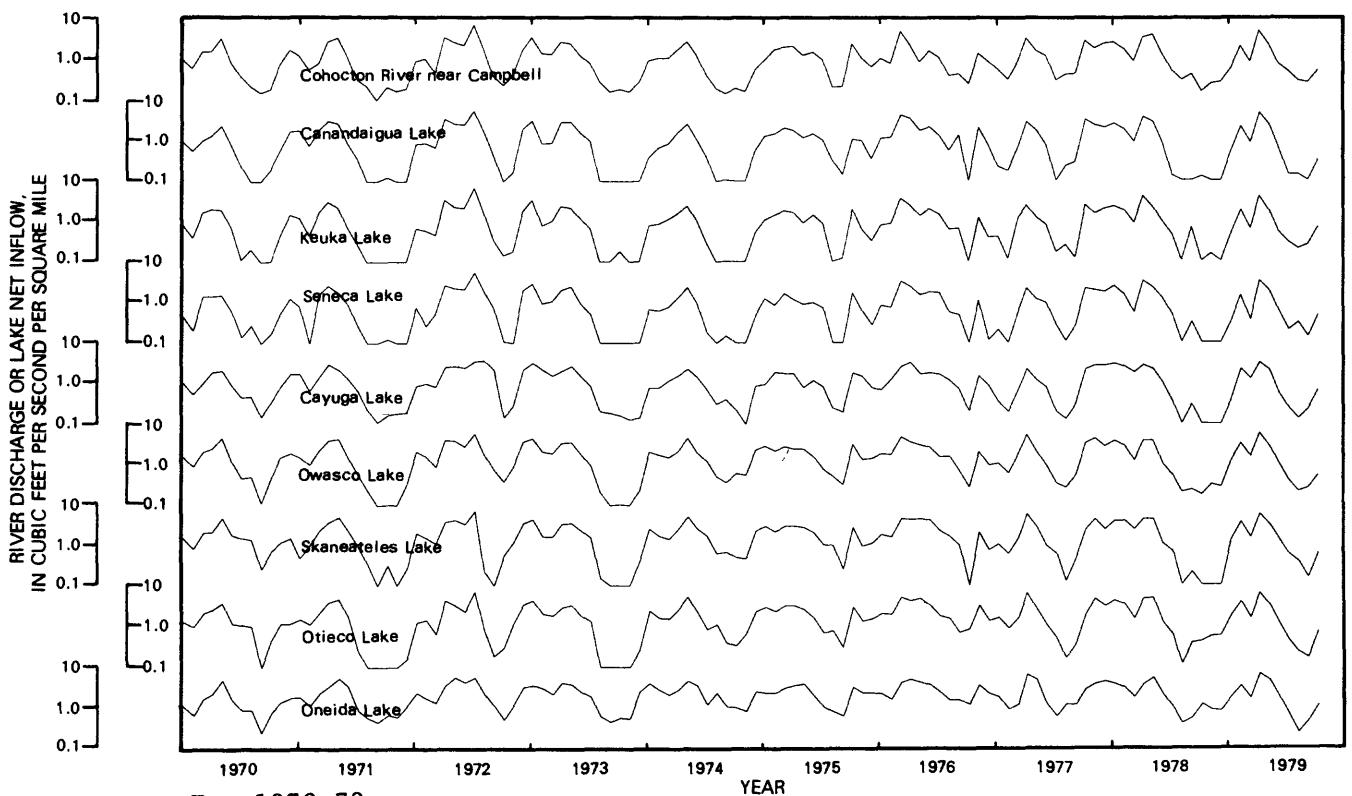


C. 1950-59

Figure 6.--(continued).



D. 1960-69



E. 1970-79

Figure 6.--(continued).

Table 9.--Monthly mean flows at selected sites in Oswego River basin, New York.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York
[Values are in cubic feet per second]

ONEIDA LAKE OUTFLOWS

WATER YEAR[1]	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	1411.	1451.	2658.	4157.	2976.	3969.	3786.	2246.	2017.	1510.	362.	303.
1931	197.	214.	1961.	1628.	1382.	1222.	2444.	2818.	1603.	742.	641.	560.
1932	881.	1814.	2873.	3127.	3985.	2733.	5529.	2696.	777.	913.	499.	325.
1933	1618.	3245.	2470.	2552.	2122.	2691.	4527.	2209.	714.	126.	16.	243.
1934	210.	629.	2063.	2608.	1597.	2357.	4390.	1615.	711.	219.	3.	273.
1935	401.	1299.	2150.	3242.	2292.	3210.	3557.	3175.	1425.	1797.	852.	503.
1936	513.	2308.	2681.	2403.	2399.	5657.	8116.	3032.	937.	196.	97.	555.
1937	1082.	2763.	2414.	5117.	4484.	3173.	4737.	3419.	1707.	1075.	741.	352.
1938	971.	3792.	3427.	2870.	4324.	5024.	3451.	1834.	974.	465.	605.	1093.
1939	1293.	1116.	2200.	1670.	1848.	4530.	5468.	2470.	1016.	509.	68.	22.
1940	96.	828.	1726.	3804.	2990.	1893.	7107.	4651.	1752.	1309.	450.	78.
1941	253.	1370.	3132.	4476.	4013.	3431.	3599.	1378.	627.	212.	95.	772.
1942	327.	1887.	1797.	1992.	1451.	3887.	4816.	1765.	1147.	481.	452.	358.
1943	585.	1688.	2692.	4212.	3833.	5901.	3779.	6305.	3201.	1065.	532.	383.
1944	741.	3834.	3307.	3578.	2870.	2743.	3705.	3783.	1539.	1004.	363.	82.
1945	175.	934.	3214.	3630.	3318.	6292.	4056.	3399.	2483.	1408.	735.	1237.
1946	5377.	3469.	3502.	3048.	4412.	4104.	1554.	1378.	1783.	858.	260.	39.
1947	922.	1803.	3245.	4132.	5116.	4376.	8493.	5965.	5484.	1885.	1278.	226.
1948	278.	1467.	3192.	2831.	1759.	3979.	4431.	3175.	2085.	1237.	869.	478.
1949	275.	1833.	3348.	4952.	3877.	3951.	3063.	2464.	991.	419.	288.	1037.
1950	1112.	1297.	4135.	5206.	4206.	3458.	6943.	2399.	1585.	920.	189.	1140.
1951	1137.	2087.	3992.	4567.	4443.	5888.	6554.	3206.	1129.	2298.	1197.	1141.
1952	1231.	2543.	3740.	3854.	3763.	3416.	5156.	2267.	1335.	1275.	288.	343.
1953	939.	1348.	3746.	2499.	2833.	3577.	3590.	4040.	520.	557.	566.	660.
1954	526.	400.	2764.	1764.	2987.	4460.	5603.	4148.	1335.	586.	198.	605.
1955	1032.	2290.	3965.	3492.	1873.	5681.	6540.	1302.	1373.	448.	277.	231.
1956	2531.	3174.	3072.	1844.	1658.	3747.	6496.	4143.	1651.	580.	802.	2038.
1957	1039.	1200.	3765.	2715.	2417.	3202.	2511.	1882.	901.	1188.	1439.	186.
1958	519.	1273.	3501.	2955.	2244.	2990.	4615.	2928.	2976.	1336.	882.	2467.
1959	1567.	2752.	3945.	2670.	3365.	3341.	6950.	2791.	833.	954.	237.	380.
1960	2143.	3550.	5423.	3645.	3316.	2661.	7410.	3661.	1237.	817.	487.	397.
1961	294.	1536.	2093.	1623.	1335.	4495.	4793.	2543.	2029.	1822.	718.	461.
1962	356.	1226.	3128.	2399.	1926.	2460.	4247.	2151.	669.	373.	599.	683.
1963	689.	1987.	2592.	1397.	1048.	1787.	6056.	2591.	1078.	491.	258.	540.
1964	130.	445.	3407.	2372.	2398.	4074.	4754.	2028.	724.	379.	260.	129.
1965	113.	260.	2885.	2422.	2530.	2804.	3454.	2511.	983.	628.	133.	534.
1966	1852.	2667.	3670.	2475.	2477.	4847.	4077.	3215.	658.	349.	252.	803.
1967	766.	758.	3355.	2160.	2231.	1980.	3999.	2414.	695.	645.	1676.	1168.
1968	1364.	5136.	4219.	2403.	2533.	2707.	4365.	2230.	2334.	2591.	584.	1379.
1969	1456.	4665.	5079.	3056.	3541.	2506.	6374.	4705.	2061.	642.	546.	266.
1970	473.	2045.	2675.	1647.	1884.	2153.	5757.	2403.	1286.	1369.	365.	1212.
1971	2097.	2745.	3329.	2222.	2105.	4336.	6127.	5828.	818.	796.	595.	1190.
1972	1031.	1454.	3841.	3092.	2305.	3385.	6407.	7427.	5710.	5151.	1759.	741.
1973	1678.	4679.	4985.	4651.	3967.	4289.	5137.	3540.	2523.	856.	1002.	915.
1974	617.	3215.	5032.	4589.	3589.	3897.	5508.	4402.	1880.	2851.	1619.	1630.
1975	1259.	3216.	4169.	3056.	3400.	4580.	5104.	2754.	1373.	1113.	413.	3108.
1976	5045.	3298.	3715.	2505.	3536.	6287.	6320.	5285.	3436.	1959.	1887.	2037.
1977	4612.	3232.	3731.	2104.	1493.	5452.	6954.	2130.	980.	1714.	1548.	3524.
1978	5591.	5410.	5686.	4266.	3752.	3107.	7069.	3352.	1368.	303.	1168.	1493.
1979	1052.	1183.	3445.	4050.	3121.	6325.	7261.	2575.	1305.	281.	625.	1841.

[1] Water year 1930: October 1, 1929 to September 30, 1930

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

OTISCO LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	47.	55.	56.	62.	64.	111.	96.	34.	88.	48.	43.	43.
1931	44.	44.	42.	40.	39.	41.	14.	41.	58.	33.	34.	36.
1932	31.	31.	19.	37.	55.	67.	117.	56.	33.	26.	31.	35.
1933	32.	29.	36.	37.	47.	53.	64.	52.	31.	25.	36.	28.
1934	29.	29.	26.	39.	40.	33.	36.	24.	22.	21.	18.	17.
1935	18.	18.	23.	46.	69.	50.	39.	66.	32.	33.	38.	38.
1936	36.	35.	36.	58.	57.	113.	129.	53.	33.	27.	23.	23.
1937	22.	27.	34.	46.	71.	67.	69.	75.	38.	33.	27.	25.
1938	23.	35.	63.	64.	75.	89.	84.	51.	31.	24.	26.	20.
1939	23.	23.	29.	41.	57.	62.	80.	48.	26.	23.	12.	12.
1940	12.	11.	11.	29.	30.	27.	158.	74.	40.	35.	13.	13.
1941	17.	28.	46.	64.	66.	44.	59.	36.	15.	13.	12.	12.
1942	12.	21.	16.	16.	16.	37.	88.	41.	26.	26.	14.	12.
1943	12.	12.	46.	109.	108.	96.	75.	152.	91.	14.	13.	13.
1944	13.	13.	23.	44.	61.	73.	84.	80.	21.	17.	13.	20.
1945	25.	27.	35.	55.	77.	97.	68.	80.	53.	39.	32.	31.
1946	49.	96.	99.	86.	81.	81.	27.	13.	13.	13.	13.	13.
1947	13.	31.	39.	53.	71.	68.	76.	102.	117.	33.	32.	13.
1948	12.	15.	28.	27.	26.	29.	33.	58.	38.	13.	13.	13.
1949	12.	12.	30.	34.	47.	64.	45.	47.	19.	13.	13.	12.
1950	12.	12.	12.	29.	50.	76.	169.	35.	49.	29.	13.	13.
1951	13.	13.	100.	71.	116.	122.	102.	34.	16.	13.	13.	13.
1952	12.	12.	12.	29.	75.	89.	76.	30.	21.	13.	13.	13.
1953	12.	12.	12.	12.	22.	61.	72.	51.	18.	13.	13.	12.
1954	12.	11.	11.	11.	11.	13.	54.	77.	18.	13.	13.	13.
1955	13.	13.	20.	79.	39.	39.	40.	16.	14.	13.	13.	12.
1956	12.	13.	13.	13.	29.	161.	114.	49.	30.	13.	13.	13.
1957	13.	13.	13.	45.	63.	93.	64.	38.	26.	31.	20.	13.
1958	13.	13.	12.	13.	21.	49.	128.	54.	98.	15.	13.	13.
1959	13.	13.	13.	43.	77.	102.	138.	19.	11.	7.	6.	6.
1960	6.	6.	9.	68.	85.	100.	112.	48.	30.	13.	13.	12.
1961	12.	12.	11.	11.	11.	13.	117.	78.	43.	---	---	---
1962	---	---	---	11.	12.	8.	77.	40.	7.	6.	6.	6.
1963	6.	6.	6.	6.	6.	6.	46.	56.	12.	7.	6.	6.
1964	6.	6.	6.	6.	7.	146.	80.	32.	8.	7.	6.	6.
1965	4.	3.	4.	4.	7.	5.	6.	3.	2.	3.	3.	3.
1966	2.	4.	3.	4.	13.	15.	64.	47.	4.	2.	1.	1.
1967	2.	3.	4.	4.	3.	7.	7.	21.	6.	4.	5.	4.
1968	5.	48.	76.	34.	44.	95.	73.	15.	55.	69.	15.	14.
1969	12.	29.	104.	103.	109.	49.	117.	70.	29.	15.	15.	14.
1970	14.	9.	9.	13.	63.	76.	137.	20.	51.	39.	3.	4.
1971	19.	62.	71.	40.	39.	125.	169.	74.	12.	5.	4.	4.
1972	4.	3.	6.	7.	5.	90.	122.	93.	278.	74.	20.	8.
1973	30.	76.	160.	157.	78.	24.	95.	56.	48.	6.	2.	2.
1974	3.	4.	12.	63.	42.	38.	206.	80.	24.	43.	13.	36.
1975	13.	12.	84.	88.	96.	82.	74.	41.	8.	7.	4.	27.
1976	77.	60.	46.	61.	108.	159.	138.	130.	43.	39.	25.	30.
1977	56.	65.	20.	60.	53.	114.	88.	33.	7.	19.	5.	21.
1978	147.	125.	118.	126.	133.	57.	120.	27.	5.	3.	2.	7.
1979	23.	19.	18.	47.	98.	151.	99.	23.	8.	4.	4.	10.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

SKANEATELES LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	35.	42.	78.	172.	145.	143.	161.	33.	64.	89.	13.	10.
1931	10.	9.	8.	8.	17.	31.	97.	57.	63.	12.	17.	12.
1932	13.	15.	14.	15.	51.	99.	168.	90.	13.	16.	18.	14.
1933	15.	15.	15.	15.	15.	38.	156.	47.	16.	15.	14.	15.
1934	16.	16.	17.	23.	18.	18.	40.	17.	18.	18.	17.	17.
1935	16.	21.	23.	18.	18.	17.	122.	129.	17.	120.	61.	21.
1936	19.	18.	26.	62.	63.	174.	254.	87.	18.	18.	18.	17.
1937	29.	19.	19.	23.	43.	94.	152.	98.	93.	41.	19.	16.
1938	27.	30.	71.	104.	127.	138.	162.	76.	31.	18.	17.	18.
1939	24.	18.	19.	20.	23.	34.	151.	31.	22.	19.	19.	19.
1940	17.	21.	17.	16.	7.	6.	68.	70.	66.	75.	19.	22.
1941	13.	12.	14.	40.	31.	49.	115.	15.	12.	14.	14.	12.
1942	13.	26.	15.	14.	16.	15.	60.	16.	15.	14.	15.	16.
1943	15.	17.	37.	153.	52.	185.	178.	305.	161.	16.	17.	16.
1944	18.	18.	39.	24.	16.	35.	96.	80.	94.	16.	16.	17.
1945	14.	23.	16.	26.	104.	130.	87.	184.	57.	26.	51.	19.
1946	144.	209.	201.	56.	27.	47.	16.	14.	22.	71.	17.	17.
1947	14.	15.	14.	29.	148.	34.	153.	164.	242.	18.	17.	16.
1948	16.	15.	15.	15.	15.	14.	14.	14.	14.	15.	16.	14.
1949	14.	24.	14.	15.	15.	15.	15.	14.	12.	8.	8.	8.
1950	8.	8.	8.	8.	8.	34.	228.	14.	56.	30.	15.	15.
1951	16.	32.	219.	159.	89.	166.	164.	25.	18.	18.	17.	17.
1952	17.	16.	16.	17.	17.	21.	66.	49.	20.	16.	17.	18.
1953	17.	19.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.
1954	17.	16.	17.	17.	13.	7.	8.	12.	11.	10.	12.	10.
1955	7.	7.	8.	8.	8.	77.	66.	20.	16.	16.	16.	16.
1956	17.	19.	20.	17.	17.	34.	193.	118.	30.	17.	17.	16.
1957	16.	16.	16.	18.	16.	17.	16.	17.	33.	89.	17.	16.
1958	16.	16.	16.	16.	30.	17.	167.	108.	145.	21.	16.	17.
1959	16.	17.	16.	33.	87.	90.	185.	38.	17.	17.	17.	17.
1960	17.	16.	17.	52.	90.	57.	220.	93.	40.	17.	18.	17.
1961	17.	16.	17.	16.	10.	7.	5.	56.	66.	10.	10.	11.
1962	12.	9.	9.	15.	21.	9.	26.	22.	8.	9.	9.	10.
1963	9.	8.	13.	19.	12.	4.	3.	5.	8.	10.	11.	11.
1964	10.	8.	7.	6.	6.	10.	73.	52.	9.	10.	11.	10.
1965	11.	10.	9.	13.	7.	3.	2.	7.	9.	11.	12.	12.
1966	11.	9.	7.	7.	6.	2.	2.	4.	10.	11.	11.	11.
1967	12.	10.	5.	4.	6.	3.	3.	4.	7.	9.	9.	9.
1968	8.	5.	13.	9.	6.	27.	46.	38.	34.	111.	9.	8.
1969	6.	54.	144.	165.	121.	8.	90.	169.	119.	36.	25.	10.
1970	8.	6.	5.	21.	63.	17.	15.	35.	29.	90.	18.	12.
1971	25.	41.	20.	120.	22.	85.	125.	72.	10.	13.	13.	12.
1972	11.	10.	8.	8.	12.	7.	59.	147.	158.	182.	114.	11.
1973	11.	76.	201.	213.	209.	16.	86.	8.	12.	16.	15.	14.
1974	14.	11.	8.	12.	11.	13.	41.	60.	32.	26.	20.	20.
1975	17.	22.	111.	118.	63.	152.	59.	40.	20.	18.	17.	13.
1976	7.	47.	123.	88.	52.	244.	65.	281.	104.	61.	66.	13.
1977	11.	24.	37.	44.	39.	28.	88.	12.	15.	19.	19.	19.
1978	102.	146.	201.	255.	308.	131.	95.	8.	8.	10.	12.	12.
1979	11.	8.	7.	6.	8.	56.	122.	12.	13.	19.	22.	18.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York

OWASCO LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	201.	234.	258.	534.	298.	645.	411.	193.	458.	293.	168.	136.
1931	86.	60.	72.	74.	104.	277.	669.	424.	312.	170.	154.	81.
1932	63.	57.	97.	236.	589.	362.	869.	443.	159.	138.	149.	110.
1933	82.	107.	115.	169.	126.	311.	691.	255.	167.	132.	98.	82.
1934	53.	50.	106.	211.	215.	264.	542.	222.	151.	107.	72.	45.
1935	36.	46.	177.	362.	334.	447.	682.	531.	190.	468.	291.	135.
1936	89.	116.	283.	300.	248.	1171.	822.	385.	206.	124.	56.	33.
1937	29.	28.	129.	500.	531.	396.	655.	463.	290.	186.	123.	154.
1938	121.	333.	350.	314.	638.	614.	412.	355.	187.	109.	83.	110.
1939	183.	162.	175.	170.	305.	682.	739.	256.	147.	67.	47.	43.
1940	26.	30.	37.	39.	57.	245.	1477.	429.	337.	317.	166.	115.
1941	70.	31.	116.	348.	312.	279.	763.	273.	142.	91.	59.	45.
1942	36.	27.	60.	120.	186.	811.	540.	244.	161.	132.	133.	152.
1943	139.	210.	358.	851.	437.	699.	595.	892.	526.	229.	96.	49.
1944	37.	292.	244.	161.	163.	434.	625.	480.	302.	244.	106.	69.
1945	38.	27.	115.	216.	262.	1255.	503.	552.	339.	291.	170.	134.
1946	402.	563.	552.	388.	255.	548.	290.	221.	328.	292.	211.	127.
1947	155.	231.	199.	244.	425.	443.	834.	647.	775.	235.	165.	130.
1948	58.	42.	76.	113.	150.	576.	496.	491.	366.	180.	80.	51.
1949	31.	26.	146.	360.	490.	462.	353.	323.	79.	63.	59.	77.
1950	107.	41.	183.	407.	362.	575.	1056.	320.	209.	205.	176.	165.
1951	93.	236.	807.	582.	596.	759.	562.	265.	160.	104.	45.	51.
1952	54.	131.	190.	335.	506.	499.	486.	360.	280.	69.	45.	40.
1953	42.	87.	100.	262.	415.	382.	470.	411.	222.	74.	50.	28.
1954	18.	15.	14.	17.	99.	477.	515.	544.	207.	147.	90.	87.
1955	64.	90.	251.	589.	264.	1130.	413.	222.	149.	86.	77.	74.
1956	94.	235.	428.	259.	320.	955.	1008.	396.	270.	111.	79.	87.
1957	128.	140.	179.	380.	384.	514.	352.	252.	217.	273.	144.	98.
1958	82.	68.	92.	230.	306.	542.	1272.	451.	416.	197.	130.	97.
1959	94.	284.	263.	341.	536.	544.	764.	188.	95.	86.	77.	64.
1960	60.	150.	655.	598.	515.	392.	1080.	370.	274.	135.	95.	79.
1961	48.	102.	57.	14.	139.	816.	836.	460.	332.	267.	186.	90.
1962	67.	68.	303.	149.	177.	319.	727.	225.	75.	86.	65.	58.
1963	53.	52.	54.	85.	131.	622.	463.	309.	209.	70.	63.	67.
1964	49.	49.	287.	427.	392.	867.	446.	391.	104.	65.	52.	41.
1965	36.	31.	24.	67.	355.	274.	222.	229.	67.	66.	60.	58.
1966	54.	131.	260.	232.	495.	590.	494.	415.	190.	59.	63.	60.
1967	81.	67.	306.	307.	246.	262.	483.	430.	123.	158.	180.	100.
1968	162.	749.	602.	162.	213.	411.	364.	200.	244.	301.	53.	60.
1969	168.	565.	668.	528.	514.	157.	737.	341.	305.	141.	119.	57.
1970	44.	162.	359.	301.	421.	390.	930.	242.	127.	116.	74.	154.
1971	341.	436.	377.	317.	238.	856.	853.	357.	97.	90.	60.	102.
1972	109.	57.	134.	476.	269.	717.	890.	537.	1066.	620.	154.	95.
1973	322.	544.	914.	552.	399.	736.	688.	404.	148.	77.	32.	56.
1974	71.	58.	222.	500.	367.	345.	815.	426.	251.	145.	95.	166.
1975	187.	359.	757.	332.	449.	714.	315.	305.	175.	134.	30.	483.
1976	560.	279.	437.	364.	768.	931.	457.	500.	342.	330.	136.	122.
1977	567.	236.	123.	255.	359.	812.	431.	168.	66.	73.	118.	597.
1978	1013.	630.	769.	572.	247.	732.	833.	152.	106.	54.	72.	32.
1979	119.	164.	332.	517.	388.	1093.	463.	179.	80.	56.	77.	211.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York

CAYUGA LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	869.	781.	979.	1255.	3051.	1455.	1385.	1423.	1981.	1862.	731.	580.
1931	538.	74.	383.	394.	384.	680.	1528.	896.	2686.	639.	1017.	913.
1932	129.	78.	382.	553.	3037.	1582.	2662.	2542.	1115.	827.	911.	645.
1933	295.	836.	868.	1119.	547.	568.	2116.	1235.	729.	571.	572.	776.
1934	693.	396.	663.	1505.	1089.	649.	1302.	769.	512.	506.	382.	302.
1935	457.	633.	959.	968.	2305.	937.	2167.	2124.	740.	5575.	2113.	1373.
1936	522.	858.	1604.	1923.	2089.	4230.	6183.	1922.	839.	478.	396.	517.
1937	664.	616.	686.	954.	3271.	1331.	1632.	3558.	1580.	1040.	816.	1297.
1938	474.	1643.	2560.	2300.	3108.	3344.	1075.	959.	1087.	743.	759.	1360.
1939	1335.	796.	783.	1229.	1546.	3720.	2014.	1215.	758.	621.	455.	439.
1940	435.	429.	428.	577.	644.	892.	5634.	3023.	2789.	1705.	760.	294.
1941	280.	431.	710.	1183.	2010.	1333.	2586.	766.	563.	561.	670.	625.
1942	525.	378.	403.	872.	939.	1988.	2825.	788.	1032.	439.	1230.	1423.
1943	1302.	1807.	1879.	5470.	3934.	1376.	990.	5123.	4111.	1082.	1135.	1093.
1944	567.	704.	1393.	1939.	2423.	799.	1487.	3016.	1709.	1431.	962.	397.
1945	295.	248.	648.	2220.	2773.	2350.	1869.	4104.	3045.	1415.	985.	963.
1946	1477.	1826.	5199.	3597.	1449.	668.	456.	413.	2768.	1007.	966.	1125.
1947	1215.	1517.	1187.	618.	2555.	1064.	1888.	3735.	5031.	1067.	986.	973.
1948	645.	1240.	1057.	588.	1029.	1585.	1929.	3095.	1770.	597.	1208.	1036.
1949	1156.	369.	400.	2842.	2488.	816.	140.	849.	617.	638.	653.	917.
1950	765.	519.	517.	1493.	2413.	2632.	3375.	1178.	1552.	776.	645.	994.
1951	1471.	1166.	5064.	3173.	1912.	4343.	2586.	935.	1391.	1439.	539.	558.
1952	617.	605.	1228.	1971.	2803.	2763.	1211.	1846.	1217.	992.	775.	1101.
1953	634.	318.	1491.	2081.	1925.	1657.	1880.	1783.	700.	518.	709.	823.
1954	734.	866.	1459.	357.	691.	1720.	228.	3675.	1314.	561.	496.	496.
1955	483.	849.	1126.	4281.	1877.	4516.	2480.	349.	506.	517.	511.	748.
1956	3236.	4815.	2019.	1962.	1786.	6738.	7881.	3341.	878.	831.	823.	695.
1957	614.	799.	1465.	2216.	1424.	1955.	1666.	1563.	1293.	1117.	845.	755.
1958	224.	164.	687.	1637.	1786.	1630.	5080.	2905.	2231.	1328.	1224.	345.
1959	764.	1562.	2680.	963.	1897.	3438.	2098.	470.	370.	648.	920.	787.
1960	960.	1720.	3177.	5112.	3261.	2979.	3337.	2263.	2977.	708.	352.	363.
1961	896.	755.	435.	1155.	333.	3503.	2650.	4494.	2647.	1404.	630.	785.
1962	629.	593.	1571.	1221.	658.	914.	1729.	772.	375.	375.	370.	352.
1963	700.	1223.	1953.	601.	723.	3563.	2607.	1767.	519.	572.	561.	545.
1964	488.	568.	1541.	1100.	1049.	2631.	2976.	2110.	559.	398.	398.	498.
1965	507.	357.	683.	740.	681.	254.	265.	531.	403.	264.	400.	375.
1966	390.	817.	1008.	1180.	1062.	2346.	2315.	1194.	1274.	393.	388.	388.
1967	379.	470.	1929.	1942.	854.	215.	212.	2168.	1241.	957.	998.	752.
1968	1137.	2577.	3373.	966.	1064.	1067.	1576.	671.	2442.	1685.	396.	691.
1969	576.	1431.	3590.	3189.	1138.	398.	1490.	2807.	1336.	1503.	636.	388.
1970	501.	1364.	2033.	1760.	978.	1821.	2953.	1148.	1189.	446.	646.	610.
1971	1441.	2687.	3658.	2483.	719.	4258.	3789.	1661.	1099.	752.	498.	389.
1972	412.	678.	1782.	2352.	1664.	1670.	4243.	4189.	3018.	8078.	3819.	703.
1973	377.	3229.	4595.	5326.	3827.	1622.	3145.	2478.	1372.	520.	392.	395.
1974	476.	527.	1551.	2078.	2014.	1738.	2106.	2307.	810.	840.	620.	899.
1975	520.	1630.	2316.	3239.	2051.	2455.	880.	1393.	1362.	661.	712.	1453.
1976	4237.	2181.	1885.	1903.	2391.	5326.	2420.	2656.	2690.	2095.	1481.	654.
1977	2406.	2479.	1630.	635.	551.	1954.	1777.	1135.	514.	622.	514.	2518.
1978	5774.	4544.	4796.	4897.	4464.	1641.	4117.	1300.	883.	426.	808.	501.
1979	225.	295.	1600.	3104.	2957.	3408.	2663.	887.	721.	503.	946.	902.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

SENECA LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	---	---	---	---	---	---	---	---	---	---	---	---
1931	---	---	---	---	98.	46.	68.	423.	950.	445.	429.	161.
1932	80.	60.	216.	142.	452.	679.	804.	1412.	855.	272.	386.	189.
1933	251.	277.	400.	109.	218.	292.	482.	536.	411.	196.	244.	309.
1934	335.	368.	99.	366.	274.	175.	353.	245.	153.	141.	151.	150.
1935	244.	116.	91.	182.	169.	545.	591.	620.	271.	2069.	863.	398.
1936	424.	747.	633.	849.	748.	1053.	2073.	779.	645.	226.	276.	311.
1937	110.	106.	133.	269.	402.	642.	1076.	1385.	890.	277.	240.	252.
1938	278.	952.	490.	782.	1643.	965.	1150.	438.	267.	299.	462.	396.
1939	453.	293.	270.	246.	626.	1280.	993.	322.	371.	289.	316.	388.
1940	266.	279.	177.	56.	27.	27.	1637.	1324.	1612.	592.	175.	205.
1941	158.	150.	185.	408.	724.	821.	1193.	311.	187.	358.	232.	212.
1942	233.	148.	224.	182.	131.	406.	1048.	730.	226.	409.	817.	279.
1943	569.	1117.	599.	2149.	1668.	218.	855.	2079.	1691.	388.	1086.	380.
1944	106.	56.	225.	1059.	1061.	537.	566.	654.	1300.	839.	513.	55.
1945	39.	31.	67.	433.	1042.	798.	945.	1877.	1518.	---	---	---
1946	---	---	---	1478.	858.	226.	49.	284.	1049.	546.	672.	576.
1947	193.	527.	377.	192.	173.	467.	914.	1544.	1807.	517.	553.	244.
1948	315.	202.	518.	378.	251.	276.	1124.	1371.	649.	307.	586.	740.
1949	132.	94.	284.	379.	256.	140.	589.	411.	322.	113.	285.	454.
1950	267.	43.	34.	125.	198.	311.	1740.	413.	710.	133.	567.	428.
1951	268.	650.	1525.	1031.	1375.	1964.	1634.	622.	416.	516.	470.	302.
1952	82.	118.	127.	715.	749.	703.	1572.	1164.	305.	621.	295.	256.
1953	111.	36.	136.	408.	119.	609.	1160.	1069.	209.	319.	405.	143.
1954	55.	593.	211.	91.	27.	27.	118.	1218.	628.	228.	286.	34.
1955	131.	278.	328.	343.	503.	759.	747.	465.	247.	285.	312.	258.
1956	1197.	1469.	921.	804.	1084.	2069.	2163.	1867.	547.	545.	186.	266.
1957	426.	287.	262.	83.	27.	1378.	1128.	1071.	651.	608.	299.	61.
1958	60.	59.	149.	197.	126.	270.	1879.	943.	974.	596.	340.	312.
1959	299.	249.	883.	248.	168.	1044.	1103.	444.	269.	348.	336.	247.
1960	384.	454.	1041.	2080.	442.	1443.	1758.	1627.	1633.	111.	196.	206.
1961	323.	154.	241.	127.	27.	720.	1693.	1964.	1614.	297.	273.	460.
1962	166.	123.	618.	55.	27.	275.	231.	490.	223.	87.	87.	121.
1963	259.	329.	307.	221.	596.	494.	835.	275.	159.	193.	301.	274.
1964	143.	104.	135.	35.	15.	1442.	1642.	1396.	58.	301.	221.	235.
1965	157.	48.	52.	26.	25.	22.	46.	85.	60.	82.	73.	45.
1966	244.	318.	235.	200.	16.	1541.	869.	383.	507.	101.	108.	69.
1967	70.	33.	476.	---	---	---	---	---	---	---	---	---
1968	---	---	---	---	---	---	---	---	---	---	---	---
1969	---	---	---	175.	15.	90.	1280.	856.	535.	350.	277.	73.
1970	35.	23.	445.	284.	84.	1097.	872.	435.	227.	197.	78.	104.
1971	287.	937.	1373.	453.	277.	1589.	1150.	853.	443.	46.	44.	32.
1972	28.	67.	322.	580.	440.	576.	1737.	1515.	1767.	2950.	1668.	82.
1973	107.	804.	1935.	2011.	879.	660.	1387.	937.	475.	136.	166.	119.
1974	60.	48.	56.	269.	898.	835.	938.	794.	312.	226.	188.	181.
1975	159.	210.	74.	1419.	476.	900.	290.	670.	597.	190.	150.	524.
1976	1238.	627.	208.	687.	858.	2496.	980.	1301.	1233.	747.	486.	249.
1977	589.	805.	181.	250.	156.	301.	723.	748.	230.	174.	228.	837.
1978	1806.	1869.	1790.	1532.	1286.	999.	1541.	1143.	359.	112.	314.	131.
1979	47.	118.	276.	843.	1030.	1250.	1355.	400.	261.	126.	234.	521.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

KEUKA LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	---	---	---	---	---	---	---	---	---	---	---	---
1931	---	---	---	---	---	---	---	---	---	---	---	---
1932	---	---	---	---	---	---	---	---	---	---	---	---
1933	---	---	---	---	---	---	---	---	---	---	---	---
1934	---	---	---	---	---	---	---	---	---	---	---	---
1935	---	---	---	---	---	---	---	---	---	---	---	---
1936	---	---	---	---	---	---	---	---	---	---	---	---
1937	---	---	---	---	---	---	---	---	---	---	---	---
1938	---	---	---	---	---	---	---	---	---	---	---	---
1939	---	---	---	---	---	---	---	---	---	---	---	---
1940	---	---	---	---	---	---	---	---	---	---	---	---
1941	---	---	---	---	---	---	---	---	---	---	---	---
1942	---	---	---	---	---	---	---	---	---	---	---	---
1943	---	---	---	---	---	---	---	---	---	---	---	---
1944	---	---	---	---	---	---	---	---	---	---	---	---
1945	---	---	---	---	---	---	---	---	---	---	---	---
1946	---	---	---	---	---	---	---	---	---	---	---	---
1947	---	---	---	---	---	---	---	---	---	---	---	---
1948	---	---	---	---	---	---	---	---	---	---	---	---
1949	---	---	---	---	---	---	---	---	---	---	---	---
1950	---	---	---	---	---	---	---	---	---	---	---	---
1951	---	---	---	---	---	---	---	---	---	---	---	---
1952	---	---	---	---	---	---	---	---	---	---	---	---
1953	---	---	---	---	---	---	---	---	---	---	---	---
1954	---	---	---	---	---	---	---	---	---	---	---	---
1955	---	---	---	---	---	---	---	---	---	---	---	---
1956	---	---	---	---	---	---	---	---	---	---	---	---
1957	---	---	---	---	---	---	---	---	---	---	---	---
1958	---	---	---	---	---	---	---	---	---	---	---	---
1959	---	---	---	---	---	---	---	---	---	---	---	---
1960	---	---	---	---	---	---	---	---	---	---	---	---
1961	---	---	---	---	---	---	---	---	---	---	---	---
1962	---	---	---	---	---	---	---	---	---	---	---	---
1963	---	---	---	---	---	---	---	---	---	---	---	---
1964	---	---	---	---	---	---	---	---	---	---	---	---
1965	---	---	---	---	---	---	45.	53.	45.	79.	70.	87.
1966	95.	93.	79.	18.	60.	391.	277.	231.	170.	33.	23.	24.
1967	32.	59.	152.	82.	19.	79.	112.	191.	243.	31.	191.	61.
1968	63.	233.	335.	259.	258.	250.	135.	91.	255.	263.	56.	47.
1969	39.	71.	265.	266.	238.	132.	130.	266.	210.	160.	66.	43.
1970	33.	32.	166.	214.	305.	286.	375.	174.	79.	70.	39.	68.
1971	234.	301.	325.	259.	251.	500.	532.	187.	77.	49.	36.	112.
1972	84.	54.	186.	182.	91.	432.	474.	490.	676.	892.	450.	223.
1973	50.	288.	478.	426.	319.	398.	487.	332.	213.	45.	28.	43.
1974	73.	150.	37.	185.	290.	319.	416.	207.	90.	60.	51.	51.
1975	48.	91.	272.	277.	295.	382.	263.	133.	238.	54.	39.	168.
1976	387.	287.	213.	221.	381.	601.	435.	394.	458.	206.	198.	42.
1977	259.	249.	195.	99.	90.	247.	208.	279.	43.	38.	139.	220.
1978	404.	534.	532.	465.	421.	516.	604.	429.	131.	26.	160.	131.
1979	32.	29.	205.	278.	257.	508.	413.	108.	59.	34.	171.	234.

Table 9A.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

CANANDAIGUA LAKE OUTFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	---	---	---	---	---	---	---	---	---	---	---	---
1931	---	---	---	---	---	---	---	---	---	---	---	---
1932	---	---	---	---	---	---	---	---	---	---	---	---
1933	---	---	---	---	---	---	---	---	---	---	---	---
1934	---	---	---	---	---	---	---	---	---	---	---	---
1935	---	---	---	---	---	---	---	---	---	---	---	---
1936	---	---	---	---	---	---	---	---	---	---	---	---
1937	---	---	---	---	---	---	---	---	---	---	---	---
1938	---	---	---	---	---	---	---	---	---	---	---	---
1939	---	---	---	---	---	---	---	---	---	---	---	---
1940	---	---	31.	30.	34.	61.	831.	425.	321.	186.	88.	61.
1941	45.	38.	73.	117.	102.	144.	380.	92.	72.	48.	35.	31.
1942	34.	29.	23.	24.	28.	468.	569.	176.	47.	37.	32.	74.
1943	73.	115.	165.	364.	285.	303.	229.	725.	528.	90.	33.	23.
1944	48.	75.	115.	85.	89.	226.	297.	381.	141.	96.	68.	48.
1945	33.	25.	59.	70.	112.	586.	466.	411.	97.	93.	72.	68.
1946	321.	243.	424.	365.	191.	228.	61.	66.	154.	159.	24.	23.
1947	40.	49.	89.	180.	211.	212.	444.	520.	403.	35.	33.	33.
1948	19.	20.	56.	87.	92.	275.	399.	214.	210.	122.	28.	29.
1949	49.	47.	39.	99.	241.	210.	107.	87.	51.	28.	29.	23.
1950	18.	24.	30.	46.	42.	207.	615.	122.	28.	21.	25.	22.
1951	38.	125.	426.	335.	384.	562.	526.	191.	84.	119.	32.	27.
1952	45.	37.	58.	76.	212.	423.	504.	175.	129.	58.	30.	27.
1953	20.	27.	51.	57.	79.	175.	269.	323.	123.	25.	49.	44.
1954	24.	26.	27.	22.	42.	142.	421.	389.	56.	37.	34.	32.
1955	29.	20.	25.	27.	46.	574.	357.	54.	21.	22.	39.	27.
1956	142.	258.	218.	152.	228.	736.	716.	528.	120.	25.	49.	51.
1957	36.	36.	46.	101.	194.	255.	371.	264.	78.	55.	48.	40.
1958	21.	14.	17.	14.	26.	62.	498.	264.	140.	280.	41.	39.
1959	30.	47.	43.	86.	336.	366.	525.	117.	74.	63.	47.	37.
1960	34.	23.	207.	387.	225.	285.	534.	329.	214.	57.	52.	31.
1961	21.	16.	28.	19.	41.	132.	477.	505.	269.	35.	37.	39.
1962	21.	27.	29.	38.	42.	78.	256.	218.	46.	44.	35.	33.
1963	52.	71.	72.	50.	91.	313.	336.	200.	53.	17.	29.	30.
1964	17.	13.	28.	67.	74.	492.	477.	169.	141.	67.	52.	22.
1965	15.	14.	12.	12.	40.	36.	70.	148.	134.	71.	80.	60.
1966	45.	40.	38.	35.	49.	163.	279.	233.	147.	87.	93.	80.
1967	43.	19.	11.	9.	10.	29.	96.	246.	163.	146.	100.	79.
1968	56.	56.	57.	57.	71.	142.	318.	84.	163.	235.	75.	34.
1969	35.	43.	78.	188.	422.	83.	429.	334.	221.	120.	25.	34.
1970	19.	34.	68.	61.	148.	267.	393.	206.	54.	36.	31.	31.
1971	47.	306.	381.	301.	107.	574.	562.	342.	48.	38.	31.	24.
1972	29.	38.	42.	67.	94.	494.	553.	474.	566.	852.	198.	45.
1973	41.	254.	521.	361.	238.	378.	480.	255.	225.	29.	27.	27.
1974	24.	32.	32.	39.	110.	323.	364.	122.	89.	52.	35.	56.
1975	54.	49.	254.	251.	235.	311.	224.	227.	188.	103.	42.	111.
1976	345.	145.	85.	211.	518.	748.	361.	425.	278.	74.	318.	36.
1977	278.	322.	103.	39.	57.	344.	276.	162.	32.	50.	46.	363.
1978	613.	419.	455.	397.	294.	394.	618.	182.	40.	29.	34.	41.
1979	63.	41.	45.	242.	256.	644.	510.	82.	78.	30.	33.	186.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, (Continued)

ONEIDA LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	1501.	1619.	2579.	4853.	2685.	4474.	3895.	1702.	2487.	610.	-71.	454.
1931	70.	376.	935.	826.	1496.	3201.	3609.	2613.	758.	955.	253.	896.
1932	803.	2103.	2678.	4148.	3178.	2861.	6662.	1449.	540.	951.	391.	102.
1933	2473.	3147.	2058.	2323.	1673.	4003.	5047.	1414.	144.	-111.	286.	122.
1934	300.	1176.	1719.	2605.	937.	3878.	4657.	659.	472.	38.	87.	489.
1935	427.	1591.	1799.	3949.	1753.	4542.	3375.	2660.	1219.	1960.	128.	593.
1936	988.	2453.	2103.	1950.	1415.	11031.	5886.	1904.	344.	-16.	405.	590.
1937	1416.	2719.	2645.	5506.	3604.	2613.	6957.	2559.	1446.	698.	622.	135.
1938	2654.	3249.	2701.	2060.	5362.	5896.	3475.	1249.	550.	336.	743.	1805.
1939	783.	1209.	1847.	1534.	2912.	4885.	5844.	1502.	660.	331.	80.	-32.
1940	371.	611.	1482.	1098.	1978.	2731.	12534.	3026.	1500.	849.	13.	151.
1941	258.	1583.	4486.	2257.	2578.	3020.	7152.	768.	311.	195.	146.	611.
1942	1115.	1665.	2298.	1243.	1523.	5904.	3989.	1242.	829.	264.	477.	609.
1943	697.	2336.	3420.	2615.	3787.	7203.	4983.	6050.	2004.	352.	546.	34.
1944	2031.	3539.	1764.	1951.	2295.	5621.	5938.	2333.	1759.	368.	179.	370.
1945	717.	600.	1880.	2329.	3332.	10408.	3896.	3107.	1878.	1056.	424.	2602.
1946	5351.	3980.	1978.	2444.	3012.	6624.	1352.	1701.	1492.	401.	-30.	363.
1947	1414.	1862.	2102.	5421.	3239.	5649.	10463.	6032.	4134.	2375.	137.	57.
1948	395.	1466.	1750.	1180.	2591.	7408.	4317.	3358.	1482.	918.	799.	242.
1949	390.	2822.	2698.	4608.	4220.	4214.	3970.	1803.	608.	423.	463.	1162.
1950	719.	1673.	4109.	5295.	2290.	5902.	6963.	2078.	1271.	540.	292.	1075.
1951	1274.	2780.	3319.	4361.	5033.	6615.	7149.	2152.	1415.	2358.	874.	884.
1952	950.	2399.	3535.	4298.	2837.	4333.	4959.	2969.	1012.	1224.	197.	287.
1953	820.	1428.	3173.	2400.	3154.	5060.	3462.	3591.	667.	357.	692.	302.
1954	297.	746.	1676.	1623.	5208.	3752.	6654.	3352.	1421.	195.	541.	882.
1955	735.	2559.	3866.	2085.	2111.	7839.	6264.	1429.	677.	382.	187.	279.
1956	2890.	2674.	2114.	1245.	2173.	4547.	8072.	3587.	1342.	1043.	794.	1618.
1957	890.	1558.	2925.	2591.	2278.	3379.	3607.	1945.	1111.	1049.	1051.	399.
1958	533.	1124.	3554.	1934.	1865.	4257.	5133.	2872.	3038.	1470.	850.	2150.
1959	2154.	2766.	2249.	3322.	2655.	4310.	7890.	2510.	930.	569.	428.	204.
1960	2374.	4090.	4605.	2621.	4009.	2670.	9105.	2930.	1451.	418.	294.	463.
1961	554.	1214.	876.	762.	3791.	4471.	5517.	2539.	2174.	1464.	578.	342.
1962	283.	1345.	1887.	2435.	1339.	4169.	5643.	1505.	496.	265.	750.	463.
1963	918.	1453.	1076.	964.	935.	4726.	5883.	2714.	922.	257.	490.	21.
1964	146.	1049.	1916.	2939.	1177.	5903.	5190.	2007.	640.	254.	207.	-39.
1965	164.	714.	1841.	1459.	3416.	2531.	5910.	1898.	952.	272.	278.	728.
1966	1551.	3070.	2323.	1936.	3371.	6172.	4199.	2711.	877.	134.	570.	500.
1967	600.	1091.	2216.	2178.	1585.	2881.	5042.	2509.	697.	872.	1444.	1039.
1968	1743.	4744.	3572.	1522.	2311.	5199.	4196.	2301.	2949.	1762.	471.	1092.
1969	2060.	5177.	3674.	3067.	2712.	3708.	7281.	4509.	1901.	571.	357.	149.
1970	600.	1706.	1598.	958.	2383.	3215.	6881.	2268.	1274.	1265.	352.	1124.
1971	2043.	2460.	2616.	1608.	3295.	4798.	7620.	4733.	1210.	810.	640.	948.
1972	839.	1606.	3313.	2412.	1906.	4920.	8134.	6105.	7935.	3146.	1562.	709.
1973	1672.	4639.	5130.	4129.	3065.	5759.	5313.	3503.	2681.	883.	637.	806.
1974	774.	3420.	5562.	3775.	2879.	3824.	6414.	4697.	1667.	3202.	1496.	1391.
1975	1163.	3410.	3139.	3200.	4194.	4774.	5355.	2706.	1418.	1091.	873.	4444.
1976	3137.	3132.	3002.	2200.	5702.	6807.	5894.	5015.	3269.	2045.	2047.	1671.
1977	4890.	3030.	2478.	1283.	1680.	8638.	6545.	1663.	842.	1644.	1614.	3763.
1978	5230.	5949.	5140.	4152.	2444.	5094.	7159.	2891.	1374.	550.	747.	1636.
1979	1179.	1133.	2416.	4528.	2331.	9012.	6344.	2564.	915.	327.	638.	1614.

[1] Negative net inflow value when evsporation and (or) ground-water seepage from lake is greater than total surface and ground-water flow to the lake. Inflow computations include addition of diversions out of basin for city of Rome.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

OTISCO LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	79.	39.	61.	123.	62.	151.	87.	40.	133.	25.	11.	20.
1931	10.	13.	24.	27.	54.	114.	170.	94.	39.	17.	2.	3.
1932	0.	14.	50.	101.	112.	110.	155.	51.	13.	33.	6.	-8.
1933	29.	46.	40.	43.	39.	157.	130.	51.	4.	-5.	16.	-4.
1934	4.	30.	49.	78.	16.	133.	119.	24.	7.	-4.	-6.	11.
1935	2.	45.	58.	111.	43.	103.	130.	67.	20.	75.	18.	6.
1936	8.	33.	81.	52.	29.	289.	118.	49.	3.	-10.	0.	5.
1937	13.	63.	57.	132.	78.	60.	168.	75.	51.	6.	12.	1.
1938	63.	79.	63.	57.	121.	121.	85.	46.	17.	4.	15.	22.
1939	12.	21.	47.	42.	120.	134.	112.	18.	8.	5.	2.	-5.
1940	2.	10.	19.	12.	49.	121.	313.	66.	39.	32.	-11.	0.
1941	1.	15.	69.	63.	38.	75.	203.	18.	2.	8.	-5.	-6.
1942	-3.	3.	24.	31.	46.	227.	98.	43.	10.	-1.	6.	13.
1943	20.	60.	152.	72.	106.	125.	150.	153.	84.	8.	14.	-3.
1944	40.	78.	37.	16.	36.	152.	119.	61.	67.	19.	-4.	5.
1945	10.	21.	58.	49.	55.	295.	64.	98.	51.	32.	7.	58.
1946	140.	110.	69.	60.	42.	139.	35.	53.	59.	21.	5.	6.
1947	34.	24.	28.	116.	49.	134.	156.	134.	96.	26.	17.	-4.
1948	-3.	17.	23.	15.	60.	171.	98.	90.	35.	3.	6.	-4.
1949	2.	44.	50.	111.	90.	75.	85.	52.	6.	0.	-6.	14.
1950	8.	18.	56.	100.	60.	198.	146.	31.	52.	9.	14.	29.
1951	29.	93.	119.	95.	144.	131.	109.	35.	22.	34.	-1.	3.
1952	7.	32.	70.	113.	75.	138.	77.	74.	18.	21.	-4.	-1.
1953	5.	16.	63.	62.	93.	130.	76.	74.	15.	5.	2.	-4.
1954	-1.	9.	17.	40.	128.	91.	136.	75.	25.	-1.	22.	19.
1955	13.	50.	137.	63.	38.	66.	74.	37.	16.	5.	3.	-1.
1956	53.	59.	65.	50.	83.	149.	155.	85.	37.	18.	10.	20.
1957	18.	27.	87.	104.	86.	91.	90.	63.	43.	47.	24.	6.
1958	5.	13.	49.	55.	64.	139.	164.	66.	78.	31.	4.	20.
1959	26.	58.	44.	118.	81.	143.	134.	35.	10.	2.	-4.	-5.
1960	23.	54.	146.	70.	117.	144.	115.	66.	23.	-9.	4.	7.
1961	11.	14.	13.	20.	154.	127.	166.	88.	69.	23.	19.	1.
1962	4.	17.	42.	76.	62.	108.	151.	46.	7.	-5.	13.	4.
1963	16.	30.	37.	35.	21.	191.	106.	80.	17.	6.	3.	-1.
1964	-2.	44.	69.	111.	51.	220.	104.	50.	8.	-5.	-6.	-4.
1965	-1.	5.	22.	35.	96.	65.	97.	37.	6.	-5.	-7.	2.
1966	5.	56.	60.	59.	159.	186.	106.	70.	23.	0.	-1.	7.
1967	2.	17.	56.	49.	51.	117.	110.	73.	15.	5.	36.	17.
1968	50.	131.	97.	58.	63.	164.	75.	62.	91.	53.	16.	17.
1969	36.	159.	149.	129.	79.	120.	153.	92.	72.	26.	9.	1.
1970	-3.	54.	56.	43.	95.	110.	165.	52.	46.	43.	-7.	20.
1971	51.	52.	64.	48.	98.	167.	200.	75.	11.	-8.	-15.	-16.
1972	-9.	7.	54.	61.	28.	185.	142.	100.	315.	35.	8.	13.
1973	52.	149.	185.	87.	78.	122.	140.	76.	56.	-9.	-12.	-9.
1974	-6.	11.	103.	69.	65.	105.	229.	95.	36.	47.	17.	14.
1975	27.	100.	121.	99.	134.	133.	109.	67.	29.	32.	13.	122.
1976	57.	65.	87.	81.	217.	180.	201.	138.	73.	66.	29.	35.
1977	138.	56.	68.	38.	69.	267.	107.	45.	21.	7.	15.	82.
1978	194.	129.	182.	143.	61.	191.	202.	51.	26.	5.	16.	18.
1979	24.	25.	74.	159.	64.	272.	132.	50.	19.	10.	7.	31.

[1] Inflows for July to December 1961 determined through regression analysis. Inflow computations include addition of diversions out of basin for city of Syracuse.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

SKANEATELES LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	116.	59.	93.	198.	106.	277.	185.	68.	264.	95.	0.	13.
1931	-27.	-1.	10.	26.	57.	240.	231.	213.	52.	42.	-3.	-23.
1932	-24.	24.	76.	204.	190.	186.	295.	109.	35.	81.	6.	-36.
1933	30.	57.	52.	40.	27.	243.	240.	92.	17.	-10.	28.	-21.
1934	-26.	34.	94.	135.	30.	239.	195.	52.	47.	-24.	-16.	8.
1935	-1.	57.	89.	198.	119.	211.	247.	178.	70.	186.	19.	0.
1936	-5.	62.	119.	89.	63.	535.	253.	110.	16.	-12.	-8.	-6.
1937	21.	89.	76.	237.	145.	102.	330.	169.	121.	5.	41.	-7.
1938	119.	125.	115.	114.	244.	217.	193.	122.	49.	25.	35.	61.
1939	-1.	34.	56.	57.	225.	225.	254.	36.	37.	26.	-10.	-40.
1940	-16.	21.	19.	-6.	124.	231.	552.	147.	126.	88.	-20.	-14.
1941	-5.	10.	138.	117.	73.	128.	370.	56.	37.	36.	-12.	-19.
1942	-14.	0.	46.	91.	79.	407.	210.	102.	51.	17.	34.	27.
1943	40.	130.	246.	125.	192.	272.	301.	307.	198.	22.	28.	-21.
1944	71.	118.	34.	47.	89.	288.	245.	161.	146.	31.	3.	-9.
1945	-3.	36.	112.	96.	161.	534.	147.	225.	118.	78.	6.	137.
1946	211.	222.	120.	93.	87.	256.	75.	135.	174.	96.	1.	12.
1947	93.	48.	38.	215.	85.	248.	322.	306.	223.	51.	14.	-31.
1948	-29.	24.	12.	29.	114.	322.	179.	214.	87.	23.	20.	-30.
1949	2.	68.	54.	199.	147.	142.	186.	108.	52.	26.	-14.	19.
1950	-3.	18.	84.	182.	123.	343.	307.	78.	113.	60.	19.	69.
1951	69.	121.	251.	182.	284.	258.	233.	71.	59.	89.	-3.	-11.
1952	-19.	21.	98.	190.	129.	242.	176.	157.	56.	63.	-12.	-31.
1953	-29.	9.	109.	110.	162.	207.	135.	139.	33.	30.	8.	-36.
1954	-31.	-4.	9.	35.	242.	149.	258.	169.	54.	-21.	15.	-13.
1955	3.	63.	227.	97.	145.	433.	146.	69.	28.	7.	-12.	-30.
1956	127.	90.	80.	64.	141.	344.	417.	178.	55.	41.	25.	15.
1957	-5.	18.	140.	148.	106.	206.	177.	120.	159.	109.	9.	-7.
1958	-22.	-3.	82.	93.	97.	226.	500.	150.	207.	76.	3.	65.
1959	33.	90.	36.	185.	147.	241.	317.	84.	51.	21.	1.	-49.
1960	39.	83.	261.	117.	245.	223.	334.	173.	73.	11.	0.	-4.
1961	0.	3.	-12.	7.	258.	233.	324.	170.	129.	51.	17.	-10.
1962	-8.	18.	64.	108.	91.	181.	273.	78.	6.	-18.	27.	-24.
1963	2.	12.	18.	39.	43.	319.	199.	146.	42.	23.	6.	-24.
1964	-30.	77.	111.	157.	56.	402.	200.	123.	28.	-10.	-25.	-46.
1965	-27.	-3.	23.	41.	152.	101.	184.	80.	34.	-11.	-2.	8.
1966	-19.	92.	81.	88.	225.	303.	200.	124.	68.	0.	8.	-6.
1967	-29.	37.	105.	96.	87.	180.	181.	149.	46.	39.	71.	19.
1968	73.	237.	147.	73.	81.	284.	124.	111.	167.	85.	26.	28.
1969	38.	264.	215.	191.	97.	174.	313.	229.	173.	47.	6.	-30.
1970	-2.	127.	114.	62.	156.	169.	367.	139.	116.	104.	19.	55.
1971	93.	116.	36.	75.	183.	284.	380.	175.	73.	25.	-4.	24.
1972	-2.	20.	151.	117.	85.	295.	319.	248.	531.	17.	-16.	42.
1973	84.	266.	333.	122.	122.	247.	268.	173.	115.	11.	-4.	-4.
1974	-13.	30.	193.	124.	103.	185.	381.	194.	127.	45.	51.	37.
1975	33.	168.	216.	157.	222.	219.	199.	152.	75.	74.	18.	196.
1976	68.	82.	133.	117.	336.	324.	327.	308.	163.	119.	73.	7.
1977	149.	56.	75.	43.	109.	426.	201.	71.	43.	9.	33.	175.
1978	316.	178.	292.	289.	178.	320.	320.	80.	51.	3.	15.	-5.
1979	5.	4.	96.	270.	108.	427.	225.	100.	41.	28.	11.	46.

[1] Inflow computations include addition of diversions out of basin for city of Syracuse and village of Skaneateles.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

OWASCO LAKE INFLOWS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	273.	193.	315.	554.	273.	742.	414.	185.	533.	170.	27.	32.
1931	-11.	52.	88.	88.	226.	699.	548.	489.	147.	68.	35.	-2.
1932	26.	37.	283.	531.	510.	476.	835.	355.	50.	100.	48.	14.
1933	86.	222.	103.	179.	99.	643.	634.	181.	40.	38.	56.	33.
1934	3.	119.	233.	311.	81.	539.	539.	96.	49.	21.	31.	19.
1935	16.	189.	230.	559.	244.	576.	690.	429.	101.	626.	107.	55.
1936	50.	190.	375.	281.	184.	1593.	612.	285.	55.	-11.	-5.	18.
1937	37.	251.	233.	629.	413.	327.	873.	415.	244.	55.	102.	74.
1938	280.	383.	358.	296.	660.	638.	467.	234.	76.	33.	116.	268.
1939	61.	117.	215.	169.	620.	712.	656.	115.	44.	1.	-7.	-32.
1940	-4.	0.	59.	43.	245.	576.	1492.	355.	297.	238.	9.	19.
1941	-9.	80.	406.	274.	238.	348.	928.	112.	51.	47.	-2.	-13.
1942	15.	34.	168.	158.	245.	1115.	480.	183.	65.	22.	123.	123.
1943	149.	377.	715.	494.	538.	758.	660.	826.	405.	39.	52.	-8.
1944	169.	371.	133.	125.	203.	765.	618.	388.	264.	69.	1.	14.
1945	3.	83.	273.	249.	426.	1443.	386.	564.	268.	127.	39.	223.
1946	601.	642.	408.	331.	205.	698.	161.	299.	402.	231.	47.	48.
1947	309.	194.	136.	559.	260.	648.	763.	758.	578.	134.	66.	14.
1948	-8.	94.	145.	75.	280.	867.	430.	516.	164.	65.	60.	-15.
1949	-1.	146.	189.	563.	446.	400.	398.	267.	80.	54.	1.	61.
1950	48.	101.	267.	529.	261.	961.	771.	184.	285.	135.	55.	160.
1951	201.	344.	725.	561.	734.	768.	524.	162.	122.	154.	4.	1.
1952	4.	75.	269.	542.	372.	669.	434.	352.	106.	81.	16.	-8.
1953	-5.	50.	369.	316.	400.	520.	340.	348.	77.	26.	2.	-15.
1954	-11.	17.	42.	103.	500.	396.	639.	412.	170.	20.	4.	18.
1955	22.	206.	630.	326.	381.	1228.	312.	175.	39.	10.	1.	-9.
1956	369.	366.	297.	198.	429.	1089.	1085.	377.	139.	89.	19.	60.
1957	41.	93.	413.	382.	351.	520.	466.	290.	209.	196.	55.	16.
1958	8.	34.	235.	218.	282.	784.	1307.	385.	407.	161.	11.	89.
1959	172.	270.	167.	499.	372.	704.	764.	160.	65.	38.	13.	-27.
1960	86.	307.	807.	349.	597.	658.	919.	406.	191.	30.	11.	12.
1961	25.	47.	37.	39.	753.	621.	901.	439.	340.	169.	93.	-3.
1962	14.	81.	215.	305.	194.	578.	689.	139.	41.	-5.	18.	-14.
1963	27.	91.	82.	104.	109.	928.	460.	313.	119.	22.	11.	-10.
1964	-25.	78.	334.	443.	179.	1241.	534.	283.	60.	0.	-17.	-37.
1965	-19.	2.	70.	151.	436.	297.	428.	152.	52.	4.	-5.	6.
1966	15.	135.	210.	220.	616.	847.	523.	350.	129.	13.	14.	7.
1967	-4.	130.	344.	290.	263.	528.	472.	408.	97.	102.	179.	73.
1968	244.	614.	391.	201.	250.	665.	300.	247.	315.	190.	54.	79.
1969	112.	666.	583.	535.	268.	453.	744.	314.	319.	98.	30.	-10.
1970	14.	279.	343.	196.	447.	549.	974.	256.	99.	106.	24.	102.
1971	327.	414.	333.	220.	487.	850.	928.	333.	117.	50.	20.	22.
1972	10.	67.	455.	335.	186.	864.	830.	583.	1238.	393.	153.	80.
1973	191.	787.	950.	423.	387.	713.	741.	384.	197.	43.	2.	22.
1974	15.	48.	435.	354.	319.	429.	921.	414.	246.	102.	76.	127.
1975	113.	480.	587.	460.	578.	500.	489.	327.	159.	103.	64.	654.
1976	276.	296.	381.	354.	969.	742.	627.	548.	307.	328.	145.	56.
1977	410.	197.	215.	127.	375.	1101.	408.	186.	69.	53.	108.	679.
1978	906.	568.	780.	595.	252.	792.	783.	203.	108.	42.	48.	35.
1979	64.	58.	243.	665.	308.	1166.	572.	203.	79.	43.	51.	110.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

CAYUGA LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	938.	616.	1000.	2036.	1520.	2929.	2218.	1249.	2361.	924.	279.	351.
1931	65.	-19.	112.	248.	584.	2278.	1865.	2100.	1435.	695.	399.	116.
1932	-59.	136.	730.	1574.	1714.	2312.	3237.	2925.	979.	570.	410.	56.
1933	552.	808.	583.	438.	308.	2506.	2360.	1041.	550.	245.	655.	360.
1934	290.	569.	628.	1158.	320.	2011.	2214.	435.	447.	145.	125.	345.
1935	269.	676.	674.	1601.	921.	2654.	2734.	1819.	669.	6062.	1244.	540.
1936	552.	1210.	1743.	1520.	1205.	7785.	4779.	1616.	731.	96.	369.	295.
1937	234.	480.	624.	2205.	1379.	1859.	3764.	2794.	2003.	394.	1094.	320.
1938	1210.	2095.	1601.	1842.	3231.	3309.	2532.	1140.	548.	541.	841.	1302.
1939	473.	487.	880.	687.	3177.	3671.	2710.	673.	607.	350.	205.	181.
1940	324.	292.	380.	223.	852.	2414.	6582.	2668.	2775.	1212.	186.	136.
1941	65.	288.	1057.	884.	1149.	1993.	3885.	628.	455.	652.	267.	194.
1942	171.	170.	486.	462.	847.	4282.	2516.	1344.	501.	591.	1258.	676.
1943	1176.	2253.	2935.	3573.	3449.	2398.	2918.	5137.	2995.	499.	1183.	130.
1944	1047.	1322.	413.	1196.	1732.	2953.	2471.	2168.	2147.	931.	365.	-41.
1945	66.	241.	773.	1074.	2889.	5234.	2013.	4173.	2528.	1213.	735.	948.
1946	1867.	2379.	3615.	2409.	1157.	2252.	506.	1629.	2258.	930.	806.	766.
1947	937.	985.	603.	1987.	669.	2454.	3403.	4620.	3476.	1185.	930.	276.
1948	256.	666.	619.	477.	1363.	3120.	2798.	3095.	1354.	604.	1035.	684.
1949	273.	656.	838.	2056.	1680.	1143.	1885.	1065.	667.	269.	424.	702.
1950	362.	182.	642.	1625.	1367.	4606.	3741.	1039.	1545.	401.	700.	944.
1951	873.	1848.	3848.	2221.	3620.	4551.	3246.	1130.	1240.	1091.	435.	328.
1952	89.	476.	908.	2569.	2015.	2936.	2784.	2388.	657.	1005.	608.	340.
1953	190.	425.	1748.	1609.	1371.	2658.	2490.	2075.	557.	671.	692.	141.
1954	234.	815.	527.	267.	1745.	1290.	2267.	3779.	1235.	248.	232.	209.
1955	191.	856.	2016.	2446.	2731.	5544.	2387.	884.	319.	246.	504.	245.
1956	4591.	3099.	1512.	1260.	3137.	7683.	8211.	2792.	921.	963.	384.	523.
1957	670.	476.	1361.	1360.	963.	3074.	2837.	2110.	1093.	950.	296.	37.
1958	16.	150.	771.	935.	978.	3701.	6538.	2391.	2181.	1252.	564.	582.
1959	882.	1138.	1325.	1845.	1305.	3417.	3161.	956.	650.	607.	559.	256.
1960	1050.	1799.	3990.	3333.	2437.	4146.	4364.	3299.	2302.	208.	290.	335.
1961	403.	159.	254.	176.	2594.	2766.	5084.	3605.	2912.	806.	672.	440.
1962	191.	414.	848.	630.	609.	2234.	2325.	932.	404.	132.	92.	187.
1963	1089.	915.	820.	567.	900.	6461.	2255.	1322.	627.	349.	353.	222.
1964	57.	489.	659.	1197.	343.	5272.	3270.	1888.	343.	356.	231.	139.
1965	120.	108.	238.	219.	1150.	879.	1493.	628.	224.	97.	25.	109.
1966	299.	487.	682.	480.	1603.	3713.	2174.	1462.	990.	-12.	-45.	-86.
1967	-81.	351.	1186.	857.	611.	1479.	1338.	2213.	1201.	657.	620.	421.
1968	746.	2241.	2344.	940.	1171.	2626.	1192.	1005.	2467.	1105.	159.	238.
1969	73.	2144.	3380.	1707.	456.	968.	3368.	1953.	1803.	814.	301.	-208.
1970	223.	1063.	1685.	899.	1702.	3141.	3355.	1474.	766.	773.	250.	567.
1971	1364.	2867.	2865.	1100.	2457.	5022.	3574.	2141.	1099.	370.	179.	267.
1972	301.	319.	1428.	1636.	1352.	4206.	4322.	3890.	5680.	5835.	3346.	240.
1973	460.	3552.	5262.	3415.	2535.	3227.	4222.	2520.	1372.	326.	295.	259.
1974	205.	226.	1238.	1258.	1906.	2426.	3664.	2210.	1126.	486.	662.	361.
1975	38.	1338.	1523.	2932.	2760.	2679.	1271.	1846.	1275.	384.	310.	2888.
1976	2388.	1228.	1097.	1929.	4118.	5075.	2692.	2811.	2542.	1896.	1133.	325.
1977	2369.	1369.	562.	314.	1107.	3384.	1885.	1222.	311.	207.	474.	3490.
1978	4384.	4273.	4795.	3959.	2810.	4285.	3484.	1637.	566.	48.	468.	-41.
1979	-11.	-70.	557.	3354.	1927.	4946.	3230.	892.	375.	207.	358.	1035.

[1] Inflow computatiaons include addition of outflows from Seneca Lake.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

SENECA LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	345.	183.	373.	858.	546.	1266.	869.	406.	989.	296.	-14.	17.
1931	-112.	-110.	-48.	-67.	295.	1006.	731.	990.	461.	152.	-2.	-38.
1932	-159.	-68.	71.	513.	555.	1074.	1534.	1289.	479.	282.	33.	-118.
1933	154.	290.	78.	0.	26.	1287.	1182.	636.	202.	66.	367.	-132.
1934	-117.	-46.	67.	249.	93.	795.	915.	156.	294.	76.	-54.	74.
1935	-118.	-24.	43.	169.	223.	969.	1279.	653.	320.	2743.	394.	163.
1936	111.	431.	791.	126.	598.	3038.	1668.	684.	322.	-13.	2.	10.
1937	11.	55.	118.	827.	525.	592.	1929.	1390.	800.	210.	396.	-20.
1938	315.	638.	509.	570.	1177.	1439.	1514.	536.	300.	221.	331.	263.
1939	16.	10.	161.	116.	1380.	1830.	1276.	356.	257.	109.	-30.	-52.
1940	22.	-64.	-7.	-102.	389.	1006.	2637.	1216.	1274.	607.	38.	49.
1941	-83.	140.	514.	164.	212.	1143.	1636.	251.	297.	244.	27.	-149.
1942	-236.	-133.	128.	-130.	237.	2258.	1052.	611.	360.	378.	403.	464.
1943	158.	795.	1512.	1109.	1315.	1333.	1181.	2283.	1403.	379.	236.	-99.
1944	697.	575.	-94.	69.	504.	1729.	1352.	1069.	850.	160.	166.	-34.
1945	-37.	49.	76.	61.	938.	2618.	820.	1820.	1234.	376.	152.	338.
1946	820.	1019.	1335.	1135.	831.	1271.	223.	713.	1085.	251.	194.	205.
1947	287.	-131.	147.	916.	201.	704.	1465.	2175.	1492.	441.	433.	-233.
1948	0.	52.	142.	30.	567.	1609.	1229.	1489.	739.	171.	170.	113.
1949	32.	174.	141.	684.	734.	574.	614.	448.	208.	122.	-85.	-27.
1950	-138.	-72.	32.	475.	444.	1561.	1223.	583.	467.	259.	-51.	128.
1951	351.	786.	1327.	1272.	1802.	2316.	1547.	496.	574.	337.	-3.	93.
1952	-84.	19.	293.	685.	871.	1597.	1577.	904.	459.	320.	46.	-82.
1953	-161.	145.	693.	445.	373.	897.	1116.	976.	385.	258.	38.	-102.
1954	-127.	33.	-79.	-145.	508.	583.	1061.	1312.	443.	-36.	-26.	-131.
1955	-9.	-46.	408.	125.	546.	1944.	841.	419.	194.	-6.	210.	-81.
1956	2062.	1340.	375.	402.	1181.	3103.	2593.	1154.	451.	479.	246.	74.
1957	2.	-51.	231.	376.	503.	1161.	1641.	1180.	413.	247.	-102.	-77.
1958	-155.	-157.	9.	98.	84.	1638.	2424.	829.	870.	496.	-13.	85.
1959	145.	203.	108.	685.	597.	1503.	1552.	437.	245.	78.	16.	-60.
1960	284.	564.	2039.	856.	1100.	1673.	1842.	1781.	1077.	236.	64.	-7.
1961	-64.	-126.	-151.	-107.	1418.	1157.	2522.	1369.	1209.	268.	274.	-133.
1962	-72.	6.	-18.	139.	234.	1086.	1127.	306.	90.	-150.	48.	10.
1963	362.	191.	117.	18.	43.	1817.	719.	581.	150.	60.	-78.	-151.
1964	-200.	196.	115.	603.	332.	2408.	1315.	934.	309.	152.	-133.	-296.
1965	-134.	-145.	-34.	-6.	377.	391.	724.	257.	55.	-2.	-78.	-15.
1966	-28.	8.	68.	-24.	770.	2269.	624.	716.	416.	-98.	-85.	-145.
1967	-184.	88.	128.	315.	216.	647.	578.	852.	350.	158.	184.	58.
1968	252.	965.	892.	305.	406.	1135.	446.	357.	915.	363.	-38.	-1.
1969	-44.	959.	1347.	627.	425.	379.	1427.	752.	634.	45.	-188.	-271.
1970	-107.	251.	344.	156.	1096.	1087.	1137.	467.	109.	202.	-70.	132.
1971	397.	921.	589.	55.	1155.	1962.	1317.	685.	199.	-45.	-91.	93.
1972	-29.	-91.	555.	193.	403.	1912.	1616.	1524.	4000.	1442.	540.	81.
1973	-6.	1491.	2130.	663.	769.	1488.	1746.	725.	371.	-113.	-107.	-141.
1974	-123.	18.	489.	446.	566.	947.	1686.	697.	137.	-1.	110.	-9.
1975	-150.	341.	892.	613.	1168.	849.	633.	703.	549.	66.	24.	1218.
1976	453.	205.	586.	526.	2320.	1794.	1126.	1267.	1234.	414.	355.	-130.
1977	782.	86.	152.	-119.	422.	1580.	858.	687.	195.	82.	193.	1548.
1978	1442.	1316.	1760.	1147.	388.	2385.	1611.	877.	339.	47.	235.	58.
1979	4.	-89.	240.	1008.	257.	2377.	1361.	435.	146.	221.	104.	345.

[1] Inflows for October 1929 to January 1931, July to December 1945, and January 1967 to December 1968 determined through regression analysis. Inflow computations include addition of outflows from Keuka Lake.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

KEUKA LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	68.	47.	112.	336.	156.	469.	243.	137.	86.	19.	-4.	-5.
1931	-8.	-9.	-4.	-3.	21.	303.	354.	349.	108.	47.	27.	10.
1932	-1.	8.	177.	275.	201.	244.	570.	364.	35.	19.	1.	-10.
1933	12.	142.	50.	48.	27.	402.	399.	148.	59.	25.	111.	15.
1934	9.	20.	60.	160.	20.	278.	370.	45.	9.	-2.	-9.	-16.
1935	-7.	16.	28.	132.	116.	465.	427.	323.	41.	919.	90.	44.
1936	39.	88.	130.	63.	53.	1559.	507.	126.	29.	0.	2.	-1.
1937	-1.	38.	77.	342.	151.	160.	712.	334.	181.	39.	32.	1.
1938	20.	157.	110.	158.	291.	444.	355.	108.	37.	9.	1.	121.
1939	21.	23.	65.	87.	444.	569.	384.	69.	15.	17.	9.	-10.
1940	-1.	10.	85.	33.	56.	308.	1398.	211.	158.	69.	18.	36.
1941	14.	50.	248.	122.	63.	264.	646.	52.	19.	3.	-4.	-13.
1942	-10.	-8.	7.	14.	49.	918.	374.	152.	77.	122.	55.	30.
1943	68.	203.	334.	322.	316.	377.	413.	746.	182.	41.	18.	1.
1944	47.	142.	45.	29.	99.	408.	412.	320.	112.	38.	3.	-3.
1945	-1.	3.	25.	33.	184.	1087.	252.	527.	222.	97.	57.	196.
1946	241.	260.	382.	379.	74.	341.	73.	258.	346.	85.	63.	20.
1947	70.	72.	58.	297.	145.	229.	720.	589.	410.	111.	174.	60.
1948	11.	39.	66.	27.	193.	714.	440.	329.	135.	39.	44.	3.
1949	10.	44.	52.	253.	250.	191.	249.	106.	29.	5.	3.	1.
1950	-3.	4.	36.	183.	97.	533.	568.	108.	70.	30.	1.	25.
1951	155.	382.	466.	328.	443.	620.	479.	88.	175.	83.	12.	3.
1952	-1.	38.	129.	384.	277.	548.	480.	237.	69.	7.	5.	-1.
1953	7.	83.	256.	202.	236.	447.	256.	208.	93.	42.	18.	1.
1954	-1.	6.	23.	33.	199.	264.	414.	301.	90.	6.	-3.	-9.
1955	-6.	0.	79.	124.	132.	760.	199.	66.	6.	-10.	18.	-6.
1956	511.	336.	163.	65.	139.	959.	860.	276.	88.	81.	50.	76.
1957	30.	28.	203.	186.	158.	359.	541.	337.	68.	35.	10.	2.
1958	-1.	2.	13.	7.	14.	214.	1083.	221.	167.	46.	12.	15.
1959	19.	95.	70.	301.	229.	474.	529.	88.	26.	11.	4.	-4.
1960	164.	246.	545.	241.	260.	338.	662.	502.	310.	35.	10.	4.
1961	-1.	-1.	-4.	-8.	274.	368.	779.	327.	263.	55.	76.	8.
1962	3.	12.	20.	58.	56.	478.	494.	131.	25.	-2.	-3.	-7.
1963	5.	33.	81.	51.	19.	679.	370.	114.	31.	15.	7.	-4.
1964	-8.	19.	63.	190.	97.	873.	447.	118.	32.	30.	0.	-8.
1965	-9.	-7.	6.	21.	216.	121.	280.	90.	23.	-4.	-41.	-7.
1966	-23.	11.	62.	36.	306.	529.	187.	174.	65.	-27.	-30.	-20.
1967	-26.	71.	30.	23.	46.	261.	249.	201.	111.	72.	95.	13.
1968	71.	228.	165.	141.	136.	372.	150.	247.	277.	36.	-25.	-15.
1969	-11.	144.	208.	188.	91.	138.	519.	124.	233.	34.	-30.	-55.
1970	-17.	85.	180.	85.	355.	430.	411.	149.	24.	43.	20.	22.
1971	94.	319.	266.	93.	353.	653.	482.	150.	56.	-4.	-22.	-5.
1972	-27.	-18.	145.	125.	99.	720.	474.	454.	1413.	361.	73.	30.
1973	37.	380.	714.	166.	214.	500.	443.	247.	139.	10.	-16.	37.
1974	-10.	16.	161.	183.	233.	326.	494.	219.	61.	-8.	22.	2.
1975	-30.	111.	225.	299.	374.	343.	187.	304.	181.	-15.	25.	415.
1976	130.	70.	167.	179.	756.	517.	283.	410.	301.	128.	136.	-18.
1977	254.	82.	86.	24.	248.	500.	247.	165.	34.	53.	25.	510.
1978	310.	413.	470.	374.	180.	814.	451.	202.	95.	12.	143.	-20.
1979	31.	13.	93.	384.	130.	822.	362.	107.	60.	41.	52.	141.

[1] Inflows for October 1929 to March 1965 determined through regression anslysis. Inflow computations include subtraction of diversions into basin from Waneta and Lamoka Lakes.

Table 9B.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

CANANDAIGUA LAKE INFLOWS[1]

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	65.	45.	105.	307.	144.	427.	223.	127.	81.	21.	0.	-1.
1931	-4.	-5.	-1.	0.	22.	277.	323.	319.	101.	45.	27.	12.
1932	2.	10.	163.	252.	185.	223.	518.	332.	35.	20.	4.	-6.
1933	14.	132.	48.	46.	27.	366.	364.	137.	56.	26.	104.	17.
1934	12.	21.	57.	147.	21.	255.	337.	44.	11.	1.	-5.	-11.
1935	-3.	18.	28.	123.	108.	423.	389.	295.	40.	834.	85.	43.
1936	38.	83.	121.	60.	51.	1412.	461.	117.	29.	3.	5.	2.
1937	2.	38.	73.	312.	140.	148.	647.	305.	167.	38.	32.	5.
1938	21.	145.	103.	146.	266.	404.	324.	100.	37.	11.	4.	113.
1939	23.	24.	62.	81.	404.	517.	350.	65.	17.	18.	11.	-6.
1940	2.	-4.	41.	-5.	144.	405.	1017.	198.	396.	70.	-37.	-9.
1941	-33.	21.	157.	101.	91.	315.	500.	40.	32.	11.	-54.	-23.
1942	-30.	-43.	10.	1.	88.	979.	445.	124.	32.	57.	-24.	11.
1943	20.	138.	308.	315.	294.	314.	517.	746.	261.	33.	6.	-45.
1944	58.	93.	19.	-11.	191.	439.	416.	346.	130.	-5.	-29.	-24.
1945	-28.	-1.	59.	56.	318.	926.	226.	460.	172.	54.	-20.	109.
1946	248.	286.	452.	296.	72.	323.	60.	144.	179.	30.	-12.	10.
1947	57.	40.	63.	242.	103.	338.	632.	493.	249.	29.	58.	-39.
1948	-19.	-9.	16.	4.	198.	496.	399.	332.	133.	25.	-4.	-40.
1949	-2.	36.	28.	238.	234.	188.	208.	128.	4.	19.	-17.	-44.
1950	-36.	-23.	14.	133.	130.	627.	341.	100.	42.	29.	-19.	-29.
1951	74.	250.	336.	310.	543.	631.	433.	134.	180.	30.	-17.	-17.
1952	-35.	17.	79.	226.	267.	527.	443.	243.	51.	-5.	-34.	-15.
1953	-43.	27.	102.	136.	172.	377.	207.	287.	84.	16.	19.	-36.
1954	-28.	12.	1.	36.	219.	250.	468.	300.	86.	-36.	-39.	-15.
1955	-12.	-2.	106.	75.	211.	679.	272.	58.	-15.	-42.	44.	-50.
1956	455.	125.	151.	98.	397.	890.	785.	349.	70.	-1.	3.	-7.
1957	-12.	-4.	133.	152.	162.	309.	444.	322.	63.	20.	-23.	-26.
1958	-39.	-21.	4.	28.	52.	290.	714.	156.	218.	169.	-25.	24.
1959	-2.	77.	25.	254.	240.	480.	509.	123.	21.	-21.	-10.	-50.
1960	41.	66.	504.	248.	274.	461.	429.	421.	146.	5.	16.	-37.
1961	-40.	-30.	-11.	0.	367.	246.	654.	288.	244.	17.	13.	-45.
1962	-29.	-13.	-1.	31.	127.	298.	357.	129.	36.	-11.	57.	-12.
1963	89.	66.	54.	21.	28.	660.	273.	155.	5.	5.	-18.	-30.
1964	-40.	81.	48.	187.	75.	696.	403.	154.	55.	-32.	-4.	-57.
1965	-52.	-5.	13.	26.	192.	166.	374.	103.	21.	-1.	14.	13.
1966	17.	40.	64.	66.	270.	405.	210.	188.	75.	2.	7.	3.
1967	-23.	62.	39.	24.	55.	316.	278.	204.	85.	92.	26.	3.
1968	58.	113.	96.	127.	130.	340.	172.	180.	260.	80.	15.	-15.
1969	-19.	177.	278.	228.	187.	209.	577.	196.	260.	27.	-43.	-51.
1970	-4.	85.	193.	112.	200.	272.	477.	154.	46.	10.	16.	39.
1971	112.	335.	355.	148.	366.	631.	542.	167.	70.	8.	2.	25.
1972	-16.	0.	161.	172.	133.	683.	521.	489.	1067.	333.	86.	14.
1973	32.	397.	604.	165.	169.	560.	570.	306.	183.	-23.	-23.	-28.
1974	-25.	14.	74.	128.	163.	307.	495.	203.	76.	-3.	21.	1.
1975	-19.	109.	251.	284.	389.	336.	227.	285.	193.	62.	28.	205.
1976	188.	69.	216.	219.	816.	662.	341.	412.	249.	106.	259.	8.
1977	390.	143.	42.	34.	128.	545.	327.	140.	18.	45.	57.	608.
1978	439.	385.	501.	357.	168.	712.	526.	162.	26.	-13.	-26.	24.
1979	19.	13.	96.	401.	161.	910.	437.	118.	27.	27.	15.	63.

[1] Inflows for October 1929 to November 1939 determined through regression analysis. Inflow computations include addition of diversions out of basin for city of Canadaigua and villages of Newark, Palmyra, Gorham, and Rushville.

Table 9C.—Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

ONEIDA LAKE DIVERSIONS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	13.	13.	13.	14.	14.	14.	13.	14.	14.	15.	15.	15.
1931	14.	13.	13.	12.	12.	12.	12.	11.	13.	14.	14.	13.
1932	13.	12.	12.	12.	13.	13.	12.	12.	14.	13.	13.	13.
1933	13.	12.	12.	13.	13.	13.	13.	13.	15.	16.	14.	14.
1934	14.	13.	14.	17.	18.	19.	18.	17.	18.	19.	17.	16.
1935	15.	15.	16.	17.	18.	18.	15.	15.	15.	16.	16.	14.
1936	14.	13.	15.	16.	18.	18.	15.	14.	17.	18.	17.	15.
1937	14.	14.	15.	15.	16.	15.	15.	14.	15.	17.	17.	16.
1938	15.	14.	15.	15.	15.	15.	13.	13.	14.	15.	15.	13.
1939	14.	13.	14.	14.	15.	15.	14.	13.	14.	17.	16.	15.
1940	13.	13.	13.	15.	15.	15.	14.	13.	13.	14.	15.	13.
1941	13.	13.	14.	15.	16.	17.	17.	18.	20.	21.	19.	18.
1942	17.	17.	17.	18.	18.	17.	16.	16.	18.	21.	20.	19.
1943	19.	19.	19.	20.	20.	21.	20.	20.	22.	24.	23.	22.
1944	22.	21.	21.	22.	23.	24.	23.	23.	24.	26.	26.	24.
1945	23.	23.	23.	23.	24.	24.	23.	22.	23.	24.	23.	22.
1946	22.	20.	21.	22.	23.	23.	22.	21.	23.	26.	24.	23.
1947	24.	23.	23.	23.	23.	23.	23.	22.	23.	24.	25.	24.
1948	23.	22.	22.	23.	25.	25.	23.	22.	22.	24.	25.	24.
1949	22.	21.	21.	21.	22.	21.	20.	19.	25.	23.	23.	23.
1950	22.	21.	21.	21.	21.	22.	20.	19.	21.	21.	22.	19.
1951	19.	18.	19.	18.	20.	20.	18.	19.	19.	19.	20.	20.
1952	19.	18.	17.	19.	19.	19.	18.	18.	18.	21.	20.	18.
1953	17.	17.	17.	18.	18.	18.	17.	17.	21.	21.	20.	19.
1954	18.	17.	17.	18.	20.	18.	17.	17.	18.	20.	19.	18.
1955	17.	17.	17.	17.	19.	18.	17.	19.	22.	17.	17.	17.
1956	17.	16.	17.	18.	19.	19.	17.	17.	20.	18.	22.	18.
1957	18.	18.	19.	21.	21.	21.	20.	21.	23.	22.	23.	20.
1958	18.	18.	18.	19.	19.	19.	18.	18.	19.	21.	22.	20.
1959	20.	19.	20.	19.	19.	20.	19.	20.	22.	24.	20.	19.
1960	18.	18.	18.	18.	21.	20.	19.	18.	21.	20.	22.	21.
1961	18.	18.	18.	19.	21.	21.	18.	18.	20.	21.	23.	23.
1962	19.	17.	18.	20.	20.	20.	18.	21.	24.	24.	22.	20.
1963	19.	19.	19.	21.	20.	21.	20.	19.	21.	24.	22.	20.
1964	21.	21.	20.	22.	22.	22.	19.	20.	25.	26.	24.	22.
1965	19.	19.	19.	20.	21.	20.	19.	20.	22.	24.	24.	20.
1966	19.	18.	18.	18.	20.	21.	18.	18.	24.	26.	23.	19.
1967	18.	18.	18.	19.	20.	20.	19.	18.	26.	22.	21.	20.
1968	19.	19.	19.	20.	21.	21.	20.	20.	21.	21.	21.	20.
1969	19.	19.	20.	21.	21.	20.	20.	19.	22.	23.	24.	23.
1970	19.	19.	20.	22.	23.	22.	21.	20.	24.	21.	24.	20.
1971	20.	20.	20.	21.	21.	22.	22.	20.	25.	24.	23.	21.
1972	19.	20.	19.	20.	21.	21.	20.	19.	20.	19.	21.	21.
1973	20.	20.	21.	21.	21.	21.	19.	18.	20.	23.	24.	22.
1974	19.	19.	18.	20.	20.	20.	18.	18.	20.	20.	22.	20.
1975	19.	19.	19.	19.	19.	20.	19.	20.	21.	24.	24.	20.
1976	20.	21.	20.	21.	22.	22.	19.	18.	21.	20.	22.	21.
1977	21.	21.	21.	22.	24.	25.	22.	25.	24.	23.	22.	21.
1978	20.	20.	21.	21.	22.	22.	21.	20.	22.	26.	23.	22.
1979	21.	21.	21.	21.	22.	23.	21.	22.	23.	27.	24.	22.

Table 9C.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

OTISCO LAKE DIVERSIONS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	11.	11.	11.	12.	12.	11.	11.	11.	10.	11.	11.	11.
1931	11.	11.	11.	11.	11.	10.	9.	9.	9.	10.	10.	10.
1932	9.	10.	9.	9.	9.	9.	8.	9.	9.	9.	9.	10.
1933	10.	10.	9.	9.	9.	8.	8.	9.	10.	11.	10.	10.
1934	10.	10.	9.	9.	10.	10.	10.	10.	11.	10.	10.	10.
1935	10.	10.	10.	10.	10.	10.	10.	10.	10.	11.	12.	11.
1936	11.	11.	10.	11.	11.	11.	11.	11.	12.	12.	10.	9.
1937	9.	9.	9.	9.	10.	10.	10.	9.	9.	11.	10.	10.
1938	10.	9.	9.	9.	9.	9.	8.	8.	9.	10.	10.	10.
1939	11.	10.	9.	9.	9.	9.	9.	9.	10.	10.	10.	11.
1940	12.	12.	11.	12.	11.	11.	10.	10.	10.	10.	10.	10.
1941	10.	10.	10.	10.	11.	11.	11.	11.	12.	12.	12.	12.
1942	12.	12.	12.	12.	12.	12.	12.	11.	11.	11.	11.	12.
1943	14.	13.	12.	13.	13.	13.	13.	13.	13.	14.	14.	14.
1944	15.	15.	15.	14.	14.	14.	14.	14.	14.	15.	15.	15.
1945	14.	14.	14.	15.	15.	15.	15.	15.	15.	15.	15.	15.
1946	15.	15.	16.	16.	16.	15.	15.	14.	14.	15.	15.	15.
1947	16.	16.	15.	15.	14.	16.	15.	16.	15.	16.	16.	17.
1948	17.	16.	16.	16.	17.	17.	16.	17.	17.	17.	17.	17.
1949	16.	16.	16.	16.	16.	16.	15.	15.	17.	16.	16.	16.
1950	15.	15.	15.	15.	15.	16.	18.	16.	14.	12.	12.	12.
1951	17.	17.	17.	17.	17.	19.	18.	19.	19.	18.	19.	19.
1952	21.	18.	20.	19.	20.	20.	20.	20.	19.	20.	20.	20.
1953	19.	19.	20.	21.	21.	21.	21.	21.	21.	22.	21.	22.
1954	21.	21.	20.	21.	21.	20.	20.	20.	21.	21.	21.	19.
1955	19.	19.	20.	19.	19.	19.	19.	20.	21.	21.	21.	21.
1956	21.	21.	21.	21.	21.	21.	21.	21.	21.	21.	18.	20.
1957	20.	19.	18.	20.	21.	20.	21.	21.	22.	21.	22.	21.
1958	21.	20.	20.	21.	21.	21.	21.	22.	21.	22.	22.	22.
1959	21.	22.	22.	22.	23.	20.	22.	23.	22.	22.	22.	22.
1960	22.	23.	23.	23.	23.	23.	20.	11.	9.	14.	27.	27.
1961	26.	25.	23.	25.	25.	25.	25.	24.	27.	28.	30.	33.
1962	29.	27.	27.	27.	27.	27.	27.	30.	37.	33.	31.	32.
1963	31.	29.	27.	28.	28.	29.	28.	29.	33.	34.	32.	32.
1964	33.	29.	29.	28.	28.	28.	29.	31.	34.	36.	35.	34.
1965	33.	32.	30.	31.	32.	32.	32.	35.	35.	36.	37.	34.
1966	33.	32.	33.	33.	32.	33.	34.	34.	37.	36.	37.	37.
1967	36.	35.	35.	35.	35.	35.	35.	36.	37.	31.	26.	30.
1968	27.	27.	30.	31.	30.	28.	25.	28.	31.	33.	32.	32.
1969	30.	30.	30.	32.	30.	29.	30.	31.	33.	34.	33.	31.
1970	14.	14.	14.	15.	15.	15.	15.	15.	15.	15.	15.	15.
1971	15.	15.	16.	16.	16.	15.	15.	14.	14.	15.	15.	15.
1972	16.	16.	15.	15.	14.	16.	15.	16.	15.	16.	16.	17.
1973	17.	16.	16.	16.	17.	17.	16.	17.	17.	17.	17.	17.
1974	16.	16.	16.	16.	16.	16.	15.	15.	17.	16.	16.	16.
1975	33.	34.	27.	27.	29.	31.	29.	31.	31.	34.	33.	30.
1976	32.	30.	31.	31.	30.	33.	33.	35.	35.	35.	31.	28.
1977	31.	33.	29.	27.	34.	33.	34.	35.	34.	32.	31.	30.
1978	30.	31.	31.	31.	31.	31.	31.	32.	32.	33.	32.	31.
1979	31.	31.	31.	31.	31.	31.	31.	32.	32.	32.	32.	32.

Table 9C.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

SKANEATELES LAKE DIVERSIONS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	52.	50.	50.	50.	49.	47.	48.	49.	47.	48.	53.	47.
1931	47.	47.	45.	46.	46.	46.	48.	48.	49.	55.	55.	47.
1932	49.	46.	48.	47.	48.	51.	48.	49.	49.	48.	47.	47.
1933	46.	45.	47.	46.	50.	47.	45.	45.	50.	50.	47.	48.
1934	46.	44.	45.	45.	49.	49.	46.	50.	53.	51.	50.	46.
1935	46.	48.	47.	49.	50.	50.	47.	49.	48.	53.	50.	43.
1936	45.	47.	45.	46.	51.	49.	49.	50.	55.	57.	54.	51.
1937	47.	45.	44.	44.	45.	45.	48.	47.	46.	52.	57.	55.
1938	51.	54.	46.	50.	49.	48.	48.	50.	53.	54.	58.	54.
1939	53.	53.	50.	51.	51.	49.	50.	53.	53.	55.	57.	55.
1940	52.	50.	51.	50.	49.	48.	50.	53.	55.	57.	61.	55.
1941	55.	51.	51.	53.	55.	55.	56.	57.	59.	64.	63.	62.
1942	58.	57.	55.	57.	56.	56.	57.	57.	62.	64.	64.	61.
1943	60.	58.	57.	59.	58.	59.	57.	57.	62.	68.	66.	64.
1944	60.	60.	61.	61.	61.	61.	60.	62.	64.	68.	69.	63.
1945	62.	59.	58.	63.	62.	62.	62.	62.	63.	66.	68.	65.
1946	64.	60.	61.	62.	63.	63.	64.	65.	67.	70.	68.	67.
1947	66.	66.	65.	63.	63.	64.	62.	63.	64.	67.	72.	67.
1948	65.	60.	62.	68.	71.	69.	67.	69.	72.	75.	75.	73.
1949	72.	68.	67.	66.	66.	67.	66.	68.	77.	77.	77.	69.
1950	63.	62.	61.	60.	63.	61.	63.	62.	66.	68.	70.	63.
1951	63.	62.	61.	63.	66.	63.	63.	67.	70.	72.	73.	70.
1952	68.	68.	66.	66.	65.	66.	65.	66.	71.	76.	74.	71.
1953	67.	64.	63.	65.	64.	65.	62.	65.	76.	74.	70.	68.
1954	62.	60.	59.	61.	64.	59.	59.	59.	68.	73.	70.	60.
1955	70.	67.	65.	66.	68.	68.	68.	74.	81.	89.	88.	77.
1956	71.	67.	67.	66.	66.	66.	67.	71.	76.	75.	84.	75.
1957	71.	71.	70.	71.	69.	69.	68.	71.	79.	78.	78.	73.
1958	69.	67.	64.	64.	64.	64.	64.	66.	68.	71.	75.	69.
1959	66.	63.	65.	65.	64.	66.	64.	68.	75.	78.	83.	80.
1960	70.	66.	66.	67.	66.	67.	68.	72.	75.	76.	74.	72.
1961	65.	62.	64.	64.	64.	62.	61.	64.	69.	73.	75.	78.
1962	66.	62.	62.	62.	63.	64.	63.	70.	71.	74.	71.	68.
1963	64.	61.	62.	64.	65.	65.	64.	64.	71.	75.	70.	66.
1964	65.	60.	60.	63.	63.	64.	63.	66.	72.	79.	71.	69.
1965	65.	62.	63.	64.	66.	65.	65.	67.	68.	70.	73.	67.
1966	66.	65.	66.	65.	66.	66.	65.	65.	73.	80.	75.	70.
1967	67.	66.	65.	65.	65.	66.	65.	64.	74.	73.	72.	73.
1968	70.	71.	71.	74.	74.	74.	71.	69.	74.	80.	83.	80.
1969	75.	72.	71.	74.	76.	76.	74.	75.	80.	84.	84.	84.
1970	77.	75.	76.	77.	80.	79.	80.	82.	83.	83.	85.	80.
1971	78.	75.	78.	81.	84.	84.	84.	84.	86.	86.	87.	86.
1972	84.	82.	83.	84.	86.	86.	83.	84.	85.	87.	87.	87.
1973	83.	83.	85.	86.	87.	86.	87.	86.	88.	87.	87.	85.
1974	82.	79.	78.	80.	79.	81.	84.	83.	83.	85.	87.	84.
1975	81.	79.	79.	80.	81.	81.	81.	82.	83.	86.	85.	82.
1976	80.	79.	80.	82.	84.	84.	84.	82.	85.	85.	86.	83.
1977	83.	82.	84.	85.	84.	85.	85.	85.	83.	85.	84.	84.
1978	82.	81.	82.	83.	83.	82.	83.	83.	83.	84.	83.	83.
1979	80.	79.	79.	80.	82.	82.	82.	81.	81.	81.	81.	79.

Table 9C.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

KEUKA LAKE DIVERSIONS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1931	0.	0.	0.	0.	0.	27.	66.	34.	24.	4.	0.	0.
1932	0.	0.	0.	25.	46.	35.	70.	23.	24.	11.	13.	0.
1933	1.	29.	24.	15.	15.	53.	67.	36.	14.	14.	21.	14.
1934	19.	20.	13.	29.	24.	31.	36.	22.	13.	12.	9.	2.
1935	6.	8.	7.	9.	17.	40.	65.	42.	14.	3.	0.	1.
1936	11.	15.	36.	34.	22.	37.	4.	14.	16.	9.	11.	10.
1937	4.	3.	5.	25.	52.	31.	70.	67.	53.	21.	9.	9.
1938	9.	18.	33.	32.	60.	69.	72.	37.	17.	11.	10.	7.
1939	7.	6.	5.	9.	29.	63.	61.	30.	24.	6.	5.	5.
1940	5.	7.	6.	8.	9.	23.	61.	37.	25.	17.	17.	16.
1941	6.	11.	7.	15.	30.	28.	29.	13.	10.	9.	8.	3.
1942	7.	5.	3.	5.	8.	39.	43.	16.	18.	11.	1.	4.
1943	15.	17.	30.	28.	30.	39.	48.	48.	44.	17.	12.	8.
1944	4.	15.	18.	16.	19.	31.	28.	31.	21.	16.	7.	2.
1945	4.	4.	4.	6.	17.	66.	57.	41.	44.	30.	33.	24.
1946	39.	38.	53.	38.	39.	45.	33.	14.	16.	12.	15.	0.
1947	8.	30.	29.	32.	32.	30.	33.	30.	44.	32.	3.	7.
1948	9.	8.	9.	8.	16.	67.	65.	44.	33.	30.	13.	10.
1949	6.	7.	7.	25.	32.	52.	34.	31.	29.	8.	0.	5.
1950	9.	6.	6.	6.	10.	50.	58.	19.	31.	10.	6.	0.
1951	23.	29.	55.	69.	72.	69.	59.	17.	6.	4.	4.	4.
1952	4.	5.	11.	43.	72.	72.	72.	20.	20.	9.	8.	0.
1953	0.	6.	22.	35.	72.	33.	47.	30.	23.	12.	13.	15.
1954	14.	7.	8.	4.	6.	33.	52.	56.	20.	6.	6.	6.
1955	6.	6.	7.	6.	8.	71.	39.	18.	13.	0.	0.	0.
1956	9.	23.	23.	30.	36.	21.	5.	15.	15.	14.	15.	13.
1957	15.	13.	12.	16.	31.	30.	31.	24.	14.	15.	15.	11.
1958	5.	4.	4.	4.	3.	4.	39.	22.	13.	13.	12.	12.
1959	13.	1.	8.	18.	71.	66.	56.	12.	7.	0.	0.	1.
1960	6.	17.	69.	69.	43.	38.	54.	55.	44.	10.	7.	7.
1961	5.	5.	5.	3.	10.	72.	51.	60.	59.	6.	17.	6.
1962	5.	6.	21.	1.	0.	3.	69.	21.	7.	1.	1.	0.
1963	4.	7.	25.	29.	23.	37.	68.	15.	3.	5.	10.	9.
1964	2.	3.	6.	21.	66.	63.	60.	46.	5.	2.	2.	6.
1965	1.	0.	5.	5.	18.	36.	24.	13.	12.	0.	0.	0.
1966	0.	1.	2.	15.	45.	71.	62.	23.	23.	0.	0.	1.
1967	20.	3.	13.	13.	18.	50.	68.	41.	2.	4.	9.	18.
1968	9.	37.	55.	34.	50.	17.	44.	28.	51.	16.	0.	1.
1969	23.	29.	35.	28.	31.	1.	38.	41.	9.	19.	1.	1.
1970	0.	21.	41.	40.	49.	43.	65.	13.	0.	1.	0.	1.
1971	25.	1.	55.	47.	33.	68.	60.	35.	7.	1.	1.	8.
1972	15.	17.	17.	32.	19.	66.	69.	53.	48.	17.	5.	0.
1973	15.	6.	48.	39.	50.	52.	42.	22.	25.	0.	0.	0.
1974	0.	0.	1.	33.	36.	45.	46.	38.	0.	0.	0.	0.
1975	0.	0.	0.	16.	60.	68.	41.	17.	0.	0.	0.	15.
1976	49.	43.	41.	34.	63.	57.	25.	48.	49.	14.	23.	23.
1977	35.	29.	16.	31.	5.	0.	16.	48.	0.	1.	7.	36.
1978	49.	54.	19.	66.	60.	51.	66.	24.	14.	0.	7.	0.
1979	11.	29.	30.	10.	0.	0.	0.	19.	1.	3.	0.	8.

Table 9C.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

CANANDAIGUA LAKE DIVERSIONS

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1931	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1932	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1933	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1934	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1935	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1936	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1937	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1938	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1939	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1940	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1941	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1942	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1943	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1944	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1945	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1946	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1947	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1948	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	3.
1949	3.	3.	3.	3.	2.	2.	2.	3.	3.	3.	3.	3.
1950	3.	3.	3.	2.	2.	3.	3.	3.	3.	3.	3.	3.
1951	3.	3.	3.	3.	2.	3.	3.	3.	3.	3.	3.	3.
1952	3.	3.	3.	4.	4.	4.	4.	4.	5.	5.	5.	5.
1953	5.	4.	4.	4.	4.	4.	4.	4.	4.	5.	5.	5.
1954	5.	4.	5.	5.	5.	4.	4.	4.	5.	5.	5.	5.
1955	5.	5.	5.	4.	4.	4.	5.	6.	7.	6.	6.	5.
1956	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	6.	5.
1957	6.	5.	5.	5.	5.	5.	5.	5.	6.	6.	7.	6.
1958	6.	6.	6.	5.	5.	5.	5.	5.	5.	6.	6.	5.
1959	5.	5.	5.	5.	4.	5.	5.	5.	5.	6.	7.	6.
1960	6.	5.	5.	5.	5.	5.	5.	5.	5.	6.	6.	6.
1961	6.	5.	5.	5.	5.	5.	5.	5.	5.	6.	6.	6.
1962	6.	5.	5.	5.	4.	5.	5.	6.	6.	6.	6.	6.
1963	6.	5.	5.	5.	5.	5.	5.	5.	6.	7.	7.	6.
1964	7.	5.	5.	7.	6.	7.	7.	8.	8.	9.	9.	9.
1965	8.	8.	8.	8.	7.	8.	8.	8.	9.	9.	9.	9.
1966	9.	8.	9.	8.	8.	8.	8.	9.	9.	11.	10.	9.
1967	9.	9.	8.	8.	7.	8.	8.	8.	10.	10.	10.	10.
1968	9.	9.	9.	9.	8.	9.	8.	9.	9.	10.	10.	9.
1969	9.	9.	9.	9.	8.	9.	8.	9.	9.	10.	10.	9.
1970	9.	9.	9.	9.	8.	9.	9.	9.	9.	9.	9.	9.
1971	9.	9.	9.	9.	8.	9.	9.	9.	9.	10.	10.	10.
1972	9.	9.	9.	9.	9.	10.	9.	10.	10.	10.	10.	10.
1973	10.	9.	9.	9.	8.	9.	9.	9.	10.	11.	11.	11.
1974	10.	10.	9.	10.	9.	10.	9.	10.	10.	10.	10.	10.
1975	10.	10.	10.	10.	10.	10.	10.	11.	11.	11.	12.	10.
1976	10.	9.	10.	10.	9.	9.	9.	10.	11.	11.	11.	9.
1977	9.	9.	9.	10.	9.	10.	9.	11.	11.	11.	11.	10.
1978	10.	9.	10.	10.	9.	10.	10.	11.	11.	12.	11.	10.
1979	10.	9.	10.	10.	9.	10.	9.	10.	10.	11.	10.	10.

Table 9D.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

OSWEGO RIVER AT LOCK 7, OSWEGO

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	---	---	---	---	---	---	---	---	---	---	---	---
1931	---	---	---	---	---	---	---	---	---	---	---	---
1932	---	---	---	---	---	---	---	---	---	---	---	---
1933	---	---	---	---	---	---	---	---	---	---	---	---
1934	---	2086.	4235.	6198.	3749.	7216.	10270.	3968.	2319.	1405.	836.	1147.
1935	1379.	2643.	4170.	7192.	6973.	8490.	9867.	9500.	3980.	10028.	4965.	2816.
1936	1802.	4510.	6584.	7035.	6207.	21571.	22783.	7529.	2891.	1285.	942.	1461.
1937	2321.	4617.	4794.	9729.	11079.	8303.	11887.	11377.	5857.	3893.	2358.	2478.
1938	2632.	7589.	8625.	7302.	12696.	14413.	9265.	5186.	3544.	2157.	2365.	3511.
1939	3562.	3136.	4435.	4425.	6313.	15303.	13963.	5728.	2953.	1760.	1261.	1048.
1940	1173.	1937.	2917.	3875.	3793.	4354.	26747.	12157.	7413.	4863.	2168.	1289.
1941	1288.	2535.	6111.	8528.	7726.	7347.	12884.	3505.	1970.	1510.	1370.	1955.
1942	1617.	3064.	3641.	4161.	4138.	15827.	13735.	5275.	3885.	1920.	2397.	2948.
1943	3225.	5804.	7978.	16371.	12203.	14006.	10062.	20355.	13208.	4166.	3005.	2487.
1944	2065.	7342.	5971.	6092.	6645.	8945.	11761.	10981.	5755.	3836.	2256.	1293.
1945	1467.	1994.	5304.	6912.	9052.	18819.	10941.	12725.	7984.	4884.	2900.	4124.
1946	12724.	10327.	14632.	11193.	8277.	10329.	3782.	3455.	6393.	3282.	2255.	1844.
1947	3838.	5550.	6516.	8958.	10997.	10549.	18157.	16510.	16997.	5235.	3808.	2513.
1948	1460.	3321.	5645.	4314.	4894.	10763.	10326.	9978.	6213.	2834.	2533.	1943.
1949	2026.	3215.	4820.	10817.	10561.	8083.	6213.	4539.	2263.	1439.	1324.	2342.
1950	2706.	2809.	5911.	9188.	8788.	11443.	18296.	5560.	4650.	3026.	1581.	3105.
1951	4137.	6573.	14510.	13600.	13666.	18226.	16493.	6704.	3930.	5210.	2785.	2485.
1952	2673.	4692.	6968.	10084.	10925.	12830.	11427.	6381.	4265.	3081.	1594.	1902.
1953	2228.	2310.	7375.	6667.	8051.	9210.	8417.	9492.	2862.	1788.	2132.	1967.
1954	1689.	1787.	5121.	3066.	6968.	9805.	11942.	11052.	4045.	1894.	1453.	1886.
1955	2051.	4282.	8478.	9897.	5494.	19023.	12572.	2794.	2885.	1733.	1510.	1578.
1956	7929.	11363.	8236.	6148.	7162.	18919.	21000.	12556.	4223.	2355.	2448.	4454.
1957	2716.	3340.	8207.	8071.	6799.	10067.	7925.	5564.	3663.	3767.	3506.	1869.
1958	1496.	2210.	5428.	5670.	5591.	11120.	16533.	9338.	8464.	4655.	3176.	4583.
1959	4057.	7111.	8985.	7702.	9851.	13717.	16660.	4918.	2194.	2789.	1893.	1994.
1960	4215.	7143.	14245.	13429.	11888.	8708.	21230.	9126.	6617.	2704.	1833.	1592.
1961	1960.	3332.	3235.	3461.	4556.	14590.	12950.	11059.	7033.	5053.	2474.	2123.
1962	1964.	3056.	6361.	5388.	3826.	8287.	10829.	4838.	1983.	1559.	1871.	1622.
1963	2101.	3950.	5480.	2610.	2547.	9646.	13094.	6680.	2877.	1867.	1598.	1926.
1964	1251.	2196.	7329.	6953.	5766.	13690.	13024.	7154.	2435.	1710.	1444.	1276.
1965	1209.	1167.	4210.	3894.	6585.	5688.	7070.	4712.	2338.	1621.	1231.	1730.
1966	2841.	4813.	6632.	5240.	8026.	14154.	9874.	6998.	3381.	1671.	1438.	2085.
1967	1870.	2096.	6884.	6340.	4904.	5893.	7593.	7357.	3056.	2968.	4029.	3006.
1968	4545.	12048.	11296.	5462.	7180.	8941.	9408.	4935.	6979.	7228.	2304.	3400.
1969	3718.	10958.	13826.	11715.	10387.	6883.	14509.	12082.	6127.	3807.	2415.	1615.
1970	1706.	5444.	7925.	5721.	8039.	10475.	15423.	5974.	4145.	3520.	2255.	3010.
1971	6360.	9767.	11523.	8751.	6118.	18390.	18953.	10707.	3431.	2812.	2399.	2770.
1972	2230.	3467.	9133.	8958.	6294.	12663.	18967.	18125.	14622.	19662.	6482.	2920.
1973	3770.	13029.	16535.	15223.	12021.	12242.	15221.	9416.	7039.	2620.	2425.	2256.
1974	1864.	5844.	10693.	10948.	9507.	9865.	14888.	9923.	4800.	6391.	3921.	4167.
1975	3345.	7752.	11863.	10485.	9799.	13619.	10677.	6677.	4824.	3347.	2036.	7201.
1976	13576.	8357.	9683.	8198.	15125.	21245.	15589.	14345.	9969.	7031.	5656.	3697.
1977	11109.	9220.	8059.	4192.	4224.	16291.	13901.	5277.	2798.	3639.	3275.	8702.
1978	17952.	16070.	17923.	14368.	11844.	13169.	20347.	6697.	3332.	1766.	2886.	3130.
1979	2404.	2473.	7235.	11653.	9759.	21716.	16667.	5685.	3805.	1942.	2757.	5054.

Table 9D.--Monthly mean flows at selected sited in the Oswego River basin, New York (Continued)

SENECA RIVER AT BALDWINSVILLE

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	1525.	1425.	1820.	4253.	5267.	6453.	3991.	2664.	3223.	2693.	961.	825.
1931	736.	437.	850.	762.	1158.	3586.	4612.	3631.	4665.	1303.	1470.	1203.
1932	421.	400.	1016.	2143.	5736.	4502.	8387.	5329.	2049.	1400.	1327.	1033.
1933	828.	1697.	1624.	2281.	1191.	3333.	5691.	3260.	1305.	995.	1022.	1148.
1934	1110.	874.	1312.	2731.	1820.	3035.	3674.	1559.	1070.	873.	622.	510.
1935	705.	947.	1336.	2163.	3563.	3104.	4433.	4379.	1422.	6626.	3284.	1798.
1936	882.	1460.	2794.	3175.	3080.	12452.	11814.	3681.	1519.	960.	643.	694.
1937	1022.	1219.	1526.	2896.	5239.	3852.	5390.	6498.	3219.	2119.	1266.	1700.
1938	1199.	2833.	4352.	3934.	6574.	7532.	4447.	2326.	1840.	1564.	1574.	2006.
1939	1933.	1524.	1486.	2064.	3507.	9229.	6388.	2421.	1268.	964.	715.	673.
1940	609.	646.	740.	714.	897.	2098.	16309.	6007.	5268.	3247.	1341.	770.
1941	687.	814.	1985.	2870.	3297.	3758.	7469.	1555.	1011.	866.	865.	827.
1942	784.	622.	902.	1242.	1900.	8552.	6959.	1938.	1607.	741.	1337.	1693.
1943	1490.	2412.	3109.	10101.	7423.	5341.	4024.	11167.	7914.	1653.	1324.	1240.
1944	974.	2125.	2345.	2526.	3521.	4551.	5486.	5866.	2934.	2195.	1415.	726.
1945	593.	571.	1467.	3064.	5127.	10098.	4836.	7871.	4590.	2472.	1512.	1795.
1946	4897.	4767.	9504.	7159.	3104.	4356.	1268.	1056.	4110.	1647.	1298.	1298.
1947	1824.	2409.	2067.	3289.	4857.	4754.	7158.	8368.	9446.	1693.	1264.	1311.
1948	989.	1579.	1722.	1111.	2234.	5350.	5070.	6130.	3391.	1074.	1390.	1052.
1949	1351.	956.	1124.	5095.	5735.	3044.	1868.	1693.	961.	775.	734.	1003.
1950	1188.	942.	1015.	2669.	3749.	6039.	9176.	2626.	2753.	1988.	1175.	1897.
1951	2732.	3740.	8780.	7420.	7398.	9390.	7415.	2829.	2460.	2516.	1422.	1282.
1952	1409.	1614.	2309.	4527.	5861.	7222.	4822.	3782.	2664.	1691.	1257.	1576.
1953	1272.	993.	2631.	3436.	3765.	4147.	3942.	4445.	2042.	1071.	1422.	1340.
1954	1116.	1319.	1870.	805.	2171.	3925.	4150.	5657.	2313.	1223.	1132.	1093.
1955	1108.	1569.	3032.	5331.	2793.	10146.	4614.	1368.	1436.	1243.	1197.	1358.
1956	4852.	6941.	4174.	3440.	4355.	11653.	11327.	7069.	2105.	1682.	1571.	1874.
1957	1394.	1824.	2980.	3909.	3274.	5085.	4624.	3268.	2462.	2209.	1630.	1515.
1958	859.	675.	964.	1939.	2530.	5551.	9173.	5049.	4287.	2760.	2088.	1252.
1959	1939.	3215.	3707.	3083.	4685.	7512.	6462.	1437.	1006.	1273.	1573.	1502.
1960	1736.	3089.	7146.	8283.	6488.	4820.	10651.	4722.	5194.	1681.	1167.	1049.
1961	1468.	1647.	778.	1492.	1678.	7787.	6856.	7667.	4955.	2987.	1579.	1590.
1962	1456.	1489.	2944.	2422.	1550.	4209.	5010.	2115.	1068.	1137.	1223.	1053.
1963	1432.	2128.	2609.	845.	1068.	5434.	5013.	3538.	1247.	1156.	1195.	1230.
1964	1044.	1154.	2829.	3223.	2606.	7211.	6818.	4807.	1487.	1190.	1076.	1153.
1965	1077.	835.	1019.	994.	2674.	1606.	2327.	1642.	1075.	945.	1117.	1092.
1966	1025.	1841.	2057.	2267.	3795.	6521.	4616.	3003.	2376.	1366.	1309.	1144.
1967	966.	1067.	3015.	3245.	1850.	2442.	2309.	4153.	2016.	2017.	2130.	1642.
1968	2658.	5760.	6035.	2107.	3399.	4150.	4484.	2176.	4035.	3856.	1256.	1518.
1969	1606.	4472.	6794.	6454.	4693.	2639.	5513.	5344.	3233.	2725.	1553.	990.
1970	731.	2513.	3981.	3110.	4356.	5940.	7217.	2533.	2216.	1513.	1566.	1517.
1971	3544.	6012.	6921.	5287.	3106.	10635.	8856.	3617.	2216.	1828.	1471.	1222.
1972	1002.	1559.	3982.	4854.	3134.	6710.	8790.	7993.	6456.	12097.	4490.	1619.
1973	1815.	6895.	9350.	8105.	6334.	6286.	7623.	4771.	3380.	1395.	1149.	1195.
1974	1202.	1532.	2781.	4425.	4287.	4654.	6196.	4253.	2168.	1997.	1586.	2121.
1975	1800.	3660.	5713.	6007.	5156.	6667.	3884.	3130.	2642.	1059.	862.	2600.
1976	7187.	4084.	4545.	4597.	8313.	11139.	6397.	6926.	5198.	4120.	3087.	1176.
1977	5088.	4949.	2762.	1204.	1731.	6652.	4348.	2296.	957.	1230.	1287.	4760.
1978	11023.	9491.	10328.	8807.	7154.	7335.	9720.	2992.	1606.	915.	1463.	1192.
1979	953.	988.	3268.	6639.	7189.	10647.	6702.	2311.	1870.	1325.	2190.	2899.

Table 9D.--Monthly mean flows at selected sites in the Oswego River basin, New York (Continued)

CLYDE RIVER AT LOCK 26 , CLYDE

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1930	---	---	---	---	---	---	---	---	---	---	---	---
1931	---	---	---	---	---	---	---	---	---	---	---	---
1932	---	---	---	---	---	---	---	---	---	---	---	---
1933	---	---	---	---	---	---	---	---	---	---	---	---
1934	---	---	---	---	---	---	---	---	---	---	---	---
1935	---	---	---	474.	537.	725.	599.	598.	205.	414.	238.	192.
1936	190.	231.	353.	315.	292.	5036.	1252.	478.	352.	309.	214.	208.
1937	250.	318.	238.	554.	578.	972.	2089.	1217.	989.	455.	250.	191.
1938	304.	701.	582.	778.	1739.	2120.	1648.	686.	380.	240.	337.	317.
1939	239.	277.	185.	305.	1070.	2356.	1788.	459.	249.	196.	155.	139.
1940	158.	161.	211.	113.	135.	813.	4681.	934.	1205.	451.	183.	221.
1941	219.	284.	671.	536.	408.	1160.	1848.	322.	242.	183.	144.	143.
1942	173.	198.	301.	165.	539.	3882.	1824.	509.	280.	200.	170.	266.
1943	260.	409.	877.	1726.	1564.	1477.	1514.	2962.	1508.	244.	171.	140.
1944	345.	629.	322.	199.	701.	1910.	1786.	1261.	539.	196.	147.	147.
1945	147.	183.	415.	368.	1072.	3839.	1146.	1695.	488.	532.	241.	527.
1946	1615.	1255.	2180.	1434.	627.	1563.	312.	368.	475.	355.	215.	202.
1947	363.	466.	370.	1196.	721.	1750.	2372.	2138.	1419.	422.	339.	281.
1948	219.	324.	402.	282.	788.	1777.	1458.	1281.	658.	385.	185.	137.
1949	268.	379.	210.	887.	1221.	936.	817.	432.	179.	183.	176.	322.
1950	584.	666.	204.	413.	517.	2433.	1912.	569.	617.	685.	619.	666.
1951	770.	1371.	1872.	1592.	2414.	2238.	2133.	772.	813.	710.	434.	394.
1952	468.	655.	389.	1181.	1176.	2222.	1673.	927.	524.	457.	367.	399.
1953	487.	558.	424.	346.	602.	1305.	923.	1314.	655.	354.	450.	450.
1954	541.	710.	505.	169.	855.	1097.	2138.	1438.	587.	378.	361.	435.
1955	541.	530.	767.	716.	472.	3387.	1365.	415.	453.	433.	500.	546.
1956	2055.	1441.	1028.	638.	2721.	3944.	3287.	1742.	736.	586.	502.	1125.
1957	812.	569.	481.	454.	880.	1421.	1616.	1090.	658.	641.	490.	454.
1958	448.	445.	207.	178.	94.	1489.	1822.	808.	934.	933.	457.	535.
1959	687.	727.	401.	1040.	1143.	2262.	2108.	827.	553.	483.	454.	425.
1960	669.	757.	2002.	1624.	1398.	1256.	2921.	1434.	951.	488.	552.	454.
1961	465.	438.	338.	188.	951.	1668.	2502.	1285.	1067.	542.	450.	471.
1962	422.	445.	190.	222.	229.	1577.	1226.	826.	547.	450.	457.	446.
1963	494.	562.	263.	211.	149.	2455.	896.	493.	456.	390.	396.	358.
1964	357.	383.	328.	661.	313.	2249.	1670.	785.	519.	428.	398.	367.
1965	396.	393.	179.	26.	604.	603.	1102.	598.	546.	311.	350.	361.
1966	352.	419.	258.	184.	953.	2000.	958.	854.	553.	475.	564.	480.
1967	420.	460.	251.	484.	1433.	1603.	1080.	1127.	685.	650.	563.	489.
1968	702.	999.	713.	564.	1074.	1357.	1029.	700.	749.	674.	483.	521.
1969	485.	1260.	1305.	1314.	1592.	1120.	2262.	1207.	1107.	394.	266.	355.
1970	396.	543.	856.	394.	2103.	2403.	1721.	790.	567.	549.	478.	498.
1971	757.	1455.	1516.	923.	819.	3736.	2174.	1119.	680.	611.	678.	577.
1972	527.	657.	1063.	1141.	545.	3239.	2376.	1930.	2786.	2104.	744.	618.
1973	735.	2199.	2669.	1413.	1142.	2708.	2331.	1183.	1059.	520.	478.	432.
1974	443.	561.	843.	753.	998.	1385.	2018.	1105.	630.	416.	551.	495.
1975	552.	606.	1455.	1559.	1935.	2239.	1926.	938.	786.	91.	26.	543.
1976	770.	572.	885.	1222.	4132.	2979.	2147.	1814.	1064.	908.	868.	388.
1977	1432.	1035.	368.	176.	526.	2327.	1191.	619.	499.	459.	439.	1325.
1978	2164.	2004.	2816.	1417.	1168.	3262.	2123.	834.	386.	480.	296.	335.
1979	358.	334.	340.	1507.	1094.	4045.	2164.	749.	675.	537.	536.	758.