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HYDROMETEOROLOGICAL DATA FOR THE EXPERIMENTAL LAKES AREA, NORTHWESTERN ONTARIO, 1979 TO 1981

by

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ABSTRACT

Beaty, K.G. 1984. Hydrometeorological data for the Experimental Lakes Area, northwestern Ontario, 1979 to 1981. Can. Data Rep. Fish. Aquat. Sci. 480: v + 146 p.

In 1969, hydrologic studies began at the Experimental Lakes Area in support of biological and limnological studies. This report is the second of a series and presents hydrometeorological data collected during the 1979 to 1981 period of study. The data presented includes precipitation, snow surveys, air temperature, wind, evaporation, relative humidity, bright sunshine, lake surface temperature, streamflows and lake levels.

Key words: watersheds; climatology; hydrology; data reports; meteorological data.

RESUME

Beaty, K.G. 1984. Hydrometeorological data for the Experimental Lakes Area, northwestern Ontario, 1979 to 1981. Can. Data Rep. Fish. Aquat. Sci. 480: v + 146 p.

En 1969, on entreprit dans la Région des Lacs Expérimentaux d'études hydrologiques pour compléter les études biologiques et limnologiques. Le présent rapport constitue le deuxième d'une série et contient des données hydrométéorologiques recueillies entre 1979 et 1981. Les données portent notamment sur les précipitations, les relevés nivométriques, la température de l'air, le vent, l'évaporation, l'humidité relative, l'insolation, la température en surface de l'eau, le débit d'eau et le niveau des lacs.

Mots-clés: bassins hydrographiques; climatologie; hydrologie; données météorologiques.

INTRODUCTION

Hydrological studies continued at the Experimental Lakes Area (ELA) in the years 1979 to 1981 in support of ongoing limnological and biological studies. This report is the second of a series dealing with the hydrometeorological data collected as a part of the hydrologic studies program (see Beaty 1981 for the years 1969 to 1978).

The rationale for ELA and its geography, etc. have been discussed by others (Johnson and Vallentyne 1971; Brunskill and Schindler 1971; Ellis and Mattice 1974) and need not be restated. It may, however, be helpful to restate the purpose of the hydrologic studies program and, in doing so, also reaffirm the intention of this report.

The supply of nutrients, metals, etc. to lakes is derived by determining the contribution from precipitation, direct runoff, streamflow and groundwater seepage. To establish the supply of chemical constituents, it is necessary to identify, sample and gauge or estimate the individual components of the hydrologic cycle. The primary objective of the hydrologic studies program has been to determine, within a water budget framework, the sources and quantities of water entering and leaving small lakes in a portion of the ELA. It is the purpose of this report to summarize all hydrometeorological data collected from 1979 to 1981 and to provide historical summaries (1969 to 1981) for some components as they relate to the above objective.

DISCUSSION

HYDROLOGIC STUDIES AT ELA

During a three year period reported here, the program received continued service support from Water Survey of Canada (WSC) and Atmospheric Environment Service (AES). The involvement of WSC was with construction, maintenance, and servicing of much of the stream and lake gauging network, as well as computation of mean daily discharge and lake level data. AES continued to provide technical service and equipment loan for the meteorological site. The ELA hydrological studies program coordinated the involvement of participating external agencies and provided additional service, collection and analysis of data.

PRESENTATION OF DATA

This report has been organized to suit the needs of the majority of its users. While some require daily or hourly data, others are often only interested in means or totals over the period. The report is organized into 10 appendices, each dealing with a particular type of data. For each appendix, either a complete or an updated discussion of methods, site or significant events has been included.

Appendices 1 to 9 deal with climatological data including precipitation, snow surveys, air temperature, wind, evaporation pan, relative humidity, bright sunshine, Rawson Lake surface water temperature, and Rawson Lake ice-on and ice-off records.

Appendix 10 deals with hydrometric data including streamflow and lake level. Discussions provide an update on watershed changes, such as forest fires or beaver activity, that may have influenced hydrologic behaviour as well as any station or structure changes that may have occurred.

This report is intended to serve mainly as an update and is one of a series. Users are therefore encouraged to refer to relevant discussions in both reports when using long data sets.

ACKNOWLEDGMENTS

Many individuals, too numerous to mention, have assisted in the installation and upkeep of equipment, and the collection and preparation of data for this report. Without them, this report would not have been possible. The assistance provided by Water Survey of Canada and Atmospheric Environment Service is gratefully acknowledged. Winter records were made possible by the contributions of ELA camp managers, Jim Beaty, Bud Luxon, and Dave Braun. Dr. D.W. Schindler continued to provide valuable project direction and support for the hydrologic studies program. Dr. R.W. Newbury's encouragement and direction made this work interesting and satisfying to perform. Thanks go to Lloyd Mohr for his year on the project (1979), Donna Rystephanuk for her help the summer of 1980 and Kim Downey for her help the summer of 1981. Mrs. Sharon Ryland is to be thanked for her typing and table preparation.

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APPENDIX 1

PRECIPITATION DATA

Measurements of precipitation at ELA consist of twice daily standard rain gauge readings, twice daily snowfall water equivalents, weekly measurements of rainfall from a standard rain gauge network, and snow survey measurements. All but the snow survey data are included in this section of report. Snow survey summaries are provided in Appendix 2. On June 27, 1969, a standard Class A reporting meteorological site (Station 1, Fig. 1) was installed with the assistance and cooperation of the Atmospheric Environment Service. This site is referred to as the Rawson Lake Station in AES reports. Data from this station (1) is also reported in a different and somewhat less detailed form regularly in the AES regional summaries (AES 1979-1981).

Detailed daily and hourly data for 1979 to 1981 are included in this report. Records for the period 1969 to 1978 have been published (Beaty 1981). A number of historical summary tables (1969-1981) have been included to make the data more meaningful.

Daily precipitation at Station 1

Tables 1 to 3 provide daily values of precipitaton to the nearest 0.2 mm of water measured at Station 1 for the years 1979, 1980 and 1981. The daily values apply to a standard "precipitation day" from 08:00 central standard time (CST) of one day to 08:00 of the following day and are the sum of two daily measurements, morning and evening. Rainfall is measured in an AES Type B white plastic standard rain gauge, and snowfall water equivalent is measured using a shielded Nipher gauge. In months where both rain and snow occur, rain is indicated "r", snow is indicated "s", and mixed events are indicated "m" beside the value.

Recorded hourly precipitation at Station 1

Tables 4 to 6 provide hourly values of rainfall measured at the Station 1 meteorological site for May to October each year. This data is important for the analysis of stream runoff hydrographs and for the separation of precipitation amounts in water budget calculations.

Data is collected using an AES tipping bucket rain gauge, which is sensitive to 0.2 mm of rainfall, and a daily chart event recorder. The tipping bucket type of gauge is probably the most common of the short duration recording rainfall gauges. One minor problem with them, however, is that they do tend to catch slightly less than true rainfall. To overcome this, recorded values are corrected to a non-recording standard rain gauge located about 3 m away. Since this type of gauge is not suitable for the measurement of snow, problems are often encountered in May and October when events of mixed or freezing precipitation are possible. Whenever this occurs and recorded hourly values are unavailable, standard gauge totals are included and are indicated by an asterisk (*) in the daily total column. All data abstractions from the daily recorder charts for this station are made on site and then the chart originals are filed with AES headquarters (Toronto).

Weekly rainfall amounts for all stations

During each of the three open water seasons in 1979, 1980 and 1981, 10 rain gauge sites were used to account for spatial variations in rainfall.

Tables 7 to 9 summarize weekly precipitation amounts for each site and Fig. 1 shows their locations. Station 1 was the meteorological site. Rain gauges 1, 2, 3, 7, 8, 9, 11 and 12 were the old style copper standard gauges and rain gauges 4 and 10 were the newer Type B white plastic gauges. All gauges were read once each week, usually Monday afternoons or Tuesday mornings. Station 1 was also equipped with a daily tipping bucket rain gauge and Stations 3, 7, 8 and 10 were equipped with weekly tipping bucket rain gauges. All weekly values were adjusted, using the nearest recorded values, to apply to a common weekly interval from Monday midnight to the following Monday midnight. This interval was a standard that has been used for all years in weekly water budget calculations. Evaporation from rain gauges, over the week, was assumed to be negligible due to the funnel design and extremely small orifice of the gauge.

Historical summaries

Tables 10 to 14 provide historical summaries of precipitation that are intended to provide data of a more general nature which are useful for comparing yearly totals, extremes, and means. These tables include summaries of:

- monthly precipitation;
- annual precipitation comparing the difference between calendar year and water year as well as breakdown of proportions of rainfall and snowfall for each;
- maximum rainfall intensities;
- greatest rainfall events; and
- the number of days each year where precipitation exceeded 25 mm.

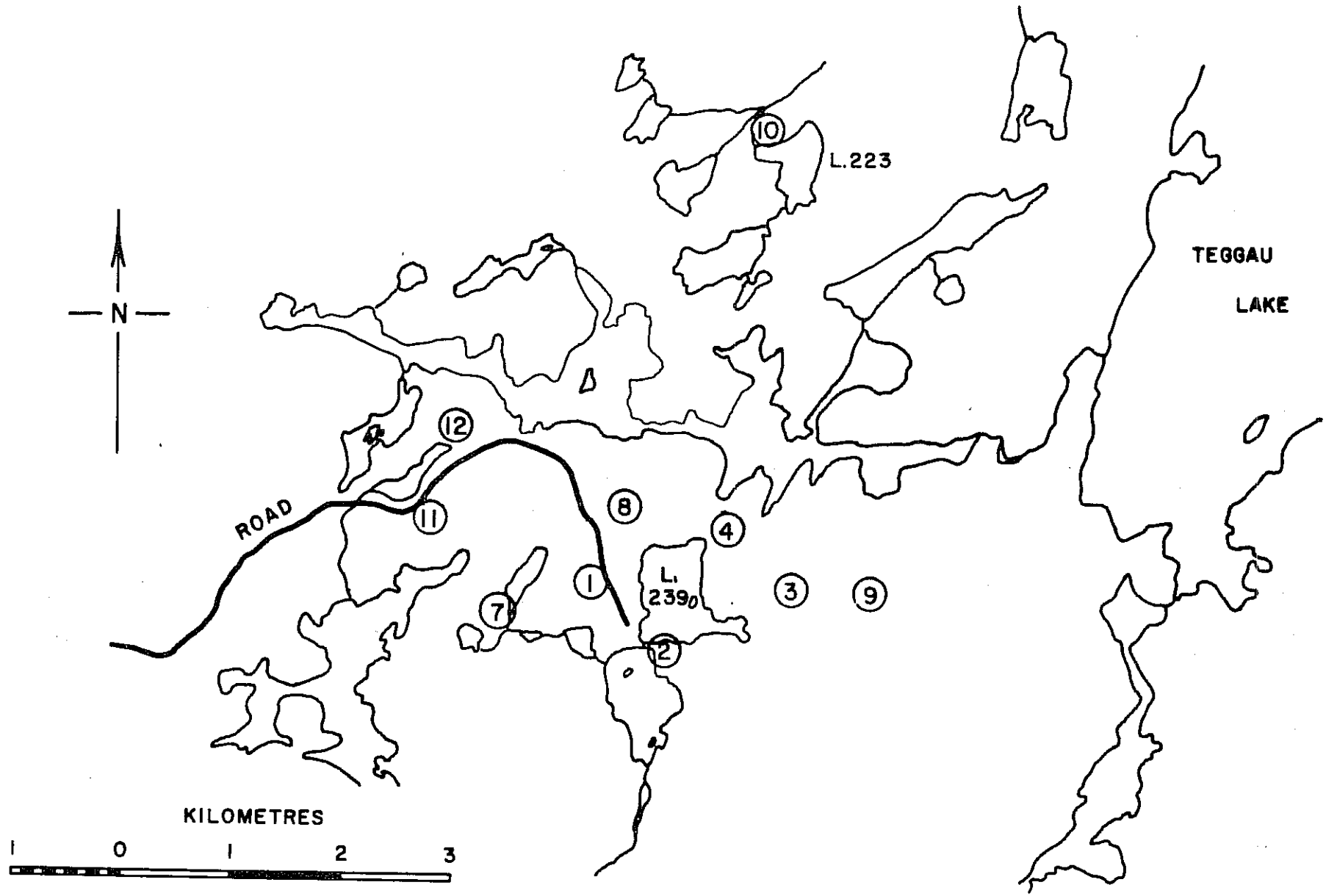

Fig. 1. Map showing locations of the rain gauge stations used at the Experimental Lakes Area during the 1979 to 1981 period. Station 1 is the meteorological site.

Table 1. Daily precipitation for 1979 from the Rawson Lake meteorological station (Station 1).

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-	-	2.8s	-	18.2r	2.2	-	0.6	3.3	-	17.3	-
2	T	-	5.2s	-	T	0.2	-	0.2	0.2	4.2r	3.2s	-
3	-	1.5	-	-	T	1.0	-	1.4	0.8	2.8r	-	-
4	-	1.8	-	1.4s	0.8s	-	-	-	-	-	-	7.6
5	1.4	2.8	-	-	-	3.9	-	-	-	1.1r	-	0.2
6	-	1.4	-	-	5.0r	2.9	-	9.2	0.3	0.8r	0.2s	-
7	1.4	-	-	3.6s	1.2r	0.7	0.2	-	-	0.8r	5.0s	-
8	1.0	0.2	2.0s	T	-	T	-	-	-	2.0r	-	2.0
9	0.4	-	0.6s	-	0.2r	0.5	-	0.4	-	-	-	8.5
10	-	0.8	1.8s	-	12.2	-	-	-	7.3	8.2m	0.4s	1.3
11	-	-	-	0.8s	1.2	-	-	8.7	0.7	0.8s	0.8s	T
12	-	0.8	9.4s	T	2.2	T	0.8	0.8	-	-	0.9s	3.6
13	-	2.8	1.0s	1.8r	-	4.4	4.4	2.0	3.2	-	0.6s	0.4
14	-	0.1	-	-	-	1.2	5.2	-	-	-	0.7s	-
15	-	0.1	-	-	-	-	0.2	-	-	-	-	-
16	1.8	-	-	-	2.8r	-	-	-	-	-	-	-
17	-	-	T	-	3.0r	-	-	-	2.4	-	-	-
18	0.6	-	5.4r	-	-	-	0.8	-	0.3	4.6r	-	-
19	T	-	5.3r	3.0r	T	21.4	-	-	0.2	10.5r	-	-
20	2.2	1.0	1.2r	-	-	8.4	-	-	2.0	0.2r	-	-
21	-	1.0	0.8s	-	1.2r	T	-	1.8	-	0.2r	-	T
22	-	12.8	-	-	1.0r	-	-	13.8	-	0.2r	-	T
23	-	1.2	-	5.4r	-	-	2.6	1.6	-	-	-	T
24	-	-	-	27.2r	-	3.0	1.0	2.0	-	-	2.3s	-
25	-	-	-	-	2.1r	0.9	3.8	-	-	-	1.0s	-
26	-	-	-	-	-	-	-	2.0	10.6	0.2r	5.2s	-
27	0.4	-	6.0s	-	-	4.8	-	-	0.2	0.8r	5.9s	-
28	0.2	2.4	6.2s	-	-	0.4	T	2.5	-	-	1.4s	-
29	0.2		3.4s	-	0.4r	1.4	3.0	-	-	-	0.9s	-
30	0.4		-	-	25.4r	-	0.6	3.8	6.3	29.4r	-	-
31	0.2		-		0.2r		-	3.6		36.0r		-
TOTAL Rain	-	-	10.7	37.4	76.3	57.3	22.6	54.4	37.8	101.2	2.0	-
TOTAL Snow	10.2	30.7	40.4	5.8	0.8	-	-	-	-	1.6	43.8	23.6
TOTAL Precip.	10.2	30.7	51.1	43.2	77.1	57.3	22.6	54.4	37.8	102.8	45.8	23.6

r = rain s = snow m = rain + snow
Date refers to precipitation day from 8:00 am to 8:00 am (CST)
Units are millimetres of water.

Total = 556.6 mm

Table 2. Daily precipitation for 1980 from the Rawson Lake meteorological station (Station 1).

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.7	T	–	–	–	–	–	–	T	1.2r	–	Ts
2	–	–	1.0	–	–	–	–	–	–	1.6r	–	T
3	T	–	0.5	–	–	–	0.2	25.6	8.6	Tr	–	2.8
4	T	3.7	–	–	–	2.0	3.5	9.0	6.9	–	Ts	–
5	3.0	T	–	–	–	–	–	1.8	–	–	–	0.8
6	9.0	0.2	–	–	0.8s	–	1.4	1.2	–	–	–	0.2
7	0.4	T	–	–	0.2s	–	–	5.6	–	–	Ts	1.1
8	–	T	T	–	–	2.5	–	–	23.4	–	16.7s	T
9	0.4	3.8	5.1	2.9	–	–	0.5	–	–	3.8r	Ts	–
10	15.0	T	–	1.4	5.2r	–	–	1.8	–	5.0r	Ts	–
11	1.2	1.0	2.1	3.8	3.1r	–	1.8	4.9	–	1.0s	–	8.8
12	1.2	T	8.7	0.3	–	4.9	–	9.6	1.1	Ts	–	0.7
13	0.4	T	T	–	–	–	6.6	–	–	–	Ts	0.4
14	3.0	0.4	–	Tr	–	1.7	2.0	–	–	–	–	1.2
15	Tr	0.3	0.7	–	–	–	33.0	–	4.0	–	–	0.2
16	0.2	–	T	–	–	–	0.5	16.3	–	12.8r	–	7.8m
17	–	–	T	–	–	0.3	1.3	5.8	4.6	15.0m	–	1.0
18	T	–	–	–	–	–	7.8	–	1.2	Ts	–	T
19	–	0.7	2.8	–	–	–	–	–	10.8	–	1.6s	–
20	–	–	–	–	–	1.5	18.6	4.6	T	2.0r	–	–
21	0.2	6.7	–	–	–	–	0.2	2.7	3.6	–	–	0.5
22	–	0.6	–	–	–	–	–	2.6	3.1	5.4s	0.8r	1.0
23	1.0	1.9	–	–	–	17.3	0.4	0.2	2.0	7.8s	Ts	–
24	–	T	–	–	–	–	0.4	0.2	2.6	1.4s	Ts	–
25	1.0	–	–	–	3.4r	–	–	–	–	Ts	–	T
26	1.3	0.3	4.5	–	–	–	3.7	–	–	–	–	T
27	0.8	–	0.2	–	–	15.2	7.1	–	–	–	–	–
28	T	–	–	–	3.6r	13.2	2.4	0.4	–	–	2.5s	–
29	–	–	–	–	–	1.4	2.0	6.4	2.6	–	0.4s	0.9
30	–		–	–	–	0.8	–	3.5	3.4	–	–	0.8
31	T		–		8.7r		–	0.5		–		0.5
TOTAL Rain	T	–	–	T	1.0	60.8	93.4	102.7	77.9	41.2	0.8	–
TOTAL Snow	38.8	19.6	25.6	8.4	24.0	–	–	–	–	15.8	21.2	28.7
TOTAL Precip.	38.8	19.6	25.6	8.4	25.0	60.8	93.4	102.7	77.9	57.0	22.0	28.7

r = rain s = snow m = rain + snow
Date refers to precipitation day from 8:00 am to 8:00 am (CST)
Units are millimetres of water

Total = 559.9 mm

Table 3. Daily precipitation for 1981 from the Rawson Lake meteorological station (Station 1).

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.6s	–	0.2s	Tr	0.5r	–	–	–	–	–	–	1.8
2	0.2s	–	–	0.2r	0.6r	–	38.5	T	T	–	–	0.4
3	–	–	3.5s	Ts	–	–	–	–	0.4	10.8	–	0.5
4	Ts	0.2s	0.6s	–	–	15.0	–	–	–	2.3r	–	–
5	Ts	0.7s	Ts	–	–	5.0	–	9.6	13.0	2.0r	0.4r	–
6	–	1.0s	–	1.5r	–	–	–	10.6	70.6	1.2r	–	–
7	–	Ts	–	–	–	14.2	–	–	0.6	–	0.4s	1.4
8	0.3s	0.4s	–	–	4.1m	1.4	–	3.7	–	Tr	Ts	T
9	–	–	0.3s	0.8r	–	–	–	1.4	–	8.6r	0.3r	T
10	–	–	–	Ts	–	0.4	–	–	0.4	0.6r	Tr	T
11	–	–	–	–	–	T	–	–	–	–	–	5.5
12	–	–	–	0.3r	–	–	–	–	–	4.8r	–	0.6
13	1.6s	–	–	0.1s	–	9.2	–	–	–	Tr	1.6r	0.8
14	Ts	–	–	–	–	37.2	2.3	–	–	–	–	T
15	Ts	–	–	–	–	5.6	4.6	–	1.6	–	10.3r	T
16	Ts	–	–	–	–	0.2	20.0	–	–	0.4r	0.2m	0.2
17	–	–	0.2s	Tr	–	2.8	1.4	–	–	3.4r	0.3s	0.2
18	–	Tr	–	4.0s	–	2.0	–	–	–	0.8s	1.0s	–
19	–	–	4.0s	–	–	0.9	0.2	–	–	0.9s	Ts	–
20	–	0.4r	–	–	–	0.4	T	0.5	–	Ts	Tr	5.5
21	–	–	–	6.5r	0.1	–	–	–	–	0.5s	–	1.1
22	–	–	Ts	1.4r	6.3	–	–	–	–	0.5s	–	3.0
23	–	Ts	–	–	T	18.2	–	–	8.0	6.4s	Ts	1.5
24	–	Ts	Tr	–	0.6	6.3	15.1	–	–	4.8s	0.9s	0.5
25	0.4s	–	2.8r	1.0r	0.4	2.0	1.0	–	1.4	0.4s	5.0s	–
26	–	–	–	–	–	2.6	–	–	33.2	Ts	12.6s	T
27	0.5s	0.4s	4.6r	–	–	21.4	0.2	–	0.4	–	Ts	0.8
28	–	–	Tr	–	1.8	13.8	–	–	T	4.1r	Ts	T
29	–		–	–	5.0	2.7	–	–	–	–	–	–
30	0.2s		–	–	–	–	25.2	–	29.4m	2.2r	–	–
31	6.3s		6.5r		–		–	5.1		–		–
TOTAL Rain	–	0.4	13.9	11.7	17.4	161.3	108.5	30.9	141.6	40.4	12.6	–
TOTAL Snow	10.1	3.0	8.8	4.1	2.0	–	–	–	17.4	14.3	20.4	23.8
TOTAL Precip.	10.1	3.4	22.7	15.8	19.4	161.3	108.5	30.9	159.0	54.7	33.0	23.8

r = rain s = snow m = rain + snow
Date refers to precipitation day from 8:00 am to 8:00 am (CST)
Units are millimetres of water.

Total = 642.6 mm

Table 4. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: MAY Year: 1979

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									18.2*
2																									0
3																									0
4				Snow - times unavailable																					0.8*
5																									0
6																		0.6	1.4	1.0	0.2	0.4	0.2		3.8
7		0.2		0.2	0.2		0.6	←						1.2											2.4
8	→																								-
9																									0
10							0.1	0.1									0.3	1.9	1.6	1.4	2.2	1.6			9.2
11	0.8	0.3	0.5	0.5	0.3	0.8				0.2		0.2			0.2	0.6									4.4
12																						0.5	1.5		2.0
13			0.2																						0.2
14																									0
15																									0
16																									0
17					2.8										2.0	1.0									5.8
18																									0
19																									0
20																									0
21																									0
22					0.4	0.6	0.2											0.3	0.2		0.3			0.2	2.2
23																									0
24																									0
25																							0.2	1.0	1.2
26																									0.9
27																									0
28																									0
29																				0.4					0.4
30										0.6	1.0	1.2	1.4	7.0	2.8	5.2	3.2	1.4	0.8		0.2	0.4			25.2
31			0.2																					0.2	0.4

TOTAL 77.1

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

← 1.2 → recorded values unavailable, arrow indicates time over which indicated rainfall occurred.

* Recording gauge inoperative, standard gauge value used.

Table 4. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: JUNE Year: 1979

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1									0.2					0.4									0.8	0.4	1.8
2		0.4																						0.2	0.6
3																									0
4		0.6	0.4																						1.0
5																									0
6	0.2		1.9	1.8						0.2	0.2	1.0	1.5												6.8
7																									0.5
8		0.2																					0.5		0.2
9																									0.5
10																		0.5							0
11																									0
12																									0
13								0.4	2.2	1.6		0.2													4.4
14																			0.4	0.8					1.2
15																									0
16																									0
17																									0
18																									0
19											0.9	1.8	3.7					0.2	10.0	2.0					18.6
20	2.8													0.6	0.6	0.2			1.7	1.7	0.7				8.3
21	0.2	1.1	0.6	0.4	0.4	0.2																			2.9
22																									0
23																									0
24																									0
25						2.1	0.9				0.9														3.9
26																									0
27																									4.8*
28																				0.4					0.4
29											0.4				1.0										1.4
30																									0
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

* Recording gauge inoperative, standard gauge value used.

TOTAL 57.3

Table 4. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: JULY Year: 1979

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									0
2																									0
3																									0
4																									0
5																									0
6																									0
7																			0.2						0.2
8																									0
9																									0
10																									0
11																									0
12																0.5	0.3								0.8
13																	1.7	2.5	0.2						4.4
14																					4.6	0.4	0.2		5.2
15																	0.2								0.2
16																									0
17																									0
18													0.2				0.4								0.6
19		0.2																							0.2
20																									0
21																									0
22																									0
23																2.4	0.2								2.6
24																									0
25		0.4			0.4	0.2					3.8														4.8
26																									0
27																									0
28																									0
29																									0
30					1.3	0.2	0.2	1.3	0.6																3.6
31																									0

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 22.6

Table 4. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: AUGUST Year: 1979

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1																									0
2	0.2	0.2			0.2															0.2					0.8
3																				0.2	0.8	0.2	0.2		1.4
4																									0
5																									0
6																			8.6	0.4					9.0
7			0.2																						0.2
8																									0
9																									0
10					0.2		0.2																		0.4
11																									0
12				1.1	1.6	5.4	0.2	0.4		0.2							0.3								9.2
13						0.3			0.4	1.6															2.3
14																									0
15																									0
16																									0
17																									0
18																									0
19																									0
20																									0
21																							1.8		1.8
22																				5.4	3.4	0.2	0.2	0.4	9.6
23	1.2	1.1	0.2		0.4	0.7	0.2	0.4	0.3					0.3					0.3		0.3				5.4
24		0.2		0.2								0.8	0.8	0.4											2.4
25																									0
26																		0.2		1.6					1.8
27				0.2																					0.2
28											0.5	1.6	0.2												2.3
29				0.2																					0.2
30																									0
31				0.4	0.4		2.4	1.0	0.2											3.0					7.4

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 54.4

Table 4. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: SEPTEMBER Year: 1979

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1																						2.3	0.4		2.7
2		0.2					0.4	0.2																	0.8
3																		0.6	0.2						0.8
4																									0
5																									0
6																			0.3						0.3
7																									0
8																									0
9																									0
10																									0
11	0.2				0.7	6.0		0.4		0.2			0.3												7.8
12		0.2																							0.2
13												0.4		0.4	0.6	0.2	1.2								2.8
14												0.4													0.4
15																									0
16																									0
17																							2.4		2.4
18																									0
19						0.3															0.2				0.5
20													0.2	0.2	0.2		1.4								2.0
21																									0
22																									0
23																									0
24																									0
25																									0
26																				0.7	0.9	2.0	3.2	3.8	10.6
27	0.2																								0.2
28																									0
29																									0
30																				0.8	1.7		0.2	3.4	6.1
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 37.6

Table 4. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: OCTOBER Year: 1979

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1			0.2																						0.2
2						0.2			0.2		0.2	0.3	0.2	0.4	0.4	0.7				0.4	1.9				4.0
3							0.2								0.2	0.3		0.3	0.8	0.3					2.8
4														0.3		0.3	0.3				0.2				1.1
5								0.3	0.3		0.3					0.2									0.8
6							0.5				0.2		0.5	0.5	0.2	0.2		0.2							2.3
7								0.2																	0.2
8										0.2	0.4	0.2	0.4	1.0	1.2	1.3	1.7	1.2	0.2	0.2					8.0
9					0.2				←					0.8	—										{1.0*
10	—	—	—	—	—	—	—	→																	{ -
11																									0
12																									0
13																									0
14																									0
15																									0
16									0.4				0.2		3.8			0.2							4.6
17																	0.2	1.2			1.7	1.5	1.0	2.5	8.1
18	1.4	0.6	0.2				0.2					0.2													2.6
19									←					0.2	—										0.2
20	—	—	—	—	—	—	—	→						0.2											0.2
21																									0
22																									0
23																									0
24														0.2											0
25									0.3	0.3				0.2											{
26																									{1.0*
27																									0
28																									0
29								0.2	0.2			0.2	0.2	1.1	0.9	0.9	0.9	1.1	1.5	1.3	2.1	1.5	0.3	0.9	14.3
30																									
31	0.6	0.8	1.3	1.7	2.1	1.9	3.1	3.6	2.1	2.8	2.1	1.1	2.3	2.7	3.2	3.4	4.7	2.3	3.9	0.8		1.0	0.2	2.1	48.6

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 100.5

←—— 0.8 ——→ recorded values unavailable, arrow indicates time over which indicated value occurred.

* Recording gauge inoperative, standard gauge value used.

Table 5. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: MAY Year: 1980

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									
2																									
3																									
4																									
5																									
6									←																0.8
7	—	—	—	—	—	—	—	precip. was snow collected in Nipher																	0.2
8	—						→																		
9																									
10											3.8	0.2							0.4						4.4
11						0.4	0.2	0.2				0.5	0.2	0.5	0.5		0.2	0.2	1.0						3.9
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24																									
25																									
26										0.2	3.2														3.4
27																									
28																			0.1						0.1
29		3.4				0.1																			3.5
30																									
31																				0.5	3.3	4.9			8.7

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

← → recorded values unavailable, arrow indicates time over which indicated value occurred.

TOTAL 25.0

Table 5. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: JUNE Year: 1980

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1																									
2																									
3																									
4													0.5		1.5										2.0
5																									
6																									
7																									
8																									
9	0.6	0.6	0.2																				0.2	0.9	1.1
10																									1.4
11																									
12																									
13				0.2													4.7								4.7
14																									0.2
15																0.7	0.7	0.3							1.7
16																									
17											0.3														
18																									0.3
19																									
20																									
21	1.3	0.2																							
22																									1.5
23																									
24																	17.3								17.3
25																									
26																									
27																									
28				0.2						0.4	1.3	1.2	1.0		0.2	1.9	0.6	1.1	0.2	1.8	6.6	3.0	3.0	0.4	15.0
29																			3.5	1.2	0.6		0.2		13.4
30												0.2	0.3			0.3			1.4						1.4
31																									0.8

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 60.8

Table 5. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: JULY Year: 1980

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									
2																									
3																						0.2			0.2
4											1.5	2.0													3.5
5																									
6															1.1	0.3									1.4
7																									
8																									
9																									
10								0.5																	0.5
11																		1.4				0.2	0.2		1.8
12																									
13																									
14							6.0	0.6	1.0											0.5	0.5				8.6
15																								3.1	3.1
16	5.5	13.8	5.8	2.5	0.5	0.2	1.6							0.5											30.4
17																									
18	0.4	0.4	0.2					0.3	1.5	0.4						0.4			0.2		4.9				8.9
19		0.2																							0.2
20																		1.7	6.9	3.6	4.8	0.8	0.2		18.0
21	0.2	0.2	0.2	0.2																					0.8
22																									
23																							0.4		0.4
24											0.2						0.2								0.4
25																									
26																									
27			3.5	0.2						0.2															3.9
28				0.6	2.0	0.4		3.9					2.0	0.2						0.2					9.3
29																									
30				1.4	0.6																				2.0
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 93.4

Table 5. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: AUGUST Year: 1980

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1																									
2																									
3																									
4		5.1	6.4	5.3	8.4	0.2	0.2		0.4	1.1											0.7	1.3	1.9	2.4	33.4
5	0.6	0.4	0.2										0.8					0.8			0.2				3.0
6							1.2																		1.2
7																									
8				5.6																					5.6
9																									
10																									
11								0.2											0.6		0.4	0.6			1.6
12				3.5	1.0	0.4									6.2	1.5	1.9								0.2
13																									14.5
14																									
15																									
16																									
17	3.4	3.1	1.0	1.7	1.2	0.7	0.2		0.5				1.1	0.5	0.9	0.5	0.2	0.5	1.4	1.2	1.0		0.7	0.2	5.0
18	0.2			0.6														0.2	0.2			0.7	0.2		16.3
19																									0.8
20																									
21				1.2	0.8					0.6	0.2	1.5								2.2	0.2	0.2			2.6
22																	0.4								4.7
23						0.6	2.0																		
24						0.2																			2.6
25					0.2																				0.2
26																									0.2
27																									
28																									
29																0.4									0.4
30											1.4	1.9						1.4	1.5						6.2
31				0.2							3.1		0.2												3.5
						0.2																			0.2

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 102.2

Table 5. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: SEPTEMBER Year: 1980

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1							0.5																		0.5
2																									
3								←					1.4					→	0.2	1.3					2.9
4				0.6	0.7	3.4	0.8	0.2	0.6	3.1	1.3	1.3											0.4		12.4
5			0.2																						0.2
6																									
7																									
8												3.3	19.1	0.8		0.2									23.4
9																									
10																									
11																									
12																	0.2							0.3	0.5
13	0.3	0.3																							0.6
14																									
15											0.2	0.2	0.4	0.7	0.7	0.4	0.4	0.6					0.4		4.0
16																									
17															0.2		1.2	1.0	0.4	0.2	0.4	0.6	0.6		4.6
18																									
19							0.2	1.0	1.4	0.6	2.7	2.1	1.0	0.2			0.4	0.2	0.6	0.2	1.0			0.2	11.8
20			0.2																						0.2
21																				0.2		0.7		0.2	1.1
22	0.9	0.5	0.4	0.5			0.2			1.6	0.9	0.2		0.2	0.2										5.6
23																					0.2	0.4	0.6	0.2	1.4
24		0.4	0.2							0.2						0.5	0.2	0.7						0.2	2.4
25	0.6			0.2																					0.8
26																									
27																									
28																									
29										1.4	1.0												0.2		2.6
30																	0.9	0.6	1.3	0.2					3.0
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

← → recorded values unavailable, arrow indicates time over which indicated value occurred.

TOTAL 78.0

Table 5. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: OCTOBER Year: 1980

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date																									
1								0.4	0.7						0.2	0.2			0.2			0.7			2.4
2								0.4	0.4																0.8
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10					0.4	0.6	1.2	0.4	0.4	0.5	0.2	0.7	0.2		0.5	1.2	0.9	0.2		0.2	0.8	0.4			1.2
11	←	←	1.0	as snow	→	→	→	→													←	←	←	←	7.6
12																									1.0
13																									
14																									
15																									
16																0.8	2.2	1.5	1.0	2.2	0.4	1.1	0.4		9.6
17							3.0	0.2					12.0		rain	+		3.0 snow							18.2
18																									
19																									
20											0.5		0.9	0.4	0.2										2.0
21																									
22																									
23	←	←	5.4	snow	←	←	←	→	→	←	7.4	snow	←	←	←	←	←	→	→	←	←	←	←	→	
24	←	←	0.4	snow	←	←	←	→	→	←	0.4	snow	←	←	←	←	←	→	→	←	←	←	←	→	12.8
25	←	←	1.0	snow	←	←	←	→	→	←	T	snow	←	←	←	←	←	→	→	←	←	←	←	→	0.8
26	←	←	←	←	←	←	←	→	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	→	1.0
27																									
28																									
29																									
30																									
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

← → recorded values unavailable, arrow indicates time over which indicated value occurred.

TOTAL 57.4

Table 6. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: MAY Year: 1981

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									
2																									
3					0.5						0.3	0.3													1.1
4																									
5																									
6																									
7																									
8																	0.4	0.6	0.4	0.4	←				4.1
9	←		2.3	Snow				→																	
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22									2.8	2.1	1.1	0.4													6.4
23																									
24													0.2				0.2						0.2		0.6
25										0.4															0.4
26																									
27																									
28																									
29							1.4	0.4				2.2	0.4				0.2	0.7		0.7	0.2			0.2	6.4
30	0.2			0.2																					0.4
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

←—2.3—→ recorded values unavailable, arrow indicates time over which snowfall occurred.

TOTAL 19.4

Table 6. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: JUNE Year: 1981

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																			1.2	2.0	4.4	7.2	0.2		15.0
2														4.4			0.6								5.0
3																		8.1	3.1	2.2	0.2		0.4		14.0
4						0.2						0.4		1.0											1.6
5												0.2						0.2							0.4
6																									
7																									
8																0.4	4.0	2.8	0.4				0.2		7.8
9				1.4									0.4	8.0	1.1	0.4	20.6	1.9				1.9	1.9	1.0	38.6
10															0.2		2.5	0.4							3.1
11																									2.5
12																0.2	1.6								1.8
13					0.6		0.4		1.1	0.7	0.2														3.0
14																		0.7				0.2			0.9
15								0.2				0.2										0.2			0.6
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24	0.9	0.9	0.7	2.1	4.4	5.9	3.1	0.2	2.1	1.2	0.2						0.2			0.4	1.0				23.3
25	0.2	0.4					0.6							0.5	0.2	0.2	1.1								3.2
26																									
27				0.8		0.8	1.0		0.2	3.4	1.5	5.7	4.0	2.7										3.9	24.0
28										5.2	5.0	1.3	0.4												11.9
29						1.9				1.9	0.8														4.6
30																									
31																									

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 161.3

Table 6. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: JULY Year: 1981

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									
2																				0.2	8.4	13.0	9.8	4.0	35.4
3	2.7	0.4																							3.1
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																0.6	0.4	1.3							2.3
15																									
16						4.6									0.2	2.7	0.3	0.5		1.6		0.2	2.3		12.4
17	0.2	0.2	0.2	3.5	1.2	4.4	2.3	1.0				0.6													13.6
18																									
19														0.2											0.2
20																									
21																									
22																									
23																									
24														3.7	0.3	6.2	4.3	0.2					0.2	0.2	15.1
25															0.8		0.2								1.0
26																									
27														0.2											0.2
28																									
29																									
30																						1.4	0.8	11.2	13.4
31	11.6			0.2																					11.8

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 108.5

Table 6. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: AUGUST Year: 1981

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																									
2																									
3																									
4																									
5																	0.2	0.2		0.2	1.7	1.1	0.6	3.6	7.6
6					0.4	0.7	0.7	0.2	0.3			0.2						5.2		1.1	3.4		0.2	0.2	12.6
7																									
8																0.4	1.2		0.6	1.5					3.7
9															0.2	1.2									1.4
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20															0.3	0.2									0.5
21																									
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
31												0.5	2.9	0.7	0.2				0.2		0.2		0.2		4.9

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

TOTAL 30.7

Table 6. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: SEPTEMBER Year: 1981

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1	0.2																								0.2
2																									
3									0.4																0.4
4																									
5																									
6				0.2	0.2	0.2	9.8	2.6						2.4	1.3	0.6	14.7	22.6	13.9	8.3	5.8	0.2			82.8
7			0.6	0.2													0.6								1.4
8																									
9																									
10																									
11	0.4																								0.4
12																									
13																									
14																									
15																←	—	—	—	—	1.6	—	—	—	1.6*
16	—	—	—	—	—	→																			
17																									
18																									
19																									
20																									
21																									
22																									
23										3.1	2.5	0.2			0.2	0.6	0.2	0.2	0.6	0.4					8.0
24																									
25																									
26		0.2	0.2			0.8	0.2			1.1	8.2	7.1	2.4	0.6		0.2		0.7	0.5	0.2	2.7	0.6	1.1	0.5	27.3
27	0.2	0.5	1.6	2.0	1.4	0.7	0.5	0.4	←	—	—	—	0.4	—	—	—	—	→							7.7*
28																									
29																									
30										0.4	1.5	1.3	0.9	2.1	1.9	2.0	1.5	0.4	←	—	Snow	—	—	→	29.4
31																									

Notes: Times are central standard (CST).

TOTAL 159.2

All values have been corrected to standard rain gauge values.

←— 1.6 —→| recorded values unavailable, arrow indicates time over which rainfall or snowfall occurred.

* recording rain gauge inoperative, standard gauge value used.

Table 6. Recording rain gauge data for the Experimental Lakes Area.

Station: Met. Site, Station #1 Gauge: Tipping Bucket Month: OCTOBER Year: 1981

Corrected hourly precipitation amounts (mm)

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
Date 1																						1.0	1.5	1.3	3.8
2	1.5	1.5	0.8	0.2	0.6	0.6	1.2	0.6	0.5	1.0		0.2		0.2		0.2									9.1
3	0.2												0.2	0.2								0.2		1.0	1.8
4	0.2	0.2								0.2							0.8	0.2							1.6
5																				0.2	0.2	0.4	1.3	1.9	4.0
6	1.3	1.5	1.2	0.4				0.2	←					0.3				→	←						4.9
7	—	—	—	0.3	—	—	—	→																	0.3
8																0.2			0.4	3.2	0.4				4.2
9				0.2	0.2			0.2																	0.6
10																									
11																									
12							0.4		0.6	0.6	0.4		0.2			0.2		0.6	0.4		0.2	0.2			3.8
13								Snow	–	no times available															0.8*
14																									
15	←	—	0.9	snow	—	—	—	→	←							trace	of snow	—	—	—	—	—	—	—	0.9*
16	—	—	—	—	—	—	—	→	←		—	trace	of snow	—	—	—	—	→	←	—	—	—	—	—	T*
17	—	0.5	snow	—	—	—	—	→	←	—	—	0.5	snow	—	—	—	—	→	←	—	trace	of snow	—	—	1.0*
18	—	—	—	—	—	—	—	→	←	—	—	trace	of snow	—	—	—	—	→	←	—	6.4	snow	—	—	6.4*
19	—	—	—	—	—	—	—	→	←	—	—	3.8	snow	—	—	—	—	→	←	—	1.0	snow	—	—	4.8*
20	—	—	—	—	—	—	—	→	←	—	—	0.4	snow	—	—	—	—	→	—	—	—	—	—	—	0.4*
21	—	—	—	—	—	—	—	→											←	—	trace	of snow	—	—	T*
22									←	—	—	—	—	—	—	—	—	→							4.1*
23																									
24																	1.0	0.6	0.4	0.2					2.2
25																									
26																									
27																									
28																									
29																									
30																									
31																									

TOTAL 54.7

Notes: Times are central standard (CST).

All values have been corrected to standard rain gauge values.

|← 0.3 →| recorded values unavailable, arrow indicates time over which rainfall or snowfall occurred.

* recording gauge inoperative, standard gauge value used.

Table 7. Precipitation data in millimetres for 1979 from standard weekly rain gauges in the Experimental Lakes Area. All values have been corrected using recorded hourly rainfall at stations 1, 3, 7, 8 and 10 to apply to the same time interval.

Period		Rain gauge station									
Start	End	1*	2	3*	4	7*	8*	9	10*	11	12
May 22	May 28	4.3	x	3.8	4.8	x	x	x	4.0	1.3	x
May 29	Jun 4	26.7	25.9	25.1	27.8	x	28.2	26.4	28.6	27.8	x
Jun 5	Jun 11	6.6	6.1	5.6	7.8	7.4	7.1	6.6	8.7	9.4	x
Jun 12	Jun 18	4.3	4.1	3.0	5.2	4.3	4.8	5.1	6.9	6.6	x
Jun 19	Jun 25	32.8	31.8	32.2	33.8	35.0	33.0	35.1	30.9	33.4	x
Jun 26	Jul 2	5.1	5.3	3.8	6.4	6.1	6.1	6.1	5.0	11.2	x
Jul 3	Jul 9	0	0	0	0.4	0.2	0.2	0	0.8	1.0	x
Jul 10	Jul 16	9.4	7.4	7.6	10.2	10.2	9.1	8.1	10.0	10.0	x
Jul 17	Jul 23	2.3	2.8	2.0	4.0	2.3	2.8	3.8	8.8	3.4	x
Jul 24	Jul 30	7.1	9.6	12.2	9.8	8.1	6.8	12.2	10.8	9.8	x
Jul 31	Aug 6	9.4	7.1	7.5	18.0	8.4	23.1	8.6	18.9	17.0	19.6
Aug 7	Aug 13	10.4	9.9	10.7	12.6	11.3	10.8	10.9	15.2	11.8	12.7
Aug 14	Aug 20	0	0	0	0.2	0	0	0	0.2	0.4	0
Aug 21	Aug 27	20.3	18.0	20.6	27.2	28.7	20.1	23.9	33.4	38.0	38.1
Aug 28	Sep 3	11.9	11.9	9.1	13.4	10.9	12.7	10.2	16.0	10.0	10.2
Sep 4	Sep 10	0.2	0.2	0.5	0.5	0.2	0.2	0.5	7.2	7.6	7.4
Sep 11	Sep 17	10.7	11.3	10.7	14.7	11.3	11.9	11.2	4.9	7.6	5.8
Sep 18	Sep 24	1.0	1.0	3.3	4.6	1.0	2.5	2.9	3.0	1.6	3.0
Sep 25	Oct 1	16.2	15.0	15.5	17.2	17.0	16.2	15.5	18.0	16.5	15.2
Oct 2	Oct 8	6.8	7.7	8.8	11.4	7.6	8.2	10.0	10.8	10.5	9.4
Oct 9	Oct 15	9.1	9.0	9.9	11.6	10.2	9.9	11.0	12.0	9.8	9.7
Oct 16	Oct 22	14.2	14.0	12.7	14.6	14.5	14.0	11.4	14.4	15.8	15.1
Oct 23	Oct 29	1.0	1.0	1.5	2.0	1.0	1.3	2.3	1.8	1.1	0.9

Gauges are read either on Monday afternoons or Tuesday mornings.

Rainfall values have been adjusted to apply to a standard weekly interval from 0:00 hrs of the start date to 24:00 hrs of the end date above, (Monday midnight to Monday midnight, central standard time, CST).

Rain gauges 5 and 6 were discontinued.

x implies gauge not in service.

* implies that a tipping bucket recording rain gauge is located next to the standard gauge.

M implies a missing value.

Table 8. Precipitation data in millimetres for 1980 from standard weekly rain gauges in the Experimental Lakes Area. All values have been corrected using recorded hourly rainfall at stations 1, 3, 7, 8, and 10 to apply to the same time interval.

Period		Rain gauge station									
Start	End	1*	2	3*	4	7*	8*	9	10*	11	12
Apr 29	May 5	0	x	x	x	x	x	x	0	x	x
May 6	May 12	9.3	x	x	x	x	x	x	5.2	x	x
May 13	May 19	0	x	x	x	x	x	x	0	x	x
May 20	May 26	↑	↑	↑	M	↑	↑	↑	↑	↑	x
May 27	Jun 2	14.5	16.5	15.7	M	14.2	14.2	19.7	16.2	15.6	x
Jun 3	Jun 9	3.0	3.2	3.0	3.8	4.2	4.4	3.9	4.8	5.0	4.1
Jun 10	Jun 16	5.1	6.1	4.3	6.6	5.1	4.0	5.1	10.4	7.6	7.2
Jun 17	Jun 23	19.8	19.8	23.4	22.6	↑	↑	↑	↑	↑	↑
Jun 24	Jun 30	26.9	31.0	28.8	30.0	45.7	45.2	49.5	29.8	28.8	45.7
Jul 1	Jul 7	3.3	8.2	9.1	5.7	3.6	2.3	11.0	3.3	2.8	2.0
Jul 8	Jul 14	8.6	10.4	12.1	10.0	11.2	10.7	9.9	11.6	11.8	11.9
Jul 15	Jul 21	57.6	59.2	65.2	64.3	58.2	63.0	63.0	44.6	M	68.6
Jul 22	Jul 28	12.3	14.0	12.7	13.6	14.5	13.6	14.5	15.1	16.0	18.3
Jul 29	Aug 4	34.0	33.4	28.4	31.3	33.3	34.5	33.5	31.1	33.5	35.8
Aug 5	Aug 11	10.2	10.9	10.4	10.9	12.2	11.6	11.4	14.5	10.3	10.0
Aug 12	Aug 18	29.3	33.0	31.6	34.7	33.4	32.6	35.5	29.6	31.8	38.4
Aug 19	Aug 25	8.2	8.6	7.1	11.3	8.0	11.6	7.9	8.0	8.9	9.5
Aug 26	Sep 1	8.9	7.9	8.6	10.4	6.6	8.6	8.6	8.1	11.4	10.2
Sep 2	Sep 8	37.1	35.0	35.0	38.0	36.3	34.0	x	26.0	32.5	35.6
Sep 9	Sep 15	4.3	4.1	4.1	5.0	4.6	3.8	x	3.5	6.0	5.1
Sep 16	Sep 22	21.6	20.8	18.5	23.4	19.6	21.1	x	26.8	22.2	22.9
Sep 23	Sep 29	6.1	6.1	5.8	7.8	5.8	6.8	x	6.6	7.0	6.1
Sep 30	Oct 6	5.1	4.8	4.1	13.6	5.6	5.3	x	5.4	7.2	6.6
Oct 7	Oct 13	7.4	6.8	7.1	8.0	7.6	7.6	x	6.9	8.8	7.6
Oct 14	Oct 20	28.7	26.9	26.7	x	30.0	31.0	x	M	M	35.3

Gauges are read either on Monday afternoons or Tuesday mornings.

Rainfall values have been adjusted to apply to a standard weekly interval from 0:00 hrs of the start date to 24:00 hrs of the end date above, (Monday midnight to Monday midnight, central standard time, CST).

Rain gauges 5 and 6 were discontinued.

x implies gauge not in service.

* implies that a tipping bucket recording rain gauge is located next to the standard gauge.

M implies missing value.

↑ value is total for period indicated.

Table 9. Precipitation data in millimetres for 1981 from standard weekly rain gauges in the Experimental Lakes Area. All values have been corrected using recorded hourly rainfall records at stations 1, 3 7, 8 and 10 to apply to the same time interval.

Period											
Start	End	1*	2	3*	4	7*	8*	9	10*	11	12
May 5	May 11	2.8	2.8	2.3	5.0	x	4.3	4.1	x	5.0	4.6
May 12	May 18	0	0	0	0	0	0	0	0	0	0
May 19	May 25	7.9	8.9	7.6	9.6	↑	8.9	8.5	9.1	9.2	8.9
May 26	Jun 1	↑	6.4	5.6	6.8	15.0	6.6	6.0	8.5	8.2	8.9
Jun 2	Jun 8	35.3	36.8	40.5	37.6	32.8	37.3	38.5	35.4	33.7	35.8
Jun 9	Jun 15	46.8	36.9	40.4	50.5	33.1	48.8	46.5	45.6	33.7	32.5
Jun 16	Jun 22	6.7	6.6	7.6	12.7	6.4	8.0	6.8	12.0	7.3	6.2
Jun 23	Jun 29	61.2	70.4	59.9	67.8	64.0	61.7	67.8	66.5	67.8	58.4
Jun 30	Jul 6	38.1	39.6	38.6	37.2	38.7	38.1	34.8	42.4	44.6	45.2
Jul 7	Jul 13	0	0	0	0	0	0	0	0	0	0
Jul 14	Jul 20	26.2	29.0	24.1	24.3	27.9	20.8	26.2	27.0	22.4	24.1
Jul 21	Jul 27	15.0	13.7	12.7	12.7	12.7	11.8	12.4	8.2	16.0	9.8
Jul 28	Aug 3	21.8	24.1	21.6	21.4	25.1	22.1	19.3	25.0	24.8	25.2
Aug 4	Aug 10	22.9	21.6	18.5	22.6	M	24.1	18.3	21.6	23.6	23.4
Aug 11	Aug 17	0	0	0	0	0	0	0	0	0	0
Aug 18	Aug 24	0	0	0	1.0	0	0	0	0	0	0
Aug 25	Aug 31	4.1	4.9	4.9	5.4	4.9	4.9	M	4.8	5.8	4.9
Sep 1	Sep 7	83.0	84.8	88.1	88.7	79.4	79.4	M	68.4	74.2	72.6
Sep 8	Sep 14	0.1	0.5	0.1	1.0	0.2	0.4	0	0.8	0.8	0.2
Sep 15	Sep 21	0.8[a]	0.9	0.8	1.3	0.5	0.5	0.8	1.0	1.4	0.9
Sep 22	Sep 28	43.0[a]	39.4	39.6	37.8	42.9	42.3	38.9	x	45.6	45.2
Sep 29	Oct 5	M	M	M	M	M	x	x	x	x	M
Oct 6	Oct 12	15.0[a]	12.8	12.2	14.5	12.5	x	x	x	x	14.0

Gauges are read either on Monday afternoons or Tuesday mornings.

Rainfall values have been adjusted to apply to a standard weekly interval from 0:00 hrs of the start date to 24:00 hrs of the end date above, (Monday midnight to Monday midnight, central standard time, CST).

Rain gauges 5 and 6 were discontinued.

x implies gauge not in service.

* implies that a tipping bucket recording rain gauge is located next to the standard gauge.

M implies missing value.

↑ value is total for period indicated.

a implies that the value is from the sum of daily values rather than a Tuesday morning weekly reading.

Table 10. Precipitation summary by months for the years 1969 to 1981 from the Rawson Lake meteorological station in the Experimental Lakes Area.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (mm)
1969	Rain							130.3	134.4	92.4	50.5	2.3	-	-
	Snow		Station started June 27, 1969.					-	-	-	3.6	20.3	36.8	-
	Total							130.3	134.4	92.4	54.1	22.6	36.8	-
1970	Rain	-	-	-	39.9	73.7	87.9	66.0	65.5	136.6	70.1	-	4.6	544.3
	Snow	31.5	28.2	91.2	102.9	16.5	-	-	-	-	56.9	40.4	55.3	422.9
	Total	31.5	28.2	91.2	142.8	90.2	87.9	66.0	65.5	136.6	127.0	40.4	59.9	967.2
1971	Rain	-	-	-	20.3	62.7	150.6	88.9	56.4	128.0	77.2	3.8	T	587.9
	Snow	21.3	17.5	41.4	39.4	-	-	-	-	-	18.8	61.0	23.8	223.2
	Total	21.3	17.5	41.4	59.7	62.7	150.6	88.9	56.4	128.0	96.0	64.8	23.8	811.1
1972	Rain	-	-	2.0	9.4	52.3	67.6	147.1	116.8	100.6	27.7	23.4	-	546.9
	Snow	30.0	22.6	32.5	2.8	-	-	-	-	5.6	5.3	37.3	25.9	162.0
	Total	30.0	22.6	34.5	12.2	52.3	67.6	147.1	116.8	106.2	33.0	60.7	25.9	708.9
1973	Rain	-	-	-	31.8	46.7	94.0	134.1	95.5	131.1	63.7	8.4	-	605.3
	Snow	5.8	23.6	41.6	16.0	-	-	-	-	-	2.3	38.8	22.1	150.2
	Total	5.8	23.6	41.6	47.8	46.7	94.0	134.1	95.5	131.1	66.0	47.2	22.1	755.5
1974	Rain	-	-	-	50.0	88.7	68.6	39.6	160.8	47.5	31.8	T	-	487.0
	Snow	39.9	27.4	25.4	43.5	0.5	-	-	-	2.5	6.6	29.0	21.3	196.1
	Total	39.9	27.4	25.4	93.5	89.2	68.6	39.6	160.8	50.0	38.4	29.0	21.3	683.1
1975	Rain	-	-	-	19.6	61.2	146.0	37.3	95.8	70.9	40.6	0.2	-	471.6
	Snow	70.1	30.5	49.5	1.5	-	-	-	-	-	17.8	20.6	26.2	216.2
	Total	70.1	30.5	49.5	21.1	61.2	146.0	37.3	95.8	70.9	58.4	20.8	26.2	687.8
1976	Rain	-	-	6.6	38.3	15.0	130.0	19.6	81.0	29.0	10.7	-	-	330.2
	Snow	40.1	24.4	34.4	4.1	4.6	-	-	-	-	15.2	13.0	30.0	165.7
	Total	40.1	24.4	40.9	42.4	19.6	130.0	19.6	81.0	29.0	25.9	13.0	30.0	495.9
1977	Rain	-	-	19.6	7.1	132.8	141.0	74.9	78.5	87.6	18.5	9.4	3.3	572.7
	Snow	29.5	39.6	24.1	4.3	-	-	-	-	-	-	169.9	33.8	301.2
	Total	29.5	39.6	43.7	11.4	132.8	141.0	74.9	78.5	87.6	18.5	179.3	37.1	873.9
1978	Rain	-	-	-	21.3	108.2	47.2	99.8	100.6	66.5	20.6	1.3	0.8	466.3
	Snow	19.8	10.4	35.6	18.3	-	-	-	-	-	2.3	49.0	29.7	165.1
	Total	19.8	10.4	35.6	39.6	108.2	47.2	99.8	100.6	66.5	22.9	50.3	30.5	631.4
1979	Rain	-	-	10.7	37.4	76.3	57.3	22.6	54.4	37.8	101.2	2.0	-	399.7
	Snow	10.2	30.7	40.4	5.8	0.8	-	-	-	-	1.6	43.8	23.6	156.9
	Total	10.2	30.7	51.1	43.2	77.1	57.3	22.6	54.4	37.8	102.8	45.8	23.6	556.6
1980	Rain	T	-	-	T	1.0	60.8	93.4	102.7	77.9	41.2	0.8	-	377.8
	Snow	38.8	19.6	25.6	8.4	24.0	-	-	-	-	15.8	21.2	28.7	182.1
	Total	38.8	19.6	25.6	8.4	25.0	60.8	93.4	102.7	77.9	57.0	22.0	28.7	559.9
1981	Rain	-	0.4	13.9	11.7	17.4	161.3	108.5	30.9	141.6	40.4	12.6	-	538.7
	Snow	10.1	3.0	8.8	4.1	2.0	-	-	-	17.4	14.3	20.4	23.8	103.9
	Total	10.1	3.4	22.7	15.8	19.4	161.3	108.5	30.9	159.0	54.7	33.0	23.8	642.6
Mean	Rain	-	-	4.4	23.9	61.3	101.0	81.7	90.2	88.3	45.7	4.9	0.7	494.0
	Snow	28.9	23.1	37.5	20.9	4.0	-	-	-	2.0	12.3	43.4	29.3	203.8
														697.8
	Average Monthly	28.9	23.1	41.9	44.8	65.4	101.0	81.7	90.2	90.2	58.0	48.4	30.0	
	Standard Deviation	17.6	7.7	18.0	39.5	35.8	42.0	42.8	35.0	40.2	33.1	42.4	10.3	

Notes:
1. All units are millimetres.
2. Period of record begins June 27, 1969.
3. To August 1978, rainfall was measured in a copper standard rain gauge (inches) and after August 1978, in an AES type B standard gauge (millimetres).
4. Snowfall was measured using a Nipher shielded snow gauge. Values in this table are expressed as point depth water equivalent.

Table 11. Summary of annual precipitation from the Rawson Lake meteorological station for the 12 year period 1970 to 1981.

	CALENDAR YEAR (Jan-Dec)					WATER YEAR (Nov-Oct)				
	Rain (mm)	(%)	Snow (mm)	(%)	Total (mm)	Rain (mm)	(%)	Snow (mm)	(%)	Total (mm)
1970	544.3	(56)	422.9	(44)	967.2	542.0	(58)	384.3	(42)	926.3
1971	588.0	(72)	223.3	(28)	811.3	588.7	(72)	234.2	(28)	822.9
1972	546.9	(77)	162.0	(23)	708.9	527.3	(74)	183.6	(26)	710.9
1973	605.3	(80)	150.4	(20)	755.7	620.3	(80)	152.6	(20)	772.9
1974	486.9	(71)	196.1	(29)	683.0	495.3	(70)	206.8	(30)	702.1
1975	471.7	(69)	216.1	(31)	687.8	471.4	(68)	219.7	(32)	691.1
1976	330.2	(67)	165.6	(33)	495.8	330.4	(66)	169.4	(34)	499.8
1977	572.8	(66)	301.2	(34)	874.0	560.1	(80)	140.5	(20)	700.6
1978	466.3	(74)	165.1	(26)	631.4	477.0	(62)	290.1	(38)	767.1
1979	399.7	(72)	156.9	(28)	556.6	399.7	(70)	168.2	(30)	567.9
1980	377.8	(67)	182.1	(33)	559.9	379.0	(66)	199.6	(34)	578.6
1981	538.7	(84)	103.9	(16)	642.6	526.9	(83)	109.6	(17)	636.5
Mean	492.6	(71)	203.8	(29)	697.8	493.2	(71)	204.9	(29)	698.1

Notes:
1. Rainfall is in millimetres.
2. Snowfall is expressed as point depth water equivalent in millimetres measured in an AES Nipher shielded snow gauge.
3. Rain and snow as percentage of the total precipitation are shown in brackets.

Table 12. Summary of rainfall intensity data for the Experimental Lakes Area from 1969 to 1981. Values presented are the maximums for each month and for the 13 year period for the durations indicated.

	Corrected amounts of rainfall in millimetres and tenths for the durations indicated.								
	5 min	10 min	15 min	30 min	60 min	120 min	6 h	12 h	24 h
1969									
May									
Jun		period of record began June 27, 1969.							
Jul	6.4	6.9	7.1	7.1	11.9	17.5	33.0	37.6	38.9
Aug	12.2	17.5	21.6	25.9	27.7	30.0	32.3	39.1	39.4
Sep	3.6	5.1	7.1	7.9	10.7	12.7	13.0	17.5	22.6
Oct	2.3	4.6	5.1	6.4	7.4	9.9	16.5	23.6	32.8
1970									
May	1.3	2.5	2.8	4.6	6.9	10.4	15.2	25.6	26.7
Jun	6.1	11.7	11.9	13.0	13.0	13.2	18.3	27.4	36.8
Jul	3.3	6.1	7.9	11.2	11.7	14.0	25.9	26.9	26.9
Aug	4.3	4.8	5.3	9.4	13.0	20.3	22.6	23.4	23.4
Sep	7.6	13.5	16.0	20.1	23.6	28.7	32.3	32.3	56.6
Oct	1.0	1.3	1.5	2.3	4.8	7.6	21.6	29.2	29.7
1971									
May	0.8	1.3	1.5	2.5	4.6	7.4	9.6	9.6	20.6
Jun	7.9	13.2	18.3	25.6	33.8	38.1	39.9	50.6	51.1
Jul	3.8	4.8	6.6	7.6	8.6	15.0	24.1	24.1	25.6
Aug	3.6	5.6	6.4	9.4	14.0	24.4	29.5	34.0	34.0
Sep	6.9	9.6	11.9	15.0	18.3	23.1	46.0	54.1	54.4
Oct	2.3	2.8	3.0	3.3	4.8	7.1	13.2	16.0	17.5
1972									
May	5.1	7.4	8.1	9.4	11.9	14.2	14.2	14.2	14.2
Jun	2.5	4.1	5.6	7.4	10.7	19.0	39.6	47.8	48.5
Jul	8.1	14.2	18.5	30.7	55.1	61.2	61.2	61.2	63.5
Aug	18.8	31.5	36.4	42.4	43.9	49.3	56.6	57.9	68.6
Sep	2.3	3.0	4.1	6.1	9.4	15.8	39.6	40.4	40.4
Oct	1.3	2.5	3.8	5.8	8.4	10.2	11.2	11.2	11.2
1973									
May	1.5	2.3	3.0	5.1	6.6	10.7	12.2	17.0	17.0
Jun	4.1	6.9	8.1	8.4	9.6	14.0	18.3	21.8	24.4
Jul	M	M	M	M	49.0*	50.3	50.3	50.3	50.3
Aug	4.6	7.1	9.9	15.0	19.3	22.1	24.1	33.0	33.5
Sep	5.8	8.9	11.4	15.2	20.1	25.9	37.1	39.9	56.6
Oct	3.6	4.3	5.1	6.1	8.6	14.5	20.3	25.9	28.4
1974									
May	4.8	6.9	9.1	10.9	13.5	15.5	16.3	27.2	44.2
Jun	3.6	6.1	8.1	8.6	8.6	10.9	21.6	23.9	43.2
Jul	1.8	3.0	3.3	3.8	6.1	7.9	9.6	9.6	9.6
Aug	3.6	5.1	6.1	8.4	17.3	18.3	31.0	48.5	48.8
Sep	2.0	3.0	3.8	5.3	7.6	7.6	13.0	13.7	13.7
Oct	0.5	1.0	1.5	2.3	4.6	7.9	13.0	16.3	16.3
1975									
May	7.1	14.2	15.2	27.7	31.2	33.8	34.0	34.5	34.5
Jun	5.1	8.9	11.7	16.3	21.3	27.2	27.7	35.6	38.9
Jul	2.8	3.6	3.8	4.8	8.1	8.6	9.9	10.9	13.5
Aug	5.1	7.6	9.9	10.9	17.8	24.4	27.2	27.7	27.7
Sep	7.1	8.1	8.4	8.6	8.6	9.4	19.3	21.6	25.2
Oct	2.3	3.3	3.6	3.8	4.6	7.1	8.9	12.4	21.1
1976									
May	1.5	2.0	2.3	3.0	4.3	6.6	11.4	12.4	12.4
Jun	3.6	6.4	7.9	9.9	14.0	18.5	29.7	48.0	48.2
Jul	3.0	3.6	3.6	4.8	4.8	4.8	5.8	7.1	7.1
Aug	3.8	4.8	6.9	9.9	10.9	14.2	32.0	47.5	49.0
Sep	1.5	2.3	4.1	5.6	6.4	10.9	13.2	13.2	13.5
Oct	0.8	1.0	1.5	2.8	5.1	7.9	7.9	7.9	7.9
1977									
May	3.8	6.1	7.1	7.4	10.2	16.0	16.0	18.0	21.3
Jun	2.3	3.6	5.1	6.6	9.6	10.4	18.5	22.6	31.5
Jul	8.4	9.4	9.4	9.6	9.6	9.6	10.9	24.1	25.2
Aug	1.5	2.8	3.3	3.8	6.6	9.4	13.5	16.8	17.5
Sep	3.3	4.8	5.3	6.1	7.6	10.4	19.0	33.5	40.4
Oct	M	M	M	M	M	M	M	M	8.6
1978									
May	M	M	M	M	M	M	M	M	M
Jun	3.2	4.1	4.3	6.0	6.0	6.4	8.8	12.6	15.6
Jul	4.0	6.0	7.0	8.1	10.3	13.9	13.9	13.9	13.9
Aug	5.8	9.8	11.5	12.6	15.8	17.6	22.6	23.0	25.8
Sep	1.5	1.7	2.3	3.9	5.9	9.9	17.8	19.6	35.8
Oct	0.7	1.1	1.1	1.3	1.5	2.1	5.5	8.8	10.0
1979									
May	2.4	2.8	2.8	3.8	7.3	10.4	21.4	25.4	25.4
Jun	3.2	4.1	5.7	8.2	10.7	11.9	12.1	18.6	21.4
Jul	3.5	3.6	3.8	4.4	4.4	5.2	5.2	5.2	5.4
Aug	5.6	6.0	6.6	8.0	9.0	9.2	12.0	13.8	14.7
Sep	1.7	2.1	2.5	4.9	6.7	8.1	10.6	10.8	10.8
Oct	0.8	1.3	1.7	3.1	4.8	8.4	21.2	33.6	52.8
1980									
May	M	M	M	M	7.2	8.3	8.7	8.7	8.7
Jun	7.1	9.4	12.2	16.2	17.3	17.3	17.3	17.3	26.2
Jul	3.6	4.9	6.0	8.7	12.2	19.3	31.3	33.0	33.5
Aug	5.7	7.2	8.2	9.1	12.5	18.4	25.6	27.1	34.0
Sep	7.8	12.5	14.2	15.3	19.9	23.0	23.4	23.4	23.4
Oct	1.9	3.0	3.0	3.0	3.0	4.1	9.0	12.0 E	18.2
1981									
May	2.0	2.0	2.2	2.2	2.8	5.0	6.4	6.4	6.8
Jun	6.1	9.9	11.0	14.7	20.6	22.1	31.9	37.2	38.6
Jul	8.7	9.7	17.2	18.0	22.1	23.1	38.3	38.5	38.5
Aug	4.6	5.1	5.2	5.2	5.2	5.2	9.9	10.6	17.5
Sep	6.6	8.1	9.2	17.1	27.5	42.4	66.1	69.8	83.4
Oct	1.0	1.3	1.9	2.5	3.3	4.0	7.7	11.5	12.9
Period 1969-81	18.8 Aug. 1972	31.5 Aug. 1972	36.4 Aug. 1972	42.4 Aug. 1972	55.1 July 1972	61.2 July 1972	66.1 Sep. 1981	69.8 Sep. 1981	83.4 Sep. 1981

Notes: 1. Values were recorded using an MSC tipping bucket rain gauge at station 1.

2. Only monthly maximum rainfall amounts for indicated durations have been reported. Similar data for all rainfall events are available on request.

3. * fallen tree severed power line. Recording rain gauge B (weekly) was used for rate of fall for storm of July 6, 1973.

4. E = Estimated; M = Missing period of record due to instrument calibration (metric change over), or mechanical malfunction.

Table 13. Summary of the greatest annual rainfall events recorded at the Experimental Lakes Area, 1969-1981.

Year	Date	Rainfall (mm)	Storm Duration (hours)	Average Intensity (mm/hr)
1969	August 29	39.1	7	5.6
1970	September 7	56.6	18	3.1
1971	September 30	54.1	11	4.9
1972	July 10	61.2	3	20.4
1973	August 31 to September 2	64.3	33	2.0
1974	August 14	48.5	10	4.8
1975	June 20 to 22	84.8	63	1.3
1976	August 10	48.8	13	3.8
1977	September 9	38.4	17	2.3
1978	September 13 to 14	41.0	38	1.1
1979	October 30 to 31	65.4	49	1.3
1980	July 16	33.0	8	4.1
1981	September 6	83.6	24	3.5

Note: 1. All data were measured at the meteorological station (1).
2. Average intensities (rainfall/duration) were included here to aid in comparison of major events.

Table 14. Number of days each year which had more than 25 millimetres of rainfall during the period 1969-1981.

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Total	Mean
C.D.	4	6	4	4	5	4	5	2	2	1	2	2	5	46	3.5
P.D.	6	5	3	5	6	3	3	2	1	1	3	2	6	46	3.5

Notes: 1. Period of record began June 27, 1969.
2. C.D. indicates "calendar day" from 0:00 hr to 24:00 hr .
3. P.D. indicates "precipitation day" from 08:00 hr to 08:00 hr .

APPENDIX 2

SNOW SURVEY SUMMARY

This data section presents a summary of all snow survey results collected in the Experimental Lakes Area during the 1979, 1980 and 1981 period. Snow surveys were generally conducted in late February and late March each year to define the peak snow pack condition before ripening, and to provide an estimate of water available for spring runoff. As the winter progresses, the snow pack settles and ages. This aging process from a fine to a coarse crystaline state is known as ripening (Bruce and Clark 1966). The density of fresh fallen snow usually ranges from 0.07 to 0.15 with an average of 0.10. Densitites of ripe snow packs generally range between 0.3 and 0.6. Snow density is the ratio of the water equivalent of the snow pack to the depth of the snow pack (cm/cm). The water equivalent of the snow pack is the depth of water that would result from melting, and is dependent on the depth and the density. Additional snow data is given in Appendix 1 in the form of daily snow water equivalents measured with a shielded Nipher snow gauge at the meteorological site (Station 1). Snow survey data also provides a check on the accuracy of the accumulated daily Nipher gauge measurements.

The procedures used for all surveys were similar to those recommended in the Snow Survey Sampling Guide (U.S.D.A. 1959). The equipment used was a Mount Rose snow sampler. It is an aluminum coring tube with a cutting edge having an inside diameter of 1.485 in. (3.77 cm), so that a core weighing one ounce (28.35 g) is equivalent to one inch (2.54 cm) of water. This allows the determination of snow pack water equivalents to be made gravimetrically in the field by weighing the tube before and after coring using a small portable calibrated spring balance. Usually 7 to 10 sample points were selected randomly in the general area of the snow course locations shown in Fig. 2. The snow courses used were as follows:

1) Meteorological site
2) Lake 470, in a line with measurements on west and east sides of the lake
3) Field camp, in a line along periphery of camp in non-traffic areas
4) East Subbasin, lower, along trail, near weir
6) East Subbasin, upper, vicinity of upper weir
8) NW Subbasin, lower, near trail and weir
9) Lake 303 ridge trail, along the top of the ridge between the met. site and L.303
16) NW Subbasin, upper, near rain gauge 8.

Snow courses 5, 7, 10-15, 17, and 18 were not used in 1979, 1980 and 1981.

Table 15 provides a summary of average snow depth (cm), average water equivalent (cm), and average snow density (cm of water equivalent per cm of snow depth) for each snow course for 5 snow surveys. Seventeen snow surveys carried out in the 1969 to 1978 period are reported in Beaty (1981, Part I).

Other snow data consists of depth measurements made at the meteorological site at the end of each month and after each major snowfall. Table 16 summarizes this data so that winter snow conditions can be easily compared.

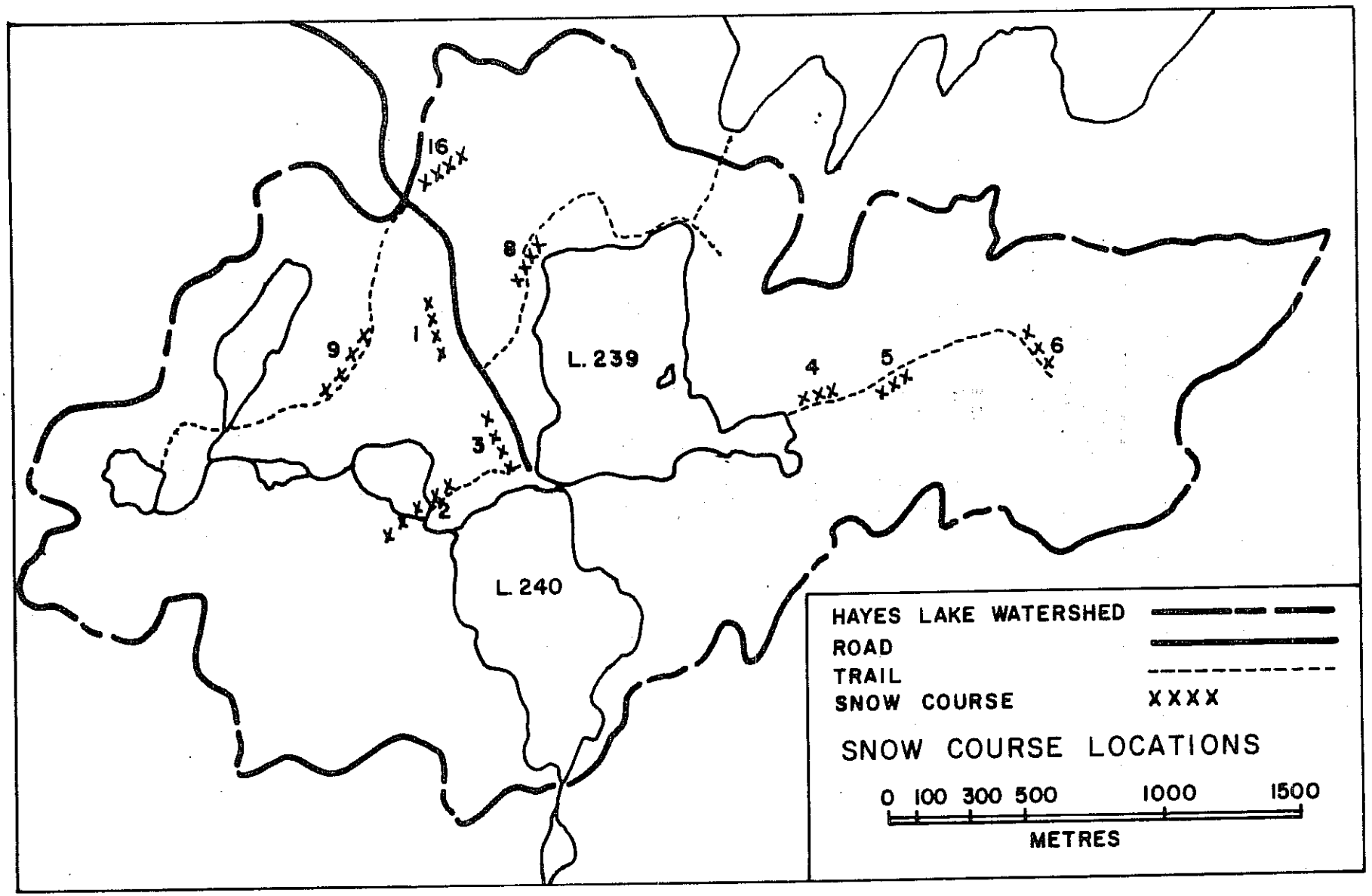

Fig. 2 Map showing locations of the snow survey courses used at the Experimental Lakes Area during the 1979 to 1981 period.

Table 15. Summary of snow survey data for the Experimental Lakes Area for the years 1979, 1980 and 1981.

Snow Course Number	Location	Average Depth (cm)	Average Water Content (cm)	Average Density (cm/cm)	Remarks
March 8, 1979					
1	Meteorological site	67.0	12.8	0.191	air temp.: -11 to -16°C
3	Field station area	67.7	12.8	0.189	excellent snow conditions
4	East Subbasin, lower, near weir	75.1	14.4	0.191	very consistent densities
8	NW Subbasin, lower, near weir	73.0	14.3	0.196	
16	NW Subbasin, upper, at rain gauge 8	66.4	11.6	0.175	
	Mean	69.8	13.8	0.188	
January 9, 1980					
4	East Subbasin, lower, near weir	44.2	7.2	0.162	air temp.: -30°C
March 5, 1980					
1	Meteorological site	62.4	13.2	0.211	air temp.: -25 to -14°C
2	Lake 470, along trail, SE corner	56.4	10.4	0.182	excellent snow conditions
3	Field station area	55.7	11.0	0.198	
4	East Subbasin, lower, near weir	65.8	13.2	0.201	
6	East Subbasin, upper, near weir	65.8	12.7	0.192	
8	NW Subbasin, lower, near weir	63.0	12.8	0.203	
16	NW Subbasin, upper, at rain gauge 8	57.7	11.0	0.191	
	Mean	61.0	12.0	0.197	
March 20, 1980					
4	East Subbasin, lower, near weir	72.7	15.7	0.216	air temp.: -5°C
February 25/26, 1981					
1	Meteorological site	19.6	5.4	0.281	air temp.: 0 to -7°C
3	Field station area	20.1	5.1	0.257	clear
4	East Subbasin, lower, near weir	23.6	6.0	0.254	cores cutting well
6	East Subbasin, upper, near weir	23.0	6.7	0.294	
8	NW Subbasin, lower, near trail & weir	25.8	6.5	0.254	
9	Lake 303 ridge trail	20.6	5.1	0.243	
16	NW Subbasin, upper, at rain gauge B	21.2	5.2	0.246	
	Mean	22.0	5.7	0.261	

Notes: 1. The depth, water content, and density values for each snow course are the average of usually 7 to 10 measurements.
2. Average depth is the point depth of snow (cm).
3. Average water content is the point depth of water equivalent (cm).
4. Average snow density is calculated by dividing water content by snow depth expressed as a decimal (cm/cm).

Table 16. Summary of depth of snow on the ground data observed at the Experimental Lakes Area meteorological station.

	DEPTH OF SNOW ON GROUND (cm) AT END OF MONTH							
Winter	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Maximum Observed
1969/70*	-	-	-	-	-	-	-	62 Mar 17/70
1970/71	0	18	33	43	48	57	8	65 Apr 3/71
1971/72	4	23	33	50	56	56	0	75 Mar 7/72
1972/73	3	13	41	36	41	P	0	46 Feb 13/73
1973/74	0	10	25	48	56	51	0	66 Feb 16/74
1974/75	1	13	23	56	61	79	0	84 Mar 29/75
1975/76	0	15	33	51	53	46	0	66 Mar 3/76
1976/77	0	7	20	34	54	20	0	55 Feb 25/77
1977/78	0	39	43	44	54	52	0	57 Mar 20/78
1978/79	0	37	40	44	53	42	0	67 Mar 8/79
1979/80	4	14	26	47	55	42	0	62 Mar 10/80
1980/81	P	12	24	28	20	0	0	36 Feb 1/81
1981/82	0	10	29	46	52	28	0	52 Mar 1/82
Mean	1	18	31	44	50	39	1	61
Std. Dev.	1.6	10.4	7.6	7.8	10.7	23.6	2.3	12.3

Notes: 1) All units are centimetres of snow.

2) All values are the mean of 7 to 10 representative measurements.

3) Measurements reported were made on or within a few days of the end of the month.

4) * No records of accumulated snow depth were kept for the winter of 1969/70. The maximum value reported (62 cm) is from the March 17 1970 snow survey which was very close to the time of peak snow pack.

5) "P" indicates that snow cover was generally patchy with continuous cover only in low lying or sheltered areas.

APPENDIX 3

SUMMARY OF DAILY AIR TEMPERATURE AT STATION 1

Air temperature data has been collected at the Rawson Lake meteorological station since June 27, 1969. The site is located 0.5 kilometres northwest of the ELA field station (Fig. 1). Maximum, minimum and present temperatures were observed twice daily at approximately 08:00 CST and 20:00 CST (17:00 in winter). The measurements were made from thermometers set in a standard, double louvered, white, wooden screen. The screen, commonly called a Stevenson Screen, is set on a wooden stand such that the thermometers are approximately 1.5 metres above ground. The ground surface is exposed bedrock and not level grass as recommended by AES standards.

The maximum temperature for a given day is the highest temperature in the 24 hour period beginning after the morning observation of that day (i.e. the highest of that evening's reading and the reading of the next morning). The minimum temperature is the lowest temperature recorded in the 24 hour period beginning after the evening observation of the previous day (i.e. the lowest of the morning value and the evening values for that day). Only the daily maximum and minimum temperature are reported here but the morning and evening values are available on request. The mean temperature for the month, also included, is the average of the daily maximum and minimum values. Monthly extreme temperatures have been included on a monthly basis.

Tables 17 to 19 summarize daily maximum and minimum air temperature for 1979, 1980 and 1981. Records for the 1969 to 1978 period are reported in Beaty (1981, Part I). Table 20 provides an historical summary of monthly and annual temperature for the 1969 to 1981 period of record.

Table 17. Summary of daily maximum and minimum air temperature in degrees Celsius for the year 1979. All values were measured at the Rawson Lake meteorological station in the Experimental Lakes Area.

DATE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Max.	-27.5	-13.5	-6.0	4.5	7.0	14.7	24.5	25.5	23.5	12.0	-0.5	-10.0
	Min.	-38.5	-23.5	-16.0	-4.5	-1.5	1.3	14.0	12.5	18.0	4.0	-1.5	-17.0
2	Max.	-21.0	-15.0	-3.5	-0.5	3.0	16.5	24.5	27.0	12.3	10.5	2.0	-0.5
	Min.	-36.5	-26.5	-9.5	-11.5	-2.0	6.0	14.0	16.5	10.5	3.5	-4.0	-16.0
3	Max.	-20.5	-19.0	-2.5	-2.0	-0.4	23.1	26.0	22.0	14.5	8.0	2.0	1.0
	Min.	-27.5	-30.5	-11.0	-13.5	-4.5	7.0	14.0	13.0	6.5	3.0	-7.5	-14.5
4	Max.	-24.5	-25.0	0.5	0	4.6	17.4	24.0	23.0	26.0	8.5	1.7	-1.5
	Min.	-34.0	-34.5	-12.5	-11.0	-4.2	8.5	14.5	12.5	11.5	0.5	-7.0	-10.5
5	Max.	-22.5	-20.5	5.5	-8.0	7.5	19.5	27.0	22.5	24.0	12.5	-1.5	-3.0
	Min.	-33.5	-30.5	-10.0	-16.0	-1.2	6.0	13.0	11.0	15.5	3.0	-4.0	-7.0
6	Max.	-17.5	-19.0	-1.5	-5.5	7.9	18.5	26.5	23.5	10.5	3.0	-1.0	-3.8
	Min.	-26.0	-22.5	-10.0	-20.5	-0.5	10.5	14.5	13.5	7.0	-1.5	-5.0	-8.5
7	Max.	-22.5	-20.0	-11.0	-2.0	6.0	20.0	23.5	23.5	14.0	8.5	-3.0	-10.0
	Min.	-29.5	-27.5	-20.5	-16.0	0.0	8.2	16.0	13.0	4.5	-1.0	-7.0	-17.0
8	Max.	-14.0	-20.0	-6.0	-3.0	4.5	16.5	24.5	22.5	17.5	6.0	-8.0	-9.0
	Min.	-24.0	-31.5	-16.5	-16.0	-2.0	6.5	16.5	9.0	7.0	1.5	-14.5	-21.0
9	Max.	-22.5	-21.0	-15.0	-0.5	6.5	15.5	32.0	23.5	17.5	3.5	-7.5	-4.5
	Min.	-33.0	-29.0	-18.5	-11.0	-3.5	7.2	17.0	14.0	9.5	0.0	-14.5	-15.5
10	Max.	-23.5	-19.5	-11.5	6.5	1.5	21.2	31.5	20.5	13.5	3.5	-7.5	-4.5
	Min.	-33.0	-29.5	-25.0	-5.5	-0.5	8.5	16.5	10.5	6.5	-2.0	-15.0	-15.0
11	Max.	-23.0	-15.5	-4.5	7.0	5.0	21.0	31.5	22.0	12.5	1.0	-6.0	-17.0
	Min.	-37.0	-21.5	-17.0	-4.0	0.0	5.5	18.0	7.0	6.5	-2.0	-11.5	-22.5
12	Max.	-20.0	-20.0	-6.5	2.0	14.0	23.5	30.0	22.0	17.0	1.0	-4.5	-10.5
	Min.	-31.0	-26.0	-14.5	-1.5	-0.5	8.0	19.5	12.5	7.5	-5.0	-11.0	-26.5
13	Max.	-21.5	-16.0	-4.5	2.5	8.5	26.0	28.0	13.0	12.0	5.0	-6.5	-10.5
	Min.	-38.0	-26.0	-10.0	-1.5	0.5	13.5	18.5	9.5	7.5	-3.0	-12.0	-21.0
14	Max.	-25.0	-17.0	-13.5	3.0	9.0	28.5	21.5	17.5	14.5	7.5	-2.0	-2.5
	Min.	-36.0	-17.5	-22.5	-0.5	-1.0	11.0	15.0	6.0	5.0	0.0	-13.0	-27.0
15	Max.	-23.5	-20.0	-4.5	5.5	13.0	24.0	15.0	20.0	21.0	12.0	-1.5	-18.0
	Min.	-36.0	-26.0	-25.0	-6.0	-2.0	13.5	9.5	7.5	7.5	1.0	-4.0	-25.0
16	Max.	-22.0	-21.0	5.8	11.0	22.0	18.0	22.0	20.5	28.0	10.0	7.5	-19.5
	Min.	-36.0	-33.5	-12.5	-2.5	1.5	9.0	9.5	11.0	11.0	6.0	-4.0	-30.5
17	Max.	-16.0	-15.0	6.0	12.5	23.5	23.0	26.0	21.0	23.5	10.0	6.0	-11.0
	Min.	-27.0	-29.0	3.0	0.5	11.5	9.5	12.0	14.0	14.0	-2.0	-3.5	-24.5
18	Max.	-10.0	-12.0	4.0	14.0	5.5	24.0	25.5	28.0	11.0	8.0	9.5	-5.5
	Min.	-24.0	-20.5	1.5	4.0	4.0	9.5	16.0	9.0	2.0	2.5	0.0	-18.5
19	Max.	-6.5	-6.0	4.5	18.5	7.5	17.0	27.0	27.5	17.5	11.5	2.5	-2.0
	Min.	-13.5	-16.5	-5.0	6.5	-0.7	12.0	14.0	14.5	2.0	4.0	1.0	-10.5
20	Max.	-7.0	-3.0	2.5	5.0	9.0	22.0	29.5	28.0	13.5	13.0	2.5	5.5
	Min.	-10.5	-12.0	-1.5	4.0	2.0	13.5	15.0	14.5	8.5	6.5	-3.0	-6.5
21	Max.	-8.0	-4.5	-0.5	12.0	14.0	11.0	31.5	27.0	14.5	5.5	2.0	0.5
	Min.	-13.5	-10.0	-3.5	-2.0	0.0	11.0	18.5	16.0	1.5	1.5	-7.5	-1.5
22	Max.	-16.0	-6.0	2.5	9.0	15.0	16.5	26.0	23.0	16.5	2.5	1.5	-1.0
	Min.	-19.0	-14.0	-1.5	0.0	6.0	4.5	15.0	17.0	2.5	1.0	-9.5	-3.0
23	Max.	-16.5	-9.5	-4.5	6.5	16.5	19.0	25.0	10.0	19.0	0.5	-2.0	-3.0
	Min.	-26.5	-14.0	-10.0	-0.5	3.0	4.5	16.5	9.0	6.0	-2.0	-9.0	-4.0
24	Max.	-16.5	-14.5	-5.5	10.0	18.5	22.0	26.5	12.5	18.5	0.5	-6.5	-7.0
	Min.	-28.0	-26.0	-15.5	1.0	3.5	6.5	14.5	8.5	8.5	-4.0	-10.0	-9.5
25	Max.	-11.5	-6.0	-7.5	8.0	20.5	26.0	23.0	18.0	19.5	1.5	-5.5	-6.0
	Min.	-22.5	-19.0	-16.0	1.0	7.5	9.0	15.5	9.0	10.0	-7.0	-8.5	-9.5
26	Max.	-8.0	0	-4.0	6.0	18.0	21.5	21.5	21.0	21.0	2.5	-2.5	-3.5
	Min.	-14.0	-10.5	-14.0	-5.0	9.0	13.5	11.5	9.0	6.0	-4.0	-7.0	-6.5
27	Max.	-9.5	2.0	-5.0	6.5	23.0	24.5	24.0	23.0	20.5	3.5	-4.5	-4.5
	Min.	-17.0	-7.5	-16.0	-4.5	8.0	12.5	11.5	11.0	9.0	-0.5	-7.5	-9.5
28	Max.	-10.5	-14.0	-5.5	9.5	25.5	23.0	28.5	19.5	8.0	7.0	-5.0	-2.0
	Min.	-14.0	-22.0	-8.0	-4.5	9.5	14.0	14.0	14.0	3.0	2.0	-9.0	-9.0
29	Max.	-11.0		-0.5	9.0	27.5	25.0	27.0	22.0	17.5	3.5	-6.5	0.0
	Min.	-16.0		-12.0	-1.0	14.0	14.0	16.5	13.0	6.0	0.5	-14.0	-9.5
30	Max.	-11.0		2.0	10.0	15.0	25.0	19.0	18.5	15.5	4.0	-13.0	-0.5
	Min.	-18.0		-4.5	-1.5	11.0	14.5	16.0	4.5	5.5	2.0	-15.5	-10.0
31	Max.	-12.5		-0.5		8.5		25.0	22.0		3.0		-9.0
	Min.	-21.5		-11.0		4.0		11.0	11.0		1.0		-15.0
Monthly Mean		-21.6	-18.4	-7.4	0.2	7.1	15.2	20.2	16.5	12.3	3.2	-4.9	-9.9
Mean Max.		-16.8	-13.9	-3.0	5.2	11.8	20.8	25.7	21.6	17.1	6.1	-1.9	-5.6
Mean Min.		-26.3	-22.8	-11.8	-4.8	2.3	9.6	14.8	11.4	7.5	0.3	-8.0	-14.2

Maximum recorded temperature 32.0°C on July 9.
Minimum recorded temperature -38.5°C on January 1.
Mean temperature for 1979 1.0°C.

Table 18. Summary of daily maximum and minimum air temperature in degrees Celsius for the year 1980. All values were measured at the Rawson Lake meteorological station in the Experimental Lakes Area.

DATE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Max.	-12.0	-12.5	-13.5	9.0	28.5	M	18.5	25.0	17.5	11.0	1.5	-17.0
	Min.	-14.0	-20.5	-30.0	-1.5	13.0	M	10.0	15.5	13.0	8.0	-6.0	-22.0
2	Max.	-12.0	-10.5	-6.5	7.5	29.0	14.0	27.5	22.5	20.5	5.5	6.0	-15.5
	Min.	-19.0	-22.5	-19.0	-4.0	11.0	M	10.5	14.0	10.0	-0.5	-1.0	-25.0
3	Max.	-14.5	-10.0	-5.5	9.0	29.5	20.0	27.0	24.5	19.5	6.0	6.0	-8.5
	Min.	-25.5	-23.0	-11.5	-2.5	14.0	7.0	14.5	12.0	14.5	-1.0	2.0	-20.5
4	Max.	-11.5	-10.0	-15.5	10.0	30.5	17.0	19.5	22.0	19.0	9.5	4.0	-1.0
	Min.	-19.5	-18.0	-27.0	-4.0	13.5	11.5	15.5	14.0	11.0	3.0	-1.0	-10.0
5	Max.	-8.0	0.0	-11.0	10.0	18.0	19.0	23.0	20.5	20.5	16.0	6.5	-1.0
	Min.	-14.5	-11.5	-27.5	-1.0	9.0	14.0	13.0	13.5	11.0	3.0	-4.0	-4.0
6	Max.	-10.0	-5.0	-8.5	14.5	6.5	23.0	23.5	24.0	24.5	15.0	6.0	-6.0
	Min.	-15.5	-10.0	-23.0	1.0	0.5	12.0	12.5	12.0	10.0	5.0	-0.5	-8.5
7	Max.	-7.5	-5.0	-9.5	5.5	5.5	13.0	24.5	26.0	29.0	23.5	-1.5	-8.0
	Min.	-22.0	-11.0	-24.5	0.5	-1.0	6.5	16.5	16.0	14.5	6.5	-4.5	-12.0
8	Max.	-24.5	-8.5	-4.5	4.5	8.5	20.0	26.0	20.5	22.0	11.0	-2.0	-12.0
	Min.	-29.0	-19.5	-19.0	-3.5	0.0	7.0	14.5	14.0	13.5	6.0	-7.0	-21.0
9	Max.	-20.0	-6.0	-5.0	0.5	13.5	18.0	31.0	22.5	16.0	14.5	-5.0	-17.0
	Min.	-33.5	-16.5	-18.5	-6.5	3.0	9.0	18.0	12.5	8.0	-0.5	-9.5	-24.0
10	Max.	-9.5	-6.0	-11.0	0.0	8.5	21.0	31.5	23.5	23.5	5.5	-4.0	-22.0
	Min.	-28.5	-10.5	-21.5	-4.5	3.0	4.0	18.5	15.0	7.5	3.0	-15.0	-28.0
11	Max.	-19.5	-7.5	-12.5	0.0	6.5	28.0	26.0	24.0	18.0	2.0	-2.0	-12.5
	Min.	-22.5	-14.0	-27.0	-6.0	1.0	9.5	17.0	14.0	10.0	-1.0	-10.0	-30.0
12	Max.	-5.0	-10.0	-7.5	-0.5	11.0	24.5	29.0	23.0	13.0	5.0	1.0	-9.0
	Min.	-32.0	-20.0	-17.5	-6.5	0.0	16.5	17.0	14.5	9.5	0.0	-3.0	-19.0
13	Max.	1.0	-9.0	-4.5	7.0	9.0	22.5	31.5	21.0	16.0	5.0	-1.0	-13.5
	Min.	-16.0	-20.0	-9.0	-7.5	1.5	13.0	17.0	14.5	9.0	-2.5	-2.5	-26.0
14	Max.	-5.0	-10.0	-6.5	8.5	10.5	15.5	29.5	22.5	17.0	6.5	0.0	-14.5
	Min.	-22.5	-18.5	-19.0	-5.5	3.5	8.0	19.5	13.0	6.0	0.0	-6.0	-25.0
15	Max.	-1.5	-13.5	0.0	5.0	18.0	18.5	25.0	21.5	13.5	8.5	-2.0	-9.0
	Min.	-10.0	-21.0	-11.5	-4.0	1.5	4.5	16.5	11.5	9.0	-0.5	-7.5	-19.0
16	Max.	-5.0	-13.0	-1.0	14.0	22.0	23.0	23.0	20.0	9.0	7.5	-2.0	0.0
	Min.	-7.0	-24.0	-5.0	-3.0	6.0	8.0	16.0	12.0	4.0	3.5	-4.0	-20.5
17	Max.	-8.0	-6.0	-5.5	16.5	24.0	17.5	26.5	15.5	6.0	7.5	-3.5	0.5
	Min.	-9.5	-24.0	-16.0	4.5	8.0	13.0	15.5	12.5	1.5	0.0	-9.0	-14.0
18	Max.	-9.0	-3.0	-1.5	23.0	23.0	19.5	22.5	24.0	8.5	2.0	1.0	-24.0
	Min.	-11.0	-17.0	-20.5	5.0	13.0	7.0	14.0	13.5	2.5	-3.0	-8.0	-26.0
19	Max.	-9.0	-6.5	5.0	17.5	25.5	23.0	23.5	30.0	3.5	2.5	5.5	-23.0
	Min.	-14.0	-15.0	-5.5	8.0	7.5	8.5	13.0	20.0	1.0	0.0	-4.0	-28.0
20	Max.	-8.0	-6.5	-1.5	23.0	28.5	M	25.0	23.0	7.5	3.0	1.0	-18.5
	Min.	-19.0	-10.5	-8.0	7.0	13.0	10.5	15.5	19.0	1.0	-1.5	-2.0	-29.0
21	Max.	-4.5	-8.5	-4.0	29.5	29.5	M	18.5	21.5	15.0	4.5	3.0	-18.0
	Min.	-16.0	-19.0	-16.5	9.0	18.5	M	13.5	15.0	4.0	-1.5	-7.0	-28.5
22	Max.	-16.0	-6.5	-3.0	16.5	32.0	M	23.0	23.0	9.0	2.5	4.5	-13.0
	Min.	-22.0	-11.0	-15.5	5.0	18.0	M	13.0	13.0	5.5	-2.5	1.0	-21.0
23	Max.	-17.5	-8.0	1.5	10.5	30.0	M	29.0	21.5	9.5	1.0	-5.0	-17.0
	Min.	-31.0	-15.0	-13.5	1.0	17.0	M	15.5	13.5	-0.5	-1.0	-8.0	-22.5
24	Max.	-13.5	-11.0	2.5	14.5	†	29.5	27.0	25.0	10.5	0.5	-3.5	-23.5
	Min.	-21.5	-19.5	-11.0	-2.5		18.5	15.5	15.0	4.0	-1.5	-13.5	-32.5
25	Max.	-20.0	-15.5	4.5	18.5	31.5	28.0	21.0	27.0	6.0	-1.5	-3.5	-18.5
	Min.	-28.0	-28.5	-9.0	2.5	11.5	17.0	11.0	16.0	1.0	-3.0	-6.5	-30.0
26	Max.	-17.5	-8.5	5.0	19.5	†	18.0	22.5	19.5	12.0	1.5	-2.0	-10.5
	Min.	-25.0	-23.0	-5.0	4.5		9.0	13.0	8.5	-1.0	-3.0	-7.5	-27.0
27	Max.	-15.5	-13.0	3.0	22.0		20.0	26.0	16.0	11.0	0.0	-1.0	1.5
	Min.	-21.0	-23.5	-0.5	6.5		10.5	14.0	10.0	2.0	-4.0	-4.5	-21.0
28	Max.	-17.5	-22.5	4.5	23.0	31.5	16.0	22.0	20.0	17.5	1.0	-3.0	-6.5
	Min.	-25.5	-27.5	-6.5	7.0	14.0	8.5	14.0	11.5	5.0	-8.0	-4.0	-11.0
29	Max.	-16.5	-15.5	8.0	23.5	M	16.0	26.5	19.0	18.0	5.5	0.0	-7.5
	Min.	-30.0	-30.5	-4.5	7.5	M	12.0	14.0	16.0	11.0	-8.0	-4.5	-18.0
30	Max.	-15.0		9.5	25.5	M	22.5	25.5	16.0	20.0	8.0	0.0	-4.5
	Min.	-26.5		-3.0	10.0	M	10.5	17.5	13.0	5.5	1.5	-6.0	-13.5
31	Max.	-15.0		11.0		M		27.5	19.5		1.5		-5.0
	Min.	-28.0		-1.5		M		15.5	8.5		0.0		-7.5
Monthly Mean		-16.3	-14.0	-9.1	6.8	14.2	15.2	20.0	17.8	11.0	3.0	-2.6	-16.1
Mean Max.		-11.4	-9.2	-2.7	12.9	20.4	20.3	25.2	22.0	15.1	6.2	0.2	-11.4
Mean Min.		-21.2	-18.8	-15.4	0.6	8.0	10.2	14.9	13.7	6.8	-0.1	-5.4	-20.8

Maximum recorded temperature 32.0°C on May 22.
Minimum recorded temperature -33.5°C on January 9.
Mean temperature for 1980 2.5°C.

† indicates period temperatures apply to if for more than one day.
M missing data due to forest fire evacuation.

Table 19. Summary of daily maximum and minimum air temperature in degrees Celsius for the year 1981. All values were measured at the Rawson Lake meteorological station in the Experimental Lakes Area.

DATE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Max.	-14.5	-18.0	-4.5	2.5	14.5	16.0	26.5	23.5	15.0	5.0	15.0	-1.0
	Min.	-20.0	-23.5	-9.5	-0.5	0.5	8.0	15.0	13.0	9.0	0.0	0.0	-2.0
2	Max.	-22.0	-20.5	-6.0	12.5	14.0	19.0	27.5	22.5	21.5	10.0	11.0	-2.0
	Min.	-29.5	-30.5	-16.0	-3.0	7.5	11.5	17.0	14.0	7.0	-2.0	1.0	-3.5
3	Max.	-25.0	-17.5	-6.0	2.0	20.5	27.0	25.5	25.0	16.0	12.5	15.5	0.0
	Min.	-33.5	-28.0	-16.0	-1.0	7.0	11.0	16.5	15.0	10.5	4.0	4.0	-7.0
4	Max.	-22.5	-10.0	-3.0	3.0	12.0	27.0	28.5	28.0	16.5	7.5	14.0	-3.0
	Min.	-33.0	-26.5	-14.5	-5.5	2.0	12.0	17.0	16.5	6.5	6.0	6.0	-5.0
5	Max.	-10.0	-8.0	-8.0	7.5	12.0	22.0	31.0	26.0	21.0	8.5	3.5	-4.0
	Min.	-23.0	-22.0	-12.0	-8.0	-0.5	12.0	17.5	17.5	7.0	7.0	2.0	-8.5
6	Max.	-18.0	-10.0	-3.5	12.0	15.5	22.0	34.0	22.0	17.5	11.5	7.0	-3.5
	Min.	-21.5	-15.5	-16.0	-3.0	1.5	12.5	19.5	16.0	12.5	3.0	-3.5	-5.5
7	Max.	-19.0	-10.0	0.5	10.5	19.5	24.0	33.0	25.5	18.5	12.5	12.5	-5.0
	Min.	-30.0	-14.5	-9.5	3.0	5.5	14.0	22.5	16.0	12.0	1.5	0.5	-6.0
8	Max.	-15.0	-15.0	-0.5	10.0	16.1	17.5	27.0	23.0	22.0	10.0	-1.0	-8.0
	Min.	-26.0	-23.5	-10.0	-2.0	0.5	12.0	20.5	15.0	9.0	7.5	-4.5	-11.0
9	Max.	-20.5	-20.5	0.0	13.0	5.0	19.5	28.5	19.0	26.5	11.0	4.0	-8.0
	Min.	-27.5	-25.0	-3.5	0.0	-6.5	9.0	14.5	14.0	11.5	7.5	-8.0	-16.0
10	Max.	-14.5	-23.5	2.0	14.5	11.0	15.0	28.5	23.0	24.0	9.0	1.5	-6.0
	Min.	-27.5	-34.0	-6.5	4.5	-2.5	8.5	21.0	12.5	13.5	6.0	-1.5	-15.5
11	Max.	-10.5	-23.5	10.0	1.5	15.0	20.5	27.5	27.0	22.0	14.0	4.5	-2.5
	Min.	-26.0	-35.5	-9.0	-3.5	3.0	9.0	17.0	15.0	14.5	6.0	-2.0	-11.5
12	Max.	-6.5	-18.0	2.0	10.0	18.0	23.0	30.5	26.0	25.0	13.0	12.5	-2.0
	Min.	-12.5	-34.5	-1.5	-4.0	5.5	9.0	19.0	21.0	13.0	6.0	1.0	-7.0
13	Max.	-8.0	-6.0	0.0	3.0	20.5	18.0	29.5	27.0	20.5	11.0	10.5	-8.5
	Min.	-9.5	-25.5	-11.5	-2.0	7.0	15.0	23.5	15.0	12.0	7.0	6.5	-12.5
14	Max.	-13.0	-0.5	9.0	4.0	22.0	18.0	26.5	24.0	17.5	7.0	10.0	-12.5
	Min.	-18.5	-16.0	-5.5	-11.5	9.5	15.0	20.0	17.0	9.5	5.5	6.0	-15.5
15	Max.	-14.5	7.0	-1.0	17.0	17.5	19.5	24.0	14.5	10.5	10.0	7.0	-13.0
	Min.	-20.0	-4.0	-5.0	-6.0	7.5	13.0	13.0	11.0	6.0	4.5	2.5	-19.5
16	Max.	-10.5	7.5	7.0	20.0	13.0	20.7	23.5	20.5	12.0	16.0	3.5	-13.0
	Min.	-19.5	-5.0	-6.5	5.5	0.0	5.0	11.0	10.0	5.0	4.0	2.5	-20.5
17	Max.	1.0	6.5	-2.0	7.5	17.0	22.0	24.5	24.0	14.5	9.5	2.0	-14.0
	Min.	-15.0	-2.5	-15.5	-1.5	3.0	12.0	14.5	11.5	7.5	6.0	-0.5	-19.0
18	Max.	1.0	1.0	-3.5	12.0	20.0	14.5	27.5	26.0	21.5	2.0	-2.0	-16.5
	Min.	-12.5	-1.5	-10.5	-5.5	4.5	6.5	16.0	15.5	9.5	-2.0	-5.0	-19.5
19	Max.	-5.5	2.0	-3.0	1.5	25.5	20.0	27.5	25.0	15.5	9.5	-2.0	-12.0
	Min.	-10.0	0.0	-10.0	-5.0	8.0	6.5	17.0	15.0	8.0	-4.0	-7.0	-21.0
20	Max.	-5.5	5.5	-0.5	6.5	25.5	20.0	17.0	25.5	13.5	-2.0	-5.5	-4.5
	Min.	-15.5	-1.5	-9.5	-6.5	13.0	10.0	14.0	14.5	7.0	-5.0	-8.5	-17.5
21	Max.	1.5	3.0	4.5	5.5	26.5	18.0	22.0	26.5	13.5	-2.0	-4.5	-1.5
	Min.	-11.5	1.0	-9.5	1.0	12.0	9.0	11.5	17.0	5.5	-8.0	-11.0	-9.0
22	Max.	1.5	1.5	2.0	5.0	21.0	20.5	23.0	24.0	15.5	-2.5	0.0	-5.5
	Min.	-7.5	-2.5	-6.0	1.0	12.5	9.0	12.0	16.5	4.5	-6.0	-10.0	-9.0
23	Max.	4.0	3.5	3.0	3.0	18.5	20.0	23.0	25.5	10.0	-3.0	-2.0	-12.0
	Min.	-8.0	-4.0	-10.5	0.5	12.0	8.5	14.5	22.0	8.0	-8.0	-5.5	-14.5
24	Max.	5.5	-2.5	9.5	3.5	11.0	17.0	23.0	23.5	17.5	-1.5	-1.5	-13.0
	Min.	-2.0	-4.0	-4.0	-0.5	7.5	12.0	16.0	19.0	8.5	-6.0	-4.0	-22.0
25	Max.	2.5	-1.0	8.0	8.0	12.0	19.5	18.0	24.0	19.0	-2.5	-1.5	-14.0
	Min.	-4.0	-11.0	2.5	-2.0	6.8	10.0	9.5	14.5	8.0	-10.0	-3.0	-21.0
26	Max.	-12.0	2.5	9.0	16.5	19.0	22.0	19.5	26.5	14.0	-4.0	-0.5	-10.5
	Min.	-16.0	-10.0	-0.5	2.5	5.0	11.5	8.5	15.0	8.5	-10.0	-3.0	-21.5
27	Max.	-14.0	-1.0	10.0	14.5	21.5	20.5	24.0	25.5	6.0	0.5	-3.5	-9.0
	Min.	-21.5	-8.0	-1.5	3.0	6.0	13.5	11.5	14.0	1.0	-2.0	-4.5	-18.5
28	Max.	-13.0	-2.0	5.0	16.0	21.5	23.0	24.5	25.0	4.5	6.0	-3.5	-20.0
	Min.	-17.5	-9.5	2.0	3.5	11.0	15.5	19.0	13.0	-0.5	-3.0	-6.0	-27.0
29	Max.	-10.5		6.0	15.0	20.0	22.0	24.5	24.5	9.0	12.0	-2.5	-19.5
	Min.	-22.0		0.0	2.5	6.5	12.5	14.0	13.0	1.5	2.0	-6.5	-28.5
30	Max.	-5.5		8.0	12.5	13.0	23.0	25.0	27.0	3.5	12.0	0.0	-22.5
	Min.	-22.0		-0.5	2.0	2.0	12.0	18.0	15.0	1.0	6.0	-3.0	-30.5
31	Max.	-5.0		3.5		19.5		27.0	20.0		6.0		-22.5
	Min.	-9.5		0.0		M		17.0	17.5		3.5		-28.0
Monthly Mean		-14.0	-10.4	-3.4	4.0	11.2	15.4	20.9	19.7	12.0	3.8	0.6	-12.2
Mean Max.		-9.6	-6.0	1.8	9.4	17.3	20.4	25.8	24.2	16.1	6.7	3.5	-9.3
Mean Min.		-18.4	-14.9	-8.6	-1.4	5.2	10.4	16.0	15.2	7.9	0.9	-2.2	-15.2

Maximum recorded temperature 34.0°C on July 6
Minimum recorded temperature -35.5°C on February 11.
Mean temperature for 1981 4.0°C.

M missing data

Table 20. Summary of monthly mean maximum, mean minimum, mean, and extremes for air temperature observed at ELA from 1969 to 1981.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Mean Annual	Extremes
1969	$\bar{x}$ Max	-	-	-	-	-	-	23.4	25.0	16.7	+4.8	+0.3	-6.8		-
	$\bar{x}$ Min	-	-	-	-	-	-	13.0	14.6	8.9	-0.6	-7.5	-13.0		-
	$\bar{x}$	-	-	-	-	-	-	18.2	19.8	12.8	2.1	-3.6	-9.9	-	
1970	$\bar{x}$ Max	-14.2	-10.6	-1.9	5.2	12.9	23.6	25.4	23.6	16.6	8.4	-1.5	-10.7		Max 33.5 on Aug 03
	$\bar{x}$ Min	-21.7	-21.9	-14.9	-3.8	2.2	12.0	15.4	12.8	7.4	1.9	-7.6	-19.4		Min -38.0 on Jan 17
	$\bar{x}$	-18.0	-16.2	-8.4	0.7	7.6	17.8	20.4	18.2	12.0	5.2	-4.6	-15.0	+1.6	
1971	$\bar{x}$ Max	-17.1	-7.1	-0.6	7.9	15.3	22.4	21.3	22.5	17.4	10.0	-1.9	-9.8		Max 30.0 on Aug 09
	$\bar{x}$ Min	-25.0	-17.5	-11.4	-2.4	2.8	12.4	11.8	12.2	8.7	3.6	-6.6	-17.9		Min -36.0 on Jan 12
	$\bar{x}$	-21.0	-12.3	-6.0	2.8	9.0	17.4	16.6	17.4	13.0	6.8	-4.2	-13.8	+2.1	
1972	$\bar{x}$ Max	-16.6	-12.4	-3.2	7.1	20.4	22.7	22.4	23.2	14.3	6.5	-2.2	-13.6		Max 31.0 on May 18
	$\bar{x}$ Min	-27.0	-22.7	-12.3	-3.4	7.7	11.2	11.9	12.7	5.2	-0.8	-8.8	-22.3		Min -41.0 on Jan 15
	$\bar{x}$	-21.8	-17.6	-7.8	1.8	14.0	17.0	17.2	18.0	9.8	2.8	-5.5	-18.0	+0.8	
1973	$\bar{x}$ Max	-8.0	-7.6	4.7	7.3	16.0	20.3	23.2	24.5	15.8	11.1	-2.7	-11.4		Max 30.5 on Aug 28
	$\bar{x}$ Min	-18.1	-19.4	-7.4	-3.4	4.2	10.0	12.9	14.3	6.4	4.2	-8.2	-18.7		Min -35.5 on Jan 08
	$\bar{x}$	-13.0	-13.5	-1.4	2.0	10.1	15.2	18.0	19.4	11.1	7.6	-5.4	-15.0	+2.9	
1974	$\bar{x}$ Max	-15.7	-7.9	-3.9	7.0	12.8	21.6	26.6	19.8	13.0	8.9	-0.3	-5.3		Max 32.8 on Jul 07
	$\bar{x}$ Min	-24.8	-20.4	-14.7	-3.3	2.5	10.0	15.7	11.4	4.0	1.4	-5.9	-12.7		Min -40.5 on Jan 01
	$\bar{x}$	-20.2	-14.2	-9.3	1.8	7.6	15.8	21.2	15.6	8.5	5.2	-3.1	-9.0	+1.6	
1975	$\bar{x}$ Max	-11.2	-9.3	-4.4	5.8	18.2	21.2	17.0	21.3	14.3	10.0	1.5	-9.8		Max 35.5 on Jul 30
	$\bar{x}$ Min	-19.4	-19.4	-14.6	-4.4	6.3	11.3	15.9	11.8	5.5	2.2	-5.4	-18.9		Min -35.5 on Feb 09
	$\bar{x}$	-15.3	-14.4	-9.5	0.7	12.2	16.2	21.4	16.6	9.9	6.1	-2.0	-14.4	+2.3	
1976	$\bar{x}$ Max	-13.4	-5.3	-2.4	10.7	17.2	23.2	25.8	24.4	17.4	5.9	-3.8	-15.0		Max 34.5 on Sep 07
	$\bar{x}$ Min	-22.2	-15.6	-14.0	-0.8	4.5	12.9	13.9	12.9	6.5	-1.0	-10.9	-24.9		Min -35.5 on Jan 07
	$\bar{x}$	-17.8	-10.4	-8.2	5.0	10.8	18.0	19.8	18.6	12.0	2.4	-7.4	-20.0	+1.9	
1977	$\bar{x}$ Max	-16.0	-7.4	2.5	11.2	21.7	20.0	24.2	18.9	14.9	10.9	-2.2	-12.3		Max 32.0 on Jul 18
	$\bar{x}$ Min	-24.9	-16.4	-7.0	-0.8	10.3	10.9	13.3	9.1	7.1	1.5	-7.5	-19.7		Min -38.0 on Jan 16
	$\bar{x}$	-20.4	-11.9	-2.2	5.2	16.0	15.4	18.8	14.0	11.0	6.2	-4.8	-16.0	+2.6	
1978	$\bar{x}$ Max	-15.4	-9.5	-1.0	7.4	18.5	20.4	22.7	21.1	16.9	9.8	-3.3	-12.7		Max 32.0 on Aug 12
	$\bar{x}$ Min	-23.9	-19.8	-12.3	-3.4	7.0	9.1	13.3	12.9	9.3	2.4	-9.6	-21.7		Min -34.5 on Feb 02
	$\bar{x}$	-19.6	-14.6	-6.6	2.0	12.8	14.8	18.0	17.0	13.1	6.1	-6.4	-17.2	+1.6	
1979	$\bar{x}$ Max	-16.8	-13.9	-3.0	5.2	11.8	20.8	25.7	21.6	17.1	6.1	-1.9	-5.6		Max 32.0 on Jul 09
	$\bar{x}$ Min	-26.3	-22.8	-11.8	-4.8	2.3	9.6	14.8	11.4	7.5	0.3	-8.0	-14.2		Min -38.5 on Jan 01
	$\bar{x}$	-21.6	-18.4	-7.4	0.2	7.1	15.2	20.2	16.5	12.3	3.2	-4.9	-9.9	+1.0	
1980	$\bar{x}$ Max	-11.4	-9.2	-2.7	12.9	20.4	20.3	25.2	22.0	15.1	6.2	0.2	-11.4		Max 32.0 on May 22
	$\bar{x}$ Min	-21.2	-18.8	-15.4	0.6	8.0	10.2	14.9	13.7	6.8	-0.1	-5.4	-20.4		Min -33.5 on Jan 09
	$\bar{x}$	-16.3	-14.0	-9.1	6.8	14.2	15.2	20.0	17.8	11.0	3.0	-2.6	-16.1	+2.5	
1981	$\bar{x}$ Max	-9.6	-6.0	1.8	9.4	17.3	20.4	25.8	24.2	16.1	6.7	3.5	-9.3		Max 34.0 on Jul 06
	$\bar{x}$ Min	-18.4	-14.9	-8.6	-1.4	5.2	10.4	16.0	15.2	7.9	0.9	-2.2	-15.2		Min -35.5 on Feb 11
	$\bar{x}$	-14.0	-10.4	-3.4	4.0	11.2	15.4	20.9	19.7	12.0	3.8	0.6	-12.2	+4.0	
Mean Monthly		-18.2	-14.0	-6.6	2.8	11.0	16.1	19.3	17.6	11.4	4.6	-4.1	-14.3	+2.1	Max 35.5 Jul 30,1975 Min -41.0 Jan 15,1972
Std. Dev.		3.0	2.5	2.8	2.1	2.9	1.1	1.6	1.7	1.4	1.8	2.1	3.3		

All temperatures are °C.
All values are based on readings taken twice daily (morning and evening).

APPENDIX 4

SUMMARY OF WIND DATA

The wind reported in this section was measured at the meteorological site at Station 1 (Fig. 1). The site is located 366 metres west of Rawson Lake and 32 m above lake level. The height for exposure of wind instruments established by international agreement is 10 m. The Rawson Lake anemometer is exposed at a height of 12.2 m. The site is fairly well exposed on a large hill and bedrock outcrop. The clearing is approximately 122 m by 61 m. The trees nearest the wind tower are in a small clump 23 m to the east. The anemometer head is 6 m higher than the tallest of these trees. The next closest trees of significance are 61 m west of the tower. A bedrock ridge running almost north-south lies 200 m west of the tower. Its highest point is approximately 3 m higher than the anemometer head.

An AES type 45B anemometer and anemograph are used at ELA. The anemometer consists of a set of 3 conical cups mounted with a directional vane, and is wired to the anemograph recorder where a daily chart provides a record of each mile of wind and its direction. Wind speed is summarized for each hour along with the prevailing direction during the hour. Direction is reported to the 8 points of the compass, and is the direction from which the wind is blowing with respect to true north rather than magnetic north. The wind is seldom steady and usually fluctuates in velocity over a given period of time. The 45B anemometer simultaneously records each mile of wind and its direction on completion, and therefore does not record gusts.

A problem of directional bias for the non-cardinal (NE, NW, SE, SW) wind directions is inherent in the MSC Type 45B wind equipment. Koren (1971) has evaluated the problem and suggested that this bias is due to the relatively long lag time interval during which the wind direction is sampled. Users are cautioned that the directions presented here should be used in a general manner only and not be interpreted as being exact.

Data presented in this report are mean daily wind velocity in miles per hour and prevailing direction for each day. These daily velocities are based on the sum of the hourly values for that day divided by the number of hours. The daily prevailing direction is determined from the hourly prevailing directions for that day. Monthly mean hourly velocities are also included. Hourly values are available, but have not been included in this report. Frequency in hours for each direction, prevailing directions, and maximum recorded hourly speeds (not gusts) are reported monthly by Atmospheric Environment Service (AES). All data are abstracted on site on a monthly basis and the chart originals are filed with AES (Toronto).

Table 24 provides an historical summary of monthly and annual means for the entire period of record (1969-1981) in kilometres per hour.

It should be noted that the wind reported here is monitored from a land based station as described above. The wind velocities may be unlike those which occur over ELA lakes. Solinske (1982) addressed this problem as being the result of variability in fetch, atmospheric stability and topographic roughness.

Table 21. Daily abstract of wind in miles per hour for 1979 from the Rawson Lake meteorological station in the Experimental Lakes Area.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	SW 3.5	SW 5.3	S 5.8	S 5.0	S 6.2	SW 5.0	E 6.7	M	SW 6.4	NE 5.6	NW 9.0	SW 4.0
2	NW 4.7	SW 3.7	N 3.7	N 6.4	NW 8.0	NW 7.2	SE 5.0	M	NE 6.4	S 6.6	NW 7.6	SW12.8
3	NW 7.0	S 3.9	N 6.1	W 5.8	NW 6.6	SW 6.4	SE 5.1	M	SW 3.2	NW 8.3	NW 3.3	NW 9.9
4	SW 6.2	NW 5.0	N 4.8	SW 8.6	NW 3.9	N 7.5	E 4.9	M	SE 5.7	SW 7.2	SW 3.2	SW 5.5
5	SW 8.0	S 6.1	SW 4.0	W 9.4	S 1.7	S 6.9	SW 3.6	M	SW 7.4	NW 9.3	NW 4.4	NW 6.5
6	NW 5.4	N 8.7	N 7.4	W 4.8	S 9.3	SW 8.7	SW 5.3	M	NW 7.7	SW 4.3	SW 5.8	SW 5.6
7	SW 5.0	N 8.2	N 6.9	S 7.8	S 5.6	SW 4.5	SW 4.7	M	NE 3.5	NE 3.6	NW 6.5	NW 7.4
8	SW 6.5	SW 5.2	S 7.8	N 5.4	SW 7.5	M	SW 4.6	M	SW 7.2	NW 5.3	NW 4.4	SW 4.3
9	NW 5.0	N 5.8	NW 7.2	E 3.4	N 6.6	M	SW 4.3	M	NE 6.0	NW 6.4	NW 3.5	S 2.8
10	SW 4.4	S 5.0	NW 7.5	SE 4.8	N10.0	M	M	M	NE 9.1	SW 5.7	SW 3.5	NE 8.0
11	S 3.5	NW 4.7	NW 5.8	SE 8.5	NW 8.1	M	SW 5.7	M	SW 6.2	NE 8.3	SW 5.3	NE 6.7
12	N 2.6	- 4.4	S 5.0	-11.3	SW 7.9	M	SW 5.0	M	SW 5.5	NW 9.6	SW 7.2	SE 7.2
13	NW 3.1	- 5.4	N 9.2	S 5.2	NW 6.2	M	SW 3.9	M	NW 6.0	NW 4.0	NE 4.2	S 8.0
14	SW 4.4	- 5.7	NW 8.4	S 4.2	NW 6.7	- 5.1	SW 8.7	M	SW 6.3	SW 4.7	SW 5.3	SW 7.1
15	SW 4.0	- 7.9	SW 7.2	NW 4.7	N 4.3	- 8.1	NW 5.8	M	NW 4.1	SE 4.7	NE 4.8	NW 8.1
16	W 3.2	- 4.3	S 6.9	NW 4.5	SW10.1	- 5.3	SW 3.7	SW 8.3	SW 9.0	NW 6.4	SW 8.3	SW 7.2
17	N 2.8	S 6.8	S 8.8	N 5.6	SW 9.4	- 4.4	M	SW 4.9	NW 8.6	SW 3.8	S 3.8	SW 3.1
18	S 7.5	SW 8.4	S 5.0	S10.0	SW 8.5	S 8.9	M	NW 4.2	NW 6.8	S 6.6	S 5.1	SE 6.1
19	S 4.5	SW 6.0	E 6.3	SW 9.1	N 5.6	S 7.8	M	NE 4.3	SW 6.6	SE 3.8	NW 5.7	SW 5.6
20	N 1.8	S 2.8	SW 4.4	NW 5.6	N 5.6	SE 7.2	M	SE 6.3	NW 7.0	SW 9.4	NW 5.4	SW 9.1
21	NW 4.8	N 5.9	SW 7.0	SW 5.4	S 4.4	NE 9.6	M	SE 7.3	NW 5.5	NW 7.3	N 3.1	S 3.3
22	N 5.2	S12.2	SW 4.8	N 4.0	N 4.0	NE 6.7	SE 6.9	N 3.9	SW 3.7	NE 7.9	NE 3.0	E 2.1
23	N 2.9	N 9.3	N10.4	N 4.0	N 4.8	E 3.8	M	NE 8.8	SE 5.7	NE 7.1	NE 5.5	NE 2.2
24	E 1.9	E 3.5	N 9.0	S 6.0	S 3.5	- 6.4	M	NW 4.0	SW 6.5	NE 6.2	SW 4.3	- 5.1
25	S 3.7	SW 7.2	NE 9.2	NW 6.2	SW 7.3	- 7.9	M	NW 4.1	W 6.3	S 2.6	SW 4.8	- 4.3
26	N 2.3	SW 7.3	N 5.2	NW 5.1	S 5.9	- 7.9	M	SW 3.9	SW 6.9	SE 7.4	NE 5.2	- 3.2
27	N 6.9	SW 6.3	SW 3.8	N 5.1	N 6.4	- 3.9	M	SW 4.2	SW 8.0	NW 2.6	NW 5.4	- 3.7
28	N 7.8	NE11.0	N 7.0	S 3.0	N 3.6	- 4.3	M	SW 5.1	NE 5.7	SE 3.2	NW11.5	SW 3.4
29	N 4.3		S 5.4	SE 5.0	S 7.4	- 4.6	M	N 5.7	W 9.6	SE 4.5	NW 7.7	SW 3.1
30	N 3.2		N 6.9	SW 4.3	S 6.7	E 6.3	M	SE 3.1	SW 5.3	NE 5.9	NE 6.6	SW 3.3
31	N 2.5		N 3.9		NW 5.5		M	SE 6.2		NE10.7		SW 1.3
Mean	4.5	6.3	6.5	5.9	6.4	(6.4)	---	---	6.4	6.1	5.4	5.5

Table 22. Daily abstract of wind in miles per hour for 1980 from the Rawson Lake meteorological station in the Experimental Lakes Area.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	NE 4.3	NE 2.8	SW 6.4	NE 5.3	SE 3.2	M	NW 6.9	M	N 3.9	NW 8.5	NW 3.9	NW 7.6
2	NE 3.9	NE 3.3	SW 4.6	N 4.3	NW 4.3	M	SW 8.9	M	SW 4.8	NE 8.2	S 7.6	N 3.4
3	S 3.2	SE 3.3	NW 5.4	NE 5.8	SW 4.2	NE 6.7	NE 4.7	SE 6.0	S 9.1	S 3.0	NW 6.0	SE 5.8
4	S 3.4	SE 8.0	NW 5.5	SW 7.5	SW 7.3	SE 8.6	NE 8.2	SE10.3	SW11.5	S 3.6	NW 8.1	SE 7.7
5	SE 3.3	S 3.5	SW 6.9	SE 5.3	NW 9.8	SW 6.5	NE 6.0	SW 9.7	NW 5.6	SW 8.2	SW 4.8	S 4.2
6	NE11.0	SW 3.2	SW 5.8	SE 5.3	NE 9.5	NW 6.2	SW 8.3	SW 4.5	S 4.8	NW 4.6	NE 4.6	N 4.5
7	NE 7.4	SW 2.3	SW 2.8	NE 9.5	NE 8.0	NE10.3	NW 9.5	NE 5.5	S 5.6	NW 7.2	NE 5.5	NW 3.9
8	SW 6.6	SW 2.5	SW 3.3	NE11.8	NE 4.8	NW 9.9	SW 6.3	NW 5.8	SW 9.0	NE 6.2	SE 6.4	SW 3.8
9	SW 5.3	SW 9.6	SW 5.0	NE12.0	NE 3.1	NE 8.0	SW 9.1	NW 4.5	NW 7.7	SE 7.7	NE 8.0	NW 6.4
10	SE 5.4	N 4.1	NW10.1	NE 5.2	NE 5.5	NE 4.7	NW 5.7	NE 4.2	SW 8.6	NW10.1	S 2.8	NW 5.8
11	NW 9.7	N 4.4	SE 5.2	NE 5.1	NW 6.5	SW 7.0	SE 7.5	NE 4.5	NE 7.9	N 8.9	S 7.0	S 3.7
12	SE 6.3	W 3.2	SE 8.5	NE 9.1	NE 5.6	SW 7.6	SW 6.9	SW 5.0	NE10.4	NW 4.8	NE 4.2	NW 6.9
13	NW10.1	NW 4.0	NW 4.8	N 4.7	NE 6.2	NE 4.7	SW 8.5	NE 5.7	NE11.0	E 6.7	NW 5.0	NW 7.1
14	SE 5.2	SW 4.1	SE 4.3	SW 6.0	SW 3.1	NE 8.6	SW 5.6	NE 5.6	NE 4.8	SE 5.6	SW 6.5	SW11.5
15	SE 5.0	NW 4.2	SE10.0	NE 6.6	SW 4.0	NE 4.8	NE 5.6	NE 5.5	SW13.2	S 3.2	SW 5.8	NE 3.9
16	NW 5.1	NW 4.0	NW 4.8	SW 7.0	S 3.6	SW 6.9	NE 6.0	SE 9.4	NW 9.7	NE10.6	NW 6.1	SW 4.8
17	NE 2.7	SW 5.7	NW 6.0	NW 4.8	SW 3.7	NE 6.7	SW 4.3	SE 7.3	NE 6.0	NE 9.9	SW 4.0	NW 8.9
18	SW 3.7	SW 4.6	SE 3.4	SW 8.6	NE 5.8	NE 5.8	SW 4.7	SE 5.6	NE 6.0	NW 5.8	SW 8.2	NW 9.1
19	NW 4.4	NE 5.5	SE 3.8	NW 6.1	SW 4.8	NW 5.1	SW 7.0	S 7.2	SE 8.1	NW 4.7	SW 6.1	NW 6.1
20	SW 3.5	NE 6.5	NW 7.4	S 6.6	SW 9.1	M	NW 4.9	SE 8.1	SE 5.6	NW 6.0	NW 5.9	W 5.2
21	S 4.1	SE 6.8	NW 6.5	SE 6.6	SW 8.4	M	NE 7.1	SW 8.3	SW 6.8	NW 5.8	SW 8.9	S 2.4
22	NW 8.2	NE 3.5	SE 2.7	NW10.3	SW 8.1	M	SW 4.7	SW10.8	NW 9.2	SE 5.8	SW 8.4	NE 3.0
23	S 4.1	SW 7.8	NE 4.6	NE10.0	SW 5.8	M	SW 9.0	S 3.8	SW 4.6	E 4.5	NW 5.5	NW 5.2
24	NE 6.5	NW 6.3	NE 4.5	NE 8.4	NE 5.6	M	SW11.3	S 4.8	SW 7.1	NW 7.2	SW 6.0	NW 5.8
25	NW 6.3	SW 5.0	SE 2.3	NE 8.8	- 8.0	SW 9.7	NE 6.4	SW 7.8	NE 6.7	N11.5	SW 5.3	SW 4.6
26	W 3.1	SW 8.6	S 4.5	NE 7.4	- 6.8	NE 8.7	SW 5.8	NW 5.0	SW 7.6	NW 7.8	S 6.6	S 4.4
27	NW 2.2	N 4.1	NW 4.0	NE 6.3	M	SE11.1	SW 7.3	N 5.0	NW 4.4	NW 8.0	S 1.8	SW13.0
28	N 2.5	NE 7.3	SE 3.4	NE 4.6	M	SW 7.7	NW 5.5	S 8.0	SW 8.4	NW 5.2	S 3.6	NW 4.7
29	W 1.8	NW 5.7	S 3.3	NE 4.0	M	NW 4.5	S 5.3	SW 4.3	NE 6.6	SW 7.5	NW 5.6	SE 4.2
30	W 2.0		S 3.4	NE 3.0	M	SW 6.9	NW 6.3	NW 6.2	SW 8.9	NW10.0	NW 4.9	SE 5.0
31	SW 2.6		N 4.4		M		SW 7.1	SW 3.2		NW10.8		N 4.9
Mean	4.9	5.0	5.1	6.6	(5.7)	(7.2)	6.8	(6.3)	7.4	7.0	5.8	5.5

Notes: 1. Values shown are mean hourly velocities in miles per hour for each day and month.

2. Daily directions shown are based on prevailing hourly direction as determined from the anemograph charts for each day.

3. ( ) brackets indicate a mean monthly value that is based on less than a full months record.

4. - indicates a missing prevailing wind direction.

5. M indicates that both velocity and direction are missing.

Table 23. Daily abstract of wind in miles per hour for 1981 from the Rawson Lake meteorological station in the Experimental Lakes Area.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	NW 7.4	NE10.7	NW 9.8	NW 7.4	SE 5.2	E 5.6	S10.0	NW 4.3	NE 7.4	NE 7.8	SW 6.4	NE 5.4
2	N 2.9	NW 5.0	NW 3.7	SW 5.4	SW 9.1	NE 6.8	SW 9.5	NE 3.4	SE 8.3	S 6.7	NE 5.0	N 2.7
3	NW 4.2	NW 5.7	S 5.8	NE 9.8	N 5.4	N 5.6	NW 4.4	NE 3.8	NW 7.3	S 9.4	SW 6.6	S 2.9
4	SW 3.8	SW 7.3	N 4.7	NE11.2	NE 9.1	SW 7.8	SW 6.3	SW 3.4	E 6.2	SE 3.7	SW 9.0	SW 4.1
5	SW 6.4	NW 4.8	NE 7.1	SW 4.4	N 6.0	SW 6.5	NE 4.7	S 5.2	S 8.3	NW 4.0	NW 8.2	SW 5.6
6	NW 9.0	SE 2.2	N 4.5	SW 9.8	E 2.4	NE 5.4	SW 7.3	NE 6.7	NW 7.0	NW 8.4	SW 4.8	SE 4.5
7	NW 2.2	NE 7.0	N 3.4	SW10.1	SW 4.8	SW 5.1	SW11.2	NE 5.2	NW 7.8	S 5.0	SW 6.4	NE 5.9
8	SW 5.1	W 3.5	NW 3.1	SW 6.6	SW 8.5	NW 6.2	SW 9.2	NE 6.8	NW 4.8	SE10.5	NW10.1	NE 4.4
9	NW 5.2	NW 5.1	NW 4.2	SW 5.6	NE 8.4	NW 6.6	SW 8.4	NE 6.6	NW 6.5	SE10.4	SW10.0	N 2.4
10	NW 4.5	NW 2.5	NW 4.8	E 5.4	W 2.1	NW 5.6	SW 5.9	NW 4.1	SW 5.4	S 5.5	NW 6.8	SE 4.8
11	SW 5.0	NW 3.5	NW 7.3	S 6.6	E 2.9	W 6.8	SW 3.3	SW 5.4	NW 7.1	SE 7.4	S 5.4	SW 8.2
12	SW 3.2	SW 4.4	NW 9.2	NW 7.8	NE 3.7	N 3.5	NW 5.5	NE 7.8	SW 7.0	SE11.2	SW 9.6	SW 4.0
13	SW 2.4	SW 2.8	NW 5.9	NW 6.4	N 3.0	SE 5.0	NW 4.1	SW 5.7	NW 6.2	SW10.4	SW 9.5	NW 2.8
14	NE 7.2	SE 8.8	SW 7.6	SW 9.2	NW 3.5	SE 6.0	SW 5.3	NE 8.0	NW 7.0	SW 5.2	S 3.3	NW 4.0
15	NE 7.1	SW 8.2	NE 8.5	SW 9.0	NE 9.4	SW 9.4	SE 5.0	NE 7.8	NE 7.0	W 4.2	SE 2.3	NW 3.6
16	SW 5.9	SW 7.3	NE 8.5	SW 9.2	NE12.0	W 7.2	S 5.0	SW 4.1	NE 6.2	SW 7.8	W 5.1	NW 4.8
17	SW 5.8	SW 5.0	NE10.6	NE 7.2	E 6.7	SW12.9	N 4.0	SW 5.8	SW 4.5	SW10.4	NW 5.6	NE 5.2
18	SW 4.5	SW 3.3	NE 9.0	SW 7.2	SW 3.9	NW13.3	W 3.1	SW 7.2	SW 7.3	NW11.4	NE 9.5	N 1.5
19	N 2.3	SW 2.0	NW 5.2	NE 6.5	SW 4.3	SW 5.8	SW 3.9	SW 7.5	NE 7.4	SW 7.8	NE 9.9	SW 5.4
20	SW 3.3	SE 5.5	NW 4.0	S 5.0	SW 6.7	SW 4.2	NE 6.4	S 8.0	NE 4.8	NE 6.7	NE 6.5	SW10.1
21	NW 6.0	SW 6.2	E 2.3	S10.7	SW 7.6	NE 7.2	SE 3.1	S 9.0	E 7.1	W 4.2	SE 2.2	SW 5.2
22	NW 5.0	NE 7.5	NW 5.2	NE 4.1	S 5.7	NE 4.6	S 5.3	S 5.6	S 8.8	NW 5.4	S 4.2	NE 6.2
23	SW 2.8	NE 7.0	E 2.8	NE 9.8	NE 9.1	SE 5.6	S 7.3	NE 7.2	SW 9.9	NW 6.6	SW 3.8	NW 4.7
24	S 4.5	NW 8.6	- 4.4	NE 4.6	NE11.3	SE 4.7	SW 8.6	SE 7.0	W 2.3	SW10.2	SW 1.8	SW 4.8
25	NE 7.2	NE 3.3	- 5.8	SE 4.7	NE10.2	SE 3.6	NW 6.7	E 4.0	SE 7.5	NW 4.7	NE 5.1	S 3.0
26	NE 8.4	S 5.2	NE 5.7	S 4.3	NE 6.3	SW 3.4	NW 5.3	NE 6.4	SW10.9	SW10.2	NE 8.3	S 3.2
27	NW 4.2	N 5.1	S 5.8	NE 4.3	SW 3.9	S 7.2	SW 5.6	NE 4.4	NW12.2	E 4.6	NW 7.8	NE 5.6
28	N 6.1	NW 6.9	S 5.1	NE 3.2	SW 3.4	N 3.7	SW 6.1	S 5.0	E 3.9	SE 7.6	SW 5.6	NW 4.3
29	N 2.5		NE 6.1	NE 5.5	N 7.4	N 5.3	SW 8.7	SW 5.5	E 7.9	SE10.9	SW 8.4	SW 5.9
30	SW 5.2		NE 7.1	NE 5.9	NW 6.0	SW 7.0	S 6.2	S 6.1	NE11.0	SE13.2	SW 7.2	SW 3.3
31	SW 6.1		NE 7.3		W 4.4		SW 7.4	S 8.0		SW 8.6		NE 7.5
Mean	5.0	5.5	6.0	6.9	6.1	6.2	6.2	6.0	7.2	7.7	6.5	4.7

Notes: 1. Values shown are mean hourly velocities in miles per hour for each day and month.

2. Daily directions shown are based on prevailing hourly direction as determined from the anemograph charts for each day.

3. - indicates a missing prevailing wind direction.

Table 24. Summary of mean monthly wind speeds in kilometres per hour from the meteorological station at ELA from 1969-1981.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1969	-	-	-	-	-	-	(7.6)	8.7	(9.0)	9.2	11.4	9.5	9.2
1970	8.9	12.2	7.0	11.0	10.0	8.1	8.2	6.8	7.7	10.5	9.0	8.5	9.0
1971	(9.2)	9.3	9.0	12.1	11.3	8.7	10.3	8.7	10.3	8.9	8.4	8.4	9.6
1972	(8.7)	8.4	9.0	(9.5)	9.0	9.7	8.1	8.2	10.5	10.5	8.1	8.4	9.0
1973	9.0	8.7	9.3	10.5	10.9	(10.0)	(9.5)	7.6	10.0	10.1	9.7	8.7	9.5
1974	7.7	8.1	9.8	11.1	(9.7)	10.3	10.3	10.3	10.1	(11.3)	(9.8)	9.2	9.8
1975	8.9	(8.2)	11.8	10.8	10.6	10.0	10.5	10.1	10.1	10.8	10.6	8.4	10.1
1976	9.5	10.6	10.1	(8.9)	10.3	10.0	9.3	10.1	10.5	9.8	10.3	8.9	9.9
1977	(8.2)	10.0	11.9	9.8	(10.0)	9.0	10.3	9.2	9.5	10.8	11.3	9.0	9.9
1978	9.0	8.2	(9.0)	10.0	9.8	10.1	9.8	10.3	11.6	10.3	10.0	7.9	9.7
1979	7.2	10.1	10.5	9.5	10.3	(10.3)	(8.3)	(8.5)	10.3	9.8	8.7	8.9	9.4
1980	7.9	8.1	8.2	10.6	(9.2)	(11.6	10.9	10.1	11.9	11.3	9.3	8.9	9.8
1981	8.1	8.9	9.7	11.1	9.8	10.0	10.0	9.7	11.6	12.4	10.5	7.6	10.0
Mean	8.5	9.2	9.6	10.4	10.1	9.8	9.5	9.1	10.2	10.4	9.8	8.6	9.6
Std. Dev.	0.7	1.3	1.4	0.9	0.6	0.9	1.1	1.1	1.1	0.9	1.0	0.5	-

Notes: All values are mean wind speeds in kilometres per hour.

Hourly and daily wind speeds and prevailing directions are available on request.

Brackets ( ) indicate a mean monthly wind that is based on less than a full month of record.

APPENDIX 5

SUMMARY OF EVAPORATION PAN DATA

The problem of measuring and calculating evaporation and transpiration from lakes, forests and entire drainage basins is a difficult one. Methods rely on empirical evaporation measurement and calculation methods. Three methods of determining evaporation are being used in hydrologic studies work at the Experimental Lakes Area (ELA):

1) solving for lake evaporation as the residual term in Rawson Lake water budgets
2) empirical mass transfer techniques
3) the evaporation pan.

Of these three methods, the evaporation pan is probably the most commonly used in the world (Bruce and Clark 1966).

Evaporation pans can be installed in three ways: floating on the lake, sunk in the ground, and installed on a low stand above ground. The first method more closely simulates surface temperature, wind, and radiation effects, but is not practical with respect to servicing. The second is impractical because of potential problems of soil temperature, undetected leaks, wind exposure, and overgrown vegetation. Most pans are installed the third way, on a low stand above ground in an exposed clearing.

The ELA evaporation pan

The evaporation pan at ELA is located at the meteorological station (Station 1). It is a U.S. Weather Bureau Class A pan which was adopted as an interim international standard for the International Geophysical Year (1957-1958), is recommended by the World Meteorological Organization, and is the standard used in Canadian Atmospheric Environment Services sites.

The Class A pan is 122 cm in diameter, 25 cm in depth and made of non-corrosive metal. It is installed in an open site on a low stand that permits free air circulation under and around the pan. Each morning, the water level in the pan is adjusted to a standard height determined by a fixed point gauge. The depth of water added or removed is added to or subtracted from the depth of precipitation that may have occurred, and a daily net water loss is calculated. A totalizing anemometer installed near the pan, and at the same height, records the wind run passing directly over the pan each day. Mean water temperature and mean air temperature are calculated from maximum and minimum thermometers in the pan and in the nearby Stevenson Screen instrument shelter. This wind and temperature data can be used to correct the pan evaporation for advected energy as suggested by Kohler et al. (1955).

Tables 25 to 27 provide a summary of evaporation pan data for the years 1979, 1980 and 1981. Similar records for the 1969 to 1978 period are reported in Beaty (1981). Because the ELA pan is serviced at 08:00 CST daily, the dates in the tables are for an "evaporation day" beginning after the morning observation and ending at the time of the morning observation of the next day. For example, readings taken on July 15 are recorded as the evaporation day of July 14. The net water losses reported have not been adjusted by a pan coefficient.

Pan coefficients

In order to convert evaporation pan data to lake evaporation, a conversion factor known as a pan coefficient is required. The pan coefficient is equal to the ratio of lake evaporation to pan evaporation. Several different investigators have shown that the annual pan coefficient is less than unity, ranging from 0.6 to 0.8 (Hounam 1973). Our investigations at ELA using Rawson Lake water budgets from 1972 to 1976 yield an average annual pan coefficient of 0.64 for data uncorrected for advected energy, and 0.70 for corrected data (Newbury and Beaty 1977).

The pan method is not recommended for weekly or monthly evaporation estimates. The reason for this is that the lake and the pan do not behave in exactly the same way. The pan is small in relation to the lake and its water temperature fluctuates closely with the air temperature. The heat storage capacity of lakes is important, and evaporation is not closely related to daily solar energy received. In the fall season, large amounts of lake evaporation occur when surface temperatures are much higher than the air temperatures. The opposite takes place during the late spring, when the lake evaporation is low due to low surface temperatures. Average monthly pan coefficients for Rawson Lake based on water budget evaporation varied from 0.32 in May to 1.15 in September for data not corrected for advection, and from 0.30 to 1.10 for corrected data (Newbury and Beaty 1977).

Historical summary

Table 28 provides a summary of total net evaporation pan water losses for the period of record 1969 to 1981. Correction for advected energy and pan coefficients have not been applied. The periods of observation or measurements in each case are always less than the ice-free period or open water season for Rawson Lake. This is because the pan must be discontinued once freezing temperatures are prevalent. Evaporation from the pan and lake are low during the late October period of missing record.

Table 25. Rawson Lake Watershed summary of evaporation pan data for 1979.

	MAY				JUNE				JULY			
Date	Net Water Loss (mm)	Wind Mileage (miles)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Mileage (miles)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Mileage (miles)	Average Water Temp. (°C)	Average Air Temp. (°C)
1					1.7	69	10.2	10.2	7.6	53	21.3	19.3
2					4.5	65	14.6	11.8	6.9	45	23.3	19.3
3					6.8	90	16.1	15.8	7.4	52	22.2	20.2
4					7.4	78	16.5	11.8	6.6	33	21.5	18.5
5					5.4	99	17.3	15.0	7.1	34	23.8	20.8
6					1.9	63	16.0	13.3	7.4	55	24.5	21.3
7					4.8	65	16.7	13.3	4.5	62	22.0	20.0
8					3.6	36	16.0	11.8	3.3	35	22.5	20.8
9	3.0	-	-	3.0	1.8	30	12.7	12.0	6.4	48	26.8	24.2
10	0.0	83	3.2	0.5	7.9	99	15.3	13.3	8.1	47	26.5	25.8
11	0.9	105	6.5	2.2	5.8	42	17.8	13.3	8.8	49	27.3	24.7
12	4.2	95	11.5	7.2	6.6	44	21.3	18.5	3.4	39	25.8	24.2
13	3.3	87	9.3	3.8	4.9	120	19.3	18.5	4.8	48	23.8	21.5
14	3.3	85	9.0	3.5	7.6	55	23.3	21.0	5.2	104	19.8	17.3
15	4.3	53	12.5	7.2	8.9	84	19.8	16.5	4.6	58	14.0	24.2
16	5.8	139	12.5	15.5	4.6	45	16.2	13.8	3.8	31	20.0	17.0
17	4.5	113	16.5	13.8	7.1	36	20.2	15.0	6.8	74	21.3	19.0
18	1.5	131	7.1	2.4	8.6	90	19.5	18.2	3.6	43	20.5	19.8
19	2.9	36	7.8	4.7	1.1	79	13.8	14.5	5.6	25	22.7	21.0
20	2.8	51	8.0	4.5	2.3	83	18.0	16.5	7.4	74	25.8	24.5
21	4.8	50	12.5	10.0	3.3	116	9.5	7.8	8.0	93	22.7	23.3
22	3.5	47	14.0	9.0	5.8	41	15.8	11.5	4.8	77	22.5	21.3
23	4.8	45	15.3	10.0	5.6	30	18.7	14.0	2.6	55	21.5	19.8
24	6.4	49	17.5	13.0	6.6	79	20.5	17.8	7.4	62	23.5	21.0
25	4.6	105	15.8	14.8	5.0	75	20.0	19.3	5.0	82	20.7	17.3
26	4.1	70	15.8	13.0	7.1	95	17.5	15.3	5.0	42	20.0	16.5
27	7.6	42	19.5	16.2	5.8	48	20.5	19.3	5.4	47	21.0	19.0
28	8.9	53	17.3	19.8	4.5	40	21.8	18.7	7.2	69	23.5	22.5
29	8.5	90	19.8	20.5	4.2	44	20.5	18.7	5.4	68	23.5	21.5
30	1.5	78	11.3	9.5	7.1	52	22.0	19.5	2.6	62	16.2	15.0
31	1.7	54	7.8	5.0					4.0	35	22.0	18.7
TOTAL	(92.9)	(1661)	(270.1)	(209.2)	158.3	1992	527.4	456.0	176.6	1701	692.5	639.3
MEAN	4.0	76	12.3	9.1	5.3	66	17.6	15.2	5.7	55	22.3	20.6

	AUGUST				SEPTEMBER				OCTOBER			
Date	Net Water Loss (mm)	Wind Mileage (miles)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Mileage (miles)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Mileage (miles)	Average Water Temp. (°C)	Average Air Temp. (°C)
1	8.2	108	23.5	21.0	2.7	88	20.0	17.8	2.4	57	11.3	7.8
2	6.6	84	21.5	20.0	2.0	51	12.2	14.4	0.6	94	7.5	8.2
3	5.0	40	20.5	17.3	1.4	37	12.0	12.2	1.1	128	6.0	4.2
4	4.8	62	19.5	17.0	1.8	71	18.7	20.2	1.6	93	6.7	4.7
5	6.4	53	20.5	18.0	5.8	112	18.5	15.5	1.7	124	6.2	5.5
6	4.4	94	17.8	19.5	2.1	72	9.5	7.5	1.0	30	M	1.0
7	7.2	87	19.3	10.2	2.0	37	12.5	10.5	0.8	31	5.5	5.3
8	6.0	47	20.0	18.2	3.6	68	15.3	13.5	0.6	89	4.7	3.0
9	2.6	98	16.5	17.0	2.6	86	13.0	12.0	1.4	78	4.2	0.8
10	5.1	71	16.7	12.5	3.9	91	11.8	10.0	0.2	76	2.5	1.8
11	6.1	95	18.0	18.0	0.2	35	10.2	10.0				
12	3.2	86	18.5	16.2	2.8	75	14.5	12.2				
13	3.0	126	11.5	9.5	1.4	62	10.0	8.5				
14	4.8	52	14.7	12.5	1.8	70	10.7	11.0				
15	4.8	59	18.2	15.5	3.2	41	16.7	16.0				
16	5.2	99	19.3	17.0	5.4	85	19.0	21.0				
17	2.4	37	18.2	15.3	6.0	138	14.5	12.7				
18	5.8	47	22.2	21.3	3.1	61	10.2	6.5				
19	6.8	46	22.7	21.0	3.8	104	11.8	11.5				
20	6.8	52	22.5	22.0	2.2	79	10.2	7.5				
21	5.4	75	22.2	22.0	2.6	58	10.2	8.5				
22	2.0	82	20.0	16.5	2.0	22	11.8	10.2				
23	1.0	94	11.0	9.3	3.2	76	13.5	13.8				
24	0.2	44	11.8	10.8	4.0	76	14.5	14.2				
25	2.2	31	15.5	13.5	4.4	68	13.8	12.7				
26	3.2	35	16.7	16.0	3.8	94	14.2	15.3				
27	3.2	57	19.3	17.0	3.2	99	13.0	11.8				
28	1.5	27	17.0	16.5	0.6	67	7.8	6.0				
29	5.2	84	M	13.3	3.4	99	11.8	11.5				
30	3.8	33	16.5	14.7	2.1	61	11.8	9.8				
31	2.0	72	17.8	16.5								
TOTAL	134.9	2077	530.4	512.4	87.1	2183	393.7	364.3				
MEAN	4.4	67	17.7	16.5	2.9	73	13.1	12.1				

Notes: 1. ( ) brackets indicate monthly total or mean based on less than full months record.

2. M - missing data.

Table 26. Rawson Lake Watershed summary of evaporation pan data for 1980.

Date	MAY Net Water Loss (mm)	MAY Wind Mileage (miles)	MAY Average Water Temp. (°C)	MAY Average Air Temp. (°C)	JUNE Net Water Loss (mm)	JUNE Wind Mileage (miles)	JUNE Average Water Temp. (°C)	JUNE Average Air Temp. (°C)	JULY Net Water Loss (mm)	JULY Wind Mileage (miles)	JULY Average Water Temp. (°C)	JULY Average Air Temp. (°C)
1	6.4	41	19.3	19.8	{ }	{ }	{ }	M	5.3	80	17.5	14.5
2	8.0	51	21.5	21.5	{24.9}	{362}	{18.7}	10.5	6.9	92	20.8	21.0
3	7.4	39	22.0	21.8	5.9	61	18.5	15.8	7.9	79	22.8	21.3
4	8.4	113	17.9	19.3	3.4	99	14.6	15.5	4.0	109	16.8	16.3
5	7.0	157	12.0	9.3	1.3	45	16.8	15.5	5.2	58	20.7	17.9
6	2.4	149	6.2	2.8	7.5	118	17.8	14.8	3.8	109	19.5	20.0
7	2.0	102	6.0	2.8	7.2	133	13.8	10.0	8.8	115	20.5	19.6
8	1.4	43	7.1	5.5	2.9	138	14.2	14.5	7.2	72	22.8	21.0
9	2.4	39	11.4	8.3	9.7	102	15.2	11.0	9.0	92	25.3	24.8
10	1.5	100	7.3	4.8	6.2	47	16.7	15.2	9.6	85	23.8	24.8
11	2.3	93	7.6	3.8	8.4	93	21.4	22.2	4.2	82	20.5	21.5
12	3.0	91	10.1	6.3	3.0	81	19.5	18.8	8.6	83	24.0	23.0
13	3.0	55	8.9	6.0	5.6	62	18.6	16.2	12.2	106	25.3	25.5
14	1.8	30	8.7	6.0	3.5	68	13.3	10.0	5.2	68	25.5	23.0
15	2.7	42	14.6	12.0	5.9	38	17.0	13.2	4.0	64	21.3	20.5
16	5.9	40	18.6	15.0	6.7	88	19.3	18.5	4.1	67	21.0	19.3
17	M	53	19.1	18.5	4.7	69	14.4	12.2	6.1	51	24.5	21.5
18	6.3	57	18.1	M	5.4	47	17.1	14.0	4.4	54	19.8	17.8
19	6.4	50	19.7	19.3	7.2	51	17.8	16.8	5.0	75	21.3	20.0
20	6.8	114	20.9	23.5	{ }	{ }	{ }	{ }	4.2	77	20.5	19.3
21	7.9	87	22.8	23.8	{ }	{ }	{ }	{ }	2.6	61	16.5	15.8
22	9.6	79	23.2	24.5	{ }	{ }	{ }	{ }	5.7	47	21.8	19.3
23	8.3	46	24.2	23.5	{26.8}	{369}	{23.0}	{22.5}	8.8	145	24.8	24.5
24	{ }	{ }	{ }	{ }	8.2	103	24.0	23.2	7.8	141	18.5	19.0
25	{20.2}	{164}	{21.2}	{21.5}	10.8	160	19.8	18.5	5.4	53	19.3	17.0
26	{ }	{ }	{ }	{ }	5.8	119	16.3	14.0	6.9	87	21.0	18.3
27	{ }	{ }	{ }	{ }	5.6	164	15.8	14.2	6.8	72	22.0	20.0
28	{19.2}	{185}	{23.5}	{22.8}	2.6	88	14.3	14.0	2.9	55	20.0	18.0
29	{ }	{ }	{ }	M	1.6	38	14.0	13.3	8.0	81	23.5	22.0
30	{ }	{ }	{ }	M	3.9	108	17.0	16.2	5.9	62	22.8	20.3
31	{ }	{ }	{ }	M					6.6	90	20.8	21.5
TOTAL									193.1	2512	665.2	628.3
MEAN									6.2	81	21.5	20.3

Date	AUGUST Net Water Loss (mm)	AUGUST Wind Mileage (miles)	AUGUST Average Water Temp. (°C)	AUGUST Average Air Temp. (°C)	SEPTEMBER Net Water Loss (mm)	SEPTEMBER Wind Mileage (miles)	SEPTEMBER Average Water Temp. (°C)	SEPTEMBER Average Air Temp. (°C)	OCTOBER Net Water Loss (mm)	OCTOBER Wind Mileage (miles)	OCTOBER Average Water Temp. (°C)	OCTOBER Average Air Temp. (°C)
1	6.6	114	20.0	19.0	2.2	39	15.2	13.8	2.2	153	7.2	5.2
2	4.2	65	18.0	17.3	2.8	80	18.5	17.5	0.8	72	5.5	2.2
3	9.4	117	20.3	19.3	2.2	125	15.5	15.2	0.6	28	4.0	3.5
4	3.8	135	18.3	17.8	2.5	124	14.5	15.0	1.2	76	7.5	5.8
5	3.4	101	18.3	16.3	4.0	72	17.8	15.2	1.6	92	9.0	10.5
6	4.4	54	22.3	20.0	4.4	53	19.0	19.5	3.2	62	11.0	10.2
7	5.3	66	22.8	20.0	4.4	101	23.4	23.5	4.0	103	8.2	14.8
8	3.8	75	18.5	16.8	5.6	128	15.2	15.0	2.4	76	9.2	5.2
9	4.4	41	20.8	18.8	4.0	97	13.5	11.8	3.0	134	8.0	8.5
10	4.4	73	20.0	18.8	5.8	122	15.8	16.8	2.6	179	4.0	2.2
11	4.4	47	20.5	19.3	4.8	113	15.5	13.8	1.0	90	3.2	0.8
12	4.0	47	21.0	18.8	2.7	161	10.8	11.0	0.8	68	4.8	1.2
13	4.0	77	19.8	17.0	4.0	120	11.8	11.0	1.4*	108	4.2	2.5
14	4.8	51	20.0	17.0	2.0	93	13.5	11.5	1.2	42	3.8	3.0
15	6.7	99	19.0	16.8	1.6	194	8.2	8.8	1.0	56	5.0	5.0
16	3.5	135	16.0	16.3	2.4	90	8.5	5.2	2.8	174	6.0	5.8
17	0.1	61	12.0	14.0	0.6	117	5.0	4.0	1.2*	131	3.5	2.2
18	5.2	77	21.0	19.5	1.2	69	4.0	5.5	0*	54	2.5	-0.2
19	5.5	81	25.3	24.5	0.7	114	3.2	2.2	1.0*	54	3.2	0.5
20	2.4	99	20.0	20.5	1.1	86	5.8	4.8	1.0*	87	2.8	0.8
21	4.0	120	16.0	17.3	1.6	111	10.8	10.5	1.0*	57	3.0	1.0
22	5.0	92	19.0	18.3	1.9	108	8.0	4.2				
23	4.0	43	20.3	17.8	1.8	84	9.0	6.8				
24	2.6	64	22.8	21.0	1.2	104	6.8	5.8				
25	6.3	98	19.3	17.8	1.0	74	7.0	2.5				
26	3.8	67	17.0	14.8	2.0	113	7.0	7.0				
27	4.2	61	17.8	13.8	2.2	63	10.0	8.0				
28	1.8	98	17.2	17.5	2.4	118	11.2	12.8				
29	0.8	44	16.8	16.0	2.6	100	13.0	11.8				
30	2.9	53	15.5	12.2	1.8	139	11.8	14.0				
31	2.9	33	17.8	16.2								
TOTAL	128.6	2388	593.4	550.5	77.5	3112	349.3	324.5				
MEAN	4.1	77	19.1	17.8	2.6	104	11.6	10.8				

Notes: 1. Missing data in May and June due to forest fire evacuation.

2. * indicates pan was ice covered at time of observation.

3. { } multiple brackets indicate total or mean for more than one day.

Table 27. Rawson Lake Watershed summary of evaporation pan data for 1981.

	MAY				JUNE				JULY			
Date	Net Water Loss (mm)	Wind Run (km)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Run (km)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Run (km)	Average Water Temp. (°C)	Average Air Temp. (°C)
1	5.3	147	13.0	11.0	0.0	165	M	8.5	9.6	211E	22.5	21.8
2	1.8	150	10.8	10.5	2.4	122	15.0	15.1	7.5	155E	22.5	22.0
3	4.8	199	13.8	11.2	8.6	82	20.5	19.5	9.0	75E	23.8	21.2
4	4.4	172	9.2	5.8	9.0	178	20.6	19.4	4.8	140E	25.0	23.0
5	4.0	98	10.8	6.8	5.8	144	18.8	17.2	9.6	82E	25.8	25.2
6	5.0	50	14.0	10.5	6.6	122	18.8	18.5	9.6	184	27.0	28.2
7	4.8	102	15.9	10.0	4.6	129	19.2	17.9	9.7	223	28.2	27.2
8	3.1	269	9.2	4.8	6.2	122	15.4	13.4	6.8	145	19.8	20.8
9	4.8	96	6.0	1.3	5.5	172	16.2	14.0	6.2	131	21.8	23.0
10	3.8	54	11.3	7.0	2.4	123	14.9	M	5.6	82	23.2	22.8
11	6.6	60	14.6	10.3	6.0	123	16.8	14.8	4.8	49	24.5	23.2
12	4.8	70	16.3	12.5	6.4	74	21.0	19.2	9.6	123	24.5	27.2
13	5.8	70	15.5	15.0	1.2	104	17.0	16.5	8.0	94	24.0	24.8
14	6.1	114	16.5	14.8	3.6	161	16.0	15.4	4.7	70	23.5	22.8
15	7.2	298	11.8	9.5	5.6	191	16.8	12.2	5.8	79	21.2	17.5
16	6.4	233	10.3	8.0	5.0	137	17.8	13.8	3.2	73	20.5	19.0
17	7.2	111	13.5	10.8	5.2	321	15.5	15.2	3.8	52	21.5	20.2
18	5.8	74	16.5	14.0	4.4	209	10.8	10.5	7.2	38	26.0	22.2
19	7.2	76	20.0	19.2	5.3	138	17.5	15.0	5.0	89	23.0	21.5
20	8.6	119	19.8	18.8	2.8	71	18.0	14.8	2.8	77	20.8	14.2
21	8.7	151	20.2	18.8	6.8	186	17.1	13.6	5.6	55	20.0	17.0
22	1.8	153	20.4	16.5	4.2	70	19.0	14.5	6.4	81	22.0	18.8
23	3.6	266	15.2	13.2	6.6	146	18.0	16.0	5.2	182	21.8	20.0
24	0.6	188	10.5	8.9	2.9	87	13.6	13.6	3.1	160	17.5	16.2
25	1.4	237	8.8	8.5	2.8	54	17.5	15.0	5.0	118	16.0	13.2
26	8.2	89	17.0	12.5	3.6	76	20.2	17.8	4.0	84	17.0	16.5
27	5.8	71	20.0	16.2	2.6	109	17.0	17.5	4.6	75	20.0	17.8
28	4.2	84	18.8	17.2	1.8	78	20.8	17.8	7.2	108	22.0	19.0
29	2.6	199	12.5	11.0	5.9	81	20.4	17.0	5.8	153	22.0	21.0
30	4.1	100	12.2	9.8	5.8	183	20.0	19.0	7.4	138	23.5	21.0
31	4.8	89	15.5	13.8					7.2	123	22.5	20.0
TOTAL	154.1	4189	439.9	358.2	139.6	3958	510.2	452.7	194.8	2786	693.4	648.3
MEAN	5.0	135	14.2	11.6	4.6	132	17.6	15.6	6.3	90	22.4	20.9

	AUGUST				SEPTEMBER				OCTOBER			
Date	Net Water Loss (mm)	Wind Run (km)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Run (km)	Average Water Temp. (°C)	Average Air Temp. (°C)	Net Water Loss (mm)	Wind Run (km)	Average Water Temp. (°C)	Average Air Temp. (°C)
1	6.8	60	22.5	18.8	4.8	190	14.5	11.0	Pan shut down for season			
2	3.4	54	20.5	18.2	4.2	188	15.8	15.8				
3	4.4	59	22.8	20.8	2.8	113	12.8	11.2				
4	6.0	47	25.0	22.8	5.2	122	14.8	11.8				
5	4.0	102	22.8	21.0	3.8	166	14.8	15.8				
6	3.4	100	20.5	19.0	8.2	138	14.8	14.8				
7	6.0	112	24.2	21.8	5.4	156	15.8	13.8				
8	4.6	184	20.0	18.5	3.4	84	16.8	16.2				
9	3.0	80	19.5	15.8	4.4	89	7.8	20.0				
10	4.8	60	21.0	19.0	3.6	92	19.8	19.2				
11	4.0	106	22.8	22.2	5.7	144	17.2	17.5				
12	6.4	107	21.2	20.5	4.8	104	19.0	18.5				
13	4.8	120	23.0	22.0	6.3	123	16.0	15.0				
14	7.2	174	20.0	17.5	3.2	130	15.0	11.8				
15	3.2	106	13.2	12.2	1.6	171	9.0	7.8				
16	2.6	71	17.2	16.0	2.4	82	10.8	9.5				
17	6.2	101	20.0	19.8	2.0	100	12.8	11.5				
18	5.8	130	22.5	20.5	4.6	121	14.5	14.8				
19	5.6	129	22.2	19.8	4.8	115	11.8	11.2				
20	4.9	170	20.5	21.2	4.2	125	11.0	9.5				
21	5.2	168	22.2	21.5	1.8	124	10.2	9.0				
22	4.6	57	21.0	20.8	4.2	219	10.8	11.8				
23	2.2	174	22.8	23.0	0.0	119	8.2	9.0				
24	3.0	101	19.2	19.0	2.9	40	14.0	12.8				
25	5.4	54E	20.0	19.5	3.6	203	14.5	15.0				
26	6.6	68E	20.0	20.2	2.0	250	8.0	7.5				
27	5.2	145E	20.5	19.2	0.9*	189	7.5	2.8				
28	5.8	83E	21.0	19.0	1.2	79	3.8	2.2				
29	4.0	112E	20.2	19.8	2.6	185	7.2	5.8				
30	6.6	98E	22.8	22.2	0.0	234	2.0	1.8				
31	1.7	148E	15.0	14.5								
TOTAL	147.4	3280	646.1	606.1	104.6	4195	371.0	354.4				
MEAN	4.8	106	20.8	19.6	3.5	140	12.4	11.8				

Notes: 1. E indicates estimated value. Missing wind values in July and August were estimated using relationship between 1 metre anemometer and 12.2 metre anemometer.

2. * indicates pan was ice covered at time of observation.

3. All values apply to an "evaporation day" from 08:00 A.M. to 08:00 A.M. central standard time.

Table 28. Summary of measured net water loss data from the Experimental Lakes Area evaporation pan for the period 1969 to 1981.

Year	Period of record start	Period of record end	days	Number of ice-free days	Total measured net pan loss (mm)
1969	Jun 27	Oct 14	- incomplete season of record -		
1970	May 8	Oct 7	153	183	625.1
1971	May 15	Oct 27	165	194	575.8
1972	May 10	Oct 15	159	193	654.0
1973	May 4	Oct 14	164	201	622.8
1974	May 2	Oct 13	165	190	650.0
1975	May 8	Oct 23	168	200	654.0
1976	May 1	Oct 13	166	199	789.9
1977	May 2	Oct 31	183	209	607.8
1978	May 4	Oct 31	181	197	617.2
1979	May 9	Oct 10	154	182	661.2
1980	May 1	Oct 21	174	209	774.2
1981	May 1	Sep 30	153	213	740.5
Mean (12 yr)			165	198	664.4
Std. dev.			10.1	9.8	67.8

Notes: 1. The net water loss data for each year are for slightly different periods of record in each case.

2. Pan coefficients have not been applied.

APPENDIX 6

SUMMARY OF RELATIVE HUMIDITY DATA

Tables 29 to 31 provide a summary of mean daily and monthly relative humidity data for the years 1979, 1980 and 1981. Similar data for the 1969 to 1978 period have been published previously (Beaty 1981).

Relative humidity is the ratio of the amount of moisture in a given space to the amount the space could contain if saturated. This data is used, along with air temperature records, to calculate the actual vapour pressure term in mass transfer evaporation equations.

This data is determined from a Cassella London recording thermohygrograph with a weekly chart. It is located in a Stevenson screen shelter at the Station 1 meteorological site (Fig. 1). Each week, calibration checks are made either using a sling psychrometer or a ventilated hygrometer. Although only mean daily values are included in this report, instantaneous humidty values can be scaled directly from the charts. All original charts are on file, with the ELA hydrologic studies group.

Table 29. Summary of relative humidity data from the Rawson Lake meteorological station for 1979.

DATE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	---	78	62	64	85	79	91
2	---	---	67	65	69	84	83	91
3	---	---	62	60	67	82	82	86
4	---	---	60	61	73	83	75	88
5	---	---	60	53	54	64	72	79
6	---	---	82	62	67	80	81	78
7	---	---	65	72	61	68	M	84
8	---	---	75	77	55	66	84	---
9	---	---	72	70	77	79	71	---
10	---	---	60	62	62	63	84	---
11	---	---	50	64	57	83	77	---
12	---	---	54	78	74	75	78	---
13	---	---	67	75	76	84	71	---
14	---	---	67	72	63	73	72	---
15	---	---	55	80	61	68	72	---
16	---	---	68	66	70	57	75	---
17	---	---	56	62	81	66	68	---
18	---	74	55	76	63	72	82	---
19	---	71	81	64	56	74	M	---
20	---	66	83	66	59	77	M	---
21	---	54	88	72	70	66	82	---
22	---	70	61	76	70	72	82	---
23	---	55	58	86	88	68	72	---
24	---	41	64	72	M	62	72	---
25	---	54	73	68	78	64	76	---
26	---	72	63	59	74	65	73	---
27	---	50	63	58	75	73	87	---
28	---	31	76	62	84	74	89	---
29	---	44	77	74	71	69	90	---
30	---	80	69	83	62	72	M	---
31		82		61	85		M	
Mean	---	(60)	67	68	(69)	72	(78)	(85)

Notes: 1. Values are daily mean relative humidity in % based on thermohygrograph recorder charts.

2. --- implies that recorder was not in service.

3. M implies missing data due to malfunction.

4. ( ) indicate a mean value based on less than a full months record.

Table 30. Summary of relative humidity data from the Rawson Lake meteorological station for 1980.

DATE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	36	M	53	65	78	85	---
2	---	37	M	52	71	76	78	---
3	---	39	M	47	65	86	85	---
4	---	47	M	70	71	86	74	---
5	---	53	M	58	M	72	72	---
6	---	75	M	70	77	72	66	---
7	---	80	M	56	72	80	64	---
8	---	80	M	52	76	87	70	---
9	---	72	M	52	60	67	78	---
10	---	81	41	50	M	62	83	---
11	---	82	42	59	M	67	75	---
12	---	M	64	54	M	77	70	---
13	---	76	M	51	79	74	M	---
14	---	73	M	68	70	74	M	---
15	---	60	M	65	70	84	85	---
16	---	48	42	70[E]	75	66	88[E]	---
17	---	51	53	66	93	83	90	---
18	---	54	57	83	88	70[E]	79	---
19	---	61	46	72	M	88	76	---
20	---	49	46	83	80	M	80	---
21	---	50	66	M	80	M	67	---
22	---	50	51	66	66	83	M	---
23	---	54	57	68	79	80	M	---
24	---	57	54	69	86	88	M	---
25	---	67	49	62	76	78	M	---
26	---	63	62	62	70	76	M	---
27	---	58	M	61	69	72	M	---
28	---	59	M	74	82	68	87[E]	---
29	---	65	M	60	91	85	M	---
30	---	59	67	62	85	86	M	---
31	---	M		62	74		M	
Mean	---	(60)	(53)	(62)	(76)	(77)	(78)	---

Notes: 1. Values are daily mean relative humidity in % based on thermohygrograph recorder charts.

2. --- implies that recorder was not in service.

3. M implies missing data due to malfunction or unattended site due to forest fire evacuation.

4. E implies sufficient data was available for a reasonable estimate.

5. ( ) indicate a mean value based on less than a full months record.

Table 31. Summary of relative humidity data from the Rawson Lake meteorological station for 1981.

DATE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	51	76	59	64	70	86	70
2	---	73	78	67	72	72	71	62
3	---	72	56	70	68	71	64	61
4	---	77	63	52	65	65	93	84
5	---	58	72	60	79	72	92	84
6	---	46	58	55	88	90	72	80
7	---	44	70	63	72	76	64	73
8	---	71	74	66	82	62	63	76
9	---	60	62	51	82	71	72	71
10	---	47	66	62	71	75	92	80
11	---	49	60	69	80	66	88	83
12	---	38	55	54	69	63	81	72
13	---	36	76	50	78	62	84	75
14	---	39	94	68	62	71	78	91
15	---	59	75	68	76	86	75	95
16	---	61	65	82	72	80	75	94
17	79	43	65	77	74	74	89	91
18	73	42	70	61	70	65	68	84
19	75	42	64	70	69	66	81	81
20	53	39	80	84	78	74	81	76
21	76	44	M	66	77	71	77	87
22	96	67	M	61	82	67	78	78
23	88	77	68	78	80	87	76	94
24	80	86	84	86	79	77	89	---
25	78	84	84	70	67	74	81	---
26	75	53	68	61	64	92	79	---
27	74	54	82	70	59	81	86	---
28	55	67	83	65	58	74	91	---
29	57	79	65	75	80	70	80	---
30	60	62	62	79	76	85	82	---
31		58		74	90		85	
Mean	(73)	57	68	67	74	74	80	(80)

Notes: 1. Values are daily mean relative humidity in % based on thermohygrograph recorder charts.

2. --- implies that recorder was not in service.

3. M implies missing data due to malfunction.

4. ( ) indicate a mean value based on less than a full months record.

APPENDIX 7

SUMMARY OF BRIGHT SUNSHINE DATA

Tables 32 to 34 summarize the daily total hours of bright sunshine received at ELA in the years 1979, 1980 and 1981. Similar records for the 1969 to 1978 period have been published previously (Beaty 1981). Hourly values for each day have not been included here but are available on request.

Bright sunshine observations in Canada and much of the world are made with the Campbell-Stokes sunshine recorder. The instrument consists of an optical glass sphere which focuses the rays of the sun on a curved, specially treated burn chart. A trace is recorded on the chart only when the sun is at an angle greater than 3° elevation and completely unobstructed by haze or cloud. Charts are changed each evening in order to receive the sun for the next day. This instrument is a duration sunshine recorder only, and provides no information about the actual solar energy. Solar radiation data measured by a pyranometer are available for this station for some years.

An historical summary of monthly total and mean values is provided in Table 35 for the 1969 to 1981 period of record.

Table 32. Summary of hours of bright sunshine recorded at the Rawson Lake meteorological station in 1979.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.4	3.9	0.1	7.5	0.2	3.7	11.6	12.9	1.4	9.1	0.0	3.8
2	3.0	4.8	0.0	10.3	0.9	7.4	13.0	8.4	0.0	0.3	0.0	7.3
3	2.8	0.2	7.0	6.2	0.0	11.1	11.4	9.8	0.1	0.0	0.0	6.2
4	4.7	7.5	9.4	0.7	4.3	13.6	10.7	9.5	3.2	4.5	6.4	0.0
5	5.4	1.1	10.0	3.3	1.9	9.0	13.5	12.8	9.0	2.7	0.0	0.0
6	3.0	0.6	0.0	10.5	1.2	5.2	12.4	3.4	0.7	0.4	0.0	0.0
7	6.2	7.5	9.1	0.1	0.0	6.1	3.1	12.6	5.5	1.4	0.0	2.7
8	1.6	7.5	0.0	1.4	0.4	6.6	3.9	12.5	8.8	2.9	5.9	2.8
9	5.4	8.0	5.1	9.7	0.5	0.0	8.0	0.8	0.2	4.2	2.7	5.1
10	4.0	0.0	7.8	10.9	0.0	13.0	10.8	11.9	4.6	0.0	4.1	0.0
11	3.6	6.3	9.0	4.4	1.2	13.9	11.5	12.5	0.2	0.1	0.0	2.8
12	3.2	0.0	0.0	0.0	11.6	14.2	5.8	6.7	6.8	0.4	1.4	0.2
13	3.5	0.3	5.7	0.0	8.2	6.6	6.1	4.4	1.5	7.3	7.1	1.7
14	2.5	0.6	8.9	0.0	6.3	7.9	8.0	4.1	1.5	2.1	0.0	0.0
15	6.5	3.1	8.3	0.2	13.1	14.0	1.2	6.2	9.5	8.6	0.0	0.1
16	3.2	8.0	9.3	11.0	5.6	8.2	12.0	4.2	9.5	3.4	7.3	6.3
17	6.2	7.4	0.0	7.9	5.2	13.2	12.4	1.3	7.3	8.8	1.2	6.1
18	2.4	7.1	M	1.5	0.0E	13.9	5.5	9.9	6.9	0.0	7.7	0.0
19	0.3	5.5	0.0	10.0	0.5	1.2	11.4	10.9	7.1	0.0	0.0	4.3
20	0.0	4.5	0.0	0.0	0.2	4.1	11.9	10.7	3.6	2.7	7.8	0.0
21	3.6	3.0	0.0	9.8	13.4	0.0	9.6	5.1	7.6	1.8	5.8	0.0
22	0.9	0.0	0.0	4.6	4.1	14.0	8.8	0.5	7.2	0.3	6.9	0.0
23	5.0	1.5	9.5	1.5	13.1	14.3	1.3	0.0	5.6	0.0	5.6	0.0
24	4.7	8.4	8.9	0.0	13.5	13.0	13.2	1.5	8.9	4.4	0.0	0.0
25	1.8	0.4	1.5	2.4	6.1	8.6	8.3	7.9	9.4	5.3	0.0	0.0
26	0.0	7.4	8.5	7.9	2.9	12.8	9.8	4.2	9.3	0.0	0.0	0.0
27	0.0	2.7	1.5	7.5	13.5	13.7	13.0	7.9	4.6	0.0	0.0	0.0
28	0.0	0.0	0.0	8.0	13.6	7.0	12.7	1.8	0.0	1.4	0.0	3.0
29	0.0		3.4	6.0	8.8	7.5	6.8	8.4	5.0	0.0	6.2	4.2
30	2.1		4.4	6.9	1.7	13.6	0.0	10.6	5.2	0.0	0.0	3.1
31	0.0		6.8		0.0		12.9	2.5		0.0		0.0
Total	91.0	107.3	134.2	150.2	152.0	277.4	280.6	215.9	140.7	72.1	76.1	59.7
Mean	2.9	3.8	4.5	5.0	4.9	9.2	9.1	7.0	4.7	2.3	2.5	1.9

Table 33. Summary of hours of bright sunshine recorded at the Rawson Lake meteorological station in 1980.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.1	5.4	9.0	10.0	12.7	M	10.7	11.7	0.8	1.4	5.8	6.9
2	4.3	7.4	0.0	9.3	11.8	M	13.1	5.4	7.6	6.3	0.7	4.9
3	0.0	6.7	1.4	10.3	12.5	12.5	11.8	11.2	1.4	0.7	4.3	0.0
4	0.0	0.0	9.0	8.7	8.2	0.0	1.5	5.0	2.9	3.5	8.3	1.8
5	0.0	0.0	8.2	8.5	10.8	3.0	10.8	5.7	9.9	8.8	0.2	0.0
6	0.0	0.2	8.0	8.0	3.7	8.2	7.3	8.9	9.4	7.4	6.9	0.0
7	6.0	1.1	8.4	0.3	0.3	9.7	13.1	7.6	8.5	9.0	7.7	0.0
8	6.1	3.4	2.6	2.1	0.0	4.8	12.7	7.3	0.8	9.1	0.0	0.0
9	5.6	3.9	0.3	0.0	2.3	12.3	12.5	8.4	9.9	4.7	5.3	6.1
10	0.0	6.4	8.6	0.0	0.1	13.6	10.8	4.4	10.1	0.0	4.8	6.1
11	0.1	0.4	8.6	0.0	1.5	12.9	4.1	9.4	9.8	0.6	0.2	0.0
12	4.2	2.7	0.0	0.0	8.5	2.8	13.4	4.6	0.0	5.8	0.0	0.0
13	1.5	3.5	3.6	12.3	1.7	7.9	9.9	4.5	2.3	8.6	0.0	0.0
14	0.1	4.2	8.4	3.1	1.7	1.0	8.2	10.7	7.5	1.4	4.0	2.0
15	0.0	6.4	3.3	12.3	13.2	13.6	4.5	12.0	0.0	1.0	0.0	0.7
16	0.0	1.7	0.0	3.9	13.2	11.8	7.2	1.6	8.7	0.0	0.0	0.0
17	0.0	7.1	5.1	12.4	13.0	3.0	10.1	0.0	0.0	0.0	6.0	0.0
18	0.0	5.6	6.0	10.9	13.2	12.4	3.2	10.8	9.6	3.3	1.4	0.0
19	4.5	0.0	0.8	11.4	12.9	14.0	7.2	10.1	0.0	0.0	4.7	4.2
20	4.5	0.6	7.0	8.1	10.3	M	3.5	0.2	0.7	0.3	3.3	4.5
21	0.2	0.3	9.3	12.2	8.4	M	0.9	3.9	3.1	9.1	3.0	0.8
22	3.5	8.7	3.5	11.0	12.2	M	10.8	12.4	3.5	2.2	0.1	0.2
23	5.0	1.0	9.4	9.2	13.4	M	12.7	6.6	5.3	0.0	1.4	2.5
24	6.5	8.6	9.6	12.4	M	9.4	8.5	9.4	0.8	0.2	4.9	5.0
25	2.9	9.1	9.5	12.5	M	13.5	13.1	5.4	6.3	0.1	0.0	0.2
26	0.0	1.0	2.8	12.5	M	4.8	9.8	11.1	2.2	1.9	0.0	4.7
27	0.0	3.8	0.7	12.4	M	4.8	13.3	10.0	9.0	9.0	0.0	0.0
28	3.9	9.3	8.9	12.5	M	0.8	6.3	5.0	5.0	9.0	0.0	1.0
29	7.3	9.6	M	12.5	M	0.0	12.6	0.1	4.9	1.2	0.1	0.1
30	5.4		9.7	12.7	M	6.0	10.3	3.9	2.5	7.8	1.8	0.0
31	2.8		9.4		M		8.4	5.6		0.0		0.0
Total	75.5	108.8	161.7	251.5	185.6	182.8	282.3	212.9	142.5	112.4	74.9	51.7
Mean	2.4	3.8	(5.6)	8.4	(8.1)	(7.6)	9.1	6.9	4.8	3.6	2.5	1.7

Notes: 1. All values are daily total sunshine in hours.

2. Hourly values are available but not included in this report.

3. M is missing.

4. E is estimated.

5. ( ) indicates mean based on less than full months record.

Table 34. Summary of hours of bright sunshine recorded at the Rawson Lake meteorological station in 1981.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.0	7.2	0.0	0.4	12.6	0.4	11.4	13.8	10.5	7.3	7.9	0.0
2	2.9	3.9	7.2	2.8	0.8	0.2	9.3	5.6	11.6	4.7	7.7	0.0
3	5.1	4.3	0.0	0.0	7.8	13.8	11.7	8.2	4.4	2.7	8.2	3.2
4	3.6	3.3	7.0	8.4	4.0	9.8	14.4	11.8	11.1	0.0	1.9	0.0
5	0.5	0.0	0.1	8.9	13.0	6.7	14.4	4.6	7.0	0.0	0.1	3.7
6	4.9	1.0	3.9	1.2	13.1	11.0	14.0	2.4	0.0	7.3	7.5	0.0
7	4.0	0.0	0.0	8.0	11.5	5.1	14.0	12.3	9.2	6.0	8.0	0.0
8	0.0	1.3	0.0	7.0	3.5	13.1	6.3	6.1	10.6	0.1	5.3	3.3
9	5.6	1.5	0.0	6.6	13.2	5.0	14.5	2.7	8.6	0.1	1.5	4.0
10	6.0	4.2	1.9	5.8	12.9	5.5	10.3	11.0	9.2	0.0	0.0	0.0
11	5.3	6.5	1.0	0.0	9.0	10.6	6.5	8.0	9.6	6.4	1.1	0.0
12	0.0	6.8	4.6	3.7	13.2	13.4	12.7	9.7	10.5	0.1	6.4	0.0
13	0.0	5.9	7.6	5.3	6.1	0.0	11.6	12.3	9.3	4.6	0.3	2.0
14	1.2	0.0	4.0	11.9	8.8	0.0	8.1	10.5	9.3	0.8	4.2	0.0
15	5.9	3.1	5.2	6.0	10.4	10.1	7.9	4.2	1.1	5.0	0.0	3.9
16	0.0	0.9	1.8	9.3	10.8	12.0	4.0	12.3	5.2	4.8	0.0	0.0
17	6.2	0.2	7.5	0.2	13.7	3.8	7.6	9.6	5.1	0.0	0.8	0.0
18	7.4	0.0	0.0	2.6	12.5	5.4	13.6	12.6	9.0	7.0	0.0	0.0
19	0.0	0.0	0.0	9.3	13.6	11.7	7.7	12.7	9.8	5.5	0.0	3.2
20	0.1	0.8	0.0	9.7	13.6	7.4	2.8	5.5	9.2	0.4	4.4	0.0
21	5.7	0.0	7.9	0.0	11.8	7.3	10.4	8.8	9.3	0.2	5.0	0.1
22	4.0	0.8	4.0	0.0	6.0	13.2	14.0	2.2	8.7	1.7	2.5	0.0
23	2.1	5.1	4.0	0.0	0.3	7.5	10.7	8.1	0.0	2.6	0.0	0.0
24	2.3	0.0	6.3	0.0	0.0	1.6	2.6	2.6	6.7	0.0	0.0	2.8
25	3.9	7.9	0.6	0.0	0.0	5.3	8.7	5.5	8.6	0.0	0.0	6.1
26	4.2	0.4	8.5	8.2	13.9	9.5	13.0	9.4	0.0	0.9	0.0	0.0
27	1.3	0.0	7.6	3.1	12.0	1.1	10.0	12.1	3.7	0.0	0.0	0.0
28	0.0	6.4	0.0	10.6	2.5	4.4	13.5	12.2	2.3	0.0	0.0	4.5
29	6.1		0.0	12.0	0.0	8.0	10.1	7.7	7.3	4.7	0.0	4.8
30	5.6		2.2	1.0	9.9	6.8	7.2	10.5	0.0	0.0	0.0	0.9
31	0.0		0.0		7.8		10.8	0.0		0.0	0.0	6.1
Total	95.9	71.5	92.9	142.0	268.3	209.7	313.8	255.0	206.9	72.9	72.8	48.6
Mean	3.1	2.6	3.0	4.7	8.6	7.0	10.1	8.2	6.9	2.4	2.4	1.6

Notes: 1. All values are daily total sunshine in hours measured with a Campbell Stokes sunshine recorder.

2. Hourly values have not been included in this report but are available on request.

Table 35. Historical summary of monthly bright sunshine records for the Experimental Lakes Area for the period 1969 to 1981.

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1969	Total	-	-	-	-	-	-	266.1	249.5	130.5	64.0	64.0	29.8	-
	$\bar{x}$							8.6	8.1	4.4	2.1	2.1	1.0	
1970	Total	84.7	136.6	208.9	133.0	161.3	269.3	287.8	291.3	135.0	88.6	46.6	61.4	1904
	$\bar{x}$	2.7	4.8	6.7	4.4	5.2	8.9	9.2	9.3	4.5	2.8	1.5	1.9	
1971	Total	82.6	122.1	125.2	199.1	264.3	234.3	285.2	258.1	141.3	75.3	34.6	49.7	1872
	$\bar{x}$	3.1	4.3	4.0	6.6	8.5	7.8	9.2	9.2	4.7	2.4	1.2	1.6	
1972	Total	87.1	116.5	119.8	134.9	260.7	293.5	252.7	235.2	146.0	100.5	40.0	55.6	1842
	$\bar{x}$	2.6	4.0	4.1	4.5	8.4	10.1	8.2	7.5	4.8	3.2	1.3	1.8	
1973	Total	60.6	89.8	166.7	175.7	241.7	170.5	253.3	238.0	157.0	107.3	37.9	74.0	1772
	$\bar{x}$	1.9	3.2	5.3	5.8	7.8	5.7	8.2	7.6	5.2	3.5	1.2	2.3	
1974	Total	82.9	137.6	131.7	186.3	173.1	300.5	292.7	185.4	134.9	113.9	44.0	43.3	1826
	$\bar{x}$	2.6	4.9	4.2	6.2	5.6	10.0	9.4	6.1	4.4	3.7	1.5	1.4	
1975	Total	79.3	107.0	126.3	167.6	260.0	207.4	306.4	210.3	144.0	136.2	78.4	66.6	1890
	$\bar{x}$	2.6	3.8	4.1	5.6	8.4	6.9	10.0	6.8	4.8	4.4	2.6	2.1	
1976	Total	66.9	104.6	124.3	231.2	305.8	253.9	316.5	289.2	197.7	82.4	80.3	72.3	2125
	$\bar{x}$	2.2	3.7	4.0	7.7	9.9	8.5	10.2	9.3	6.6	2.7	2.7	2.3	
1977	Total	63.7	83.9	123.1	203.9	267.4	218.7	289.8	221.0	96.0	142.2	59.0	69.4	1838
	$\bar{x}$	2.1	3.0	3.9	6.8	8.6	7.3	9.3	7.1	3.2	4.6	1.9	2.2	
1978	Total	106.2	147.0	151.8	199.2	230.7	229.5	242.3	209.0	132.7	124.1	77.3	71.3	1921
	$\bar{x}$	3.4	5.2	5.8	6.6	7.4	7.6	7.8	6.7	4.4	4.0	2.7	2.3	
1979	Total	91.0	107.3	134.2	150.2	152.0	277.4	280.6	215.9	140.7	72.1	76.1	59.7	1757
	$\bar{x}$	2.9	3.8	4.5	5.0	4.9	9.2	9.1	7.0	4.7	2.3	2.5	1.9	
1980	Total	75.5	108.8	161.7	251.5	(185.6)	(182.8)	282.3	212.9	142.5	112.4	74.9	51.7	1843
	$\bar{x}$	2.4	3.8	5.6	8.4	(8.1)	(7.6)	9.1	6.9	4.8	3.6	2.5	1.7	
1981	Total	95.9	71.5	92.9	142.0	268.3	209.7	313.8	255.0	206.9	72.9	72.8	48.6	1850
	$\bar{x}$	3.1	2.6	3.0	4.7	8.6	7.0	10.1	8.2	6.9	2.4	2.4	1.6	
Mean		81.4	111.0	138.9	181.2	230.9	237.3	282.3	236.2	146.6	99.4	60.4	58.0	1870
Std. dev.		13.3	22.6	29.7	37.9	50.2	42.2	23.3	31.7	28.5	25.7	17.5	13.1	93.6

Notes: All values are hours of bright sunshine measured by a Campbell-Stokes bright sunshine recorder.

( ) brackets indicate a value based on less than a full months record.

APPENDIX 8

SURFACE WATER TEMPERATURE FOR RAWSON LAKE

Tables 36 to 38 provide a summary of Rawson Lake surface water temperature for the years 1979, 1980 and 1981. Similar data for the years 1969 to 1978 have been published previously (Beaty 1981).

The daily temperatures reported up to September 12, 1979, are based on a manual temperature reading. Subsequent data are mean daily temperatures which were determined from a floating Ryan Peabody recording thermograph. All values were measured or recorded near the lake centre. Surface temperature data is used in hydrometeorological studies to compute the saturated vapour pressure term in mass transfer evaporation equations. To define the open water season for the lake, dates of ice-on and ice-off are included.

Table 36. Rawson Lake surface temperature data in degrees centigrade for 1979.

DATE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	---	13.0	24.0	22.5	19.0	12.9	5.2
2	---	---	14.0	---	23.0	---	12.6	5.0
3	---	---	---	21.5	---	18.0	12.1	4.9
4	---	---	14.5	22.0	22.0	18.0	11.7	4.7
5	---	---	15.5	22.0	---	19.0	11.0	4.7
6	---	---	15.0	24.0	21.5	18.0	10.5	4.4
7	---	---	15.5	22.5	21.5	17.0	10.2	4.2
8	---	---	---	---	---	---	10.0	4.0
9	---	---	---	23.5	---	---	9.8	---
10	---	---	18.0	24.0	---	16.0	9.2	---
11	---	---	19.0	---	---	15.5	8.8	ice on
12	---	---	18.1	25.0	---	15.1	8.0	---
13	---	ice off	16.8	---	---	14.8	7.7	---
14	---	---	17.5	---	20.0	14.5	7.4	---
15	---	---	---	22.0	---	14.9	7.2	---
16	---	---	---	22.5	---	15.0	7.2	---
17	---	7.4	---	21.5	19.0	15.0	7.1	---
18	---	---	---	21.5	---	14.5	7.0	---
19	---	---	14.5	21.2	25.5	14.1	7.1	---
20	---	---	19.0	---	---	14.0	7.1	---
21	---	---	17.5	---	21.0	13.8	7.0	---
22	---	9.0	18.0	24.0	20.5	14.0	7.0	---
23	---	11.0	---	24.0	20.0	13.8	6.6	---
24	---	11.3	19.0	22.5	19.0	13.9	6.2	---
25	---	12.5	---	---	---	13.9	6.1	---
26	---	---	19.0	22.5	---	13.9	5.8	---
27	---	---	20.5	22.0	---	14.0	5.7	---
28	---	---	20.5	23.0	18.0	13.2	5.7	---
29	---	16.0	---	---	18.5	13.0	5.5	---
30	---	15.5	---	---	19.0	13.0	5.5	---
31		15.0		22.0	18.5		5.4	
Mean	---	---	(17.1)	(22.7)	(20.6)	(15.1)	7.9	---

Ice off: May 12/13 Ice on: Nov 11 Total ice free days: 182

Notes: 1. Temperatures from ice off to Sep. 12 are based on single, manual thermometer measurements taken usually between 08:00 to 15:00 (CST). Times of readings are available.

2. Temperatures, from Sep. 12 to ice on, are mean daily values determined from a floating surface water temperature recorder.

3. --- implies no data or not applicable.

4. ( ) indicate a mean value based on less than a full months record.

Table 37. Rawson Lake surface temperature data in degrees centigrade for 1980.

DATE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	12.7	19.5	19.0	M	19.0	11.0	---
2	---	14.7	19.5	18.0	M	19.0	10.7	---
3	---	16.2	18.6	19.5	M	18.8	10.5	---
4	---	16.0	18.0	19.5	M	18.0	10.3	---
5	---	14.0	17.5	20.0	M	17.9	10.1	3.9A
6	---	12.0	17.5	19.5	M	18.0	10.2	---
7	---	10.5	17.5	19.5	21.0A	18.6	10.5	---
8	---	9.5	16.5	20.0	21.5	18.8	10.7	---
9	---	10.0	16.0	20.5	21.3	18.0	10.2	---
10	---	9.5	16.5	21.5	21.5	17.6	10.1	---
11	---	9.0	17.0	22.0	21.5	17.5	9.8	---
12	---	9.5	17.5	22.0	21.2	17.0	9.3	---
13	---	9.5	17.5	22.0	21.1	16.2	9.0	---
14	---	9.5	17.5	22.5	21.2	16.5	8.8	---
15	---	10.5	17.5	23.0	21.5	15.5	8.7	---
16	---	11.5	17.5	23.0	21.5	14.5	8.5	---
17	---	13.5	17.5	23.0	20.0	15.0	9.2	---
18	---	14.8	17.3	23.5	20.0	13.5	9.0	---
19	---	15.5	18.0	23.0	21.0	13.0	8.8	60% ice on
20	---	15.8	18.3	22.5	21.0	12.3	8.7	---
21	---	15.5	19.0	22.0	20.5	12.1	7.2	ice on
22	---	16.5	19.0	22.0	20.0	12.1	7.0	---
23	---	18.0	20.0	22.0	M	11.7	6.8	---
24	---	19.4	20.5	22.0	M	11.5	6.7	---
25	---	20.0	20.7	21.5	22.0	11.2	6.0	---
26	ice off	20.0	20.0	21.5	20.3	11.0	M	---
27	---	20.3	19.3	22.0	20.4	11.0	5.8A	---
28	---	21.0	18.0	21.5	19.9	10.8	5.8A	---
29	---	21.5	17.8	22.0	19.6	11.1	5.5A	---
30	---	21.0	18.3	22.5	19.4	11.1	M	---
31		20.0		M	19.2		M	
Mean	---	14.8	18.2	21.4	(20.7)	14.9	8.7	---

Ice off: Apr 26 Ice on: Nov 21 Total ice free days: 209

Notes:
1. A indicates a manual thermometer reading.
2. M indicates missing record.
3. --- indicates no data or not applicable.
4. All temperatures are mean daily values determined from a floating surface water temperature recorder unless indicated "A".
5. ( ) indicate a mean value based on less than a full months record.

Table 38. Rawson Lake surface temperature data in degrees centigrade for 1981.

DATE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	8.2	15.0	19.0	22.0	20.3	10.5	---
2	---	8.0	14.9	19.6	22.2	20.0	10.2	---
3	---	8.3	16.0	20.6	22.5	19.5	10.0	---
4	---	8.0	16.5	22.5	23.0	19.0	9.8	---
5	---	8.7	16.8	23.1	22.8	18.5	9.8	---
6	---	11.0	17.0	23.8	22.5	18.3	9.6	---
7	---	10.8	17.5	24.2	22.7	18.0	9.5	---
8	---	10.5	17.5	23.8	22.7	17.9	9.3	---
9	---	9.0	17.5	23.0	21.9	17.9	9.0	---
10	---	10.0	17.0	23.0	21.7	18.5	9.0	---
11	---	10.5	17.0	24.8	21.7	18.2	9.0	---
12	---	11.0	18.0	23.9	21.9	18.0	9.0	4.5[A]
13	---	12.5	18.5	24.7	22.0	18.0	9.0	---
14	---	13.5	17.7	24.2	22.3	17.8	9.0	---
15	---	13.0	17.5	23.8	21.5	17.0	8.9	---
16	---	11.7	17.5	23.5	20.7	16.3	8.9	---
17	---	11.7	17.2	23.4	20.7	16.1	8.9	---
18	---	12.5	16.0	24.5	20.8	15.9	8.5	---
19	---	13.5	15.5	24.7	20.8	15.8	8.0	---
20	ice off	14.5	16.0	23.5	20.9	15.5	7.8	90% ice on
21	---	14.8	16.5	23.0	20.7	15.0	7.3	---
22	---	15.2	17.0	22.6	20.8	14.5	6.9	---
23	4.5	15.2	17.3	22.2	21.0	14.0	6.5	95% ice on
24	4.8	15.0	17.3	21.7	21.1	14.0	5.9	---
25	4.9	14.0	18.0	21.3	21.1	14.0	5.5	---
26	5.1	13.9	18.1	20.8	21.1	13.9	5.1	---
27	6.0	14.9	18.1	20.7	21.5	13.0	5.0	---
28	7.8	15.8	18.5	21.0	21.8	12.4	4.8	---
29	8.0	15.8	18.3	20.9	21.2	11.9	---	---
30	7.7	14.8	18.8	20.9	21.2	11.3	---	---
31		15.0		21.1	21.1		---	---
Mean	(6.1)	12.3	17.2	22.6	21.6	16.4	(8.2)	---

Ice off: Apr 20 Ice on: Nov 20 Total ice free days: 214

Notes:
1. A indicates a manual thermometer reading.
2. --- indicates no data or not applicable.
3. All temperatures are mean daily values determined from a floating surface water temperature recorder unless indicated "A".
4. ( ) indicate a mean value based on less than a full months record.

APPENDIX 9

ICE-OFF AND ICE-ON RECORDS FOR RAWSON LAKE

The beginning and end of ice cover on Rawson Lake (239) have been observed since 1969. Table 39 summarizes that data for the period of record. The date of ice-off referred to here is the day on which no significant ice remains. The ice usually melts quickly within a day or two once the candled ice sheet breaks up. The date of ice-on is the day that the ice cover is 80% or greater. Usually, the lake freezes over completely in one night.

Rawson Lake is the only lake at ELA for which there are complete records of ice-on and ice-off dates. These records serve as an index of when other lakes may have iced over or opened up. It has been observed that lakes in the area having smaller surface area and less depth are usually a week to a few days in advance of Lake 239 in both respects. Similarly, larger lakes freeze over and break up anywhere from a few days to a few weeks later. Morphometry data for Rawson Lake are as follows:

Surface area:	54.28 ha
Volume:	591×10^4 m^3
Maximum depth:	30 m
Mean depth:	10.9 m

Table 39. Summary of ice-off and ice-on dates for Rawson Lake for the years 1969 to 1981.

Year	Ice-off		Ice-on		Ice Free Days
	Date	Day #	Date	Day #	
1969	Apr 27	117	Nov 16	320	203
1970	May 16	136	Nov 15	319	183
1971	May 1	121	Nov 10	315	194
1972	May 5	125	Nov 14	318	193
1973	May 1	121	Nov 18	322	201
1974	May 9	129	Nov 15	319	190
1975	May 7	127	Nov 23	327	200
1976	Apr 23	114	Nov 8	313	199
1977	Apr 27	117	Nov 22	326	209
1978	May 6	126	Nov 19	323	197
1979	May 13	133	Nov 11	315	182
1980	Apr 26	117	Nov 21	326	209
1981	Apr 20	111	Nov 20	324	213
Mean	May 3	123	Nov 16	320	198

Note: Rawson Lake has a surface area of 54 hectares. Ice-off and ice-on occurs a few days earlier on smaller lakes and a few days to several days later on larger lakes.

APPENDIX 10

HYDROMETRIC DATA

The hydrometric program

Since 1969, many experiments and research projects at ELA have relied on streamflow and lake level data. This section of report provides a summary of all existing hydrometric data at ELA for the years 1979 to 1981. This report is the second of a series. Beaty (1981) summarized hydrometric data for the 1969 to 1978 period and provided a discussion for each station and lake basin to provide important information useful for interpreting and working with the data. The section "The hydrometric stations" of this appendix provides an update to those discussions where relevant. This appendix also includes an historical summary of the streamflow records for the 1969 to 1981 period.

During the three year period reported, 26 hydrometric stations were operated in 15 lake basins. Table 40 provides a list of stations and years of record during the 1979 to 1981 period. Table 41 provides a complete list of all hydrometric stations operated during the 1969 to 1981 period of study and serves as an historical summary of record available. Figure 3 shows the location of each station listed in Tables 40 and 41. Table 42 provides longitude, latitude and morphometric data for all ELA lakes for which hydrometric data exists.

The ELA hydrometric program continued to be operated in cooperation with the Water Survey of Canada (WSC) through the 1979 to 1981 period as it was in 1969 through 1978. The WSC contribution was in the form of advice, construction, service and determination of mean daily discharges and lake levels. Many of the discharge and lake level data reported here have been published in the WSC Surface Water (Ontario) data summaries. All available data have been reported here in order to provide a comprehensive summary for ELA researchers. Only April to October records have been recorded by WSC for most stations. Where winter records exist from other sources, they have been included in these tables.

The hydrometric data

The hydrometric data tables in this report provide discharge in cubic metres per second ($m^3 \cdot sec^{-1}$) for lake outflow and stream gauging stations and water level or stage in metres (m) for lake stations. The following discussions were designed to make the data more meaningful to the user.

Surface water data: The lake level and discharge data in this report are surface water data. It is important to realize the difference between outflow and surface water data when working with streamflow records, particularly lake outflow data. The true or total outflow from a lake or flow between two lakes may have a significant groundwater seepage (subsurface flow) component that is not easily detectable in addition to that which is visible on the surface as open channel flow. (See Subsurface flow).

Historical streamflow summary: To make this report more useful, the 1969 to 1981 period has been summarized into one table. Table 69 provides the monthly discharge volumes in cubic metres for each station and each month for which records exist. Most of the discharge stations show seven months of record and a total. It should be realized that the total shown is the total for the months shown and may not necessarily be the total annual outflow. (See Winter flow).

Winter flow: In winter, all ELA lakes freeze over and accumulate a snow pack on the ice surface. As winter progresses, inflow from the terrestrial area surrounding the lake decreases to zero or near zero due to freezing temperatures and an accumulating snow cover that does not melt until April. Small hydrometric stations are difficult to service and impractical to operate in winter. For these reasons, most of the stations were operated from April to the end of October (seven months). There were four exceptions: Lake 239 outflow, Lake 239 lake level, Lake 240 outflow and Lake 470 outflow. These stations were heated for winter record as they are the largest of the monitored drainage basins and usually flow all year.

In Beaty (1981), it was stated that the streams for most ELA lakes freeze and have zero flow and that winter flow for the smaller lakes was probably zero to very low. Examination of the long term record for the Lake 239 outflow showed that 19% of the total annual flow occurred in the November to March, five month winter period. Whole lake water budgets calculated for Lake 226 for the years 1973 to 1980 suggest that a winter (November to March) flow existed at the same average rate as from Lake 239 for the same period. Observations of streamflow at some of the lake outflow stations indicate that flow often exists in winter. It seems reasonable that, even though terrestrial inflow may be zero, that as the winter snow pack accumulates on the ice surface, the weight of the snow would displace lake water from beneath forcing it out of the outflow. The stream channel, once it is iced over, develops an often deep insulating snow cover which allows streamflow to occur even at air temperatures of -30°C. If a lake outlet is beaver dam controlled, flow often occurs as seepage through or under the dam allowing flow to happen in winter (e.g. L.223, L.226). Since 1980, efforts have been made, by ELA staff, to obtain manual measurements of flow on a once monthly basis during the winter. These winter values, where they exist, are included in the data summary tables that follow and are intended to allow for estimation of winter flow.

Subsurface flow: Subsurface flow or groundwater seepage may not exist for most ELA study lakes and is likely insignificant in others. Smooth continuous bedrock control at lake outlets is usually the case. However, the assumption that no groundwater flow exists should not be made without examination of the lake basin and hydrometric record.

A good example of this is found in the case of Lake 224. It is now known that Lake 224 does have a groundwater outflow component. Lake outflow records indicated a yield lower than

that of other lakes in the area. A visible seepage stream entering the southeast corner of an adjacent lake (Lake 222) was previously thought to originate from an elevated bog in that basin. The source of this stream was found to be Lake 224 or a combination of the bog above and Lake 224. In 1976, Lake 224 had been injected with tritiated water as a tracer for vertical diffusion experiments (Quay et al. 1980). In 1982, tritium levels were still easily detectable therefore offering a unique groundwater tracing method. In the summer of 1982, samples were taken from the epilimnions of Lake 222 and Lake 224 as well as the seepage inflow into Lake 222. Values were compared to background samples taken from the epilimnions of four other nearby lakes. The samples were analysed by Andy Herczeg from the Lamont-Doherty Geological Observatory of Columbia University. The results are summarized in the following table.

Sample Location	DPM/L	T.U.
Lake 222	1187 ± 38	164.8 ± 5.2
Lake 222 (inflow)	6111 ± 244	848.7 ± 33.9
Lake 224	22859 ± 822	3174.8 ± 114.2
Background		
Lake 383	425 ± 25	59.1 ± 3.5
Teggau Lake	901 ± 46	125.1 ± 6.3
Lake 259	633 ± 28	88.1 ± 3.9
Roddy Lake	774 ± 22	107.5 ± 3.1

Where: -T.U. are tritium units corresponding to the number of tritium atoms per 10^{18} hydrogen atoms.
-DPM/L refer to decays per minute per litre.

Herczeg's interpretation of the results was as follows. "It is clear that Lake 222 is contaminated with water from Lake 224. A lake the size of Lake 222 should have only about 80 T.U. if its only source was bomb tritium. The seepage water is clearly over one order of magnitude higher than expected. A rough calculation of water budget indicates that the contribution of this inflow is about 2 percent per year of the total volume of Lake 222."

A second example is Lake 122 which is located 10 km west of the field camp. It is not an ELA study lake. At first glance, Lake 122 appears typical except that it has a stream inflow but no visible stream outflow. Over the past 12 years, the lake level has dropped nearly 3 m (Everett Fee, Fisheries and Oceans, Winnipeg, personal communication).

The Lake 239 watershed is the only ELA basin where groundwater investigations have been carried out (Beaty 1981, Part III). Only surface water flow is included in this report. Where possible, a general assessment of each station with respect to the problem of potential groundwater seepage is included in the station discussions that follow.

Forest fires: During the period reported, there were two forest fires which affected ELA research basins. This brought the total number of fires to four during the 1969 to 1981 period. A summary of those fires is as follows.

1. 1974 - Lakes 239, 240 and 230: At approximately 12:00 on June 26, 1974, a forest fire started 4.8 km southeast of our experimental research station. Within a few days it joined with other fires to become a major fire burning 323 km^2 in total. Experimental lake basins affected included: 238 ha (71%) of Rawson Lake terrestrial area including the entire East and Northeast Subbasins, 43 ha (37%) of the Hayes Lake terrestrial area, and all of the Lake 230 drainage area. The effects of this fire on the Lake 239 watershed have been discussed by Schindler et al. (1980).
2. 1978 - Lake 382: At 17:30, Friday, June 16, 1978, a forest fire was sighted and located in the Lake 382 basin. It began in an unattended campsite and burned approximately 15 ha (8%) of the Lake 382 terrestrial area.
3. 1979 - Lake 226: At 15:00, Friday, June 15, 1979, an Ontario Ministry of Natural Resources (OMNR) controlled burn north of Roddy Lake and west of Lake 226 went out of control. This resulted in a forest fire which burned approximately 28 ha (34%) of the terrestrial area in the Lake 226 basin. This burn was confined to the north side of the lake along its full length.
4. 1980 - Lakes 240, 239, 470, 661, 303 and 304: At 14:00, Thursday, June 19, 1980, a fire was sighted approximately 3 km southwest of Lake 240, which, on Friday, June 20 burned through the entire 240, 239, 470, 661, 303, and 304 lake basins. This included the 3 research subbasins (NW, NE and E). the field station was evacuated and OMNR fire crews were able to save the buildings and their immediate surrounding areas.

Survey datum: Where long term or continuous lake level records are to be collected, it is necessary to reference local survey benchmarks to some selected datum. Since there is no geodetic survey benchmark near to ELA from which to reference elevations relative to mean sea level (MSL), the lake levels in the following data tables are relative to an assumed datum. In most cases, individual lakes are not related to the same datum. The exception is for the Lake 240 drainage basin (includes 239, 470, 661, 303 and 304) in which all surveys were referenced to a master assumed benchmark at the Lake 240 outflow weir. For approximate relative elevations (MSL) for all lakes in the ELA, the best source is the Lockwood Survey contour maps (1972) at a scale of 1 inch = 660 feet (R.F. = 1:7920). The National Topographic Survey (NTS) series by the Surveys and Mapping Branch, Department of Energy, Mines and Resources also provide elevation, contour and location information at a scale of 1:50,000. Most of the ELA area is covered on map sheet 52F/12 published in 1978. It was based on 1969-1970 aerial photographs with a culture check in 1975. Rawson Lake (239) is approximately 392 m above mean sea level.

Drainage basin areas: The drainage basin areas provided in Table 42 were based on mapping by Western Photogrammetry (1970) at a scale of

1:4800 or by Lockwood Survey (1972) at a scale of 1:7920. Discrepancies exist between values reported here and those previously reported by Brunskill and Schindler (1971). Basin areas reported here should be considered more accurate, as they are based on larger scale mapping. Contour mapping of lake basins 230 and 265 does not exist at a suitable scale and the areas were based on stereoscopic interpretation of 1976 aerial photographs at a scale of approximately 1:15,500.

Areas of lake surface: The lake surface areas included in Table 42 are consistent with those of the bathymetric maps in use at ELA with the exception of Lake 239, 240, 303, 304 and 470. The surface areas for those five lakes were based on the Western Photogrammetry topographical mapping (1969) at a scale of 1:4800.

Lake ordering: Table 42 provides, in addition to basic morphometric parameters, a lake order number for each of the lakes having hydrometric record. The order number is simply the number of lakes above the outflow including its own lake. For example, Lake 223 is an order 3 having 3 lakes above its outflow while Lake 239 is an order 1 or headwater lake. It is intended as a simple number which may be useful in explaining, in part, quantitative or qualitative differences between a sample of lakes.

Symbols: In the data tables, symbols used opposite daily stage or discharge values to which they apply are as follows:

- A - manual gauge observation: indicates that one or more manual gauge readings were obtained and used in determining the value reported.
- B - ice conditions: indicates the presence of ice at the station which has or may have affected the stage-discharge relationship.
- E - estimated value: indicates a value which was determined by some indirect method such as interpolation, graph of observed readings, comparison with other stations or by considering meteorological data.

Useful conversion factors: All hydrometric data reported in Beaty (1981) were summarized in English units. 1979 marked the beginning of the metric program for most government agencies in Canada and therefore data are now presented in metric units. The following conversion factors will be helpful in working between the old and new data:

feet x 0.3048 = metres
miles x 1.60934 = kilometres
acres x 0.4047 = hectares
cubic feet per second x 0.028316 = cubic metres per second
acre feet x 1233.5 = cubic metres
1 cubic foot per second flowing 1 day = 1.9835 acre feet
cubic metres ÷ 1000 = cubic decametres

The hydrometric stations

The purpose of this section is to provide updated information pertaining to ELA drainage basins and hydrometric stations. Beaty (1981) provided discussions which were current to the end of 1978. Rather than restate that which has already been reported, this section should be treated as supplementary data. Users of the hydrometric data in this report are encouraged to refer to the relevant station or basin discussions in both reports.

Lake 114 watershed: New instrumentation included the addition of a stage recorder on the lake and a temporary weir on an inflow stream. In July, 1979, the east and northeast areas of the watershed, that had been previously logged, were scarified to encourage new forest growth.

LAKE 114 OUTFLOW: There was no change to this station during the period reported. The outflow area is diked with gravel fill for the roadway and the stream passes through it by culvert to the weir. Examination of the weir and downstream area during times of zero flow revealed no sign of significant groundwater seepage entering the lower stream channel (see Subsurface flow, p. 66). Occasional winter streamflow observations in 1980 and 1981 have been included in the daily flow summary tables (see Winter flow, p. 66).

LAKE 114 LAKE LEVEL: In October, 1980, a stilling well and A-35 Leupold Stevens float water level recorder were installed on the lake. The record began in 1981 and the station was operated from April to October (seven months). Installation, service and computation of mean daily water levels were by WSC.

LAKE 114 INFLOW: In July, 1979, a weir was installed on a small intermittent stream entering the northeast corner of Lake 114. The structure was a 90° V-notch temporary weir with plastic lined earth and rock wingwalls. The weir was located 143 m upstream from the lake shore and was equipped with a Leupold Stevens type F weekly water level recorder. This basin is 3.64 ha in area and is the smallest catchment gauged at ELA. Because of the small size of this drainage area, and the limited storage capacity, flow only occurs during and for a short time after significant rainfall events. It was not our intention to collect continuous record from this station but rather to collect runoff data from a number of storm events for hydrograph analysis. The records are not continuous and have not been included in this report. The station was operated independent of the WSC network as time and availability of recorders allowed.

Lake 120 watershed: No change. The Lake 120 outflow weir was discontinued at the end of the 1974 season.

Lake 223 watershed: No change except for the addition of a lake stage recorder as described below. It should be noted that the level of Lake 223 is influenced by the presence of an old beaver dam at its outlet. There has been no beaver activity on the lake during the period of study. The dam maintains the lake about 0.3 to 0.6 m above its natural outflow level and therefore the level of the lake will be dependent on the condition of the dam.

LAKE 223 OUTFLOW: No change. The outflow weir is located about 50 m downstream of the lake outlet and beaver dam. The concrete weir is on bedrock and the possibility of subsurface seepage or groundwater outflow is unlikely. In winter, seepage occurs through and beneath the beaver dam therefore usually sustaining a winter flow. Occasional winter streamflow observations in 1980 and 1981 have been included in the daily flow summary tables (see Winter flow, p. 66).

LAKE 223 LAKE LEVEL: In October, 1980, a stilling well and Leupold Stevens A-35 water level recorder were installed on the lake. The record began in 1981 and operation was from April to October (seven months). Installation, service and computation of mean daily water levels were by WSC.

Lake 224 watershed: There has been no change with respect to the hydrological instrumentation in the Lake 224 watershed. It is now known that there is a groundwater flow component from Lake 224 to Lake 222. Tritium in Lake 224 water from a previous whole lake experiment has been found in Lake 222 (see Subsurface flow, p. 66).

LAKE 224 OUTFLOW: There has been no change at this station during the period reported. The outflow area from this lake is less than ideal in terms of weir site suitability. The weir location is not bedrock controlled and the overburden is boulder and till infilled such that a groundwater problem would be difficult to detect and impossible to control (see Subsurface flow, p. 66). Occasional winter streamflow observations in 1980 and 1981 have been included in the daily flow summary tables (see Winter flow, p. 66).

Lake 225 watershed: No change.

LAKE 225 OUTFLOW: This concrete weir was constructed on sound continuous bedrock. The possibility of groundwater seepage is highly unlikely.

Lake 226 watershed: In June, 1979, a forest fire burned a portion of the Lake 226 watershed (see Forest fires, p. 67). The presence of beaver on Lake 226 began in July or August of 1980. Their activity affected the lake level by 0.5 m in 1980 and 1981.

LAKE 226 OUTFLOW: There was no change at this station during the period reported. The weir is located about 20 m below the outlet and the above-mentioned beaver dam. Although this outflow area is not totally bedrock controlled, it appears that groundwater flow from this lake is unlikely. Occasional streamflow observations in winter, indicate that flow often exists during the November to March period. Only the April to October period has been monitored and reported in the tables which follow (see Winter flow, p.66).

Lake 227 watershed: No change.

LAKE 227 OUTFLOW: There has been no change at this section during the period reported (see Winter flow, p. 66).

LAKE 227 LAKE LEVEL: No change.

Lake 230 watershed: No change.

LAKE 230 OUTFLOW: This station was discontinued after the 1980 season.

Lake 239 watershed: There was no change to hydrometric stations in the Rawson Lake watershed during the period reported. Groundwater and subsurface flow have been previously discussed in detail (Beaty 1981). Remapping of the Northeast Subbasin in 1982 resulted in a change to the Rawson Lake basin drainage area figure from 390.46 to 391.49 ha, a change of only +0.2%. Table 43 provides drainage area values for the Lake 239 watershed and its terrestrial subbasins. In June 1980, the Lake 239 watershed was once again burned by forest fire. In this fire, only the immedidate field camp area was left untouched (see Forest fires, p. 67).

LAKE 239 OUTFLOW: No change.

LAKE 239 LAKE LEVEL: No change.

NORTHEAST INFLOW: In July 1979, the hydrometric station was upgraded. The gauging station was replaced with a concrete flume and a new stage-discharge relationship was determined. No other changes were made during the period reported.

NORTHWEST INFLOW: No change.

EAST LOWER WEIR: No change.

EAST UPPER WEIR: No change.

Lake 240 watershed: The entire Hayes Lake watershed (including its five tributary lakes) was burned by the major forest fire of June, 1980 (see Forest fires, p. 67). There were no other changes.

LAKE 240 OUTFLOW: No change.

Lake 261 watershed:

LAKE 261 OUTFLOW: This station was discontinued after the 1980 season.

Lake 265 watershed:

LAKE 265 OUTFLOW: This station was discontinued after the 1980 season.

Lake 302 watershed: Lake 302 is located 3 km northwest of the ELA field station. The main ELA access road passes within 100 m of the south end of the lake making this a very convenient lake to work on. The Lockwood Survey maps (1972) offer the best basin contour mapping available having a 10 foot (3 m) contour interval and a scale of 1:7920. Lake 302 is approximately 414 m above mean sea level. It is a headwater lake and flows north into Roddy Lake. The lakes' width is constricted at its midlength by narrows and an island, effectively dividing the lake into two nearly equal basins. In 1981, sea curtains were installed at the narrows thus creating a double basin lake that is presently being used for whole lake acidifica-

tion experiments. Drainage and subdrainage areas for the Lake 302 watershed are as follows:

	Basin area[1]	Lake[2]	Basin area[3]
Total	102.51	23.7	78.81
North basin	48.20	12.8	35.40
South basin	54.31	10.9	43.41

[1] Basin area including lake surface (ha)
[2] Lake surface area (ha)
[3] Basin area excluding lake surface (ha)

Hydrometric work on this lake began in 1980 and consisted of lake level and lake outflow monitoring. Although this lake was used for whole lake experiments some years ago, no hydrological data were collected.

LAKE 302 LAKE LEVEL: A staff gauge was installed August 13, 1980, and read almost daily until October 29, 1980. In the late fall of 1980, a stilling well and Leupold Stevens A-71 water level recorder were installed for more continuous data. Record began in 1981 and the station was operated from April to October (seven months). Installation, service and computation of mean daily water levels were by WSC.

LAKE 302 OUTFLOW: Discharges reported for 1980 were computed by ELA hydrologic studies staff and were based on a relationship between observed stream discharge and lake level. Daily lake gauge readings were made by various people working on the lake. Discharges reported for 1981 were also computed by ELA hydrologic studies staff and were based on a relationship between recorded lake level and measured discharge in the natural outflow open stream channel. From September 21 to 26, 1981, a 60° V-notch concrete weir was constructed by Water Survey of Canada with operation beginning April 1, 1982. This weir was constructed on bedrock and therefore seepage is not a problem. Generally the basin is bedrock controlled and groundwater outflow is unlikely.

Lake 303 watershed: The Lake 303 watershed was completely burned by the forest fire of June, 1980 (see Forest fires, p. 67). There were no other changes.

LAKE 303 OUTFLOW: There was no change to this station during the period reported. The concrete weir was built on sound bedrock and therefore seepage or groundwater flow is not a problem (see Subsurface flow, p. 66). Occasional winter streamflow observations in 1980 and 1981 have been included in the daily flow summary tables (see Winter flow, p. 66).

LAKE 303 LAKE LEVEL: No change.

Lake 304 watershed: There was no change in this watershed except for a forest fire which, in June, 1980, burned the entire watershed (see Forest fires, p. 67). The outlet area is smooth continuous bedrock and groundwater outflow is unlikely. The outflow is not monitored. Flow occurs as seepage through or under an old beaver dam. There has been no beaver activity on this lake during the period of record but the lake level is influenced by the presence of this dam.

LAKE 304 LAKE LEVEL: No change.

Lake 470 watershed: There was no change in this watershed except for a forest fire, which, in June, 1980, burned the entire watershed (see Forest fires, p. 67). The lake outlet is bedrock controlled. Water leaves the lake through a trench cut down through an old beaver dam such that this dam is no longer affecting the lake level. There was no beaver activity during the period reported.

LAKE 470 OUTFLOW: No change.

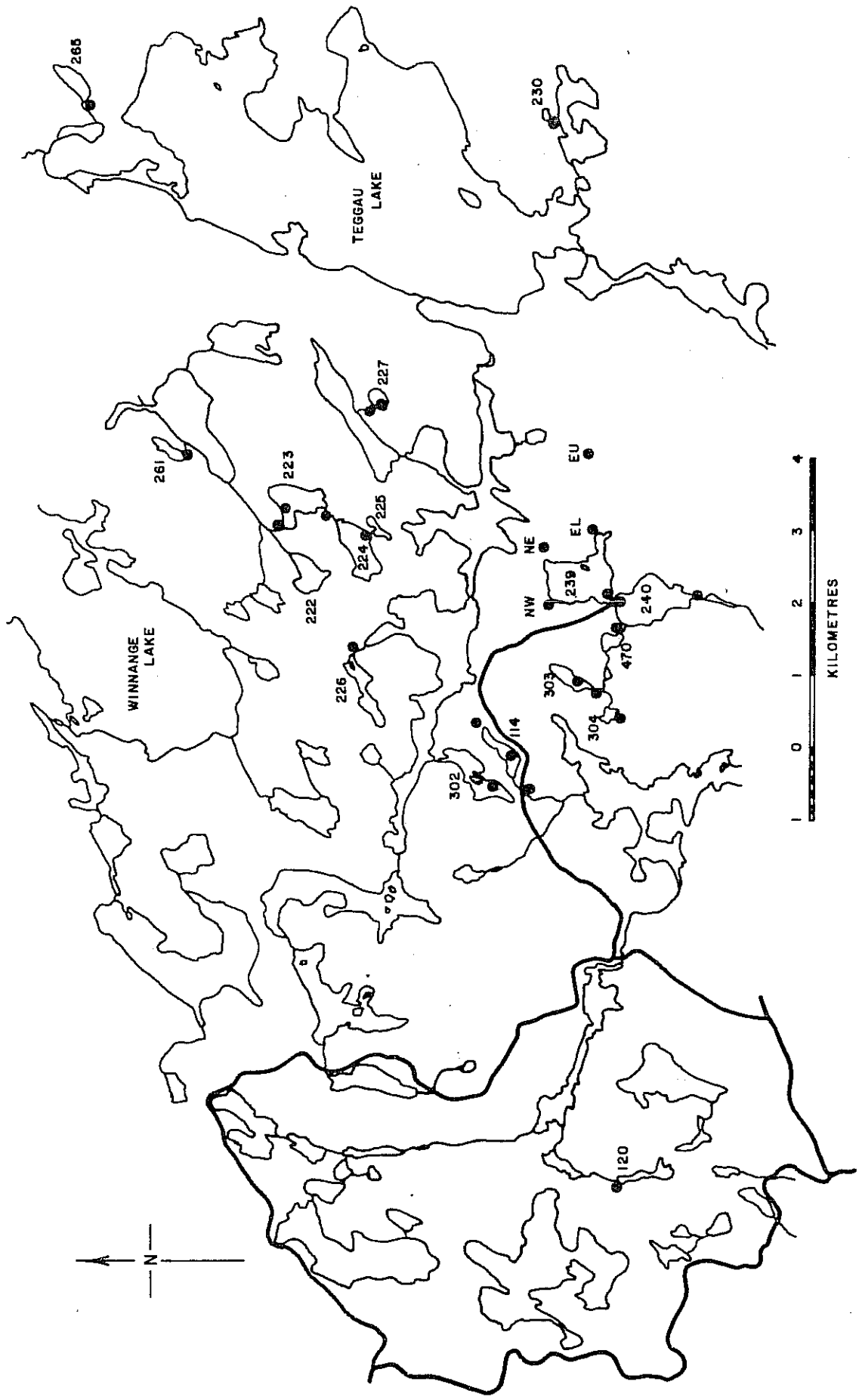

Fig. 3. Map showing hydrometric stations with record during the 1969 to 1981 period. Dots indicate station locations for weirs, flumes or water level recorders. Refer to tables 40 and 41 for station period of record.

Table 40. Hydrometric stations in operation in the Experimental Lakes Area during the 1979 to 1981 period.

	Station	1979	1980	1981
1	Lake 114 Outflow	Y	Y	Y
2	Lake 114 Lake Level	N	N	Y
3	Lake 114 Inflow	P	P	P
4	Lake 223 Outflow	Y	Y	Y
5	Lake 223 Lake Level	N	N	Y
6	Lake 224 Outflow	Y	Y	Y
7	Lake 225 Outflow	Y	Y	Y
8	Lake 226 Outflow	Y	Y	Y
9	Lake 227 Outflow	Y	Y	Y
10	Lake 227 Lake Level	Y	Y	Y
11	Lake 230 Outflow	Y	Y	N
12	Lake 239 Outflow	Y	Y	Y
13	Lake 239 Lake Level	Y	Y	Y
14	East Inflow to Lake 239	Y	Y	Y
15	East Upper Weir	Y	Y	Y
16	Northwest Inflow to L.239	Y	Y	Y
17	Northeast Inflow to L.239	Y	Y	Y
18	Lake 240 Outflow	Y	Y	Y
19	Lake 261 Outflow	Y	Y	N
20	Lake 265 Outflow	Y	Y	N
21	Lake 302 Outflow	N	N	Y
22	Lake 302 Lake Level	N	N	Y
23	Lake 303 Outflow	Y	Y	Y
24	Lake 303 Lake Level	Y	Y	Y
25	Lake 304 Lake Level	Y	Y	Y
26	Lake 470 Outflow	Y	Y	Y

Note: Recording weirs at Lakes 230, 261 and 265 were discontinued at the end of 1980. A new concrete weir was constructed at Lake 302 outflow in the late fall of 1981.

Y-station in operation
N-station not in operation
P-partial record only

Table 41. Historical summary of all hydrometric stations operated in the Experimental Lakes Area in the 13 year period from 1969 to 1981.

Lake	Station Name	Type	Instrumentation	Installation	Record to 1981 begins	ends	years	months each year
114	Lake 114 Outflow	discharge, lake outflow	Wr	concrete and steel H flume	1971		11	S, 7
	Lake 114 Lake Level	lake stage	Ls	staff gauge	1978	1980	3	S, 6
	Lake 114 Lake Level	lake stage	Lr	stilling well and recorder	1981		1	S, 7
120	Lake 120 Outflow	discharge, lake outflow	Wr	60°V-notch weir, temporary	1973	1974	2	S, 7, m
223	Lake 223 Outflow	discharge, lake outflow	Wr	90°V-notch weir, concrete	1975		7	S, 7, m
	Lake 223 Lake Level	lake stage	Lr	stilling well and recorder	1981		1	S, 7
224	Lake 224 Outflow	discharge, lake outflow	Wr	90°V-notch weir, temporary	1975		7	S, 7, m
225	Lake 225 Outflow	discharge, lake outflow	Wr	60°V-notch weir, concrete	1975		7	S, 7, m
226	Lake 226 Outflow	discharge, lake outflow	Wr	90°V-notch weir, temporary	1972		10	S, 7
227	Lake 227 Outflow	discharge, lake outflow	Wr	90°V-notch weir, temporary	1970		12	S, 7
	Lake 227 Lake Level	lake stage	Lr	stilling well and recorder	1969		7	S, 7, m
230	Lake 230 Outflow	discharge, lake outflow	Wr	60°V-notch weir, temporary	1971	1980	11	S, 7, m
239	Lake 239 Outflow	discharge, lake outflow	Wr	gauging section, temporary	1970	1972	2	A, 12
		discharge, lake outflow	Wr	Parshall flume, plate steel	1972		10	A, 12
	Lake 239 Lake Level	lake stage	Lr	servo-manometer pressure gauge	1969	1975	7	A, 12, m
		lake stage	Lr	stilling well and recorder	1976		6	A, 12
	Northwest Inflow	discharge, terrestrial basin	Wr	120°V-notch weir	1970		12	S, 7
	Northeast Inflow	discharge, terrestrial basin	Wr	gauging section	1971		11	S, 7, m
	East Inflow	discharge, terrestrial basin	Wr	flume	1971		11	S, 7, m
	East Upper Weir	discharge, terrestrial basin	Wr	120°V-notch weir, concrete	1973		9	S, 7, m
240	Lake 240 Outflow	discharge, lake outflow	Wr	120°V-notch weir, concrete	1969		13	A, 12, m
261	Lake 261 Outflow	discharge, lake outflow	Wr	60°V-notch weir	1971	1980	11	S, 7, m
265	Lake 265 Outflow	discharge, lake outflow	Wr	H-flume, 2 ft deep design	1971	1980	11	S, 7, m
302	Lake 302 Outflow	discharge, lake outflow		natural channel rated to lake level	1981		1	S, 7, m
	Lake 302 Lake Level	lake stage,	Lr	stilling well and recorder	1981		1	S, 7
303	Lake 303 Outflow	discharge, lake outflow	Wr	120°v-notch weir, concrete	1970		12	S, 7
	Lake 303 Lake Level	lake stage	Lr	stilling well and recorder	1969		13	S, 7, m
304	Lake 304 Lake Level	lake stage	Lr	stilling well and recorder	1969		13	S, 7, m
470	Lake 470 Outflow	discharge, lake outflow	Wr	90°v-notch weir in 1969	1969	1970	1	S, 9
		discharge, lake outflow	Wr	12 inch trapezoidal flume	1970		12	A, 12, m

Notes: S - seasonal, usually April to October
A - all year, 12 month record
m - missing or incomplete record in some years
Wr- recording weir
Ls- non-recording lake staff gauge
Lr- recording lake gauge

Table 42. Location and morphometric data for ELA lakes with hydrometric record.

Lake	Location		Drainage Area (ha)				Lake Volume ($x10^5$ metres^3)	Lake Mean Depth (m)	Number of lakes above the outflow, (order no.)	Lakes tributary to outflow
	Latitude ^oN	Longitude ^oW	Aw	Ad	At	As				
114	49°40'14"	93°45'30"	57.7	57.7	45.6	12.1	2.07	1.7	1	114
120	49°39'20"	93°50'20"	69.7	69.7	60.4	9.3	7.04	7.6	1	120
223	49°42'	93°42"	259.96	162.48	135.21	27.27	19.51	7.2	3	223,224,225
224	49°41'30"	93°43'00"	97.48	67.01	41.09	25.92	30.05	11.6	2	224,225
225	49°41'20"	93°43'00"	30.47	30.47	26.48	3.99	0.63	1.6	1	225
[a]226	49°41'30"	93°44'20"	97.17	97.17	81.08	16.09	9.61	6.0	1	226
227	49°31'18"	93°41'19"	34.40	34.40	29.40	5.0	2.21	4.4	1	227
230	49°39'30"	93°38'00"	8.89	8.89	7.22	1.67	1.04	6.2	1	230
[b]239	49°39'43"	93°43'36"	391.49	391.49	337.21	54.28	59.10	10.9	1	239
[b]240	49°39'00"	93°43'40"	721.18	162.00	117.12	44.18	26.70	6.0	6	240,239,470,661,303,304
261	49°42'40"	93°42'00"	47.58	47.58	42.01	5,57	1.60	2.9	1	261
265	49°43'30"	93°38'00"	71.0	71.0	57.9	13.1	12.8	9.8	1	265
[a]302	49°40'49"	93°45'30"	102.51	102.51	78.81	23.7	12.9	5.4	1	302
303	49°39'47"	93°44'23"	54.14	54.14	44.67	9.47	1.50	1.6	1	303
304	49°39'33"	93°45'39"	26.42	26.42	23.03	3.39	1.15	2.95	1	304
470	49°39'30"	93°44'00"	167.71	42.27	36.59	5.68	0.33	0.6	4	470,661,303,304

Notes: a - Lakes 226, and 302 are double basin lakes that were separated by a sea curtain for some years. For a breakdown of these drainage areas see discussions for these stations.
b - Basin areas for Lakes 239 and 240 were adjusted in November 1982 after re-mapping of the NE Subbasin.
Aw- Total drainage area, including all lake surfaces and tributary lake watersheds.
Ad- Total drainage area, including lake surface and excluding tributary lakes.
At- Total terrestrial area, excludes lake surface and tributary lake watersheds.
As- Lake surface area.

Table 43. Areas for the Lake 239 watershed and its terrestrial subbasins.

	Area (ha)	Percent of Total
Lake 239 watershed		
Terrestrial drainage	337.21	86
Lake surface	54.28	14
Total	391.49	100
		Percent of terrestrial
Terrestrial subdrainage		
East Subbasin	170.28	50
Direct runoff areas	99.97	30
NW Subbasin	56.38	17
NE Subbasin	10.58	3
Total terrestrial drainage	337.21	100

Note: These areas include changes to the previously reported values for the NE and NW Subbasins.

Table 44. Mean daily discharge in cubic metres per second for the Lake 114 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.019	0.006	0.001	0	0	0	---	---	1
2	---	---	---	0	0.025	0.006	0	0	0	0	---	---	2
3	---	---	---	0	0.026	0.005	0	0	0	0	---	---	3
4	---	---	---	0	0.023	0.005	0	0	0	0	---	---	4
5	---	---	---	0	0.020	0.004	0	0	0	0	---	---	5
6	---	---	---	0	0.017	0.004	0	0	0	0	---	---	6
7	---	---	---	0	0.016	0.004	0	0	0	0	---	---	7
8	---	---	---	0	0.014	0.003	0	0	0	0	---	---	8
9	---	---	---	0	0.012	0.003	0	0	0	0	---	---	9
10	---	---	---	0	0.011	0.003	0	0	0	0	---	---	10
11	---	---	---	0	0.013	0.002	0	0	0	0	---	---	11
12	---	---	---	0	0.013	0.002	0	0	0	0	---	---	12
13	---	---	---	0	0.012	0.002	0	0	0	0	---	---	13
14	---	---	---	0	0.011	0.002	0	0	0	0	---	---	14
15	---	---	---	0	0.010	0.001	0	0	0	0	---	---	15
16	---	---	---	0	0.009	0.001	0	0	0	0	---	---	16
17	---	---	---	0	0.009	0.001	0	0	0	0	---	---	17
18	---	---	---	0	0.009	0.001	0	0	0	0	---	---	18
19	---	---	---	0.015	0.008	0.001	0	0	0	0	---	---	19
20	---	---	---	0.053 E	0.007	0.002	0	0	0	0	---	---	20
21	---	---	---	0.084 E	0.006	0.003	0	0	0	0	---	---	21
22	---	---	---	0.078 E	0.006	0.003	0	0	0	0	---	---	22
23	---	---	---	0.057 E	0.005	0.002	0	0	0	0	---	---	23
24	---	---	---	0.044 E	0.005	0.001	0	0	0	0	---	---	24
25	---	---	---	0.080 A	0.004	0.001	0	0	0	0	---	---	25
26	---	---	---	0.066	0.004	0.001	0	0	0	0	---	---	26
27	---	---	---	0.047	0.004	0.001	0	0	0	0	---	---	27
28	---	---	---	0.036	0.004	0.001	0	0	0	0	---	---	28
29	---		---	0.028	0.003	0.001	0	0	0	0	---	---	29
30	---		---	0.023	0.004	0.001	0	0	0	0	---	---	30
31	---		---		0.007		0	0		0		---	31
TOTAL	---	---	---	0.611	0.336	0.073	0.001	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.020	0.011	0.002	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.084	0.026	0.006	0.001	0	0	0	---	---	MAX
MIN	---	---	---	0	0.003	0.001	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.005 m^3/s
MAXIMUM DAILY DISCHARGE, 0.084 m^3/s ON APR 21
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.09
FEB	---	AUG	0
MAR	---	SEP	0
APR	52.8	OCT	0
MAY	29.0	NOV	---
JUN	6.31	DEC	---

TOTAL DISCHARGE, 88.2 dam^3

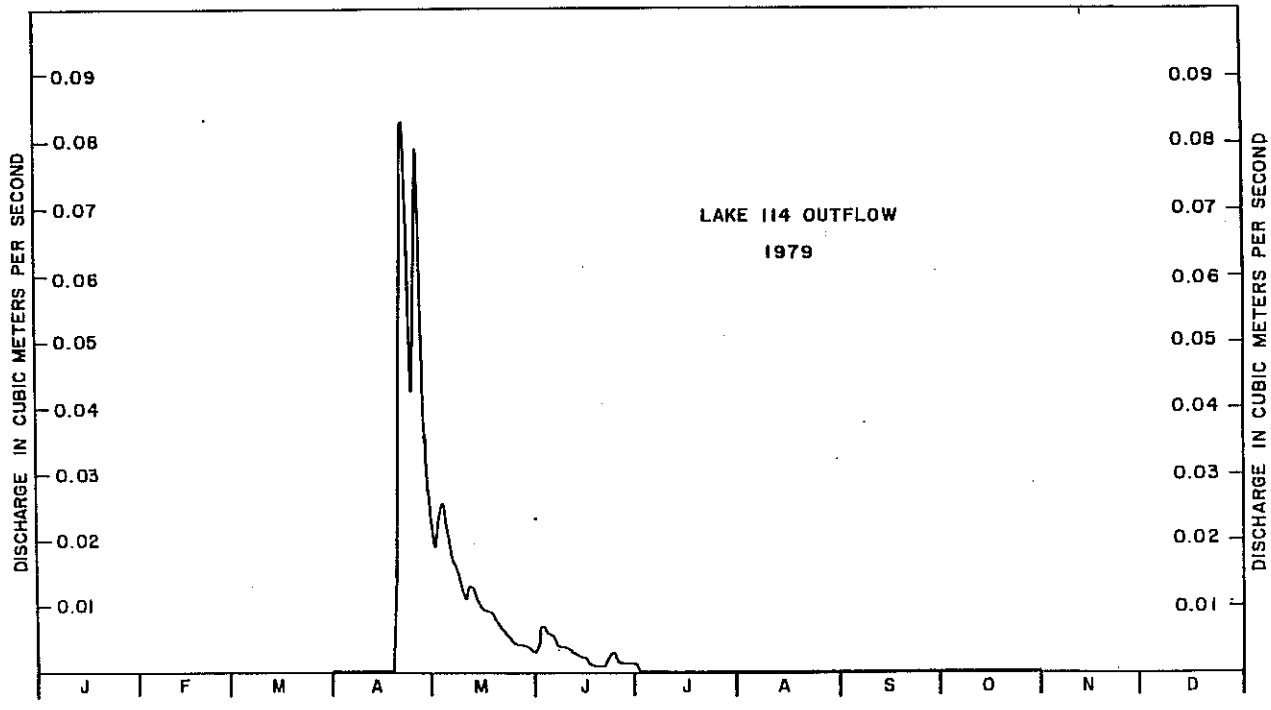

Fig. 4. Annual hydrograph based on mean daily discharges for the Lake 114 outflow for 1979.

Table 44. Mean daily discharge in cubic metres per second for the Lake 114 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.004	0	0	0	0	0	---	---	1
2	---	---	---	0	0.004	0	0	0	0	0	---	---	2
3	---	---	---	0	0.003	0	0	0	0	0	---	---	3
4	---	---	---	0	0.003	0	0	0	0	0	---	---	4
5	---	---	0 A	0	0.001	0	0	0	0	0	---	---	5
6	---	---	---	0	0	0	0	0	0	0	---	---	6
7	---	---	---	0	0	0	0	0	0	0	---	---	7
8	---	---	---	0	0	0	0	0	0	0	---	---	8
9	---	---	---	0.002	0	0	0	0	0	0	---	---	9
10	---	---	---	0.031	0	0	0	0	0	0	---	---	10
11	---	---	---	0.029	0	0	0	0	0	0	---	---	11
12	---	---	---	0.025	0	0	0	0	0	0	---	---	12
13	---	---	---	0.021	0	0	0	0	0	0	---	---	13
14	---	---	---	0.018	0	0	0	0	0	0	---	---	14
15	---	---	---	0.016	0	0	0	0	0	0	---	---	15
16	0 A	---	---	0.016	0	0	0	0	0	0	---	---	16
17	---	---	---	0.018	0	0	0	0	0	0	---	---	17
18	---	---	---	0.022	0	0	0	0	0	0	---	---	18
19	---	---	---	0.028	0	0	0	0	0	0	---	---	19
20	---	---	---	0.027	0	0	0	0	0	0	---	---	20
21	---	---	---	0.023	0	0	0	0	0	0	---	---	21
22	---	---	---	0.021	0	0	0	0	0	0	---	---	22
23	---	---	---	0.024	0	0	0	0	0	0	---	---	23
24	---	---	---	0.015E	0	0	0	0	0	0.001A	---	---	24
25	---	---	---	0.013E	0	0	0	0	0	0.002	---	---	25
26	---	---	---	0.011E	0	0	0	0	0	0.002	---	---	26
27	---	---	---	0.009E	0	0	0	0	0	0.002	---	---	27
28	---	---	---	0.007E	0	0	0	0	0	0.002	---	---	28
29	---	---	---	0.005A	0	0	0	0	0	0.002	---	---	29
30	---		---	0.005	0	0	0	0	0	0.001	---	---	30
31	---		---		0		0	0		0.001		---	31
TOTAL	---	---	---	0.386	0.015	0	0	0	0	0.013	---	---	TOTAL
MEAN	---	---	---	0.013	0	0	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.031	0.004	0	0	0	0	0.002	---	---	MAX
MIN	---	---	---	0	0	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.002 m^3/s
MAXIMUM DAILY DISCHARGE, 0.031 m^3/s ON APR 10
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.058 m^3/s AT 12:20 CST ON APR 23

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	33.4	OCT	1.12
MAY	1.30	NOV	---
JUN	0	DEC	---

TOTAL DISCHARGE, 35.8 dam^3

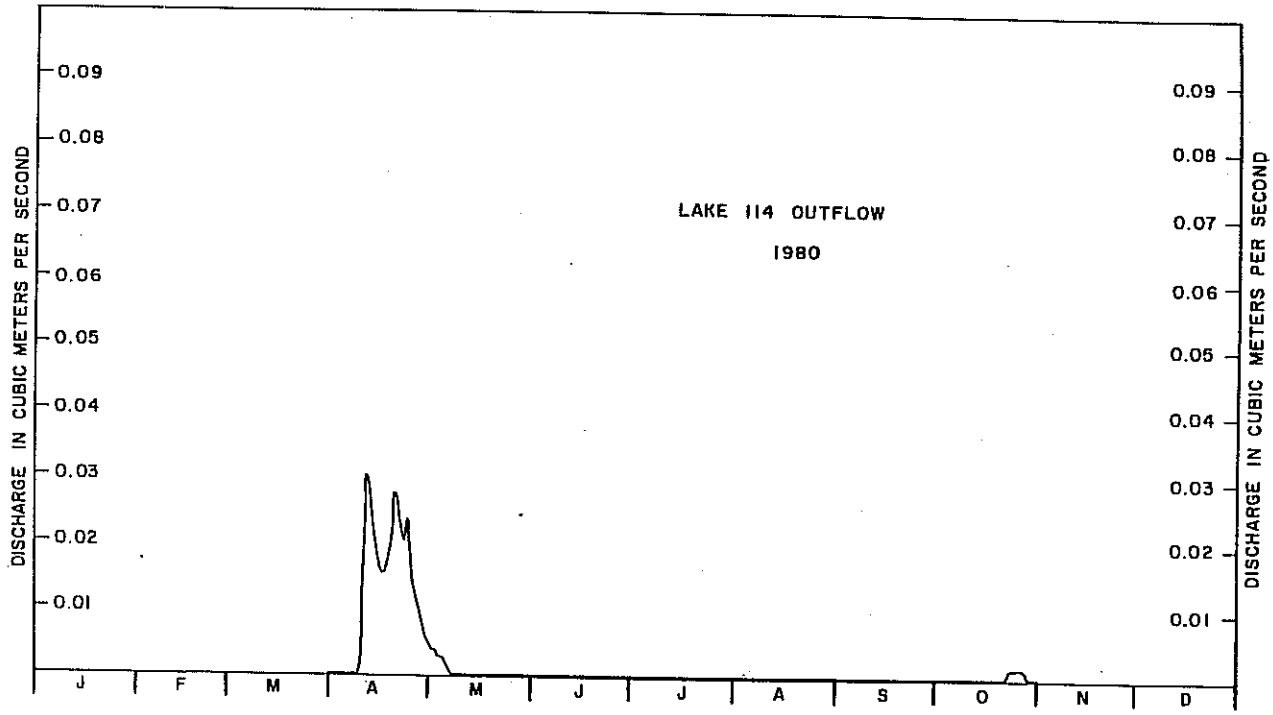

Fig. 4. Annual hydrograph based on mean daily discharges for the Lake 114 for 1980.

Table 44. Mean daily discharge in cubic metres per second for the Lake 114 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.003	0 E	0 E	0E	0 E	0.013	---	---	1
2	---	---	---	0	0.003	0 E	0 E	0E	0 E	0.016	---	---	2
3	---	---	---	0	0.003	0 E	0	0E	0 E	0.018	---	---	3
4	---	---	---	0	0.002	0 E	0	0E	0 E	0.022	---	---	4
5	---	---	---	0	0.002	0 E	0 E	0E	0 E	0.023	---	---	5
6	---	---	---	0	0.001	0 E	0 E	0E	0 E	0.020	---	---	6
7	---	---	---	0.002	0.002	0 E	0.009	0E	0 E	0.017	---	0.004A	7
8	---	---	---	0.003	0.001	0 E	0 E	0E	0 E	0.013	---	---	8
9	---	---	---	0.002	0.001	0 E	0 E	0E	0 E	0.010	---	---	9
10	---	---	---	0.001	0.001	0 E	0 E	0E	0 E	0.010	---	---	10
11	---	---	---	0.001	0	0 E	0 E	0E	0 E	0.011	---	---	11
12	---	---	---	0.001	0	0 E	0 E	0E	0 E	0.009	---	---	12
13	---	---	---	0.002	0	0 E	0 E	0E	0 E	0.008	0.003A	---	13
14	---	---	---	0.002	0	0 E	0 E	0E	0 E	0.007	---	---	14
15	---	---	---	0.002	0	0 E	0 E	0E	0 E	0.006	---	---	15
16	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.005	---	---	16
17	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.005	---	---	17
18	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.005	---	---	18
19	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.004	---	---	19
20	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.004	---	---	20
21	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.003	---	---	21
22	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.002	---	---	22
23	---	---	---	0.003	0	0 E	0 E	0E	0 E	0.002	---	---	23
24	---	---	---	0.002	0	0 E	0 E	0E	0 E	0.002	---	---	24
25	---	---	---	0.002	0	0 E	0 E	0E	0 E	0.002	---	---	25
26	---	0 A	0 A	0.003	0 E	0 E	0 E	0E	0 E	0.003	---	---	26
27	0 A	---	---	0.003	0 E	0.001	0 E	0E	0 E	0.002	---	---	27
28	---	---	---	0.003	0 E	0.001	0 E	0E	0 E	0.003	---	---	28
29	---		---	0.003	0 E	0	0 E	0E	0 E	0.003E	---	---	29
30	---		---	0.004	0 E	0 E	0 E	0E	0.001	0.003E	---	---	30
31	---		---		0 E		0 E	0E		0.003E		---	31
TOTAL	---	---	---	0.060	0.019	0.002	0.009	0	0.001	0.254	---	---	TOTAL
MEAN	---	---	---	0.002	0.001	0	0	0	0	0.008	---	---	MEAN
MAX	---	---	---	0.004	0.003	0.001	0.009	0	0.001	0.023	---	---	MAX
MIN	---	---	---	0	0	0	0	0	0	0.002	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.002
MAXIMUM DAILY, 0.023 ON OCT 5
MINIMUM DAILY, 0 ON APR 1
MAXIMUM INSTANTANEOUS,
0.023 AT 16:59 CST ON OCT 2

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.78
FEB	---	AUG	0
MAR	---	SEP	0.09
APR	5.18	OCT	21.9
MAY	1.64	NOV	---
JUN	0.17	DEC	---

TOTAL DISCHARGE, 29.8 dam³

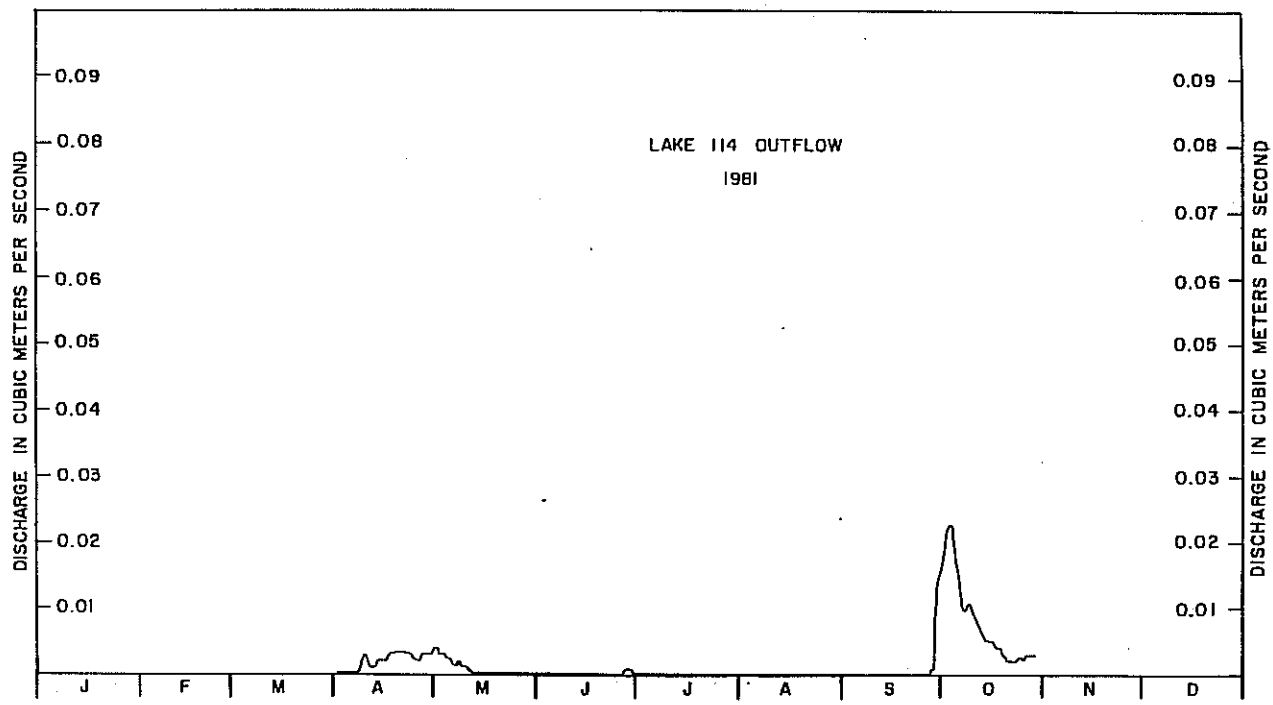

Fig. 4. Annual hydrograph based on mean daily discharges for the Lake 114 outflow for 1981.

Table 45. Mean daily water levels in metres for Lake 114 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	26.541	26.532	26.443	26.575	26.607	26.523	26.685	---	---	1
2	---	---	---	26.549	26.528	26.444	26.574	26.604	26.520	26.698	---	---	2
3	---	---	---	26.555	26.523	26.441	26.660	26.601	26.516	26.695	---	---	3
4	---	---	---	26.555	26.521	26.440	26.672	26.599	26.512	26.699	---	---	4
5	---	---	---	26.557	26.513	26.455	26.668	26.595	26.505	26.700	---	---	5
6	---	---	---	26.559	26.512	26.456	26.664	26.604	26.532	26.698A	---	---	6
7	---	---	---	26.562	26.510	26.455	26.657	26.605	26.614	26.687	---	---	7
8	---	---	---	26.562	26.504	26.466	26.652	26.604	26.620	26.683	---	---	8
9	---	---	---	26.561	26.502	26.463	26.642	26.605	26.621	26.676	---	---	9
10	---	---	---	26.563	26.498	26.461	26.636	26.602	26.619	26.675	---	---	10
11	---	---	---	26.561	26.493	26.458	26.634	26.600	26.615	26.672	---	---	11
12	---	---	---	26.563	26.491	26.454	26.630	26.595	26.613	26.672	---	---	12
13	---	---	---	26.567	26.486	26.453	26.626	26.588	26.611	26.671	---	---	13
14	---	---	---	26.558	26.486	26.464	26.621	26.587	26.605	26.666	---	---	14
15	---	---	---	26.557	26.480	26.485	26.617	26.585	26.600	26.661	---	---	15
16	---	---	---	26.555	26.476	26.492	26.617	26.578	26.596	26.657	---	---	16
17	---	---	---	26.552	26.470	26.495	26.628	26.574	26.595	26.655	---	---	17
18	---	---	---	26.550	26.466	26.493	26.628	26.569	26.593	26.654	---	---	18
19	---	---	---	26.548	26.462	26.487	26.627	26.563	26.592	26.651	---	---	19
20	---	---	---	26.544	26.460	26.487	26.620	26.561	26.588	26.647	---	---	20
21	---	---	---	26.543	26.456	26.483	26.615	26.558	26.584	26.645E	---	---	21
22	---	---	---	26.548	26.460	26.479	26.608	26.555	26.583	26.644E	---	---	22
23	---	---	---	26.550	26.463	26.476	26.602	26.555	26.585	26.643E	---	---	23
24	---	---	---	26.547	26.460	26.493	26.605	26.549	26.589	26.641E	---	---	24
25	---	---	---	26.547	26.454	26.503	26.606	26.544	26.587	26.640E	---	---	25
26	---	---	---	26.552	26.451	26.505	26.600	26.541	26.603	26.639A	---	---	26
27	---	---	---	26.552	26.450	26.517	26.597	26.539	26.633	26.636	---	---	27
28	---	---	---	26.545	26.447	26.553	26.594	26.537	26.639	26.637A	---	---	28
29	---		---	26.541	26.449	26.575	26.591	26.535	26.638	26.636E	---	---	29
30	---		---	26.537	26.450	26.579	26.588	26.531	26.646	26.636E	---	---	30
31	---		---		26.446		26.609	26.527		26.635E		---	31
MEAN	---	---	---	26.553	26.481	26.482	26.621	26.574	26.589	26.662	---	---	MEAN
MAX	---	---	---	26.567	26.532	26.579	26.672	26.607	26.646	26.700	---	---	MAX
MIN	---	---	---	26.537	26.446	26.440	26.574	26.527	26.505	26.635	---	---	MIN

SUMMARY FOR THE YEAR 1981

WATER LEVELS IN METRES

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MAXIMUM DAILY, 26.700 ON OCT 5

MAXIMUM INSTANTANEOUS,
26.703 AT 23:20 CST ON OCT 4

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 46. Mean daily discharge in cubic metres per second for the Lake 223 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.008 E	0.083	0.034	0.015	0.007	0.002	0.001	---	---	1
2	---	---	---	0.008 E	0.104	0.033	0.014	0.007	0.002	0.001	---	---	2
3	---	---	---	0.008 E	0.107	0.030	0.012	0.008	0.002	0.001	---	---	3
4	---	---	---	0.008 E	0.097	0.028	0.012	0.008	0.002	0.001	---	---	4
5	---	---	---	0.008 E	0.090	0.024	0.013	0.008	0.002	0.002	---	---	5
6	---	---	---	0.007 E	0.083	0.024	0.013	0.006	0.002	0.001	---	---	6
7	---	---	---	0.007 E	0.086	0.024	0.013	0.006	0.003	0.001	---	---	7
8	---	---	---	0.007 E	0.082	0.025	0.012	0.006	0.003	0.001	---	---	8
9	---	---	---	0.007 E	0.075	0.026	0.011	0.005	0.003	0.001	---	---	9
10	---	---	---	0.007 E	0.074	0.027	0.010	0.005	0.001	0.001	---	---	10
11	---	---	---	0.007 E	0.087	0.024	0.010	0.005	0.001	0.001	---	---	11
12	---	---	---	0.007 E	0.087	0.021	0.010	0.006	0.002	0.001	---	---	12
13	---	---	---	0.007 E	0.085	0.015	0.009	0.006	0.002	0.001	---	---	13
14	---	---	---	0.007 E	0.078	0.015	0.009	0.006	0.002	0.001	---	---	14
15	---	---	---	0.007 E	0.071	0.017	0.010	0.006	0.002	0.001	---	---	15
16	---	---	---	0.007 E	0.066	0.016	0.009	0.005	0.001	0.001	---	---	16
17	---	---	---	0.007 A	0.064	0.015	0.008	0.006	0.001	0.001	---	---	17
18	---	---	---	0.009	0.060	0.013	0.009	0.005	0.001	0.001	---	---	18
19	---	---	---	0.014	0.056	0.012	0.009	0.005	0.001	0.001	---	---	19
20	---	---	---	0.025	0.052	0.018	0.008	0.003	0.001	0.001	---	---	20
21	---	---	---	0.042	0.050	0.021	0.007	0.002	0.002	0.001	---	---	21
22	---	---	---	0.051	0.047	0.020	0.007	0.003	0.002	0.001	---	---	22
23	---	---	---	0.057	0.045	0.019	0.006	0.005	0.002	0.001	---	---	23
24	---	---	---	0.075	0.042	0.018	0.007	0.006	0.001	0.001	---	---	24
25	---	---	---	0.137	0.038	0.018	0.007	0.006	0.001	0.001	---	---	25
26	---	---	---	0.149	0.040	0.017	0.008	0.005	0.001	0.001	---	---	26
27	---	---	---	0.131	0.035	0.016	0.009	0.004	0.001	0.001	---	---	27
28	---	---	---	0.116	0.028	0.016	0.008	0.003	0.001	0.001	---	---	28
29	---		---	0.103	0.025	0.017	0.009	0.003	0.001	0.001	---	---	29
30	---		---	0.089	0.025	0.016	0.008	0.002	0.002	0.001	---	---	30
31	---		---		0.034		0.008	0.002		0.003		---	31
TOTAL	---	---	---	1.122	1.996	0.619	0.300	0.160	0.050	0.034	---	---	TOTAL
MEAN	---	---	---	0.037	0.064	0.021	0.010	0.005	0.002	0.001	---	---	MEAN
MAX	---	---	---	0.149	0.107	0.034	0.015	0.008	0.003	0.003	---	---	MAX
MIN	---	---	---	0.007	0.025	0.012	0.006	0.002	0.001	0.001	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.020 m^3/s
MAXIMUM DAILY DISCHARGE, 0.149 m^3/s ON APR 26
MINIMUM DAILY DISCHARGE, 0.001 m^3/s ON SEP 10

MAXIMUM INSTANTANEOUS DISCHARGE,
0.155 m^3/s AT 23:07 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	25.9
FEB	---	AUG	13.8
MAR	---	SEP	4.32
APR	96.9	OCT	2.94
MAY	172	NOV	---
JUN	53.5	DEC	---

TOTAL DISCHARGE, 369 dam^3

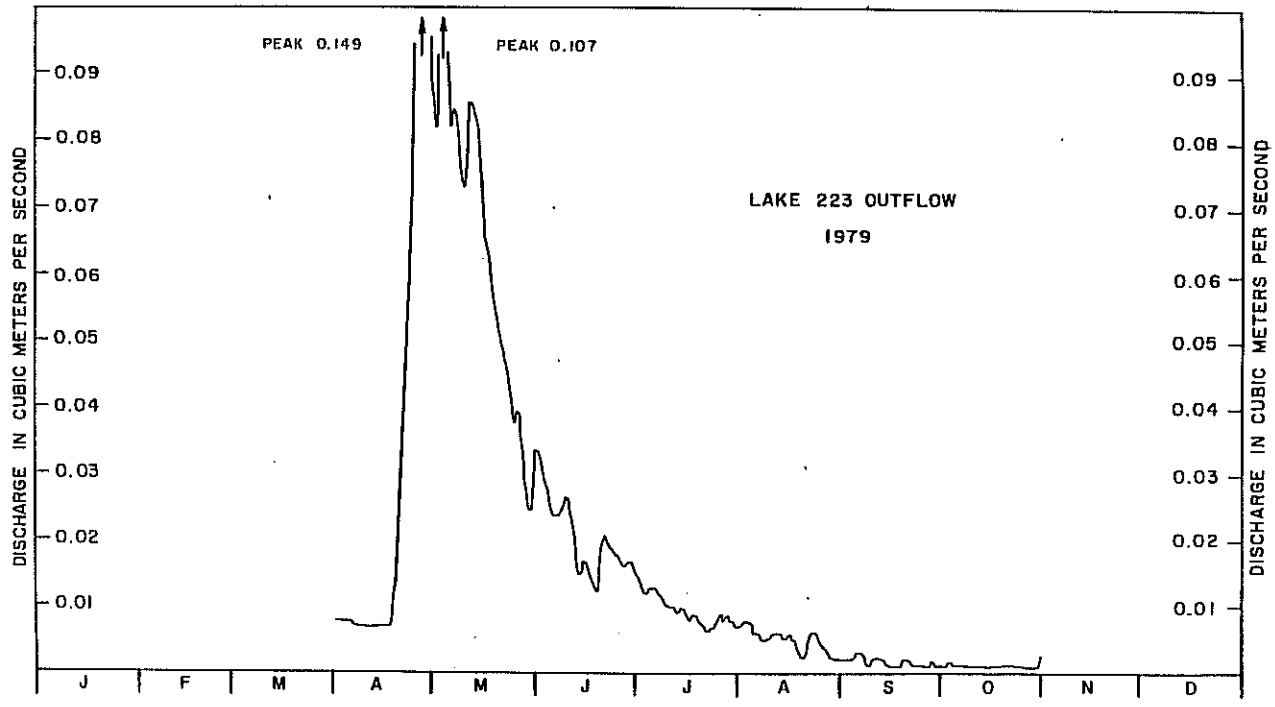

Fig. 5. Annual hydrograph based on mean daily discharges for the Lake 223 outflow for 1979.

Table 46. Mean daily discharge in cubic metres per second for the Lake 223 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.006	0.022	0.005	0.002	0.003	0.001	0.001	---	---	1
2	---	---	---	0.006	0.020	0.005	0.002	0.003	0.001	0.001	---	---	2
3	---	---	---	0.006	0.019	0.005	0.002	0.003	0.001	0.001	---	---	3
4	---	---	---	0.006	0.022	0.004	0.002	0.003	0.001	0.001	---	---	4
5	---	---	---	0.006	0.025	0.004	0.003	0.003	0.001	0.001	---	---	5
6	---	---	---	0.006	0.021	0.005	0.002	0.003	0.001	0.001	---	---	6
7	---	---	---	0.006	0.018	0.005	0.002	0.003	0.001E	0.001	---	---	7
8	---	---	---	0.006	0.016	0.005	0.002	0.003	0.002E	0.001	---	---	8
9	---	---	---	0.006	0.015	0.005	0.002	0.003	0.001	0.001	---	---	9
10	---	---	---	0.006	0.013	0.005	0.002	0.003	0.001	0.001	---	---	10
11	---	---	---	0.006	0.015	0.005	0.002	0.003	0.001	0.001	---	---	11
12	---	---	---	0.006	0.014	0.005	0.002	0.003	0.001	0.001	---	---	12
13	---	---	---	0.006	0.012	0.005	0.002	0.003	0.001	0.001	---	---	13
14	---	---	---	0.006	0.012	0.005	0.002	0.003	0.001	0.001	---	---	14
15	---	---	---	0.006	0.011	0.005	0.002	0.003	0.001	0.001	---	---	15
16	---	---	---	0.006	0.010	0.005	0.003	0.002	0.001	0.001	---	---	16
17	---	---	---	0.006	0.009	0.005	0.002	0.002	0.001	0.001	---	---	17
18	---	---	---	0.007	0.008	0.005	0.002	0.002	0.001	0.001	---	---	18
19	---	---	---	0.007	0.008	0.005	0.003	0.002	0.001	0.001	---	---	19
20	---	---	---	0.011	0.007	0.005	0.003	0.002	0.001	0.001	---	---	20
21	---	---	---	0.014	0.007	0.005	0.003	0.002	0.001	0.001	---	---	21
22	---	---	---	0.023	0.006	0.005	0.003	0.002	0.001	0.001	---	---	22
23	---	---	---	0.028	0.006	0.004	0.003	0.002	0.001	0.001	---	---	23
24	---	---	---	0.030	0.006	0.002	0.003	0.002	0.001	0.001	---	---	24
25	---	---	---	0.034	0.005	0.002	0.003	0.002	0.001	0.001	---	---	25
26	---	---	---	0.033	0.004	0.002	0.003	0.002	0.001	0.001	---	---	26
27	---	---	---	0.033	0.004	0.002	0.003	0.002	0.001	0.001	---	---	27
28	---	---	---	0.032	0.004	0.002	0.003	0.002	0.001	0.001	---	---	28
29	---	---	---	0.029	0.005	0.002	0.003	0.001	0.001	0.001	---	---	29
30	---		---	0.026	0.005	0.002	0.003	0.001	0.001	0.001A	---	---	30
31	---		---		0.005		0.003	0.001		0.001E		---	31
TOTAL	---	---	---	0.409	0.354	0.126	0.077	0.074	0.031	0.031	---	---	TOTAL
MEAN	---	---	---	0.014	0.011	0.004	0.002	0.002	0.001	0.001	---	---	MEAN
MAX	---	---	---	0.034	0.025	0.005	0.003	0.003	0.002	0.001	---	---	MAX
MIN	---	---	---	0.006	0.004	0.002	0.002	0.001	0.001	0.001	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.005 m^3/s
MAXIMUM DAILY DISCHARGE, 0.034 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0.001 m^3/s ON AUG 29

MAXIMUM INSTANTANEOUS DISCHARGE,
0.035 m^3/s AT 16:35 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	6.65
FEB	---	AUG	6.39
MAR	---	SEP	2.68
APR	35.3	OCT	2.68
MAY	30.6	NOV	---
JUN	10.9	DEC	---

TOTAL DISCHARGE, 95.2 dam^3

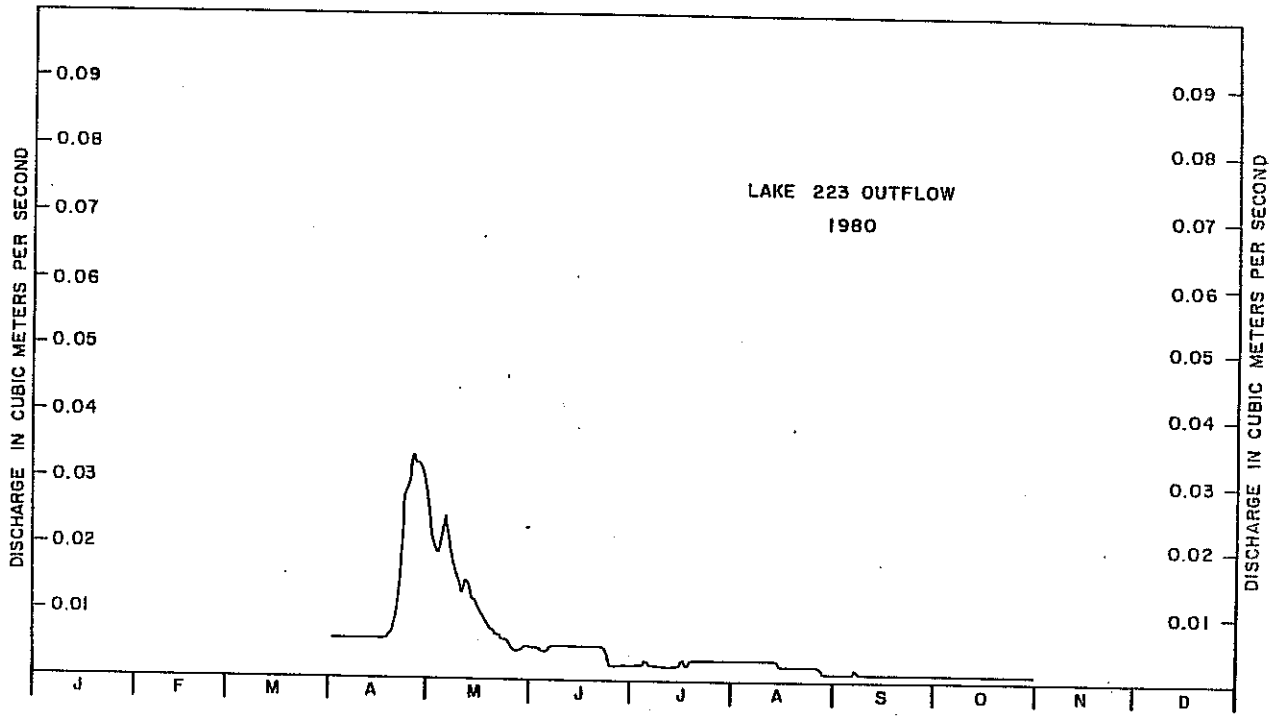

Fig. 5. Annual hydrograph based on mean daily discharges for the Lake 223 outflow for 1980.

Table 46. Mean daily discharge in cubic metres per second for the Lake 223 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.002	0.003	0.003	0.049	0.011	0.003	0.002	---	---	1
2	---	---	---	0.002	0.005	0.003	0.045	0.012	0.002	0.002	---	---	2
3	---	---	---	0.002	0.006	0.003	0.105	0.011	0.002	0.002	---	---	3
4	---	---	---	0.002	0.006	0.003	0.093	0.010	0.002	0.002	---	---	4
5	---	---	---	0.002	0.006	0.005	0.072	0.009	0.001	0.002	---	---	5
6	---	---	---	0.002	0.005	0.006	0.058	0.009	0.003	0.003	---	---	6
7	---	---	---	0.002	0.005	0.007	0.047	0.010	0.004	0.003	---	---	7
8	---	---	---	0.002	0.005	0.009	0.038	0.010	0.004	0.002	---	---	8
9	---	---	---	0.002	0.006	0.009	0.032	0.010	0.004	0.002	---	---	9
10	---	---	---	0.002	0.005	0.008	0.027	0.010	0.004	0.002	---	---	10
11	---	---	---	0.001	0.004	0.008	0.023	0.009	0.003	0.002	---	---	11
12	---	---	---	0.001	0.004	0.007	0.021	0.009	0.003	0.002	---	---	12
13	---	---	---	0.001	0.003	0.007	0.018	0.008	0.003	0.002	---	---	13
14	---	---	---	0.001	0.004	0.010	0.015	0.008	0.003	0.003	---	---	14
15	---	---	---	0.001	0.004	0.025	0.013	0.009	0.003	0.003	---	---	15
16	---	---	---	0.001	0.004	0.027	0.012	0.008	0.003	0.003	---	---	16
17	---	---	---	0.001	0.003	0.025	0.013	0.008	0.003	0.003	---	---	17
18	---	---	---	0.001	0.003	0.026	0.012	0.007	0.003	0.004	---	---	18
19	---	---	---	0.001	0.003	0.021	0.012	0.007	0.003	0.003	---	---	19
20	---	---	---	0.001	0.002	0.022	0.011	0.006	0.003	0.003	---	---	20
21	---	---	---	0.001	0.002	0.021	0.011	0.005	0.002	0.003	---	---	21
22	---	---	---	0.001	0.002	0.018	0.010	0.006	0.001	0.003	---	---	22
23	---	---	---	0.002	0.003	0.016	0.010	0.006	0.002	0.003	---	---	23
24	---	---	---	0.002	0.003	0.023	0.010	0.006	0.002	0.003	---	---	24
25	---	---	---	0.002	0.003	0.026	0.011	0.005	0.001	0.003	---	---	25
26	---	---	---	0.002	0.003	0.025	0.010	0.005	0.002	0.003	---	---	26
27	0.002A	---	---	0.002	0.002	0.031	0.010	0.005	0.001	0.002	---	---	27
28	---	---	---	0.003	0.002	0.054	0.011	0.004	0.001	0.002A	---	---	28
29	---		---	0.003	0.003	0.065	0.010	0.004	0.001	0.002E	---	---	29
30	---		---	0.003	0.003	0.058	0.009	0.003	0.001	0.002E	---	---	30
31	---		---		0.003		0.011	0.003		0.002E		---	31
TOTAL	---	---	---	0.051	0.115	0.571	0.829	0.233	0.073	0.078	---	---	TOTAL
MEAN	---	---	---	0.002	0.004	0.019	0.027	0.008	0.002	0.003	---	---	MEAN
MAX	---	---	---	0.003	0.006	0.065	0.105	0.012	0.004	0.004	---	---	MAX
MIN	---	---	---	0.001	0.002	0.003	0.009	0.003	0.001	0.002	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.009
MAXIMUM DAILY, 0.105 ON JUL 3
MINIMUM DAILY, 0.001 ON APR 11
MAXIMUM INSTANTANEOUS,
0.110 AT 13:10 CST ON JUL 3

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	71.6
FEB	---	AUG	20.1
MAR	---	SEP	6.31
APR	4.41	OCT	6.74
MAY	9.94	NOV	---
JUN	49.3	DEC	---

TOTAL DISCHARGE, 168 dam³

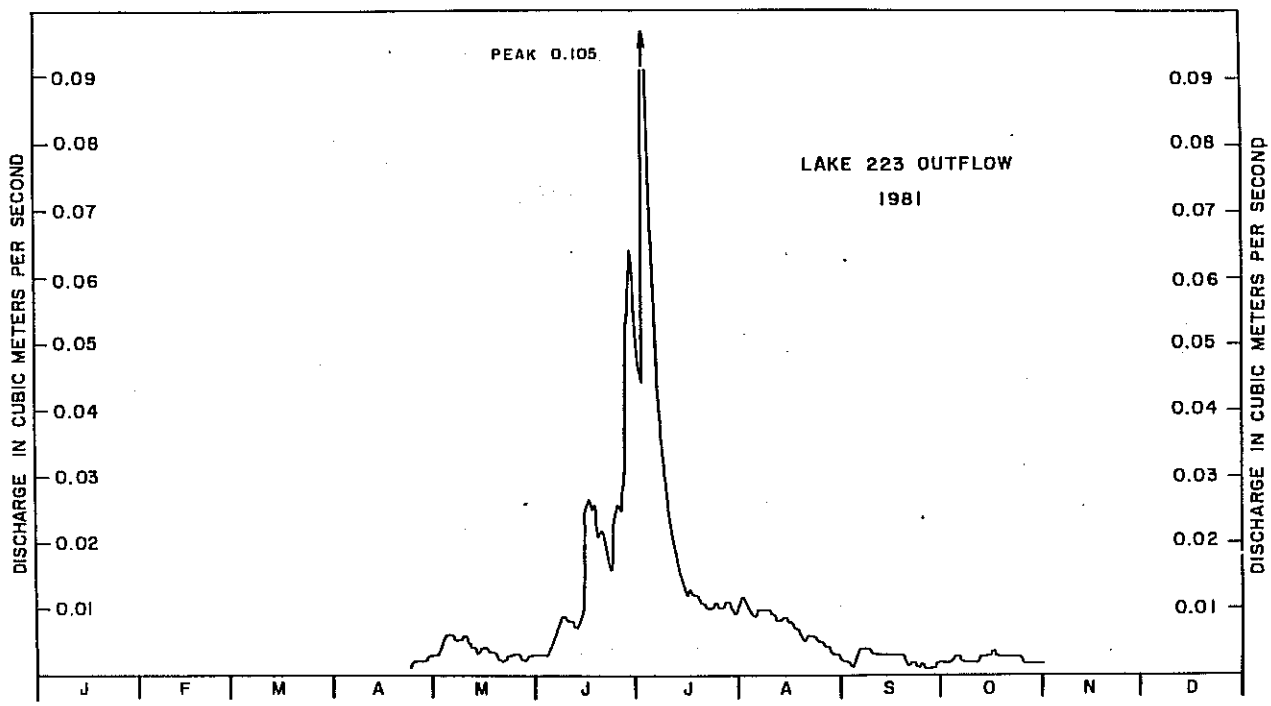

Fig. 5. Annual hydrograph based on mean daily discharges for the Lake 223 outflow for 1981.

Table 47. Mean daily water levels in metres for Lake 223 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	29.459	29.507	29.481	29.570	29.448	29.311	29.379	---	---	1
2	---	---	---	29.461	29.508	29.481	29.563	29.443	29.304	29.385	---	---	2
3	---	---	---	29.463	29.509	29.479	29.608	29.436	29.297	29.389	---	---	3
4	---	---	---	29.462	29.509	29.478	29.603	29.431	29.293	29.403	---	---	4
5	---	---	---	29.464	29.507	29.493	29.593	29.429	29.287	29.415	---	---	5
6	---	---	---	29.462	29.506	29.497	29.581	29.434	29.311	29.423	---	---	6
7	---	---	---	29.464	29.506	29.497	29.570	29.434	29.369	29.427	---	---	7
8	---	---	---	29.464	29.506	29.507	29.562	29.431	29.367	29.433	---	---	8
9	---	---	---	29.461	29.509	29.505	29.546	29.427	29.369	29.435	---	---	9
10	---	---	---	29.462	29.507	29.498	29.532	29.423	29.365	29.446	---	---	10
11	---	---	---	29.463	29.506	29.495	29.527	29.416	29.365	29.448	---	---	11
12	---	---	---	29.461	29.504	29.491	29.524	29.412	29.359	29.456	---	---	12
13	---	---	---	29.466	29.505	29.490	29.515	29.405	29.358	29.462	---	---	13
14	---	---	---	29.467	29.503	29.504	29.506	29.399	29.356	29.464	---	---	14
15	---	---	---	29.466	29.501	29.540	29.498	29.392	29.350	29.467	---	---	15
16	---	---	---	29.470	29.498	29.542	29.502	29.384	29.346	29.468	---	---	16
17	---	---	---	29.471	29.495	29.540	29.509	29.375	29.341	29.471	---	---	17
18	---	---	---	29.472	29.492	29.541	29.507	29.370	29.338	29.474	---	---	18
19	---	---	---	29.475	29.490	29.534	29.498	29.364	29.333	29.473	---	---	19
20	---	---	---	29.473	29.488	29.533	29.492	29.359	29.330	29.474	---	---	20
21	---	---	---	29.474	29.487	29.530	29.485	29.353	29.326	29.473	---	---	21
22	---	---	---	29.484	29.491	29.527	29.477	29.352	29.322	29.473	---	---	22
23	---	---	---	29.488	29.494	29.523	29.472	29.349	29.321	29.472	---	---	23
24	---	---	---	29.490	29.493	29.537	29.468	29.344	29.324	29.476	---	---	24
25	---	---	---	29.492	29.488	29.541	29.462	29.338	29.324	29.479	---	---	25
26	---	---	---	29.499	29.484	29.543	29.457	29.332	29.334	29.477	---	---	26
27	---	---	---	29.502	29.485	29.551	29.449	29.329	29.354	29.476	---	---	27
28	---	---	---	29.503	29.484	29.579	29.441	29.326	29.351	29.480A	---	---	28
29	---		---	29.505	29.484	29.587	29.438	29.319	29.350	29.480E	---	---	29
30	---		---	29.506	29.488	29.578	29.431	29.318	29.355	29.479E	---	---	30
31	---		---		29.484		29.454	29.313		29.478E		---	31
MEAN	---	---	---	29.475	29.497	29.521	29.511	29.383	29.337	29.453	---	---	MEAN
MAX	---	---	---	29.506	29.509	29.587	29.608	29.448	29.369	29.480	---	---	MAX
MIN	---	---	---	29.459	29.484	29.478	29.431	29.313	29.287	29.379	---	---	MIN

SUMMARY FOR THE YEAR 1981

WATER LEVELS IN METRES

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MAXIMUM DAILY, 29.608 ON JUL 3

MAXIMUM INSTANTANEOUS,
29.611 AT 10:39 CST ON JUL 3

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 48. Mean daily discharge in cubic metres per second for the Lake 224 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.024	0.002	0.010	0.004	0.001	0.001	---	---	1
2	---	---	---	0	0.027	0.002	0.010	0.004	0.001	0.001	---	---	2
3	---	---	---	0	0.026	0.002	0.010	0.003	0.001	0.001	---	---	3
4	---	---	---	0	0.026	0.003	0.010	0.003	0.001	0.001	---	---	4
5	---	---	---	0	0.026	0.003	0.010	0.003	0.001	0.001	---	---	5
6	---	---	---	0	0.027	0.004	0.010	0.003	0.001	0.001	---	---	6
7	---	---	---	0	0.027	0.004	0.010	0.004	0.001	0	---	---	7
8	---	---	---	0	0.027	0.005	0.009	0.003	0.001	0	---	---	8
9	---	---	---	0	0.026	0.005	0.009 A	0.003	0.001	0	---	---	9
10	---	---	---	0	0.025	0.005	0.009 E	0.002	0	0.001	---	---	10
11	---	---	---	0	0.027	0.005	0.008 E	0.002	0.001	0.001	---	---	11
12	---	---	---	0	0.026	0.006	0.008 E	0.002 A	0.001	0.001	---	---	12
13	---	---	---	0	0.026	0.007	0.008 E	0.002 A	0.001	0.001	---	---	13
14	---	---	---	0	0.026	0.008	0.008 E	0.002 E	0.001	0.001	---	---	14
15	---	---	---	0	0.025	0.010	0.008 E	0.002 E	0.001	0	---	---	15
16	---	---	---	0	0.024	0.010	0.007 E	0.001 A	0.001	0	---	---	16
17	---	---	---	0 A	0.022	0.011	0.007 A	0.001	0.001	0	---	---	17
18	---	---	---	0	0.020	0.011	0.007	0.001	0	0	---	---	18
19	---	---	---	0.004	0.020	0.011	0.006	0.001	0	0.001	---	---	19
20	---	---	---	0.006	0.019	0.011	0.006	0.001	0	0.001	---	---	20
21	---	---	---	0.011	0.018	0.011	0.006	0.001	0	0.001	---	---	21
22	---	---	---	0.012	0.016	0.011	0.005	0.001	0	0 A	---	---	22
23	---	---	---	0.014	0.015	0.011	0.005	0.003	0	0 E	---	---	23
24	---	---	---	0.018	0.015	0.010	0.005	0.002	0	0 E	---	---	24
25	---	---	---	0.023	0.013	0.010	0.005	0.002	0	0 E	---	---	25
26	---	---	---	0.024	0.011	0.010	0.005	0.001	0	0 E	---	---	26
27	---	---	---	0.022	0.010	0.010	0.005	0.001	0.001	0 E	---	---	27
28	---	---	---	0.022	0.008	0.011	0.005	0.001	0.001	0 E	---	---	28
29	---		---	0.023	0.005	0.010	0.004	0.001	0.001	0 A	---	---	29
30	---		---	0.022	0.004	0.010	0.004	0.001	0.001	0 E	---	---	30
31	---		---		0.003		0.004	0.001		0.003 A		---	31
TOTAL	---	---	---	0.201	0.614	0.229	0.223	0.062	0.020	0.017	---	---	TOTAL
MEAN	---	---	---	0.007	0.020	0.008	0.007	0.002	0.001	0.001	---	---	MEAN
MAX	---	---	---	0.024	0.027	0.011	0.010	0.004	0.001	0.003	---	---	MAX
MIN	---	---	---	0	0.003	0.002	0.004	0.001	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.006 m^3/s
MAXIMUM DAILY DISCHARGE, 0.027 m^3/s ON MAY 2
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.027 m^3/s AT 00:41 CST ON MAY 11

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	19.3
FEB	---	AUG	5.36
MAR	---	SEP	1.73
APR	17.4	OCT	1.47
MAY	53.0	NOV	---
JUN	19.8	DEC	---

TOTAL DISCHARGE, 118 dam^3

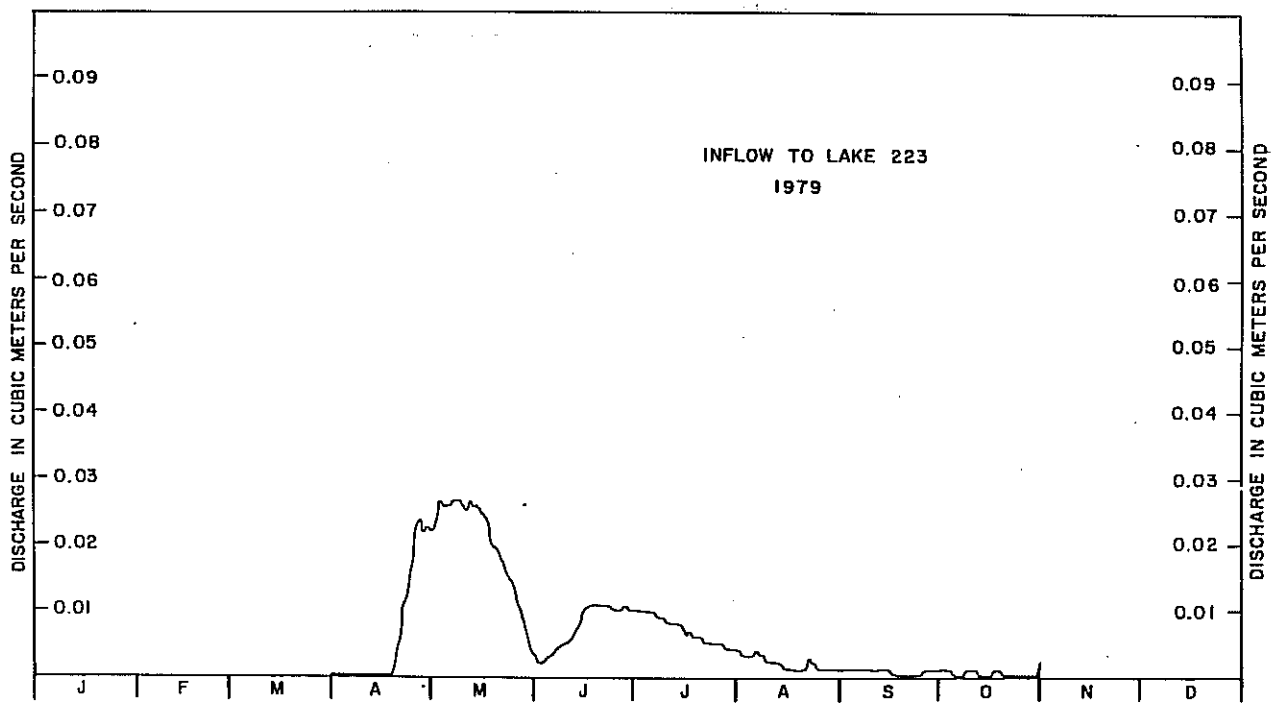

Fig. 6. Annual hydrograph based on mean daily discharges for the Lake 224 outflow for 1979.

Table 48. Mean daily discharge in cubic metres per second for the Lake 224 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.006	0.001	0	0	0	0	---	---	1
2	---	---	---	0	0.006	0.001	0	0	0	0	---	---	2
3	---	---	---	0	0.007	0.001	0	0	0	0	---	---	3
4	---	---	---	0 A	0.006	0	0	0.001	0	0	---	---	4
5	---	---	---	0 E	0.006	0	0	0.001	0	0	---	---	5
6	---	---	---	0.001E	0.005	0	0	0	0	0	---	---	6
7	---	---	---	0.002E	0.005	0	0	0	0	0	---	---	7
8	---	---	---	0.003E	0.004	0	0	0.001	0	0	---	---	8
9	---	---	---	0.003E	0.004	0	0	0	0	0 A	---	---	9
10	---	---	---	0.002E	0.004	0	0	0	0	0 E	---	---	10
11	---	---	---	0.002E	0.004	0	0	0	0	0.001E	---	---	11
12	---	---	---	0.002E	0.004	0	0	0	0	0 E	---	---	12
13	---	---	---	0.001E	0.003	0	0	0	0	0 E	---	---	13
14	---	---	---	0.001A	0.003	0	0	0	0	0 A	---	---	14
15	---	---	---	0.001	0.003	0	0	0	0	0	---	---	15
16	---	---	---	0.001	0.003	0	0.001	0	0	0	---	---	16
17	---	---	---	0.002	0.003	0	0	0.001	0	0.001	---	---	17
18	---	---	---	0.005	0.003	0	0.001	0	0	0.001	---	---	18
19	---	---	---	0.006	0.002	0	0	0	0	0.001	---	---	19
20	---	---	---	0.007	0.001	0	0	0.001	0	0	---	---	20
21	---	---	---	0.008	0.001	0	0	0	0	0	---	---	21
22	---	---	---	0.007	0.001	0	0	0	0.001	0	---	---	22
23	---	---	---	0.008	0.001	0	0	0	0	0	---	---	23
24	---	---	---	0.008	0.001	0	0	0	0	0.001	---	---	24
25	---	---	---	0.007	0.001	0	0	0	0	0	---	---	25
26	---	---	---	0.006	0.001	0	0	0	0	0	---	---	26
27	---	---	---	0.006	0.001	0	0	0	0	0	---	---	27
28	---	---	---	0.006	0.001	0	0	0	0	0	---	---	28
29	---	---	---	0.006	0.001	0	0	0	0	0	---	---	29
30	---		---	0.006	0.001	0	0	0	0	0 A	---	---	30
31	---		---		0.001		0	0		0 E		---	31
TOTAL	---	---	---	0.107	0.093	0.003	0.002	0.005	0.001	0.005	---	---	TOTAL
MEAN	---	---	---	0.004	0.003	0	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.008	0.007	0.001	0.001	0.001	0.001	0.001	---	---	MAX
MIN	---	---	---	0	0.001	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.001 m^3/s
MAXIMUM DAILY DISCHARGE, 0.008 m^3/s ON APR 21
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.008 m^3/s AT 17:29 CST ON APR 21

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.17
FEB	---	AUG	0.43
MAR	---	SEP	0.09
APR	9.24	OCT	0.43
MAY	8.04	NOV	---
JUN	0.26	DEC	---

TOTAL DISCHARGE, 18.7 dam^3

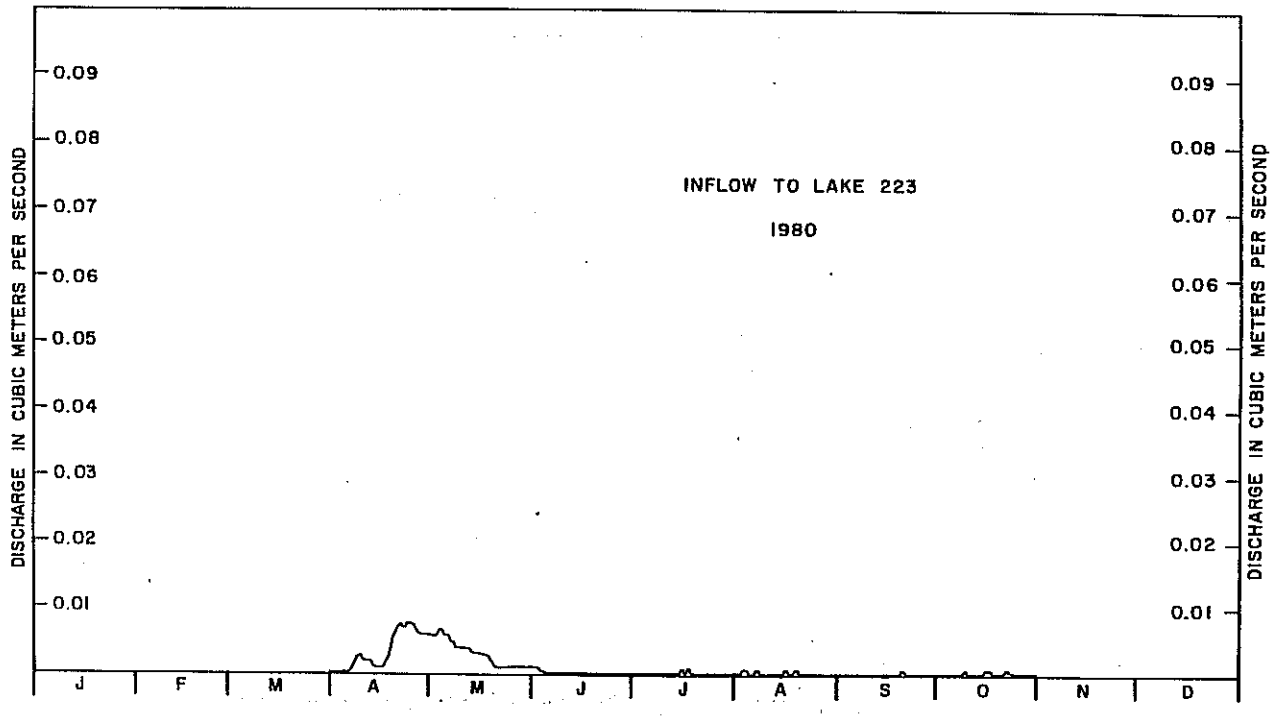

Fig. 6. Annual hydrograph based on mean daily discharges for the Lake 224 outflow for 1980.

Table 48. Mean daily discharge in cubic metres per second for the Lake 224 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0	0	0	0.001	0	0.001	---	---	1
2	---	---	---	0	0	0	0.001	0.001	0	0.001	---	---	2
3	---	---	---	0	0	0	0.003	0.001	0	0	---	---	3
4	---	---	---	0	0	0	0.002	0	0	0.001	---	---	4
5	---	---	---	0	0	0 E	0.002	0	0	0	---	---	5
6	---	---	---	0	0	0 E	0.002	0.001	0.001	0	---	---	6
7	---	---	---	0	0	0 E	0.002	0.001	0.001	0	---	---	7
8	---	---	---	0	0	0	0.002	0.001	0	0	---	---	8
9	---	---	---	0	0	0	0.002	0.001	0	0	---	---	9
10	---	---	---	0	0	0	0.001	0.001	0	0.001	---	---	10
11	---	---	---	0	0	0	0.001	0	0	0.001	---	---	11
12	---	---	---	0	0	0	0.001	0	0	0.001	---	---	12
13	---	---	---	0	0	0	0.001	0	0	0.001	---	---	13
14	---	---	---	0	0	0.001	0.001	0	0	0.001	---	---	14
15	---	---	---	0	0	0.001	0.001	0	0	0	---	---	15
16	---	---	---	0	0	0	0.001	0	0	0	---	---	16
17	---	---	---	0	0	0	0.001	0	0	0	---	---	17
18	---	---	---	0	0	0	0.001	0	0	0.001	---	---	18
19	---	---	---	0	0	0	0.001	0	0	0.001	---	---	19
20	---	---	---	0	0	0	0.001	0	0	0	---	---	20
21	---	---	---	0	0	0	0.001	0	0	0	---	---	21
22	---	---	---	0	0	0	0	0	0	0	---	---	22
23	---	---	---	0	0	0	0	0	0	0	---	---	23
24	---	---	---	0	0	0.001	0	0	0	0	---	---	24
25	---	---	---	0	0	0	0.001	0	0	0	---	---	25
26	---	---	---	0	0	0	0	0	0	0	---	---	26
27	0 A	---	---	0	0	0.001	0	0	0	0	---	---	27
28	---	---	---	0	0	0.002	0	0	0	0 A	---	---	28
29	---		---	0	0	0.001	0	0	0	0 E	---	---	29
30	---		---	0	0	0	0	0	0	0 E	---	---	30
31	---		---		0		0.002	0		0 E		---	31
TOTAL	---	---	---	0	0	0.007	0.031	0.008	0.002	0.010	---	---	TOTAL
MEAN	---	---	---	0	0	0	0.001	0	0	0	---	---	MEAN
MAX	---	---	---	0	0	0.002	0.003	0.001	0.001	0.001	---	---	MAX
MIN	---	---	---	0	0	0	0	0	0	0	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0
MAXIMUM DAILY, 0.003 ON JUL 3
MINIMUM DAILY, 0 ON APR 1
MAXIMUM INSTANTANEOUS,
0.006 AT 22:55 CST ON JUL 2

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	2.68
FEB	---	AUG	0.69
MAR	---	SEP	0.17
APR	0	OCT	0.86
MAY	0	NOV	---
JUN	0.60	DEC	---

TOTAL DISCHARGE, 5.00 dam³

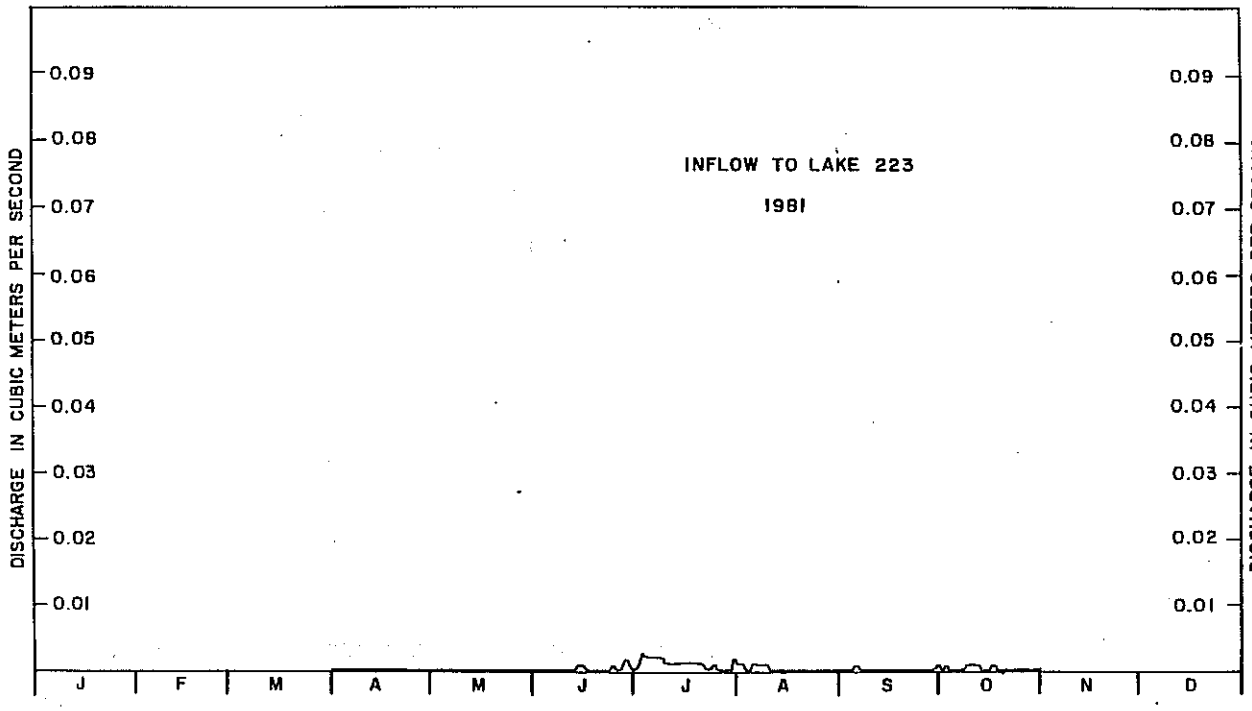

Fig. 6. Annual hydrograph based on mean daily discharges for the Lake 224 outflow for 1981.

Table 49. Mean daily discharge in cubic metres per second for the Lake 225 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.010	0.003	0	0	0	0	---	---	1
2	---	---	---	0	0.013	0.003	0	0	0	0	---	---	2
3	---	---	---	0	0.013	0.002	0	0	0	0	---	---	3
4	---	---	---	0	0.011	0.002	0	0	0	0	---	---	4
5	---	---	---	0	0.010	0.002	0	0	0	0	---	---	5
6	---	---	---	0	0.008	0.001	0	0	0	0	---	---	6
7	---	---	---	0	0.009	0.001	0	0	0	0	---	---	7
8	---	---	---	0	0.008	0.001	0	0	0	0	---	---	8
9	---	---	---	0	0.007	0.001	0	0	0	0	---	---	9
10	---	---	---	0	0.006	0.001	0	0	0	0	---	---	10
11	---	---	---	0	0.007	0.001	0	0	0	0	---	---	11
12	---	---	---	0	0.007	0.001	0	0	0	0	---	---	12
13	---	---	---	0	0.007	0.001	0	0	0	0	---	---	13
14	---	---	---	0	0.006	0	0	0	0	0	---	---	14
15	---	---	---	0	0.006	0.001	0	0	0	0	---	---	15
16	---	---	---	0	0.006	0.001	0	0	0	0	---	---	16
17	---	---	---	0	0.006	0.001	0	0	0	0	---	---	17
18	---	---	---	0	0.005	0.001	0	0	0	0	---	---	18
19	---	---	---	0	0.004	0.001	0	0	0	0	---	---	19
20	---	---	---	0.010	0.003	0.001	0	0	0	0	---	---	20
21	---	---	---	0.015	0.002	0.001	0	0	0	0	---	---	21
22	---	---	---	0.016	0.002	0	0	0	0	0	---	---	22
23	---	---	---	0.016	0.002	0	0	0	0	0	---	---	23
24	---	---	---	0.018	0.002	0	0	0	0	0	---	---	24
25	---	---	---	0.030	0.002	0	0	0	0	0	---	---	25
26	---	---	---	0.028	0.002	0	0	0	0	0	---	---	26
27	---	---	---	0.023	0.002	0	0	0	0	0	---	---	27
28	---	---	---	0.017	0.001	0	0	0	0	0	---	---	28
29	---		---	0.014	0.001	0	0	0	0	0	---	---	29
30	---		---	0.012	0.001	0	0	0	0	0	---	---	30
31	---		---		0.003		0	0		0		---	31
TOTAL	---	---	---	0.199	0.172	0.027	0	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.007	0.006	0.001	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.030	0.013	0.003	0	0	0	0	---	---	MAX
MIN	---	---	---	0	0.001	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.002 m^3/s
MAXIMUM DAILY DISCHARGE, 0.030 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.032 m^3/s AT 19:41 CST ON APR 25

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	17.2	OCT	0
MAY	14.9	NOV	---
JUN	2.33	DEC	---

TOTAL DISCHARGE, 34.4 dam^3

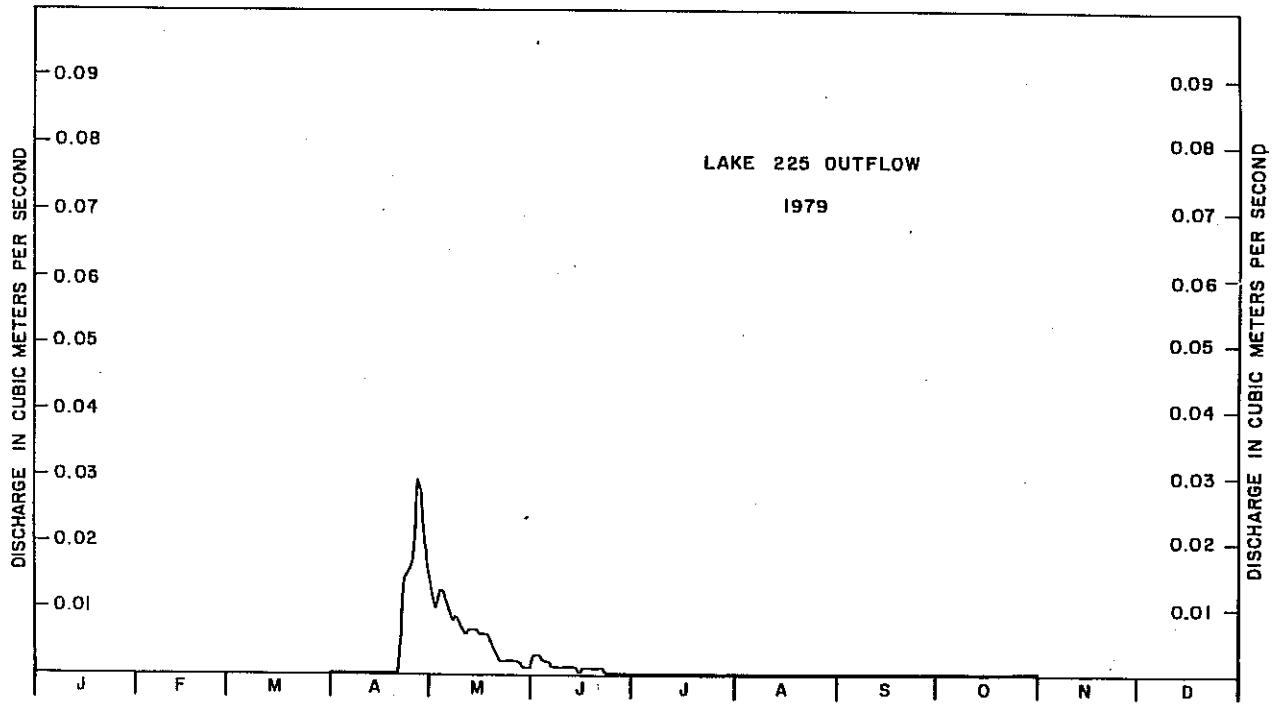

Fig. 7. Annual hydrograph based on mean daily discharges for the Lake 225 outflow for 1979.

Table 49. Mean daily discharge in cubic metres per second for the Lake 225 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.003	0	0	0	0	0	---	---	1
2	---	---	---	0	0.003	0	0	0	0	0	---	---	2
3	---	---	---	0	0.002	0	0	0	0	0	---	---	3
4	---	---	---	0	0.002	0	0	0	0	0	---	---	4
5	---	---	---	0	0.002	0	0	0	0	0	---	---	5
6	---	---	---	0	0.001	0	0	0	0	0	---	---	6
7	---	---	---	0	0.001	0	0	0	0	0	---	---	7
8	---	---	---	0	0.001	0	0	0	0	0	---	---	8
9	---	---	---	0	0.001	0	0	0	0	0	---	---	9
10	---	---	---	0	0.001	0	0	0	0	0	---	---	10
11	---	---	---	0	0.001	0	0	0	0	0	---	---	11
12	---	---	---	0	0.001	0	0	0	0	0	---	---	12
13	---	---	---	0	0.001	0	0	0	0	0	---	---	13
14	---	---	---	0	0.001	0	0	0	0	0	---	---	14
15	---	---	---	0	0.001	0	0	0	0	0	---	---	15
16	---	---	---	0	0.001	0	0	0	0	0	---	---	16
17	---	---	---	0	0.001	0	0	0	0	0	---	---	17
18	---	---	---	0.001	0.001	0	0	0	0	0	---	---	18
19	---	---	---	0.002	0.001	0	0	0	0	0	---	---	19
20	---	---	---	0.004	0	0	0	0	0	0	---	---	20
21	---	---	---	0.006	0	0	0	0	0	0	---	---	21
22	---	---	---	0.007	0	0	0	0	0	0	---	---	22
23	---	---	---	0.007	0	0	0	0	0	0	---	---	23
24	---	---	---	0.007	0	0	0	0	0	0	---	---	24
25	---	---	---	0.006	0	0	0	0	0	0	---	---	25
26	---	---	---	0.006	0	0	0	0	0	0	---	---	26
27	---	---	---	0.005	0	0	0	0	0	0	---	---	27
28	---	---	---	0.004	0	0	0	0	0	0	---	---	28
29	---	---	---	0.004	0	0	0	0	0	0	---	---	29
30	---		---	0.004	0	0	0	0	0	0	---	---	30
31	---		---		0		0	0		0		---	31
TOTAL	---	---	---	0.063	0.026	0	0	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.002	0.001	0	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.007	0.003	0	0	0	0	0	---	---	MAX
MIN	---	---	---	0	0	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0 m^3/s
MAXIMUM DAILY DISCHARGE, 0.007 m^3/s ON APR 22
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.007 m^3/s AT 09:26 CST ON APR 22

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	5.44	OCT	0
MAY	2.25	NOV	---
JUN	0	DEC	---

TOTAL DISCHARGE, 7.69 dam^3

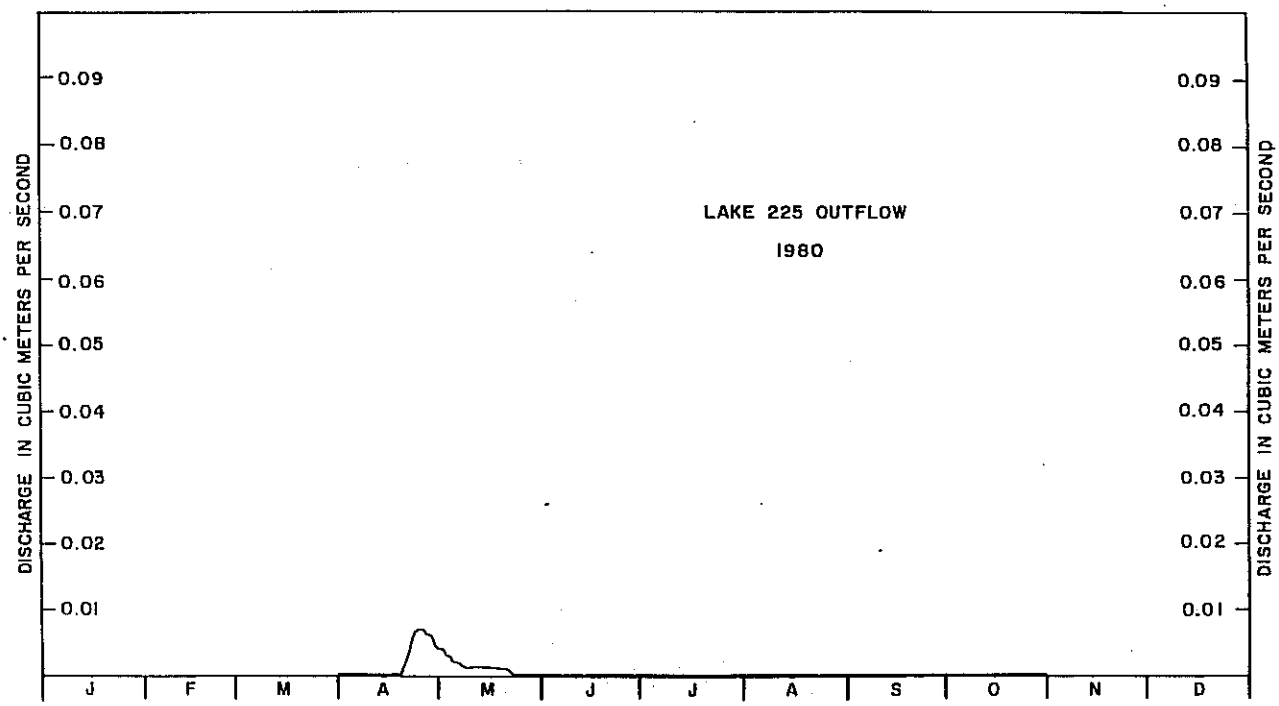

Fig. 7. Annual hydrograph based on mean daily discharges for the Lake 225 outflow for 1980.

Table 49. Mean daily discharge in cubic metres per second for the Lake 225 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0	0	0.005	0	0 E	0.003	---	---	1
2	---	---	---	0	0	0	0.005	0	0 E	0.004	---	---	2
3	---	---	---	0	0	0	0.009	0	0 E	0.004	---	---	3
4	---	---	---	0	0	0	0.010	0	0 E	0.004	---	---	4
5	---	---	---	0	0	0	0.010	0	0 E	0.004	---	---	5
6	---	---	---	0	0	0	0.008	0	0.001E	0.004	---	---	6
7	---	---	---	0	0	0	0.007	0	0 E	0.004	---	---	7
8	---	---	---	0	0	0	0.006	0	0 A	0.004	---	---	8
9	---	---	---	0	0	0	0.004	0	0	0.003	---	---	9
10	---	---	---	0	0	0	0.003	0	0	0.003	---	---	10
11	---	---	---	0	0	0	0.002	0	0	0.003	---	---	11
12	---	---	---	0	0	0	0.002	0	0	0.003	---	---	12
13	---	---	---	0	0	0	0.001	0	0	0.003	---	---	13
14	---	---	---	0	0	0	0.001	0	0	0.003	---	---	14
15	---	---	---	0	0	0	0.001	0	0	0.003	---	---	15
16	---	---	---	0	0	0	0.001	0	0	0.003	---	---	16
17	---	---	---	0	0	0	0.001	0E	0	0.002	---	---	17
18	---	---	---	0	0	0	0.001	0E	0	0.002	---	---	18
19	---	---	---	0	0	0	0.001	0E	0	0.002	---	---	19
20	---	---	---	0	0	0	0.001	0E	0	0.002	---	---	20
21	---	---	---	0	0	0	0.001	0E	0	0.002	---	---	21
22	---	---	---	0	0	0	0	0E	0	0.002	---	---	22
23	---	---	---	0	0	0	0	0E	0	0.001	---	---	23
24	---	---	---	0	0	0	0	0E	0	0.001	---	---	24
25	---	---	---	0	0	0.001	0	0E	0	0.001	---	---	25
26	---	---	---	0	0	0.001	0	0E	0	0.001	---	---	26
27	---	---	---	0	0	0.002	0	0E	0	0.001	---	---	27
28	---	---	---	0	0	0.004	0	0E	0	0.001A	---	---	28
29	---		---	0	0	0.006	0	0E	0	0.001E	---	---	29
30	---		---	0	0	0.005	0	0E	0	0.001E	---	---	30
31	---		---		0		0	0E		0.001E		---	31
TOTAL	---	---	---	0	0	0.019	0.080	0	0.001	0.076	---	---	TOTAL
MEAN	---	---	---	0	0	0.001	0.003	0	0	0.002	---	---	MEAN
MAX	---	---	---	0	0	0.006	0.010	0	0.001	0.004	---	---	MAX
MIN	---	---	---	0	0	0	0	0	0	0.001	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.001
MAXIMUM DAILY, 0.010 ON JUL 4
MINIMUM DAILY, 0 ON APR 1
MAXIMUM INSTANTANEOUS,
0.011 AT 01:27 CST ON JUL 5

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	6.91
FEB	---	AUG	0
MAR	---	SEP	0.09
APR	0	OCT	6.57
MAY	0	NOV	---
JUN	1.64	DEC	---

TOTAL DISCHARGE, 15.2 dam^3

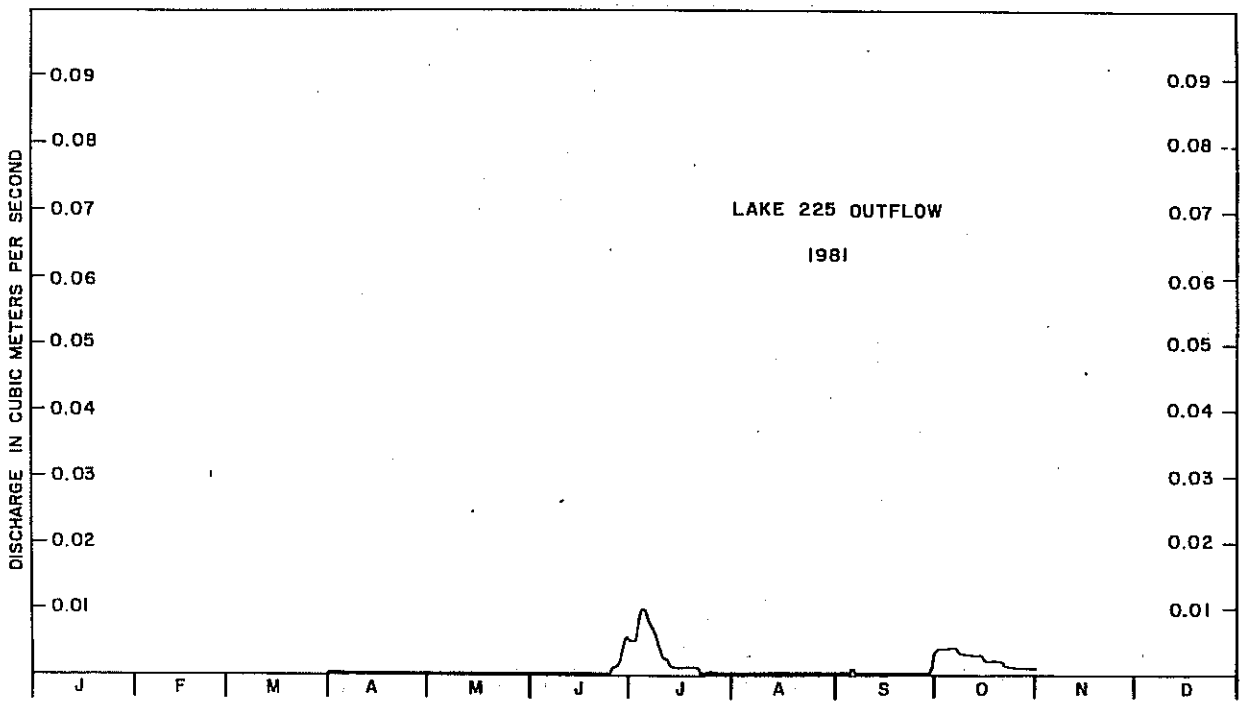

Fig. 7. Annual hydrograph based on mean daily discharges for the Lake 225 outflow for 1981.

Table 50. Mean daily discharge in cubic metres per second for the Lake 226 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.005 E	0.041	0.014	0.003	0	0	0	---	---	1
2	---	---	---	0.005 E	0.048	0.013	0.002	0	0	0	---	---	2
3	---	---	---	0.005 E	0.049	0.013	0.002	0	0	0	---	---	3
4	---	---	---	0.005 E	0.045	0.012	0.002	0	0	0	---	---	4
5	---	---	---	0.005 E	0.039	0.011	0.001	0	0	0	---	---	5
6	---	---	---	0.004 E	0.031	0.011	0.001	0	0	0	---	---	6
7	---	---	---	0.004 E	0.028	0.011	0.001	0	0	0	---	---	7
8	---	---	---	0.004 E	0.026	0.010	0.001	0	0	0	---	---	8
9	---	---	---	0.004 E	0.024	0.009	0.001	0	0	0	---	---	9
10	---	---	---	0.004 E	0.023	0.008	0.001	0	0	0	---	---	10
11	---	---	---	0.004 E	0.024	0.007	0.001	0	0	0	---	---	11
12	---	---	---	0.004 E	0.025	0.007	0	0	0	0	---	---	12
13	---	---	---	0.004 E	0.025	0.006	0	0	0	0	---	---	13
14	---	---	---	0.004 E	0.024	0.006	0	0	0	0	---	---	14
15	---	---	---	0.004 E	0.022	0.005	0	0	0	0	---	---	15
16	---	---	---	0.004 E	0.021	0.004	0	0	0	0	---	---	16
17	---	---	---	0.004 A	0.019	0.004	0	0	0	0	---	---	17
18	---	---	---	0.005	0.018	0.003	0	0	0	0	---	---	18
19	---	---	---	0.015	0.016	0.003	0	0	0	0	---	---	19
20	---	---	---	0.046	0.015	0.005	0	0	0	0	---	---	20
21	---	---	---	0.058	0.013	0.005	0	0	0	0	---	---	21
22	---	---	---	0.062	0.012	0.005	0	0	0	0	---	---	22
23	---	---	---	0.058	0.012	0.004	0	0	0	0	---	---	23
24	---	---	---	0.061	0.010	0.004	0	0	0	0	---	---	24
25	---	---	---	0.085	0.010	0.004	0	0	0	0	---	---	25
26	---	---	---	0.084	0.009	0.003	0	0	0	0	---	---	26
27	---	---	---	0.076	0.009	0.003	0	0	0	0	---	---	27
28	---	---	---	0.065	0.009	0.003	0	0	0	0	---	---	28
29	---		---	0.053	0.008	0.003	0	0	0	0	---	---	29
30	---		---	0.046	0.010 A	0.003	0	0	0	0	---	---	30
31	---		---		0.013		0	0		0		---	31
TOTAL	---	---	---	0.787	0.678	0.199	0.016	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.026	0.022	0.007	0.001	0	0	0	---	---	MEAN
MAX	---	---	---	0.085	0.049	0.014	0.003	0	0	0	---	---	MAX
MIN	---	---	---	0.004	0.008	0.003	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.008 m^3/s
MAXIMUM DAILY DISCHARGE, 0.085 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUL 12

MAXIMUM INSTANTANEOUS DISCHARGE,
0.089 m^3/s AT 19:23 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	1.38
FEB	---	AUG	0
MAR	---	SEP	0
APR	68.0	OCT	0
MAY	58.6	NOV	---
JUN	17.2	DEC	---

TOTAL DISCHARGE, 145 dam^3

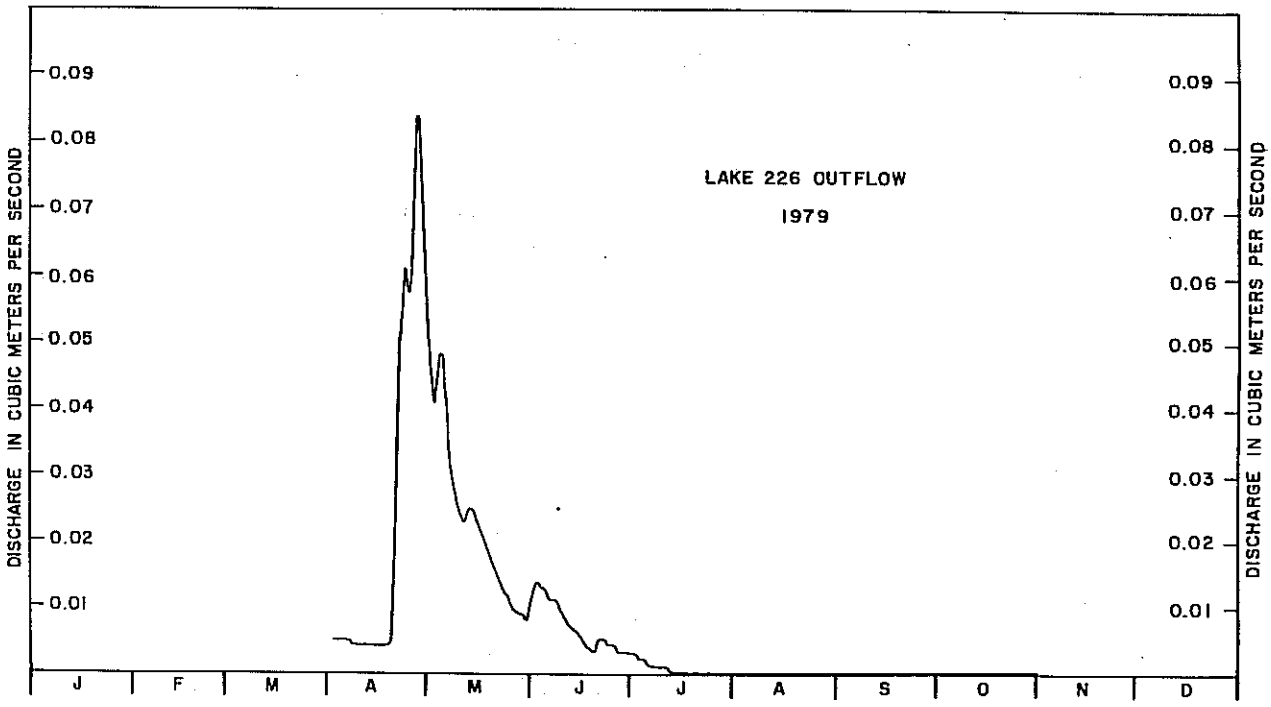

Fig. 8. Annual hydrograph based on mean daily discharges for the Lake 226 outflow for 1979.

Table 50. Mean daily discharge in cubic metres per second for the Lake 226 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.002	0.015	0.001	0	0.001	0.004	0.004	---	---	1
2	---	---	---	0.002	0.014	0.001	0	0.001	0.004	0.004	---	---	2
3	---	---	---	0.002	0.012	0.001	0	0	0.003	0.004	---	---	3
4	---	---	---	0.002	0.010	0.001	0	0.002	0.004	0.004	---	---	4
5	---	---	---	0.003	0.008	0.001	0	0.004	0.004	0.003	---	---	5
6	---	---	---	0.003	0.007	0.001	0	0.004	0.003	0.003	---	---	6
7	---	---	---	0.006	0.006	0.001	0	0.004	0.003	0.003	---	---	7
8	---	---	---	0.009	0.006	0	0	0.004	0.004	0.003	---	---	8
9	---	---	---	0.011	0.006	0	0	0.004	0.005	0.003	---	---	9
10	---	---	---	0.012	0.006	0	0	0.004	0.004	0.003	---	---	10
11	---	---	---	0.012	0.006	0	0	0.003	0.004	0.003	---	---	11
12	---	---	---	0.013	0.006	0	0	0.004	0.004	0.003	---	---	12
13	---	---	---	0.013	0.006	0	0	0.004	0.004	0.003	---	---	13
14	---	---	---	0.013	0.006	0	0	0.004	0.003	0.003	---	---	14
15	---	---	---	0.013	0.005	0	0	0.004	0.003	0.003	---	---	15
16	---	---	---	0.013	0.005	0	0	0.004	0.003	0.002	---	---	16
17	---	---	---	0.015	0.005	0	0	0.005	0.003	0.004	---	---	17
18	---	---	---	0.020	0.004	0	0	0.006	0.003	0.006	---	---	18
19	---	---	---	0.032	0.004	0	0	0.006	0.003	0.006	---	---	19
20	---	---	---	0.042	0.003	0	0	0.006	0.004	0.007	---	---	20
21	---	---	---	0.044	0.003	0	0	0.006	0.003	0.007	---	---	21
22	---	---	---	0.043	0.002	0	0	0.006	0.004	0.007	---	---	22
23	---	---	---	0.039	0.002	0	0.001	0.006	0.004	0.008	---	---	23
24	---	---	---	0.033	0.002	0	0.001	0.006	0.004	0.009	---	---	24
25	---	---	---	0.028	0.002	0	0.001	0.005	0.004	0.009	---	---	25
26	---	---	---	0.025	0.001	0	0.001	0.005	0.004	0.009	---	---	26
27	---	---	---	0.022	0.001	0	0.001	0.004	0.004	0.009	---	---	27
28	---	---	---	0.019	0.001	0	0.001	0.004	0.004	0.008	---	---	28
29	---	---	---	0.017	0.001	0	0.001	0.004	0.004	0.008	---	---	29
30	---		---	0.016	0.001	0	0.001	0.004	0.004	0.007A	---	---	30
31	---		---		0.001		0.001	0.004		0.007E		---	31
TOTAL	---	---	---	0.524	0.157	0.007	0.009	0.128	0.111	0.162	---	---	TOTAL
MEAN	---	---	---	0.017	0.005	0	0	0.004	0.004	0.005	---	---	MEAN
MAX	---	---	---	0.044	0.015	0.001	0.001	0.006	0.005	0.009	---	---	MAX
MIN	---	---	---	0.002	0.001	0	0	0	0.003	0.002	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.005 m^3/s
MAXIMUM DAILY DISCHARGE, 0.044 m^3/s ON APR 21
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUN 8

MAXIMUM INSTANTANEOUS DISCHARGE,
0.044 m^3/s AT 18:12 CST ON APR 21

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.78
FEB	---	AUG	11.1
MAR	---	SEP	9.59
APR	45.3	OCT	14.0
MAY	13.6	NOV	---
JUN	0.60	DEC	---

TOTAL DISCHARGE, 95.0 dam^3

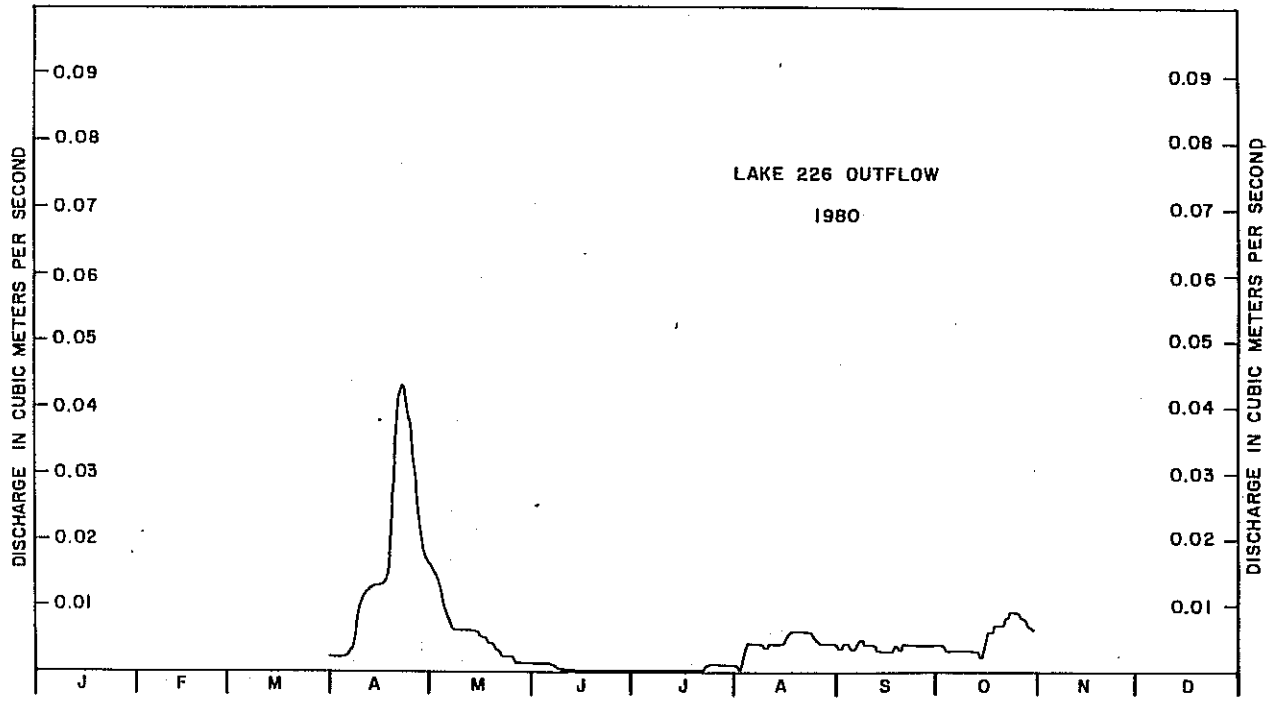

Fig. 8. Annual hydrograph based on mean daily discharges for the Lake 226 outflow for 1980.

Table 50. Mean daily discharge in cubic metres per second for the Lake 226 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.003	0.006	0.001E	0.007	0.002E	0	0.009	---	---	1
2	---	---	---	0.004	0.006	0.001E	0.008	0.001E	0	0.016	---	---	2
3	---	---	---	0.004	0.006	0.001E	0.034	0 E	0	0.018	---	---	3
4	---	---	---	0.005	0.005	0.001A	0.006	0 E	0	0.023	---	---	4
5	---	---	---	0.005	0.005	0.002	0.005	0 A	0	0.018	---	---	5
6	---	---	---	0.006	0.005	0.002	0.001	0	0.001	0.015	---	---	6
7	---	---	---	0.006	0.005	0.002	0	0	0.004	0.012	---	---	7
8	---	---	---	0.006	0.004	0.003	0.001	0	0.002	0.007	---	---	8
9	---	---	---	0.006	0.005	0.003	0	0	0	0.005	---	---	9
10	---	---	---	0.006	0.004	0.002	0	0	0	0.005	---	---	10
11	---	---	---	0.006	0.004	0.002	0.001	0.003	0	0.004	---	---	11
12	---	---	---	0.006	0.003	0.002	0.001	0.039	0	0.003	---	---	12
13	---	---	---	0.006	0.004	0.002	0	0.018	0	0.003	---	---	13
14	---	---	---	0.006	0.003	0.003	0	0.001	0	0.008	---	---	14
15	---	---	---	0.005	0.003	0.005	0	0	0	0.048	---	---	15
16	---	---	---	0.005	0.003	0.006	0	0	0	0.052	---	---	16
17	---	---	---	0.005	0.003	0.006	0	0	0	0.036	---	---	17
18	---	---	---	0.005	0.002	0.005	0	0	0	0.031	---	---	18
19	---	---	---	0.005	0.002	0.005	0	0	0	0.028	---	---	19
20	---	---	---	0.005	0.001	0.005	0	0	0	0.021	---	---	20
21	---	---	---	0.004	0.001	0.005	0 A	0	0	0.016	---	---	21
22	---	---	---	0.005	0.001	0.004	0 E	0	0	0.014	---	---	22
23	---	---	---	0.005	0.002	0.004	0 E	0	0	0.013	---	---	23
24	---	---	---	0.006	0.002	0.005	0 E	0.027	0	0.012	---	---	24
25	---	---	---	0.006	0.002	0.007	0 E	0.019	0	0.012	---	---	25
26	---	---	---	0.006	0.001	0.007	0 E	0	0	0.012	---	---	26
27	0.001A	---	---	0.006	0.001	0.001	0 E	0	0	0.015	---	---	27
28	---	---	---	0.007	0.001A	0.002	0 E	0	0	0.015A	---	---	28
29	---		---	0.006	0.001E	0.006	0 E	0	0	0.013E	---	---	29
30	---		---	0.007	0.002E	0.007	0 E	0	0.001	0.012E	---	---	30
31	---		---		0.002E		0.002E	0		0.011E		---	31
TOTAL	---	---	---	0.163	0.095	0.107	0.066	0.110	0.008	0.507	---	---	TOTAL
MEAN	---	---	---	0.005	0.003	0.004	0.002	0.004	0	0.016	---	---	MEAN
MAX	---	---	---	0.007	0.006	0.007	0.034	0.039	0.004	0.052	---	---	MAX
MIN	---	---	---	0.003	0.001	0.001	0	0	0	0.003	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.005
MAXIMUM DAILY, 0.052 ON OCT 16
MINIMUM DAILY, 0 ON JUL 7
MAXIMUM INSTANTANEOUS,
0.140 AT 13:55 CST ON OCT 15

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	5.70
FEB	---	AUG	9.50
MAR	---	SEP	0.69
APR	14.1	OCT	43.8
MAY	8.21	NOV	---
JUN	9.24	DEC	---

TOTAL DISCHARGE, 91.2 dam³

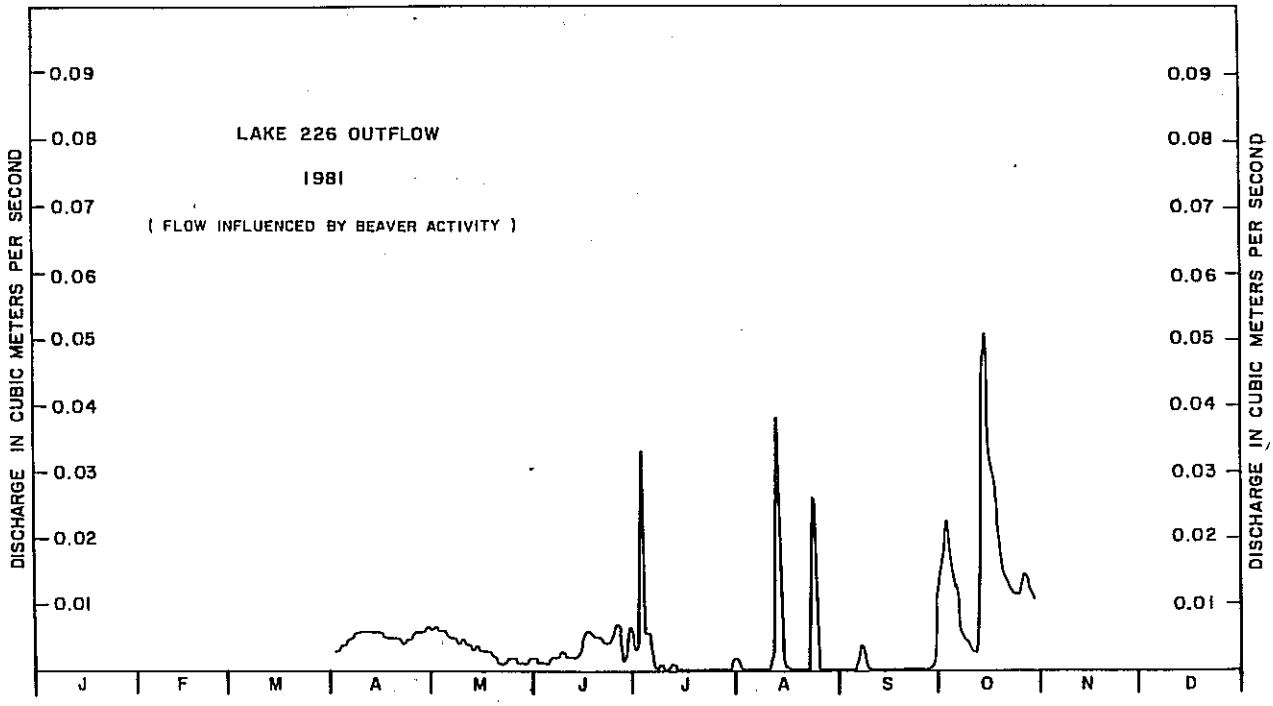

Fig. 8. Annual hydrograph based on mean daily discharges for the Lake 226 outflow for 1981.

Table 51. Mean daily discharge in cubic metres per second for the Lake 227 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.011	0.007	0.001	0	0	0	---	---	1
2	---	---	---	0	0.019	0.007	0.001	0	0	0	---	---	2
3	---	---	---	0	0.020	0.006	0	0	0	0	---	---	3
4	---	---	---	0	0.016	0.006	0	0	0	0	---	---	4
5	---	---	---	0	0.013	0.005	0	0	0	0	---	---	5
6	---	---	---	0	0.010	0.004	0	0	0	0	---	---	6
7	---	---	---	0	0.011	0.004	0	0	0	0	---	---	7
8	---	---	---	0	0.010	0.004	0	0	0	0	---	---	8
9	---	---	---	0	0.009	0.003	0	0	0	0	---	---	9
10	---	---	---	0	0.008	0.003	0	0	0	0	---	---	10
11	---	---	---	0	0.011	0.002	0	0	0	0	---	---	11
12	---	---	---	0	0.011	0.001	0	0	0	0	---	---	12
13	---	---	---	0	0.010	0.002	0	0	0	0	---	---	13
14	---	---	---	0	0.009	0.002	0	0	0	0	---	---	14
15	---	---	---	0.001	0.007	0.002	0	0	0	0	---	---	15
16	---	---	---	0.001	0.006	0.002	0	0	0	0	---	---	16
17	---	---	---	0.002	0.006	0.001	0	0	0	0	---	---	17
18	---	---	---	0.003	0.006	0.001	0	0	0	0	---	---	18
19	---	---	---	0.007	0.006	0.001	0	0	0	0	---	---	19
20	---	---	---	0.026	0.005	0.002	0	0	0	0	---	---	20
21	---	---	---	0.029	0.005	0.003	0	0	0	0	---	---	21
22	---	---	---	0.027	0.004	0.003	0	0	0	0	---	---	22
23	---	---	---	0.024	0.004	0.002	0	0	0	0	---	---	23
24	---	---	---	0.028	0.004	0.001	0	0	0	0	---	---	24
25	---	---	---	0.058	0.003	0.001	0	0	0	0	---	---	25
26	---	---	---	0.039	0.003	0.001	0	0	0	0	---	---	26
27	---	---	---	0.023	0.003	0.001	0	0	0	0	---	---	27
28	---	---	---	0.017	0.003	0.001	0	0	0	0	---	---	28
29	---		---	0.013	0.003	0.001	0	0	0	0	---	---	29
30	---		---	0.012	0.004	0.001	0	0	0	0	---	---	30
31	---		---		0.007		0	0		0		---	31
TOTAL	---	---	---	0.310	0.247	0.080	0.002	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.010	0.008	0.003	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.058	0.020	0.007	0.001	0	0	0	---	---	MAX
MIN	---	---	---	0	0.003	0.001	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.003 m^3/s
MAXIMUM DAILY DISCHARGE, 0.058 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.063 m^3/s AT 08:41 CST ON APR 25

TYPE OF GAUGE - RECORDING

HONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.17
FEB	---	AUG	0
MAR	---	SEP	0
APR	26.8	OCT	0
MAY	21.3	NOV	---
JUN	6.91	DEC	---

TOTAL DISCHARGE, 55.2 dam^3

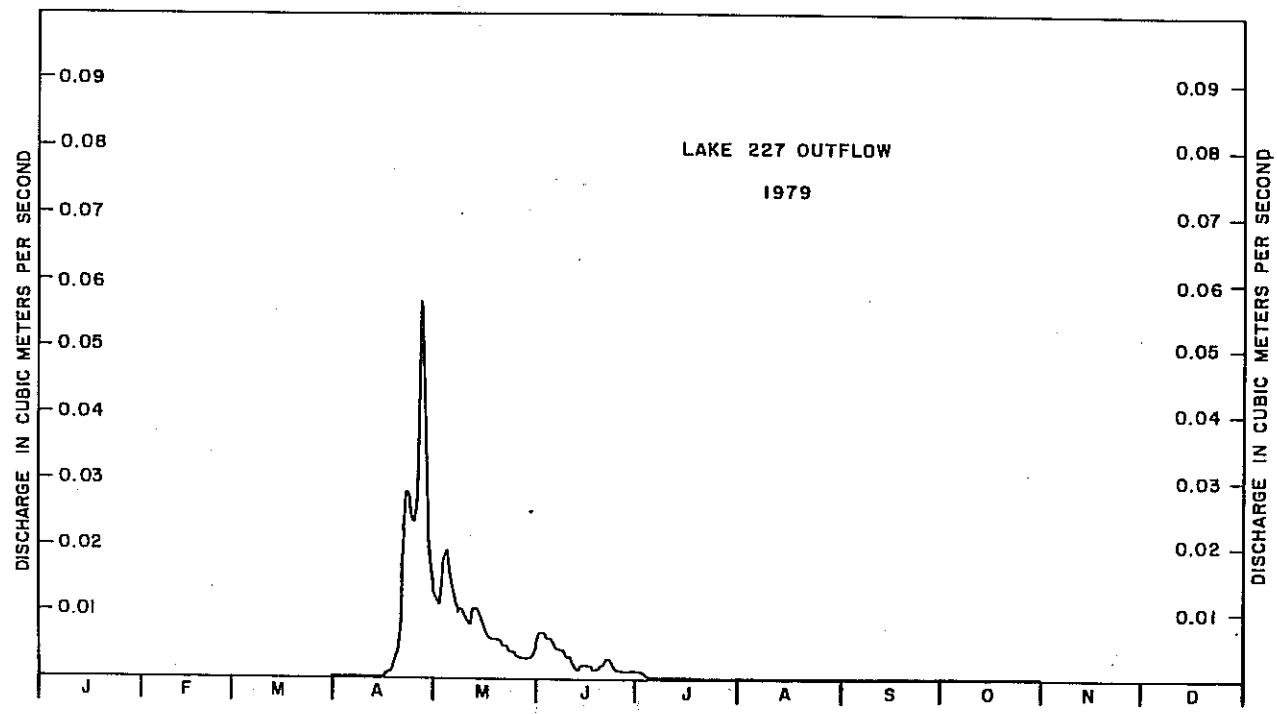

Fig. 9. Annual hydrograph based on mean daily discharges for the Lake 227 outflow for 1979.

Table 51. Mean daily discharge in cubic metres per second for the Lake 227 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0 E	0.005	0	0	0	0	0	---	---	1
2	---	---	---	0 E	0.005	0	0	0	0	0	---	---	2
3	---	---	---	0 E	0.004	0	0	0	0	0	---	---	3
4	---	---	---	0 E	0.004	0	0	0	0	0	---	---	4
5	---	---	---	0 E	0.003	0	0	0	0	0	---	---	5
6	---	---	---	0.001E	0.002	0	0	0	0	0	---	---	6
7	---	---	---	0.001E	0.002	0	0	0	0	0	---	---	7
8	---	---	---	0.001E	0.002	0	0	0	0	0	---	---	8
9	---	---	---	0.001E	0.002	0	0	0	0	0	---	---	9
10	---	---	---	0.001E	0.002	0	0	0	0	0	---	---	10
11	---	---	---	0 E	0.002	0	0	0	0	0	---	---	11
12	---	---	---	0 E	0.002	0	0	0	0	0	---	---	12
13	---	---	---	0 E	0.002	0	0	0	0	0	---	---	13
14	---	---	---	0 A	0.002	0	0	0	0	0	---	---	14
15	---	---	---	0.014	0.002	0	0	0	0	0	---	---	15
16	---	---	---	0.015	0.002	0	0	0	0	0	---	---	16
17	---	---	---	0.012	0.001	0	0	0	0	0	---	---	17
18	---	---	---	0.016	0.001	0	0	0	0	0	---	---	18
19	---	---	---	0.020	0.001	0	0	0	0	0	---	---	19
20	---	---	---	0.025	0.001	0	0	0	0	0	---	---	20
21	---	---	---	0.024	0.001	0	0	0	0	0.001	---	---	21
22	---	---	---	0.022	0	0	0	0	0	0.001	---	---	22
23	---	---	---	0.017	0	0	0	0	0	0.001	---	---	23
24	---	---	---	0.014	0	0	0	0	0	0.001	---	---	24
25	---	---	---	0.011	0	0	0	0	0	0.002	---	---	25
26	---	---	---	0.008	0	0	0	0	0	0.002	---	---	26
27	---	---	---	0.009	0	0	0	0	0	0.001	---	---	27
28	---	---	---	0.009	0	0	0	0	0	0.001	---	---	28
29	---	---	---	0.007	0	0	0	0	0	0.001	---	---	29
30	---		---	0.006	0	0	0	0	0	0.001A	---	---	30
31	---		---		0		0	0		0.001E		---	31
TOTAL	---	---	---	0.238	0.048	0	0	0	0	0.013	---	---	TOTAL
MEAN	---	---	---	0.008	0.002	0	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.025	0.005	0	0	0	0	0.002	---	---	MAX
MIN	---	---	---	0	0	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.001 m^3/s
MAXIMUM DAILY DISCHARGE, 0.025 m^3/s ON APR 20
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.043 m^3/s AT 14:15 CST ON APR 15

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	20.6	OCT	1.12
MAY	4.15	NOV	---
JUN	0	DEC	---

TOTAL DISCHARGE, 25.9 dam^3

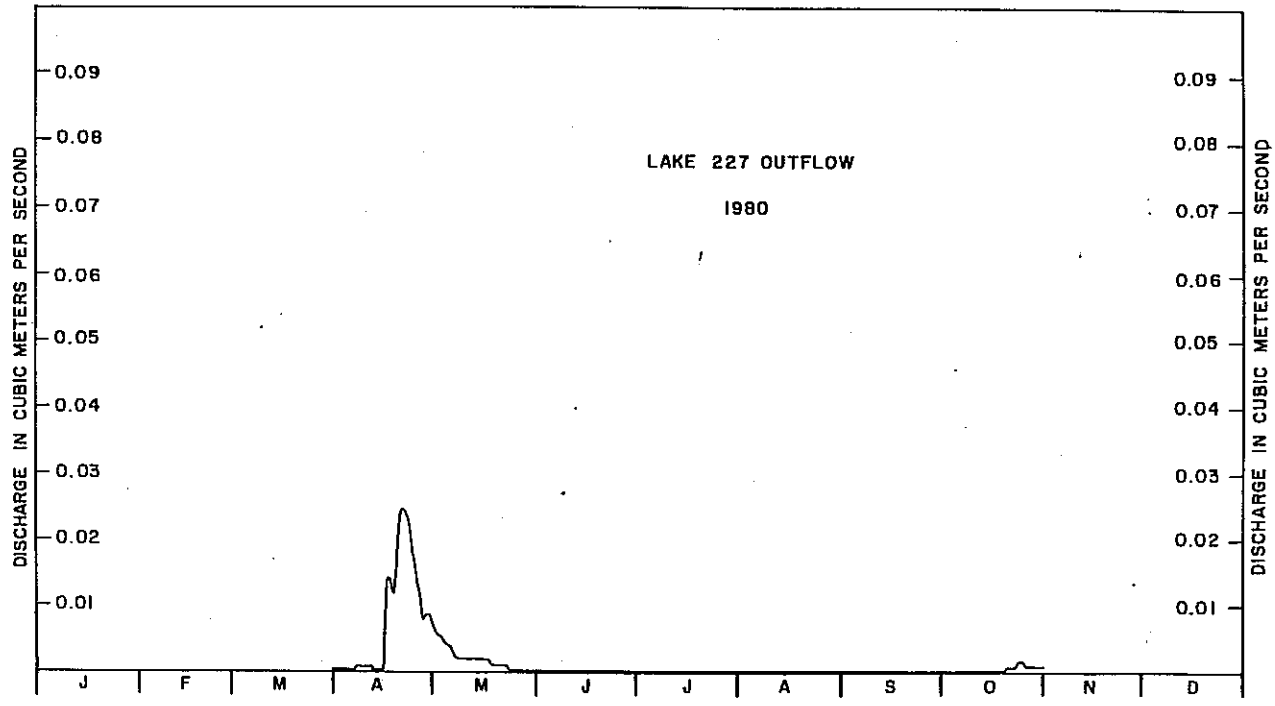

Fig. 9. Annual hydrograph based on mean daily discharges for the Lake 227 outflow for 1980.

Table 51. Mean daily discharge in cubic metres per second for the Lake 227 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.002B	0.003	0	0.012	0.001	0 E	0.006	---	---	1
2	---	---	---	0.002	0.003	0	0.009	0.001	0 E	0.009	---	---	2
3	---	---	---	0.003	0.003	0	0.022	0.001	0 E	0.009	---	---	3
4	---	---	---	0.003	0.002	0	0.021	0.001	0 E	0.011	---	---	4
5	---	---	---	0.003	0.001	0.001	0.015	0.001	0 E	0.012	---	---	5
6	---	---	---	0.002	0.001	0.001	0.011	0.001	0 E	0.011	---	---	6
7	---	---	---	0.002	0.001	0.002	0.008	0.001	0.004E	0.009	---	---	7
8	---	---	---	0.002	0.001	0.003	0.005	0.001	0.005A	0.008	---	---	8
9	---	---	---	0.002	0.001	0.003	0.003	0.001	0.005	0.007	---	---	9
10	---	---	---	0.002	0.001	0.003	0.002	0.001	0.005	0.007	---	---	10
11	---	---	---	0.002	0.001	0.002	0.002	0 A	0.004	0.006	---	---	11
12	---	---	---	0.001	0.001	0.002	0.002	0 E	0.002	0.005	---	---	12
13	---	---	---	0.002	0.001	0.002	0.001	0 E	0.002	0.006	---	---	13
14	---	---	---	0.002	0.001	0.005	0.001	0 E	0.002	0.005	---	---	14
15	---	---	---	0.002	0.001	0.017	0.001	0 E	0.001	0.004	---	---	15
16	---	---	---	0.002	0	0.017	0.001	0 E	0.001	0.004	---	---	16
17	---	---	---	0.003	0	0.013	0.002	0 E	0.001	0.004	---	---	17
18	---	---	---	0.003	0	0.010	0.002	0 E	0.001	0.003	---	---	18
19	---	---	---	0.003	0	0.008	0.002	0 E	0.001	0.003	---	---	19
20	---	---	---	0.003	0	0.006	0.002	0 E	0.001	0.003	---	---	20
21	---	---	---	0.003	0	0.005	0.001	0 E	0	0.003	---	---	21
22	---	---	---	0.004	0	0.004	0.001	0 E	0	0.002	---	---	22
23	---	---	---	0.004	0	0.003	0.001	0 E	0	0.002	---	---	23
24	---	---	---	0.004	0	0.006	0.001	0 E	0	0.002	---	---	24
25	---	---	---	0.003	0	0.008	0.001	0 E	0	0.002	---	---	25
26	---	---	---	0.003	0	0.009	0.001	0 E	0.001	0.002	---	---	26
27	---	---	---	0.003	0	0.010	0.001	0 E	0.001	0.002	---	---	27
28	---	---	---	0.004	0	0.017	0	0 E	0.002	0.002A	---	---	28
29	---		---	0.004	0	0.019	0	0 E	0.001	0.002E	---	---	29
30	---		---	0.004	0	0.016	0	0 E	0.002	0.002E	---	---	30
31	---		---		0		0.001	0 E		0.002E		---	31
TOTAL	---	---	---	0.082	0.022	0.192	0.132	0.010	0.042	0.155	---	---	TOTAL
MEAN	---	---	---	0.003	0.001	0.006	0.004	0	0.001	0.005	---	---	MEAN
MAX	---	---	---	0.004	0.003	0.019	0.022	0.001	0.005	0.012	---	---	MAX
MIN	---	---	---	0.001	0	0	0	0	0	0.002	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.003
MAXIMUM DAILY, 0.022 ON JUL 3
MINIMUM DAILY, 0 ON MAY 16
MAXIMUM INSTANTANEOUS,
0.025 AT 20:13 CST ON JUL 3

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE
B - ICE CONDITIONS
E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	11.4
FEB	---	AUG	0.86
MAR	---	SEP	3.63
APR	7.08	OCT	13.4
MAY	1.90	NOV	---
JUN	16.6	DEC	---

TOTAL DISCHARGE, 54.9 dam³

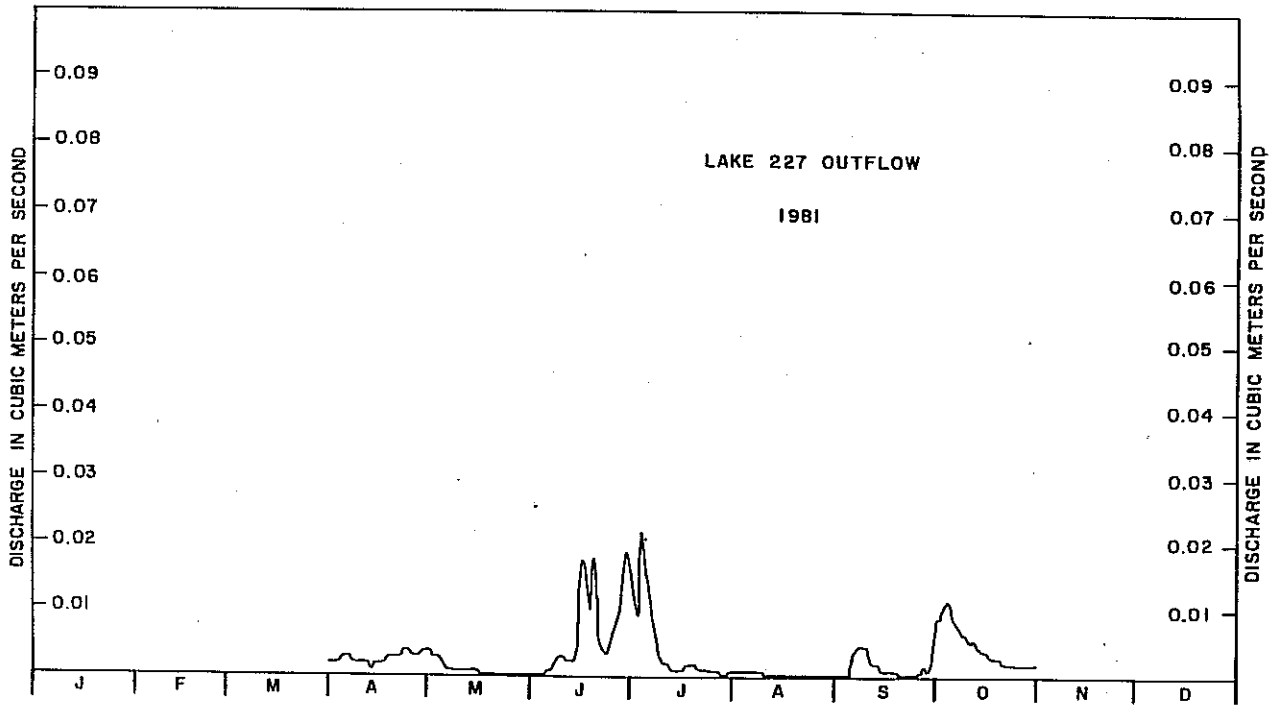

Fig. 9. Annual hydrograph based on mean daily discharges for the Lake 227 outflow for 1981.

Table 52. Mean daily water levels in metres for Lake 227 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	29.023	29.059	29.030	28.963	28.869	28.848	28.815	---	---	1
2	---	---	---	29.017	29.088	29.028	28.958	28.864	28.850	28.814	---	---	2
3	---	---	---	29.014	29.096	29.022	28.954	28.859	28.849	28.817	---	---	3
4	---	---	---	29.014	29.081	29.014	28.950	28.857	28.848	28.815	---	---	4
5	---	---	---	29.013	29.066	29.008	28.945	28.853	28.845	28.815	---	---	5
6	---	---	---	29.013	29.054	29.006	28.940	28.851	28.842	28.814	---	---	6
7	---	---	---	29.013	29.051	29.005	28.935	28.866	28.839	28.813	---	---	7
8	---	---	---	29.012	29.048	29.000	28.931	28.862	28.835	28.812	---	---	8
9	---	---	---	29.011	29.044	28.997	28.929	28.856	28.832	28.812	---	---	9
10	---	---	---	29.011	29.041	28.993	28.924	28.852	28.831	28.813	---	---	10
11	---	---	---	29.007	29.058	28.988	28.921	28.846	28.834	28.818	---	---	11
12	---	---	---	29.000	29.060	28.985	28.915	28.852	28.834	28.817	---	---	12
13	---	---	---	29.014	29.058	28.984	28.915	28.858	28.833	28.816	---	---	13
14	---	---	---	29.020	29.052	28.982	28.912	28.853	28.833	28.815	---	---	14
15	---	---	---	29.014	29.044	28.978	28.914	28.849	28.831	28.814	---	---	15
16	---	---	---	29.012	29.037	28.973	28.909	28.847	28.830	28.814	---	---	16
17	---	---	---	29.011	29.036	28.966	28.905	28.843	28.828	28.814	---	---	17
18	---	---	---	29.016	29.038	28.962	28.904	28.843	28.823	28.815	---	---	18
19	---	---	---	29.032	29.035	28.966	28.907	28.839	28.821	28.818	---	---	19
20	---	---	---	29.081	29.031	28.985	28.904	28.836	28.820	28.830	---	---	20
21	---	---	---	29.125	29.027	28.993	28.900	28.832	28.819	28.830	---	---	21
22	---	---	---	29.123	29.023	28.990	28.894	28.832	28.816	28.827	---	---	22
23	---	---	---	29.116	29.020	28.985	28.893	28.844	28.815	28.827	---	---	23
24	---	---	---	29.119	29.015	28.980	28.893	28.845	28.811	28.826	---	---	24
25	---	---	---	29.178	29.011	28.981	28.894	28.846	28.811	28.825	---	---	25
26	---	---	---	29.149	29.012	28.978	28.892	28.845	28.807	28.823	---	---	26
27	---	---	---	29.111	29.008	28.971	28.888	28.844	28.815	28.822	---	---	27
28	---	---	---	29.087	29.004	28.974	28.884	28.843	28.814	28.823	---	---	28
29	---		---	29.071	28.998	28.972	28.879	28.844	28.810	28.822	---	---	29
30	---		---	29.062	29.004	28.968	28.876	28.840	28.809	28.825	---	---	30
31	---		---		29.031		28.874	28.841		28.864		---	31
MEAN	---	---	---	29.050	29.040	28.989	28.913	28.849	28.828	28.820	---	---	MEAN
MAX	---	---	---	29.178	29.096	29.030	28.963	28.869	28.850	28.864	---	---	MAX
MIN	---	---	---	29.000	28.998	28.962	28.874	28.832	28.807	28.812	---	---	MIN

SUMMARY FOR THE YEAR 1979

MAXIMUM DAILY WATER LEVEL, 29.178 m ON APR 25
MINIMUM DAILY WATER LEVEL, 28.807 m ON SEP 26
MAXIMUM INSTANTANEOUS WATER LEVEL,
29.185 m AT 11:06 CST ON APR 25

TYPE OF GAUGE - RECORDING

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 52. Mean daily water levels in metres for Lake 227 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	29.061	29.010	28.929	28.888	28.866	28.884	28.915	---	---	1
2	---	---	---	29.059	29.005	28.928	28.883	28.862	28.882	28.913	---	---	2
3	---	---	---	29.060	29.000	28.923	28.881	28.859	28.881	28.914	---	---	3
4	---	---	---	29.060	28.996	28.920	28.878	28.878	28.890	28.912	---	---	4
5	---	---	---	29.061	28.989	28.919	28.875	28.890	28.891	28.911	---	---	5
6	---	---	---	29.069	28.984	28.920	28.871	28.890	28.888	28.911	---	---	6
7	---	---	---	29.068	28.982	28.914	28.870	28.890	28.887	28.911	---	---	7
8	---	---	---	29.073	28.978	28.909	28.865	28.891	28.896	28.909	---	---	8
9	---	---	---	29.077	28.978	28.905	28.861	28.890	28.903	28.907	---	---	9
10	---	---	---	29.082	28.980	28.901	28.857	28.885	28.899	28.912	---	---	10
11	---	---	---	29.087	28.984	28.898	28.853	28.885	28.896	28.914	---	---	11
12	---	---	---	29.089	28.983	28.895	28.850	28.888	28.894	28.912	---	---	12
13	---	---	---	29.095	28.982	28.896	28.844	28.892	28.890	28.909	---	---	13
14	---	---	---	29.100	28.979	28.892	28.847	28.889	28.889	28.908	---	---	14
15	---	---	---	29.101	28.977	28.890	28.846	28.885	28.891	28.907	---	---	15
16	---	---	---	29.082	28.975	28.886	28.871	28.880	28.889	28.909	---	---	16
17	---	---	---	29.065	28.972	28.880	28.872	28.893	28.886	28.929	---	---	17
18	---	---	---	29.076	28.968	28.876	28.872	28.898	28.889	28.953	---	---	18
19	---	---	---	29.107	28.965	28.873	28.875	28.897	28.893	28.961	---	---	19
20	---	---	---	29.114	28.960	28.868	28.876	28.896	28.899	28.967	---	---	20
21	---	---	---	29.112	28.954	28.866	28.889	28.901	28.900	28.971	---	---	21
22	---	---	---	29.105	28.949	28.864	28.889	28.899	28.904	28.973	---	---	22
23	---	---	---	29.089	28.945	28.868	28.885	28.896	28.910	28.984	---	---	23
24	---	---	---	29.071	28.940	28.881	28.882	28.894	28.911	28.995	---	---	24
25	---	---	---	29.061	28.935	28.876	28.877	28.893	28.909	28.998	---	---	25
26	---	---	---	29.053	28.933	28.869	28.871	28.888	28.908	28.999	---	---	26
27	---	---	---	29.046	28.932	28.864	28.871	28.886	28.907	28.998	---	---	27
28	---	---	---	29.037	28.928	28.877	28.876	28.883	28.907	28.997	---	---	28
29	---	---	---	29.026	28.932	28.889	28.879	28.885	28.909	28.995	---	---	29
30	---		---	29.017	28.928	28.889	28.875	28.888	28.910	28.997A	---	---	30
31	---		---		28.923		28.873	28.887		28.996E		---	31
MEAN	---	---	---	29.073	28.966	28.892	28.871	28.887	28.896	28.945	---	---	MEAN
MAX	---	---	---	29.114	29.010	28.929	28.889	28.901	28.911	28.999	---	---	MAX
MIN	---	---	---	29.017	28.923	28.864	28.844	28.859	28.881	28.907	---	---	MIN

SUMMARY FOR THE YEAR 1980

MAXIMUM DAILY WATER LEVEL, 29.114 m ON APR 20
MINIMUM DAILY WATER LEVEL, 28.844 m ON JUL 13
MAXIMUM INSTANTANEOUS WATER LEVEL,
29.115 m AT 07:21 CST ON APR 20

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 52. Mean daily water levels in metres for Lake 227 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	29.018	28.980	28.947	29.049	28.974	28.896	29.041	---	---	1
2	---	---	---	29.021	28.978	28.944	29.038	28.971	28.890	29.054	---	---	2
3	---	---	---	29.020	28.979	28.945	29.090	28.969	28.888	29.059	---	---	3
4	---	---	---	29.018	28.980	28.943	29.089	28.966	28.882	29.068	---	---	4
5	---	---	---	29.017	28.978	28.969	29.067	28.961	28.877	29.071	---	---	5
6	---	---	---	29.011	28.975	28.979	29.047	28.969	28.910	29.066	---	---	6
7	---	---	---	29.010	28.972	28.980	29.032	28.976	29.018	29.056	---	---	7
8	---	---	---	29.007	28.974	28.996	29.021	28.972	29.025	29.048	---	---	8
9	---	---	---	29.006	28.973	28.996	29.006	28.968	29.022	29.039	---	---	9
10	---	---	---	29.006	28.973	28.991	28.996	28.965	29.018	29.040	---	---	10
11	---	---	---	29.005	28.969	28.987	28.991	28.961	29.008	29.041	---	---	11
12	---	---	---	29.002	28.968	28.981	28.988	28.958	29.004	29.037	---	---	12
13	---	---	---	29.002	28.965	28.979	28.981	28.956	29.001	29.036	---	---	13
14	---	---	---	28.999	28.962	28.997	28.975	28.951	28.996	29.033	---	---	14
15	---	---	---	28.999	28.963	29.064	28.973	28.946	28.988	29.029	---	---	15
16	---	---	---	28.996	28.957	29.067	28.973	28.942	28.983	29.025	---	---	16
17	---	---	---	28.993	28.954	29.053	28.990	28.936	28.979	29.023	---	---	17
18	---	---	---	28.991	28.951	29.041	28.997	28.934	28.978	29.021	---	---	18
19	---	---	---	28.991	28.948	29.031	28.994	28.932	28.976	29.016	---	---	19
20	---	---	---	28.988	28.944	29.026	28.989	28.928	28.972	29.015	---	---	20
21	---	---	---	28.982	28.940	29.017	28.984	28.925	28.968	29.009	---	---	21
22	---	---	---	28.987	28.945	29.009	28.980	28.921	28.964	29.009	---	---	22
23	---	---	---	28.991	28.947	28.999	28.976	28.919	28.964	29.005	---	---	23
24	---	---	---	28.987	28.947	29.015	28.973	28.917	28.967	29.007	---	---	24
25	---	---	---	28.986	28.950	29.033	28.974	28.915	28.965	29.010	---	---	25
26	---	---	---	28.987	28.947	29.032	28.970	28.914	28.978	29.005	---	---	26
27		---	---	28.986	28.944	29.038	28.964	28.910	28.998	29.002	---	---	27
28	---	---	---	28.985	28.944	29.074	28.961	28.904	29.001	29.002A	---	---	28
29	---		---	28.985	28.947	29.082	28.956	28.901	29.000	29.003E	---	---	29
30	---		---	28.983	28.950	29.066	28.953	28.902	29.005	29.002E	---	---	30
31	---		---		28.948		28.976	28.896		29.002E		---	31
MEAN	---	---	---	28.999	28.960	29.009	28.998	28.941	28.971	29.028	---	---	MEAN
MAX	---	---	---	29.021	28.980	29.082	29.090	28.976	29.025	29.071	---	---	MAX
MIN	---	---	---	28.982	28.940	28.943	28.953	28.896	28.877	29.002	---	---	MIN

SUMMARY FOR THE YEAR 1981

WATER LEVELS IN METRES

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MAXIMUM DAILY, 29.090 ON JUL 3

MAXIMUM INSTANTANEOUS,
29.102 AT 12:44 CST ON JUL 3

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 53. Mean daily discharge in cubic metres per second for the Lake 230 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.002	0.001	0	0	0	0	---	---	1
2	---	---	---	0	0.002	0	0	0	0	0	---	---	2
3	---	---	---	0	0.002	0	0	0	0	0	---	---	3
4	---	---	---	0	0.001	0	0	0	0	0	---	---	4
5	---	---	---	0	0.001	0	0	0	0	0	---	---	5
6	---	---	---	0	0.002	0	0	0	0	0	---	---	6
7	---	---	---	0	0.002	0	0	0	0	0	---	---	7
8	---	---	---	0	0.002	0	0	0	0	0	---	---	8
9	---	---	---	0	0.001	0	0	0	0	0	---	---	9
10	---	---	---	0	0.001	0	0	0	0	0	---	---	10
11	---	---	---	0	0.002	0	0	0	0	0	---	---	11
12	---	---	---	0	0.002	0	0	0	0	0	---	---	12
13	---	---	---	0	0.002	0	0	0	0	0	---	---	13
14	---	---	---	0	0.002	0	0	0	0	0	---	---	14
15	---	---	---	0	0.001	0	0	0	0	0	---	---	15
16	---	---	---	0	0.001	0	0	0	0	0	---	---	16
17	---	---	---	0.007	0.001	0	0	0	0	0	---	---	17
18	---	---	---	0.008	0.001	0	0	0	0	0	---	---	18
19	---	---	---	0.010	0.001	0	0	0	0	0	---	---	19
20	---	---	---	0.009	0.001	0	0	0	0	0	---	---	20
21	---	---	---	0.005	0.001	0	0	0	0	0	---	---	21
22	---	---	---	0.004	0.001	0	0	0	0	0	---	---	22
23	---	---	---	0.003	0.001	0	0	0	0	0	---	---	23
24	---	---	---	0.004	0.001	0	0	0	0	0	---	---	24
25	---	---	---	0.006	0.001	0	0	0	0	0	---	---	25
26	---	---	---	0.005	0.001	0	0	0	0	0	---	---	26
27	---	---	---	0.003	0.001	0	0	0	0	0	---	---	27
28	---	---	---	0.002	0.001	0	0	0	0	0	---	---	28
29	---		---	0.002	0.001	0	0	0	0	0	---	---	29
30	---		---	0.002	0.001	0	0	0	0	0	---	---	30
31	---		---		0.001		0	0		0		---	31
TOTAL	---	---	---	0.070	0.041	0.001	0	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.002	0.001	0	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.010	0.002	0.001	0	0	0	0	---	---	MAX
MIN	---	---	---	0	0.001	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.001 m^3/s
MAXIMUM DAILY DISCHARGE, 0.010 m^3/s ON APR 19
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.012 m^3/s AT 18:01 CST ON APR 19

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	6.05	OCT	0
MAY	3.54	NOV	---
JUN	0.09	DEC	---

TOTAL DISCHARGE, 9.68 dam^3

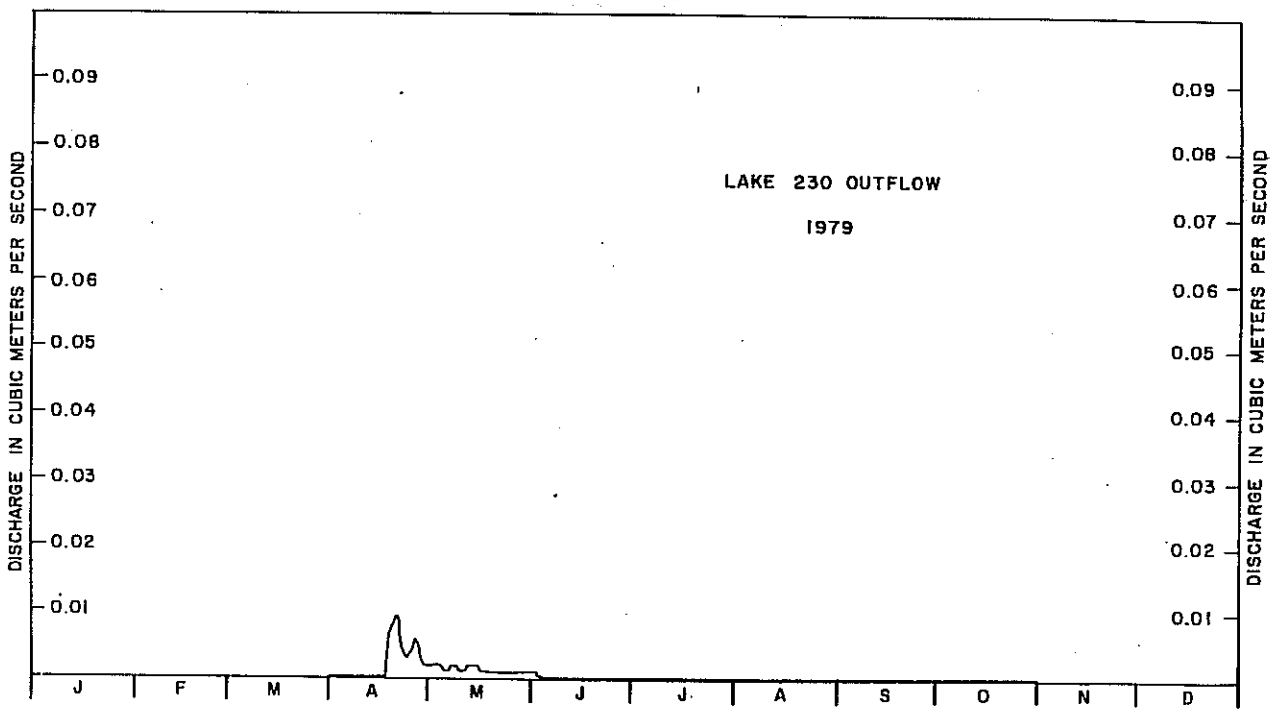

Fig. 10. Annual hydrograph based on mean daily discharges for the Lake 114 outflow for 1979.

Table 53. Mean daily discharge in cubic metres per second for the Lake 230 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.001	0.001	0	0	0	0	0	---	---	1
2	---	---	---	0.002	0.001	0	0	0	0	0	---	---	2
3	---	---	---	0.002	0.001	0	0	0	0	0	---	---	3
4	---	---	---	0.002	0.001	0	0	0	0	0	---	---	4
5	---	---	---	0.002	0.001	0	0	0	0	0	---	---	5
6	---	---	---	0.002	0	0	0	0	0	0	---	---	6
7	---	---	---	0.003	0	0	0	0	0	0	---	---	7
8	---	---	---	0.003	0	0	0	0	0	0	---	---	8
9	---	---	---	0.002	0	0	0	0	0	0	---	---	9
10	---	---	---	0.002	0	0	0	0	0	0	---	---	10
11	---	---	---	0.001	0	0	0	0	0	0	---	---	11
12	---	---	---	0.001	0	0	0	0	0	0	---	---	12
13	---	---	---	0.001	0	0	0	0	0	0	---	---	13
14	---	---	---	0.001	0	0	0	0	0	0	---	---	14
15	---	---	---	0.001	0	0	0	0	0	0	---	---	15
16	---	---	---	0.001	0	0	0	0	0	0	---	---	16
17	---	---	---	0.001	0	0	0	0	0	0	---	---	17
18	---	---	---	0.001	0	0	0	0	0	0.001	---	---	18
19	---	---	---	0.002	0	0	0	0	0	0.001	---	---	19
20	---	---	---	0.002	0	0	0	0	0	0.001	---	---	20
21	---	---	---	0.001	0	0	0	0	0	0.001	---	---	21
22	---	---	---	0.001	0	0	0	0	0	0.001	---	---	22
23	---	---	---	0.001	0	0	0	0	0	0.001	---	---	23
24	---	---	---	0.001	0	0	0	0	0	0.001	---	---	24
25	---	---	---	0.001	0	0	0	0	0	0.001	---	---	25
26	---	---	---	0.001	0	0	0	0	0	0.001	---	---	26
27	---	---	---	0.001	0	0	0	0	0	0.001	---	---	27
28	---	---	---	0.001	0	0	0	0	0	0.001	---	---	28
29	---	---	---	0.001	0	0	0	0	0	0.001	---	---	29
30	---		---	0.001	0	0	0	0	0	0.001A	---	---	30
31	---		---		0		0	0		0.001E		---	31
TOTAL	---	---	---	0.043	0.005	0	0	0	0	0.014	---	---	TOTAL
MEAN	---	---	---	0.001	0	0	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.003	0.001	0	0	0	0	0.001	---	---	MAX
MIN	---	---	---	0.001	0	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0 m^3/s
MAXIMUM DAILY DISCHARGE, 0.003 m^3/s ON APR 7
MINIMUM DAILY DISCHARGE, 0 m^3/s ON MAY 6

MAXIMUM INSTANTANEOUS DISCHARGE,
0.003 m^3/s AT 04:13 CST ON APR 7

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	3.72	OCT	1.21
MAY	0.43	NOV	---
JUN	0	DEC	---

TOTAL DISCHARGE, 5.36 dam^3

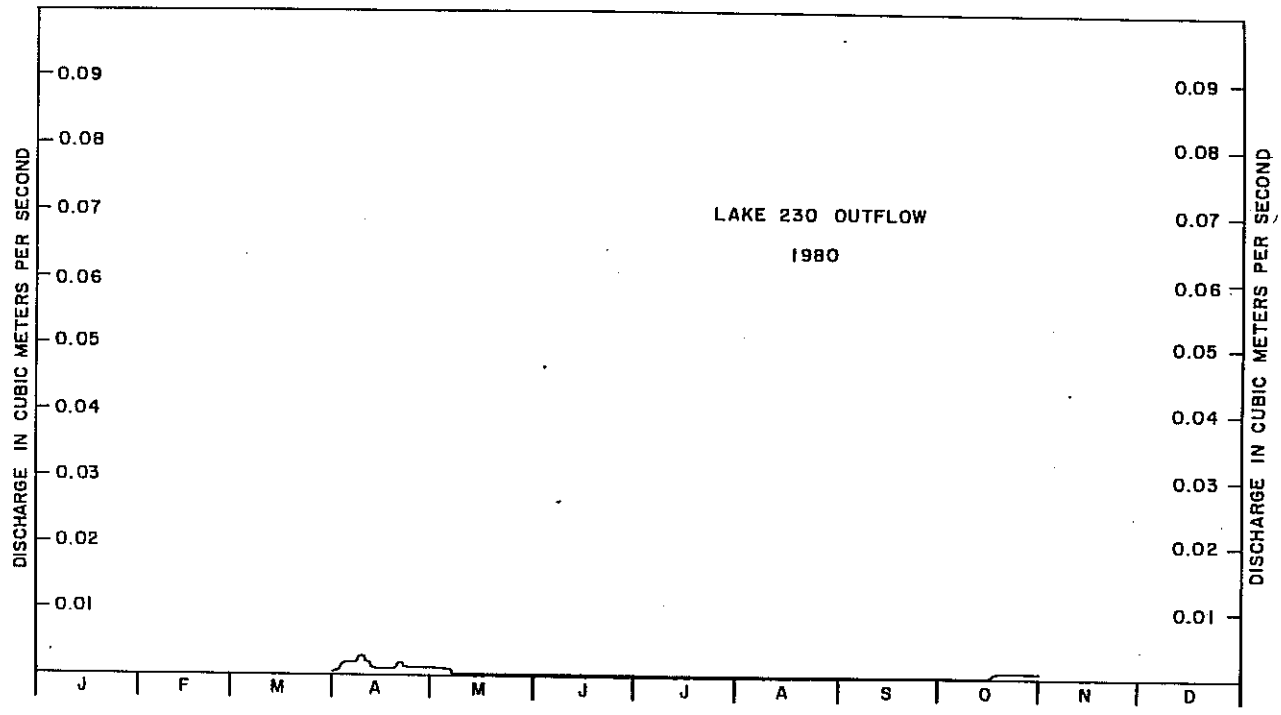

Fig. 10. Annual hydrograph based on mean daily discharges for the Lake 230 outflow for 1980.

Table 54. Mean daily discharge in cubic metres per second for the Lake 239 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.007	0.004	0.005	0.008	0.182	0.068	0.018	0	0	0	0	0.009	1
2	0.007	0.004	0.006	0.008	0.191	0.068	0.015	0	0	0	0	0.009	2
3	0.007	0.004	0.007	0.007	0.194	0.065	0.014	0	0	0	0.001	0.008	3
4	0.007	0.004	0.007	0.007	0.181	0.062	0.012	0	0	0	0.004	0.009	4
5	0.007	0.004	0.007	0.007	0.166	0.057	0.010	0	0	0	0.005	0.010	5
6	0.006	0.004	0.006	0.007	0.152	0.056	0.009	0	0	0	0.006	0.010	6
7	0.006	0.004	0.006	0.006	0.144	0.055	0.007	0	0	0	0.006	0.010	7
8	0.006	0.004	0.006	0.007	0.137	0.052	0.006	0	0	0	0.006	0.009	8
9	0.006	0.004	0.006	0.007	0.128	0.048	0.006	0	0	0	0.006	0.009	9
10	0.006	0.004	0.006	0.007	0.121	0.045	0.006	0	0	0	0.006	0.011	10
11	0.005	0.003	0.006	0.007	0.127	0.042	0.005	0	0	0	0.006	0.012	11
12	0.005	0.003	0.006	0.007	0.126	0.038	0.004	0	0	0	0.007	0.012	12
13	0.005	0.004	0.006	0.009	0.123	0.036	0.004	0	0	0	0.007	0.012	13
14	0.005	0.005	0.006	0.009	0.118	0.035	0.003	0	0	0	0.007	0.012	14
15	0.005	0.005	0.006	0.009	0.111	0.033	0.003	0	0	0	0.007	0.011	15
16	0.005	0.004	0.005	0.009	0.103	0.030	0.002	0	0	0	0.007	0.011	16
17	0.005	0.004	0.004	0.010	0.098	0.026	0.002	0	0	0	0.007	0.010	17
18	0.005	0.004	0.004	0.019	0.098	0.024	0.002	0	0	0	0.007	0.010	18
19	0.005	0.004	0.006	0.058	0.093	0.024	0.001	0	0	0	0.007	0.009	19
20	0.005	0.004	0.006	0.158	0.087	0.029	0.001	0	0	0	0.007	0.009	20
21	0.005	0.004	0.007	0.201	0.081	0.033	0.001	0	0	0	0.007	0.009	21
22	0.005	0.004	0.007	0.221	0.077	0.031	0.001	0	0	0	0.007	0.009	22
23	0.005	0.005	0.007	0.221	0.074	0.029	0.001	0	0	0	0.007	0.008	23
24	0.005	0.006	0.007	0.234	0.069	0.026	0.001	0	0	0	0.007	0.008	24
25	0.004	0.006	0.006	0.329	0.066	0.026	0.001	0	0	0	0.007	0.008	25
26	0.004	0.006	0.006	0.328	0.063	0.024	0.001	0	0	0	0.007	0.007	26
27	0.004	0.005	0.006	0.293	0.060	0.022	0	0	0	0	0.008	0.007	27
28	0.004	0.005	0.007	0.260	0.056	0.022	0	0	0	0	0.008	0.007	28
29	0.004		0.008	0.227	0.051	0.022	0	0	0	0	0.009	0.007	29
30	0.004		0.008	0.201	0.054	0.020	0	0	0	0	0.009	0.007	30
31	0.004		0.008		0.067		0	0		0		0.007	31
TOTAL	0.163	0.121	0.194	2.881	3.398	1.148	0.136	0	0	0	0.185	0.286	TOTAL
MEAN	0.005	0.004	0.006	0.096	0.110	0.038	0.004	0	0	0	0.006	0.009	MEAN
MAX	0.007	0.006	0.008	0.329	0.194	0.068	0.018	0	0	0	0.009	0.012	MAX
MIN	0.004	0.003	0.004	0.006	0.051	0.020	0	0	0	0	0	0.007	MIN

SUMMARY FOR THE YEAR 1979

MEAN DISCHARGE, 0.023 m^3/s
MAXIMUM DAILY DISCHARGE, 0.329 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUL 27

MAXIMUM INSTANTANEOUS DISCHARGE,
0.344 m^3/s AT 18:53 CST ON APR 25

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	14.1	JUL	11.8
FEB	10.5	AUG	0
MAR	16.8	SEP	0
APR	249	OCT	0
MAY	294	NOV	16.0
JUN	99.2	DEC	24.7

TOTAL DISCHARGE, 736 dam^3

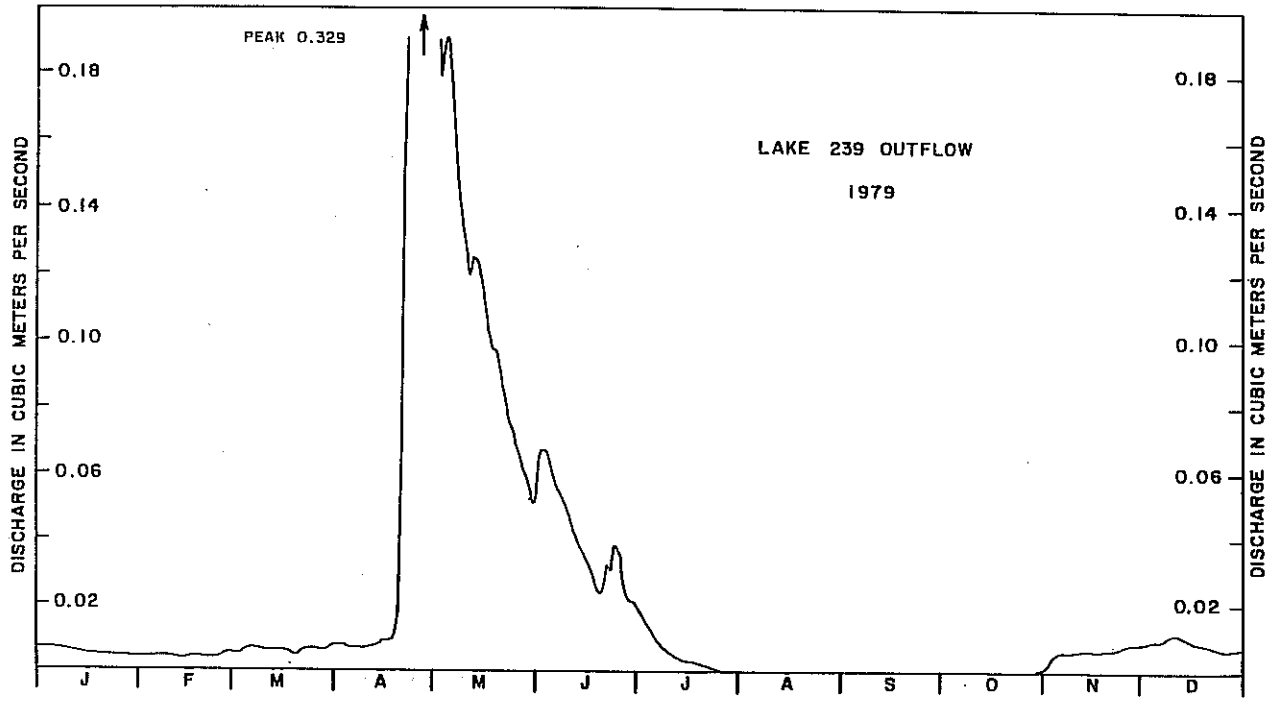

Fig. 11. Annual hydrograph based on mean daily discharges for the Lake 239 outflow for 1979.

Table 54. Mean daily discharge in cubic metres per second for the Lake 239 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.007	0.005	0.005E	0.004	0.062	0.007	0.001E	0.011	0.019	0.020	0.024	0.011A	1
2	0.006	0.005	0.005E	0.004	0.059	0.006	0.001E	0.010	0.017	0.018	0.023	0.011E	2
3	0.006E	0.005	0.005E	0.004	0.055	0.006	0.001E	0.008	0.016	0.016	0.023	0.011E	3
4	0.006E	0.005	0.005E	0.004	0.051	0.005	0.001A	0.013	0.018	0.016	0.024	0.011E	4
5	0.006E	0.005	0.005E	0.004	0.046	0.004	0.001	0.019	0.019	0.015	0.025	0.011E	5
6	0.006E	0.005	0.005E	0.005	0.042	0.004	0.001	0.022	0.018	0.015	0.024	0.011E	6
7	0.006E	0.005	0.005E	0.010	0.038	0.004	0.001	0.022	0.017	0.014	0.023	0.011E	7
8	0.006A	0.005	0.006E	0.016	0.035	0.002	0.001	0.023	0.021	0.014	0.024	0.011E	8
9	0.006E	0.005	0.006E	0.020	0.033	0.002	0.001	0.023	0.027	0.013	0.026	0.011E	9
10	0.007E	0.005	0.006E	0.022	0.032	0.002	0.001	0.022	0.028	0.014	0.025	0.011E	10
11	0.007E	0.005	0.006E	0.024	0.032	0.001	0.001	0.021	0.027	0.012	0.024	0.010E	11
12	0.007E	0.005	0.006E	0.025	0.032	0.001	0.001	0.023	0.025	0.012	0.023	0.010E	12
13	0.008E	0.005	0.006E	0.025	0.031	0.001	0.001	0.025	0.019	0.011	0.022	0.010E	13
14	0.008E	0.005	0.006A	0.025	0.028	0.001	0.001	0.025	0.016	0.010	0.021	0.010E	14
15	0.008E	0.004	0.004	0.026	0.026	0.001	0.001	0.024	0.017	0.010	0.020	0.010E	15
16	0.009E	0.004	0.005	0.027	0.025	0.001	0.004	0.021	0.017	0.009	0.019	0.010E	16
17	0.009A	0.004	0.005	0.034	0.024	0.001	0.006	0.025	0.015	0.012	0.019	0.010E	17
18	0.008	0.004	0.005	0.047	0.023	0.001	0.008	0.029	0.014	0.017	0.018	0.010E	18
19	0.008	0.004	0.005	0.068	0.021	0.001	0.010	0.031	0.015	0.020	0.017	0.010A	19
20	0.007	0.004	0.005	0.083	0.020	0.001	0.011	0.031	0.018	0.022	0.016	0.010	20
21	0.007	0.004	0.004	0.093	0.018	0.001	0.017	0.032	0.018	0.023	0.016	0.010	21
22	0.006	0.005	0.004	0.097	0.016	0	0.018	0.030	0.020	0.023	0.015	0.009	22
23	0.006	0.005	0.004	0.096	0.015	0	0.018	0.029	0.020	0.026	0.014	0.009	23
24	0.006	0.005	0.004	0.093	0.013	0	0.017	0.028	0.021	0.030	0.015	0.009	24
25	0.006	0.005	0.004	0.088	0.012	0	0.016	0.027	0.022	0.031	0.014	0.008	25
26	0.006	0.005	0.004	0.083	0.011	0 A	0.014	0.025	0.022	0.029	0.013	0.008	26
27	0.006	0.005	0.004	0.078	0.010	0 E	0.013	0.022	0.021	0.029	0.013	0.007	27
28	0.006	0.005	0.004	0.073	0.009	0 E	0.014	0.020	0.020	0.027	0.013	0.007	28
29	0.006	0.005E	0.004	0.070	0.009	0.001E	0.014	0.020	0.019	0.027	0.012	0.007	29
30	0.006		0.004	0.067	0.008	0.002E	0.014	0.021	0.020	0.025	0.012	0.007	30
31	0.006		0.004		0.006		0.013	0.020		0.025		0.007	31
TOTAL	0.208	0.138	0.150	1.315	0.842	0.056	0.222	0.702	0.586	0.585	0.577	0.298	TOTAL
MEAN	0.007	0.005	0.005	0.044	0.027	0.002	0.007	0.023	0.020	0.019	0.019	0.010	MEAN
MAX	0.009	0.005	0.006	0.097	0.062	0.007	0.018	0.032	0.028	0.031	0.026	0.011	MAX
MIN	0.006	0.004	0.004	0.004	0.006	0	0.001	0.008	0.014	0.009	0.012	0.007	MIN

SUMMARY FOR THE YEAR 1980

MEAN DISCHARGE, 0.016 m^3/s
MAXIMUM DAILY DISCHARGE, 0.097 m^3/s ON APR 22
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUN 22

MAXIMUM INSTANTANEOUS DISCHARGE,
0.099 m^3/s AT 03:23 CST ON APR 23

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	18.0	JUL	19.2
FEB	11.9	AUG	60.7
MAR	13.0	SEP	50.6
APR	114	OCT	50.5
MAY	72.7	NOV	49.9
JUN	4.84	DEC	25.7

TOTAL DISCHARGE, 491 dam^3

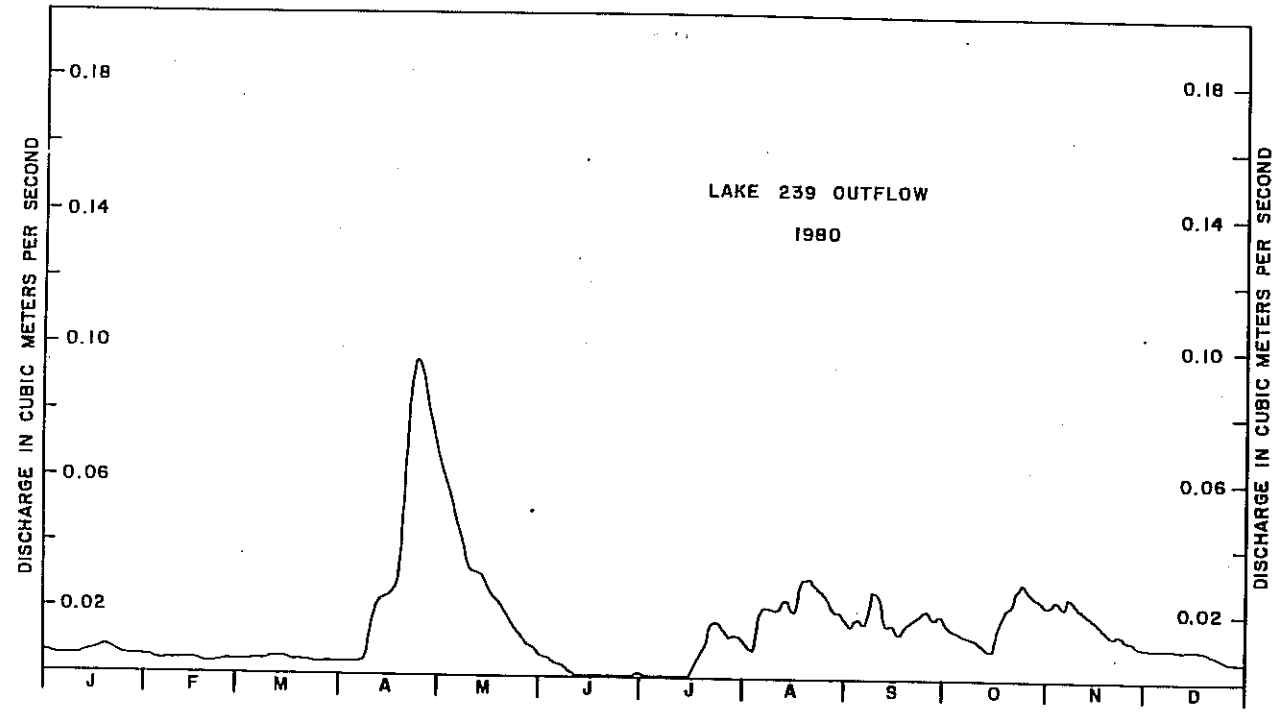

Fig. 11. Annual hydrograph based on mean daily discharges for the Lake 239 outflow for 1980.

Table 54. Mean daily discharge in cubic metres per second for the Lake 239 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.006	0.003	0.002	0.015	0.020	0.004	0.103	0.014	0.001	0.047	0.034	0.019	1
2	0.007	0.003	0.002	0.018	0.019	0.004	0.094	0.013	0.001	0.066	0.033	0.018	2
3	0.006	0.002	0.002	0.021	0.019	0.003	0.152	0.012	0	0.072	0.031	0.018	3
4	0.006	0.003	0.002	0.022	0.019	0.003	0.162	0.010	0	0.081	0.031	0.018	4
5	0.006	0.003	0.002	0.021	0.017	0.006	0.150	0.010	0	0.085	0.030	0.017	5
6	0.006	0.003	0.002	0.021	0.016	0.006	0.135	0.011	0.004	0.086	0.029	0.016	6
7	0.006	0.003	0.002	0.022	0.016	0.007	0.119	0.014	0.037	0.083	0.027	0.016	7
8	0.006	0.003	0.002	0.022	0.015	0.010	0.102	0.013	0.048	0.078	0.026	0.016	8
9	0.006	0.003	0.002	0.023	0.010	0.010	0.085	0.012	0.048	0.074	0.023	0.015	9
10	0.005	0.003	0.002	0.022	0.008	0.010	0.072	0.010	0.047	0.076	0.022	0.014	10
11	0.005	0.003	0.002	0.022	0.008	0.009	0.064	0.009	0.045	0.075	0.022	0.015	11
12	0.005	0.003	0.002	0.022	0.008	0.009	0.057	0.009	0.041	0.071	0.020	0.015	12
13	0.005	0.003	0.002	0.021	0.007	0.008	0.047	0.007	0.038	0.070	0.019	0.016	13
14	0.005	0.003	0.002	0.021	0.006	0.013	0.038	0.006	0.036	0.068	0.020	0.015	14
15	0.005	0.003	0.002	0.020	0.006	0.035	0.033	0.005	0.030	0.064	0.020	0.014	15
16	0.004	0.002	0.001	0.020	0.005	0.046	0.031	0.004	0.027	0.060	0.024	0.014	16
17	0.004	0.003	0.002	0.020	0.003	0.046	0.036	0.003	0.025	0.057	0.024	0.014	17
18	0.004	0.002	0.002	0.019	0.002	0.045	0.036	0.002	0.022	0.052	0.025	0.013	18
19	0.004	0.003	0.002	0.020	0.002	0.043	0.033	0.002	0.020	0.048	0.022	0.013	19
20	0.004	0.003	0.002	0.020	0.002	0.040	0.027	0.002	0.017	0.045	0.020	0.013	20
21	0.003	0.002	0.002	0.019	0.002	0.037	0.022	0.001	0.015	0.040	0.019	0.013	21
22	0.003	0.002	0.001	0.021	0.002	0.033	0.018	0.001	0.013	0.037	0.019	0.012	22
23	0.003	0.002	0.002	0.022	0.003	0.031	0.016	0.001	0.012	0.035	0.017	0.013	23
24	0.003	0.002	0.002	0.021	0.003	0.037	0.017	0.001	0.013	0.032	0.017	0.013	24
25	0.003	0.002	0.002	0.021	0.003	0.043	0.019	0.001	0.011	0.033	0.018	0.013	25
26	0.003	0.002	0.003	0.021	0.003	0.045	0.016	0.001	0.015	0.030	0.020	0.012	26
27	0.003	0.002	0.004	0.023	0.003	0.052	0.014	0	0.022	0.028	0.022	0.012	27
28	0.002	0.002	0.006	0.022	0.003	0.082	0.012	0.001	0.025	0.027	0.022	0.011	28
29	0.002		0.009	0.022	0.004	0.105	0.010	0.001	0.026	0.029	0.021	0.010	29
30	0.002		0.010	0.021	0.005	0.106	0.009	0.001	0.027	0.031	0.020	0.011	30
31	0.002		0.012		0.004		0.015	0.001		0.033		0.010	31
TOTAL	0.134	0.073	0.092	0.625	0.243	0.928	1.744	0.178	0.666	1.713	0.697	0.439	TOTAL
MEAN	0.004	0.003	0.003	0.021	0.008	0.031	0.056	0.006	0.022	0.055	0.023	0.014	MEAN
MAX	0.007	0.003	0.012	0.023	0.020	0.106	0.162	0.014	0.048	0.086	0.034	0.019	MAX
MIN	0.002	0.002	0.001	0.015	0.002	0.003	0.009	0	0	0.027	0.017	0.010	MIN

SUMMARY FOR THE YEAR 1981

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.021
MAXIMUM DAILY, 0.162 ON JUL 4
MINIMUM DAILY, 0 ON AUG 27
MAXIMUM INSTANTANEOUS,
0.165 AT 01:19 CST ON JUL 4

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	11.6	JUL	151
FEB	6.31	AUG	15.4
MAR	7.95	SEP	57.5
APR	54.0	OCT	148
MAY	21.0	NOV	60.2
JUN	80.2	DEC	37.9

TOTAL DISCHARGE, 651 dam³

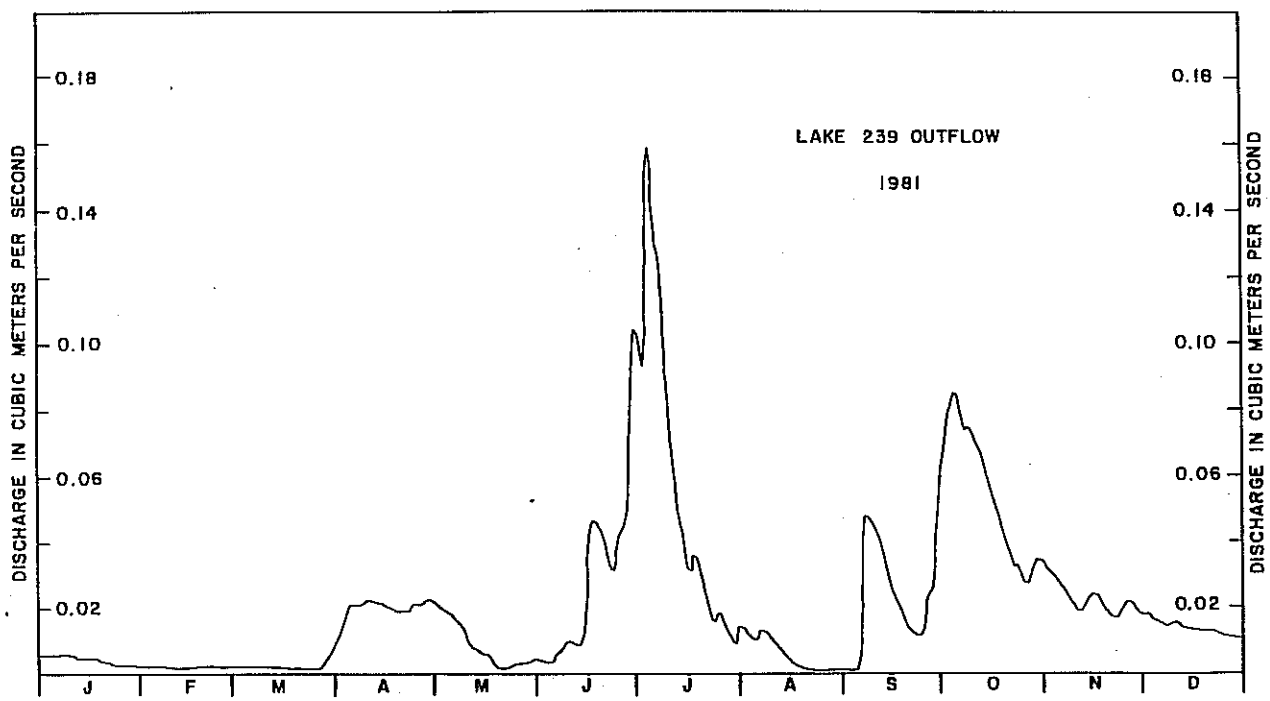

Fig. 11. Annual hydrograph based on mean daily discharges for the Lake 239 outflow for 1981.

Table 55. Mean daily lake levels in metres for Lake 239 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	29.513	29.499	29.503	29.516	29.790	29.656	29.553	29.431	29.378	29.333	29.432	29.510	1
2	29.511	29.500	29.505	29.515	29.797	29.654	29.546	29.428	29.380	29.331	29.473	29.510	2
3	29.513	29.500	29.507	29.513	29.795	29.653	29.539	29.423	29.377	29.333	29.482	29.508	3
4	29.511	29.497	29.506	29.512	29.781	29.649	29.532	29.422	29.377	29.332	29.489	29.506	4
5	29.510	29.499	29.505	29.512	29.769	29.642	29.527	29.417	29.375	29.330	29.495	29.512	5
6	29.509	29.499	29.504	29.510	29.756	29.639	29.520	29.415	29.371	29.328	29.496	29.513	6
7	29.509	29.501	29.502	29.508	29.751	29.637	29.516	29.420	29.366	29.325	29.498	29.512	7
8	29.509	29.499	29.500	29.509	29.745	29.631	29.511	29.414	29.362	29.324	29.500	29.511	8
9	29.510	29.499	29.500	29.508	29.733	29.625	29.508	29.411	29.359	29.324	29.497	29.512	9
10	29.512	29.498	29.500	29.507	29.726	29.619	29.505	29.410	29.356	29.325	29.498	29.516	10
11	29.511	29.498	29.501	29.504	29.733	29.612	29.498	29.405	29.357	29.330	29.498	29.520	11
12	29.509	29.497	29.503	29.511	29.735	29.604	29.496	29.404	29.357	29.329	29.496	29.519	12
13	29.508	29.499	29.509	29.519	29.729	29.600	29.493	29.404	29.354	29.326	29.498	29.519	13
14	29.506	29.504	29.509	29.521	29.720	29.596	29.490	29.400	29.356	29.323	29.498	29.520	14
15	29.506	29.503	29.509	29.521	29.712	29.591	29.488	29.395	29.352	29.324	29.499	29.518	15
16	29.504	29.502	29.508	29.523	29.702	29.584	29.482	29.391	29.352	29.323	29.501	29.517	16
17	29.505	29.502	29.504	29.530	29.696	29.577	29.479	29.389	29.349	29.320	29.501	29.515	17
18	29.505	29.501	29.504	29.558	29.695	29.571	29.476	29.387	29.347	29.322	29.500	29.514	18
19	29.506	29.499	29.512	29.637	29.689	29.571	29.473	29.384	29.343	29.325	29.502	29.513	19
20	29.505	29.498	29.517	29.767	29.682	29.585	29.471	29.382	29.341	29.337	29.503	29.511	20
21	29.505	29.498	29.519	29.807	29.672	29.592	29.473	29.379	29.340	29.338	29.505	29.510	21
22	29.504	29.498	29.518	29.826	29.665	29.591	29.465	29.378	29.336	29.336	29.504	29.509	22
23	29.503	29.508	29.517	29.826	29.662	29.585	29.459	29.389	29.334	29.335	29.504	29.510	23
24	29.503	29.507	29.516	29.838	29.653	29.580	29.466	29.386	29.334	29.332	29.504	29.509	24
25	29.502	29.506	29.514	29.906	29.649	29.576	29.461	29.385	29.331	29.328	29.506	29.507	25
26	29.501	29.504	29.513	29.906	29.644	29.574	29.462	29.382	29.326	29.327	29.506	29.506	26
27	29.500	29.503	29.513	29.881	29.639	29.566	29.449	29.381	29.334	29.328	29.512	29.505	27
28	29.500	29.502	29.518	29.854	29.634	29.565	29.444	29.379	29.334	29.328	29.512	29.505	28
29	29.499		29.519	29.829	29.628	29.562	29.441	29.379	29.332	29.327	29.510	29.504	29
30	29.499		29.520	29.807	29.632	29.559	29.440	29.377	29.328	29.331	29.510	29.504	30
31	29.500		29.519		29.653		29.435	29.373		29.368		29.503	31
MEAN	29.506	29.501	29.509	29.639	29.705	29.602	29.487	29.397	29.351	29.330	29.498	29.511	MEAN
MAX	29.513	29.508	29.520	29.906	29.797	29.656	29.553	29.431	29.380	29.368	29.512	29.520	MAX
MIN	29.499	29.497	29.500	29.504	29.628	29.559	29.435	29.373	29.326	29.320	29.432	29.503	MIN

SUMMARY FOR THE YEAR 1979

MEAN WATER LEVEL, 29.503 m
MAXIMUM DAILY WATER LEVEL, 29.906 m ON APR 25
MINIMUM DAILY WATER LEVEL, 29.320 m ON OCT 17
MAXIMUM INSTANTANEOUS WATER LEVEL,
29.915 m AT 22:42 CST ON APR 25

TYPE OF GAUGE - RECORDING

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 55. Mean daily lake levels in metres for Lake 239 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	29.505	29.500	29.489	29.482A	29.633	29.502	29.464	29.524	29.552	29.561	29.582	29.536	1
2	29.503	29.498	29.491	29.480E	29.628	29.499	29.463	29.518	29.548	29.559	29.579	29.534	2
3	29.501	29.498	29.491	29.480E	29.621	29.494	29.459	29.513	29.544	29.556	29.579	29.533	3
4	29.500	29.498	29.489	29.482E	29.614	29.490	29.463	29.532	29.552	29.555	29.575	29.533	4
5	29.498	29.499	29.487	29.487E	29.606	29.488	29.462	29.550	29.555	29.552	29.574	29.534	5
6	29.501	29.498	29.487	29.499E	29.598	29.484	29.460	29.557	29.553	29.549	29.570	29.532	6
7	29.507	29.497	29.486	29.512E	29.590	29.480	29.460	29.561	29.552	29.548	29.567	29.532	7
8	29.503	29.497	29.484	29.526E	29.584	29.472	29.456	29.563	29.563	29.546	29.570	29.532	8
9	29.502	29.498	29.486	29.540E	29.581	29.468	29.453	29.562	29.580	29.542	29.578	29.531	9
10	29.502	29.498	29.488	29.551	29.579	29.462	29.450	29.560	29.580	29.546	29.572	29.533	10
11	29.512	29.499	29.486	29.556	29.579	29.459	29.446	29.557	29.577	29.548	29.569	29.531	11
12	29.513	29.498	29.491	29.559	29.577	29.458	29.446	29.562	29.571	29.545	29.565	29.537	12
13	29.512	29.497	29.497	29.558	29.573	29.462	29.444	29.572	29.568	29.543	29.563	29.536	13
14	29.511	29.497	29.497	29.557	29.569	29.462	29.446	29.570	29.564	29.541	29.559	29.535	14
15	29.513	29.495	29.494	29.560	29.565	29.456	29.446	29.565	29.560	29.542	29.555	29.534	15
16	29.511	29.494	29.495	29.566	29.560	29.451	29.486	29.561	29.557	29.542	29.554	29.534	16
17	29.510	29.493	29.494	29.579	29.557	29.447	29.501	29.572	29.552	29.559	29.553	29.539	17
18	29.508	29.491	29.492	29.608	29.554	29.445	29.508	29.580	29.553	29.578	29.549	29.539	18
19	29.509	29.490	29.491	29.644	29.550	29.442	29.515	29.582	29.555	29.585	29.548	29.535	19
20	29.509	29.489	29.491	29.668	29.546	29.439	29.518	29.581	29.562	29.588	29.547	29.533	20
21	29.507	29.489	29.491	29.680	29.538	29.435	29.540	29.584	29.563	29.589	29.547	29.531	21
22	29.506	29.493	29.489	29.686	29.533	29.433	29.544	29.583	29.566	29.586	29.547	29.530	22
23	29.505	29.495	29.487	29.686	29.530	29.436	29.544	29.578	29.568	29.593	29.546	29.529	23
24	29.505	29.496	29.486	29.681	29.527	29.454	29.542	29.577	29.570	29.598	29.544	29.526	24
25	29.505	29.494	29.485	29.676	29.521	29.453	29.536	29.574	29.570	29.599	29.541	29.526	25
26	29.505	29.495	29.484	29.669	29.517	29.448	29.531	29.569	29.568	29.598	29.540	29.526	26
27	29.504	29.494	29.486	29.660	29.513	29.437	29.529	29.562	29.564	29.594	29.538	29.526	27
28	29.505	29.491	29.486	29.654	29.509	29.449	29.531	29.554	29.561	29.592	29.539	29.522	28
29	29.504	29.489	29.485	29.647	29.510	29.463	29.535	29.554	29.560	29.592	29.539	29.521	29
30	29.502		29.483	29.638	29.505	29.467	29.533	29.558	29.559	29.588	29.537	29.521	30
31	29.501		29.482		29.500		29.530	29.556		29.584		29.520	31
MEAN	29.506	29.495	29.489	29.586	29.560	29.461	29.492	29.561	29.562	29.568	29.558	29.531	MEAN
MAX	29.513	29.500	29.497	29.686	29.633	29.502	29.544	29.584	29.580	29.599	29.582	29.539	MAX
MIN	29.498	29.489	29.482	29.480	29.500	29.433	29.444	29.513	29.544	29.541	29.537	29.520	MIN

SUMMARY FOR THE YEAR 1980

MEAN WATER LEVEL, 29.531 m
MAXIMUM DAILY WATER LEVEL, 29.686 m ON APR 22
MINIMUM DAILY WATER LEVEL, 29.433 m ON JUN 22
MAXIMUM INSTANTANEOUS WATER LEVEL,
29.688 m AT 15:40 CST ON APR 22

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 55. Mean daily water levels in metres for Lake 239 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	29.519	29.501	29.480	29.549	29.565	29.513	29.717	29.569	29.473	29.635	29.600	29.566	1
2	29.521	29.500	29.478	29.559	29.564	29.512	29.708	29.564	29.467	29.662	29.599	29.564	2
3	29.518	29.498	29.481	29.566	29.562	29.509	29.769	29.562	29.461	29.670	29.596	29.563	3
4	29.517	29.498	29.481	29.568	29.563	29.509	29.781	29.558	29.454	29.679	29.595	29.562	4
5	29.515	29.497	29.481	29.567	29.558	29.524	29.767	29.553	29.450	29.690	29.592	29.562	5
6	29.515	29.496	29.481	29.568	29.555	29.527	29.750	29.562	29.481	29.691	29.589	29.559	6
7	29.514	29.497	29.481	29.570	29.550	29.529	29.729	29.567	29.604	29.686	29.586	29.557	7
8	29.510	29.496	29.482	29.570	29.550	29.544	29.711	29.565	29.625	29.680	29.584	29.554	8
9	29.508	29.494	29.480	29.569	29.548	29.542	29.691	29.560	29.624	29.671	29.577	29.554	9
10	29.508	29.495	29.480	29.568	29.545	29.540	29.673	29.555	29.624	29.675	29.573	29.551	10
11	29.508	29.497	29.480	29.569	29.541	29.537	29.658	29.548	29.623	29.669	29.571	29.551	11
12	29.508	29.493	29.478	29.567	29.540	29.532	29.646	29.547	29.612	29.668	29.570	29.551	12
13	29.506	29.493	29.479	29.569	29.532	29.534	29.634	29.541	29.603	29.670	29.569	29.552	13
14	29.504	29.493	29.479	29.567	29.537	29.552	29.625	29.539	29.597	29.662	29.568	29.550	14
15	29.503	29.492	29.476	29.564	29.536	29.610	29.618	29.532	29.591	29.654	29.567	29.549	15
16	29.504	29.490	29.478	29.563	29.533	29.630	29.612	29.523	29.581	29.648	29.576	29.548	16
17	29.503	29.489	29.476	29.562	29.527	29.631	29.624	29.520	29.572	29.643	29.579	29.545	17
18	29.503	29.489	29.476	29.560	29.524	29.629	29.625	29.518	29.563	29.638	29.579	29.541	18
19	29.500	29.488	29.477	29.562	29.523	29.623	29.615	29.512	29.558	29.632	29.577	29.542	19
20	29.502	29.486	29.479	29.562	29.521	29.617	29.606	29.510	29.556	29.627	29.574	29.542	20
21	29.499	29.485	29.475	29.559	29.520	29.610	29.595	29.507	29.550	29.619	29.569	29.545	21
22	29.499	29.484	29.479	29.566	29.524	29.605	29.589	29.501	29.544	29.611	29.563	29.543	22
23	29.498	29.484	29.478	29.569	29.527	29.599	29.581	29.498	29.540	29.606	29.563	29.546	23
24	29.495	29.485	29.481	29.570	29.525	29.615	29.578	29.492	29.540	29.603	29.564	29.545	24
25	29.495	29.483	29.481	29.568	29.525	29.629	29.580	29.490	29.539	29.601	29.562	29.545	25
26	29.496	29.482	29.492	29.571	29.521	29.633	29.572	29.491	29.553	29.595	29.569	29.543	26
27	29.497	29.481	29.500	29.572	29.519	29.646	29.565	29.487	29.575	29.590	29.573	29.540	27
28	29.496	29.480	29.513	29.572	29.517	29.690	29.562	29.481	29.583	29.590	29.571	29.544	28
29	29.496		29.524	29.572	29.518	29.727	29.555	29.478	29.583	29.592	29.570	29.543	29
30	29.495		29.530	29.569	29.518	29.728	29.547	29.476	29.592	29.596	29.567	29.537	30
31	29.497		29.539		29.513		29.572	29.473		29.601		29.536	31
MEAN	29.505	29.491	29.486	29.566	29.536	29.588	29.640	29.525	29.557	29.641	29.576	29.549	MEAN
MAX	29.521	29.501	29.539	29.572	29.565	29.728	29.781	29.569	29.625	29.691	29.600	29.566	MAX
MIN	29.495	29.480	29.475	29.549	29.513	29.509	29.547	29.473	29.450	29.590	29.562	29.536	MIN

WATER LEVELS IN METRES

SUMMARY FOR THE YEAR 1981

MEAN, 29.555
MAXIMUM DAILY, 29.781 ON JUL 4
MINIMUM DAILY, 29.450 ON SEP 5
MAXIMUM INSTANTANEOUS,
29.783 AT 00:34 CST ON JUL 4

TYPE OF GAUGE - RECORDING

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 56. Mean daily discharge in cubic metres per second for the NE inflow to Lake 239 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0 E	0 E	0 E	0 E	0.0024	0.0021	0.0003	0	0	0	0.0099	0.0002 E	1
2	0 E	0 E	0 E	0 E	0.0089	0.0018	0.0002	0	0	0	0.0052	0.0001 E	2
3	0 E	0 E	0 E	0 E	0.0053	0.0013	0.0003	0	0	0	0.0030	0.0001 E	3
4	0 E	0 E	0 E	0 E	0.0039	0.0011	0.0001	0	0	0	0.0020	0.0001 E	4
5	0 E	0 E	0 E	0 E	0.0029	0.0007	0	0	0	0	0.0015	0 E	5
6	0 E	0 E	0 E	0 E	0.0028	0.0007	0	0	0	0	0.0012	0 E	6
7	0 E	0 A	0 E	0 E	0.0029	0.0007	0	0	0	0	0.0010	0 E	7
8	0 E	0 E	0 A	0 E	0.0026	0.0006	0	0	0	0	0.0008	0 E	8
9	0 E	0 E	0 E	0 E	0.0023	0.0005	0	0	0	0	0.0007	0 E	9
10	0 E	0 E	0 E	0 E	0.0023	0.0004	0	0	0	0	0.0005	0 E	10
11	0 E	0 E	0 E	0 E	0.0041	0.0004	0	0	0	0	0.0005	0 E	11
12	0 E	0 E	0 E	0 E	0.0033	0.0003	0	0	0	0	0.0004	0 E	12
13	0 E	0 E	0 E	0 E	0.0029	0.0003	0	0	0	0.0001	0.0004	0 E	13
14	0 E	0 E	0 E	0 E	0.0024	0.0003	0	0	0	0.0001	0.0004	0 E	14
15	0 E	0 E	0 E	0 E	0.0021	0.0002	0	0	0	0.0001	0.0004	0 E	15
16	0 E	0 E	0 E	0 E	0.0017	0.0002	0	0	0	0.0001	0.0004	0 E	16
17	0 E	0 E	0 E	0 A	0.0017	0.0002	0	0	0	0.0001	0.0004	0 E	17
18	0 E	0 E	0 E	↑	0.0018	0.0001	0	0	0	0.0001	0.0004	0 E	18
19	0 E	0 E	0 E	↑	0.0016	0.0001	0	0	0	0.0001	0.0004	0 E	19
20	0 E	0 E	0 E	↑	0.0014	0.0007	0	0	0	0.0005	0.0003	0 E	20
21	0 E	0 E	0 E	0.0126 C	0.0012	0.0012	0	0	0	0.0002	0.0003	0 E	21
22	0 E	0 E	0 E	↓	0.0012	0.0009	0	0	0	0.0002	0.0003	0 E	22
23	0 E	0 E	0 E	↓	0.0011	0.0007	0	0	0	0.0001	0.0002 E	0 E	23
24	0 E	0 E	0 E	0.0102	0.0009	0.0005	0	0	0	0.0001	0.0002 E	0 E	24
25	0 E	0 E	0 E	0.0255	0.0007	0.0003	0	0	0	0.0001	0.0002 E	0 E	25
26	0 E	0 E	0 E	0.0109	0.0009	0.0003	0	0	0	0.0001	0.0002 E	0 E	26
27	0 E	0 E	0 E	0.0060	0.0007	0.0002	0	0	0	0.0001	0.0002 A	0 E	27
28	0 E	0 E	0 E	0.0039	0.0006	0.0003	0	0	0	0.0001	0.0002 E	0 E	28
29	0 E		0 E	0.0031	0.0004	0.0004	0	0	0	0.0001	0.0002 E	0 E	29
30	0 E		0 E	0.0026	0.0013	0.0004	0	0	0	0.0003	0.0002 E	0 E	30
31	0 E		0 E		0.0033		0	0		0.0032		0 E	31
TOTAL	0 E	0 E	0 E	0.1378	0.0716	0.0179	0.0009	0	0	0.0058	0.0320 E	0.0005 E	TOTAL
MEAN	0 E	0 E	0 E	0.0046	0.0023	0.0006	0	0	0	0.0002	0.0011	0	MEAN
DAM^3	0 E	0 E	0 E	11.906	6.186	1.5466	0.0778	0	0	0.5011	2.7648	0.0432	DAM^3
MAX	0 E	0 E	0 E	M	0.0089	0.0021	0.0003	0	0	0.0032	0.0099	0.0002	MAX
MIN	0 E	0 A	0 A	0	0.0004	0.0001	0	0	0	0	0.0002 E	0	MIN

SUMMARY FOR THE YEAR 1979

MEAN DISCHARGE FOR YEAR, 0.0007 m^3/sec
MEAN DISCHARGE APR TO NOV, 0.0011 m^3/sec
TOTAL DISCHARGE, 23.0 CUBIC DECAMETRES (DAM^3)
MAXIMUM DAILY DISCHARGE, M
MINIMUM DAILY DISCHARGE, 0 m^3/sec

MAXIMUM INSTANTANEOUS DISCHARGE, M, APRIL

TYPE OF GAUGE - RECORDING

A-MANUAL
C-ESTIMATE OF AVERAGE MEAN DAILY DISCHARGE FOR THE PERIOD SHOWN
E-ESTIMATE
M-MISSING

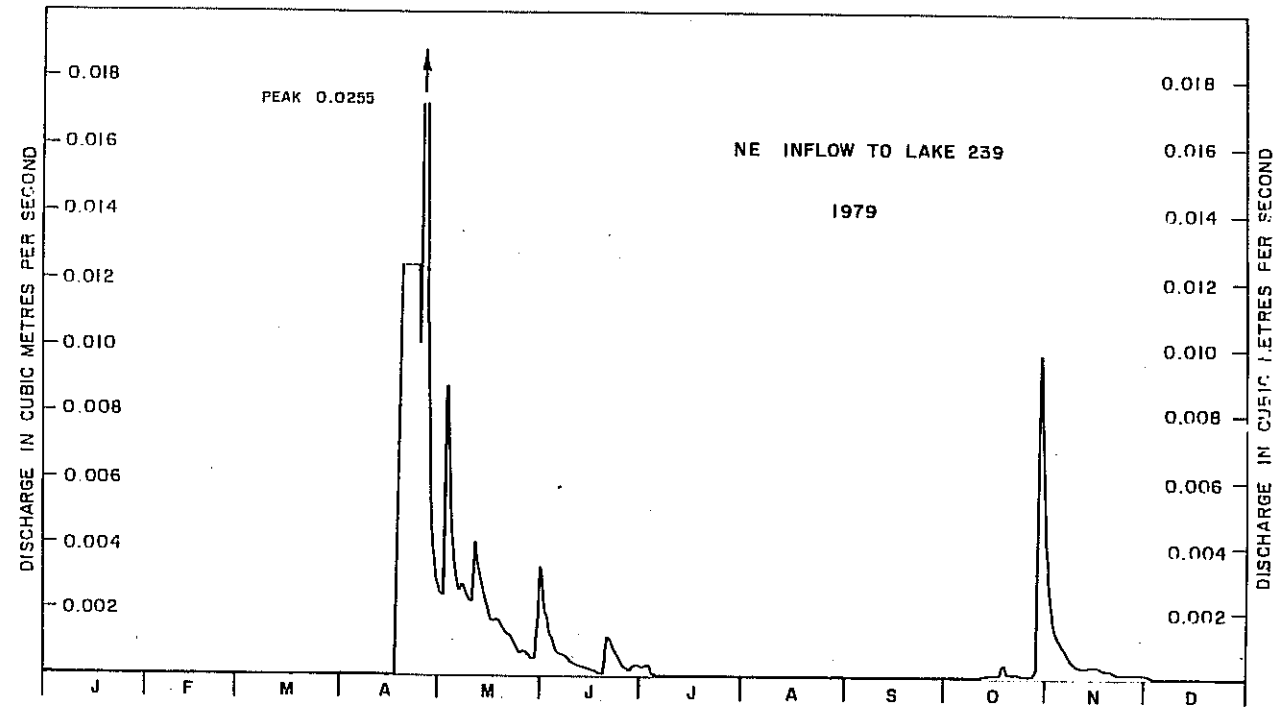

Fig. 12. Annual hydrograph based on mean daily discharges for the NE inflow to Lake 239 for 1979.

Table 56. Mean daily discharge in cubic metres per second for the NE inflow to Lake 239 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0 E	0 E	0 E	0 E	0.0010	0	0	0	0.0002	0.0005	0.0006	0 E	1
2	0 E	0 E	0 E	0 E	0.0008	0	0	0	0.0001	0.0005	0.0005	0 E	2
3	0 E	0 E	0 E	0 E	0.0007	0	0	0	0.0001	0.0005	0.0005	0 E	3
4	0 E	0 E	0 E	0 E	0.0006	0	0	0.0010	0.0007	0.0004	0.0005	0 E	4
5	0 E	0 E	0 A	0 E	0.0005	0	0	0.0016	0.0006	0.0003	0.0003	0 E	5
6	0 E	0 E	0 E	0 E	0.0005	0	0	0.0006	0.0003	0.0003	0.0003	0 E	6
7	0 E	0 E	0 E	0 E	0.0005	0	0	0.0003	0.0002	0.0002	0.0003	0 E	7
8	0 E	0 E	0 E	0.0005 E	0.0005	0	0	0.0005	0.0020	0.0002	0.0003	0 E	8
9	0 A	0 E	0 E	0.0005 A	0.0005	0	0	0.0003	0.0024	0.0001	0.0003	0 E	9
10	0 E	0 E	0 E	0.0007 E	0.0005	0	0	0.0001	0.0011	0.0003	0.0003	0 E	10
11	0 E	0 E	0 E	0.0008 E	0.0007	0	0	0.0001	0.0007	0.0004	0.0002	0 E	11
12	0 E	0 E	0 E	0.0010 E	0.0006	0	0	0.0006	0.0005	0.0003	0.0002	0 E	12
13	0 E	0 E	0 E	0.0015 E	0.0005	0	0	0.0006	0.0005	0.0003	0.0002	0 E	13
14	0 E	0 E	0 E	0.0020 E	0.0004	0	0	0.0003	0.0004	0.0002	0.0002	0 E	14
15	0 E	0 E	0 E	0.0025 E	0.0003	0	0	0.0001	0.0005	0.0002	0.0002	0 E	15
16	0 E	0 E	0 E	0.0040 E	0.0002	0	0.0006	0.0001	0.0003	0.0003	0.0002	0 E	16
17	0 E	0 E	0 E	0.0073 A	0.0001	0	0.0002	0.0012	0.0003	0.0016	0.0002	0 E	17
18	0 E	0 E	0 E	0.0137	0.0001	0	0.0001	0.0012	0.0004	0.0021	0.0002	0 E	18
19	0 E	0 E	0 A	0.0130	0.0001	0	0.0005	0.0006	0.0008	0.0012	0.0002	0 E	19
20	0 E	0 E	0 E	0.0084	0	0	0.0003	0.0004	0.0012	0.0010	0.0001 E	0 E	20
21	0 E	0 E	0 E	0.0076	0	0	0.0015	0.0007	0.0008	0.0009	0.0001 E	0 E	21
22	0 E	0 E	0 E	0.0067	0	0	0.0008	0.0005	0.0008	0.0008	0.0001 E	0 E	22
23	0 E	0 E	0 E	0.0050	0	0	0.0004	0.0004	0.0007	0.0011	0.0001 E	0 E	23
24	0 E	0 E	0 E	0.0039	0	0	0.0001	0.0003	0.0007	0.0018	0.0001 E	0 E	24
25	0 E	0 A	0 E	0.0034	0	0	0.0001	0.0002	0.0007	0.0013	0.0001 E	0 E	25
26	0 E	0 E	0 E	0.0028	0	0	0.0001	0.0001	0.0005	0.0010	0.0001 E	0 E	26
27	0 E	0 E	0 E	0.0024	0	0	0.0001	0.0001	0.0005	0.0009	0.0001 E	0 E	27
28	0 E	0 E	0 E	0.0021	0	0	0.0002	0.0001	0.0005	0.0008	0.0001 E	0 E	28
29	0 E	0 E	0 E	0.0014	0	0	0.0001	0.0001	0.0005	0.0006	0.0001 E	0 E	29
30	0 E		0 E	0.0012	0	0	0.0001	0.0003	0.0004	0.0007	0 E	0 E	30
31	0 E		0 E		0		0.0001	0.0002		0.0007		0 E	31
TOTAL	0 E	0 E	0 E	0.0924	0.0091	0	0.0053	0.0126	0.0194	0.0215	0.0067 E	0 E	TOTAL
MEAN	0 E	0 E	0 E	0.0031	0.0003	0	0.0002	0.0004	0.0006	0.0007	0.0002 E	0 E	MEAN
DAH^3	0 E	0 E	0 E	7.983	0.7862	0	0.4579	1.089	1.676	1.857	0.5789 E	0 E	DAH^3
MAX	0 E	0 E	0 E	0.0137	0.0010	0	0.0015	0.0016	0.0024	0.0021	0.0006	0 E	MAX
MIN	0 A	0 A	0 A	0	0	0	0	0	0.0001	0.0001	0	0 E	MIN

SUMMARY FOR THE YEAR 1980

MEAN DISCHARGE FOR YEAR, 0.0004 m^3/sec
MEAN DISCHARGE APR TO NOV, 0.0007 m^3/sec
TOTAL DISCHARGE, 14.4 DAH^3
MAXIMUM DAILY DISCHARGE, 0.0137 m^3/sec APR 18.
MINIMUM DAILY DISCHARGE, 0 m^3/sec
MAXIMUM INSTANTANEOUS DISCHARGE, 0.0234 m^3/sec., APR 18.

TYPE OF GAUGE - RECORDING

A-MANUAL
B-ICE CONDITIONS NO DATA
C-ESTIMATE OF TOTAL FOR PERIOD INDICATED
E-ESTIMATE
M-MISSING

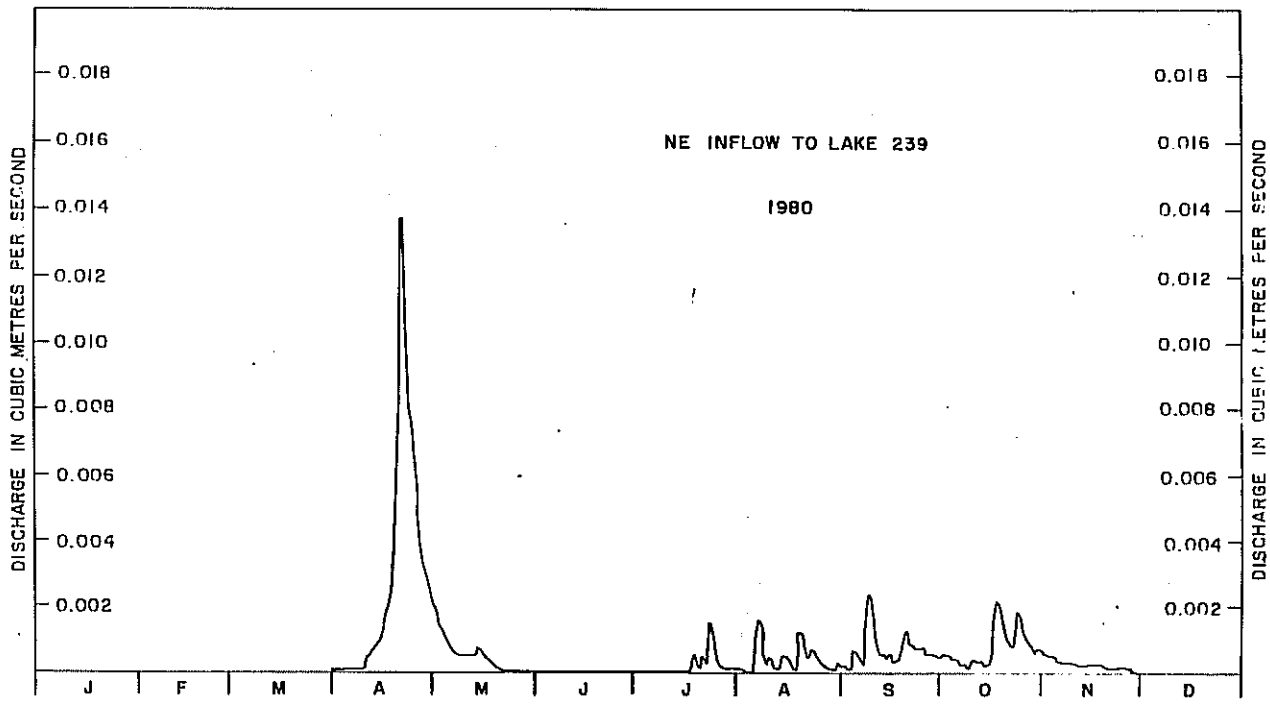

Fig. 12. Annual hydrograph based on mean daily discharges for the NE inflow to Lake 239 for 1980.

Table 56. Mean daily discharge in cubic metres per second for the NE inflow to Lake 239 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0 E	---	---	0.0001 E	0.0006	0.0001	0.0023	0.0002	0	0.0074	0.0008	0.0001 E	1
2	---	---	---	0.0002 E	0.0006	0.0001	0.0016	0.0001	0	0.0057	0.0007 A	0.0001 E	2
3	---	---	---	0.0003 E	0.0006	0.0001	0.0170	0	0	0.0039	0.0007 E	0.0001 E	3
4	---	---	---	0.0004 E	0.0006	0.0001	0.0081	0	0	0.0053	0.0006 E	0.0001 E	4
5	---	---	---	0.0005 E	0.0005	0.0006	0.0039	0	0	0.0039	0.0006 E	0.0001 E	5
6	---	---	---	0.0006 E	0.0004	0.0005	0.0020	0.0002	0.0041	0.0032	0.0005 E	0.0001 E	6
7	---	---	---	0.0006 E	0.0004	0.0005	0.0010	0.0003	0.0142	0.0022	0.0005 E	0.0001 A	7
8	---	---	---	0.0006 A	0.0004	0.0012	0.0006	0.0001	0.0040	0.0017	0.0004 E	0.0001 E	8
9	---	---	---	0.0006 E	0.0005	0.0007	0.0004	0.0001	0.0016	0.0014	0.0004 E	0.0001 E	9
10	---	---	---	0.0005 E	0.0004	0.0004	0.0002	0.0001	0.0010	0.0025	0.0003 E	0.0001 E	10
11	---	---	---	0.0004 E	0.0003	0.0002	0.0001	0	0.0006	0.0016	0.0002 E	0.0001 E	11
12	---	---	---	0.0003 E	0.0002	0.0002	0.0001	0	0.0003	0.0013	0.0002 A	0.0001 E	12
13	---	---	---	0.0002 E	0.0002	0.0002	0.0001	0	0.0001	0.0017	0.0003	0.0001 E	13
14	---	---	---	0.0002 E	0.0002	0.0028	0	0	0.0001	0.0012	0.0005	0.0001 E	14
15	---	---	---	0.0002 A	0.0002	0.0077	0	0	0.0001	0.0010	0.0006	0.0001 E	15
16	---	---	---	0.0002	0.0001	0.0039	0.0001	0	0.0001	0.0008	0.0014	0 E	16
17	---	---	---	0.0002	0.0001	0.0023	0.0009	0	0	0.0008	0.0009	0 E	17
18	---	---	---	0.0002	0.0001	0.0020	0.0004	0	0	0.0008	0.0007	0 E	18
19	---	---	---	0.0003	0.0001	0.0015	0.0001	0	0	0.0006	0.0005	0 E	19
20	---	---	---	0.0003	0	0.0011	0.0001	0	0	0.0006	0.0005 E	0 E	20
21	---	---	---	0.0003	0	0.0007	0	0	0	0.0005	0.0003 E	0 E	21
22	---	---	---	0.0006	0.0001	0.0004	0	0	0	0.0005	0.0003 E	0 E	22
23	---	---	---	0.0007	0.0001	0.0002	0	0	0	0.0004	0.0003 A	0 E	23
24	---	---	---	0.0006	0.0001	0.0026	0.0001	0	0.0001	0.0003	0.0003 E	0 E	24
25	---	0 E	0 E	0.0006	0.0001	0.0019	0.0001	0	0	0.0004	0.0002 E	0 E	25
26	---	---	---	0.0008	0.0001	0.0012	0.0001	0	0.0012	0.0004	0.0002 E	0 E	26
27	0 E	---	---	0.0008	0.0001	0.0030	0	0	0.0025	0.0003	0.0002 E	0 E	27
28	---	---	---	0.0007	0	0.0090	0	0	0.0011	0.0005	0.0002 E	0 E	28
29	---	---	---	0.0007	0.0001	0.0075	0	0	0.0008	0.0014	0.0002 E	0 E	29
30	---		---	0.0006	0.0002	0.0046	0	0	0.0015	0.0017	0.0002 E	0 E	30
31	---		0.0001 A		0.0001		0.0010	0		0.0014		0 E	31
TOTAL	0 E	0 E	0.0001	0.0133	0.0075	0.0573	0.0403	0.0011	0.0334	0.0554	0.0137	0.0015 E	TOTAL
MEAN	0 E	0 E	0	0.0004	0.0002	0.0019	0.0013	0	0.0011	0.0018	0.0004	0	MEAN
DAH^3	0 E	0 E	0.0086	1.149	0.6480	4.951	3.482	0.0950	2.866	4.786	1.184	0.1296 E	DAH^3
MAX	0 E	0 E	0.0001	0.0008	0.0006	0.0090	0.0170	0.0003	0.0142	0.0074	0.0014	0.0001 E	MAX
MIN	0 E	0 E	0	0.0001	0	0.0001	0	0	0	0.0003	0.0002	0 E	MIN

SUMMARY FOR THE YEAR 1981

MEAN DISCHARGE FOR THE YEAR, 0.0006 m^3/sec
MEAN DISCHARGE APR TO NOV, 0.0009 m^3/sec
TOTAL DISCHARGE, 19.32 CUBIC DECAMETRES (DAH^3)
MAXIMUM DAILY DISCHARGE, 0.0170 m^3/sec, July 3.
MINIMUM DAILY DISCHARGE, 0 m^3/sec.

MAXIMUM INSTANTANEOUS DISCHARGE, 0.0249 m^3/sec, SEPT. 7.

TYPE OF GAUGE - RECORDING

A-MANUAL READING
E-ESTIMATE
---NO DATA

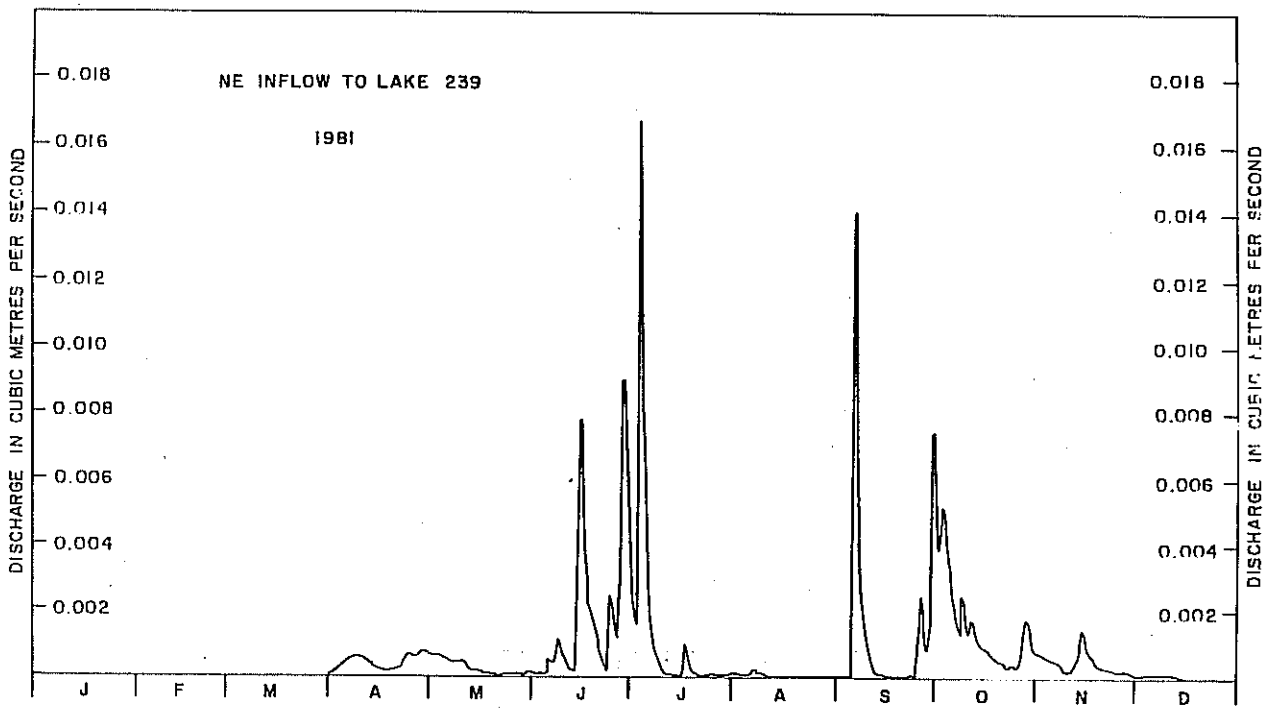

Fig. 12. Annual hydrograph based on mean daily discharges for the NE inflow to Lake 239 for 1981.

Table 57. Mean daily discharge in cubic metres per second for the NW inflow to Lake 239 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.011	0.011	0.001	0	0	0	---	---	1
2	---	---	---	0	0.030	0.009	0.001	0	0	0	---	---	2
3	---	---	---	0	0.023	0.007	0.001	0	0	0	---	---	3
4	---	---	---	0	0.015	0.005	0	0	0	0	---	---	4
5	---	---	---	0	0.010	0.004	0	0	0	0	---	---	5
6	---	---	---	0	0.009	0.005	0	0	0	0	---	---	6
7	---	0 A	---	0	0.010	0.004	0	0	0	0	---	---	7
8	---	---	0 A	0	0.008	0.003	0	0	0	0	---	---	8
9	---	---	---	0	0.008	0.003	0	0	0	0	---	---	9
10	---	---	---	0	0.008	0.002	0	0	0	0	0.002A	---	10
11	---	---	---	0	0.016	0.002	0	0	0	0	---	---	11
12	---	---	---	0	0.014	0.002	0	0	0	0	0.002A	---	12
13	---	---	---	0	0.011	0.002	0	0	0	0	---	---	13
14	---	---	---	0	0.009	0.002	0	0	0	0	---	---	14
15	---	---	---	0	0.008	0.001	0.001	0	0	0	0.002A	---	15
16	---	---	---	0	0.007	0.001	0.001	0	0	0	---	---	16
17	---	---	---	0.001	0.007	0.001	0	0	0	0	---	---	17
18	---	---	---	0.003	0.008	0.001	0	0	0	0	---	---	18
19	---	---	---	0.054	0.006	0.001	0	0	0	0	---	---	19
20	---	---	---	0.080	0.005	0.004	0	0	0	0.001	---	---	20
21	---	---	---	0.060	0.005	0.003	0	0	0	0	---	---	21
22	---	---	---	0.048	0.004	0.002	0	0	0	0	---	---	22
23	---	---	0 A	0.035	0.004	0.002	0	0	0	0	---	---	23
24	---	---	---	0.048	0.004	0.001	0	0	0	0	---	---	24
25	---	---	---	0.083	0.003	0.001	0	0	0	0	---	---	25
26	---	---	---	0.036	0.003	0.001	0	0	0	0	---	---	26
27	---	---	---	0.021	0.003	0.001	0	0	0	0	0.001A	---	27
28	---	---	---	0.016	0.003	0.001	0	0	0	0	---	---	28
29	---		---	0.013	0.002	0.001	0	0	0	0	---	---	29
30	---		---	0.012	0.006	0.001	0	0	0	0	---	---	30
31	---		---		0.017		0	0		0.005		---	31
TOTAL	---	---	---	0.510	0.277	0.084	0.005	0	0	0.006	---	---	TOTAL
MEAN	---	---	---	0.017	0.009	0.003	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.083	0.030	0.011	0.001	0	0	0.005	---	---	MAX
MIN	---	---	---	0	0.002	0.001	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.004 m^3/s
MAXIMUM DAILY DISCHARGE, 0.083 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.116 m^3/s AT 03:10 CST ON APR 25

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.43
FEB	---	AUG	0
MAR	---	SEP	0
APR	44.1	OCT	0.52
MAY	23.9	NOV	---
JUN	7.26	DEC	---

TOTAL DISCHARGE, 76.2 dam^3

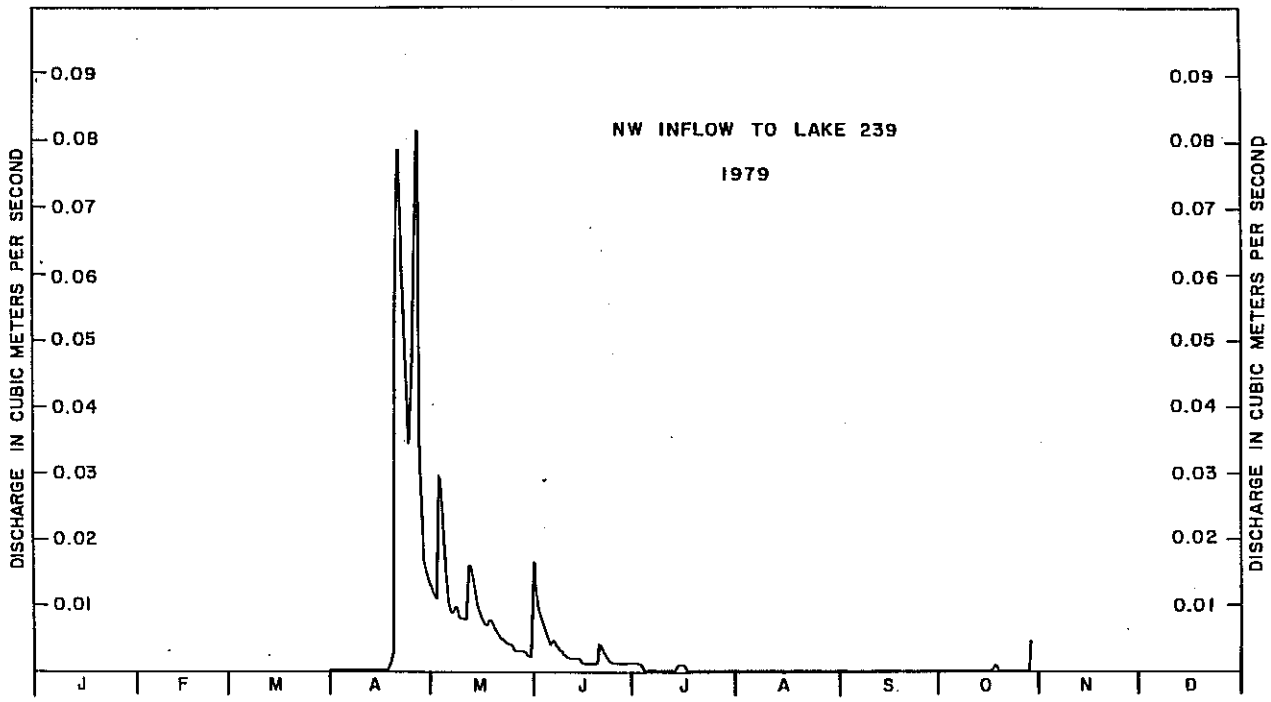

Fig. 13. Annual hydrograph based on mean daily discharges for the NW inflow to Lake 239 for 1979.

Table 57. Mean daily discharge in cubic metres per second for the NW inflow to Lake 239 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.004	0.001	0.001	0.002	0.002	0.004	---	---	1
2	---	---	---	0	0.004	0.001	0.001	0.002	0.002	0.003	---	0 A	2
3	---	---	---	0	0.003	0.001	0.001	0.001	0.002	0.003	---	---	3
4	---	---	---	0	0.003	0.001	0.001	0.009	0.004	0.003	---	0.001A	4
5	---	---	0 A	0	0.003	0.001	0.001	0.017	0.004	0.002	---	---	5
6	---	---	---	0.001	0.002	0.001	0.001	0.012	0.004	0.002	0.002A	---	6
7	---	---	---	0.002	0.002	0.001	0.001	0.009	0.003	0.002	---	---	7
8	---	---	---	0.007	0.002	0.001	0.001	0.008	0.008	0.002	---	---	8
9	0 A	---	---	0.009	0.002	0.001	0	0.006	0.017	0.002	---	---	9
10	---	---	---	0.007	0.002	0	0.001	0.005	0.010	0.002	---	---	10
11	---	---	---	0.005	0.003	0	0.001	0.004	0.008	0.002	0.002A	---	11
12	---	---	---	0.004	0.003	0	0	0.005	0.006	0.002	---	---	12
13	---	---	---	0.004	0.002	0	0	0.007	0.005	0.002	---	---	13
14	---	---	---	0.004	0.002	0	0.001	0.006	0.004	0.002	---	---	14
15	---	---	---	0.004	0.002	0	0.001	0.004	0.004	0.002	---	---	15
16	---	---	---	0.005	0.001	0	0.007	0.003	0.004	0.002	---	---	16
17	---	---	---	0.013	0.001	0	0.005	0.008	0.003	0.006	---	---	17
18	---	0 A	---	0.040	0.001	0	0.005	0.013	0.003	0.016	---	---	18
19	---	---	0 A	0.046	0.001	0	0.006	0.009	0.004	0.012	0.001A	---	19
20	---	---	---	0.034	0.001	0	0.006	0.007	0.006	0.010	---	---	20
21	---	---	---	0.027	0.001	0	0.013	0.007	0.006	0.008	---	---	21
22	0 A	---	---	0.022	0.001	0	0.010	0.006	0.006	0.006	---	---	22
23	---	---	---	0.013	0.001	0	0.006	0.005	0.005	0.006	---	---	23
24	---	---	---	0.009	0.001	0.001	0.005	0.005	0.005	0.010	---	---	24
25	---	0 A	---	0.007	0.001	0.001	0.003	0.004	0.005	0.009	---	---	25
26	---	---	---	0.006	0.001	0.001	0.003	0.003	0.004	0.008	---	---	26
27	---	---	---	0.005	0.001	0.001	0.003	0.003	0.004	0.006	---	---	27
28	---	---	---	0.005	0.001	0.002	0.003	0.002	0.004	0.005	0.001A	---	28
29	---	---	---	0.005	0.001	0.002	0.003	0.002	0.003	0.004		---	29
30	---		---	0.004	0.001	0.002	0.002	0.003	0.003	0.004	---	---	30
31	---		---		0.001		0.002	0.002		0.004		---	31
TOTAL	---	---	---	0.288	0.055	0.019	0.094	0.179	0.148	0.151	---	---	TOTAL
MEAN	---	---	---	0.010	0.002	0.001	0.003	0.006	0.005	0.005	---	---	MEAN
MAX	---	---	---	0.046	0.004	0.002	0.013	0.017	0.017	0.016	---	---	MAX
MIN	---	---	---	0	0.001	0	0	0.001	0.002	0.002	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.004 m^3/s
MAXIMUM DAILY DISCHARGE, 0.046 m^3/s ON APR 19
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

MAXIMUM INSTANTANEOUS DISCHARGE,
0.057 m^3/s AT 11:59 CST ON APR 18

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	8.12
FEB	---	AUG	15.5
MAR	---	SEP	12.8
APR	24.9	OCT	13.0
MAY	4.75	NOV	---
JUN	1.64	DEC	---

TOTAL DISCHARGE, 80.7 dam^3

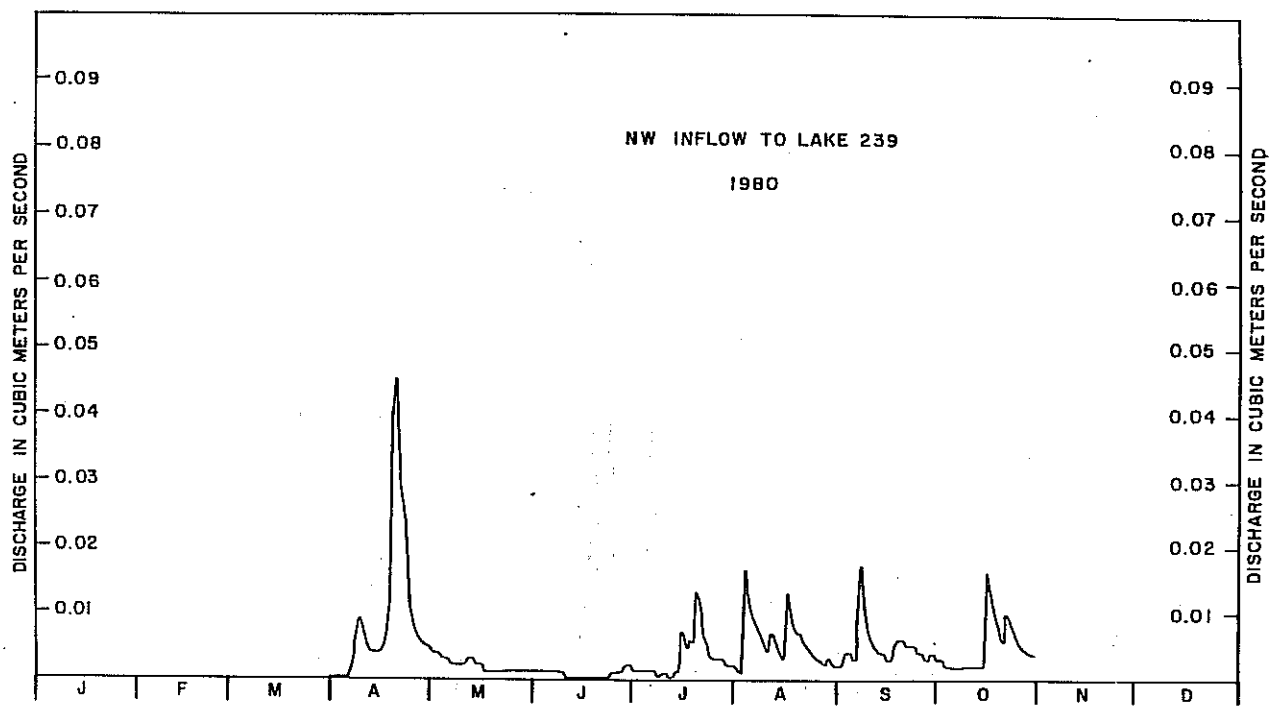

Fig. 13. Annual hydrograph based on mean daily discharges for the NW inflow to Lake 239 for 1980.

Table 57. Mean daily discharge in cubic metres per second for the NW inflow to Lake 239 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.015	0.003	0	0.010	0.003	0	0.044E	---	---	1
2	---	---	---	0.017	0.003	0	0.009	0.002	0	0.032	---	---	2
3	---	---	---	0.015	0.002	0	0.060E	0.002	0	0.018	0.004A	---	3
4	---	---	---	0.011	0.002	0	0.023	0.002	0	0.020	---	---	4
5	---	---	---	0.008	0.002	0.002	0.013	0.001	0	0.018	---	---	5
6	---	---	---	0.006	0.002	0.002	0.008	0.003	0.015E	0.014	---	---	6
7	---	---	---	0.007	0.002	0.002	0.006	0.004	0.058E	0.011	---	0.001A	7
8	---	---	---	0.006	0.002	0.004	0.005	0.003	0.021	0.009	---	---	8
9	---	---	---	0.005	0.002	0.004	0.003	0.003	0.013	0.007	---	---	9
10	---	---	---	0.006	0.002	0.003	0.003	0.003	0.009	0.009	---	---	10
11	---	---	---	0.005	0.002	0.003	0.002	0.003	0.006	0.009	---	---	11
12	---	---	---	0.005	0.001	0.002	0.002	0.002	0.005	0.007	---	---	12
13	---	---	---	0.005	0.001	0.002	0.002	0.002	0.004	0.007	---	---	13
14	---	---	---	0.004	0.001	0.010	0.002	0.001	0.003	0.006	---	0.001A	14
15	---	---	---	0.003	0.001	0.047E	0.001	0.001	0.003	0.006	---	---	15
16	---	---	---	0.003	0.001	0.023	0.002	0.001	0.003	0.005	---	---	16
17	---	---	---	0.005	0.001	0.014	0.005	0.001	0.002	0.005	---	---	17
18	---	---	---	0.003	0.001	0.010	0.003	0.001	0.002	0.005	---	---	18
19	---	---	---	0.003	0.001	0.008	0.003	0.001	0.002	0.004	---	---	19
20	---	---	---	0.003	0	0.006	0.002	0	0.002	0.004	---	---	20
21	---	---	---	0.003	0	0.005	0.002	0	0.002	0.004	---	---	21
22	---	---	---	0.004	0.001	0.004	0.001	0	0.001	0.003	---	---	22
23	---	---	---	0.005	0.001	0.003	0.001	0	0.002	0.003	0.002A	---	23
24	---	---	0 E	0.004	0.001	0.009	0.001	0	0.002	0.003	---	---	24
25	---	0 A	0.001A	0.003	0.001	0.014	0.002	0	0.001	0.003	---	---	25
26	---	---	---	0.004	0.001	0.010	0.001	0	0.004	0.003	---	---	26
27	0 A	---	---	0.004	0	0.015	0.001	0	0.015	0.003	---	---	27
28	---	---	---	0.003	0	0.043E	0.001	0	0.014	0.002A	---	---	28
29	---		---	0.003	0.001	0.031	0.001	0	0.009	0.003E	---	---	29
30	---		---	0.003	0.001	0.016	0.001	0	0.010	0.002E	---	---	30
31	---		0.011A		0.001		0.004	0		0.002E		0 E	31
TOTAL	---	---	---	0.171	0.040	0.292	0.180	0.039	0.208	0.271	---	---	TOTAL
MEAN	---	---	---	0.006	0.001	0.010	0.006	0.001	0.007	0.009	---	---	MEAN
MAX	---	---	---	0.017	0.003	0.047	0.060	0.004	0.058	0.044	---	---	MAX
MIN	---	---	---	0.003	0	0	0.001	0	0	0.002	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.006
MAXIMUM DAILY, 0.060E ON JUL 3
MINIMUM DAILY, 0 ON MAY 20
MAXIMUM INSTANTANEOUS,
0.121E AT 23:52 CST ON SEP 6

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	15.6
FEB	---	AUG	3.37
MAR	---	SEP	18.0
APR	14.8	OCT	23.4
MAY	3.46	NOV	---
JUN	25.2	DEC	---

TOTAL DISCHARGE, 104 dam³

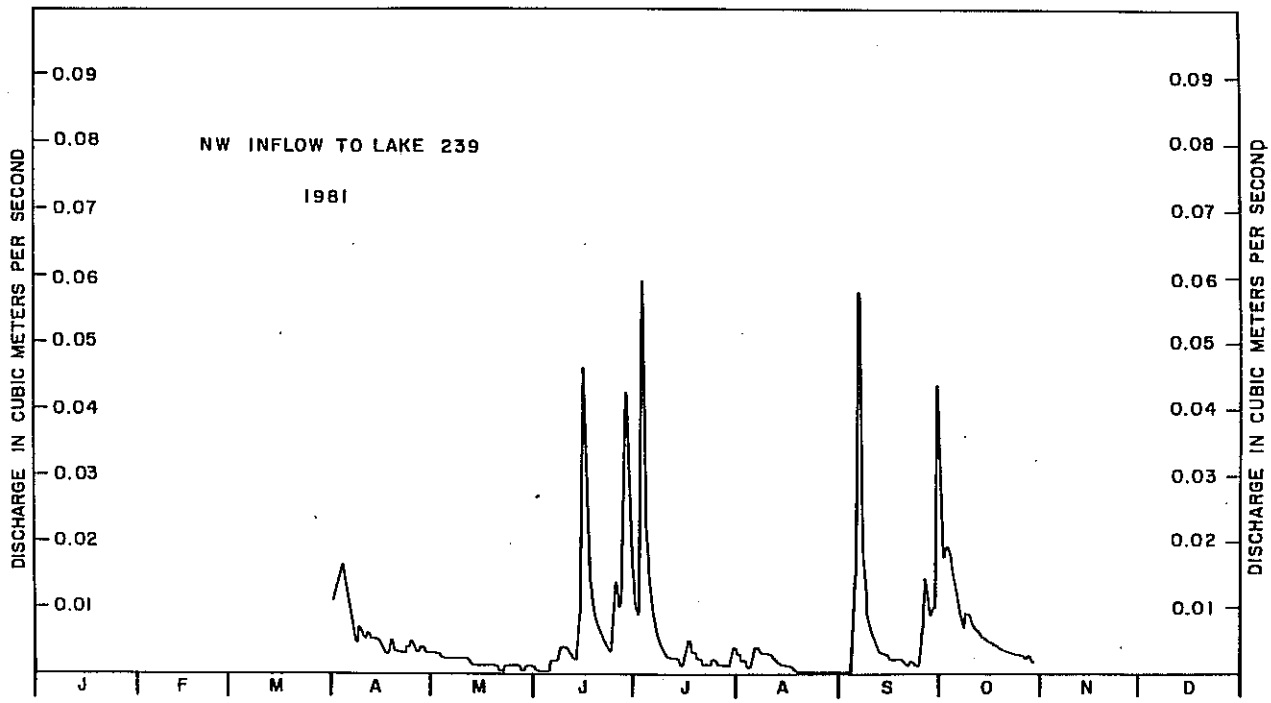

Fig. 13. Annual hydrograph based on mean daily discharges for the NW inflow to Lake 239 for 1981.

Table 58. Mean daily discharge in cubic metres per second for the East inflow to Lake 239 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0 B	0.035	0.038	0.004	0	0.001	0.003	0.142	---	1
2	---	---	---	0 B	0.113	0.031	0.004	0	0.002	0.003	0.057	---	2
3	---	---	---	0 B	0.055	0.025	0.003	0	0.001	0.004	0.036	---	3
4	---	---	---	0 B	0.036	0.020	0.002	0	0.001	0.004	0.026	---	4
5	---	---	---	0 B	0.031	0.016	0.002	0	0	0.003	0.021 A	---	5
6	---	---	---	0 B	0.029	0.017	0.002	0	0	0.003	0.018 A	---	6
7	---	0 A	---	0 B	0.037	0.016	0.001	0	0	0.002	0.014 A	---	7
8	---	---	0 A	0 B	0.033	0.014	0.002	0	0	0.002	0.010 A	---	8
9	---	---	---	0 B	0.027	0.013	0.001	0	0	0.002	---	---	9
10	---	---	---	0 B	0.028	0.012	0.001	0	0	0.003	0.007 A	---	10
11	---	---	---	0 B	0.058	0.009	0	0	0	0.005	---	---	11
12	---	---	---	0 B	0.044	0.007	0	0	0.002	0.004	0.006 A	---	12
13	---	---	---	0 B	0.038	0.009	0	0	0.001	0.004	---	---	13
14	---	---	---	0 B	0.030	0.009	0.001	0	0.001	0.004	---	---	14
15	---	---	---	0 B	0.024	0.008	0.002	0	0	0.003	0.005 A	---	15
16	---	---	---	0 B	0.022	0.006	0.002	0	0	0.003	---	---	16
17	---	---	---	0.019 B	0.030	0.005	0	0	0	0.003	---	---	17
18	---	---	---	0.099 B	0.036	0.005	0	0	0	0.003	---	---	18
19	---	---	---	0.161 B	0.027	0.009	0	0	0	0.004	---	---	19
20	---	---	---	0.040 B	0.023	0.030	0	0	0	0.009	---	---	20
21	---	---	---	0.031 B	0.021	0.029	0	0	0	0.007	---	---	21
22	---	---	---	0.042 B	0.020	0.022	0	0	0	0.005	---	---	22
23	---	---	0 B	0.042 B	0.020	0.015	0	0	0	0.004	---	---	23
24	---	---	---	0.133 B	0.018	0.010	0	0.002	0	0.004	---	---	24
25	---	---	---	0.263	0.016	0.010	0	0.001	0	0.004	---	---	25
26	---	---	---	0.130	0.019	0.007	0	0	0	0.003	---	---	26
27	---	---	---	0.091	0.017	0.006	0	0	0.002	0.003	0.003 A	---	27
28	---	---	---	0.079	0.014	0.007	0	0	0.002	0.004	---	---	28
29	---		---	0.066	0.013	0.006	0	0	0.002	0.003	---	---	29
30	---		---	0.040	0.029	0.005	0	0	0.001	0.005	---	---	30
31	---		---		0.056		0	0		0.059		0.001 E	31
TOTAL	---	---	---	1.236	0.999	0.416	0.027	0.003	0.016	0.172	---	---	TOTAL
MEAN	---	---	---	0.041	0.032	0.014	0.001	0	0.001	0.006	---	---	MEAN
MAX	---	---	---	0.263	0.113	0.038	0.004	0.002	0.002	0.059	---	---	MAX
MIN	---	---	---	0	0.013	0.005	0	0	0	0.002	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.013 m^3/s
MAXIMUM DAILY DISCHARGE, 0.263 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

TYPE OF GAUGE - RECORDING
A - MANUAL GAUGE
B - ICE CONDITIONS
E - ESTIMATE

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	2.33
FEB	---	AUG	0.26
MAR	---	SEP	1.38
APR	107	OCT	14.9
MAY	86.3	NOV	---
JUN	35.9	DEC	---

TOTAL DISCHARGE, 248 dam^3

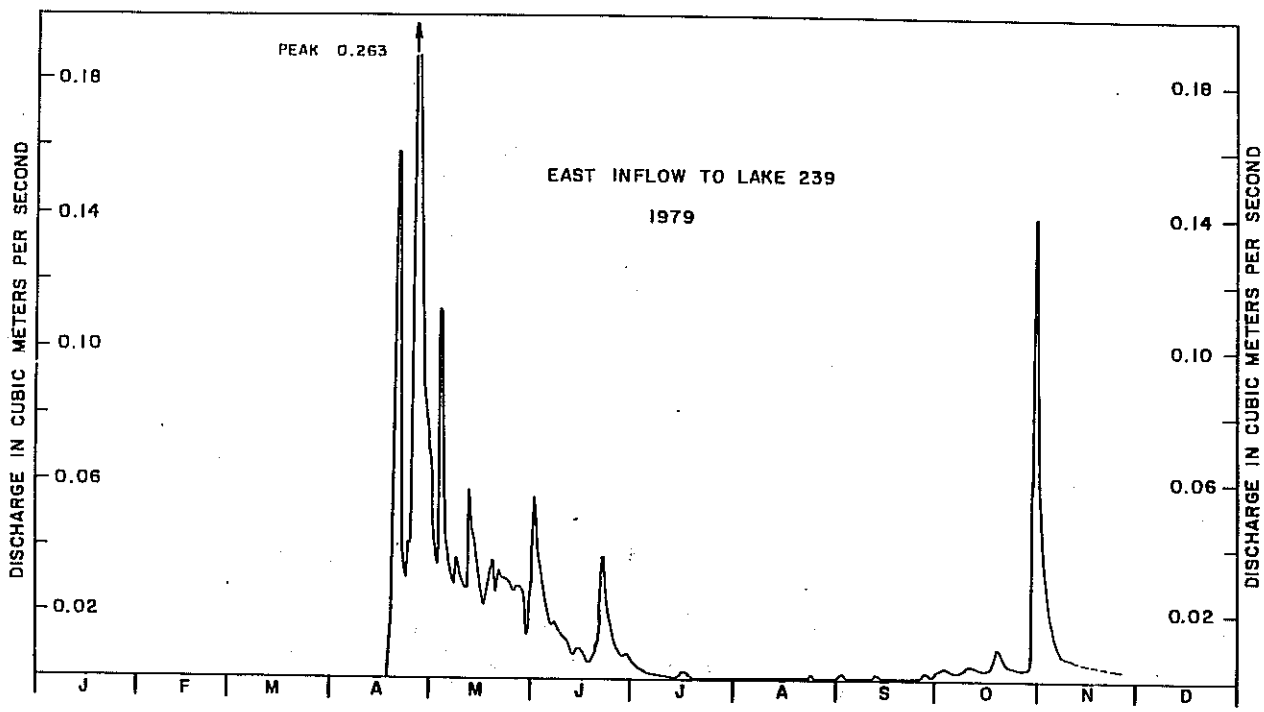

Fig. 14. Annual hydrograph based on mean daily discharges for the East inflow to Lake 239 for 1979.

Table 58. Mean daily discharge in cubic metres per second for the East inflow to Lake 239 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.002 A	0.018	0.005	0.008	0.004	0.006	0.010	---	---	1
2	---	---	---	0.002	0.017	0.004	0.004	0.003	0.005	0.009	---	---	2
3	---	---	---	0.003	0.016	0.002	0.003	0.003	0.005	0.007	---	---	3
4	---	---	---	0.012	0.014	0.002	0.005	0.033	0.017	0.006	---	---	4
5	---	---	0 A	0.064 E	0.013	0.002	0.006	0.042	0.018	0.006	0.006 A	---	5
6	---	---	---	0.076 E	0.010	0.002	0.004	0.024	0.010	0.006	---	---	6
7	---	---	---	0.088 E	0.008	0.001	0.003	0.016	0.007	0.006	---	---	7
8	---	---	---	0.088 E	0.009	0.001	0.002	0.016	0.026	0.005	---	---	8
9	0.001 A	---	---	0.069 A	0.007	0.001	0.001	0.013	0.041	0.005	---	---	9
10	---	---	---	0.023 A	0.010	0.001 A	0.001	0.009	0.019	0.006	---	---	10
11	---	---	---	0.020	0.012	0.001 E	0.001	0.007	0.012	0.008	---	---	11
12	---	---	---	0.020	0.012	0.001 A	0.001	0.016	0.008	0.007	---	---	12
13	---	---	---	0.019	0.009	0.001	0	0.024	0.007	0.006	---	---	13
14	---	---	---	0.017	0.008	0.001	0.002	0.015	0.005	0.005	---	---	14
15	---	---	---	0.024	0.006	0.001	0.002	0.009	0.005	0.005	---	---	15
16	---	---	---	0.035	0.005	0	0.069	0.006	0.006	0.006	---	---	16
17	---	---	---	0.091	0.004	0	0.037	0.027	0.006	0.029	---	---	17
18	---	---	---	0.152	0.005	0	0.021	0.033	0.007	0.047	---	---	18
19	---	---	0 A	0.134	0.004	0	0.028	0.020	0.012	0.031	0.005 A	---	19
20	---	---	---	0.066	0.004	0	0.020	0.015	0.022	0.022	---	---	20
21	---	---	---	0.050	0.004	0	0.050	0.014	0.016	0.020	---	---	21
22	0.001 A	---	---	0.045	0.003	0	0.028	0.012	0.016	0.015	---	---	22
23	---	---	---	0.034	0.003	0.002	0.016	0.009	0.016	0.017	---	---	23
24	---	---	---	0.027	0.002	0.006	0.011	0.008	0.014	0.028	---	---	24
25	---	---	---	0.023	0.001	0.003	0.007	0.006	0.014	0.023	---	---	25
26	---	0 A	---	0.022	0.001	0.002	0.005	0.005	0.012	0.018	---	---	26
27	---	---	---	0.021	0.002	0.002	0.005	0.004	0.010	0.014	---	---	27
28	---	---	---	0.020	0.001	0.013	0.010	0.004	0.009	0.013	---	---	28
29	---		---	0.020	0.003	0.023	0.011	0.005	0.008	0.009	---	---	29
30	---		---	0.019	0.002	0.014	0.006	0.008	0.008	0.010 A	---	---	30
31	---		---		0.001		0.005	0.007		0.010 E		---	31
TOTAL	---	---	---	1.286	0.214	0.091	0.372	0.417	0.367	0.409	---	---	TOTAL
MEAN	---	---	---	0.043	0.007	0.003	0.012	0.013	0.012	0.013	---	---	MEAN
MAX	---	---	---	0.152	0.018	0.023	0.069	0.042	0.041	0.047	---	---	MAX
MIN	---	---	---	0.002	0.001	0	0	0.003	0.005	0.005	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.015 m^3/s
MAXIMUM DAILY DISCHARGE, 0.152 m^3/s ON APR 18
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUN 16

MAXIMUM INSTANTANEOUS DISCHARGE,
0.193 m^3/s AT 20:30 CST ON APR 18

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	32.1
FEB	---	AUG	36.0
MAR	---	SEP	31.7
APR	111	OCT	35.3
MAY	18.5	NOV	---
JUN	7.86	DEC	---

TOTAL DISCHARGE. 273 dam^3

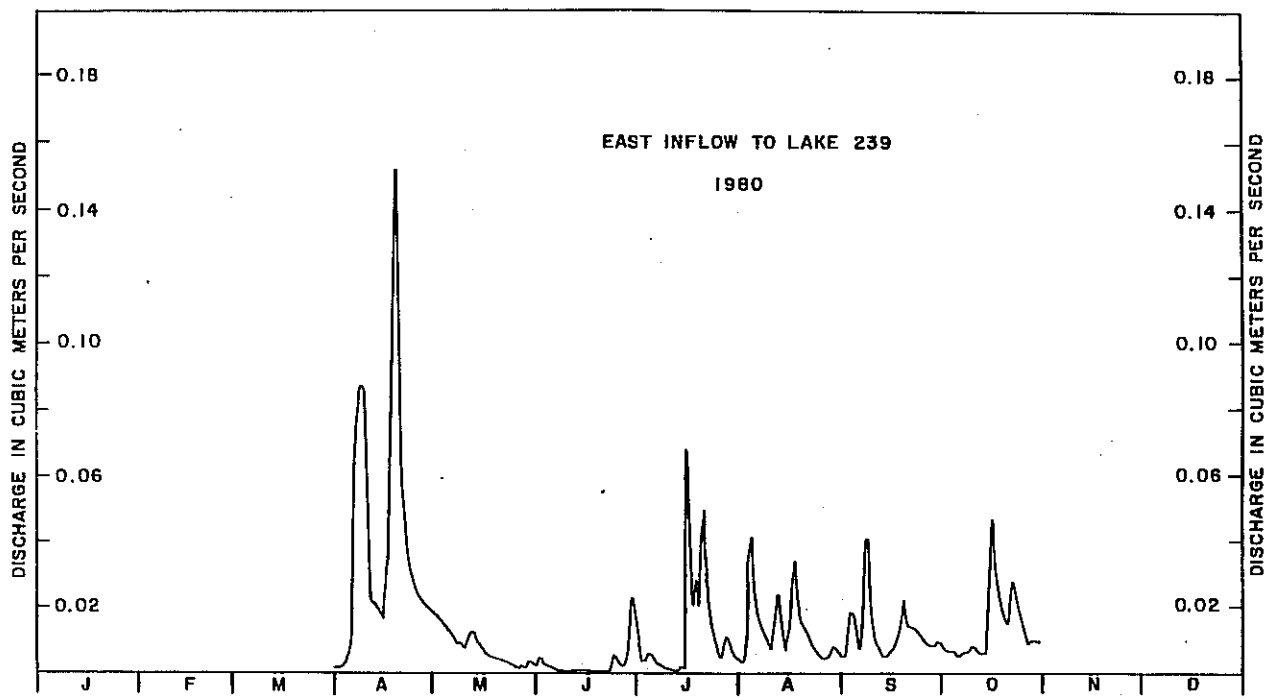

Fig. 14. Annual hydrograph based on mean daily discharges for the East inflow to Lake 239 for 1980.

Table 58. Mean daily discharge in cubic metres per second for the East inflow to Lake 239 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.035	0.008	0.002	0.021	0.009	0	0.124	---	---	1
2	---	---	---	0.038	0.007	0.002	0.017	0.004	0	0.082	---	---	2
3	---	---	---	0.030	0.007A	0.001	0.172	0.003	0	0.044	---	---	3
4	---	---	---	0.023	0.006E	0.002	0.049	0.002	0	0.049	---	---	4
5	---	---	---	0.020	0.006A	0.015	0.024	0.001	0	0.048	---	---	5
6	---	---	---	0.015	0.005	0.011	0.014	0.006	0.079	0.034	---	---	6
7	---	---	---	0.017	0.005	0.009	0.008	0.011	0.162	0.024	---	0.004A	7
8	---	---	---	0.015	0.005	0.022	0.006	0.005	0.043	0.019	---	0.004A	8
9	---	---	---	0.015	0.006	0.011	0.004	0.004	0.024	0.017	---	---	9
10	---	---	---	0.015	0.005	0.006	0.002	0.003	0.016	0.026	---	---	10
11	---	---	---	0.014	0.004	0.004	0.002	0.001	0.010	0.023	---	---	11
12	---	---	---	0.011	0.004	0.003	0.001	0.001	0.008	0.021	---	---	12
13	---	---	---	0.010	0.003	0.003	0.001	0.001	0.005	0.023	---	---	13
14	---	---	---	0.008	0.003	0.023	0.001	0	0.004	0.020	---	0.005A	14
15	---	---	---	0.007	0.004	0.105	0.001	0	0.003	0.016	---	---	15
16	---	---	---	0.007	0.003	0.044	0.003	0	0.003	0.014	---	---	16
17	---	---	---	0.008	0.002	0.024	0.021	0	0.003	0.013	---	---	17
18	---	---	---	0.008	0.002	0.020	0.012	0	0.002	0.014	---	---	18
19	---	---	---	0.007	0.002	0.013	0.005	0	0.002	0.012	---	---	19
20	---	---	---	0.006	0.002	0.009	0.004	0	0.002	0.011	---	---	20
21	---	---	---	0.008	0.002	0.007	0.003	0	0.001	0.010	---	---	21
22	---	---	---	0.013	0.003	0.005	0.002	0	0.001	0.008	---	---	22
23	---	---	---	0.014	0.005	0.003	0.001	0	0.002	0.009	0.004A	---	23
24	---	---	---	0.011	0.004	0.031	0.003	0	0.004	0.008	0.004A	---	24
25	---	0 A	0.018E	0.009	0.004	0.036	0.007	0	0.004	0.007	---	---	25
26	---	---	0.018A	0.014	0.004	0.022	0.004	0	0.013	0.006	---	---	26
27	0 A	---	---	0.013	0.003	0.037	0.002	0	0.048	0.006	---	---	27
28	---	---	---	0.012	0.002	0.121	0.001	0	0.035	0.009A	---	---	28
29	---		---	0.011	0.003	0.073	0.001	0	0.019	0.009E	---	---	29
30	---		---	0.010	0.004	0.036	0	0	0.022	0.008E	---	---	30
31	---		0.027A		0.003		0.021	0		0.008E		---	31
TOTAL	---	---	---	0.426	0.126	0.700	0.413	0.051	0.514	0.726	---	---	TOTAL
MEAN	---	---	---	0.014	0.004	0.023	0.013	0.002	0.017	0.023	---	---	MEAN
MAX	---	---	---	0.038	0.008	0.121	0.172	0.011	0.162	0.124	---	---	MAX
MIN	---	---	---	0.007	0.002	0.001	0	0	0	0.007	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.014
MAXIMUM DAILY, 0.172 ON JUL 3
MINIMUM DAILY, 0 ON JUL 30
MAXIMUM INSTANTANEOUS,
0.408 AT 00:00 CST ON SEP 7

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	35.7
FEB	---	AUG	4.41
MAR	---	SEP	44.4
APR	36.8	OCT	62.7
MAY	10.9	NOV	---
JUN	60.5	DEC	---

TOTAL DISCHARGE, 255 dam³

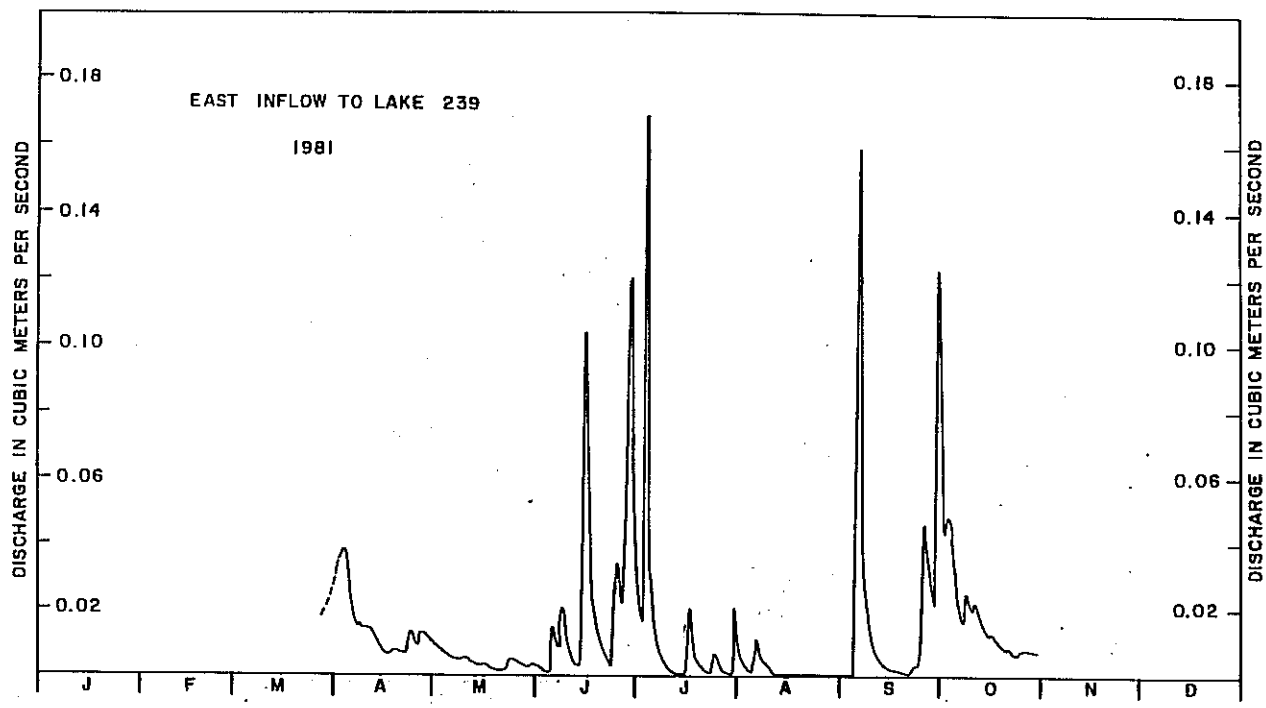

Fig. 14. Annual hydrograph based on mean daily discharges for the East inflow to Lake 239 for 1981.

Table 59. Mean daily discharge in cubic metres per second for the East Upper Weir for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.002 E	0.012 A	0.015	0.002	0	0.001	0.002	---	---	1
2	---	---	---	0.002 E	0.045 A	0.012	0.002	0	0.001	0.002	---	---	2
3	---	---	---	0.002 E	0.022	0.009	0.002	0	0.001	0.002	---	---	3
4	---	---	---	0.002 E	0.014	0.007	0.001	0	0.001	0.002	---	---	4
5	---	---	---	0.002 E	0.013	0.006	0.001	0	0.001	0.002	---	---	5
6	---	---	---	0.002 E	0.012	0.007	0.001	0	0.001	0.001	---	---	6
7	---	---	---	0.002 E	0.016	0.007	0.001	0	0.001	0.001	---	---	7
8	---	---	---	0.002 E	0.015	0.006	0.001	0	0.001	0.001	---	---	8
9	---	---	---	0.002 E	0.011	0.006	0.001	0	0.001	0.001	---	---	9
10	---	---	---	0.002 E	0.012	0.005	0.001	0	0.001	0.002	---	---	10
11	---	---	---	0.002 E	0.028	0.004	0.001	0	0.001	0.004	---	---	11
12	---	---	---	0.002 E	0.019	0.004	0.001	0.001	0.001	0.003	---	---	12
13	---	---	---	0.003 E	0.016	0.004	0.001	0.001	0.001	0.002	---	---	13
14	---	---	---	0.004 E	0.012	0.004	0.001	0.001	0.001	0.002	---	---	14
15	---	---	---	0.009 E	0.010	0.004	0.001	0	0.001	0.002	---	---	15
16	---	---	---	0.017 E	0.009	0.003	0.001	0	0.001	0.002	---	---	16
17	---	---	---	0.027 A	0.013	0.003	0.001	0	0.001	0.002	---	---	17
18	---	---	---	0.035	0.016	0.003	0.001	0	0.001	0.002	---	---	18
19	---	---	---	0.064 A	0.012	0.004	0.001	0	0.001	0.003	---	---	19
20	---	---	---	0.108 E	0.010	0.014	0	0	0.001	0.005	---	---	20
21	---	---	---	0.092 E	0.009	0.015	0	0	0.001	0.004	---	---	21
22	---	---	---	0.072 E	0.010	0.011	0	0	0.001	0.003	---	---	22
23	---	---	---	0.059 E	0.009	0.006	0	0.002	0.001	0.002	---	---	23
24	---	---	---	0.070 E	0.007	0.005	0	0.002	0.001	0.002	---	---	24
25	---	---	---	0.136 E	0.006	0.004	0.001	0.002	0.001	0.002	---	---	25
26	---	---	---	0.094 E	0.007	0.004	0.001	0.001	0.001	0.002	---	---	26
27	---	---	---	0.055 E	0.007	0.003	0.001	0.001	0.002	0.002	---	---	27
28	---	---	---	0.030 E	0.006	0.003	0	0.001	0.001	0.002	---	---	28
29	---		---	0.019 E	0.005	0.003	0	0.001	0.001	0.002	---	---	29
30	---		---	0.014 E	0.013	0.003	0.001	0.001	0.001	0.003	---	---	30
31	---		---		0.024		0.001	0.001		0.025		---	31
TOTAL	---	---	---	0.932	0.420	0.184	0.027	0.015	0.031	0.092	---	---	TOTAL
MEAN	---	---	---	0.031	0.014	0.006	0.001	0	0.001	0.003	---	---	MEAN
MAX	---	---	---	0.136	0.045	0.015	0.002	0.002	0.002	0.025	---	---	MAX
MIN	---	---	---	0.002	0.005	0.003	0	0	0.001	0.001	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.008 m^3/s
MAXIMUM DAILY DISCHARGE, 0.136 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUL 20

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	2.33
FEB	---	AUG	1.30
MAR	---	SEP	2.68
APR	80.5	OCT	7.95
MAY	16.3	NOV	---
JUN	15.9	DEC	---

TOTAL DISCHARGE, 147 dam^3

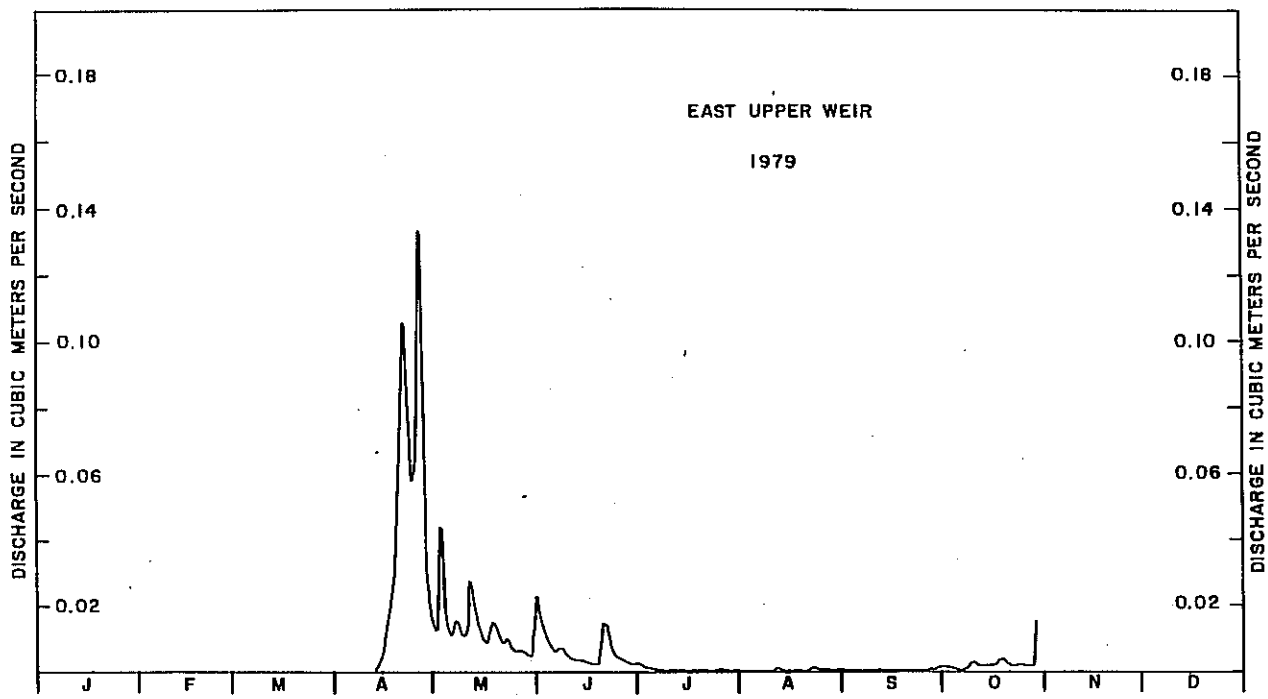

Fig. 15. Annual hydrograph based on mean daily discharges for the East Upper Weir for 1979.

Table 59. Mean daily discharge in cubic metres per second for the East Upper Weir for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.003A	0.007	0.004	0.003	0.002	0.002	0.004	---	---	1
2	---	---	---	0.004	0.007	0.003	0.002	0.001	0.002	0.003	---	---	2
3	---	---	---	0.006	0.006	0.002	0.001	0.001	0.002	0.003	---	---	3
4	---	---	---	0.009	0.006	0.002	0.002	0.015	0.008	0.003	---	---	4
5	---	---	---	0.020	0.006	0.002	0.003	0.017	0.006	0.003	---	---	5
6	---	---	---	0.031	0.005	0.002	0.002	0.009	0.004	0.003	---	---	6
7	---	---	---	0.037A	0.005	0.001	0.002	0.005	0.003	0.002	---	---	7
8	---	---	---	0.033E	0.005	0.001	0.001	0.005	0.013	0.002	---	---	8
9	---	---	---	0.029E	0.005	0.001	0.001	0.004	0.015	0.002	---	---	9
10	---	---	---	0.025E	0.005	0.001	0.001	0.003	0.006	0.003	---	---	10
11	---	---	---	0.022E	0.006	0	0.001	0.003	0.004	0.004	---	---	11
12	---	---	---	0.018E	0.005	0	0.001	0.006	0.003	0.003	---	---	12
13	---	---	---	0.014E	0.005	0.001	0	0.008	0.003	0.003	---	---	13
14	---	---	---	0.010A	0.004	0.001	0.001	0.004	0.002	0.002	---	---	14
15	---	---	---	0.012	0.004	0.001	0.001	0.003	0.003	0.002	---	---	15
16	---	---	---	0.016	0.003	0	0.027	0.002	0.003	0.003	---	---	16
17	---	---	---	0.031	0.003	0	0.011	0.012	0.003	0.015	---	---	17
18	---	---	---	0.044	0.003	0	0.006	0.011	0.003	0.019	---	---	18
19	---	---	---	0.045	0.003	0	0.011	0.006	0.006	0.011	---	---	19
20	---	---	---	0.030	0.002	0	0.008	0.005	0.009	0.008	---	---	20
21	---	---	---	0.025	0.002	0	0.021	0.005	0.006	0.007	---	---	21
22	---	---	---	0.022	0.002	0	0.009	0.005	0.006	0.005	---	---	22
23	---	---	---	0.016	0.002	0.002	0.005	0.004	0.006	0.006	---	---	23
24	---	---	---	0.012	0.001	0.005	0.003	0.003	0.005	0.010	---	---	24
25	---	---	---	0.010	0.001	0.002	0.002	0.003	0.005	0.008	---	---	25
26	---	---	---	0.010	0.002	0.001	0.002	0.002	0.004	0.006	---	---	26
27	---	---	---	0.009	0.002	0.001	0.002	0.002	0.004	0.005	---	---	27
28	---	---	---	0.008	0.001	0.006	0.004	0.002	0.003	0.004	---	---	28
29	---	---	---	0.007	0.003	0.009	0.004	0.002	0.003	0.004	---	---	29
30	---		---	0.007	0.002	0.005	0.003	0.003	0.003	0.004A	---	---	30
31	---		---		0.002		0.002	0.003		0.004E		---	31
TOTAL	---	---	---	0.565	0.115	0.053	0.142	0.156	0.145	0.161	---	---	TOTAL
MEAN	---	---	---	0.019	0.004	0.002	0.005	0.005	0.005	0.005	---	---	MEAN
MAX	---	---	---	0.045	0.007	0.009	0.027	0.017	0.015	0.019	---	---	MAX
MIN	---	---	---	0.003	0.001	0	0	0.001	0.002	0.002	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.006 m^3/s
MAXIMUM DAILY DISCHARGE, 0.045 m^3/s ON APR 19
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUN 11

MAXIMUM INSTANTANEOUS DISCHARGE,
0.059 m^3/s AT 22:24 CST ON APR 18

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	12.3
FEB	---	AUG	13.5
MAR	---	SEP	12.5
APR	48.8	OCT	13.9
MAY	9.94	NOV	---
JUN	4.58	DEC	---

TOTAL DISCHARGE, 116 dam^3

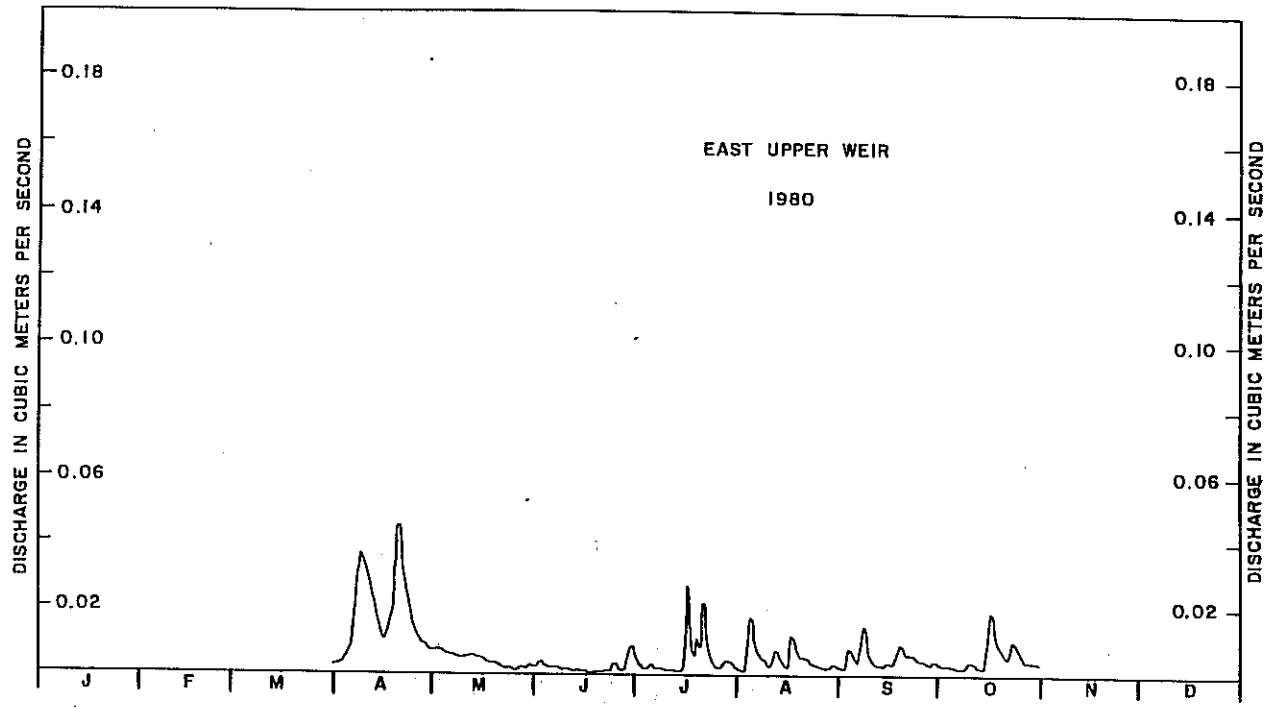

Fig. 15. Annual hydrograph based on mean daily discharges for the East Upper Weir for 1980.

Table 59. Mean daily discharge in cubic metres per second for the East Upper Weir for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.012	0.004	0.002	0.007	0.003	0	0.042	---	---	1
2	---	---	---	0.014	0.004	0.001	0.008	0.002	0	0.028	---	---	2
3	---	---	---	0.013	0.004	0.001	0.070	0.001	0	0.017	---	---	3
4	---	---	---	0.010	0.004	0.001	0.020	0.001	0	0.023	---	---	4
5	---	---	---	0.009	0.004	0.009	0.009	0	0	0.019	---	---	5
6	---	---	---	0.007	0.003	0.006	0.005	0.002	0.039	0.013	---	---	6
7	---	---	---	0.008	0.003	0.005	0.003	0.004	0.059	0.010	---	---	7
8	---	---	---	0.008	0.003	0.012	0.002	0.002	0.015	0.008	---	---	8
9	---	---	---	0.006	0.003	0.006	0.001	0.001	0.008	0.007A	---	---	9
10	---	---	---	0.007	0.003	0.003	0.001	0.001	0.005	0.012E	---	---	10
11	---	---	---	0.006	0.003	0.002	0.001	0.001	0.003	0.011E	---	---	11
12	---	---	---	0.004	0.002	0.002	0.001	0	0.002	0.008E	---	---	12
13	---	---	---	0.004	0.002	0.002	0	0	0.001	0.010E	---	---	13
14	---	---	---	0.004	0.002	0.018	0	0	0.001	0.008E	---	---	14
15	---	---	---	0.003	0.002	0.053	0	0	0.001	0.006E	---	---	15
16	---	---	---	0.003	0.002	0.019	0.001	0	0.001	0.006E	---	---	16
17	---	---	---	0.004	0.002	0.010	0.012	0	0.001	0.005E	---	---	17
18	---	---	---	0.003	0.001	0.008	0.006	0	0.001	0.005E	---	---	18
19	---	---	---	0.004	0.001	0.006	0.003	0	0.001	0.004E	---	---	19
20	---	---	---	0.004	0.001	0.004	0.002	0	0.001	0.004E	---	---	20
21	---	---	---	0.004	0.001	0.003	0.002	0	0.001	0.004E	---	---	21
22	---	---	---	0.007	0.002	0.002	0.001	0	0.001	0.003E	---	---	22
23	---	---	---	0.007	0.003	0.002	0.001	0	0.001	0.003E	---	---	23
24	---	---	---	0.006	0.003	0.018	0.002	0	0.002	0.003E	---	---	24
25	---	---	---	0.005	0.003	0.016	0.004	0	0.002	0.003E	---	---	25
26	---	---	---	0.008	0.002	0.009	0.002	0	0.009	0.003E	---	---	26
27	---	---	---	0.006	0.002	0.020	0.001	0	0.021	0.003E	---	---	27
28	---	---	---	0.006	0.001	0.049	0.001	0	0.011	0.005A	---	---	28
29	---		---	0.005	0.002	0.030	0	0	0.007	0.004E	---	---	29
30	---		---	0.005	0.003	0.013	0	0	0.010	0.004E	---	---	30
31	---		---		0.002		0.009	0		0.003E		---	31
TOTAL	---	---	---	0.192	0.077	0.332	0.175	0.018	0.204	0.284	---	---	TOTAL
MEAN	---	---	---	0.006	0.002	0.011	0.006	0.001	0.007	0.009	---	---	MEAN
MAX	---	---	---	0.014	0.004	0.053	0.070	0.004	0.059	0.042	---	---	MAX
MIN	---	---	---	0.003	0.001	0.001	0	0	0	0.003	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.006
MAXIMUM DAILY, 0.070 ON JUL 3
MINIMUM DAILY, 0 ON JUL 13
MAXIMUM INSTANTANEOUS,
0.222 AT 21:51 CST ON SEP 6

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	15.1
FEB	---	AUG	1.56
MAR	---	SEP	17.6
APR	16.6	OCT	24.5
MAY	6.65	NOV	---
JUN	28.7	DEC	---

TOTAL DISCHARGE, 111 dam³

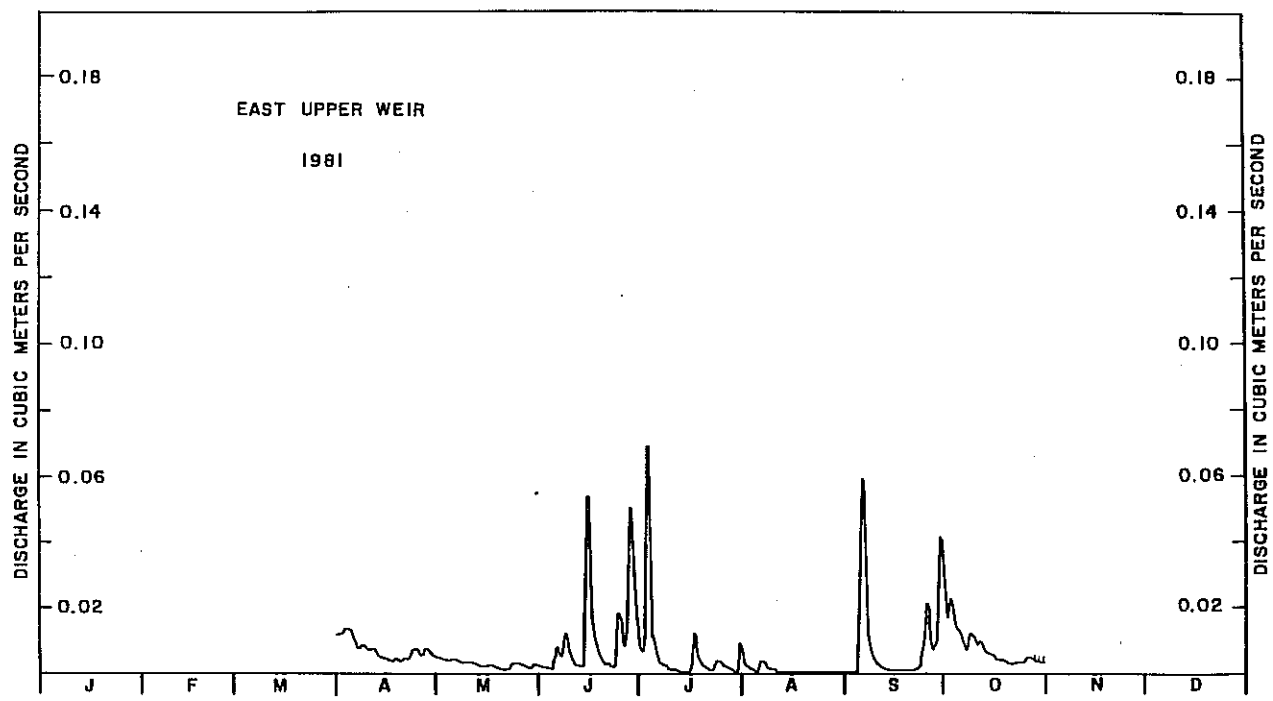

Fig. 15. Annual hydrograph based on mean daily discharges for the East Upper Weir for 1981.

Table 60. Mean daily discharge in cubic metres per second for the Lake 240 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.022 E	0.016	0.023	0.028	0.416	0.146	0.047	0	0	0	0	0.013	1
2	0.022 E	0.015	0.025	0.027	0.431	0.148	0.042	0	0	0	0	0.013	2
3	0.021 E	0.015	0.026	0.027	0.426	0.144	0.038	0	0	0	0	0.012	3
4	0.021 A	0.016	0.025	0.027	0.403	0.143	0.035	0	0	0	0	0.014	4
5	0.021 E	0.016	0.025	0.026	0.379	0.133	0.031	0	0	0	0	0.015	5
6	0.021 E	0.016	0.024	0.025	0.347	0.132	0.028	0	0	0	0	0.016 E	6
7	0.021 E	0.016	0.023	0.024	0.333	0.128	0.026	0	0	0	0	0.018 E	7
8	0.021 A	0.016	0.023	0.023	0.313	0.125	0.023	0	0	0	0 E	0.019 E	8
9	0.022	0.015	0.023	0.022	0.296	0.118	0.022	0	0	0	0.001 E	0.021 E	9
10	0.021	0.015	0.023	0.022	0.283	0.111	0.020	0	0	0	0.002 E	0.022 E	10
11	0.021	0.015	0.023	0.022	0.291	0.103	0.018	0	0	0	0.003 E	0.023 E	11
12	0.021	0.015	0.023	0.025	0.288	0.096	0.016	0	0	0	0.003 E	0.024 E	12
13	0.021	0.015	0.023	0.027	0.285	0.090	0.015	0	0	0	0.003 E	0.024 E	13
14	0.021	0.017	0.024	0.028	0.269	0.087	0.014	0	0	0	0.004 E	0.025 A	14
15	0.021	0.016	0.024	0.028	0.253	0.086	0.013	0	0	0	0.004 E	0.024	15
16	0.021	0.017 E	0.024	0.028	0.237	0.078	0.011	0	0	0	0.004 E	0.024	16
17	0.021	0.018 E	0.025	0.029	0.232	0.072	0.009	0	0	0	0.005 E	0.023	17
18	0.018	0.019 E	0.025	0.034	0.223	0.066	0.008	0	0	0	0.005 E	0.022	18
19	0.019	0.020 E	0.028	0.051	0.210	0.064	0.007	0	0	0	0.006 E	0.021	19
20	0.015	0.021 E	0.030	0.113	0.197	0.072	0.007	0	0	0	0.006 E	0.021	20
21	0.013	0.022 E	0.030	0.218	0.185	0.076	0.006	0	0	0	0.007 A	0.020	21
22	0.011	0.023 A	0.029	0.356	0.178	0.072	0.004	0	0	0	0.007 E	0.021	22
23	0.012	0.025	0.029	0.443	0.172	0.066	0.003	0	0	0	0.007 A	0.020	23
24	0.018	0.025	0.028	0.524	0.161	0.063	0.003	0	0	0	0.008 E	0.020	24
25	0.018	0.026	0.027	0.710	0.152	0.061	0.003	0	0	0	0.009 E	0.020	25
26	0.018	0.025	0.026	0.743	0.145	0.059	0.002	0	0	0	0.009 A	0.020	26
27	0.017	0.024	0.025	0.674	0.138	0.056	0.001	0	0	0	0.011	0.020	27
28	0.017	0.023	0.027	0.592	0.131	0.055	0	0	0	0	0.011	0.019	28
29	0.016		0.028	0.523	0.121	0.054	0	0	0	0	0.013	0.019	29
30	0.016		0.028	0.460	0.124	0.051	0	0	0	0	0.013	0.019	30
31	0.016		0.028		0.144		0	0		0.001		0.019	31
TOTAL	0.584	0.522	0.794	5.879	7.763	2.755	0.452	0	0	0.001	0.141	0.611	TOTAL
MEAN	0.019	0.019	0.026	0.196	0.250	0.092	0.015	0	0	0	0.005	0.020	MEAN
MAX	0.022	0.026	0.030	0.743	0.431	0.148	0.047	0	0	0.001	0.013	0.025	MAX
MIN	0.011	0.015	0.023	0.022	0.121	0.051	0	0	0	0	0	0.012	MIN

SUMMARY FOR THE YEAR 1979

MEAN DISCHARGE, 0.053 m^3/s
MAXIMUM DAILY DISCHARGE, 0.743 m^3/s ON APR 26
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUL 28

MAXIMUM INSTANTANEOUS DISCHARGE,
0.761 m^3/s AT 22:54 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	58.5	JUL	39.1
FEB	45.1	AUG	0
MAR	68.6	SEP	0
APR	508	OCT	0.09
MAY	671	NOV	12.2
JUN	238	DEC	52.8

TOTAL DISCHARGE, 1 690 dam^3

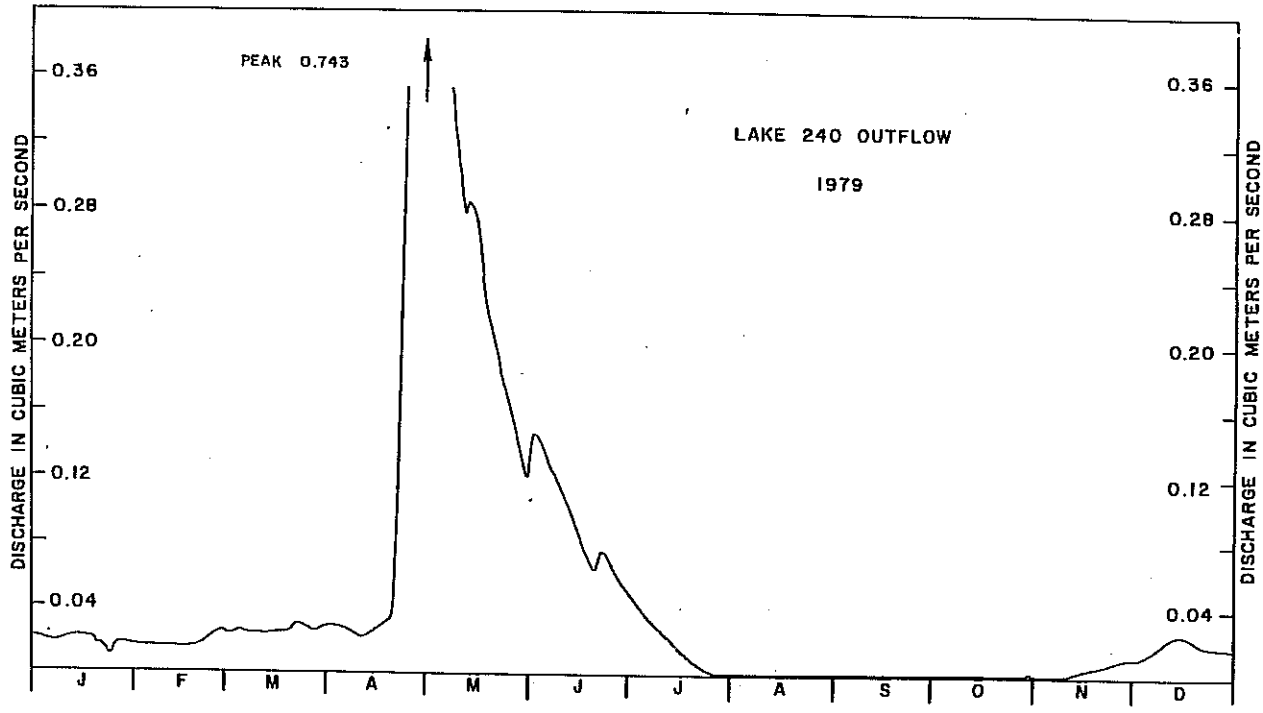

Fig. 16. Annual hydrograph based on mean daily discharges for the Lake 240 outflow for 1979.

Table 60. Mean daily discharge in cubic metres per second for the Lake 240 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.020	0.021	0.014	0.014	0.153	0.023	0.003	0.018	0.062	0.063	0.077	0.038A	1
2	0.020	0.020	0.014	0.015	0.143	0.021	0.002	0.017	0.059	0.062	0.075	0.037E	2
3	0.019	0.019	0.013	0.014	0.133	0.019	0.002	0.016	0.055	0.059	0.073	0.039E	3
4	0.019	0.019	0.013A	0.015	0.122	0.016	0.002	0.023	0.059	0.058	0.070	0.039E	4
5	0.019	0.020	0.013E	0.015	0.111	0.015	0.002	0.031	0.063	0.055	0.069	0.037E	5
6	0.019A	0.020	0.013E	0.016	0.102	0.015	0.002	0.035	0.060	0.054	0.068	0.036E	6
7	0.020E	0.019	0.013E	0.018	0.092	0.014	0.002	0.039	0.060	0.052	0.067	0.034E	7
8	0.021A	0.019	0.013E	0.022	0.086	0.011	0.001	0.043	0.067	0.051	0.067	0.033E	8
9	0.022	0.018	0.013E	0.026	0.083	0.010	0.001	0.044	0.076	0.047	0.072	0.032E	9
10	0.023	0.019	0.013E	0.032	0.081	0.009	0.001	0.046	0.074	0.048	0.069	0.031E	10
11	0.027	0.019	0.013A	0.037	0.079	0.007	0	0.046	0.075A	0.048	0.067	0.035E	11
12	0.027	0.019	0.014E	0.041	0.078	0.007	0	0.050	0.075A	0.045	0.065	0.038E	12
13	0.027	0.019	0.015E	0.044	0.075	0.007	0	0.058	0.074	0.043	0.063	0.038E	13
14	0.027	0.018	0.016A	0.051	0.071	0.006	0	0.058	0.070	0.040	0.060	0.037E	14
15	0.027	0.017	0.017	0.055	0.068	0.006	0	0.057	0.065	0.039	0.060	0.036E	15
16	0.026	0.017	0.017	0.059	0.064	0.005	0.006	0.055	0.061	0.040	0.056	0.034E	16
17	0.026	0.016	0.017	0.064	0.062	0.003	0.008	0.064	0.061	0.048	0.056	0.033A	17
18	0.026	0.016	0.016A	0.080	0.060	0.002	0.008	0.072	0.060	0.057	0.054	0.033	18
19	0.025	0.017	0.016E	0.111	0.056	0.001	0.009	0.078	0.059	0.058	0.052	0.035	19
20	0.025	0.017	0.015E	0.150	0.052	0.001	0.010	0.079	0.063	0.061	0.052	0.032A	20
21	0.024	0.016	0.015E	0.190	0.048	0	0.014	0.084	0.062	0.064	0.051	0.031E	21
22	0.023	0.018	0.015E	0.225	0.046	0	0.015	0.083	0.063	0.066	0.049	0.030E	22
23	0.023	0.019	0.014E	0.242	0.043	0.001	0.016	0.084	0.064	0.074	0.047	0.029E	23
24	0.023	0.018	0.014A	0.236	0.040	0.002	0.016	0.082	0.065	0.081	0.046	0.029E	24
25	0.022	0.017	0.014	0.225	0.037	0.001	0.016	0.081	0.065	0.085	0.044	0.028E	25
26	0.023	0.017	0.014	0.210	0.035	0.001	0.016	0.076	0.063	0.083	0.043	0.027E	26
27	0.023	0.016	0.015	0.196	0.033	0.001	0.015	0.071	0.062	0.083	0.042A	0.026E	27
28	0.022	0.016	0.015	0.184	0.029	0.001	0.018	0.064	0.061	0.082	0.040A	0.026E	28
29	0.022	0.015	0.015	0.174	0.029	0.003	0.020	0.064	0.062	0.083	0.040A	0.025E	29
30	0.022		0.015	0.166	0.026	0.003	0.020	0.065	0.062	0.080	0.039A	0.024E	30
31	0.021		0.015		0.023		0.020	0.063		0.077		0.023E	31
TOTAL	0.713	0.521	0.449	2.927	2.160	0.211	0.245	1.746	1.927	1.886	1.733	1.005	TOTAL
MEAN	0.023	0.018	0.014	0.098	0.070	0.007	0.008	0.056	0.064	0.061	0.058	0.032	MEAN
MAX	0.027	0.021	0.017	0.242	0.153	0.023	0.020	0.084	0.076	0.085	0.077	0.039	MAX
MIN	0.019	0.015	0.013	0.014	0.023	0	0	0.016	0.055	0.039	0.039	0.023	MIN

SUMMARY FOR THE YEAR 1980

MEAN DISCHARGE, 0.042 m^3/s
MAXIMUM DAILY DISCHARGE, 0.242 m^3/s ON APR 23
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUN 21

MAXIMUM INSTANTANEOUS DISCHARGE,
0.245 m^3/s AT 13:47 CST ON APR 23

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	61.6	JUL	21.2
FEB	45.0	AUG	151
MAR	38.8	SEP	166
APR	253	OCT	163
MAY	187	NOV	150
JUN	18.2	DEC	86.8

TOTAL DISCHARGE, 1 340 dam^3

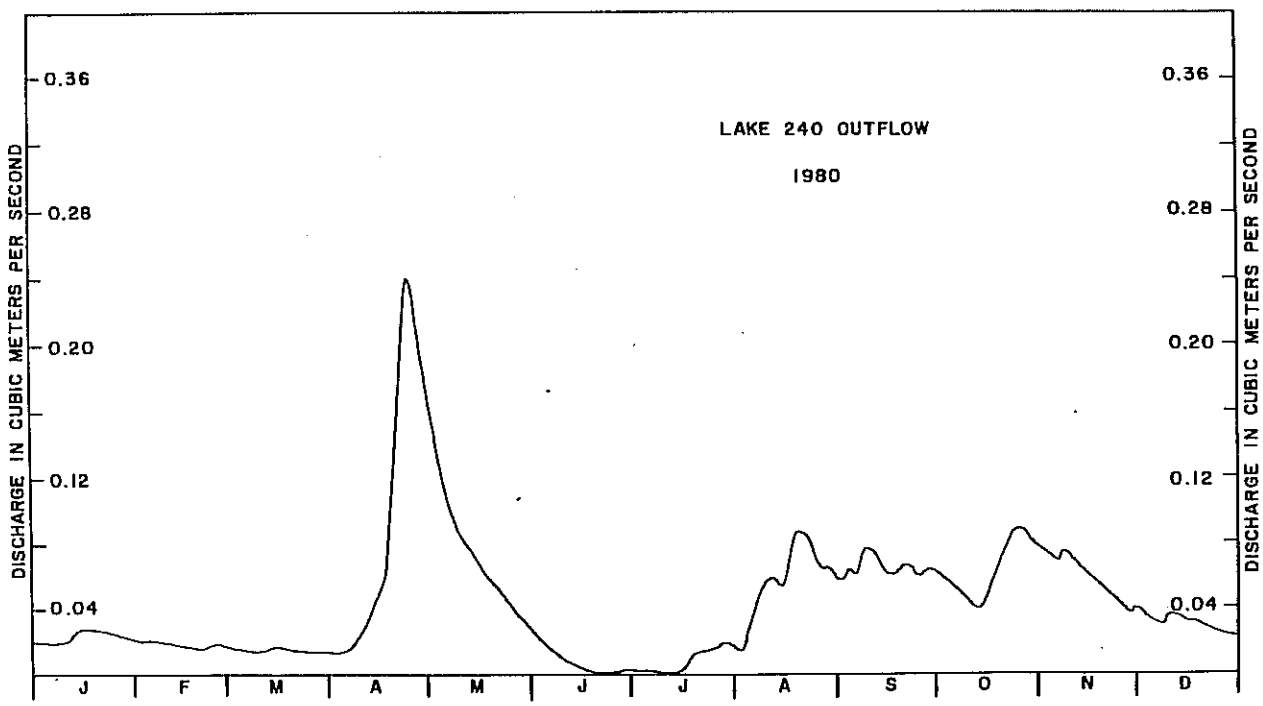

Fig. 16. Annual hydrograph based on mean daily discharges for the Lake 240 outflow for 1980.

Table 60. Mean daily discharge in cubic metres per second for the Lake 240 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.023E	0.013	0.009	0.029	0.059	0.012	0.258	0.057	0.006	0.116	0.112	0.065	1
2	0.022E	0.014	0.008	0.036	0.057	0.011	0.254	0.055	0.004	0.144	0.109	0.062	2
3	0.021E	0.014	0.008	0.041	0.057	0.011	0.398	0.052	0.002	0.168	0.108	0.062	3
4	0.020E	0.014	0.009	0.047	0.056	0.011	0.434	0.050	0.001	0.213	0.102	0.060	4
5	0.020E	0.014	0.009	0.052	0.052	0.015	0.412	0.047	0	0.253	0.100	0.059	5
6	0.019A	0.014	0.009	0.056	0.050	0.015	0.370	0.048	0.000	0.272	0.093	0.056	6
7	0.018	0.015	0.009	0.059	0.048	0.016	0.322	0.053	0.049	0.270	0.092	0.057	7
8	0.019	0.014	0.009	0.062	0.046	0.020	0.268	0.049	0.066	0.245	0.089	0.056	8
9	0.018	0.014	0.009	0.064	0.043	0.020	0.229	0.046	0.080	0.226	0.084	0.053	9
10	0.017	0.014	0.009	0.068	0.041	0.019	0.196	0.043	0.088	0.229	0.082	0.052	10
11	0.018	0.013	0.009	0.068	0.039	0.018	0.175	0.040	0.095	0.222	0.079	0.053	11
12	0.017	0.013	0.008	0.068	0.036	0.018	0.159	0.039	0.096	0.207	0.076	0.054	12
13	0.018	0.012	0.008	0.068	0.035	0.018	0.145	0.037	0.095	0.196	0.075	0.054	13
14	0.019	0.013	0.008	0.069	0.033	0.025	0.130	0.038	0.089	0.186	0.072	0.055	14
15	0.017	0.013	0.007	0.067	0.030	0.045	0.118	0.031	0.081	0.174	0.074	0.052	15
16	0.017	0.013	0.007	0.068	0.026	0.056	0.109	0.028	0.077	0.162	0.080	0.049	16
17	0.017	0.013	0.007	0.065	0.023	0.060	0.127	0.025	0.073	0.159	0.080	0.048	17
18	0.017	0.013	0.006	0.063	0.021	0.066	0.123	0.023	0.069	0.155	0.080	0.048	18
19	0.017	0.012	0.007	0.064	0.018	0.070	0.115	0.021	0.063	0.147	0.076	0.047	19
20	0.016	0.012	0.007	0.061	0.018	0.072	0.103	0.019	0.057	0.142	0.072	0.046	20
21	0.016	0.011	0.007	0.059	0.017	0.073	0.093	0.018	0.052	0.134	0.068	0.048	21
22	0.016	0.011	0.007	0.062	0.017	0.075	0.084	0.016	0.048	0.131	0.063	0.048	22
23	0.016	0.011	0.007	0.064	0.017	0.071	0.077	0.015	0.046	0.126	0.062	0.047	23
24	0.016	0.010	0.007	0.063	0.015	0.082	0.073	0.013	0.046	0.120	0.064	0.046	24
25	0.015	0.010	0.007	0.062	0.015	0.093	0.069	0.011	0.044	0.124	0.064	0.046	25
26	0.015	0.010	0.009	0.065	0.013	0.099	0.063	0.012	0.049	0.120	0.066	0.044	26
27	0.014	0.010	0.010	0.066	0.013	0.111	0.057	0.010	0.066	0.115	0.071	0.042	27
28	0.015	0.010	0.012	0.066	0.013	0.165	0.053	0.009	0.069	0.113	0.066	0.041	28
29	0.014		0.016	0.064	0.013	0.226	0.050	0.008	0.069	0.111	0.069	0.039	29
30	0.015		0.018	0.062	0.013	0.255	0.046	0.007	0.075	0.112	0.067	0.038	30
31	0.014		0.022		0.012		0.060	0.007		0.114		0.036	31
TOTAL	0.536	0.350	0.284	1.808	0.946	1.848	5.170	0.927	1.663	5.206	2.395	1.562	TOTAL
MEAN	0.017	0.013	0.009	0.060	0.031	0.062	0.167	0.030	0.055	0.168	0.080	0.050	MEAN
MAX	0.023	0.015	0.022	0.069	0.059	0.255	0.434	0.057	0.096	0.272	0.112	0.065	MAX
MIN	0.014	0.010	0.006	0.029	0.012	0.011	0.046	0.007	0	0.111	0.062	0.036	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.062
MAXIMUM DAILY, 0.434 ON JUL 4
MINIMUM DAILY, 0 ON SEP 5
MAXIMUM INSTANTANEOUS,
0.440 AT 15:28 CST ON JUL 4

SUMMARY FOR THE YEAR 1981

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	46.3	JUL	447
FEB	30.2	AUG	80.1
MAR	24.5	SEP	144
APR	156	OCT	450
MAY	81.7	NOV	207
JUN	160	DEC	135

TOTAL DISCHARGE, 1 960 dam³

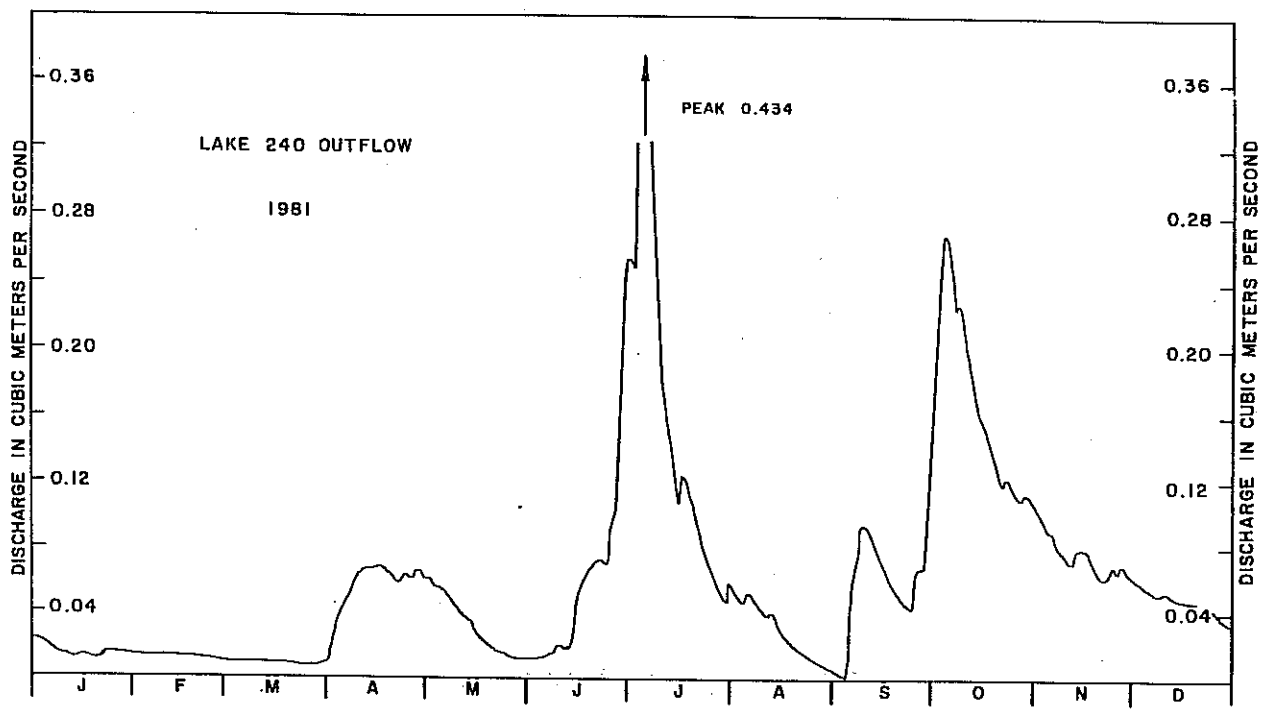

Fig. 16. Annual hydrograph based on mean daily discharges for the Lake 240 outflow for 1981.

Table 61. Mean daily discharge in cubic metres per second for the Lake 261 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0	0.020 A	0.010	0.001	0	0	0	---	---	1
2	---	---	---	0	0.027	0.010	0.001	0	0	0	---	---	2
3	---	---	---	0	0.029	0.010	0.001	0	0	0	---	---	3
4	---	---	---	0	0.026	0.008	0	0	0	0	---	---	4
5	---	---	---	0	0.021	0.006	0	0	0	0	---	---	5
6	---	---	---	0	0.017	0.006	0	0	0	0	---	---	6
7	---	---	---	0	0.016	0.005	0	0	0	0	---	---	7
8	---	---	---	0	0.013	0.004	0	0	0	0	---	---	8
9	---	---	---	0	0.011	0.004	0	0	0	0	---	---	9
10	---	---	---	0	0.011	0.004	0	0	0	0	---	---	10
11	---	---	---	0	0.015	0.003	0	0	0	0	---	---	11
12	---	---	---	0	0.017	0.002	0	0	0	0	---	---	12
13	---	---	---	0	0.016	0.002	0	0	0	0	---	---	13
14	---	---	---	0	0.014	0.002	0	0	0	0	---	---	14
15	---	---	---	0	0.012	0.001	0	0	0	0	---	---	15
16	---	---	---	0	0.009	0.001	0	0	0	0	---	---	16
17	---	---	---	0	0.008	0.001	0	0	0	0	---	---	17
18	---	---	---	0.001 A	0.008	0.001	0	0	0	0	---	---	18
19	---	---	---	0.048 E	0.007	0	0	0	0	0	---	---	19
20	---	---	---	0.095 E	0.006	0.001	0	0	0	0	---	---	20
21	---	---	---	0.080 E	0.006	0.001	0	0	0	0	---	---	21
22	---	---	---	0.065 E	0.006	0.001	0	0	0	0	---	---	22
23	---	---	---	0.054 E	0.005	0.002	0	0	0	0	---	---	23
24	---	---	---	0.055 E	0.004	0.002	0	0	0	0	---	---	24
25	---	---	---	0.093 E	0.004	0.001	0	0	0	0	---	---	25
26	---	---	---	0.073 E	0.004	0.001	0	0	0	0	---	---	26
27	---	---	---	0.052 E	0.003	0.001	0	0	0	0	---	---	27
28	---	---	---	0.036 E	0.002	0.001	0	0	0	0	---	---	28
29	---		---	0.028 E	0.002	0.001	0	0	0	0	---	---	29
30	---		---	0.022 E	0.004	0.001	0	0	0	0	---	---	30
31	---		---		0.009		0	0		0		---	31
TOTAL	---	---	---	0.702	0.352	0.093	0.003	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.023	0.011	0.003	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.095	0.029	0.010	0.001	0	0	0	---	---	MAX
MIN	---	---	---	0	0.002	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.005 m^3/s
MAXIMUM DAILY DISCHARGE, 0.095 m^3/s ON APR 20
MINIMUM DAILY DISCHARGE, 0 m^3/s ON APR 1

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.26
FEB	---	AUG	0
MAR	---	SEP	0
APR	60.7	OCT	0
MAY	30.4	NOV	---
JUN	8.04	DEC	---

TOTAL DISCHARGE, 99.4 dam^3

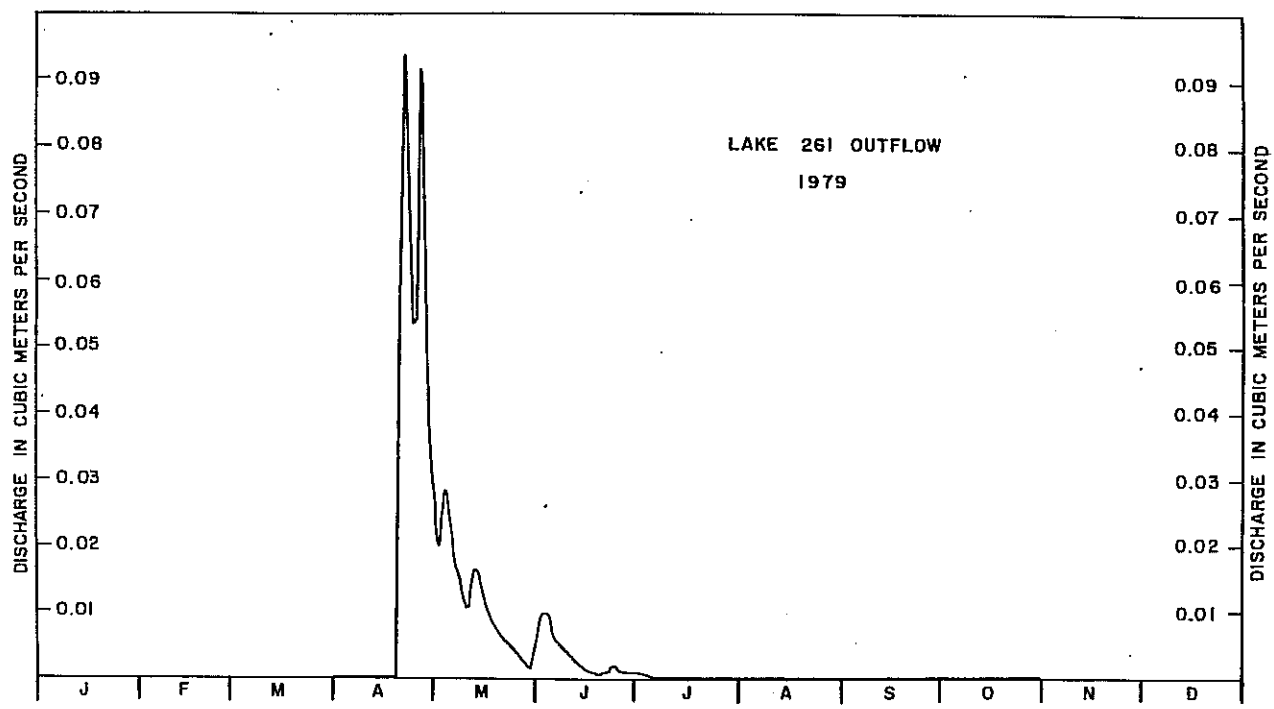

Fig. 17. Annual hydrograph based on mean daily discharges for the Lake 261 outflow for 1979.

Table 61. Mean daily discharge in cubic metres per second for the Lake 261 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.001	0.004	0	0	0	0	0	---	---	1
2	---	---	---	0.001	0.002	0	0	0	0	0	---	---	2
3	---	---	---	0.001	0.001	0	0	0	0	0	---	---	3
4	---	---	---	0.001	0.001	0	0	0	0	0	---	---	4
5	---	---	---	0.001	0.001	0	0	0	0	0	---	---	5
6	---	---	---	0.001	0.001	0	0	0	0	0	---	---	6
7	---	---	---	0.002	0.001	0	0	0	0	0	---	---	7
8	---	---	---	0.003	0.001	0	0	0	0	0	---	---	8
9	---	---	---	0.004	0	0	0	0	0	0	---	---	9
10	---	---	---	0.004	0	0	0	0	0	0	---	---	10
11	---	---	---	0.005	0	0	0	0	0	0	---	---	11
12	---	---	---	0.005	0	0	0	0	0	0	---	---	12
13	---	---	---	0.004	0	0	0	0	0	0	---	---	13
14	---	---	---	0.004	0	0	0	0	0	0	---	---	14
15	---	---	---	0.004	0	0	0	0	0	0	---	---	15
16	---	---	---	0.004	0	0	0	0	0	0	---	---	16
17	---	---	---	0.005	0	0	0	0	0	0	---	---	17
18	---	---	---	0.009	0	0	0	0	0	0.002	---	---	18
19	---	---	---	0.015	0	0	0	0	0	0.003	---	---	19
20	---	---	---	0.022	0	0	0	0	0	0.005	---	---	20
21	---	---	---	0.023	0	0	0	0	0	0.005	---	---	21
22	---	---	---	0.022	0	0	0	0	0	0.005	---	---	22
23	---	---	---	0.019	0	0	0	0	0	0.006	---	---	23
24	---	---	---	0.016	0	0	0	0	0	0.006	---	---	24
25	---	---	---	0.013	0	0	0	0	0	0.006	---	---	25
26	---	---	---	0.011	0	0	0	0	0	0.006	---	---	26
27	---	---	---	0.009	0	0	0	0	0	0.005	---	---	27
28	---	---	---	0.007	0	0	0	0	0	0.005	---	---	28
29	---	---	---	0.006	0	0	0	0	0	0.004	---	---	29
30	---		---	0.005	0	0	0	0	0	0.004A	---	---	30
31	---		---		0		0	0		0.003E		---	31
TOTAL	---	---	---	0.227	0.012	0	0	0	0	0.065	---	---	TOTAL
MEAN	---	---	---	0.008	0	0	0	0	0	0.002	---	---	MEAN
MAX	---	---	---	0.023	0.004	0	0	0	0	0.006	---	---	MAX
MIN	---	---	---	0.001	0	0	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.001 m^3/s
MAXIMUM DAILY DISCHARGE, 0.023 m^3/s ON APR 21
MINIMUM DAILY DISCHARGE, 0 m^3/s ON MAY 9

MAXIMUM INSTANTANEOUS DISCHARGE,
0.023 m^3/s AT 12:00 CST ON APR 21

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	0
MAR	---	SEP	0
APR	19.6	OCT	5.62
MAY	1.04	NOV	---
JUN	0	DEC	---

TOTAL DISCHARGE, 26.3 dam^3

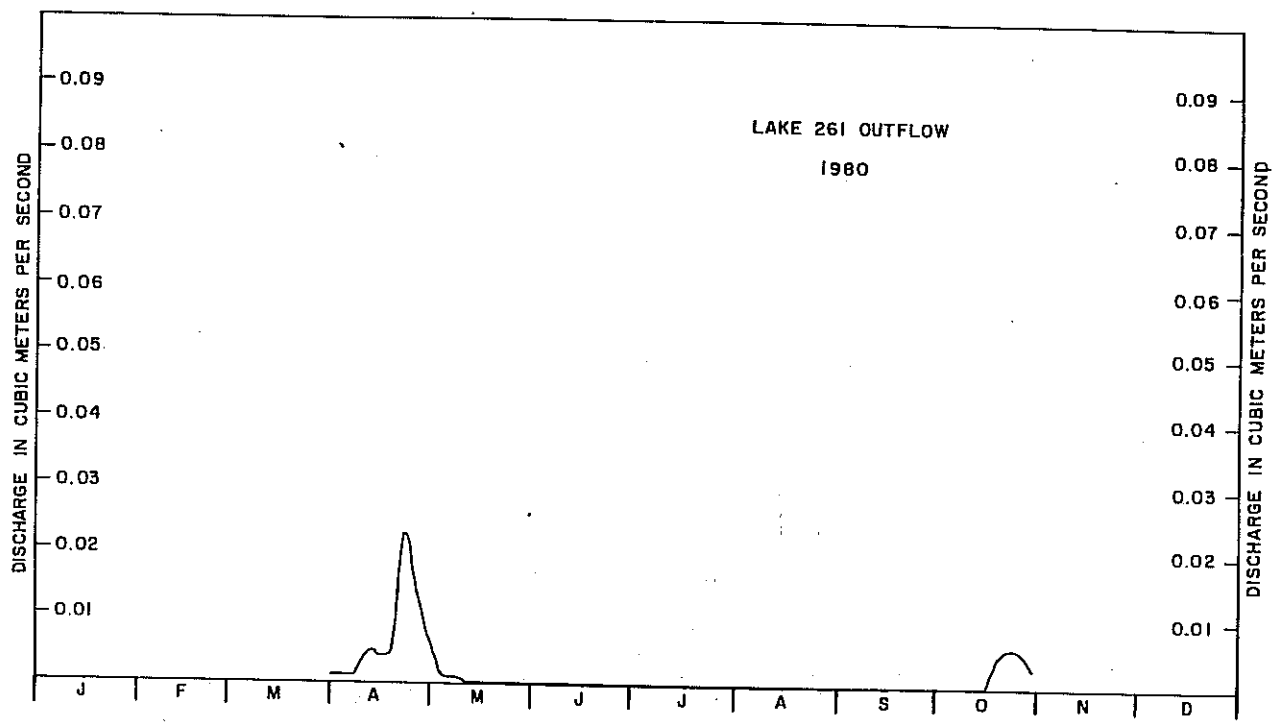

Fig. 17. Annual hydrograph based on mean daily discharges for the Lake 261 outflow for 1980.

Table 62. Mean daily discharge in cubic metres per second for the Lake 265 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.005	0.019	0.018	0.001	0.001	0.001	0.001	---	---	1
2	---	---	---	0.005	0.036	0.017	0.001	0.001	0.001	0.001	---	---	2
3	---	---	---	0.005	0.035	0.016	0.001	0	0.001	0.001	---	---	3
4	---	---	---	0.005	0.027	0.012	0.001	0.001	0.001	0.001	---	---	4
5	---	---	---	0.005	0.022	0.011	0.001	0.001	0.001	0.001	---	---	5
6	---	---	---	0.005	0.019	0.010	0.001	0	0	0.001	---	---	6
7	---	---	---	0.005	0.019	0.009	0.001	0.001	0	0.001	---	---	7
8	---	---	---	0.005	0.019	0.008	0.001	0.001	0	0.001	---	---	8
9	---	---	---	0.006	0.016	0.007	0.001	0	0.001	0.001	---	---	9
10	---	---	---	0.006	0.016	0.006	0.001	0	0.001	0.001	---	---	10
11	---	---	---	0.005	0.029	0.005	0.001	0	0.001	0.001	---	---	11
12	---	---	---	0.005	0.029	0.004	0.001	0.001	0.001	0.001	---	---	12
13	---	---	---	0.005	0.027	0.004	0.001	0.001	0.001	0.001	---	---	13
14	---	---	---	0.005	0.022	0.004	0.001	0.001	0.001	0.001	---	---	14
15	---	---	---	0.005	0.017	0.004	0.001	0.001	0.001	0.001	---	---	15
16	---	---	---	0.004	0.014	0.003	0.001	0.001	0.001	0.001	---	---	16
17	---	---	---	0.005	0.014	0.002	0.001	0.001	0.001	0.001	---	---	17
18	---	---	---	0.012	0.015	0.002	0.001	0.001	0.001	0.001	---	---	18
19	---	---	---	0.060	0.014	0.002	0.001	0	0.001	0.001	---	---	19
20	---	---	---	0.127	0.012	0.003	0.001	0	0.001	0.001	---	---	20
21	---	---	---	0.087	0.010	0.004	0.001	0	0.001	0.001	---	---	21
22	---	---	---	0.066	0.009	0.004	0.001	0	0.001	0.001	---	---	22
23	---	---	---	0.053	0.009	0.003	0.001	0.001	0.001	0.001	---	---	23
24	---	---	---	0.078	0.008	0.002	0.001	0.001	0.001	0.001	---	---	24
25	---	---	---	0.128	0.008	0.002	0.002	0.001	0.001	0.001	---	---	25
26	---	---	---	0.068	0.007	0.002	0.001	0.001	0.001	0.001	---	---	26
27	---	---	---	0.041	0.006	0.002	0.002	0.001	0.001	0.001	---	---	27
28	---	---	---	0.029	0.005	0.002	0.001	0.001	0.001	0.001	---	---	28
29	---		---	0.024	0.004	0.002	0.001	0.001	0.001	0.001	---	---	29
30	---		---	0.020	0.008	0.002	0.001	0.001	0.001	0.001	---	---	30
31	---		---		0.018		0.001	0.001		0.022		---	31
TOTAL	---	---	---	0.879	0.513	0.170	0.033	0.022	0.027	0.052	---	---	TOTAL
MEAN	---	---	---	0.029	0.017	0.006	0.001	0.001	0.001	0.002	---	---	MEAN
MAX	---	---	---	0.128	0.036	0.018	0.002	0.001	0.001	0.022	---	---	MAX
MIN	---	---	---	0.004	0.004	0.002	0.001	0	0	0.001	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.008 m^3/s
MAXIMUM DAILY DISCHARGE, 0.128 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON AUG 3

MAXIMUM INSTANTANEOUS DISCHARGE,
0.151 m^3/s AT 06:24 CST ON APR 25

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	2.85
FEB	---	AUG	1.90
MAR	---	SEP	2.33
APR	75.9	OCT	4.49
MAY	44.3	NOV	---
JUN	14.7	DEC	---

TOTAL DISCHARGE, 146 dam^3

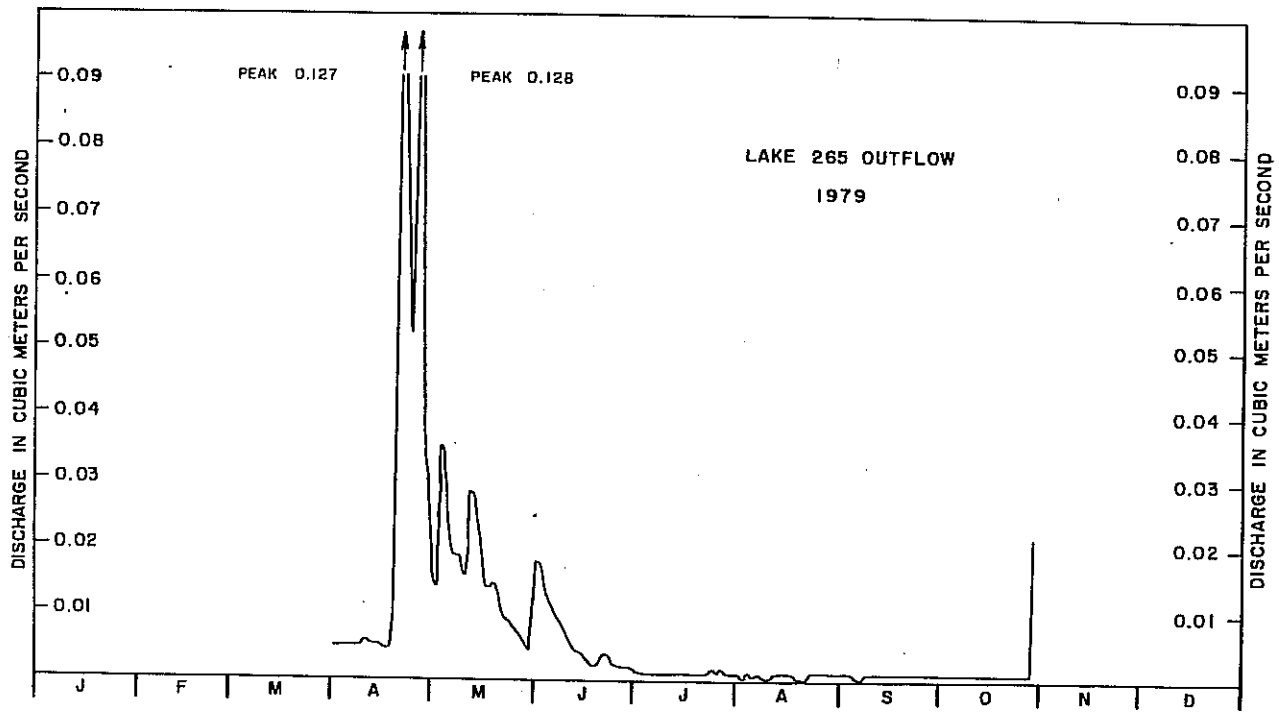

Fig. 18. Annual hydrograph based on mean daily discharges for the Lake 265 outflow for 1979.

Table 62. Mean daily discharge in cubic metres per second for the Lake 265 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.007A	0.002	0.001	0	0	0.001	0.003	---	---	1
2	---	---	---	0.007E	0.002	0	0	0	0.001	0.003	---	---	2
3	---	---	---	0.008E	0.002	0	0	0	0.001	0.002	---	---	3
4	---	---	---	0.008E	0.001	0	0	0.001	0.001	0.002	---	---	4
5	---	---	---	0.010E	0.001	0	0	0.001	0.001	0.002	---	---	5
6	---	---	---	0.014E	0.001	0	0	0	0.001	0.002	---	---	6
7	---	---	---	0.017E	0.001	0	0	0.001	0.001	0.001	---	---	7
8	---	---	---	0.018E	0.001	0	0	0.001	0.002	0.001	---	---	8
9	---	---	---	0.016E	0.001	0	0	0.001	0.003	0.001	---	---	9
10	---	---	---	0.015E	0.001	0	0	0.001	0.002	0.001	---	---	10
11	---	---	---	0.015E	0.001	0	0	0.001	0.002	0.001	---	---	11
12	---	---	---	0.015E	0.001	0	0	0.001	0.002	0.001	---	---	12
13	---	---	---	0.014E	0.001	0	0	0.002	0.001	0.001	---	---	13
14	---	---	---	0.014A	0.001	0	0	0.001	0.001	0.001	---	---	14
15	---	---	---	0.015	0.001	0	0	0.001	0.001	0.001	---	---	15
16	---	---	---	0.016	0.001	0	0	0.001	0.001	0.001	---	---	16
17	---	---	---	0.022	0.001	0	0	0.001	0.001	0.004	---	---	17
18	---	---	---	0.029	0.001	0	0	0.002	0.001	0.006	---	---	18
19	---	---	---	0.037	0.001	0	0	0.002	0.001	0.007	---	---	19
20	---	---	---	0.038	0.001	0	0	0.002	0.001	0.008	---	---	20
21	---	---	---	0.040	0.001	0	0.001	0.003	0.002	0.008	---	---	21
22	---	---	---	0.039A	0.001	0	0	0.003	0.002	0.007	---	---	22
23	---	---	---	0.031E	0.001	0	0	0.002	0.002	0.007	---	---	23
24	---	---	---	0.024E	0.001	0	0	0.001	0.002	0.008	---	---	24
25	---	---	---	0.018E	0.001	0	0	0.001	0.003	0.007	---	---	25
26	---	---	---	0.013E	0.001	0	0	0.001	0.003	0.007	---	---	26
27	---	---	---	0.010E	0.001	0	0	0.001	0.003	0.006	---	---	27
28	---	---	---	0.007E	0.001	0	0	0.001	0.003	0.006	---	---	28
29	---	---	---	0.005A	0	0	0	0.001	0.002	0.006	---	---	29
30	---		---	0.004	0	0	0	0.001	0.003	0.005A	---	---	30
31	---		---		0		0	0.001		0.005E		---	31
TOTAL	---	---	---	0.526	0.031	0.001	0.001	0.036	0.051	0.121	---	---	TOTAL
MEAN	---	---	---	0.018	0.001	0	0	0.001	0.002	0.004	---	---	MEAN
MAX	---	---	---	0.040	0.002	0.001	0.001	0.003	0.003	0.008	---	---	MAX
MIN	---	---	---	0.004	0	0	0	0	0.001	0.001	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.004 m^3/s
MAXIMUM DAILY DISCHARGE, 0.040 m^3/s ON APR 21
MINIMUM DAILY DISCHARGE, 0 m^3/s ON MAY 29

MAXIMUM INSTANTANEOUS DISCHARGE,
0.041 m^3/s AT 17:00 CST ON APR 21

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.09
FEB	---	AUG	3.11
MAR	---	SEP	4.41
APR	45.4	OCT	10.5
MAY	2.68	NOV	---
JUN	0.09	DEC	---

TOTAL DISCHARGE, 66.3 dam^3

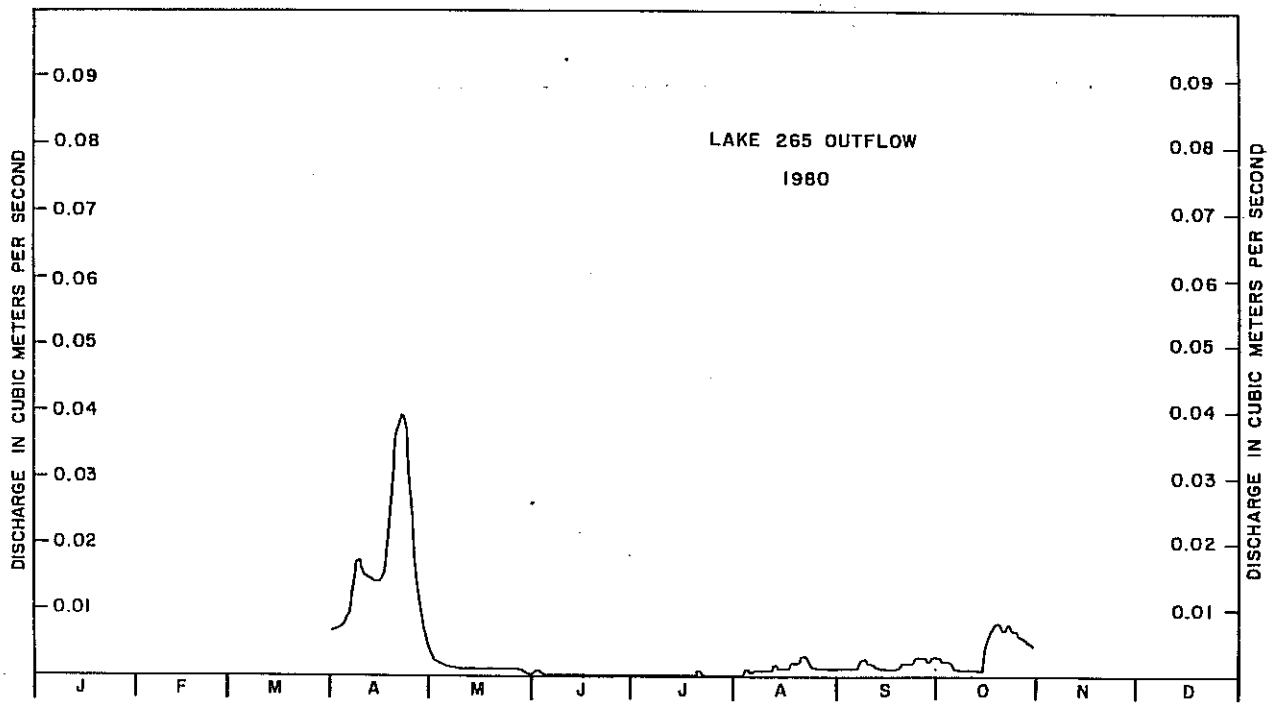

Fig. 18. Annual hydrograph based on mean daily discharges for the Lake 265 outflow for 1980.

Table 63. Mean daily discharge in cubic metres per second for the Lake 302 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	---	---	---	---	---	0.0004	0.0006	---	---	1
2	---	---	---	---	---	---	---	---	0.0004	0.0006	---	---	2
3	---	---	---	---	---	---	---	---	0.0002	0.0006	---	---	3
4	---	---	---	---	---	---	---	---	0.0004	0.0006	---	---	4
5	---	---	---	---	---	---	---	---	0.0004	0.0006	---	---	5
6	---	---	---	---	---	---	---	---	0.0004	0.0006	---	---	6
7	---	---	---	---	---	---	---	---	0.0004	0.0005	---	---	7
8	---	---	---	---	---	---	---	---	0.0005	0.0006	---	---	8
9	---	---	---	---	---	---	---	---	0.0007	0.0005	---	---	9
10	---	---	---	---	---	---	---	---	0.0006	0.0005	---	---	10
11	---	---	---	---	---	---	---	---	0.0006	0.0005	---	---	11
12	---	---	---	---	---	---	---	---	0.0006	0.0005	---	---	12
13	---	---	---	---	---	---	---	0.0002	0.0005	0.0005	---	---	13
14	---	---	---	---	---	---	---	0.0002	0.0005	0.0004	---	---	14
15	---	---	---	---	---	---	---	0.0003	0.0004	0.0004	---	---	15
16	---	---	---	---	---	---	---	0.0004	0.0004	0.0004	---	---	16
17	---	---	---	---	---	---	---	0.0005	0.0003	0.0006	---	---	17
18	---	---	---	---	---	---	---	0.0006 A	0.0004	0.0008	---	---	18
19	---	---	---	---	---	---	---	0.0004	0.0005	0.0010	---	---	19
20	---	---	---	---	---	---	---	0.0004	0.0005	0.0013	---	---	20
21	---	---	---	---	---	---	---	0.0004	0.0006	0.0014	---	---	21
22	---	---	---	---	---	---	---	0.0006 A	0.0006 A	0.0014	---	---	22
23	---	---	---	---	---	---	---	0.0004	0.0006	0.0014	---	---	23
24	---	---	---	---	---	---	---	0.0004	0.0006	0.0015	---	---	24
25	---	---	---	---	---	---	---	0.0005	0.0006	0.0015	---	---	25
26	---	---	---	---	---	---	---	0.0004	0.0006	0.0015	---	---	26
27	---	---	---	---	---	---	---	0.0003	0.0006	0.0016 A	---	---	27
28	---	---	---	---	---	---	---	0.0002	0.0006	0.0016	---	---	28
29	---	---	---	---	---	---	---	0.0002	0.0004 A	0.0017	---	---	29
30	---		---	---	---	---	---	0.0003	0.0006	0.0017 E	---	---	30
31	---		---		---		---	0.0004		0.0017 E		---	31
TOTAL	---	---	---	---	---	---	---	---	0.0149	0.0291	---	---	TOTAL
MEAN	---	---	---	---	---	---	---	---	0.0005	0.0009	---	---	MEAN
DAM^3	---	---	---	---	---	---	---	---	1.287	2.514	---	---	DAM^3
MAX	---	---	---	---	---	---	---	---	0.0007	0.0017	---	---	MAX
MIN	---	---	---	---	---	---	---	---	0.0002	0.0004	---	---	MIN

NOTE: A staff gauge was installed on this lake Aug 13, 1980 and read almost daily to Oct 29. Discharges are based on a relationship of measured discharges (5) and daily manual lake gauge observations (40) during Aug, Sep, and Oct.

A-MANUAL
E-ESTIMATE
---NO DATA

Table 63. Mean daily discharge in cubic metres per second for the Lake 302 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.0001	0.0008	0.0004	0.0267	0.0024	0.0001	0.0087	---	---	1
2	---	---	---	0.0001	0.0008	0.0004	0.0252	0.0021	0.0001	0.0118	---	---	2
3	---	---	---	0.0001	0.0009	0.0004	0.0398 E	0.0018	0.0001	0.0141	---	---	3
4	---	---	---	0.0001	0.0011	0.0004	0.0424 E	0.0017	0.0001	0.0212	---	---	4
5	---	---	---	0.0002	0.0010	0.0006	0.0393 E	0.0016	0.0001	0.0238	---	---	5
6	---	---	---	0.0002	0.0009	0.0008	0.0353 E	0.0020	0.0001	0.0252	---	---	6
7	---	---	---	0.0002	0.0009	0.0008	0.0312 E	0.0019	0.0013	0.0212	---	---	7
8	---	---	---	0.0002	0.0009	0.0012	0.0299	0.0019	0.0015	0.0218	---	---	8
9	---	---	---	0.0002	0.0010	0.0011	0.0194	0.0019	0.0014	0.0200	---	---	9
10	---	---	---	0.0002	0.0009	0.0010	0.0137	0.0016	0.0015	0.0212	---	---	10
11	---	---	---	0.0002	0.0008	0.0010	0.0104	0.0014	0.0017	0.0189	---	---	11
12	---	---	---	0.0002	0.0008	0.0009	0.0082	0.0012	0.0014	0.0158	---	---	12
13	---	---	---	0.0002	0.0008	0.0008	0.0066	0.0011	0.0013	0.0154	---	---	13
14	---	---	---	0.0002	0.0008	0.0013	0.0055	0.0010	0.0011	0.0129	---	---	14
15	---	---	---	0.0002	0.0008	0.0025	0.0045	0.0008	0.0010	0.0119	---	---	15
16	---	---	---	0.0002	0.0007	0.0028	0.0047	0.0007	0.0009	0.0098	---	---	16
17	---	---	---	0.0003	0.0006	0.0028	0.0058	0.0006	0.0008	0.0090	---	---	17
18	---	---	---	0.0002	0.0006	0.0024	0.0056	0.0005	0.0007	0.0087	---	---	18
19	---	---	---	0.0003	0.0005	0.0026	0.0047	0.0005	0.0007	0.0070	---	---	19
20	---	---	---	0.0003	0.0005	0.0025	0.0038	0.0004	0.0006	0.0066	---	---	20
21	---	---	---	0.0003	0.0005	0.0024	0.0031	0.0003	0.0004	0.0056	---	---	21
22	---	---	---	0.0004	0.0005	0.0022	0.0026	0.0003	0.0004	0.0053	---	---	22
23	---	---	---	0.0005	0.0006	0.0021	0.0021	0.0003	0.0004	0.0045	---	---	23
24	---	---	---	0.0006	0.0006	0.0035	0.0021	0.0003	0.0005	0.0044	---	---	24
25	---	---	---	0.0006	0.0005	0.0047	0.0023	0.0003	0.0005	0.0048	---	---	25
26	---	---	---	0.0007	0.0004	0.0051	0.0018	0.0002	0.0008	0.0044	---	---	26
27	---	---	---	0.0008	0.0004	0.0075	0.0014	0.0002	0.0018	0.0038	---	---	27
28	---	---	---	0.0008	0.0004	0.0183	0.0014	0.0002	0.0020	0.0038	---	---	28
29	---		---	0.0008	0.0004	0.0325	0.0012	0.0002	0.0021	0.0036	---	---	29
30	---		---	0.0009	0.0005	0.0325	0.0011	0.0001	0.0026	0.0034	---	---	30
31	---		---		0.0004		0.0027	0.0001		0.0033		---	31
TOTAL	---	---	---	0.0103	0.0213	0.1375	0.3845	0.0296	0.0280	0.3519	---	---	TOTAL
MEAN	---	---	---	0.0003	0.0007	0.0046	0.0124	0.0010	0.0009	0.0114	---	---	MEAN
DAM^3	---	---	---	0.8899	1.840	11.88	33.22	2.257	2.419	30.40	---	---	DAM^3
MAX	---	---	---	0.0009	0.0011	0.0325	0.0424 E	0.0024	0.0026	0.0252	---	---	MAX
MIN	---	---	---	0.0001	0.0004	0.0004	0.0011	0.0001	0.0001	0.0033	---	---	MIN

SUMMARY FOR THE PERIOD APRIL TO OCTOBER

MEAN DISCHARGE APR TO OCT, 0.0045 m^3/sec
TOTAL DISCHARGE, 83.21 CUBIC DECAMETRES (DAM^3)
MAXIMUM DAILY DISCHARGE, 0.0424 E m^3/sec, July 4.
MINIMUM DAILY DISCHARGE, 0 m^3/sec, Sept. 21.

MAXIMUM INSTANTANEOUS DISCHARGE, M (Max. water level was beyond range of rating curve)

MEAN DAILY DISCHARGES ARE BASED ON RELATIONSHIP BETWEEN RECORDED LAKE LEVEL AND MEASURED DISCHARGE IN THE NATURAL OUTFLOW STREAM CHANNEL.

A 60° V-notch concrete weir was constructed Sept. 21-26, 1981.

A-MANUAL READING
E-ESTIMATE
---NO DATA
M-MISSING

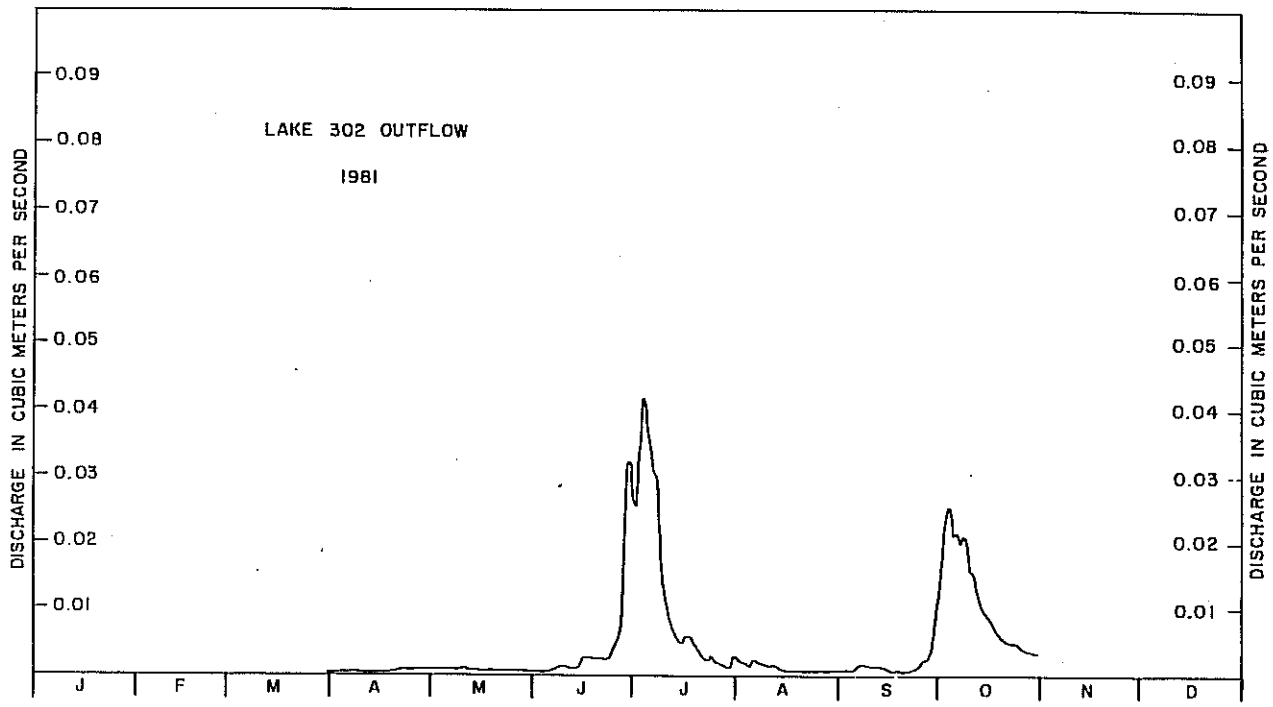

Fig. 19. Annual hydrograph based on mean daily discharges for the Lake 302 outflow for 1981.

Table 64. Mean daily water levels in metres for Lake 302 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	27.408	27.462	27.443	27.571	27.492	27.409	27.533	---	---	1
2	---	---	---	27.412	27.462	27.442	27.569	27.489	27.405	27.543	---	---	2
3	---	---	---	27.415	27.465	27.441	27.630	27.484	27.399	27.549	---	---	3
4	---	---	---	27.414	27.469	27.442	27.634	27.482	27.394	27.563	---	---	4
5	---	---	---	27.417	27.466	27.454	27.618	27.480	27.394	27.567	---	---	5
6	---	---	---	27.418	27.463	27.460	27.603	27.487	27.413	27.569	---	---	6
7	---	---	---	27.416	27.465	27.461	27.588	27.486	27.474	27.563	---	---	7
8	---	---	---	27.418	27.465	27.471	27.575	27.485	27.478	27.564	---	---	8
9	---	---	---	27.419	27.466	27.470	27.560	27.486	27.477	27.561	---	---	9
10	---	---	---	27.422	27.464	27.468	27.548	27.480	27.479	27.563	---	---	10
11	---	---	---	27.424	27.462	27.466	27.539	27.476	27.482	27.559	---	---	11
12	---	---	---	27.428	27.462	27.464	27.531	27.473	27.477	27.553	---	---	12
13	---	---	---	27.426	27.462	27.462	27.524	27.470	27.474	27.552	---	---	13
14	---	---	---	27.426	27.461	27.475	27.518	27.466	27.469	27.546	---	---	14
15	---	---	---	27.426	27.460	27.494	27.512	27.461	27.468	27.541	---	---	15
16	---	---	---	27.427	27.456	27.497	27.513	27.455	27.465	27.537	---	---	16
17	---	---	---	27.430	27.452	27.497	27.520	27.451	27.459	27.534	---	---	17
18	---	---	---	27.427	27.450	27.493	27.519	27.449	27.457	27.533	---	---	18
19	---	---	---	27.431	27.449	27.495	27.513	27.446	27.455	27.526	---	---	19
20	---	---	---	27.432	27.446	27.494	27.507	27.443	27.452	27.524	---	---	20
21	---	---	---	27.432	27.445	27.493	27.500	27.437	27.446	27.519	---	---	21
22	---	---	---	27.442	27.447	27.490	27.495	27.436	27.444	27.517	---	---	22
23	---	---	---	27.448	27.452	27.488	27.488	27.437	27.444	27.512	---	---	23
24	---	---	---	27.450	27.450	27.504	27.488	27.435	27.448	27.511	---	---	24
25	---	---	---	27.451	27.447	27.513	27.491	27.432	27.449	27.514	---	---	25
26	---	---	---	27.457	27.444	27.516	27.483	27.429	27.461	27.511	---	---	26
27	---	---	---	27.459	27.441	27.528	27.477	27.423	27.483	27.507	---	---	27
28	---	---	---	27.460	27.442	27.558	27.476	27.421	27.487	27.507A	---	---	28
29	---		---	27.462	27.443	27.578	27.471	27.418	27.488	27.505E	---	---	29
30	---		---	27.464	27.448	27.578	27.470	27.411	27.495	27.503E	---	---	30
31	---		---		27.443		27.496	27.409		27.502E		---	31
MEAN	---	---	---	27.432	27.455	27.488	27.530	27.456	27.454	27.535	---	---	MEAN
MAX	---	---	---	27.464	27.469	27.578	27.634	27.492	27.495	27.569	---	---	MAX
MIN	---	---	---	27.408	27.441	27.441	27.470	27.409	27.394	27.502	---	---	MIN

WATER LEVELS IN METRES

SUMMARY FOR THE YEAR 1981

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MAXIMUM DAILY, 27.634 ON JUL 4

MAXIMUM INSTANTANEOUS,
27.637 AT 01:11 CST ON JUL 4

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 65. Mean daily discharge in cubic metres per second for the Lake 303 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.002	0.019	0.011	0.001	0	0	0	---	---	1
2	---	---	---	0.002	0.027	0.010	0.001	0	0	0	---	---	2
3	---	---	---	0.002	0.029	0.009	0.001	0	0	0	---	---	3
4	---	---	---	0.002	0.024	0.008	0.001	0	0	0	---	---	4
5	---	---	---	0.002	0.020	0.006	0.001	0	0	0	---	---	5
6	---	---	---	0.002	0.017	0.006	0.001	0	0	0	---	---	6
7	---	---	---	0.002	0.017	0.006	0.001	0	0	0	---	---	7
8	---	---	---	0.002	0.015	0.005	0.001	0	0	0	---	---	8
9	---	---	---	0.002	0.013	0.005	0.001	0	0	0	---	---	9
10	---	---	---	0.002	0.012	0.004	0	0	0	0	---	---	10
11	---	---	---	0.003	0.016	0.003	0	0	0	0	---	---	11
12	---	---	---	0.003	0.017	0.003	0	0	0	0	---	---	12
13	---	---	---	0.002	0.017	0.003	0	0	0	0	---	---	13
14	---	---	---	0.002	0.014	0.003	0.001	0	0	0	---	---	14
15	---	---	---	0.002	0.012	0.002	0.001	0	0	0	---	---	15
16	---	---	---	0.002	0.010	0.002	0	0	0	0	---	---	16
17	---	---	---	0.002	0.010	0.001	0	0	0	0	---	---	17
18	---	---	---	0.007	0.009	0.001	0	0	0	0	---	---	18
19	---	---	---	0.032	0.009	0.001	0	0	0	0	---	---	19
20	---	---	---	0.084	0.008	0.002	0	0	0	0	---	---	20
21	---	---	---	0.071	0.007	0.003	0	0	0	0	---	---	21
22	---	---	---	0.059	0.007	0.002	0	0	0	0	---	---	22
23	---	---	---	0.048	0.006	0.002	0	0	0	0	---	---	23
24	---	---	---	0.049	0.005	0.002	0	0	0	0	---	---	24
25	---	---	---	0.083	0.005	0.002	0	0	0	0	---	---	25
26	---	---	---	0.066	0.005	0.002	0	0	0	0	---	---	26
27	---	---	---	0.045	0.004	0.001	0	0	0	0	---	---	27
28	---	---	---	0.032	0.004	0.001	0	0	0	0	---	---	28
29	---		---	0.025	0.003	0.001	0	0	0	0	---	---	29
30	---		---	0.021	0.005	0.001	0	0	0	0	---	---	30
31	---		---		0.011		0	0		0		---	31
TOTAL	---	---	---	0.658	0.377	0.108	0.011	0	0	0	---	---	TOTAL
MEAN	---	---	---	0.022	0.012	0.004	0	0	0	0	---	---	MEAN
MAX	---	---	---	0.084	0.029	0.011	0.001	0	0	0	---	---	MAX
MIN	---	---	---	0.002	0.003	0.001	0	0	0	0	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.005 m^3/s
MAXIMUM DAILY DISCHARGE, 0.084 m^3/s ON APR 20
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUL 10

MAXIMUM INSTANTANEOUS DISCHARGE,
0.088 m^3/s AT 12:50 CST ON APR 25

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0.95
FEB	---	AUG	0
MAR	---	SEP	0
APR	56.9	OCT	0
MAY	32.6	NOV	---
JUN	9.33	DEC	---

TOTAL DISCHARGE, 99.8 dam^3

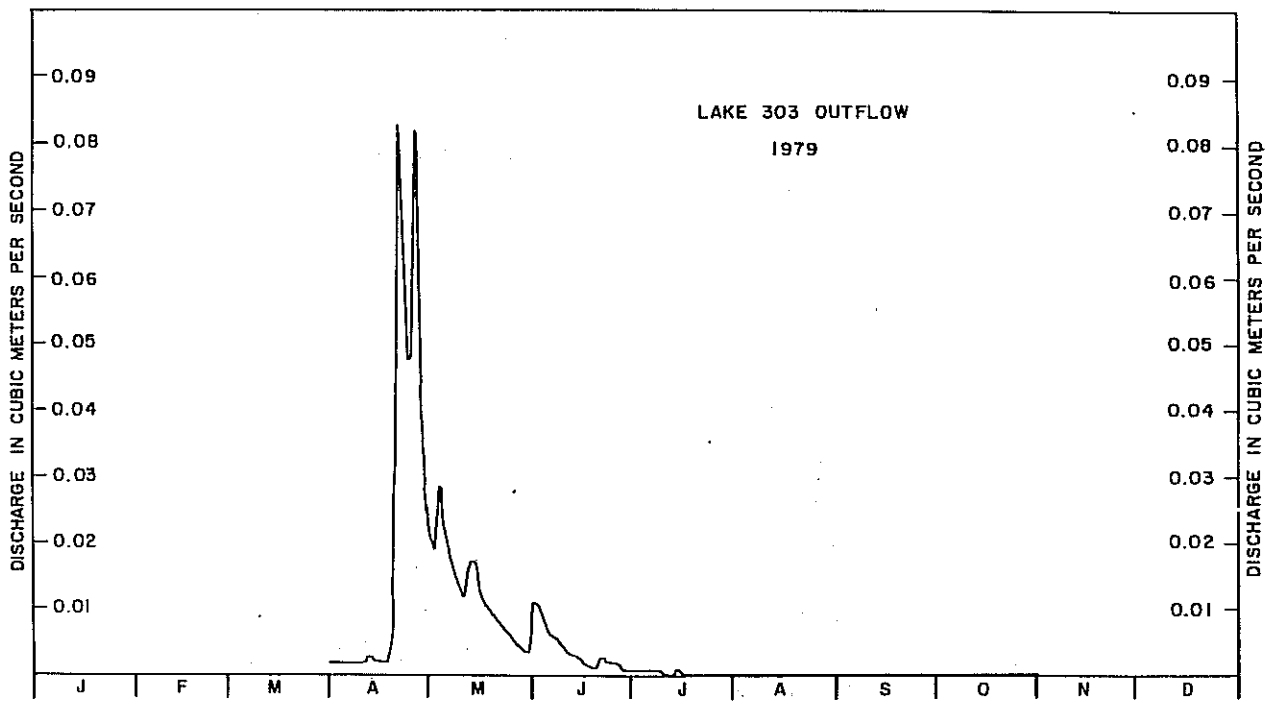

Fig. 20. Annual hydrograph based on mean daily discharges for the Lake 303 outflow for 1979.

Table 65. Mean daily discharge in cubic metres per second for the Lake 303 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.001A	0.005	0	0	0	0.002	0.005	---	---	1
2	---	---	---	0.001	0.005	0	0	0	0.002	0.005	---	---	2
3	---	---	---	0.001	0.004	0	0	0	0.002	0.004	---	---	3
4	---	---	---	0.001	0.003	0	0	0.001	0.004	0.003	---	---	4
5	---	---	---	0.001	0.002	0	0	0.002	0.004	0.003	---	---	5
6	---	---	---	0.004	0.002	0	0	0.004	0.004	0.003	---	---	6
7	---	---	---	0.012	0.001	0	0	0.005	0.004	0.002	---	---	7
8	---	---	---	0.019	0.001	0	0	0.006	0.008	0.002	---	---	8
9	---	---	---	0.019	0.001	0	0	0.005	0.014	0.002	---	---	9
10	---	---	---	0.017	0.001	0	0	0.004	0.012	0.002	---	---	10
11	---	---	---	0.014	0.001	0	0	0.004	0.010	0.002	---	---	11
12	---	---	---	0.012	0.001	0	0	0.005	0.008	0.002	---	---	12
13	---	---	---	0.010	0.001	0	0	0.006	0.006	0.002	---	---	13
14	---	---	---	0.008	0.001	0	0	0.005	0.005	0.002	---	---	14
15	---	---	---	0.008	0.001	0	0	0.004	0.004	0.002	---	---	15
16	---	---	---	0.008	0.001	0	0	0.003	0.004	0.002	---	---	16
17	---	---	---	0.011	0.001	0	0	0.007	0.004	0.006	---	---	17
18	---	---	---	0.021	0.001	0	0	0.011	0.004	0.012	---	---	18
19	---	---	---	0.036	0.001	0	0	0.011	0.004	0.013	---	---	19
20	---	---	---	0.039	0.001	0	0	0.010	0.006	0.013	---	---	20
21	---	---	---	0.034	0.001	0	0	0.010	0.006	0.011	---	---	21
22	---	---	---	0.030	0.001	0	0	0.008	0.007	0.009	---	---	22
23	---	---	---	0.024	0.001	0	0	0.006	0.007	0.011	---	---	23
24	---	---	---	0.018	0.001	0	0	0.005	0.007	0.012	---	---	24
25	---	---	---	0.014	0	0	0	0.005	0.006	0.011	---	---	25
26	---	---	---	0.010	0.001	0	0	0.003	0.006	0.010	---	---	26
27	---	---	---	0.009	0	0	0	0.002	0.005	0.009	---	---	27
28	---	---	---	0.008	0	0	0	0.002	0.004	0.007	---	---	28
29	---	---	---	0.006	0	0	0	0.002	0.004	0.006	---	---	29
30	---		---	0.006	0	0	0	0.003	0.004	0.006A	---	---	30
31	---		---		0		0	0.002		0.005E		---	31
TOTAL	---	---	---	0.402	0.040	0	0	0.141	0.167	0.184	---	---	TOTAL
MEAN	---	---	---	0.013	0.001	0	0	0.005	0.006	0.006	---	---	MEAN
MAX	---	---	---	0.039	0.005	0	0	0.011	0.014	0.013	---	---	MAX
MIN	---	---	---	0.001	0	0	0	0	0.002	0.002	---	---	MIN

SUMMARY FOR THE MONTHS APR TO OCT

MEAN DISCHARGE, 0.004 m^3/s
MAXIMUM DAILY DISCHARGE, 0.039 m^3/s ON APR 20
MINIMUM DAILY DISCHARGE, 0 m^3/s ON MAY 25

MAXIMUM INSTANTANEOUS DISCHARGE,
0.041 m^3/s AT 05:48 CST ON APR 20

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	0
FEB	---	AUG	12.2
MAR	---	SEP	14.4
APR	34.7	OCT	15.9
MAY	3.46	NOV	---
JUN	0	DEC	---

TOTAL DISCHARGE, 80.7 dam^3

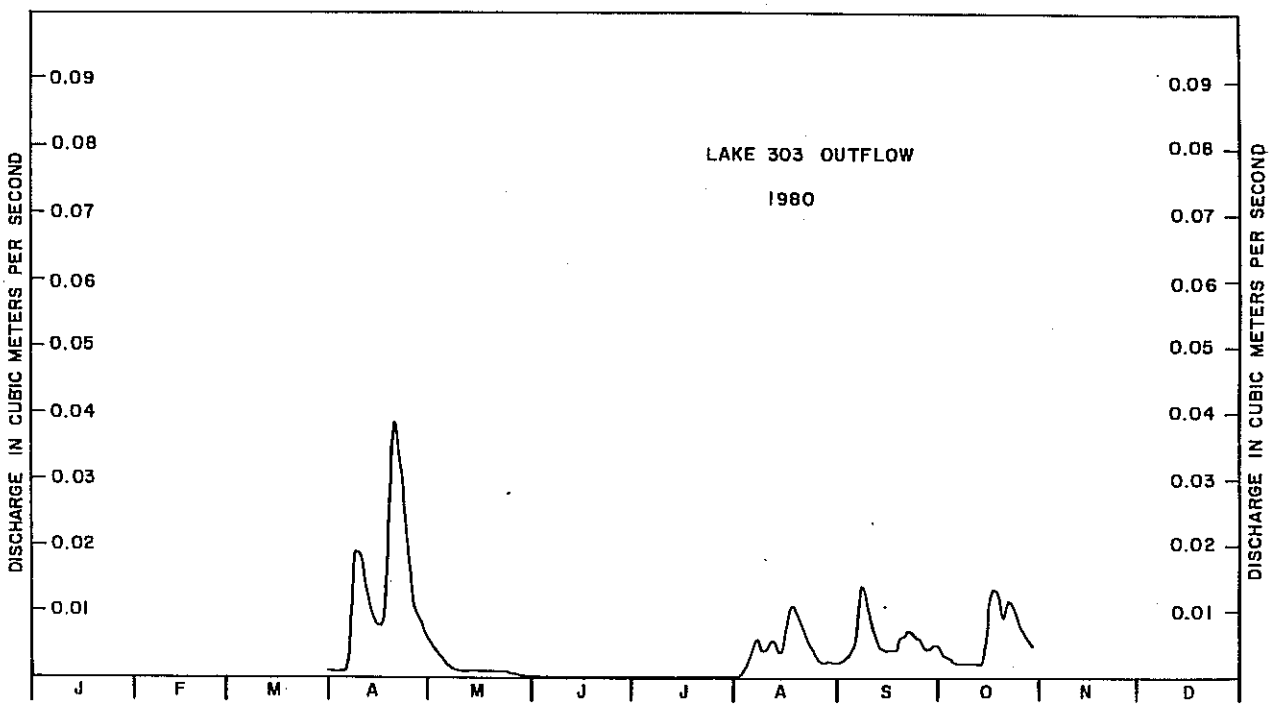

Fig. 20. Annual hydrograph based on mean daily discharges for the Lake 303 outflow for 1980.

Table 65. Mean daily discharge in cubic metres per second for the Lake 303 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	0.014	0.003	0	0.024	0.003	0	0.036	---	---	1
2	---	---	---	0.012	0.002	0	0.019	0.003	0	0.042	---	---	2
3	---	---	---	0.011	0.002	0	0.064	0.002	0	0.032	---	---	3
4	---	---	---	0.009	0.002	0	0.045	0.002	0	0.032	---	---	4
5	---	---	---	0.007	0.001	0	0.029	0.002	0	0.030	---	---	5
6	---	---	---	0.006	0.001	0	0.019	0.002	0.004	0.025	---	---	6
7	---	---	---	0.005	0.001	0	0.014	0.003	0.040	0.020	---	---	7
8	---	---	---	0.005	0.001	0.001	0.010	0.003	0.033	0.017	---	---	8
9	---	---	---	0.005	0.001	0.001	0.007	0.003	0.023	0.013	---	---	9
10	---	---	---	0.005	0.001	0.001	0.005	0.003	0.017	0.014	---	---	10
11	---	---	---	0.005	0.001	0.001	0.004	0.002	0.013	0.014	---	---	11
12	---	---	---	0.004	0.001	0	0.003	0.002	0.010	0.013	0.002A	---	12
13	---	---	---	0.004	0	0	0.002	0.001	0.008	0.012	---	---	13
14	---	---	---	0.004	0.001	0.002	0.002	0.001	0.006	0.010	---	---	14
15	---	---	---	0.004	0.002	0.010	0.002	0.001	0.005	0.009	---	---	15
16	---	---	---	0.003	0.001	0.015	0.002	0.001	0.004	0.008	---	---	16
17	---	---	---	0.003	0.001	0.013	0.003	0.001	0.003	0.008	---	---	17
18	---	---	---	0.002	0	0.011	0.003	0	0.003	0.007	---	---	18
19	---	---	---	0.003	0	0.009	0.003	0	0.002	0.006	---	---	19
20	---	---	---	0.003	0	0.008	0.003	0	0.002	0.006	---	---	20
21	---	---	---	0.003	0	0.007	0.002	0	0.001	0.005	---	---	21
22	---	---	---	0.004	0	0.006	0.001	0	0.001	0.004	---	---	22
23	---	---	---	0.004	0	0.005	0.001	0	0.001	0.004	---	---	23
24	---	---	---	0.004	0	0.008	0.001	0	0.002	0.004	---	---	24
25	---	0 A	---	0.004	0	0.012	0.002	0	0.002	0.005	---	---	25
26	---	---	---	0.004	0	0.012	0.001	0	0.003	0.005	---	---	26
27	0.001A	---	---	0.004	0	0.016	0.001	0	0.011	0.004	---	---	27
28	---	---	---	0.004	0	0.040	0.001	0	0.013	0.004A	---	---	28
29	---		---	0.004	0	0.048	0.001	0	0.012	0.004E	---	---	29
30	---		---	0.003	0	0.034	0	0	0.014	0.004E	---	---	30
31	---		---		0		0.003	0		0.004E		---	31
TOTAL	---	---	---	0.152	0.022	0.260	0.277	0.035	0.233	0.401	---	---	TOTAL
MEAN	---	---	---	0.005	0.001	0.009	0.009	0.001	0.008	0.013	---	---	MEAN
MAX	---	---	---	0.014	0.003	0.048	0.064	0.003	0.040	0.042	---	---	MAX
MIN	---	---	---	0.002	0	0	0	0	0	0.004	---	---	MIN

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.006
MAXIMUM DAILY, 0.064 ON JUL 3
MINIMUM DAILY, 0 ON MAY 13
MAXIMUM INSTANTANEOUS
0.074 AT 09:28 CST ON JUL 3

SUMMARY FOR THE MONTHS APR TO OCT

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	---	JUL	23.9
FEB	---	AUG	3.02
MAR	---	SEP	20.1
APR	13.1	OCT	34.6
MAY	1.90	NOV	---
JUN	22.5	DEC	---

TOTAL DISCHARGE, 119 dam³

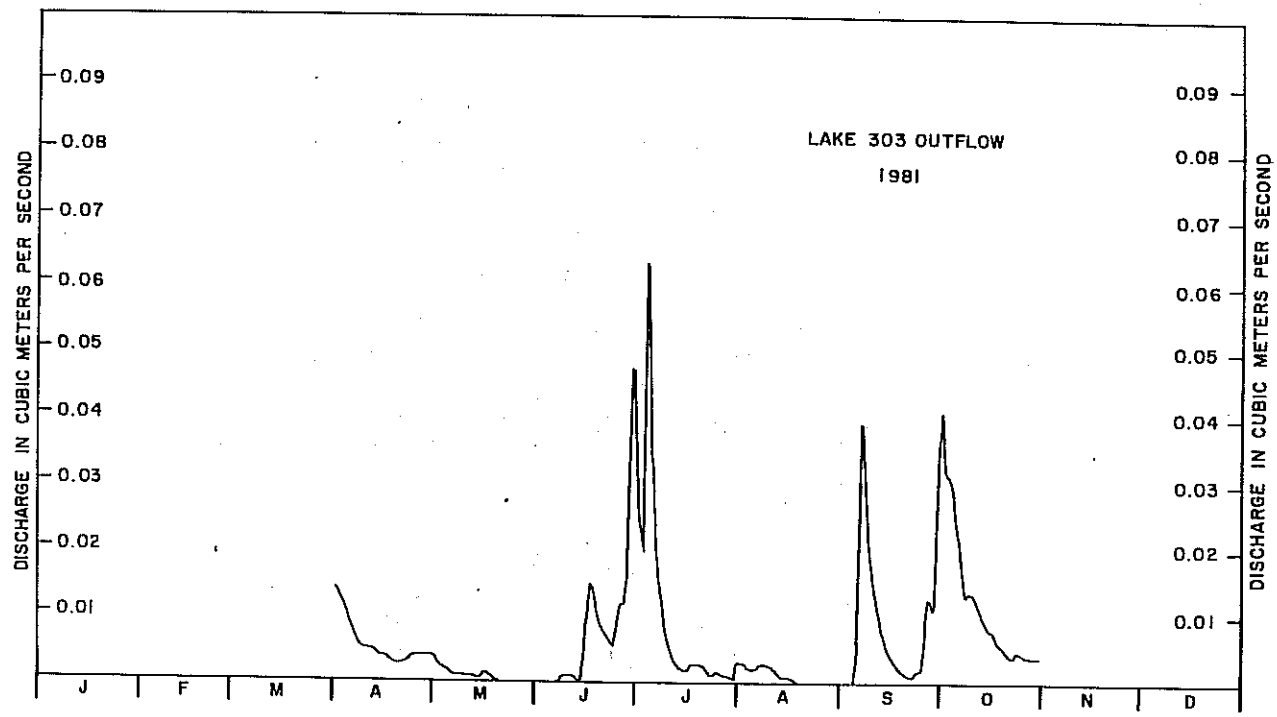

Fig. 20. Annual hydrograph based on mean daily discharges for the Lake 303 outflow for 1981.

Table 66. Mean daily water levels in metres for Lake 303 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	55.710E	55.779	55.756E	55.696	55.584	55.544E	55.513	---	---	1
2	---	---	---	55.710E	55.800A	55.753E	55.690	55.579	55.550E	55.513	---	---	2
3	---	---	---	55.710E	55.805A	55.749E	55.687	55.575	55.549E	55.515	---	---	3
4	---	---	---	55.710E	55.793E	55.742E	55.683	55.572	55.547A	55.514	---	---	4
5	---	---	---	55.710E	55.782E	55.736A	55.679	55.568	55.545A	55.512	---	---	5
6	---	---	---	55.710E	55.776E	55.737E	55.673	55.565	55.541	55.512	---	---	6
7	---	---	---	55.710E	55.772E	55.731E	55.669	55.567	55.537	55.510	---	---	7
8	---	---	---	55.710E	55.769E	55.725E	55.663	55.562	55.536	55.510	---	---	8
9	---	---	---	55.710E	55.767E	55.720E	55.660	55.560	55.534	55.509	---	---	9
10	---	---	---	55.710E	55.764E	55.715E	55.656	55.554	55.531	55.509	---	---	10
11	---	---	---	55.713E	55.773E	55.711A	55.654	55.551	55.532	55.515	---	---	11
12	---	---	---	55.716E	55.775E	55.713A	55.649	55.555	55.535	55.514	---	---	12
13	---	---	---	55.717E	55.778E	55.717A	55.646	55.553	55.532	55.513	---	---	13
14	---	---	---	55.718E	55.770E	55.714	55.646	55.549	55.532	55.514	---	---	14
15	---	---	---	55.719E	55.762E	55.711	55.642	55.545	55.530	55.513	---	---	15
16	---	---	---	55.720E	55.754A	55.705	55.636	55.542	55.528	55.512	---	---	16
17	---	---	---	55.721A	55.756E	55.699	55.631	55.537	55.527	55.511	---	---	17
18	---	---	---	55.750	55.751E	55.693	55.627	55.536	55.524	55.514	---	---	18
19	---	---	---	55.810	55.747E	55.694	55.624	55.534	55.521	55.518	---	---	19
20	---	---	---	55.861	55.742E	55.710	55.621	55.531	55.519	55.529	---	---	20
21	---	---	---	55.865	55.737E	55.717	55.620	55.527	55.517	55.528	---	---	21
22	---	---	---	55.854	55.733E	55.714	55.615	55.531	55.515	55.530	---	---	22
23	---	---	---	55.838	55.730E	55.712	55.611	55.540	55.514	55.528	---	---	23
24	---	---	---	55.839	55.727E	55.706	55.608	55.547	55.512	55.524	---	---	24
25	---	---	---	55.887	55.724E	55.704	55.609	55.547	55.510	55.523	---	---	25
26	---	---	---	55.869	55.725E	55.704	55.606	55.545	55.509	55.525	---	---	26
27	---	---	---	55.837	55.723E	55.699	55.600	55.545	55.516	55.525	---	---	27
28	---	---	---	55.814	55.720E	55.700	55.597	55.542A	55.515	55.528	---	---	28
29	---		---	55.797	55.718E	55.701	55.592	55.542A	55.512	55.528	---	---	29
30	---		---	55.786	55.723E	55.700	55.592	55.539E	55.509	55.530	---	---	30
31	---		---		55.754A		55.587	55.536E		55.571		---	31
MEAN	---	---	---	55.764	55.756	55.716	55.638	55.551	55.527	55.520	---	---	MEAN
MAX	---	---	---	55.887	55.805	55.756	55.696	55.584	55.550	55.571	---	---	MAX
MIN	---	---	---	55.710	55.718	55.693	55.587	55.527	55.509	55.509	---	---	MIN

SUMMARY FOR THE YEAR 1979

MAXIMUM DAILY WATER LEVEL, 55.887 m ON APR 25
MINIMUM DAILY WATER LEVEL, 55.509 m ON SEP 26
MAXIMUM INSTANTANEOUS WATER LEVEL,
55.892 m AT 07:33 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE
E - ESTIMATED

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 66. Mean daily water levels in metres for Lake 303 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	55.719A	55.741	55.660	55.596	55.671	55.734	55.740	---	---	1
2	---	---	---	55.718	55.738	55.656	55.592	55.667	55.730	55.737	---	---	2
3	---	---	---	55.718	55.734	55.652	55.589	55.664	55.728	55.734	---	---	3
4	---	---	---	55.719	55.731	55.649	55.588	55.693	55.735	55.733	---	---	4
5	---	---	---	55.727	55.724	55.647	55.586	55.725	55.739	55.729	---	---	5
6	---	---	---	55.740	55.718	55.645	55.583	55.738	55.738	55.727	---	---	6
7	---	---	---	55.762	55.715	55.640	55.580	55.742	55.735	55.727	---	---	7
8	---	---	---	55.774	55.713	55.633	55.576	55.747	55.750	55.726	---	---	8
9	---	---	---	55.778	55.711	55.630	55.572	55.746	55.769	55.724	---	---	9
10	---	---	---	55.777	55.714	55.626	55.568	55.744	55.766	55.727	---	---	10
11	---	---	---	55.776	55.716	55.623	55.565	55.739	55.759	55.726	---	---	11
12	---	---	---	55.776	55.715	55.620	55.562	55.744	55.753	55.725	---	---	12
13	---	---	---	55.770	55.714	55.620	55.558	55.749	55.749	55.725	---	---	13
14	---	---	---	55.758	55.712	55.616	55.561	55.746	55.744	55.722	---	---	14
15	---	---	---	55.758	55.710	55.611	55.560	55.744	55.743	55.720	---	---	15
16	---	---	---	55.759	55.708	55.606	55.596	55.738	55.740	55.722	---	---	16
17	---	---	---	55.766	55.706	55.601	55.611	55.755	55.737	55.741	---	---	17
18	---	---	---	55.790	55.705	55.597	55.616	55.766	55.735	55.765	---	---	18
19	---	---	---	55.817	55.702	55.592	55.623	55.766	55.739	55.768	---	---	19
20	---	---	---	55.822	55.699	55.588	55.627	55.763	55.746	55.764	---	---	20
21	---	---	---	55.810E	55.693	55.585	55.657	55.760	55.744	55.760	---	---	21
22	---	---	---	55.798E	55.690	55.580	55.669	55.754	55.748	55.757	---	---	22
23	---	---	---	55.786A	55.687	55.582	55.673	55.751	55.748	55.759	---	---	23
24	---	---	---	55.775	55.684	55.593	55.674	55.746	55.748	55.762	---	---	24
25	---	---	---	55.766	55.680	55.586	55.671	55.743	55.746	55.762	---	---	25
26	---	---	---	55.762	55.676	55.580	55.667	55.741	55.742	55.759	---	---	26
27	---	---	---	55.757	55.673	55.577	55.667	55.734	55.740	55.753	---	---	27
28	---	---	---	55.751	55.668	55.591	55.674	55.730	55.738	55.748	---	---	28
29	---	---	---	55.747	55.666	55.598	55.678	55.732	55.739	55.746	---	---	29
30	---		---	55.744	55.661	55.598	55.675	55.734	55.738	55.741A	---	---	30
31	---		---		55.655		55.675	55.735		55.740E		---	31
MEAN	---	---	---	55.764	55.702	55.613	55.616	55.736	55.743	55.741	---	---	MEAN
MAX	---	---	---	55.822	55.741	55.660	55.678	55.766	55.769	55.768	---	---	MAX
MIN	---	---	---	55.718	55.655	55.577	55.558	55.664	55.728	55.720	---	---	MIN

SUMMARY FOR THE YEAR 1980

MAXIMUM DAILY WATER LEVEL, 55.822 m ON APR 20

MAXIMUM INSTANTANEOUS WATER LEVEL,
55.824 m AT 01:43 CST ON APR 20

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE
E - ESTIMATED

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 66. Mean daily water levels in metres for Lake 303 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	55.765	55.724	55.661	55.783	55.717	55.657	55.799	---	---	1
2	---	---	---	55.770	55.722	55.659	55.771	55.717	55.652	55.806	---	---	2
3	---	---	---	55.769	55.721	55.657	55.841	55.713	55.649	55.791	---	---	3
4	---	---	---	55.764	55.717	55.657	55.821	55.712	55.643	55.791	---	---	4
5	---	---	---	55.759	55.714	55.669	55.793	55.710	55.639	55.786	---	---	5
6	---	---	---	55.752	55.714	55.672	55.776	55.718	55.674	55.777	---	---	6
7	---	---	---	55.748	55.713	55.672	55.760	55.725	55.807	55.768	---	---	7
8	---	---	---	55.745	55.710	55.683	55.747	55.724	55.797	55.757	---	---	8
9	---	---	---	55.743	55.711	55.684	55.733	55.724	55.780	55.749	---	---	9
10	---	---	---	55.740	55.707	55.681	55.723	55.723	55.767	55.753	---	---	10
11	---	---	---	55.738	55.705	55.678	55.721	55.720	55.755	55.750	---	---	11
12	---	---	---	55.738	55.703	55.677	55.718	55.716	55.744	55.744	---	---	12
13	---	---	---	55.733	55.701	55.676	55.712	55.715	55.737	55.742	---	---	13
14	---	---	---	55.728	55.698	55.692	55.706	55.710	55.730	55.741	---	---	14
15	---	---	---	55.726	55.694	55.739	55.705	55.703	55.725	55.737	---	---	15
16	---	---	---	55.726	55.688	55.754	55.705	55.699	55.721	55.734	---	---	16
17	---	---	---	55.724	55.681	55.751	55.719	55.695	55.713	55.730	---	---	17
18	---	---	---	55.724	55.676	55.743	55.723	55.690	55.712	55.730	---	---	18
19	---	---	---	55.723	55.675	55.739	55.718	55.688	55.710	55.725	---	---	19
20	---	---	---	55.723	55.673	55.735	55.714	55.685	55.705	55.718	---	---	20
21	---	---	---	55.722	55.669	55.732	55.708	55.683	55.702	55.717	---	---	21
22	---	---	---	55.728	55.671	55.726	55.702	55.678	55.698	55.717	---	---	22
23	---	---	---	55.731	55.670	55.722	55.697	55.676	55.699	55.717	---	---	23
24	---	---	---	55.730	55.670	55.738	55.698	55.675	55.702	55.718	---	---	24
25	---	---	---	55.730	55.668	55.751	55.707	55.672	55.703	55.718	---	---	25
26	---	---	---	55.732	55.666	55.751	55.702	55.669	55.716	55.718	---	---	26
27	---	---	---	55.732	55.664	55.761	55.697	55.665	55.747	55.719	---	---	27
28	---	---	---	55.731	55.664	55.810	55.695	55.666	55.756	55.719A	---	---	28
29	---		---	55.728	55.663	55.823	55.690	55.659	55.751	55.719E	---	---	29
30	---		---	55.727	55.665	55.804	55.687	55.658	55.757	55.717E	---	---	30
31	---		---		55.662		55.717	55.658		55.717E		---	31
MEAN	---	---	---	55.738	55.690	55.717	55.729	55.696	55.718	55.743	---	---	MEAN
MAX	---	---	---	55.770	55.724	; 55.823	55.841	55.725	55.807	55.806	---	---	MAX
MIN	---	---	---	55.722	55.662	55.657	55.687	55.658	55.639	55.717	---	---	MIN

SUMMARY FOR THE YEAR 1981

WATER LEVELS IN METRES

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MAXIMUM DAILY, 55.841 ON JUL 3

MAXIMUM INSTANTANEOUS,
55.847 AT 12:14 CST ON JUL 3

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 67. Mean daily water levels in metres for Lake 304 for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	53.708E	53.845	53.807	53.775	53.664	53.623	53.586	---	---	1
2	---	---	---	53.708E	53.860	53.811	53.771	53.659	53.626	53.585	---	---	2
3	---	---	---	53.708E	53.867	53.811	53.764	53.654	53.622	53.586	---	---	3
4	---	---	---	53.708E	53.857	53.808	53.759	53.651	53.621	53.586	---	---	4
5	---	---	---	53.708E	53.844	53.804	53.755	53.650	53.620	53.583	---	---	5
6	---	---	---	53.708E	53.833	53.806	53.750	53.643	53.617	53.582	---	---	6
7	---	---	---	53.708E	53.827	53.805	53.745	53.641E	53.614	53.581	---	---	7
8	---	---	---	53.708E	53.821	53.804	53.741	53.638E	53.611	53.580	---	---	8
9	---	---	---	53.708E	53.812	53.801	53.738	53.636E	53.608	53.579	---	---	9
10	---	---	---	53.708E	53.807	53.797	53.733	53.634E	53.605	53.579	---	---	10
11	---	---	---	53.705E	53.815	53.793	53.728	53.632E	53.607	53.583	---	---	11
12	---	---	---	53.709E	53.818	53.789	53.723	53.629E	53.608	53.581	---	---	12
13	---	---	---	53.710E	53.817	53.788	53.720	53.627E	53.605	53.582	---	---	13
14	---	---	---	53.710E	53.813	53.788	53.720	53.625A	53.606	53.583	---	---	14
15	---	---	---	53.711E	53.810	53.784	53.716	53.624	53.603	53.583	---	---	15
16	---	---	---	53.711E	53.804	53.778	53.711	53.619	53.601	53.583	---	---	16
17	---	---	---	53.712A	53.804	53.772	53.707	53.617	53.598	53.583	---	---	17
18	---	---	---	53.728	53.802	53.769	53.702	53.616	53.595	53.584	---	---	18
19	---	---	---	53.791	53.797	53.769	53.700	53.613	53.593	53.588	---	---	19
20	---	---	---	53.896	53.794	53.789	53.697	53.610	53.590	53.597	---	---	20
21	---	---	---	53.915	53.792	53.796	53.694	53.609	53.587	53.598	---	---	21
22	---	---	---	53.912	53.790	53.794	53.691	53.608	53.585	53.598	---	---	22
23	---	---	---	53.913	53.788	53.793	53.688	53.626	53.584	53.596	---	---	23
24	---	---	---	53.927	53.786	53.791	53.687	53.627	53.582	53.594	---	---	24
25	---	---	---	53.959	53.780	53.789	53.687	53.628	53.578	53.593	---	---	25
26	---	---	---	53.933	53.779	53.787	53.687	53.628	53.576	53.592	---	---	26
27	---	---	---	53.910	53.776	53.783	53.682	53.626	53.586	53.590	---	---	27
28	---	---	---	53.891	53.773	53.782	53.676	53.625	53.584	53.591	---	---	28
29	---		---	53.873	53.769	53.783	53.672	53.624	53.583	53.591	---	---	29
30	---		---	53.857	53.778	53.781	53.673	53.621	53.581	53.594	---	---	30
31	---		---		53.804		53.669	53.621		53.634		---	31
MEAN	---	---	---	53.784	53.808	53.792	53.715	53.630	53.600	53.589	---	---	MEAN
MAX	---	---	---	53.959	53.867	53.811	53.775	53.664	53.626	53.634	---	---	MAX
MIN	---	---	---	53.704	53.769	53.769	53.669	53.608	53.576	53.579	---	---	MIN

SUMMARY FOR THE YEAR 1979

MAXIMUM DAILY WATER LEVEL, 53.959 m ON APR 25
MINIMUM DAILY WATER LEVEL, 53.576 m ON SEP 26
MAXIMUM INSTANTANEOUS WATER LEVEL,
53.969 m AT 05:26 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE
E - ESTIMATED

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 67. Mean daily water levels in metres for Lake 304 for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	53.651A	53.800	53.671	53.617	53.676	53.778	53.832	---	---	1
2	---	---	---	53.653	53.790	53.666	53.616	53.672	53.778	53.832	---	---	2
3	---	---	---	53.654	53.786	53.660	53.614	53.671	53.776	53.832	---	---	3
4	---	---	---	53.655	53.779	53.656	53.610	53.700	53.784	53.830	---	---	4
5	---	---	---	53.660	53.774	53.652	53.609	53.731	53.793	53.827	---	---	5
6	---	---	---	53.671	53.767	53.649	53.606	53.745	53.793	53.828	---	---	6
7	---	---	---	53.685	53.766	53.644	53.604	53.752	53.792	53.828	---	---	7
8	---	---	---	53.699	53.763	53.637	53.600	53.758	53.808	53.825	---	---	8
9	---	---	---	53.704	53.757	53.632	53.596	53.758	53.829	53.822	---	---	9
10	---	---	---	53.706	53.753	53.630	53.593	53.756	53.831	53.825	---	---	10
11	---	---	---	53.707	53.749	53.627	53.590	53.758	53.832	53.827	---	---	11
12	---	---	---	53.706	53.748	53.625	53.586	53.762	53.830	53.826	---	---	12
13	---	---	---	53.707	53.743	53.629	53.583	53.770	53.829	53.824	---	---	13
14	---	---	---	53.706	53.737	53.627	53.586	53.769	53.827	53.822	---	---	14
15	---	---	---	53.705	53.731	53.624	53.587	53.765	53.827	53.821	---	---	15
16	---	---	---	53.705	53.728	53.621	53.622	53.764	53.827	53.821	---	---	16
17	---	---	---	53.713	53.724	53.616	53.632	53.780	53.824	53.840	---	---	17
18	---	---	---	53.740	53.719	53.613	53.636	53.794	53.825	53.863	---	---	18
19	---	---	---	53.778	53.717	53.607	53.639	53.797	53.829	53.869	---	---	19
20	---	---	---	53.805	53.714	53.603	53.642	53.798	53.836	53.873	---	---	20
21	---	---	---	53.817	53.708	53.599	53.665	53.800	53.841	53.872	---	---	21
22	---	---	---	53.822	53.704	53.596	53.671	53.797	53.844	53.869	---	---	22
23	---	---	---	53.826	53.702	53.600	53.674	53.796	53.847	53.877	---	---	23
24	---	---	---	53.827	53.698	53.615	53.674	53.795	53.845	53.883	---	---	24
25	---	---	---	53.826	53.692	53.609	53.672	53.793	53.843	53.882	---	---	25
26	---	---	---	53.826	53.690	53.601	53.669	53.787	53.837	53.880	---	---	26
27	---	---	---	53.823	53.686	53.600	53.670	53.782	53.833	53.879	---	---	27
28	---	---	---	53.819	53.680	53.614	53.676	53.780	53.832	53.874	---	---	28
29	---	---	---	53.814	53.679	53.619	53.681	53.778	53.830	53.873	---	---	29
30	---		---	53.808	53.672	53.620	53.680	53.781	53.831	53.871A	---	---	30
31	---		---		53.668		53.679	53.780		53.870E		---	31
MEAN	---	---	---	53.741	53.730	53.625	53.632	53.763	53.821	53.848	---	---	MEAN
MAX	---	---	---	53.827	53.800	53.671	53.681	53.800	53.847	53.883	---	---	MAX
MIN	---	---	---	53.651	53.668	53.596	53.583	53.671	53.776	53.821	---	---	MIN

SUMMARY FOR THE YEAR 1980

MAXIMUM DAILY WATER LEVEL, 53.883 m ON OCT 24

MAXIMUM INSTANTANEOUS WATER LEVEL,
53.884 m AT 03:12 CST ON OCT 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE
E - ESTIMATED

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 67. Mean daily water levels in metres for Lake 304 for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	---	---	---	53.713	53.690E	53.627	53.873	53.733	53.642	53.882	---	---	1
2	---	---	---	53.715	53.687E	53.628	53.864	53.730	53.637	53.909	---	---	2
3	---	---	---	53.726	53.684E	53.620	53.934	53.725	53.634	53.909	---	---	3
4	---	---	---	53.734	53.680E	53.620	53.925	53.721	53.628	53.917	---	---	4
5	---	---	---	53.732	53.677E	53.634	53.905	53.718	53.626	53.920	---	---	5
6	---	---	---	53.731	53.674A	53.634	53.886	53.726	53.656	53.914	---	---	6
7	---	---	---	53.729	53.674	53.633	53.867	53.734	53.778	53.907	---	---	7
8	---	---	---	53.729	53.671	53.644	53.848	53.734	53.800	53.900	---	---	8
9	---	---	---	53.727	53.670	53.644	53.831	53.734	53.804	53.892	---	---	9
10	---	---	---	53.726	53.671	53.645	53.819	53.733	53.805	53.893	---	---	10
11	---	---	---	53.726	53.668	53.642	53.811	53.729	53.804	53.890	---	---	11
12	---	---	---	53.724	53.664	53.643	53.801	53.724	53.801	53.884	---	---	12
13	---	---	---	53.725	53.660	53.644	53.787	53.722	53.798	53.883	---	---	13
14	---	---	---	53.724	53.658	53.658	53.779	53.721	53.792	53.883	---	---	14
15	---	---	---	53.720	53.652	53.694	53.768	53.710	53.784	53.875	---	---	15
16	---	---	---	53.714	53.648	53.713	53.763	53.703	53.781	53.868	---	---	16
17	---	---	---	53.712	53.642	53.719	53.778	53.699	53.777	53.864	---	---	17
18	---	---	---	53.710	53.639	53.724	53.779	53.697	53.774	53.866	---	---	18
19	---	---	---	53.709	53.635	53.726	53.771	53.692	53.767	53.858	---	---	19
20	---	---	---	53.707	53.632	53.726	53.763	53.687	53.764	53.857	---	---	20
21	---	---	---	53.702	53.629	53.724	53.751	53.683	53.759	53.854	---	---	21
22	---	---	---	53.705	53.631	53.726	53.745	53.677	53.757	53.848	---	---	22
23	---	---	---	53.703	53.633	53.724	53.737	53.675	53.754	53.844	---	---	23
24	---	---	---	53.701	53.629	53.743	53.733	53.671	53.755	53.844	---	---	24
25	---	---	---	53.700	53.630	53.759	53.735	53.666	53.754	53.845	---	---	25
26	---	---	---	53.702	53.629	53.765	53.728	53.661	53.766	53.842	---	---	26
27	---	---	---	53.701	53.630	53.780	53.722	53.654	53.800	53.839	---	---	27
28	---	---	---	53.700A	53.627	53.841	53.716	53.654	53.812	53.839A	---	---	28
29	---		---	53.697E	53.627	53.881	53.709	53.649	53.817	53.838E	---	---	29
30	---		---	53.693E	53.629	53.885	53.705	53.647	53.826	53.837E	---	---	30
31	---		---		53.629		53.730	53.644		53.837E		---	31
MEAN	---	---	---	53.715	53.652	53.701	53.792	53.698	53.755	53.872	---	---	MEAN
MAX	---	---	---	53.734	53.690	53.885	53.934	53.734	53.826	53.920	---	---	MAX
MIN	---	---	---	53.693	53.627	53.620	53.705	53.644	53.626	53.837	---	---	MIN

SUMMARY FOR THE YEAR 1981

WATER LEVELS IN METRES

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MAXIMUM DAILY, 53.934 ON JUL 3

MAXIMUM INSTANTANEOUS,
53.940 AT 12:37 CST ON JUL 3

WATER LEVELS ARE REFERRED TO ASSUMED DATUM

Table 68. Mean daily discharge in cubic metres per second for the Lake 470 outflow for 1979.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.006	0.003	0.012 E	0.005 E	0.096	0.036	0.004	0	0	0	0	0.005	1
2	0.007	0.003	0.011 E	0.005 E	0.111	0.037	0.004	0	0	0	0.009	0.005	2
3	0.005	0.003	0.010 E	0.005 E	0.123	0.035	0.003	0	0	0	0.015	0.005	3
4	0.005	0.003	0.010 E	0.004 E	0.110	0.030	0.002	0	0	0	0.016	0.005	4
5	0.005	0.003	0.009 E	0.004 A	0.093	0.024	0.001	0	0	0	0.015	0.007	5
6	0.004	0.003	0.008 E	0.004	0.081	0.022	0.002	0	0	0	0.013	0.007	6
7	0.004	0.003	0.008 E	0.004	0.074	0.020	0.001	0	0	0	0.013	0.006	7
8	0.003	0.003	0.007 E	0.004	0.068	0.019	0.001	0	0	0	0.013	0.006	8
9	0.005	0.003	0.006 E	0.004	0.060	0.017	0.001	0	0	0	0.011	0.006	9
10	0.018	0.002	0.006 E	0.004	0.055	0.015	0	0	0	0	0.010	0.007	10
11	0.020	0.002	0.005 E	0.004	0.062	0.013	0	0	0	0	0.009	0.007	11
12	0.016	0.002	0.005 E	0.005	0.066	0.011	0	0	0	0	0.008	0.007	12
13	0.012	0.002	0.004 E	0.005	0.065	0.010	0	0	0	0	0.007	0.006	13
14	0.011	0.003	0.004 E	0.005	0.059	0.009	0	0	0	0	0.007	0.007	14
15	0.009	0.003	0.004 E	0.006	0.051	0.008	0	0	0	0	0.006	0.006	15
16	0.007	0.002	0.004 E	0.007	0.046	0.006	0	0	0	0	0.005	0.005	16
17	0.004	0.012	0.005 E	0.010	0.042	0.005	0	0	0	0	0.005	0.005	17
18	0.004	0.034	0.005 E	0.017	0.041	0.005	0	0	0	0	0.005	0.005	18
19	0.004	0.016	0.007 E	0.040	0.037	0.005	0	0	0	0	0.005	0.005	19
20	0.003	0.023	0.008 E	0.158	0.034	0.009	0	0	0	0	0.005	0.005	20
21	0.004	0.020	0.008 E	0.270	0.029	0.012	0	0	0	0	0.004	0.005	21
22	0.004	0.019 A	0.008 E	0.270	0.025	0.012	0	0	0	0	0.004	0.005	22
23	0.003	0.017 E	0.008 E	0.234	0.023	0.011	0	0	0	0	0.004	0.004	23
24	0.003	0.016 E	0.008 E	0.218	0.020	0.010	0	0	0	0	0.004	0.004	24
25	0.003	0.015 E	0.007 E	0.310	0.018	0.009	0	0	0	0	0.004	0.004	25
26	0.003	0.014 E	0.006 E	0.303	0.017	0.009	0	0	0	0	0.004	0.004	26
27	0.003	0.014 E	0.006 A	0.233	0.016	0.007	0	0	0	0	0.005	0.003	27
28	0.003	0.013 E	0.006 E	0.176	0.014	0.007	0	0	0	0	0.005	0.003	28
29	0.003		0.006 E	0.138	0.013	0.007	0	0	0	0	0.005	0.003	29
30	0.003		0.006 E	0.111	0.015	0.006	0	0	0	0	0.005	0.003	30
31	0.003		0.005 E		0.027		0	0		0		0.003	31
TOTAL	0.187	0.256	0.212	2.563	1.591	0.426	0.019	0	0	0	0.221	0.158	TOTAL
MEAN	0.006	0.009	0.007	0.085	0.051	0.014	0.001	0	0	0	0.007	0.005	MEAN
MAX	0.020	0.034	0.012	0.310	0.123	0.037	0.004	0	0	0	0.016	0.007	MAX
MIN	0.003	0.002	0.004	0.004	0.013	0.005	0	0	0	0	0	0.003	MIN

SUMMARY FOR THE YEAR 1979

MEAN DISCHARGE, 0.015 m^3/s
MAXIMUM DAILY DISCHARGE, 0.310 m^3/s ON APR 25
MINIMUM DAILY DISCHARGE, 0 m^3/s ON JUL 10

MAXIMUM INSTANTANEOUS DISCHARGE,
0.349 m^3/s AT 19:29 CST ON APR 25

TYPE OF GAUGE - RECORDING

A - MANUAL GAUGE

E - ESTIMATED

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	16.2	JUL	1.64
FEB	22.1	AUG	0
MAR	18.3	SEP	0
APR	221	OCT	0
MAY	137	NOV	19.1
JUN	36.8	DEC	13.7

TOTAL DISCHARGE, 486 dam^3

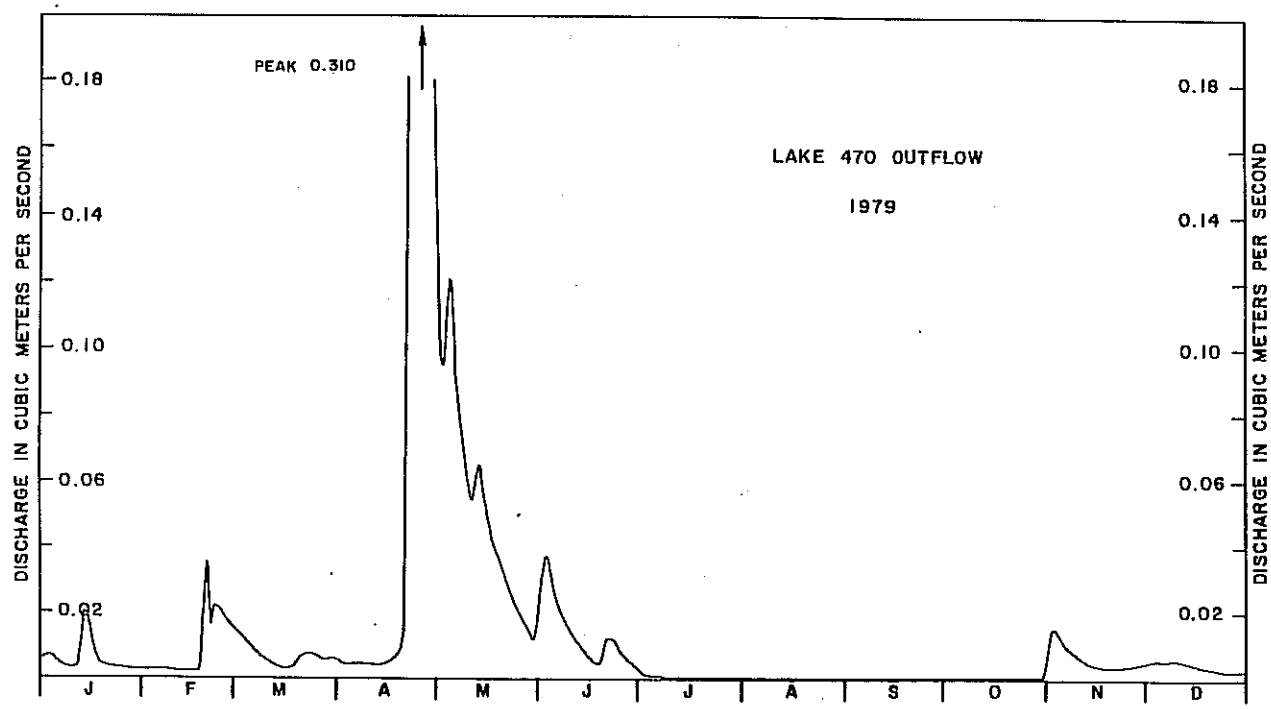

Fig. 21. Annual hydrograph based on mean daily discharges for the Lake 470 outflow for 1979.

Table 68. Mean daily discharge in cubic metres per second for the Lake 470 outflow for 1980.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.003	0.003	0.001	0.001	0.020	0	0	0.004	0.011	0.016	0.021	0.005	1
2	0.003	0.002	0.001	0.002	0.018	0	0	0.003	0.010	0.015	0.020	0.005	2
3	0.003	0.002	0.001	0.002	0.016	0	0	0.003	0.009	0.015	0.018	0.005	3
4	0.003	0.002	0.001	0.003	0.015	0	0	0.009	0.011	0.015	0.017	0.005	4
5	0.003	0.002	0.001	0.005	0.013	0	0	0.016	0.013	0.014	0.016	0.005	5
6	0.003	0.002	0.001	0.010	0.012	0	0	0.020	0.013	0.012	0.015	0.005	6
7	0.003	0.002	0.001	0.018	0.011	0	0	0.022	0.013	0.011	0.014	0.005	7
8	0.003	0.001	0.001	0.027	0.010	0	0	0.022	0.015	0.010	0.015	0.005	8
9	0.003	0.001	0.001	0.038	0.009	0	0	0.021	0.019	0.009	0.017	0.005	9
10	0.003	0.002	0.001	0.041	0.009	0	0	0.019	0.035	0.009	0.015	0.004	10
11	0.004	0.002	0.001	0.040	0.009	0	0	0.017	0.037	0.009	0.015	0.004	11
12	0.004	0.002	0.001	0.039	0.009	0	0	0.018	0.031	0.008	0.013	0.006	12
13	0.004	0.002	0.002	0.036	0.009	0	0	0.019	0.027	0.008	0.012	0.005	13
14	0.003	0.002	0.002	0.032	0.009	0	0	0.019	0.022	0.008	0.012	0.005	14
15	0.003	0.002	0.002	0.030	0.009	0	0	0.020	0.020	0.008	0.011	0.005	15
16	0.003	0.002	0.002	0.030	0.008	0	0	0.020	0.018	0.008	0.010	0.005	16
17	0.003	0.002	0.002	0.038	0.008	0	0.001	0.022	0.016	0.012	0.010	0.006	17
18	0.003	0.002	0.002	0.062	0.007	0	0.003	0.031	0.015	0.020	0.009	0.006	18
19	0.003	0.001	0.001	0.111	0.006	0	0.004	0.035	0.016	0.031	0.009	0.005	19
20	0.003	0.001	0.001	0.146	0.005	0	0.005	0.035	0.017	0.036	0.009	0.004	20
21	0.003	0.001	0.001	0.147	0.004	0	0.013	0.035	0.019	0.037	0.008	0.005	21
22	0.003	0.001	0.001	0.136	0.003	0	0.015	0.032	0.020	0.035	0.008	0.005	22
23	0.003	0.002	0.001	0.113	0.003	0	0.014	0.028	0.020	0.036	0.008	0.006	23
24	0.003	0.002	0.001	0.088	0.002	0	0.012	0.025	0.021	0.039	0.007	0.006	24
25	0.003	0.002	0.001	0.068	0.001	0	0.009	0.022	0.021	0.042	0.006	0.005	25
26	0.003	0.001	0.001	0.053	0.001	0	0.007	0.019	0.020	0.041	0.006	0.005	26
27	0.003	0.001	0.001	0.043	0.001	0	0.006	0.016	0.019	0.039	0.006	0.005	27
28	0.003	0.001	0.001	0.033	0.001	0	0.006	0.014	0.018	0.035	0.006	0.004	28
29	0.003	0.001	0.001	0.029	0	0	0.007	0.013	0.018	0.030	0.006	0.004	29
30	0.003		0.001	0.023	0	0	0.007	0.013	0.016	0.026	0.006	0.004	30
31	0.003		0.001		0		0.005	0.013		0.023		0.004	31
TOTAL	0.096	0.049	0.037	1.444	0.228	0	0.114	0.605	0.560	0.657	0.345	0.153	TOTAL
MEAN	0.003	0.002	0.001	0.046	0.007	0	0.004	0.020	0.019	0.021	0.012	0.005	MEAN
MAX	0.004	0.003	0.002	0.147	0.020	0	0.015	0.035	0.037	0.042	0.021	0.006	MAX
MIN	0.003	0.001	0.001	0.001	0	0	0	0.003	0.009	0.008	0.006	0.004	MIN

SUMMARY FOR THE YEAR 1980

MEAN DISCHARGE, 0.012 m^3/s
MAXIMUM DAILY DISCHARGE, 0.147 m^3/s ON APR 21
MINIMUM DAILY DISCHARGE, 0 m^3/s ON MAY 29

MAXIMUM INSTANTANEOUS DISCHARGE,
0.150 m^3/s AT 00:07 CST ON APR 21

NATURAL FLOW

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	8.29	JUL	9.85
FEB	4.23	AUG	52.3
MAR	3.20	SEP	48.4
APR	125	OCT	56.8
MAY	19.7	NOV	29.8
JUN	0	DEC	13.2

TOTAL DISCHARGE, 371 dam^3

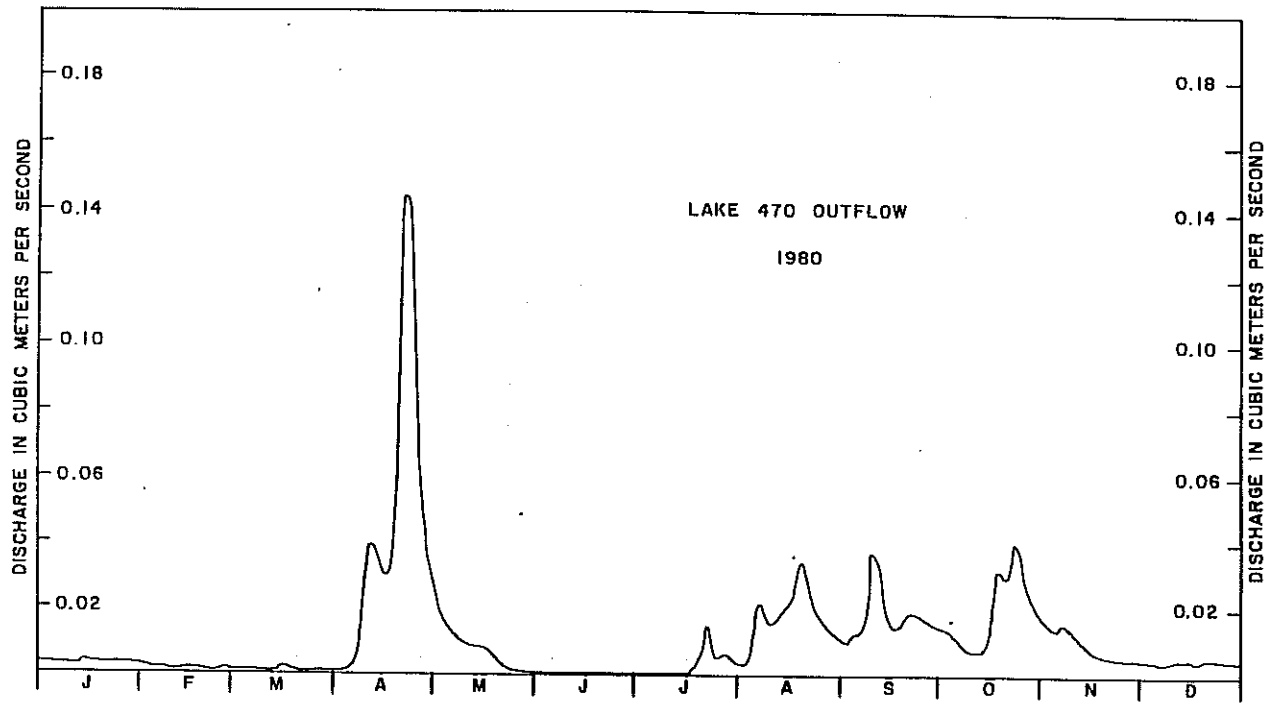

Fig. 21. Annual hydrograph based on mean daily discharges for the Lake 470 outflow for 1980.

Table 68. Mean daily discharge in cubic metres per second for the Lake 470 outflow for 1981.

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DAY
1	0.003	0.002	0	0.040	0.013	0.001	0.099	0.011	0	0.072	0.021	0.013	1
2	0.003	0.001	0	0.047	0.012	0.001	0.077	0.010	0	0.114	0.022	0.013	2
3	0.003	0.001	0	0.052	0.012	0	0.181	0.010	0	0.110	0.021	0.013	3
4	0.002	0.001	0	0.048	0.011	0	0.186	0.009	0	0.102	0.020	0.012	4
5	0.003	0.001	0	0.042	0.010	0.001	0.127	0.008	0	0.101	0.019	0.012	5
6	0.003	0.001	0	0.036	0.009	0.001	0.087	0.009	0.007	0.088	0.019	0.011	6
7	0.002	0.001	0	0.033	0.009	0.001	0.063	0.010	0.078	0.074	0.018	0.011	7
8	0.002	0.001	0	0.031	0.009	0.002	0.046	0.011	0.109	0.064	0.015	0.010	8
9	0.002	0.001	0	0.028	0.008	0.003	0.036	0.011	0.091	0.053	0.014	0.009	9
10	0.002	0	0	0.027	0.007	0.002	0.029	0.011	0.071	0.049	0.014	0.009	10
11	0.001	0	0	0.027	0.007	0.002	0.024	0.010	0.052	0.047	0.013	0.009	11
12	0.001	0	0	0.025	0.006	0.002	0.020	0.009	0.040	0.041	0.013	0.009	12
13	0.002	0	0	0.022	0.006	0.003	0.016	0.009	0.032	0.037	0.013	0.009	13
14	0.002	0	0	0.019	0.005	0.007	0.014	0.008	0.025	0.036	0.013	0.009	14
15	0.002	0	0	0.017	0.004	0.027	0.013	0.007	0.021	0.034	0.012	0.009	15
16	0.002	0	0	0.016	0.004	0.037	0.012	0.006	0.018	0.031	0.013	0.008	16
17	0.002	0	0	0.015	0.003	0.038	0.014	0.005	0.015	0.027	0.013	0.008	17
18	0.002	0	0	0.014	0.003	0.033	0.016	0.005	0.012	0.025	0.015	0.007	18
19	0.002	0	0	0.013	0.002	0.029	0.016	0.005	0.010	0.024	0.015	0.007	19
20	0.001	0	0	0.013	0.001	0.025	0.015	0.004	0.008	0.023	0.014	0.007	20
21	0.002	0	0	0.012	0.001	0.021	0.013	0.003	0.008	0.021	0.013	0.007	21
22	0.002	0	0	0.014	0.001	0.017	0.013	0.002	0.007	0.021	0.014	0.007	22
23	0.002	0	0	0.015	0.001	0.014	0.011	0.002	0.007	0.019	0.014	0.006	23
24	0.002	0	0	0.015	0.001	0.019	0.010	0.001	0.007	0.018	0.013	0.005	24
25	0.002	0	0	0.016	0.001	0.026	0.011	0.001	0.007	0.018	0.013	0.005	25
26	0.001	0	0.009	0.016	0.001	0.029	0.011	0.001	0.009	0.017	0.013	0.006	26
27	0.001	0	0.012	0.015	0.001	0.036	0.009	0.001	0.015	0.016	0.013	0.005	27
28	0.001	0	0.014	0.014	0.001	0.086	0.008	0	0.025	0.016	0.013	0.005	28
29	0.001		0.018	0.013	0.001	0.149	0.007	0	0.032	0.017	0.013	0.005	29
30	0.001		0.025	0.013	0.001	0.131	0.007	0	0.037	0.018	0.014	0.005	30
31	0.001		0.033		0.001		0.011	0		0.020		0.005	31
TOTAL	0.058	0.010	0.111	0.708	0.152	0.743	1.202	0.179	0.743	1.353	0.450	0.256	TOTAL
MEAN	0.002	0	0.004	0.024	0.005	0.025	0.039	0.006	0.025	0.044	0.015	0.008	MEAN
MAX	0.003	0.002	0.033	0.052	0.013	0.149	0.186	0.011	0.109	0.114	0.022	0.013	MAX
MIN	0.001	0	0	0.012	0.001	0	0.007	0	0	0.016	0.012	0.005	MIN

SUMMARY FOR THE YEAR 1981

DISCHARGES IN CUBIC METRES PER SECOND

MEAN, 0.016
MAXIMUM DAILY, 0.186 ON JUL 4
MINIMUM DAILY, 0 ON FEB 10
MAXIMUM INSTANTANEOUS,
0.215 AT 23:50 CST ON JUL 3

TYPE OF GAUGE - RECORDING

MONTHLY TOTAL DISCHARGE IN CUBIC DECAMETRES

JAN	5.01	JUL	104
FEB	0.86	AUG	15.5
MAR	9.59	SEP	64.2
APR	61.2	OCT	117
MAY	13.1	NOV	38.9
JUN	64.2	DEC	22.1

TOTAL DISCHARGE, 516 dam³

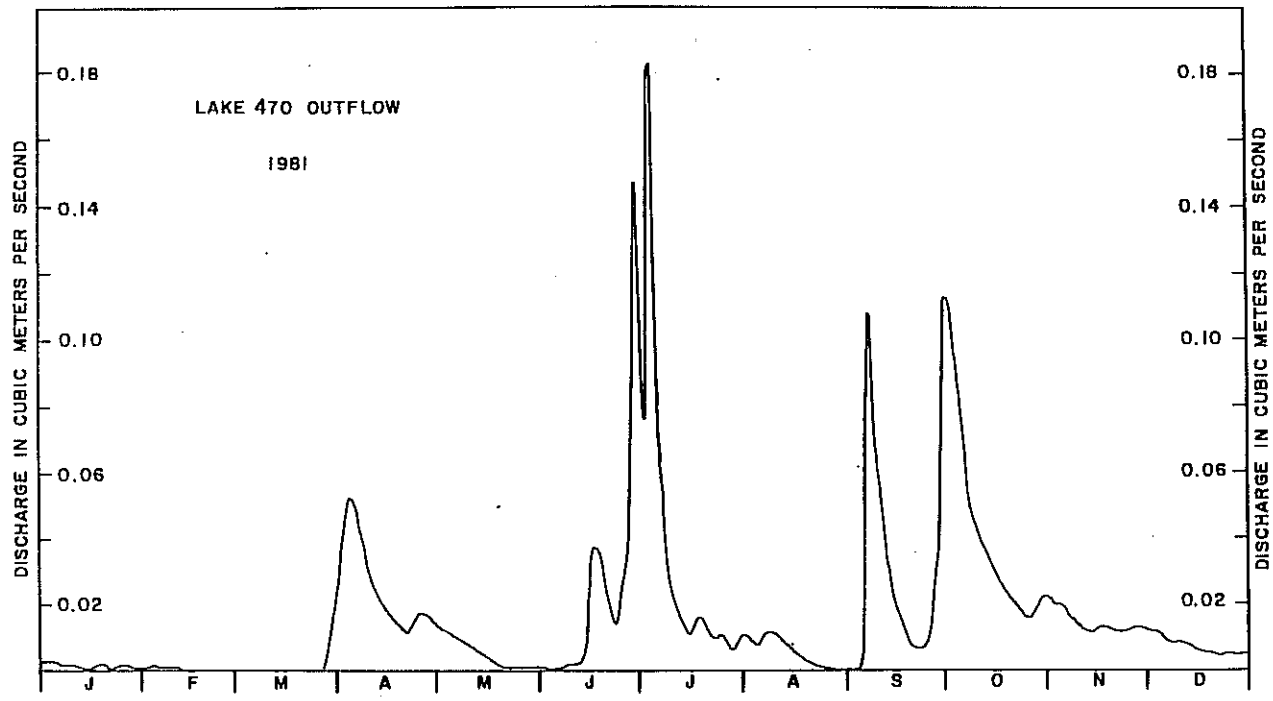

Fig. 21. Annual hydrograph based on mean daily discharges for the Lake 470 outflow for 1981.

Table 69. Historical streamflow summary for EIA for the years 1969 to 1981.

STATION: LAKE 114 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971	------	------	------	51624	13848	7095	18643	2985	2789	43281	------	------	140265
1972	------	------	------	21702	17298	8930	16808	27647	15512	13041	------	------	120938
1973	------	------	------	28161	9566	6068	13554	14191	29384	27158	------	------	128082
1974	------	------	------	54732	41520	18815	171	6435	9566	10839	------	------	142078
1975	------	------	------	43893	23096	27158	8710	245	3866	1835	------	------	108803
1976	------	------	------	44602	2618	0	0	0	0	0	------	------	47220
1977	------	------	------	416	18717	32614	196	2080	19549	6655	------	------	80227
1978	------	------	------	52383	34865	17591	3450	4624	10276	4722	------	------	127911
1979	------	------	------	52790	29030	6307	86	0	0	0	------	------	88213
1980	------	------	------	33350	1296	0	0	0	0	1123	------	------	35769
1981	------	------	------	5184	1642	173	778	0	86	21946	------	------	29809
MEAN	------	------	------	35349	17591	11341	5672	5292	8275	11873	------	------	95392
SD	------	------	------	18502	12989	10688	7060	8168	9307	13145	------	------	40011

STATION: LAKE 120 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971													
1972													
1973	------	------	------	26571	15634	9762	16466	19035	34644	32712	------	------	154824
1974	------	------	------	56640	50230	18986	0	M	M	24344	------	------	150200
1975													
1976													
1977													
1978													
1979													
1980													
1981													
MEAN	------	------	------	41606	32932	14374	8233	19035	34644	28528	------	------	152512
SD	------	------	------	15035	17298	4612	8233	0	0	4184	------	------	2312

NOTES:
1. ALL FLOW VOLUMES ARE IN CUBIC METRES.
2. VALUE IN THE 'TOTAL' COLUMN FOR LESS THAN 12 MONTHS IS THE TOTAL FOR THOSE MONTHS AND IS NOT NECESSARILY THE ANNUAL FLOW.
4. ---- INDICATES THAT CONTINUOUS RECORD DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. # INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 223 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971													
1972													
1973													
1974													
1975									8221	3939	------	------	
1976	------	------	------	126467	42670	12233	27696	9346	2496	1028	------	------	221936
1977	------	------	------	8392	31342	123066	74500	18423	16026	10496	------	------	282245
1978	------	------	------	103787	216162	98845	62267	28895	14851	10031	------	------	534838
1979	------	------	------	96941 *	172454	53482	25920	13824	4320	2938	------	------	369879
1980	------	------	------	35339	30586	10886	6653	6394	2678 *	2678 *	------	------	95213
1981	------	------	------	4406	9936	49334	71626	20131	6307	6739 *	------	------	168479
MEAN	------	------	------	62555	83858	57974	44777	16169	7843	5407	------	------	278765
SD	------	------	------	48344	79698	41456	25855	7420	5158	3463	------	------	143161

STATION: LAKE 224 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971													
1972													
1973													
1974													
1975									4698	5263	------	------	
1976	------	------	------	19255	5505	636	391	0	0	0	------	------	25787
1977	------	------	------	2618	13432	13261	17665	5627	10618	4159	------	------	67380
1978	------	------	------	40223	68971	33543	23855	17445	11842	5334	------	------	201213
1979	------	------	------	17366	53050	19786	19267 *	5357 *	1728	1469 *	------	------	118023
1980	------	------	------	9245 *	8035	259	173	432	86	432 *	------	------	18662
1981	------	------	------	0	0	605 *	2678	691	173	864 *	------	------	5011
MEAN	------	------	------	14785	24832	11348	10672	4925	4164	2503	------	------	72679
SD	------	------	------	13361	26289	12387	9801	6053	4732	2161	------	------	68679

NOTES:
1. ALL FLOW VOLUMES ARE IN CUBIC METRES.
2. VALUE IN THE 'TOTAL' COLUMN FOR LESS THAN 12 MONTHS IS THE TOTAL FOR THOSE MONTHS AND IS NOT NECESSARILY THE ANNUAL FLOW.
4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. * INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 225 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971													
1972													
1973													
1974													
1975									489	1835	------	------	
1976	------	------	------	14288	6337	318	0	147	0	0	------	------	21090
1977	------	------	------	269	391	9713	6386	1688	905	1199	------	------	20551
1978	------	------	------	13065	20136	7315	1370	881	1566	1566	------	------	45899
1979	------	------	------	17194	14861	2333	0	0	0	0	------	------	34388
1980	------	------	------	5443	2246	0	0	0	0	0	------	------	7689
1981	------	------	------	0	0	1642	6912	0	86 *	6566 *	------	------	15206
MEAN	------	------	------	8377	7329	3554	2445	453	435	1595	------	------	24137
SD	------	------	------	6821	7631	3659	3016	635	560	2157	------	------	12590

STATION: LAKE 226 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971													
1972	------	------	------	38388	32149	9762	25812	47930	19475	12111	------	------	185627
1973	------	------	------	44040	20772	11524	26375	32712	49398	42302	------	------	227123
1974	------	------	------	69778	71613	31488	832 M	20552	19842	17224	------	------	231329
1975	------	------	------	66696	51575	43917	14558	24	12233	8514	------	------	197517
1976	------	------	------	83510	12135	4893	3474	0	0	0	------	------	104012
1977	------	------	------	17983	28308	72347	28087	7144	25494	7438	------	------	186801
1978	------	------	------	61876	61753	33862	10202	5383	3719	1688	------	------	178483
1979	------	------	------	67997 *	58579	17194	1382	0	0	0	------	------	145152
1980	------	------	------	45274	13565	605	778	11059	9590	13997 *	------	------	94868
1981	------	------	------	14083	8208 *	9245 *	5616 *	9504 *	691	43805 *	------	------	91152
MEAN	------	------	------	50963	35866	23484	11712	13431	14044	14708	------	------	164206
SD	------	------	------	21809	21988	21023	10686	15095	14651	15215	------	------	49878

NOTES:
1. ALL FLOW VOLUMES ARE IN CUBIC METRES.
2. VALUE IN THE 'TOTAL' COLUMN FOR LESS THAN 12 MONTHS IS THE TOTAL FOR THOSE MONTHS AND IS NOT NECESSARILY THE ANNUAL FLOW.
4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. * INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 227 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970	------	------	------	37042	43452	4208	612	0	14362	24662	------	------	124338
1971	------	------	------	31782	16441	7144	17616	465	1174	27084	------	------	101706
1972	------	------	------	16662	18350	3450	11524	19573	7511	6533	------	------	83603
1973	------	------	------	16784	10814	5529	10178	11597	12600	16466	------	------	83968
1974	------	------	------	26473	26008	10496	0	1028	3988	5799	------	------	73792
1975	------	------	------	37287	20136	11548	3841	0	1810	2496	------	------	77118
1976	------	------	------	34938	3352	979	538	0	0	0	------	------	39807
1977	------	------	------	6239	14851	28724	4526	0	11426	3474	------	------	69240
1978	------	------	------	29727	41104	16613	2496	2398	4233	2178	------	------	98749
1979	------	------	------	26784	21341	6912	173	0	0	0	------	------	55210
1980	------	------	------	20563 *	4147	0	0	0	0	1123 *	------	------	25833
1981	------	------	------	7085	1901	16589	11405	864 *	3629 *	13392 *	------	------	54865
MEAN	------	------	------	24281	18491	9349	5242	2994	5061	8601	------	------	74019
SD	------	------	------	10376	12872	7804	5695	5901	4969	9152	------	------	26373

STATION: LAKE 230 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971	------	------	------	661	1590	1615	1908	489	1370	4282	------	------	11915
1972	------	------	------	2080	1982	294	1737	5260	2740	954	------	------	15047
1973	------	------	------	1517	1174	832	3597	5407	2765	4453	------	------	19745
1974	------	------	------	6435	M	M	0	M	M	M	------	------	6435
1975	------	------	------	4624	1933	2765	587	0	636	1052	------	------	11597
1976	------	------	------	6361	1688	636	342	0	0	0	------	------	9027
1977	------	------	------	5774	6606	8710	2398	342	807	636	------	------	25273
1978	------	------	------	7487	8783	7805	1957	1664	1346	685	------	------	29727
1979	------	------	------	6048	3542	86	0	0	0	0	------	------	9676
1980	------	------	------	3715	432	0	0	0	0	1210 *	------	------	5357
1981													
MEAN	------	------	------	4470	3081	2527	1253	1462	1074	1475	------	------	14380
SD	------	------	------	2242	2635	3176	1181	2129	1028	1597	------	------	7698

NOTES:
1. ALL FLOW VOLUMES ARE IN CUBIC METRES.
2. VALUE IN THE 'TOTAL' COLUMN FOR LESS THAN 12 MONTHS IS THE TOTAL FOR THOSE MONTHS AND IS NOT NECESSARILY THE ANNUAL FLOW.
4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. * INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 239 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970	43134	39611	68482	112130	465353	170532	52236	4649	138774	117048	183009	80568	1475526
1971	34522	23366	37996	183694	159522	118809	145576	49153	60506	205274	168330	74182	1260930
1972	40810	24858	24466	89596	200381	24540	125635	136205	110662	90208	75381	40859	983601
1973	21751	15659	16808	97842	123066	72494	133073	127715	142909	200136	70610	41789	1063852
1974	27916	22289	20503	206497	413239	217434	22680	87052	117439	109145	53900	31146	1329240
1975	36210	27941	22827	222082	273535	169186	111249	13065	57545	55881	42376	32687	1064584
1976	27672	26815	31024	299470	94000	49716	47440	6704	563	0	0	0	583404
1977	0	0	0	100313	177627	217752	78342	14215	76996	40712	66157	65105	837219
1978	26986	11157	8465	253326	336414	178214	48052	46266	38021	28479	14337	16613	1006330
1979	14083	10454	16762	248919	293587	99187	11750	0	0	0	15984	24710	735435
1980	17971	11923	12960	113616	72749	4838	19181	60653	50630	50544	49853	25747	490665
1981	11578	6307	7949	54000	20995	80179	150682	15379	57542	148003	60221	37930	650765
MEAN	25219	18365	22354	165124	219206	116907	78825	46755	70966	87119	66680	39278	956796
SD	12242	10579	17093	76590	132841	70052	49709	45753	46104	67649	53845	22661	294420

STATION: NORTHEAST INFLOW TO LAKE 239

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971							3293 M	1008	1901	7448 *			13650
1972					5113	1700	6875	6288	4649 *	M			24625
1973					2838	3964	5847	3915	M	M			16564
1974					M	7438	563	9077 *	4110 *	4282			25470
1975					5752 *	9559	1840	1284	7360	5637			31432
1976					1135	4257	680	450	34	269 *			6825
1977				M	M	14959 M	1886 M	1368 *	M	1779 *			19992
1978				20650 *	8343	4649	1468	1370	1615	832	269 *		39196
1979	0 *	0 *	0 *	11906 *	6186	1547	78	0	0	501	2765	43 *	23026
1980	0 *	0 *	0 *	7983 *	786	0	458	1089	1676	1858	589 *	0 *	14439
1981	0 *	0 *	9 *	1149 *	648	4951	3482	95	2886	4787	1184 *	130 *	19321
MEAN	0	0	3	10422	3850	5302	2406	2359	2692	3044	1202	58	
SD	0	0	4	7049	2713	4178	2149	2761	2231	2421	960	54	

NOTES:
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4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. * INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: NORTHWEST INFLOW TO LAKE 239

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970							3058	636	26057	30510			
1971				42596 *	25788	15610	24344	5162	9469	49447			172416
1972				27916 *	18007	7389	21261	21726	14582	13799 *			124680
1973				27819 *	12307	8049	14704	11670	24736	19720			119004
1974				46242 *	33886	26791 *	416 *	13921 *	4991	7731			133978
1975				29433 *	24002	20968	5529	1199	8270	6973			96374
1976				47416	4380	9077	1076	440	220	122 *			62731
1977				14876	16319	29947	4795	1174	10178	3597 *			80886
1978				56591	31024	12551	3107	4918	6190	2960			117341
1979				44064	23933	7258	432	0	0	518			76205
1980				24883	4752	1642	8122	15466	12787	13046			80698
1981				14774	3456	25229 *	15552 *	3370	17971 *	23414 *			103766
MEAN	------	------	------	34237	17987	14956	8533	6640	11288	14320	------	------	106189
SD	------	------	------	13244	10276	8989	8005	6938	8093	13974	------	------	30104

STATION: EAST INFLOW TO LAKE 239

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971							73815	14778	30265	88764			207622
1972					60604	28919	71369	61215	51575				273682
1973					31782 *	41984	55147	42645	88642	92630			352830
1974					175620	101658	19010	98502	50817	56958			502565
1975				145404 *	96594 *	88471 *	26228	22044	45924	34596			459261
1976	0 *	0 *	930 *	88202 *	19157	51110	6581	15096	4233	6337	2912 *		194558
1977	0 *	0 *	1982 *	69167 *	90453	96887	24002	19010	67723	22680	37165 *	24418 *	453487
1978				205983 *	101512	47147	22118	33103	33103	17665			460631
1979				106790	86314	35942	2333	259	1382	14861			247881
1980				111110 *	18490	7862 *	32141	36029	31709	35333 *			272679
1981				36806	10886 *	60480	35683	4406	44410	62726 *			255397
MEAN	0	0	1456	109066	69141	56046	33493	31553	40889	43256	20039	24418	
SD	0	0	526	50669	48800	29296	22790	27008	24146	29088	17127	0	

NOTES:
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4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. * INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: EAST UPPER WEIR

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969									34400	34816			
1970								46413	22191	22387			
1975				52701 *	31709	32442	10667	12796	23341	18007			181663
1976				59845	17445	25543	4502	11255	4869	4453			127912
1977				44847	38217	41838	13163	9566	28357	9909			185897
1978				81522	50156	23341	13530	15585	14973	9517			208624
1979				80525 *	36288	15898	2333	1296	2678	7949			146967
1980				48816	9936	4579	12269	13478	12528	13910			115516
1981				16589	6653	28685	15120	1555	17626	24538 *			110766
MEAN	------	------	------	54978	27201	24618	10226	13993	17885	16165	------	------	153906
SD	------	------	------	20703	14960	11048	4519	13221	9824	9148	------	------	35550

STATION: LAKE 240 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969					401251	309501	194019	455077	180073 *	365040	112057 *	79271 *	
1970	51649 *	35060 *	60261 *	190423	951992 *	348648	108117	6092	260054	269376	335191 *	135789 *	2752652
1971	63564 *	36577 *	37214 *	413435	334702	253473	333234	88838	93853	451162	352562	138970	2597584
1972	76091 *	47856 *	49398 *	157662 *	445535	87199	226535	263260	210657	166862	133342	85804	1950201
1973	56077	25127 *	37850	25880	285769	152426	217507	276471	317575 *	412994	160011	111176	2078863
1974	60775	46315	37360	450600	749409	406144	53875	85143	226315	195243	126492	81400	2519071
1975	88300	68702	52725 *	418254 *	585972 *	355498	255381	25518	80226	115482	112790	90110	2248958
1976	65448	55563	59845	629131	278184	82844	92459	2863	0	0	0	0	1266337
1977	0	0	40027	180905	344243	536305	211782	47612	169259	128620 *	197126 *	190594 *	2046473
1978	91456 *	44309	33079	531265	771673	415685	124534	105597	102637	79467	40541	59503 *	2399746
1979	50458 *	45101 *	68602	507946	670723	238032	39053	0	0	86	12182 *	52790 *	1684973
1980	61603 *	45014	38794 *	252893	186624	18230	21168	150854	166493	162950	149731	86832 *	1341186
1981	46310 *	30240	24538	156211	81734	159667	446688	80093	143683	449798	206928	134957	1960847
MEAN	59311	39989	44974	326217	468293	258742	178796	122109	150063	215160	149150	95938	2070574
SD	22459	16304	12528	180469	247499	147599	118307	129326	90532	154207	103034	45789	450829

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Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 261 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971				31611 *	17983	8759	10570	1444 *	1884	28455			100706
1972				31806	19329	6606	13114	29384	11010	7535 *			118785
1973				49520 *	10105	0	32589	12918	28993	33935			168060
1974				77387 *	56175	28479	2422	14460	11279	10643 *			200845
1975				53337 *	47318	26644	10863	563 *	5872	3132			147729
1976				80030	4013	367	245	122	0	0			84777
1977				11230	16148	26155	7071	1933	18937	2960			84434
1978				37165 *	41935 *	20038	2520	1052	5970	3817			112497
1979				60653 *	30413	8035	259	0	0	0			99360
1980				19613	1037	0	0	0	0	5616 *			26266
1981													
MEAN	------	------	------	45235	24446	12508	7965	6188	9395	9609	------	------	114346
SD	------	------	------	21932	17831	11077	9443	9294	9037	11281	------	------	46306

STATION: LAKE 265 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971				44749 *	36284	18374	15707	4526	3621	23047			146308
1972				21403 *	42351 *	20038	17518	32834	19524	14283 *			167961
1973				21849 *	27305	12674	25176	42767	25494	46388			201653
1974				M	70586	60359	7487	14166	16148	13383			182129
1975				67575	70292	49765	12796	930	15659	15732			232750
1976				63466	1223	1811	1541	1664	1395	930			72030
1977				2618	3964	7707 *	4624	3279	14460	7731			44383
1978				75797	74574	35109	5309	1786	4991	5138			202704
1979				75946	44323	14689	2851	1901	2333	4493			146535
1980				45446 *	2678	96	86	3110	4406	10454 *			66266
1981													
MEAN	------	------	------	46539	37358	22061	9310	10696	10803	14158	------	------	146272
SD	------	------	------	24999	27153	19141	7750	14195	8025	12352	------	------	61466

NOTES:
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4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
5. M INDICATES MISSING RECORD
6. * INDICATES A DATA SET THAT CONTAINS SOME ESTIMATED RECORD

Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 302 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980									1287	2514			
1981				890	1840	11880	33221	2557	2419	30404			83211
MEAN	------	------	------	890	1840	11880	33221	2557	1853	16459	------	------	83211
SD	------	------	------	0	0	0	0	0	566	13945	------	------	0

STATION: LAKE 303 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969													
1970				23292 *	49496	42474 *	18277 *	513	41446	76213			251711
1971				56518 *	26840 *	15487	28161	3156	7952	58255			196369
1972				28479 *	18056	5260	18961	24809	12869	9493			117927
1973				31978 *	10251 *	5847	15879	18130	31880	23047			137012
1974				62463 *	46070	19793	661	4869	9566	11083			154505
1975				53459 *	28136	29335	7022	759	4673	6484			129868
1976				56542	5187	5334	3597	2031	954	147			73792
1977				9224	15683	40467	8319	2251	12013	6141			94098
1978				65252	36015	18790	2960	5138	7756	4747			140658
1979				56851	32573	9331	950	0	0	0			99705
1980				34733	3456	0	0	12184	14429	15898 *			80700
1981				13133	1901	22464	23933	3024	20131	34645 *			119232
MEAN	------	------	------	40994	22805	17882	10727	6405	13639	20513	------	------	132965
SD	------	------	------	18963	15602	13328	9453	7525	11772	23188	------	------	48248

NOTES:
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4. ---- INDICATES THAT CONTINUOUS DATA DOES NOT EXIST AND MONTHLY TOTALS WERE NOT AVAILABLE
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Table 69. Historical streamflow summary for ELA for the years 1969 to 1981.

STATION: LAKE 470 OUTFLOW

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1969	M	M	M	133954 *	21873 *	22509 *	28087 *	101829 *	44602	103615	23145	17543	
1970	18717 *	22729 *	24393 *	150493	196466	43453	11132	1541	70512	67674	65056 *	18790 *	690956
1971	9762 *	0 *	0 *	181027 *	41128	53875 *	84286	24760	26032	133685	74305	17616	646476
1972	7120	5138	3792	109561	67527 *	19598	75259	92997	53777	37042	34057	6337	512205
1973	4551	4477	49	140878	48664	32149	54829	62414	116167	89914	26815	17469	598376
1974	636	0	0	284765	192135	82745	25	22803	30289	22705	15071	13139	664313
1975	11328	8906	9689	228835	65277	101634	24638	343	18570	23390	26204	20699 *	539513
1976	8196 *	6141 *	8563	180538	16539	27721	3523	1370	1052	5113	6141	49275	314172
1977	5187	0	734	27525	40321	163461 *	39905 *	5725	56126	14998	74305 *	31684 *	459971
1978	9420	3597	3670	249313	147582	68408	12796	26057	26913	16099	7169	15854	586878
1979	16157	22118 *	18317 *	221443 *	137462	36806	1642	0	0	0	19094	13651	486690
1980	8294	4234	3197	124762	19699	0	9850	52272	48384	56765	29808	13219	370484
1981	5011	864	9590	61171	13133	64195	103853	15466	64195	116899	38880	22118	515375
MEAN	8698	6517	6833	161097	77524	55120	34602	31352	42817	52915	33850	19800	532117
SD	4792	7590	7461	70788	64379	41173	33262	33918	30119	43593	22466	10209	109848

NOTES:
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