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United States
Department of the Interior
Geological Survey

HYDROLOGIC DATA COLLECTED AT CLOSURE OF
GAINESVILLE LOCK AND DAM, TOMBIGBEE RIVER
NEAR GAINESVILLE, ALABAMA

Open-File Report 80-348

Prepared in cooperation with
U.S. Army Corps of Engineers

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



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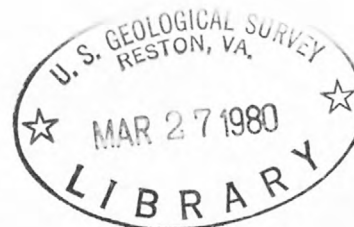
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HYDROLOGIC DATA COLLECTED AT CLOSURE OF GAINESVILLE LOCK AND DAM,
TOMBIGBEE RIVER NEAR GAINESVILLE, ALABAMA

By E. Grady Ming and Fletcher C. Sedberry

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Tuscaloosa, Alabama

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Units of Measurement

Compilations used in this report are in inch-pound units of measurement. Factors for converting inch-pound units to metric units are listed below.

<u>Inch-pound units</u>	<u>Conversion factor</u>	<u>Metric units</u>
inch (in)	25.4	millimeter (mm)
feet (ft)	.3048	meters (m)
cubic foot per second (ft ³ /s)	.0283	cubic meter per second (m ³ /s)

Multiply inch-pound units by conversion factor to obtain metric units.

HYDROLOGIC DATA COLLECTED AT CLOSURE OF GAINESVILLE LOCK AND DAM,
TOMBIGBEE RIVER NEAR GAINESVILLE, ALABAMA

By E. Grady Ming and Fletcher C. Sedberry

ABSTRACT

The Gainesville Lock and Dam is the first of ten lock and dam projects on the Tennessee-Tombigbee Waterway to be completed. The structure was completed in 1978 and filling of the reservoir commenced March 20, 1978 resulting in changes in stream stage and discharge, ground-water levels, and chemical quality of the water.

INTRODUCTION

The U.S. Army Corps of Engineers requested the U.S. Geological Survey to collect specific data on water resources during the filling of the reservoir at Gainesville Lock and Dam. Locations of the data collection sites are shown in figure 1 and described in table 1. This report documents changes in stage and discharge, chemical quality, and changes in ground-water levels near the structure between March 13 and October 18, 1978.

The Gainesville Lock and Dam is on the Tombigbee River at river mile 238.8. A generalized plan of the structure is shown in figure 2. The dam has five tainter gates 50 feet wide and a fixed spillway 207 feet wide. The navigation lock, 110 feet wide and 600 feet long, is in the cut-off canal southeast of the dam.

DATA COLLECTION

Stage records were collected at nine surface-water sites and discharge records at five sites prior to and during filling of the reservoir. The data collected at these sites are contained in figures 3 to 11 and tables 2 to 10.

Ground-water levels in the vicinity of the dam are shown in figure 11. The periods of record are summarized in table 1.

Samples for complete chemical quality analyses, with selected minor element determinations, were obtained March 16, 17, and 21, 1978 and July 21, 22, 1978. Results of the analyses are given in tables 11-13. These samples were collected at sites about one mile upstream and one mile downstream from Gainesville Dam, and at Tombigbee River (02449000) at Gainesville.

INSTRUMENTATION

When completed, the lock and dam will be instrumented to record gate position, headwater elevation, tailwater elevation, number of lockages, water-quality parameters, and weather data. Instrumentation was incomplete, but tainter gate position, headwater and tailwater elevation recorders, and a water-quality monitor were operational when the reservoir began filling.

Methods used to compute streamflow through the dam are described in a report by Collins, 1977.

REFERENCE CITED

Collins, Dannie L., 1977, Computation of records of streamflow at control structures: U.S. Geological Survey Water-Resources Investigations 77-8, 57 p.

Table 1.--Data collection sites

[a - data collected only for this report]

Station number: 02444150

Name: Tombigbee River at Pickensville

Drainage area: 5,765 mi² (14,931 km²)

Period of record: 1977 -

Location: Lat 33°13'56", long 88°16'29", in SW $\frac{1}{4}$ sec. 13, T. 21 S.,
R. 17 W., Pickens County, Hydrologic Unit 03160106, at boat landing,
2.5 mi (4.0 km) upstream from Aliceville Lock and Dam, 0.5 mi (0.8
km) northwest of Pickensville and at mile 290.1 (466.8 km).

Station number: 02444500

Name: Tombigbee River at Cochrane

Drainage area: 5,990 mi² (15,500 km²), approximately.

Period of record: 1954-78

Location: Lat 33°04'45", long 88°14'18", in N $\frac{1}{2}$ sec. 7, T. 24 N.,
R. 2 W., Pickens County, Hydrologic Unit 03160106, near left bank
on downstream side of bridge on State Highway 17, 1.2 mi (1.9 km)
northeast of Cochrane, 2.2 mi (3.5 km) downstream from Boguechitto
Creek, 7 mi (11 km) southwest of Aliceville, and at mile 271.4
(436.7 km).

Table 1.--Data collection sites--Continued

Station number: 02445000

Name: Lubbub Creek near Carrollton

Drainage area: 116 mi² (300 km²)

Period of record: 1954-64

Location: Lat 33°14'47", long 85°04'58", in NE¼ sec. 10, T. 21 S.,
R. 15 W., Pickens County, Hydrologic Unit 03160106, near center of
channel on upstream side of county highway bridge, 1 mi (1.6 km)
southeast of Carrollton.

Station number: 02445155

Name: Tombigbee River at Vienna Ferry

Drainage area: 6,350 mi² (16,450 km²) approximately.

Period of record: 1954-

Location: Lat 33°01'33", long 88°11'37", in SW¼ sec. 34, T. 24 N.,
R. 2 W., Pickens County, Hydrologic Unit 03160106, on left bank
700 ft (213 m) upstream from boat landing, 2.0 mi (3.2 km) upstream
from Sipsey River, 8 mi (12.9 km) southwest of Aliceville, and
at mile 257.4 (414.2 km).

Table 1.--Data collection sites--Continued

Station number: 02447000

Name: Sipse River near Pleasant Ridge

Drainage area: 753 mi² (1,950 km²)

Period of record: 1939-59

Location: Lat 33°02'31", long 88°21'45", in NE¼ sec. 29, T. 24 N.,
R. 1 W., on line between Pickens and Greene Counties, Hydrologic
Unit 03160107, at bridge on Alabama Highway 14, 2.5 mi (4.0 km)
northwest of Pleasant Ridge, and 6.0 mi (9.6 km) upstream from
mouth.

Station number: 02447015

Name: Tombigbee River at Cooks Bend

Period of record: a

Location: Lat 32°57'51", long 88°11'21", in NW¼ sec. 22, T. 23 N.,
R. 2 W., Sumter County, Hydrologic Unit 03160106, on right bank,
7.5 mi (12.1 km) north of Gainesville Lock and Dam, 9.5 mi
(15.3 km) north of Gainesville, and at mile 250.3 (402.7 km).

Table 1.--Data collection sites--Continued

Station number: 02447018

Name: Tombigbee River at Warsaw

Period of record: a

Location: Lat $32^{\circ}56'18''$, long $88^{\circ}12'02''$, in SW $\frac{1}{4}$ sec. 28, T. 23 N.,
R. 2 W., Sumter County, Hydrologic Unit 03160106, 5.8 mi (9.3 km)
north of Gainesville Lock and Dam, 8.0 mi (12.9 km) north of
Gainesville, and at mile 246.3 (396.3 km).

Station number: 02447025

Name: Tombigbee River at Gainesville Lock and Dam

Drainage area: 7,220 mi² (18,670 km²)

Period of record: March 1978-

Location: Lat $32^{\circ}51'08''$, long $88^{\circ}09'16''$, in SW $\frac{1}{4}$ sec. 25, T. 22 N.,
R. 2 W., Greene County, Hydrologic Unit 03160106, near left bank
at dam, 0.8 mi (1.3 km) downstream from Turkey Paw Branch, 2.0 mi
(3.2 km) north of Gainesville, 2.8 mi (4.5 km) upstream from
Noxubee River, and at mile 238.8 (384.2 km).

Table 1.--Data collection sites--Continued

Station number: 02448500

Name: Noxubee River near Geiger

Drainage area: 1,140 mi² (2,950 km²), approximately

Period of record: 1939-40; 1944-65; 1966-

Location: Lat 32°55'06", long 88°17'45", in SE¼ sec. 33, T. 23 N.,
R. 3 W., Sumter County, Hydrologic Unit 03160108, near left bank
on downstream side of bridge on State Highway 17, 0.5 mi (0.8 km)
upstream from Woodards Creek, 1 mi (1.6 km) upstream from Alabama,
Tennessee and Northern Railroad bridge, 4 mi (6.4 km) north of
Geiger, and at mile 16.9 (27.2 km).

Station number: 02448985

Name: Noxubee River near Gainesville

Drainage area: 1,469 mi² (3805 km²).

Period of record: a

Location: Lat 32°49'36", long 88°10'58", in E½ sec. 3, T. 21 N., R. 2 W.,
Sumter County, Hydrologic Unit 03160108, at county highway bridge
1.4 mi (2.2 km) northwest of Gainesville, 2.8 mi (4.5 km) down-
stream from Gainesville Lock and Dam, and 0.2 mi (0.3 km) above
mouth.

Table 1.--Data collection sites--Continued

Station number: 02449000

Name: Tombigbee River at Gainesville

Drainage area: 8,700 mi² (22,500 km²), approximately

Period of record: 1938-78

Location: Lat 32°44'30", long 88°09'24", in SE $\frac{1}{4}$ sec. 2, T. 21 N., R. 2 W., Sumter County, Hydrologic Unit 03160106, near right bank on downstream side of bridge on State Highway 39 at Gainesville, 2 mi (3.2 km) downstream from Noxubee River, and at mile 234.4 (377.1 km).

Name: Observation well 12A

Period of record: Sept. 1974-Jan. 1978 (periodic), Mar. 1978 -

Location: Lat 33°01'16", long 88°11'31", in NW $\frac{1}{4}$ sec. 34, T. 24 N., R. 2 W., Pickens County, Hydrologic Unit 03160106, at west side of County Road 13, 5.25 mi (8.45 km) southwest of State Highway 14, 0.30 mi (0.50 km) north of Tombigbee River, and 8.2 mi (13.2 km) southwest of Aliceville.

Table 1.--Data collection sites--Continued

Name: Observation well 135A

Period of record: Oct. 1972-Jan. 1978 (periodic), Mar. 1978-

Location: Lat $32^{\circ}52'12''$, long $88^{\circ}12'16''$, in SW $\frac{1}{4}$ sec. 21, T. 22 N., R. 2 W.,
Sumter County, Hydrologic Unit 03160106, at east side of County Road
85, 0.1 mi (0.2 km) southwest of Springhill Church, 1.35 mi (2.17 km)
east of Tombigbee River, and 4.2 mi (6.8 km) northwest of Gainesville.

Table 2.--Discharge measurements in report area

Number	Name	Location	Discharge (ft ³ /s)	Date
02444500	Tombigbee River at Cochrane	N $\frac{1}{2}$ sec. 7, T. 24 N., R. 2 W., at bridge on State Highway 17	26,700	3-17-78
			30,300	3-18-78
			31,400	3-19-78
			30,000	3-20-78
02445000	Lubbub Creek near Carrollton	NW $\frac{1}{4}$ sec. 10, T. 21 S., R. 15 W., at county road crossing	377	3-17-78
			257	3-18-78
02447000	Sipsey River near Pleasant Ridge	NE $\frac{1}{4}$ sec. 20, T. 24 N., R. 1 W., at bridge on State Highway 14.	2,230	3-17-78
			2,180	3-18-78
02447025	Tombigbee River at Gainesville Lock and Dam	SW $\frac{1}{4}$ sec. 25, T. 22 N., R. 2 W., in mouth of gates at da,	32,700	3-18-78
			31,300	3-21-78
02447026	Tombigbee River below Gainesville Lock and Dam	N $\frac{1}{2}$ sec. 36, T. 22 N., R. 2 W., 0.3 mi (0.5 km) below dam	31,600	3-18-78
			30,400	3-21-78
02448985	Noxubee River near Gainesville	SW $\frac{1}{4}$ sec. 3, T. 21 N., R. 2 W. at county road bridge	5,140	3-17-78
			3,980	3-18-78
			2,840	3-21-78
02449000	Tombigbee River at Gainesville	SE $\frac{1}{4}$ sec. 2, T. 21 N., R. 2 W. at bridge on State Highway 39	35,200	3-17-79
			36,700	3-18-79

Table 3.--Date, time, and stage at
Tombigbee River (02444150) at Pickensville

DATE (MARCH 1978)	TIME	ELEV (NGVD)
13	0	121.70
13	600	121.60
13	1200	121.50
13	1800	121.40
13	2400	121.30
14	600	121.20
14	1200	121.70
14	1800	122.75
14	2400	123.75
15	600	125.00
15	1200	125.15
15	1800	125.35
15	2400	125.50
16	600	125.70
16	1200	125.85
16	1800	126.00
16	2400	126.20
17	600	126.45
17	1200	126.70
17	1800	126.95
17	2400	127.25
18	600	127.55
18	1200	127.70
18	1800	127.85
18	2400	128.00
19	600	128.10
19	1200	128.00
19	1800	127.85
19	2400	127.70
20	600	127.50
20	1200	127.10
20	1800	126.60
20	2400	126.00
21	600	125.40
21	1200	124.70
21	1800	124.00
21	2400	123.30
22	600	122.60
22	1200	121.90
22	1800	121.10
22	2400	120.40
23	600	119.65
23	1200	118.95
23	1800	118.25
23	2400	117.60
24	600	116.95
24	1200	116.60
24	1800	116.35
24	2400	116.10
25	600	115.85
25	1200	115.75
25	1800	115.70
25	2400	115.65
26	600	115.60
26	1200	115.65
26	1800	115.65
26	2400	115.70
27	600	115.70
27	1200	115.70
27	1800	115.65
27	2400	115.60

Table 4.--Date, time, elevation, and discharge at
Tombigbee River (02444500) at Cochrane

DAY (MARCH 1978)	TIME	ELEV (NGVD)	DISCHARGE (CFS)
13	0	106.90	18300
13	600	106.71	18000
13	1200	106.75	17400
13	1800	106.12	16800
13	2400	105.73	16200
14	600	106.33	17300
14	1200	107.34	19100
14	1800	108.02	20100
14	2400	108.69	21300
15	600	109.39	22600
15	1200	109.97	23700
15	1800	110.36	24300
15	2400	110.66	24800
16	600	110.80	25000
16	1200	110.95	25400
16	1800	111.04	25400
16	2400	111.27	26100
17	600	111.39	26800
17	1200	111.61	26900
17	1800	111.77	27200
17	2400	112.02	28000
18	600	112.22	30100
18	1200	112.39	30400
18	1818	112.45	30400
18	2400	112.75	31400
19	600	112.82	31300
19	1200	112.97	31700
19	1800	112.93	31300
19	2419	112.94	31500
20	600	112.83	31100
20	1200	112.66	30100
20	1800	112.49	26600
20	2400	112.33	25000
21	600	112.11	24300
21	1200	111.68	23200
21	1800	111.19	22400
21	2400	110.59	21400
22	600	109.97	20100
22	1200	109.24	19000
22	1800	108.55	17800
22	2400	107.76	16400
23	600	106.92	15000
23	1200	106.08	13600
23	1800	105.18	12300
23	2400	104.32	11200
24	600	103.54	10100
24	1200	102.95	9180
24	1800	102.52	8580
24	2400	102.18	8100
25	600	101.84	7770
25	1200	101.50	7330
25	1800	101.16	6980
25	2400	100.83	6650
26	600	100.55	6380
26	1200	100.34	6210
26	1800	100.27	6200
26	2400	100.32	6200
27	600	100.34	6200
27	1200	100.25	6200
27	1800	100.28	6200
27	2400	100.20	6200

Table 5.--Date, time, and elevation at
Tombigbee River (02445155) at Vienna Ferry

DAY (MARCH 1978)	TIME	ELEV (NGVD)
13	0	98.39
13	600	98.27
13	1200	98.17
13	1800	97.89
13	2400	97.57
14	600	97.92
14	1200	98.61
14	1800	99.52
14	2400	100.08
15	600	100.70
15	1200	101.38
15	1800	101.88
15	2400	102.21
16	600	102.40
16	1200	102.56
16	1800	102.66
16	2400	102.72
17	600	102.88
17	1200	103.01
17	1800	103.21
17	2400	103.30
18	600	103.45
18	1200	103.63
18	1800	103.83
18	2400	103.95
19	600	104.03
19	1200	104.15
19	1800	104.34
19	2400	104.26
20	600	104.22
20	1200	104.28
20	1800	105.41
20	2400	105.82
21	600	105.90
21	1200	105.69
21	1800	105.42
21	2400	105.17
22	600	104.63
22	1200	104.35
22	1800	103.98
22	2400	103.40
23	600	102.91
23	1200	102.53
23	1800	101.92
23	2400	101.27
24	600	100.60
24	1200	100.21
24	1800	99.95
24	2400	99.63
25	600	99.20
25	1200	98.73
25	1800	98.23
25	2400	97.64
26	600	97.05
26	1200	96.46
26	1800	96.00
26	2400	96.04
27	600	96.00
27	1200	96.06
27	1800	96.33
27	2400	96.27

Table 6.--Date, time, and elevation at Sipsev River
(02447000) near Pleasant Ridge

DAY (MARCH 1978)	TIME	ELEV (NGVD)
17	1145	113.64
17	1330	113.62
18	1030	113.49
18	1210	113.47
19	1440	113.29
20	803	113.10
20	1013	113.09
20	1146	113.09
20	1357	113.09
20	1702	113.09
20	1848	113.08
20	2308	113.09
21	800	113.14

Table 7.--Date, time, and elevation at
Tombigbee River (02447015) at Cooks Bend
and Tombigbee River (02447018) at Warsaw

Tombigbee River at Cooks Bend

DATE	TIME	ELEV
Mar 20	735	99.21
Mar 20	800	99.22
Mar 20	835	99.21
Mar 20	900	99.22
Mar 20	920	99.31
Mar 20	930	99.34
Mar 20	1005	99.52
Mar 20	1030	99.67
Mar 20	1105	99.86
Mar 20	1133	100.05
Mar 20	1205	100.31
Mar 20	1230	100.53
Mar 20	1305	100.81
Mar 20	1330	101.02
Mar 20	1505	101.86
Mar 20	1625	102.24
Mar 20	2120	102.67
Mar 20	2215	102.75

Tombigbee River at Warsaw

DATE	TIME	ELEV
Mar 20	725	96.75
Mar 20	805	96.76
Mar 20	830	96.72
Mar 20	905	97.07
Mar 20	915	97.12
Mar 20	935	97.26
Mar 20	1000	97.48
Mar 20	1035	97.80
Mar 20	1100	97.99
Mar 20	1140	98.47
Mar 20	1200	98.74
Mar 20	1235	99.15
Mar 20	1300	99.35
Mar 20	1335	99.90
Mar 20	1340	99.94
Mar 20	1515	100.73
Mar 20	1620	101.21
Mar 20	2115	101.48
Mar 20	2220	101.60

Table 8.--Date, time, pool, and tailwater elevation
and discharge at Tombigbee River (02447025)
at Gainesville Lock and Dam

DATE (MARCH 1978)	TIME	POOL ELEV	TAILWATER ELEV	DISCHARGE PROGRAM	DISCHARGE MEASURED
12	2400	87.86	87.30	---	---
13	600	87.73	87.22	---	---
13	1200	---	87.04	---	---
13	1400	87.55	---	---	---
13	1500	87.80	---	---	---
13	1600	87.50	---	---	---
13	1800	---	86.87	---	---
13	2400	87.10	86.60	---	---
14	600	88.10	87.60	---	---
14	1200	89.60	89.12	---	---
14	1800	90.50	90.12	---	---
14	2400	90.90	90.55	---	---
15	600	91.30	90.94	---	---
15	1200	91.66	91.32	---	---
15	1800	92.00	91.64	---	---
15	2400	92.22	91.83	---	---
16	600	92.38	91.86	---	---
16	1000	92.33	91.89	---	---
16	1600	92.31	---	---	---
16	2400	92.14	91.80	---	---
17	600	92.14	91.80	---	---
17	930	---	---	---	30800
17	1200	92.28	91.66	---	---
17	1800	91.68	91.68	---	---
17	2400	92.19	91.73	---	---
18	600	92.21	91.73	---	---
18	730	---	---	---	31300
18	1200	92.37	91.76	---	---
18	1400	---	---	---	32700
18	1800	92.39	91.77	---	---
18	2400	92.40	91.77	---	---
19	600	92.46	91.83	---	---
19	730	---	---	---	33200
19	800	92.48	---	---	---
19	1000	92.68	91.74	---	---
19	1130	---	---	---	32200
19	1200	93.42	91.57	---	---
19	1400	92.87	---	---	---
19	1700	---	---	---	34200
19	1800	92.61	92.05	---	---
19	2400	92.54	92.02	---	---
20	600	92.54	---	---	---
20	800	92.56	91.98	---	---
20	900	---	---	---	30600
20	1000	94.95	91.35	---	---
20	1100	---	---	---	28900
20	1200	97.12	89.26	---	---
20	1400	99.00	88.25	---	---
20	1600	100.01	89.39	---	---
20	1800	99.68	89.35	31600	---
20	2000	---	---	29700	---
20	2200	100.07	---	29100	---
20	2400	100.25	89.34	29300	---
21	200	---	---	30200	---
21	400	---	---	30700	---
21	600	100.25	89.71	30500	---
21	730	---	---	---	32100
21	800	---	---	32100	---
21	1000	---	---	31300	31300
21	1200	99.77	89.98	30800	---

Table 8 continued.

Tombigbee River (02447025) at Gainesville Lock and Dam

DATE (MARCH 1978)	TIME	POOL ELEV	TAILWATER FLEV	DISCHARGE PROGRAM	DISCHARGE MEASURED
21	1400	---	89.68	30000	---
21	1600	---	89.22	27400	27800
21	1800	100.21	89.23	28400	---
21	2000	---	89.14	---	---
21	2200	---	---	28600	---
21	2400	100.09	89.02	---	---
22	400	---	---	28300	---
22	600	99.60	88.79	28200	---
22	800	---	87.80	23100	---
22	1000	---	---	24500	---
22	1200	100.27	87.62	---	---
22	1800	99.86	87.24	24600	---
22	2000	---	---	23700	---
22	2200	---	---	22900	---
22	2400	99.87	86.31	22100	---
23	600	99.72	85.67	21200	---
23	800	---	---	19300	---
23	1000	---	---	19400	---
23	1200	99.70	84.79	19400	---
23	1800	99.07	84.54	19200	---
23	2000	---	---	17000	---
23	2400	98.90	83.59	17000	---
24	200	---	---	16100	---
24	400	---	---	16040	---
24	600	98.57	82.83	15100	---
24	800	---	---	13700	---
24	930	---	---	---	12100
24	1000	98.59	81.98	12400	---
24	1200	98.36	82.31	16100	---
24	1400	98.48	---	12600	---
24	1600	---	---	12500	---
24	1800	98.41	81.31	---	---
24	2200	---	---	12500	---
24	2400	98.10	81.16	12400	---
25	600	97.65	81.00	---	---
25	1200	97.14	80.94	12100	---
25	1800	96.57	80.82	12000	---
25	2400	95.94	80.70	11800	---
26	600	95.25	80.59	11500	---
26	1200	94.55	80.48	11300	---
26	1400	---	---	11200	---
26	1600	---	---	10100	---
26	1800	94.30	79.82	8900	---
26	2000	---	---	9000	---
26	2200	---	---	9300	---
26	2400	94.49	79.30	9300	---
27	400	---	---	9700	---
27	600	94.23	79.65	10100	---
27	800	---	---	10000	---
27	1000	---	---	6900	---
27	1200	94.91	78.52	8100	---
27	1400	94.89	---	9300	---
27	1800	94.86	78.99	---	---
27	2400	94.84	79.05	9260	---

Table 9.--Date, time, elevation, and discharge
at Noxubee River (02448500) at Geiger

DAY (MARCH 1978)	TIME	ELEV	DISCHARGE (CFS)
13	0	100.36	2800
13	600	99.98	2720
13	1200	99.62	2600
13	1800	99.23	2510
13	2400	98.87	2410
14	600	102.91	3290
14	1200	106.00	4270
14	1800	107.79	4950
14	2400	108.86	5350
15	600	109.61	5660
15	1200	109.56	5670
15	1800	109.30	5580
15	2400	108.92	5450
16	600	108.43	5280
16	1200	107.80	5060
16	1800	107.17	4840
16	2400	106.54	4630
17	600	105.91	4420
17	1200	105.30	4220
17	1800	104.64	4020
17	2400	103.91	3770
18	600	103.14	3500
18	1200	102.40	3260
18	1800	101.76	3050
18	2400	101.28	2870
19	600	100.94	2740
19	1200	100.76	2720
19	1800	100.65	2640
19	2400	100.64	2640
20	600	100.65	2640
20	1200	100.62	2760
20	1800	100.37	2720
20	2400	100.18	2640
21	600	99.90	2550
21	1200	99.41	2410
21	1800	98.60	2200
21	2400	97.51	1880
22	600	96.35	1560
22	1200	95.27	1330
22	1800	94.35	1080
22	2400	93.73	929
23	600	93.30	824
23	1200	93.04	770
23	1800	92.84	721
23	2400	92.69	706
24	600	92.57	682
24	1200	92.53	670
24	1800	92.54	680
24	2400	92.63	715
25	600	92.72	755
25	1200	92.80	775
25	1800	92.85	800
25	2400	92.92	820
26	600	92.85	785
26	1200	92.70	740
26	1800	92.52	705
26	2400	92.33	635
27	600	92.20	620
27	1200	92.07	575
27	1800	92.00	552
27	2400	92.00	525

Table 10.--Date, time, elevation, and discharge
at Tombigbee River (02449000) at Gainesville

DATE (MARCH 1978)	TIME	ELEV (NGVD)	DISCHARGE (CFS)
13	0	85.53	24500
13	600	85.43	24200
13	1200	85.29	23800
13	1800	85.16	23600
13	2400	84.93	23000
14	600	85.70	25000
14	1200	87.44	28800
14	1800	88.38	31000
14	2400	88.71	32200
15	600	89.00	33200
15	1200	89.30	34100
15	1800	89.57	34800
15	2400	89.76	35200
16	600	89.81	35100
16	1200	89.78	34900
16	1800	89.67	34700
16	2400	89.63	34500
17	600	89.59	34500
17	1200	89.56	34500
17	1800	89.51	34600
17	2400	89.50	34600
18	600	89.49	34800
18	1200	89.49	34800
18	1800	89.50	34900
18	2400	89.49	35000
19	600	89.51	35100
19	1200	89.47	33700
19	1400	89.06	35400
19	1800	89.61	35600
19	2400	89.59	35500
20	600	89.59	35400
20	1200	88.37	28500
20	1800	86.68	29300
20	2400	87.40	30200
21	600	87.69	31200
21	1200	87.94	31700
21	1800	87.43	29500
21	2400	87.15	29000
22	600	86.94	28400
22	1200	85.87	25100
22	1800	85.47	24800
22	2400	84.78	22700
23	600	84.02	21500
23	1200	83.20	19800
23	1800	82.87	19400
23	2400	82.04	17500
24	600	81.47	16000
24	1200	80.26	14500
24	1800	79.93	13400
24	2400	79.67	13200
25	600	79.55	13100
25	1200	79.43	12900
25	1800	79.36	12600
25	2400	79.28	12700
26	600	79.13	12500
26	1200	78.97	12400
26	1800	78.58	11700
26	2400	78.01	10600
27	600	78.16	11100
27	1200	77.42	9410
27	1800	77.66	10100
27	2400	77.73	10200

Table 11.--Chemical analyses of Tombigbee River (02447025) above Gainesville Lock and Dam near Gainesville

Date	Time (24 hr)	Instantaneous discharge (cfs)	Specific conductance (micro-mhos)	pH	Temperature (°C)	Turbidity (JTU)	Dissolved oxygen (mg/L)	Hardness (Ca, Mg) (mg/L)	Non-carbonate hardness (mg/L)	Dissolved calcium (Ca) (mg/L)	Dissolved magnesium (Mg) (mg/L)	Dissolved sodium (Na) (mg/L)	Dissolved potassium (K) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)
1978															
Mar 17	0845	34,300	110	7.7	14.0	300	8.4	44	4	16	1.0	2.4	1.7	49	0
	21	1500	29,600	85	7.1	95	9.0	31	10	11	.9	2.4	1.6	26	0
July 21	1230	746	150	7.8	29.0	8	5.1	56	16	20	1.4	6.1	2.1	58	0

Alkalinity as CaCO ₃ (mg/L)	Dissolved sulfate (SO ₄) (mg/L)	Dissolved chloride (Cl) (mg/L)	Dissolved fluoride (F) (mg/L)	Dissolved silica (SiO ₂) (mg/L)	Dissolved solids (sum of constituents) (mg/L)	Total nitrite plus nitrate as N (mg/L)	Total ammonia nitrogen as N (mg/L)	Total organic nitrogen as N (mg/L)	Total Kjeldahl nitrogen as N (mg/L)	Suspended Kjeldahl nitrogen as N (mg/L)	Dissolved Kjeldahl nitrogen as N (mg/L)	Total nitrogen as N (mg/L)	Total nitrogen as NO ₃ (mg/L)
40	9.1	1.9	0.1	4.0	61	0.22	0.10	0.85	0.95	0.64	0.31	1.2	5.2
21	8.1	2.1	.0	4.6	44	.15	.06	.47	.53	.22	.31	.68	3.0
48	8.9	9.4	.1	4.6	83	.31	.08	.32	.40	.22	.18	.71	3.1

Total phosphorus as P (mg/L)	Dissolved phosphorus as P (mg/L)	Total arsenic As (ug/L)	Suspended arsenic As (ug/L)	Dissolved arsenic As (ug/L)	Total barium Ba (ug/L)	Suspended barium Ba (ug/L)	Dissolved barium Ba (ug/L)	Total cadmium Cd (ug/L)	Suspended cadmium Cd (ug/L)	Dissolved cadmium Cd (ug/L)	Total chromium Cr (ug/L)	Suspended chromium Cr (ug/L)	Dissolved chromium Cr (ug/L)	Total cobalt Co (ug/L)	Suspended cobalt Co (ug/L)
0.31	0.02	0	0	0	100	100	0	1	0	1	10	10	0	3	3
.14	.03	0	0	0	100	100	0	--	0	3	<10	<10	0	0	0
.07	.01	1	0	1	0	0	0	7	5	2	10	9	1	0	0

Dissolved cobalt Co (ug/L)	Total copper Cu (ug/L)	Suspended copper Cu (ug/L)	Dissolved copper Cu (ug/L)	Total iron Fe (ug/L)	Dissolved iron Fe (ug/L)	Total lead Pb (ug/L)	Suspended lead Pb (ug/L)	Dissolved lead Pb (ug/L)	Total manganese Mn (ug/L)	Suspended manganese Mn (ug/L)	Dissolved manganese Mn (ug/L)	Total mercury Hg (ug/L)	Suspended mercury Hg (ug/L)	Dissolved mercury Hg (ug/L)	Total selenium Se (ug/L)
0	15	13	2	14000	670	20	9	11	270	260	10	<0.5	0.0	<0.5	0
0	5	4	1	6000	80	31	15	16	90	80	10	<.5	.0	<.5	0
0	14	7	7	1000	60	52	48	4	60	60	0	.5	.0	.5	0

Suspended selenium Se (ug/L)	Dissolved selenium SE (ug/L)	Total silver Ag (ug/L)	Suspended silver Ag (ug/L)	Dissolved silver Ag (ug/L)	Total zinc Zn (ug/L)	Suspended zinc Zn (ug/L)	Dissolved zinc Zn (ug/L)	Total organic carbon C (mg/L)	Suspended organic carbon C (mg/L)	Dissolved organic carbon C (mg/L)
0	0	0	0	0	70	60	10	----	----	4.8
0	0	0	0	0	20	10	10	18.5	13	5.5
0	0	0	0	0	30	0	30	9.2	0.6	8.6

Table 12.--Chemical analyses of Tombigbee River (02447026) below Gainesville Lock and Dam near Gainesville

Date	Time (24 hr)	Instantaneous discharge (cfs)	Specific conductance (micro-mhos)	pH	Temperature (°C)	Turbidity (JTU)	Dissolved oxygen (mg/L)	Hardness (Ca, Mg) (mg/L)	Non-carbonate hardness (mg/L)	Dissolved calcium (Ca) (mg/L)	Dissolved magnesium (Mg) (mg/L)	Dissolved sodium (Na) (mg/L)	Dissolved potassium (K) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)
1978															
Mar 16	1500	34,700	131	8.1	14.5	340	8.4	52	6	19	1.0	2.6	1.7	56	0
	21	0945	30,400	87	7.1	13.0	170	31	7	11	.9	2.2	1.6	29	0
July 22	1100	2,150	156	7.6	29.0	10	7.3	55	13	20	1.3	6.2	2.0	51	0

Alkalinity as CaCO ₃ (mg/L)	Dissolved sulfate (SO ₄) (mg/L)	Dissolved chloride (Cl) (mg/L)	Dissolved fluoride (F) (mg/L)	Dissolved silica (SiO ₂) (mg/L)	Dissolved solids (sum of constituents) (mg/L)	Total nitrite plus nitrate as N (mg/L)	Total ammonia nitrogen as N (mg/L)	Total organic nitrogen as N (mg/L)	Total Kjeldahl nitrogen as N (mg/L)	Suspended Kjeldahl nitrogen as N (mg/L)	Dissolved Kjeldahl nitrogen as N (mg/L)	Total nitrogen as N (mg/L)	Total nitrogen as NO ₃ (mg/L)
46	10	2.4	0.1	4.0	70	0.30	0.10	1.1	1.2	0.89	0.31	1.5	6.6
24	8.3	2.3	.0	4.5	46	.15	.07	.48	.55	.23	.32	.70	3.1
42	10	9.6	.1	5.2	81	.43	.10	.50	.60	.35	.25	1.0	4.6

Total phosphorus as P (mg/L)	Dissolved phosphorus as P (mg/L)	Total arsenic As (ug/L)	Suspended arsenic As (ug/L)	Dissolved arsenic As (ug/L)	Total barium Ba (ug/L)	Suspended barium Ba (ug/L)	Dissolved barium Ba (ug/L)	Total cadmium Cd (ug/L)	Suspended cadmium Cd (ug/L)	Dissolved cadmium Cd (ug/L)	Total chromium Cr (ug/L)	Suspended chromium Cr (ug/L)	Dissolved chromium Cr (ug/L)	Total cobalt Co (ug/L)	Suspended cobalt Co (ug/L)
0.39	0.04	1	1	0	100	100	0	1	0	1	10	10	0	3	3
.16	.03	0	0	0	100	100	0	.....	0	4	<10	< 7	3	...	0
.07	.02	1	0	1	0	0	0	3	3	0	10	8	2	0	0

Dissolved cobalt Co (ug/L)	Total copper Cu (ug/L)	Suspended copper Cu (ug/L)	Dissolved copper Cu (ug/L)	Total iron Fe (ug/L)	Dissolved iron Fe (ug/L)	Total lead Pb (ug/L)	Suspended lead Pb (ug/L)	Dissolved lead Pb (ug/L)	Total manganese Mn (ug/L)	Suspended manganese Mn (ug/L)	Dissolved manganese Mn (ug/L)	Total mercury Hg (ug/L)	Suspended mercury Hg (ug/L)	Dissolved mercury Hg (ug/L)	Total selenium Se (ug/L)
0	10	8	2	16000	80	30	16	14	300	300	0	<0.5	0.0	<0.5	0
2	5	3	2	6700	100	33	0	33	100	90	10	< .5	.0	< .5	0
0	8	6	2	820	30	18	15	3	80	80	0	.5	.0	.5	0

Suspended selenium Se (ug/L)	Dissolved selenium Se (ug/L)	Total silver Ag (ug/L)	Suspended silver Ag (ug/L)	Dissolved silver Ag (ug/L)	Total zinc Zn (ug/L)	Suspended zinc Zn (ug/L)	Dissolved zinc Zn (ug/L)	Total organic carbon C (mg/L)	Suspended organic carbon C (mg/L)	Dissolved organic carbon C (mg/L)
0	0	0	0	0	40	30	10	7.1	2.3	4.8
0	0	0	0	0	20	10	10	.....	.....	5.8
0	0	0	0	0	20	0	20	4.0	.8	3.2

Table 13.--Chemical analyses of Tombigbee River (02449000) at Gainesville

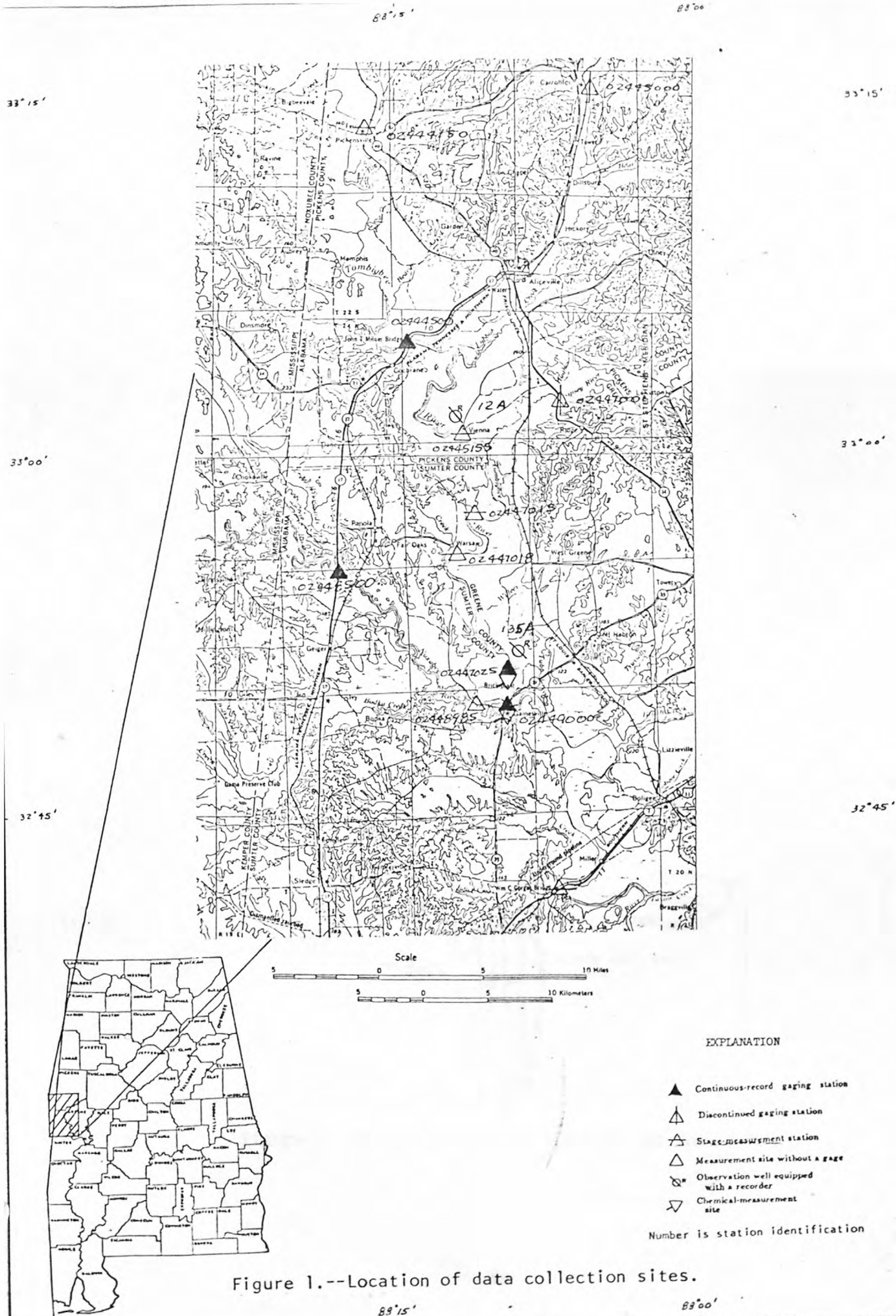
Date	Time (24 hr)	Instantaneous dis- charge (cfs)	Specific conductance (micro- mos)	pH	Temperature (°C)	Turbidity (JTU)	Dis- solved oxygen (mg/L)	Hardness (Ca, Mg) (mg/L)	Non- car- bonate hard- ness (mg/L)	Dis- solved cal- cium (Ca) (mg/L)	Dis- solved magne- sium (Mg) (mg/L)	Dis- solved sodium (Na) (mg/L)	Dis- solved potas- sium (K) (mg/L)	Bicar- bonate (HCO ₃) (mg/L)	Car- bonate (CO ₃) (mg/L)
1978 Mar. 16	0930	34,900	130	7.8	14.5	300	8.4	54	7	20	1.1	3.0	1.7	58	0
July 22	1530	2,150	165	7.9	30.0	20	7.1	58	13	21	1.4	5.8	1.9	55	0

Alka- linity as CaCO ₃ (mg/L)	Dis- solved sulfate (SO ₄) (mg/L)	Dis- solved chlo- ride (Cl) (mg/L)	Dis- solved fluor- ide (F) (mg/L)	Dis- solved silica (SiO ₂) (mg/L)	Dis- solved solids (sum of con- stit- uents) (mg/L)	Total nitrite plus nitrate as N (mg/L)	Total ammonia nitrogen as N (mg/L)	Total organic nitrogen as N (mg/L)	Total Kjeldahl nitrogen as N (mg/L)	Sus- pended Kjeldahl nitrogen as N (mg/L)	Dis- solved Kjeldahl nitrogen as N (mg/L)	Total nitrogen as N (mg/L)	Total nitrogen as NO ₃ (mg/L)
48	11	3.0	0.1	4.4	75	0.31	0.08	1.0	1.1	0.79	0.31	1.4	6.2
45	10	8.5	.1	5.2	83	.38	.03	.4	.43	.29	.14	.81	3.6

Total phos- phorus as P (mg/L)	Dis- solved phos- phorus as P (mg/L)	Total arsenic As (ug/L)	Sus- pended arsenic As (ug/L)	Dis- solved arsenic As (ug/L)	Total barium Ba (ug/L)	Sus- pended barium Ba (ug/L)	Dis- solved barium Ba (ug/L)	Total cadmium Cd (ug/L)	Sus- pended cadmium Cd (ug/L)	Dis- solved cadmium Cd (ug/L)	Total chrom- ium Cr (ug/L)	Sus- pended chrom- ium Cr (ug/L)	Dis- solved chrom- ium Cr (ug/L)	Total cobalt Co (ug/L)	Sus- pended cobalt Co (ug/L)
0.32	0.03	0	0	0	100	100	0	2	1	1	20	20	0	4	4
.09	.02	2	1	1	0	0	0	0	0	0	10	9	1	0	0

Dis- solved cobalt Co (ug/L)	Total copper Cu (ug/L)	Sus- pended copper Cu (ug/L)	Dis- solved copper Cu (ug/L)	Total iron Fe (ug/L)	Dis- solved iron Fe (ug/L)	Total lead Pb (ug/L)	Sus- pended lead Pb (ug/L)	Dis- solved lead Pb (ug/L)	Total manga- nese Mn (ug/L)	Sus- pended manga- nese Mn (ug/L)	Dis- solved manga- nese Mn (ug/L)	Total mercury Hg (ug/L)	Sus- pended mercury Hg (ug/L)	Dis- solved mercury Hg (ug/L)	Total selenium Se (ug/L)
0	18	14	4	15000	90	43	35	8	270	270	0	<0.5	0.0	<0.5	0
0	3	1	2	1300	50	4	2	2	90	90	0	.5	.0	.5	0

Sus- pended selenium Se (ug/L)	Dis- solved selenium SE (ug/L)	Total silver Ag (ug/L)	Sus- pended silver Ag (ug/L)	Dis- solved silver Ag (ug/L)	Total zinc Zn (ug/L)	Sus- pended zinc Zn (ug/L)	Dis- solved zinc Zn (ug/L)	Total organic carbon C (mg/L)	Sus- pended organic carbon C (mg/L)	Dis- solved organic carbon C (mg/L)
0	0	0	0	0	50	40	10	.....	.....	5.1
0	0	0	0	0	10	10	0	5.0	1.1	3.9



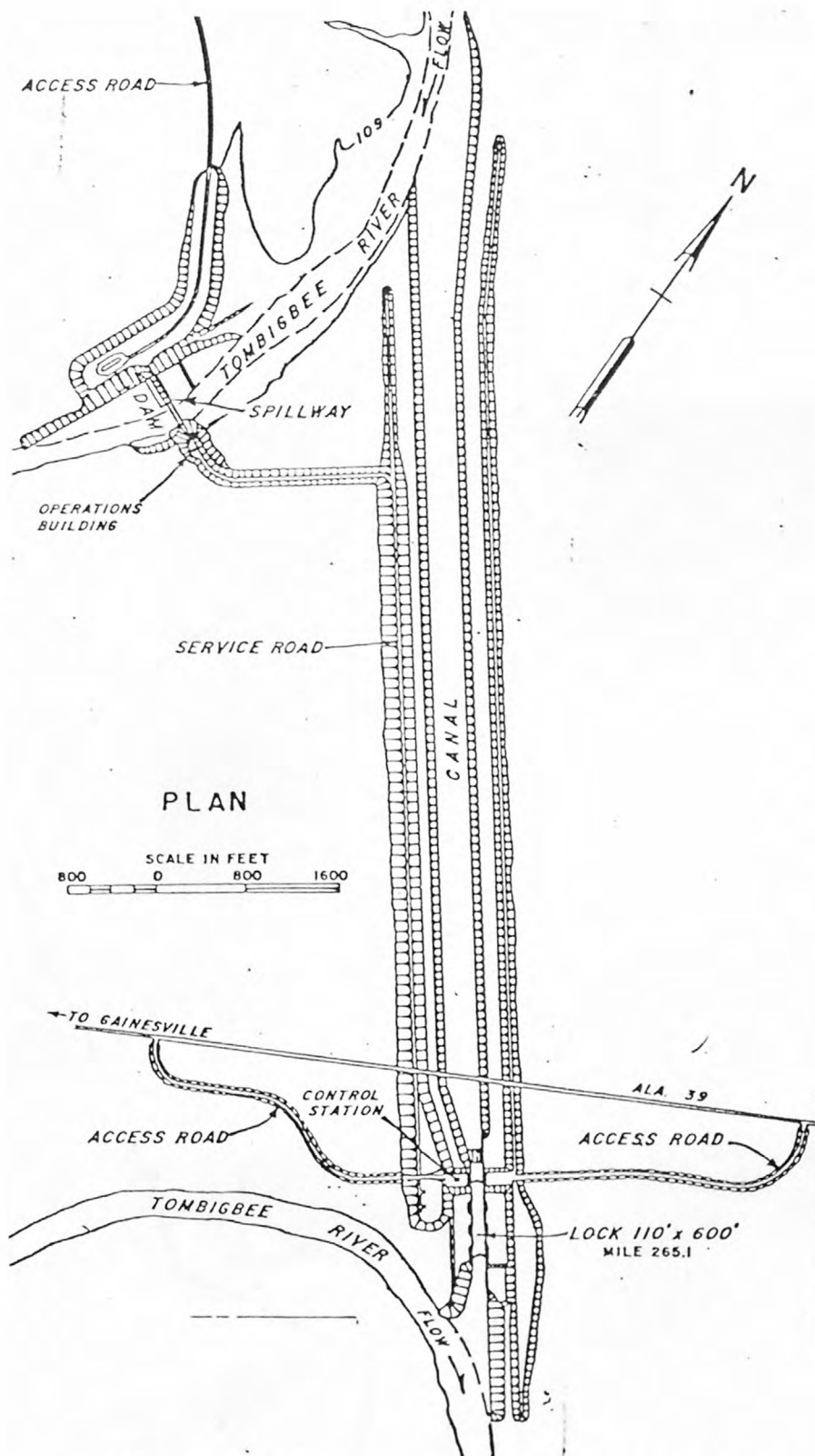


Figure 2.--Sketch of Gainesville Lock and Dam.

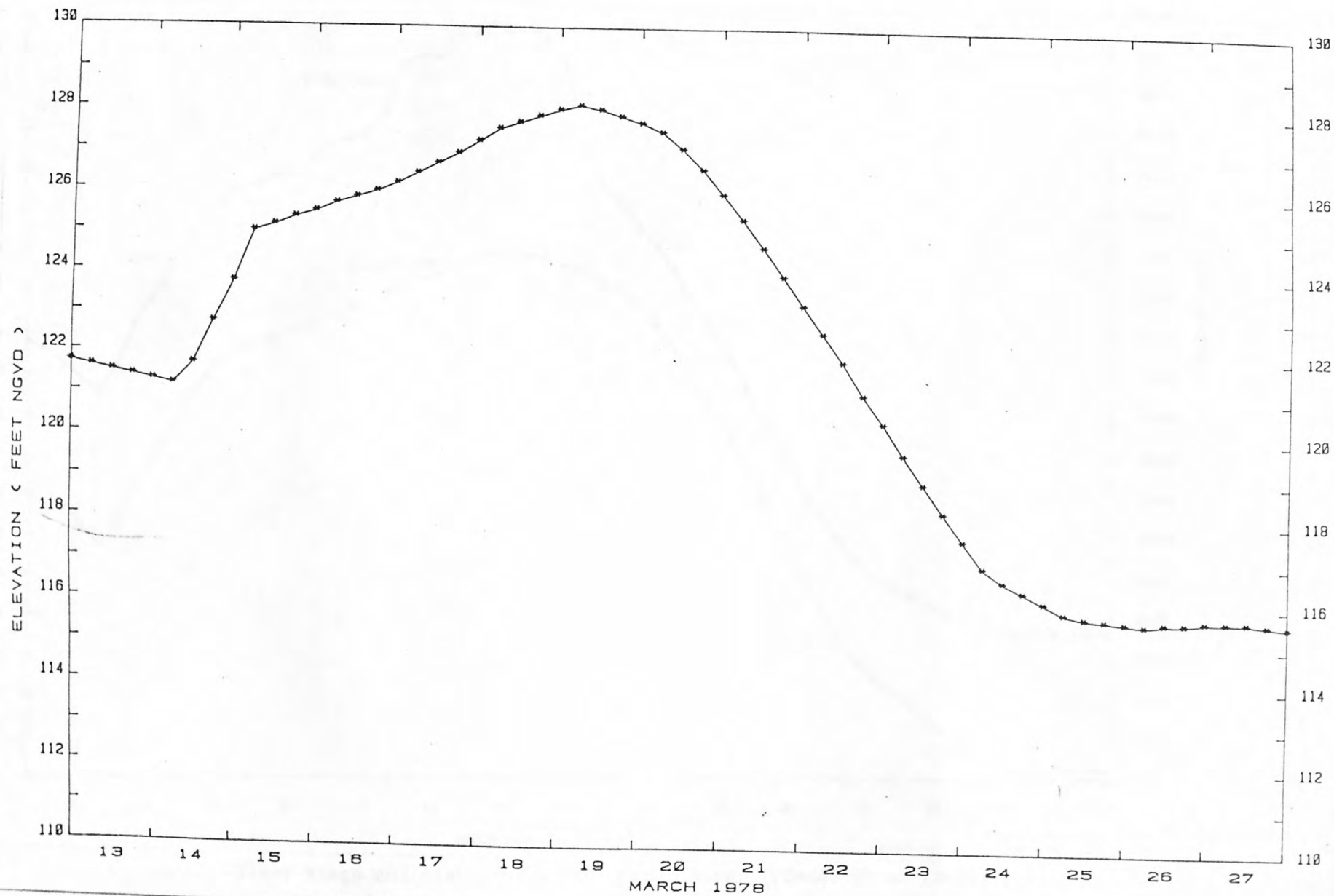


Figure 3.--River stage at Tombigbee River (02444150) at Pickensville.

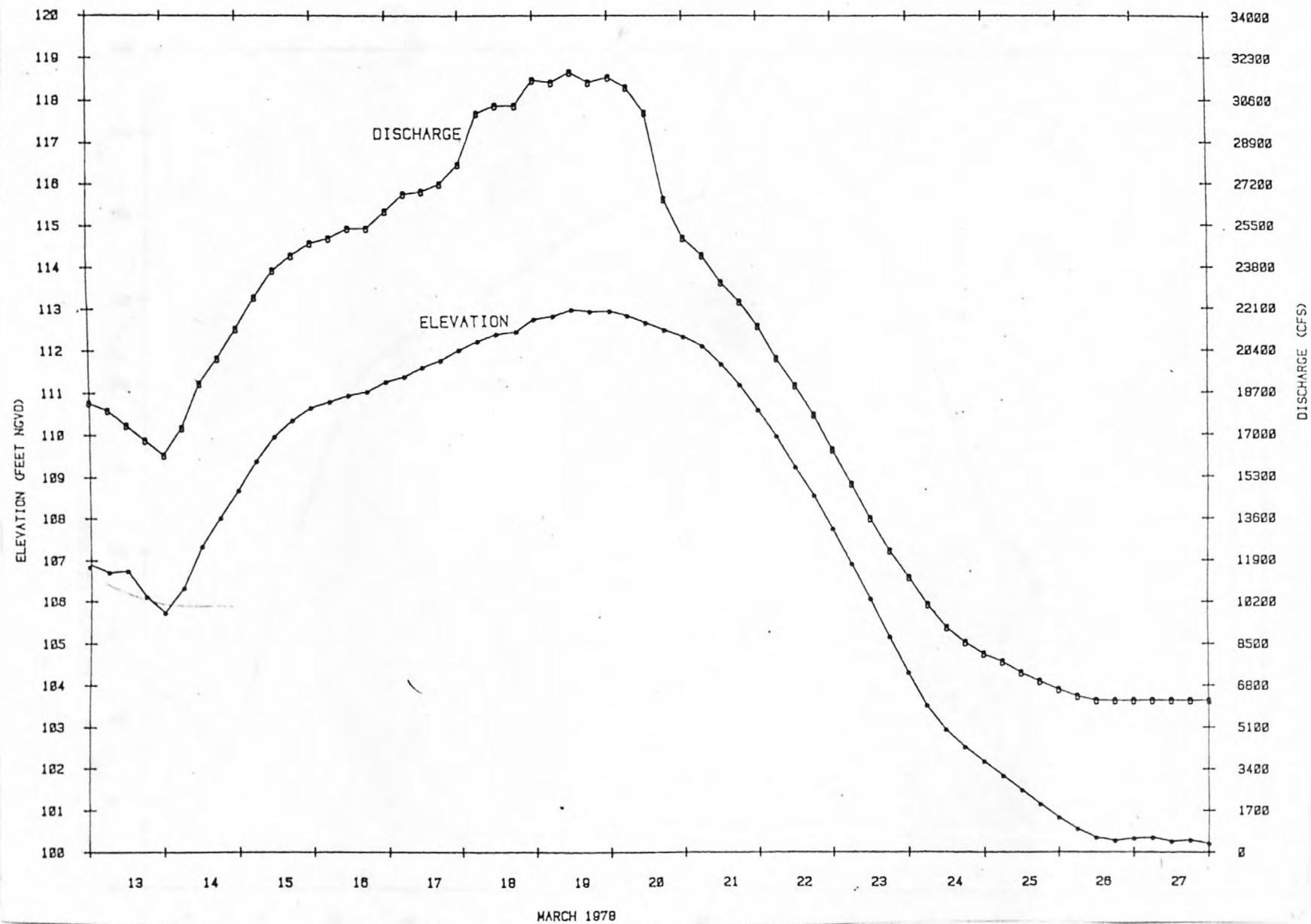


Figure 4.--River stage and discharge at Tombigbee River (02444500) at Cochrane.

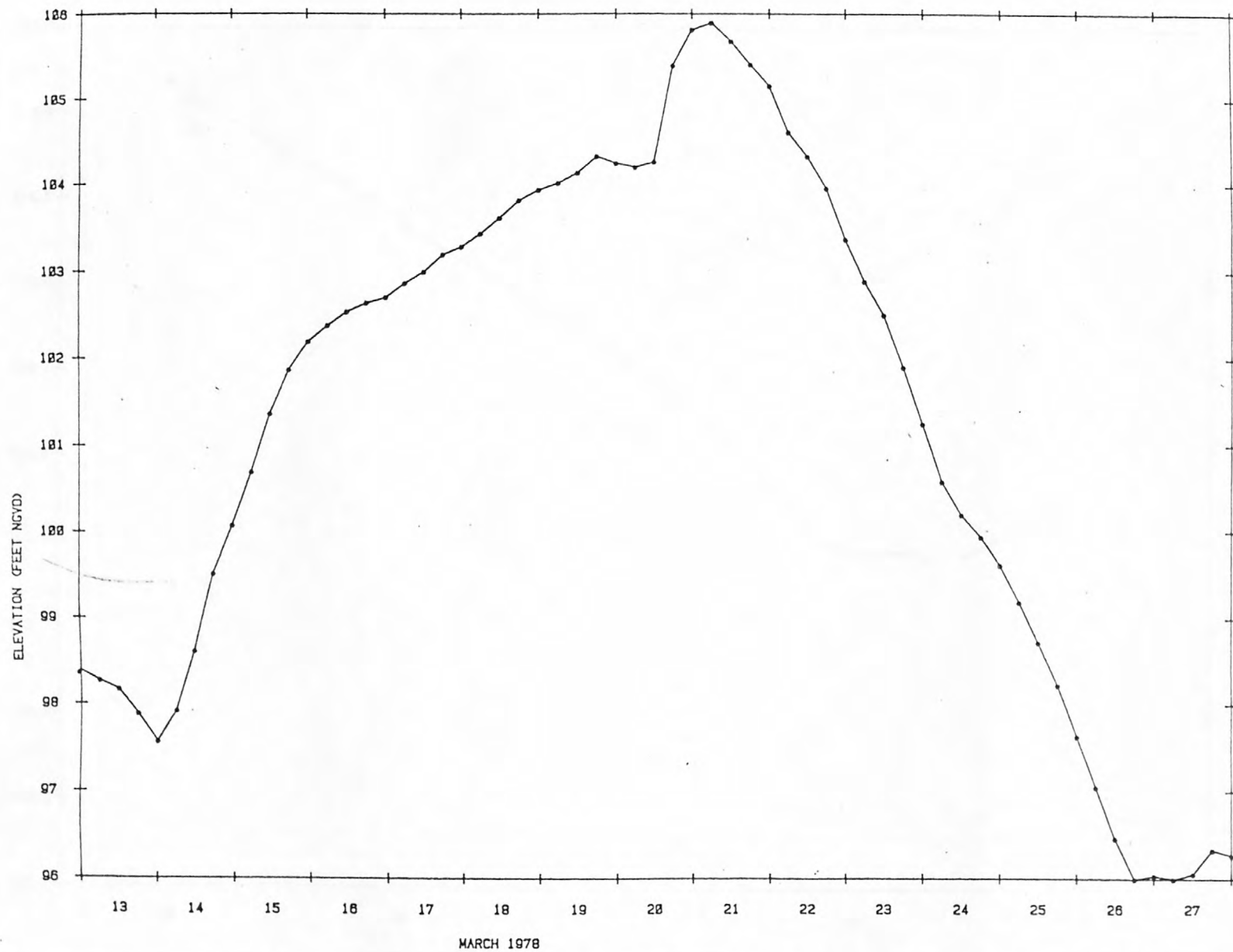


Figure 5.--River stage at Tombigbee River (02445155) at Vienna Ferry.

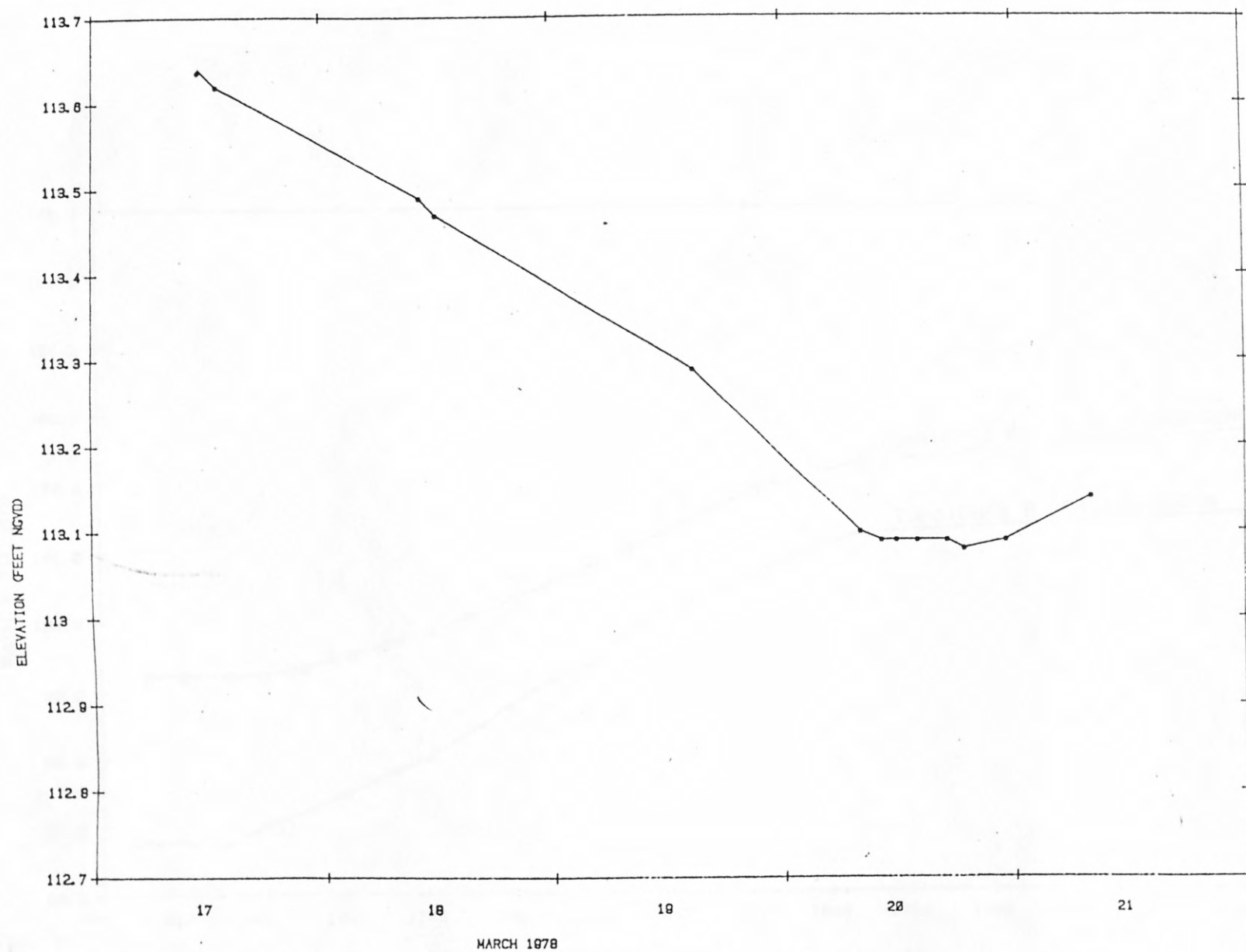


Figure 6.--River stage at Sipsey River (02447000) near Pleasant Ridge.

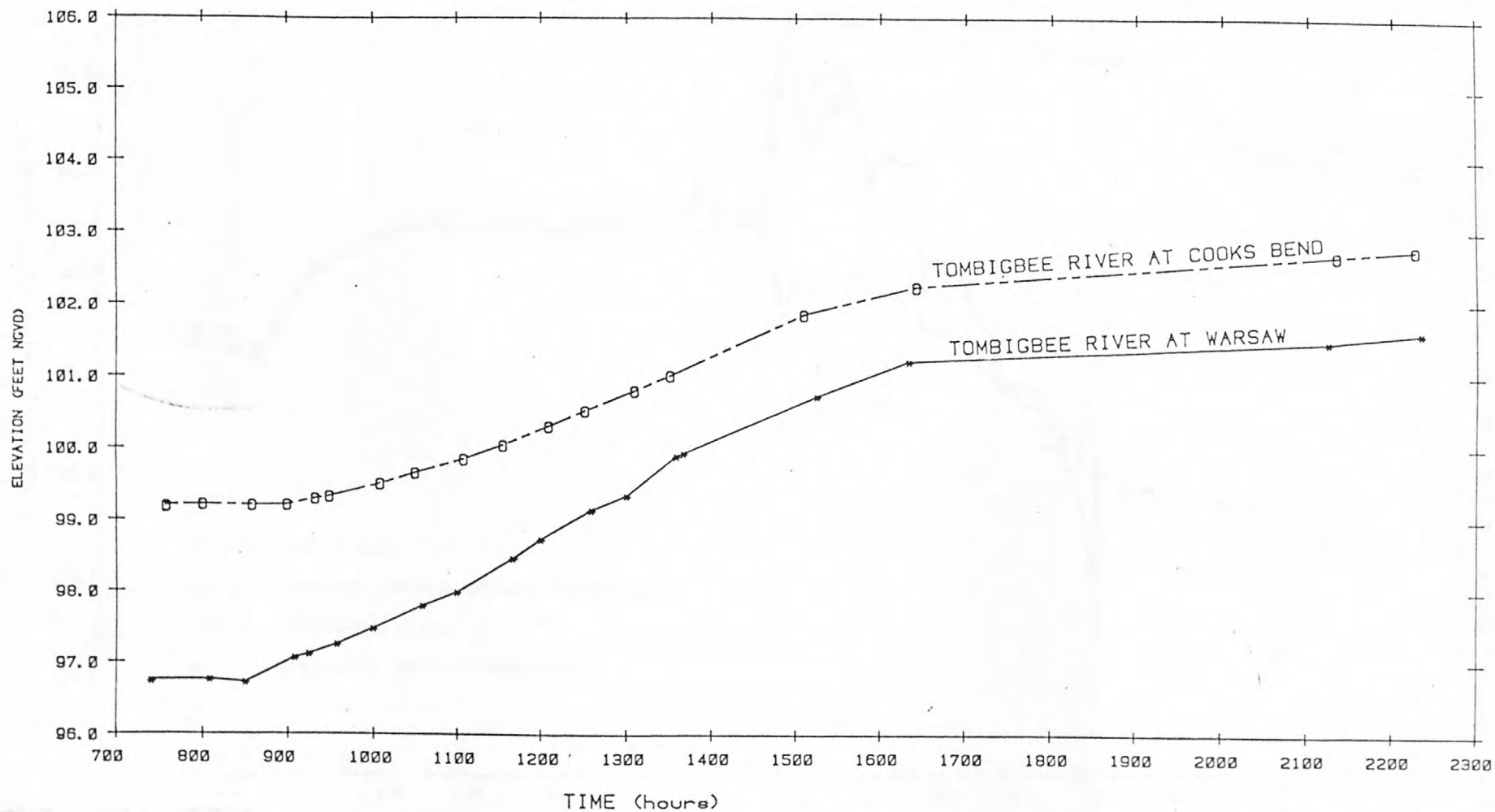


Figure 7.--River stage at Tombigbee River (02447015) at Cooks Bend and Tombigbee River (02447018) at Warsaw.

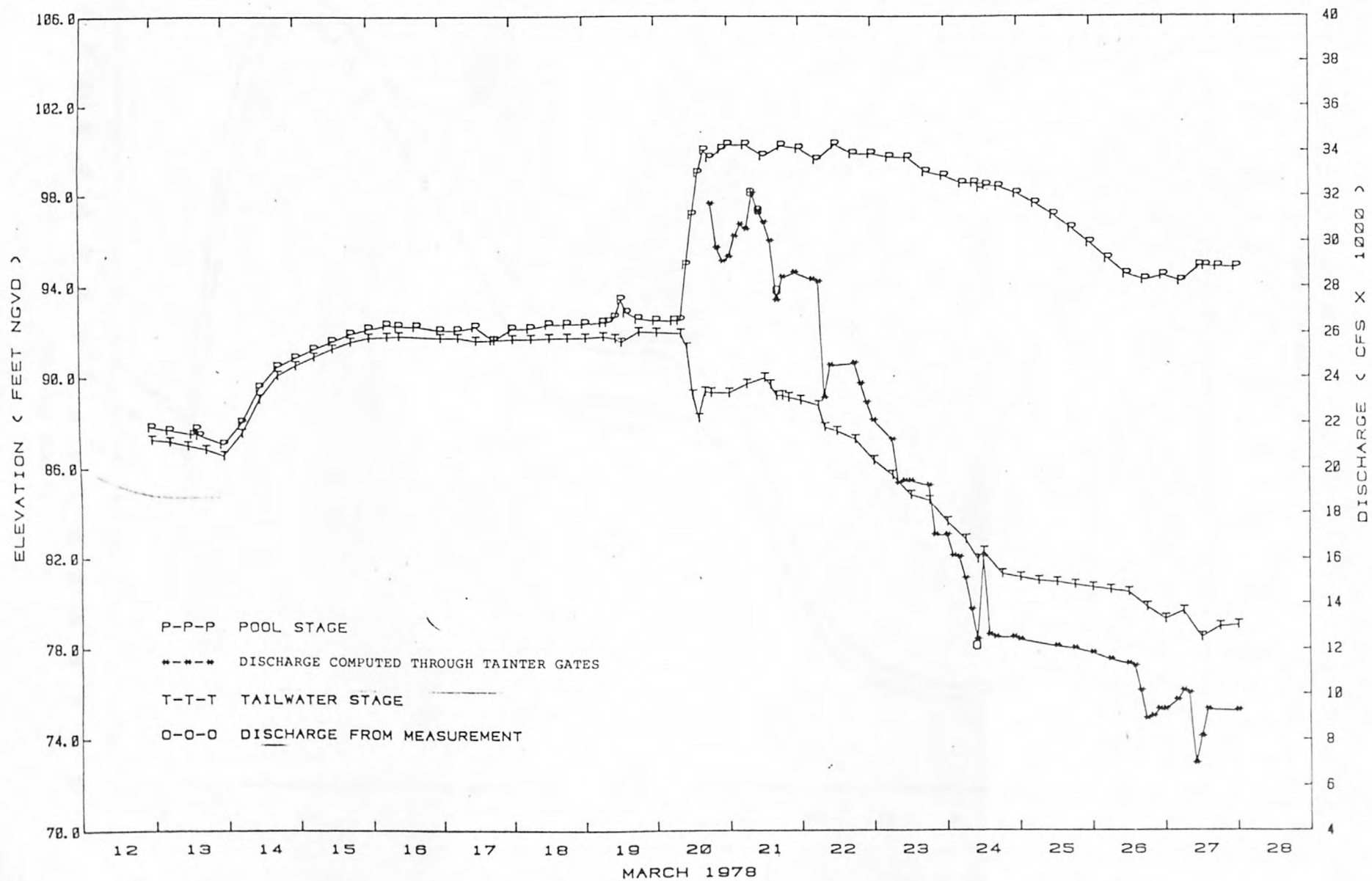


Figure 8.--Pool and tailwater stage and discharge at Tombigbee River (02447025)

at Gainesville Lock and Dam

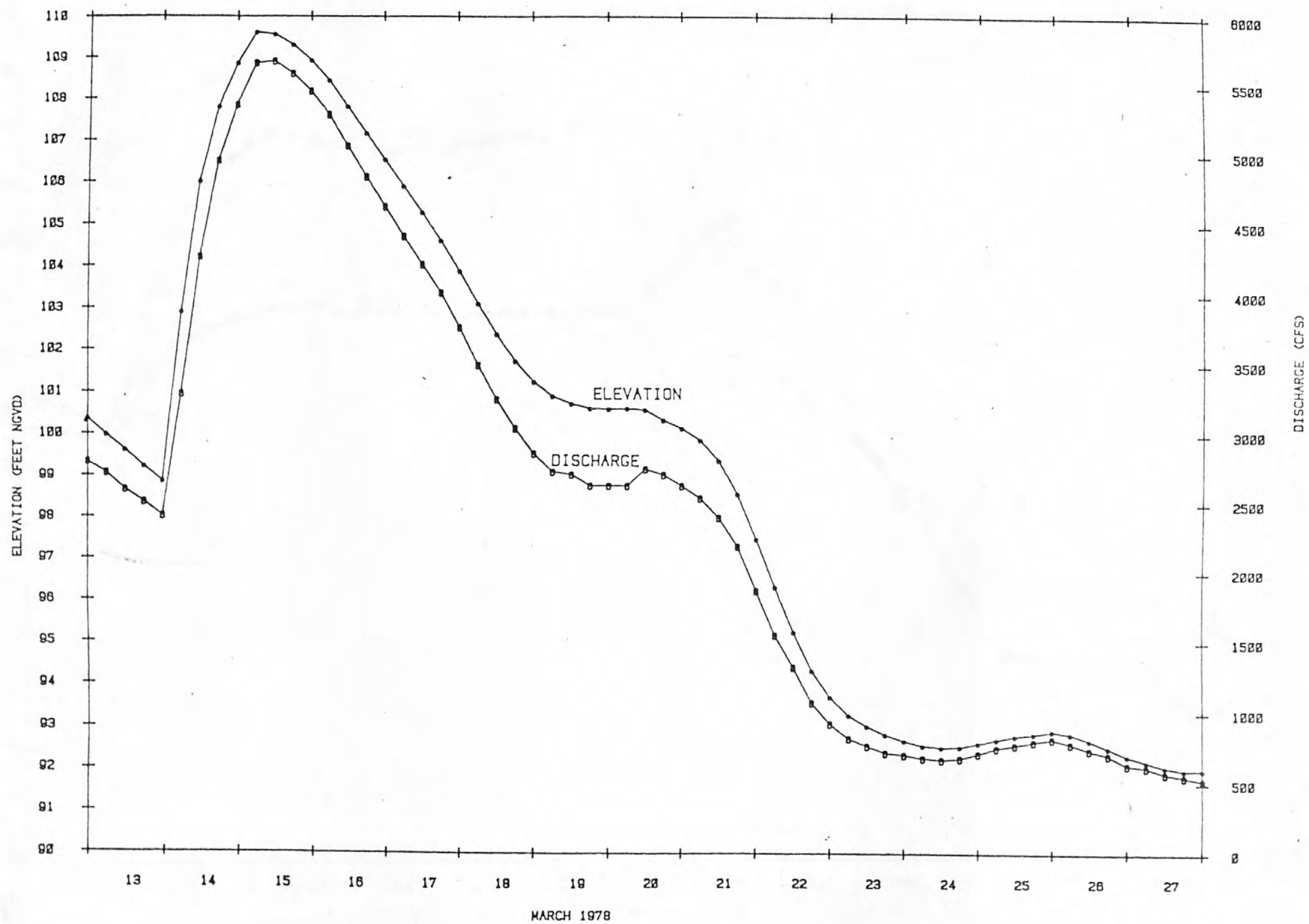


Figure 9.--River stage and discharge at Noxubee River (02448500) near Geiger.

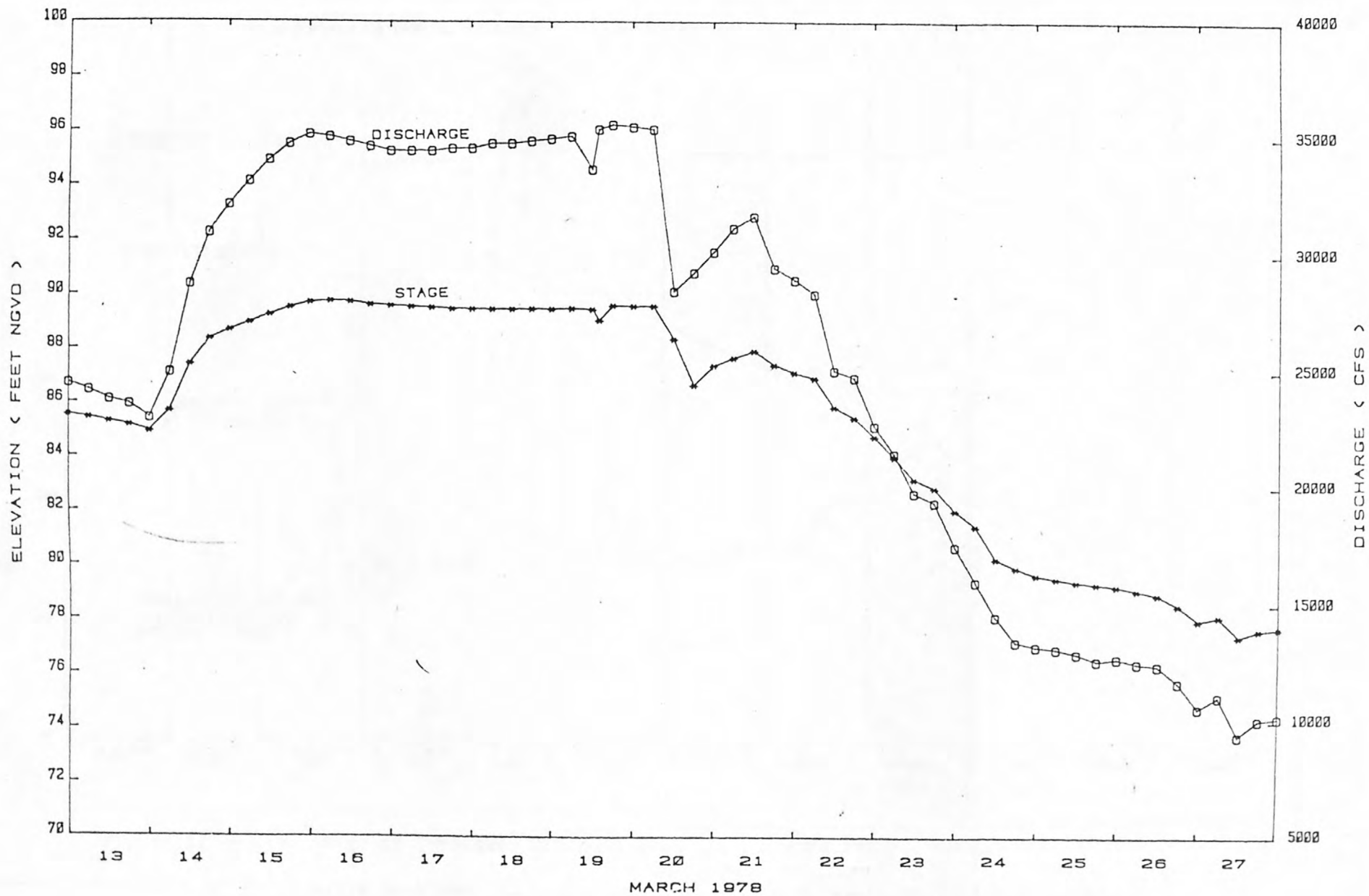


Figure 10.--River stage and discharge at Tombigbee River (02449000) at Gainesville.

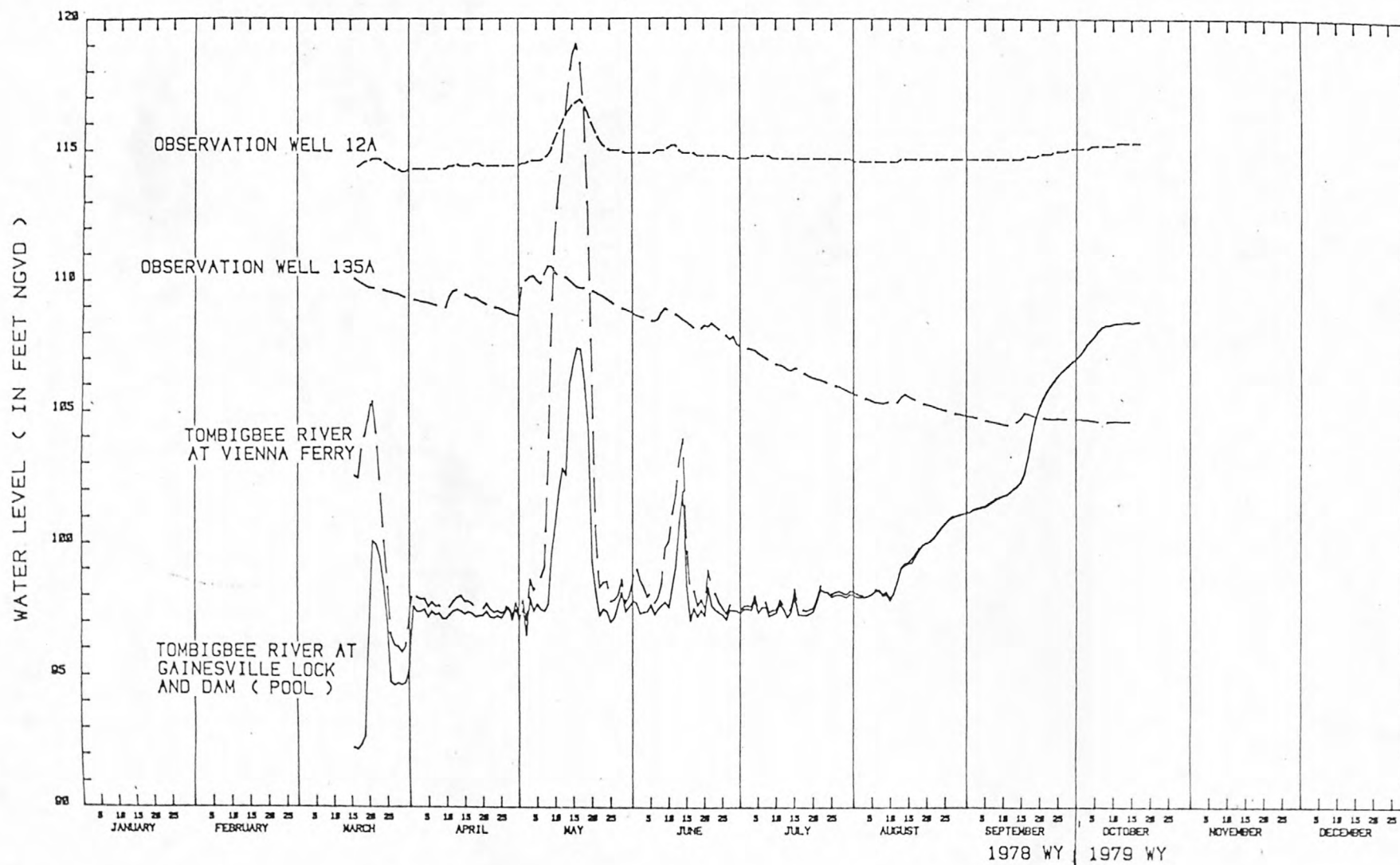


Figure 11.--River stage at Tombigbee River (02445155) at Vienna Ferry, Tombigbee River (02447025) at Gainesville Lock and Dam, and water level in observation wells 12A and 135A.

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