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DEPARTMENT OF THE INTERIOR·
U.S. GEOLOGICAL SURVEY

FLOODS IN FLORIDA

MAGNITUDE AND FREQUENCY

By R. W. Pride

Open-file report
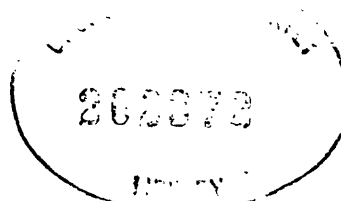
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FLOODS IN FLORIDA

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INTRODUCTION

This report has been prepared to present a comprehensive summary of past floods in Florida and, from the pattern of recurrence of these floods, to develop an effective means of estimating the expectancy of floods in the future. Such information is a basic requirement in the proper design and location of structures placed in, across, or adjacent to flood plains.

When loss of life or extensive property damage would result if the structure is overtopped or destroyed, the design flood should be of such magnitude that it probably never will be exceeded. This report presents information on the maximum-known floods and rainfall in Florida that will be useful criteria for determining this ultimate design flood.

A much broader field of design, and one involving greater overall expenditures, concerns the selection of a design flood where loss of life is not a factor. Economic considerations dictate the basis for design in this field of engineering. Without knowledge of expectancy of floods, a structure may be so underdesigned that it suffers frequent damage or even destruction, or it may be so overdesigned that it will be damaged only by floods with recurrence intervals far greater than its probable useful life. With a knowledge of flood expectancy, the design flood may be selected on the sound economic basis of calculated risk.

Ideally, there would be available at the site of each proposed structure a long-term systematic record of flood events. Unfortunately, this ideal situation seldom exists because it is obviously impracticable to maintain stream-gaging stations at all points where flood data might be desired. Even when the importance of the proposed structure would warrant the installation of a gaging station at the site, it is rarely possible to anticipate the need far enough in advance to obtain records of sufficient length. There is thus a need, not only for a method of relating flood magnitudes and frequencies at points where flood data are available, but for a method of transferring those data and relations to other points. This report represents an attempt to meet these needs in the State of Florida.

Acknowledgements

The data in this report were compiled and prepared for publication as part of a cooperative program for water-resources investigations between the U. S. Geological Survey and the Florida State Road Department. This program has been continuous since 1930.

The report was prepared by R. W. Pride in the district office of the U. S. Geological Survey, Ocala, Fla., under the direction of A. O. Patterson, district engineer. Tate Dalrymple and others of the staff of the Washington office of the U. S. Geological Survey rendered valuable technical assistance in review of report and preparing text for publication.

Most of the data on flood peaks are from the original records in the files of the U. S. Geological Survey but some are from the records of the Corps of Engineers, U. S. Army, the U. S. Weather Bureau, the Everglades Drainage District, and the Okeechobee Flood Control District.

Description of the Area

When the old Spanish province of Florida was acquired by Great Britain in 1763, it was divided into two colonies, East Florida and West Florida, separated by the Apalachicola River. These geographic divisions now have no legal standing, but the name of West Florida is still in common use. East Florida, at least the southern part of it, is more commonly known as the Peninsula. The present State includes both East and West Florida.

Florida is the second largest State east of the Mississippi River, comprising an area of 58,666 square miles, of which 3,805 square miles are water. The State has 3,751 miles of tidal shore line, including the Atlantic and Gulf of Mexico coasts, and of these total lengths 1,987 miles outline the mainland and 1,764 miles surround islands. 1/

1/ Douglas, E. M., Boundaries, areas, geographic centers, and altitudes of the United States and the several States: U. S. Geol. Survey Bull. 817, 1930.

Topography

The State of Florida is a part of a much larger geographic unit, the Floridan Plateau, that lies above sea level. The State is divisible into five natural topographic regions: Coastal Lowlands, Central Highlands, Tallahassee Hills, Marianna Lowlands, and Western Highlands. The general outlines of these regions are shown in figure 1. 2/
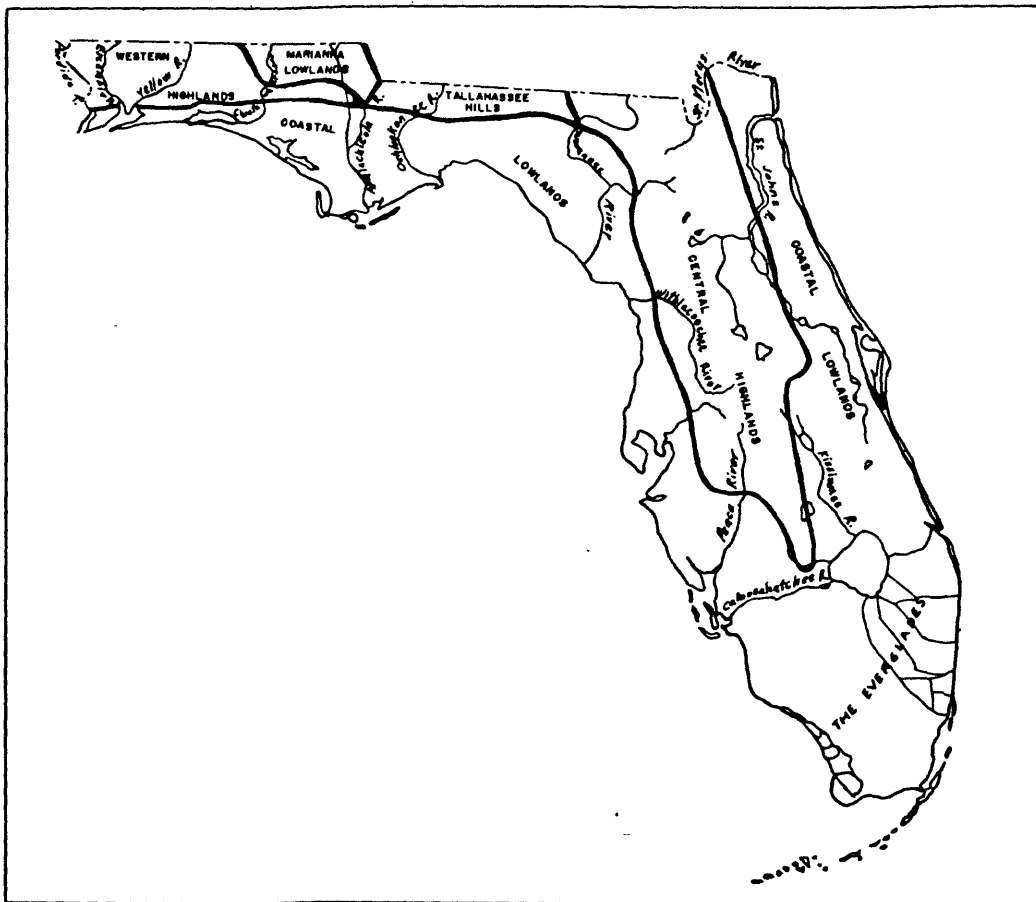
Figure 1.--Topogiaphic divisions of Florida.

Coastal Lowlands. --The Coastal Lowlands border the entire coast of Florida. They are widest in the south, where they cover all of the State south of Lake Okeechobee, and are narrowest from Choctawhatchee Bay to the west, where they are only 10 or 12 miles wide at Pensacola. Land elevation of the Coastal Lowlands varies from sea level to generally less than 100 feet above sea level.

Central Highlands. --The Central Highlands extend from a 60-mile width along the Georgia line south-south-eastward along the peninsula to the vicinity of Glades County, a distance of approximately 250 miles. This area includes high swampy plains, hills, and thousands of lakes. The altitude ranges from less than 40 feet above sea level in some valleys to 325 feet on the summit of Iron Mountain near Lake Wales.

Tallahassee Hills. --The Tallahassee Hills lie between the Georgia state line on the north and the Coastal Lowlands on the south--a width of nearly 25 miles--and between the Withlacoochee River on the east and the Apalachicola River on the west--a length of 100 miles. Long gentle slopes with rounded summits are characteristic of the Tallahassee Hills except in the western part of Gadsden County where the upland surface consists of a nearly level plain which is about 300 feet above sea level.

Marianna Lowlands. --The Marianna Lowlands, consisting of a rough quadrilateral area in Jackson, Holmes, and Washington Counties, is a region of low rolling hills and hollows. It is dotted with many sinks, ponds, and small lakes.

2/ Cooke, C. Wythe, Scenery of Florida: Florida Geological Survey Bull. No. 17. 1939.

Western Highlands. --The Western Highlands extend from the Apalachicola River westward to the Perdido River. In the eastern part of this area they are confined between wide strips of Marianna Lowlands on the north and Coastal Lowlands on the south. Farther west, however, they extend from the Alabama line almost to the Gulf, from which they are separated by a narrow strip of lowlands. The Western Highlands consist of a plateau sloping gently southward. The northern part is hilly, ranging up to 345 feet in Walton County. The southern part is a broad, gently rolling upland ranging in altitude from about 100 feet to 220 feet above sea level and is deeply trenched by narrow steep-walled valleys, which cut down nearly to sea level.

Drainage basins

On the Florida Peninsula the Central Highlands form the divide between the drainage to the east into the Atlantic Ocean and that to the south and west into the Gulf of Mexico. In Northwest Florida most of the area is drained by river systems that originate in Georgia or Alabama and flow southward through Florida to the Gulf of Mexico.

Because of the long coastline and narrow width of the State, much of the drainage is by many small coastal streams. This is in contrast with the few larger river systems that form the drainage pattern of the interior states.

The major river or drainage basins totally or partly within the State of Florida are the St. Marys, St. Johns, Lake Okeechobee and the Everglades, Peace, Withlacoochee, Suwannee, Ochlockonee, Apalachicola, Choctawhatchee, Yellow, Blackwater, Escambia, and Perdido. These river systems in Florida are shown in figure 2.

St. Marys River. --The St. Marys River originates in the Okefenokee Swamp in southern Georgia and meanders in an erratic course to the Atlantic Ocean. This river forms the northeastern boundary of Florida and drains an area of about 1,500 square miles.

St. Johns River. --The St. Johns River is the largest river with its drainage area wholly within the State. The total drainage area of the St. Johns River is about 8,000 square miles. From its headwaters in the marshy area west of Vero Beach, it flows northward for about 250 miles to Jacksonville, where it turns eastward and enters the Atlantic Ocean at Mayport. The river has a very flat gradient and the effect of ocean tides extends upstream more than 100 miles. In the upper reaches of the St. Johns River, the channel expands intermittently to form several large lakes. In the lower reaches of the river between Palatka and Jacksonville, the width ranges from nearly 1 mile to more than 3 miles. Below Jacksonville the width is generally less than one-half mile. The largest tributary of the St. Johns River is the Oklawaha River, which drains an area of about 2,100 square miles. The source of the Oklawaha River is in a group of large lakes in the center of the State.

Lake Okeechobee and the Everglades. --This system drains the entire area of southern Florida. The predominant feature of this drainage system is Lake Okeechobee, which is a large, shallow, roughly circular freshwater lake about 700 square miles in area. The principal inlets to Lake Okeechobee are the Kissimmee River and Fisheating Creek. The Kissimmee River flows southward and enters the north side of the lake. Fisheating Creek flows southward for over half of its length and eastward for the remainder and enters the lake on its west side. In its former natural state Lake Okeechobee had no well-defined outlet; its rising waters would spread over the vast Everglades area to the south, or spill slowly into the flat areas west of the lake and find their way to the Caloosahatchee River, or escape by seepage and overland flow to the Allapattah, Hungryland, and Loxahatchee Sloughs to the east. Under present conditions Lake Okeechobee is impounded by levees that block the water from escaping into the everglades; its present main outlets are the St. Lucie Canal to the east and the Caloosahatchee Canal to the west.

The Everglades is a grassy marsh with an average width of 40 miles extending from the southern shore of Lake Okeechobee for about 100 miles to the sea at the southern end of Florida. Under natural conditions the waters of Lake Okeechobee would rise over the southern rim of the lake, push through the dense growth which formed that rim, and then move slowly southward through the dense sawgrass marsh. This original condition of the Everglades has been greatly altered by the development of drainage and flood-control works. The West Palm Beach, Hillsboro, North New River, and Miami Canals, originating at Lake Okeechobee, cut through the Everglades in a southeastward direction and provide some degree of drainage. At the present time the Everglades area is being further improved and reclaimed by the construction of additional canals, levees, reservoir areas, and pumping stations by the Corps of Engineers and the Central and Southern Florida Flood Control District. The generally low elevation and flat topography of southern Florida with its poor natural drainage results in slow runoff of excess water.

Peace River. --The Peace River originates in the lake region in Polk County and follows a southwestward course into Charlotte Harbor and the Gulf of Mexico. This river drains an area of about 2,000 square miles.

Withlacoochee River. --The Withlacoochee River rises in a swampy area in Polk County and follows a northwestward course past Tsala Apopka Lake to the Gulf.

Suwannee River. --The Suwannee River heads in the Okefenokee Swamp in southern Georgia, flows southward over rapids nearly to White Springs, Florida, turns northwestward to its junction with the Alapaha River, thence southwestward past Dowling Park, then southeastward to the mouth of the Santa Fe River, and finally southward to the Gulf of Mexico. The principal tributaries of the Suwannee River are the Alapaha and Withlacoochee Rivers, which likewise originate in Georgia, and the Santa Fe River, which is entirely within the State of Florida. The total area drained by the Suwannee River basin is slightly less than 10,000 square miles.
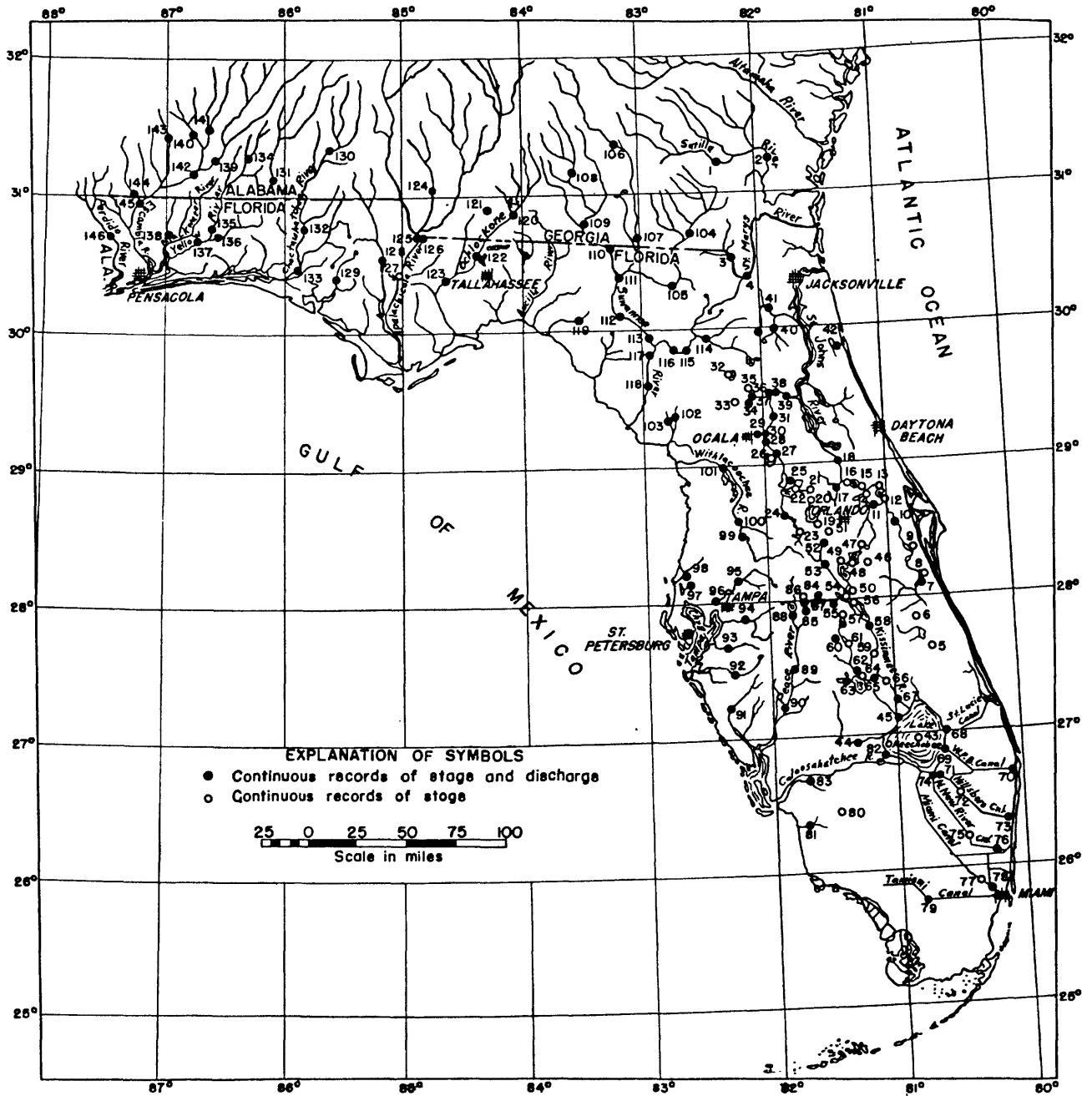
Figure 2. --Map of Florida and adjacent area showing location of gaging stations on rivers, lakes, and canals.

Ochlockonee River. --The Ochlockonee River rises in Georgia and flows southward to the Gulf. The upper reach of this river has a fairly steep gradient. One of the few hydroelectric plants in Florida is located on this stream at the Jackson Bluff Dam west of Tallahassee.

Apalachicola River. --The Apalachicola River is formed by the confluence of the Flint and the Chattahoochee Rivers at the Georgia-Florida State line. The drainage area at this point is 17,100 square miles and the river is by far the largest passing through the State. However, most of the total drainage area is in Georgia and Alabama and a relatively small area is in Florida. The largest tributary of the Apalachicola River in Florida is the Chipola River which rises in Alabama and flows southward in Florida to empty into the Apalachicola River just above its mouth at the Gulf.

Choctawhatchee, Yellow, Blackwater, Escambia, and Perdido Rivers. --All the larger rivers draining West Florida rise in southern Alabama and flow southward through Florida to the Gulf. These streams have fairly steep slopes and broad flood plains. The largest of these rivers and the total drainage area of each are as follows: Choctawhatchee, 4,646 square miles; Yellow, 1,365 square miles; Blackwater, 860 square miles; Escambia, 4,233 square miles; and Perdido, 925 square miles.

Climate

With its northernmost boundary at latitude 31°, the State of Florida is located well south in the temperate zone. Except on the north, the State is surrounded by waters of the Atlantic Ocean and Gulf of Mexico. No point in the State is more than 60 miles from salt water. This proximity to the sea, and the numerous inland bodies of water contribute to the causes that produce a temperate and a moist subhumid to humid climate. The slight variation in the altitude of the land surface has little effect on the overall climate of the State. With average temperatures of 81° F. in July and 59° F. in January, the climate is usually neither excessively hot nor excessively cold.

In the extreme southeastern and northwestern sections of the State the average annual rainfall is 64 inches, and at other places it is generally more than 48 inches except for the Florida Keys where rainfall totals are smaller. The yearly average over the State as a whole is 53 inches. The distribution of the average annual rainfall over the State is shown in figure 3.

There are well-defined wet and dry seasons in Florida. In West Florida and in the northern part of the Florida Peninsula, the period of greatest rainfall and consequent flooding usually occurs between November and April and is caused by broad cyclonic disturbances which commonly bring steady downpours over large areas of several southeastern States.

In central and southern Florida the wet season is usually from June through October. It is during this season that the tropical hurricanes, which originate in the doldrums, move in from the Caribbean Sea or the Atlantic Ocean. Although the winds of a hurricane rotate around a calm center at high velocities, sometimes 100 to 150 miles an hour, the progressive movement of the storm itself averages only about 12 miles an hour.[3] These storms are usually accompanied by intense rainfall. Even though most hurricanes do not strike the Florida mainland, the coastal areas frequently receive heavy rains from many that move in a path fairly near the coast. These tropical storms gradually lose their intensity as they travel inland. This variation is illustrated by figure 4, which shows the 24-hour rainfall to be expected once in 50 years.
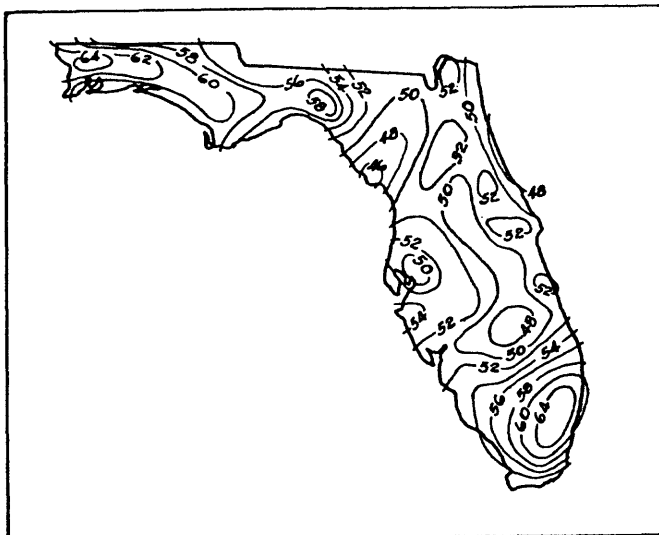
Figure 3. --Average annual rainfall, in inches, in Florida.
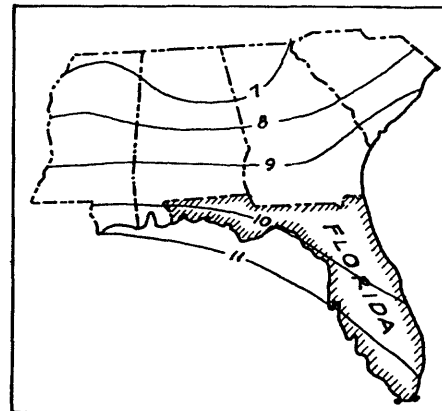
Figure 4. --Maximum 24-hour rainfall, in inches, to be expected once in 50 years.

[3] Tannehill, Ivan Ray, Hurricanes: Princeton University Press. 1945.

Flood Records

The base data for this report were obtained from records of gage height and discharge that have been collected by the Geological Survey and other agencies. All the larger streams in northern Florida head in Georgia or Alabama and records at upstream stations in these States have also been included.

The length of record of streamflow data in Florida is relatively short. In central and southern Florida very little systematic data had been collected before 1930. In northern Florida, records are available from a few gaging stations that were established as early as 1927. In this part of the State there are also records of stage at three stations operated by the U. S. Weather Bureau for a few years antedating Geological Survey record. Historical data pertaining to the peak stage of floods before the beginning of stream-gaging records have been included when such information could be obtained from reliable sources. Estimates of the peak discharge of these floods were made if there were reasonable assurance that the stage-discharge relation was applicable. The listing of the annual peaks in this report is by calendar year. This period was used because it more nearly coincides with the climatic year in Florida than does the water year beginning October 1.

Practically all of the discharge records presented in this report have been previously published in the annual Water-Supply Papers of the Geological Survey. Because of the importance of stage records and the inadequacy of discharge records, especially in southern Florida, there have also been included in this report considerable data on stage of lakes, as well as streams, from the unpublished files of the Ocala District office.

Records from several recently established stations or those for short periods during earlier years were not sufficiently long to be included for frequency analysis purposes. In general, flood records for all stations operated for 5 years or more are included in this study.

Gaging stations providing the base data are listed in downstream order in table 1, which shows by bar graph the years for which annual peak stages or discharges are available at each station. The location of each station is indicated by index number on the map of figure 2.

Table 1.--Gaging station data

No.	Gaging station	Flood region	Drainage area (sq mi)	Mean annual flood (cfs)	Period of record of maximum annual peaks (1920–1955)
	SATILLA RIVER BASIN				
1	Satilla River near Waycross, Ga.	B	1,300	8,200	
2	Satilla River at Atkinson, Ga.	B	2,880	16,000	
	ST. MARYS RIVER BASIN				
3	North Prong St. Marys River at Moniac, Ga.	B	160	1,700	
4	St. Marys River near Macclenny, Fla.	B	720	8,000	
	ST. JOHNS RIVER BASIN				
5	St. Johns River headwaters near Vero Beach, Fla.	B	203	-	
6	St. Johns River headwaters near Kenansville, Fla.	B	442	-	
7	St. Johns River near Melbourne, Fla.	B	874	3,800	
8	Lake Washington near Eau Gallie, Fla.	B	-	-	
9	Lake Poinsett near Cocoa, Fla.	B	-	-	
10	St. Johns River near Christmas, Fla.	B	1,418	5,100	
11	Econlockhatchee River near Chuluota, Fla.	B	260	3,100	
12	St. Johns River above Lake Harney, near Geneva, Fla.	B	1,910	-	
13	St. Johns River at Osceola, Fla.	A	1,950	-	
14	Lake Jessup Outlet near Sanford, Fla.	A	-	-	
15	St. Johns River above Lake Monroe, near Sanford, Fla.	A	2,320	-	
16	St. Johns River near Sanford, Fla.	A	2,420	-	
17	Wekiva River near Sanford, Fla.	A	-	870	
18	St. Johns River near DeLand, Fla.	A	2,960	8,500	
19	Lake Apopka at Winter Garden, Fla.	A	130	-	
20	Apopka-Beauclair Canal near Astatula, Fla.	A	-	-	
21	Lake Dora at Mount Dora, Fla.	A	-	-	
22	Dead River near Tavares, Fla.	A	-	-	
23	Lake Minnehaha at Clermont, Fla.	A	-	-	
24	Palatlakaha Creek near Mascotte, Fla.	A	160	285	
25	Haines Creek at Lisbon, Fla.	A	640	420	
26	Lake Weir at Oklawaha, Fla.	A	37	-	
27	Oklawaha River at Moss Bluff, Fla.	A	910	-	
28	Oklawaha River near Ocala, Fla.	A	1,100	1,080	
29	Silver Springs near Ocala, Fla.	A	-	-	
30	Oklawaha River near Conner, Fla.	A	1,180	2,050	

Table 1.--Gaging station data--Continued

No.	Gaging station	Flood region	Drainage area (sq mi)	Mean annual flood (cfs)	Period of record of maximum annual peaks (1920–1955)
31	Oklawaha River at Eureka, Fla.	A	1,420	3,000	
32	Newnans Lake near Gainesville, Fla.	A	-	-	c
33	Orange Lake near Boardman, Fla.	A	-	-	d
34	Orange Lake Outlet near Citra, Fla.	A	-	-	
35	Lochloosa Lake at Lochloosa, Fla.	A	-	-	
36	Lochloosa Lake Outlet near Lochloosa, Fla.	A	-	-	
37	Orange Creek at Orange Springs, Fla.	A	431	690	
38	Oklawaha River near Orange Springs, Fla.	A	2,010	4,000	
39	Oklawaha River at Riverside Landing near Orange Springs, Fla.	A	2,100	-	
40	South Fork Black Creek near Penney Farms, Fla.	A	134	5,500	
41	North Fork Black Crekk near Middleburg, Fla.	A	174	5,000	
	MOULTRIE CREEK BASIN				
42	Moultrie Creek near St. Augustine, Fla.	A	23.3	730	
	LAKE OKEECHOBEE AND THE EVERGLADES				
43	Lake Okeechobee, Fla.	-	-	-	e
44	Fisheating Creek at Palmdale, Fla.	B	435	5,000	
45	Indian Prairie Canal near Okeechobee, Fla.	B	-	-	
46	Alligator Lake near Ashton, Fla.	B	-	-	
47	Hart Lake near Narcoossee, Fla.	B	-	-	
48	East Tohopekaliga Lake at St. Cloud, Fla.	B	-	-	
49	Lake Tohopekaliga at Kissimmee, Fla.	B	-	-	
50	Cypress Lake near St. Cloud, Fla.	B	-	-	
51	Lake Butler at Windermere, Fla.	B	-	-	
52	Cypress Creek at Vineland, Fla.	B	31.0	66	
53	Reedy Creek near Loughman, Fla.	B	117	-	
54	Lake Hatchineha near Haines City, Fla.	B	-	-	
55	Catfish Creek near Lake Wales, Fla.	B	58.9	131	
56	Lake Kissimmee near Lake Wales, Fla.	B	-	-	
57	Weohyakapka-Rosalie Canal near Lake Wales, Fla.	B	-	-	
58	Kissimmee River below Lake Kissimmee, Fla.	B	1,609	3,000	
59	Kissimmee River at Fort Kissimmee, Fla.	B	-	-	
60	Reedy Lake Outlet near Frostproof, Fla.	B	62.2	86	
61	Lake Arbuckle near Avon Park, Fla.	B	-	-	
62	Arbuckle Creek near DeSota City, Fla.	B	385	2,900	
63	Josephine Creek near DeSota City, Fla.	B	109	630	
64	Lake Istokpoga near DeSota City, Fla.	B	-	-	
65	Istokpoga Canal near Cornwell, Fla.	B	624	1,030	
66	Kissimmee River near Cornwell, Fla.	B	2,703	-	
67	Kissimmee River near Okeechobee, Fla.	B	2,886	6,500	
68	St. Lucie Canal at Lake Okeechobee, Fla.	-	-	-	
69	West Palm Beach Canal at Canal Point, Fla.	-	-	-	
70	West Palm Beach Canal at West Palm Beach, Fla.	-	-	-	
71	Hillsboro Canal at Belle Glade, Fla.	-	-	-	
72	Hillsboro Canal at Shawno Plantation, Fla.	-	-	-	
73	Hillsboro Canal near Deerfield Beach, Fla.	-	-	-	
74	North New River Canal at South Bay, Fla.	-	-	-	
75	North New River Canal at 26-mile bend, near Fort Lauderdale, Fla.	-	-	-	
76	North New River Canal near Fort Lauderdale, Fla.	-	-	-	
77	Miami Canal at Pennsuco, near Miami, Fla.	-	-	-	
78	Miami Canal at water plant, Hialeah, Fla.	-	-	-	
79	Tamiami Canal outlets, Miami to Monroe, Fla.	-	-	-	
80	Lake Trafford near Immokalee, Fla.	-	-	-	
81	Imperial River near Bonita Springs, Fla.	-	-	-	
82	Caloosahatchee Canal at Moore Haven, Fla.	-	-	-	
83	Orange River near Fort Myers, Fla.	-	83.4	-	

Table 1.--Gaging station data--Continued

No.	Gaging station	Flood region	Drainage area (sq mi)	Mean annual flood (cfs)	Period of record of maximum annual peaks (1920–1955)
	PEACE RIVER BASIN				
84	Drainage Canal west of Dundee, Fla.	B	50	123	
85	Peace Creek Marsh outlet near Alturas, Fla.	B	150	877	
86	Lake Howard at Winter Haven, Fla.	B	–	–	
87	Lake Lulu Outlet near Eloise, Fla.	B	26	43	
88	Peace River at Bartow, Fla.	B	390	1,700	
89	Peace River at Zolfo Springs, Fla.	B	840	7,500	
90	Peace River at Arcadia, Fla.	B	1,370	10,000	f
	MIAKKA RIVER BASIN				
91	Miakka River near Sarasota, Fla.	B	235	3,200	
	MANATEE RIVER BASIN				
92	Manatee River near Bradenton, Fla.	B	90	3,400	
	LITTLE MANATEE RIVER BASIN				
93	Little Manatee River near Wimauma, Fla.	B	145	5,500	
	ALAFIA RIVER BASIN				
94	Alafia River at Lithia, Fla.	B	335	5,600	
	HILLSBOROUGH RIVER BASIN				
95	Hillsborough River near Zephyrhills, Fla.	B	220	3,450	
96	Hillsborough River near Tampa, Fla.	B	650	4,200	
	LAKE TARPON BASIN				
97	Brooker Creek near Odessa, Fla.	B	10	57	
	ANCLOTE RIVER BASIN				
98	Anclote River near Elfers, Fla.	B	67	1,150	
	WITHLACOOCHEE RIVER BASIN				
99	Withlacoochee River at Trilby, Fla.	B	650	2,000	
100	Withlacoochee River at Croom, Fla.	B	900	2,700	
101	Withlacoochee River near Holder, Fla.	B	1,710	3,100	
	WACCASASSA RIVER BASIN				
102	Waccasassa River near Otter Creek, Fla.	B	–	392	
103	Otter Creek near Otter Creek, Fla.	B	–	462	
	SUWANNEE RIVER BASIN				
104	Suwannee River at Fargo, Ga.	B	1,260	5,000	
105	Suwannee River at White Springs, Fla.	B	1,990	8,600	g
106	Alapaha River near Alapaha, Ga.	B	644	3,700	
107	Alapaha River at Statenville, Ga.	B	1,400	5,200	
108	Little River near Adel, Ga.	B	547	4,800	
109	Withlacoochee River near Quitman, Ga.	B	1,560	8,000	
110	Withlacoochee River near Pinetta, Fla.	B	2,220	9,000	
111	Suwannee River at Ellaville, Fla.	B	6,580	18,500	
112	Suwannee River at Luraville, Fla.	B	6,900	–	
113	Suwannee River at Branford, Fla.	B	7,090	16,700	
114	Santa Fe River at Worthington, Fla.	B	630	7,000	
115	Santa Fe River near High Springs, Fla.	B	950	4,400	
116	Santa Fe River near Fort White, Fla.	B	1,080	4,900	
117	Suwannee River near Bell, Fla.	B	9,260	20,500	
118	Suwannee River near Wilcox, Fla.	B	9,500	–	
	FENHOLLOWAY RIVER BASIN				
119	Fenholloway River at Foley, Fla.	B	180	946	
	OCHLOCKONEE RIVER BASIN				
120	Ochlockonee River near Thomasville, Ga.	B	550	5,800	
121	Tired Creek near Cairo, Ga.	B	55	3,200	
122	Ochlockonee River near Havana, Fla.	B	1,020	7,000	
123	Ochlockonee River near Bloxham, Fla.	B	1,660	–	
	APALACHICOLA RIVER BASIN				
124	Spring Creek near Iron City, Ga.	B	520	4,200	
125	Apalachicola River at Chattahoochee, Fla.	B	17,100	90,000	
126	Mosquito Creek at Chattahoochee, Fla.	B	60	–	
127	Apalachicola River near Blountstown, Fla.	B	17,300	–	h
128	Chipola River near Altha, Fla.	B	781	5,200	i
	BEAR CREEK BASIN				
129	Econfina Creek near Bennett, Fla.	B	182	1,800	j
	CHOCTAWHATCHEE RIVER BASIN				
130	Choctawhatchee River near Newton, Ala.	B	683	9,600	
131	Pea River near Samson, Ala.	–	1,187	13,300	
132	Choctawhatchee River at Caryville, Fla.	B	3,499	33,000	
133	Choctawhatchee River near Bruce, Fla.	B	4,384	38,000	
	YELLOW RIVER BASIN				
134	Lightwood Knot Creek at Babbie, Ala.	B	113	4,200	
135	Yellow River at Milligan, Fla.	B	624	9,700	
136	Shoal River near Crestview, Fla.	B	474	8,500	
137	Yellow River near Holt, Fla.	B	1,220	–	

Table 1.--Gaging station data--Continued

No.	Gaging station	Flood region	Drainage area (sq mi)	Mean annual flood (cfs)	Period of record of maximum annual peaks 1920 1925 1930 1935 1940 1945 1950 1955
	BLACKWATER RIVER BASIN				
138	Coldwater Creek near Milton, Fla.	B	237	5,800	
	ESCAMBIA RIVER BASIN				
139	Conecuh River near Andalusia, Ala.	B	1,343	17,500	k
140	Sepulga River near McKenzie, Ala.	B	464	11,700	
141	Pigeon Creek near Thad, Ala.	B	296	7,600	
142	Conecuh River near Brooklyn, Ala.	B	2,460	31,500	
143	Murder Creek near Evergreen, Ala.	B	170	4,300	
144	Escambia Creek at Flomaton, Ala.	B	323	8,300	
145	Escambia River near Century, Fla.	B	3,817	42,000	
146	Perdido River at Barrineau Park, Fla.	B	394	7,500	

a 1871, 1880, 1898, 1910 (stage only)
b 1936-42 (once-monthly gage readings)
c 1936-44 (once-monthly gage readings)
d 1936-45 (once-monthly gage readings)
e 1912-29 (intermittent gage heights at doubtful datum).
f 1912 (stage and discharge)

g 1906-08 (stage and discharge)
h 1916 (stage only)
i 1913 (stage and discharge)
j 1926 or 1928 (stage only)
k 1905-19 (stage and discharge)

Bar symbols

▬▬▬ Peak stage and discharge

▭▭▭ Peak stage only

METHOD OF FLOOD-FREQUENCY ANALYSIS[4]

The methods of computing flood frequency used in this report represent current techniques that have been developed in a continuing study by engineers of the Water Resources Division of the Geological Survey and by others. These methods serve, first, to define flood-frequency relations for a particular stream at a specific point of observation (at a gaging station); and, second, by combining a number of these point relations on an areal basis, to estimate flood-frequency relations at any point on any stream, gaged or ungaged, within a broad area (regional flood frequency).

Flood frequency at a gaging station

Flood data for a gaging station may be analyzed in two ways: as an annual flood series or as a partial-duration series.

As used in this report, an annual flood is defined as the highest momentary peak discharge in a calendar year. In an annual flood series, only one flood, the annual maximum, is considered for each year of record. This method of analysis is sometimes objectionable because the second highest flood in a given year, which the above rule omits, may outrank many annual floods. This objection is overcome by the partial-duration series, in which all floods above a selected magnitude are considered without regard to the number within any given period. An objection to the partial-duration series is that not all of the floods considered may be fully independent events, that is, one flood may set the stage for another.

There is an important distinction in meaning between recurrence intervals determined by the two methods. In the annual-flood series the recurrence interval is the average interval in which a flood equal to or greater than a given magnitude will occur as an annual maximum. For example, a flood having a recurrence interval of 25 years, or the "25-year flood", is the flood that can be expected to be equal or exceeded four times in 100 years. No regularity of occurrence is implied; two 25-year floods could occur in consecutive years. In the partial-duration series the recurrence interval is the average interval between floods of a given magnitude regardless of their relationship to the year or any other period of time. This distinction remains, even though for large floods the recurrence intervals are practically the same on both scales.

From statistical principles, there is a definite relationship between the values in the two series. The following table [5] shows comparative values of recurrence intervals for the two methods:

4/ The general discussion of flood-frequency methods given herein was taken, in part, from similar reports for Georgia and Alabama, published as Geological Survey Circulars 100 and 342, respectively.

5/ Langbein, W. B., Annual flood and the partial-duration series: Trans. Am. Geophys. Union. Dec. 1949.

Recurrence intervals in years

Annual flood series	Partial-duration series
1.16	0.5
1.58	1.0
2.00	1.45
2.54	2.0
5.52	5.0
10.5	10
20.5	20
50.5	50
100.5	100

This table shows that for recurrence intervals of 10 years and longer, or those commonly used for design purposes, both methods give essentially the same result. Because of its relative simplicity, the annual flood series has been used in this report.

The flood-frequency graph

The annual floods for each complete year of record are listed in chronological order and numbered in descending order of magnitude--that is, beginning with the greatest as 1. The next step is to fit a time scale to the data. Published methods for this operation are quite diverse, largely because of differing ideas as to the proper method of treating small samples. In the method adopted by the Geological Survey, recurrence intervals are computed as $(n + 1)/m$, where n is the number of years of record and m is the relative order of magnitude of each flood. This formula is simple to compute. It is applicable both to the annual flood data and to the partial-duration series, and gives acceptable results conforming with some of the latest theories.

Annual floods are then plotted with discharges as ordinates and recurrence intervals as abscissae on a special coordinate paper [6] designed to make the plotted points approximate a straight line.

After the annual floods have been plotted, it is necessary to fit a curve to the data. Several methods of fitting the curves analytically have been proposed, but curves so fitted, even by the most elaborate and painstaking methods, appear to offer no advantages over curves simply fitted by eye. Thus, for this report, the frequency curves were drawn as the line of best fit as determined visually, with consideration for the limitations and peculiarities inherent in the data. In general, the plotting positions of the extreme values were discounted or ignored in drawing the curves because there is little opportunity for determining the true recurrence interval of those values. (For an example of a typical frequency graph, refer to figure 9, page 16).

Limitations of flood-frequency graphs

Many hydraulic design problems currently being encountered in Florida require the determination of a design flood for a recurrence interval considerably longer than the period of record. As few flood records for the State extend for more than 25 years, most frequency curves must be extrapolated if the necessary information is to be obtained. For example, suppose that a flood record of 30 years is available for determining a required 50-year flood. Generally, the computed plotting position of the greatest flood is not entirely dependable. Thus, the graph defining the 50-year flood might require extrapolation from the plotting position of the flood second (or possibly lower) in order of magnitude, that is, an extrapolation from about 15 to 50 years on the scale of recurrence intervals. Although this linear distance appears short on the graph, the error of the curve at its outer end could be considerable, regardless of the method of curve fitting or type of plotting paper used.

Another and more serious limitation of flood-frequency graphs based on relatively short records arises from the random manner in which flood events are distributed with respect to time. For example, a flood record of 100 years cannot be expected to include exactly one 100-year flood, two 50-year floods, three 33.3-year floods, and so on. If the 100-year record is separated into two 50-year periods, one period might include several 50-year floods; the other none. Frequency graphs based on each of the two 50-year periods may be vastly different and neither may closely resemble the frequency graph derived from the 100-year record considered as a whole. Similarly, the frequency graph obtained from the 100-year record could be appreciably different from that for a different period of the same length, or for a longer period. Thus, the record of annual floods for a particular stream is a random sample which may yield a frequency graph far different from one which would be derived from a record of infinite length.

The maximum departure to be expected between flood magnitudes or frequencies computed from relatively short records and their true (long-term) values decreases with the magnitude of the flood and with the length of the record. The variation, owing to the chance factor alone, between the flood magnitudes computed from records of varying length and the long-term values has been studied by Benson, [7] who analyzed an array of 1,000 hypothetical

[6] Powell, R. W., A Simple Method of Estimating Flood Frequency: Civil Eng. Feb. 1943.

[7] Benson, M. A., Characteristics of frequency curves based on a theoretical 1,000-year record: U. S. Geological Survey, open-file report; 1952.

annual floods distributed according to the theory of extreme values.[8] In using statistical methods, the most favorable expectancy during 95 percent of the time, or 19 chances out of 20, is commonly used as the criterion for dependable results. The following table based on Benson's study, shows the length of record necessary to define floods of selected frequency within 10 percent and 25 percent of the correct long-term (1,000-year) value.

Length of record in years required to define flood within
indicated percentage of correct value, 19 times in 20

Magnitude of flood	25 percent	10 percent
10-year flood	18	90
25-year flood	31	105
50-year flood	39	110

Although the figures in the above table are based on hypothetical rather than on real flood events, they do give some indication of the considerable errors possible, from chance alone, in frequency graphs based on short-term records. A comparison of the lengths of record indicated by this table and those available for Florida streams (table 1, p. 6) suggests that few records in Florida are long enough to provide reliable individual frequency graphs for floods of infrequent occurrence.

Flood frequency by combining records

As pointed out in the preceding section, the greatest obstacle in accurately defining the flood-frequency graph at a gaging station is shortness of record--a deficiency that can be corrected only by collecting additional records in future years. Thus, some other analytical method is necessary if more dependable information is to be extracted from the flood records available at the present time. One method commonly and profitably used in such circumstances is the combining of records, on the premise that the average answer obtained from all the records is more reliable than an answer from any single record. This section describes how flood records can be combined to serve two purposes: to improve the dependability of the frequency graph at the gaging stations, and to provide a method for determining flood frequencies at points away from gaging stations.

To accomplish these purposes the records are combined by two different methods. By the first method, the records are combined on the basis of a geometric similarity of the individual frequency graphs. Inspection of plotted frequency graphs for many gaging stations has shown that a close similarity in slope and relative shape of the graphs commonly exists over broad regions. If all gaged streams within a certain region show frequency graphs of the same general shape and slope, it may logically be concluded that in some respects that region is homogeneous as to flood-frequency characteristics, and that the average shape of the frequency graph as defined by gaged streams will also apply to ungaged streams in that region. Thus, by combining records on the basis of geometric similarity of the frequency graph, those regions for which the shape of the frequency graph is common to all streams, may be accurately determined.

The shape of the frequency graph, however, is a dimensionless property, and frequency graphs of which only the shape is known cannot be used to determine flood magnitudes in absolute terms at specific points on streams. The first method of combining records locates the frequency graph only with respect to the scale of recurrence intervals. To be of practical use, the graph must also be located with respect to the scale of magnitudes, that is, the dimensions of the graph must be restored.

This is accomplished by the second method of combining records, which relates groups of gaging stations displaying a similarity in their frequency graphs along the scale of magnitude. Experience has shown that in many parts of the United States, including the Southeastern States, frequency graphs for gaging stations can be used to outline areas in which streams draining basins of the same general physical characteristics, particularly of the same size, will produce essentially the same discharge for any given flood frequency. The second method of combining records serves to define these hydrologically similar areas by relating records on the basis of basin properties and the discharge, in absolute terms, for some arbitrarily selected recurrence interval. It further serves to define for any stream within such an area one point on the frequency graph with respect to both magnitude and frequency. If one point on the graph is thus defined, and the shape of the graph has been determined, the complete flood-frequency graph can readily be drawn.

It should be pointed out that the geographical boundaries of the areas defined by the two methods of combining records need not, and generally do not, coincide. To distinguish between the two classes of areas, those defined by the first method are referred to in this report as "flood regions" and those defined by the second method as "hydrologic areas".

Combining records by geometric similarity of frequency graphs

Before records for a number of gaging stations can be combined by this method, they must represent a homogeneous group both with respect to time and to geometric similarity.

[8] Gumbel, E. J., Floods Estimated by the Probability Method: Eng. News Rec., June 14, 1945.

        For time, the records to be combined are conveniently reduced to the same basis by using a common period for all records. Since length of record is of primary importance in a frequency graph, the base period selected should be as long as feasible. Records shorter than the base period are extended to that length by either of two methods. The first method is by estimating annual floods for years of no record from nearby stations having complete record. Order numbers are then assigned to all annual floods, observed or estimated, within the base period at each station. The estimated floods serve only to determine the proper order numbers for observed annual floods and otherwise do not enter into subsequent computations. The alternate method is to compute the mean annual flood for the actual period of the short-term station. Then it can be adjusted to the base period by using the ratio of the mean flood for the two periods at nearby long-term gaging stations.

        For geometric similarity, the records to be combined may be regarded as a homogeneous group if the frequency graphs for the individual stations have approximately the same shape and slope. In comparing these graphs to ascertain whether this condition exists, it is convenient to compute the annual floods at each station as ratios to the station mean, thereby reducing all floods to dimensionless terms.

Computation of mean annual floods

        The mean of the annual floods is commonly, though somewhat ambiguously, referred to as the "mean annual flood" which term, by virtue of convention, has been retained in this report. The mean annual flood is thus not to be confused with the flood having a recurrence interval of one year. According to the theory of extreme values as applied to floods by Gumbel, the mean of all the annual peak floods in a long-term record would have the magnitude of the flood of 2.33-year recurrence interval. The mean annual flood in this report was determined graphically from the individual station data as the intersection of the visually best-fitting frequency graph with the line corresponding to the 2.33-year recurrence interval. With occasional exceptions, experience has shown that the mean annual flood is indicative of the flood characteristics of a drainage basin and is therefore a good index on which to base comparisons.

Test for geometric similarity

        Because flood records are random samples, a group of records can be tested for geometric similarity by determining whether the differences in slope of the individual frequency graphs for the lengths of record available are no greater than might result from chance alone. To test a group of records for this property the ratio of the 10-year flood to the mean annual flood is first determined for each gaging station. These 10-year flood ratios are then averaged to obtain a mean 10-year flood ratio for the group. The mean annual flood at each gaging station is then multiplied by the mean ratio and the corresponding recurrence interval determined from the station frequency graph. These recurrence intervals are plotted against the number of years of record on a test graph, as shown in figure 5, based on the theory of extreme values. If the points for all the stations plot at random between the two curves, the group of records may be regarded as homogeneous and may be combined to define a flood region. Points plotting outside the envelope or grouped near the boundaries indicate where further subdivision is required.

Regional frequency graph

        All station records satisfying the above test are used as a group to define an average or composite frequency graph for that region. From the flood-frequency graph for each gaging station, the flood discharge is determined for selected recurrence intervals (1.1, 1.5, 2.33, 5.0, 10, 25, and higher if curve is defined). These floods for each gaging station are then reduced to dimensionless terms by expressing them as ratios to the mean annual flood (2.33-year recurrence interval). Using all the station records in a homogeneous region, the median ratio is determined for the flood of each selected recurrence interval. The median ratios plotted against the corresponding recurrence intervals define the regional composite frequency graph, which is based on all significant flood data available and may be considered to represent the most likely flood-frequency relation for all streams in the region. As a composite frequency graph expresses floods of other frequencies in terms of the mean annual flood, a complete frequency graph for any stream in the region can be drawn provided the mean annual flood is known.

Combining records by similarity of mean annual floods

        As previously pointed out, the second method of combining records leads to the delineation of hydrologic areas within which a flood of some arbitrarily chosen magnitude and frequency can be related to the characteristics of drainage basins, thus fixing one point on the frequency graph. From the foregoing discussion it is now apparent that the most suitable flood for this purpose is the mean annual flood.

        The selection of suitable basin characteristics for this basic relation is not so self-evident. Many physical characteristics of drainage basins are recognized as influencing the mean annual flood. Some exert a major influence, some a minor one. Some are susceptible of accurate definition and appraisal, some are not. For the sake of simplicity, the number of such factors considered should be as few as possible without detracting seriously from the accuracy of the final result. At the same time, their numerical values must be readily determinable from available maps.

• Factors influencing the mean annual flood

    ' Among the many physical characteristics of drainage basins that affect runoff (and consequently the mean annual flood), those most applicable in Florida are size of drainage area of the basin; amount of storage capacity in stream channels, swamps, and lakes; shape of basin; land and stream slopes; porosity of soil; type of vegetal cover; and land use, particularly as related to the existence of canal systems and pumping stations for drainage or irrigation.

    Of these basin characteristics, the size of the drainage area is the dominant factor influencing the mean annual flood. Also of major importance on the Peninsula is the effect of storage in the numerous lakes in the drainage basin. This latter effect produces attenuated flood peaks. The attenuation, or reduction in flood peaks, is closely related to the percentage of lake area within the basin, a factor which can be readily determined from available maps.

Hydrologic areas

    As a final step in combining records, the mean annual floods for all gaging stations are plotted against the corresponding drainage areas. For a drainage basin containing lake areas that are a significant percentage of the total drainage area, the mean annual flood has been adjusted for attenuation before correlating with the size of drainage area. Plotted data that indicate definite trend lines and also can be related geographically, are separated into groups. The geographic boundaries of the areas represented by these

Figure 5. --Homogeneity test graph.

grouped data are based largely on an appraisal of the land factors influencing floods, as climatic factors will generally show little variation. Much of the scattering of the plotted data is due to the influence of factors other than the size of drainage area and storage in lakes. However, in lieu of attempting to evaluate these factors, the State was subdivided into several additional hydrologic areas and fairly satisfactory correlations with drainage area have been obtained. For each of these hydrologic areas a curve relating mean annual flood and drainage area is prepared. An auxiliary curve is also prepared for defining the attenuation of flood peaks in applicable areas. Because these curves average the data for gaged points on streams in the area, they may be regarded as the most likely relations for ungaged points. Thus the only factors required to determine the mean annual flood at a desired point on a stream are the drainage area and the area of contributing lakes upstream.

FLOOD FREQUENCY IN FLORIDA

    On the Peninsula of Florida, north of Lake Okeechobee and excluding the St. Marys and Suwannee River basins, practically no streamflow records were collected prior to 1930. However, several gaging stations were established in this region during 1930, generally on the larger streams, and there is available a fairly adequate network of stations on which to base frequency studies for the 24-year period, 1930-53. In the region including the St. Marys and Suwannee River basins and extending westward for the remainder of the State, records from a few gaging stations extend back to 1927 and the base period used for this region is the 27-year period, 1927-53.

Flood regions of Florida

    On the basis of the test for geometric similarity, two regions in Florida were indicated for which the characteristics of annual flood peaks were more or less homogeneous. These homogeneous flood regions are designated as regions A and B in figure 6, and on plate 1. For the extreme southern part of the Florida peninsula, south of Lake Okeechobee, the available data are inadequate for flood-frequency studies. This region will be discussed in more detail in a following paragraph.

    Records for several gaging stations in regions A and B have not been used to define the flood-frequency relationships because of regulation and diversions, interconnection of the drainage basins, proximity to other stations, or short periods of record.
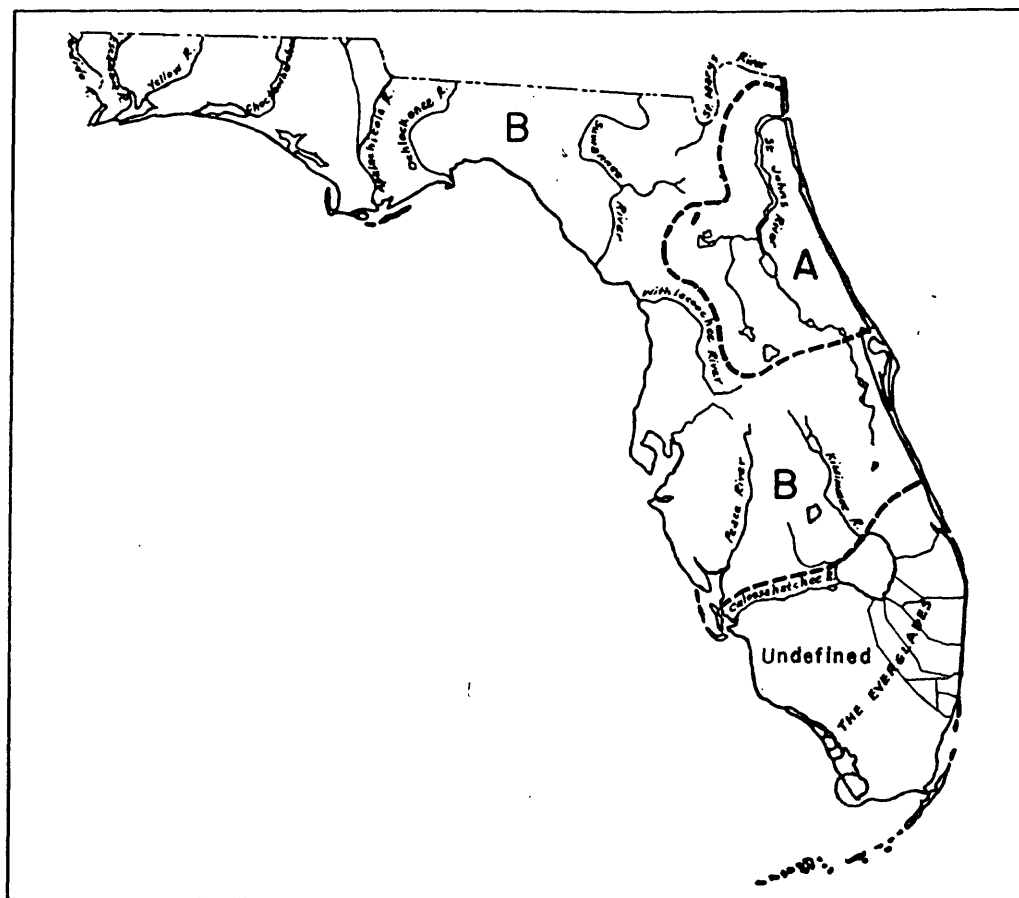
Figure 6. --Homogeneous flood regions of Florida.

Delineation of flood regions

Region A. --This region includes the lower part of the St. Johns River basin and the adjacent small coastal streams draining into the Atlantic Ocean. There are 11 gaging stations in this region that have sufficient length of discharge records on which the composite flood-frequency was based. Of these stations, only one is complete for the 24-year base period, 1930-53. Three other stations cover a term of 20 years or longer. By correlation, however, the period of annual flood peaks for each of the 11 stations was extended to the same 24-year base. The composite flood-frequency graph for region A is shown as figure 7.

Region B. --This region covers practically the entire State except region A and the area south of Lake Okeechobee. In central Florida practically no discharge records were collected before 1930 and little information on historical floods could be obtained before the beginning of record. However, in the northern part of the peninsula and in West Florida a few discharge records extend back as far as 1927. Flood data for outstanding historical floods at several stations are available for a number of years antedating the period of record.

In this region there are 70 gaging stations with sufficiently long discharge records on which to base the composite flood-frequency relationship. Of these 70 gaging stations, records for only 4 are complete for a 27-year period, 1927-53, and 7 are complete for a 24-year period, 1930-53. However, by correlation by either of the two methods previously described and by use of historical data for several stations a composite flood-frequency graph based on the 70 gaging station records in region B has been defined. This composite flood-frequency graph is shown in figure 8 and has been extended to the 50-year recurrence interval with reasonable assurance.

Records for a number of stations in southern Georgia and southern Alabama were included for additional definition of the composite flood-frequency relationship for this region. The relationship for region B in Florida differs slightly from that applicable for region D in Georgia, as shown in Circular 100, and region B in Alabama as shown in Circular 342, but is approximately the same as the average of the two. The relationship as shown in figure 8 is the best fit of the data for Florida gaging stations and is therefore considered applicable for conditions in Florida.

Records of annual flood peaks for the Apalachicola River at Chattahoochee have been available since 1919. The station-frequency curve for the 35-year period, 1919-53, has been included as figure 9 in this report.
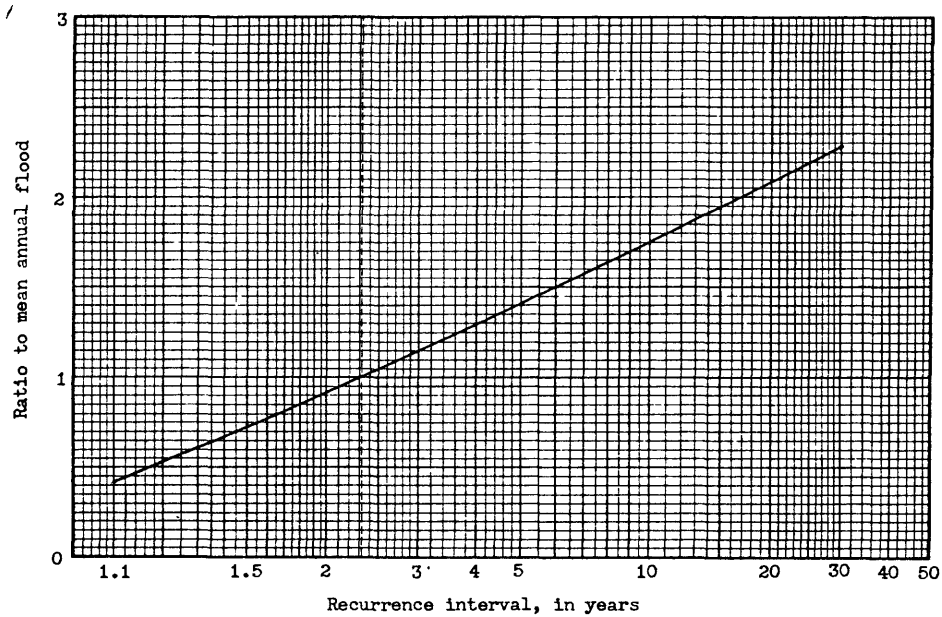
Figure 7. --Composite frequency curve for floods in region A.
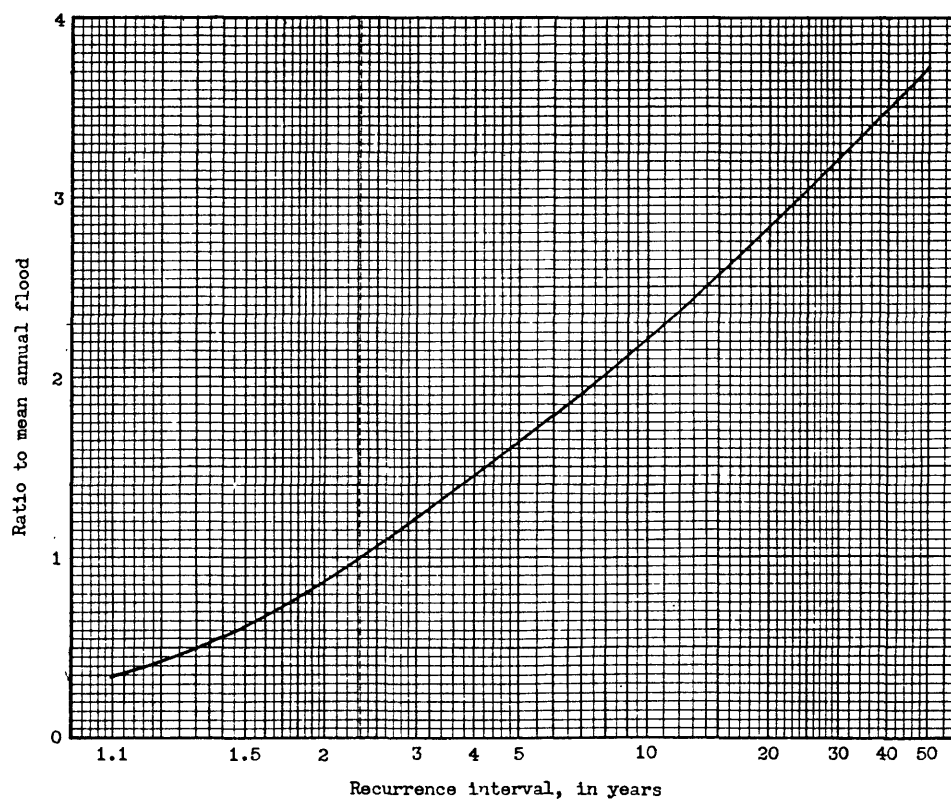
Figure 8. --Composite frequency curve for floods in region B.
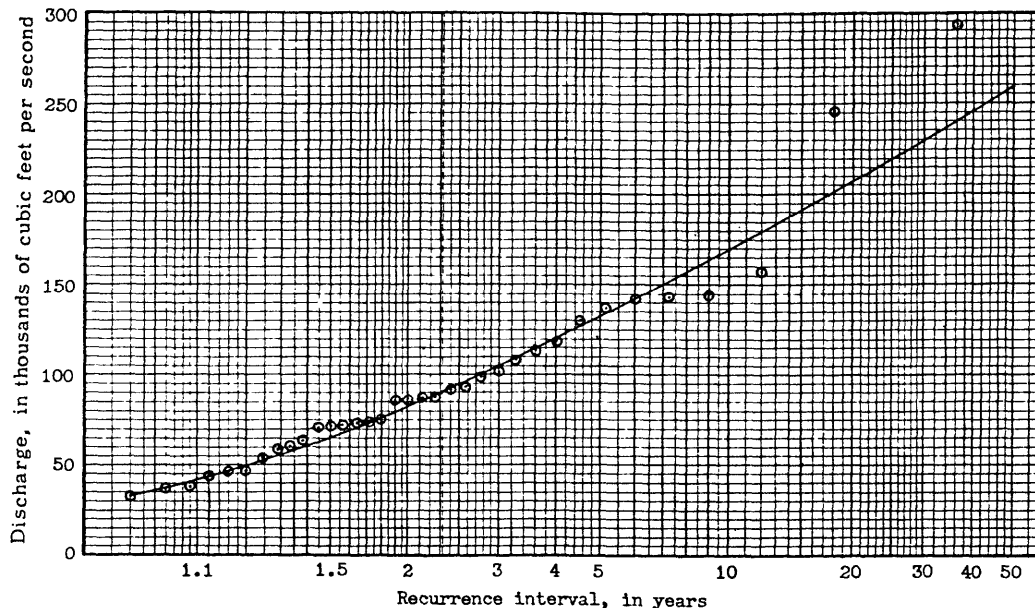
Figure 9. --Frequency of annual floods, Apalachicola River at Chattahoochee, Fla.

Southern Florida. --Drainage in the area south of Lake Okeechobee is mainly by means of interconnected canal systems which are progressively being improved and developed. The regimen of flow in these canals is thus being continually altered. Practically no streamflow data had been collected in this area before 1940. Because of the short period of record, the progressive changes in the canal systems, regulation, and diversions, the flood frequency of this region is indeterminate. The annual flood peaks for several main channels have been included in this report in order to show the magnitude and variation of floods at selected sites.

The composite flood-frequency graphs of figures 7 and 8 are basic to the remainder of the report in that they are derived from all significant flood data and are presumed to represent the most probable relation between flood magnitude and frequency for any stream in the regions to which they apply. The graphs are of general applicability because they express flood discharges as ratios to the mean annual flood. Thus, to derive a frequency graph for any stream, expressing flood discharges in cubic feet per second, it is only necessary to multiply the mean annual flood, in cubic feet per second, for that stream by the ratios indicated by the appropriate composite graph. The remainder of the analytical portion of this report is therefore largely devoted to methods of determining the mean annual flood for streams in Florida.

Hydrologic areas of Florida

The base data used for determining the hydrologic areas in Florida are listed in table 1, which shows the drainage area and mean annual flood for applicable base periods for gaging stations on streams in flood regions A and B. As previously discussed in this report, flood frequencies and mean annual floods on streams and canals in southern Florida cannot be evaluated on the basis of available data. Excluding southern Florida, the remainder of the State has been divided into seven areas in each of which the base data indicate a similarity in hydrologic conditions relating to floods. For these hydrologic areas, the relationship between mean annual flood and drainage area has been defined. Many characteristics, other than size of the drainage area, influence the mean annual flood. The dominant secondary influence in Florida is the amount of storage capacity in lakes above a gaging station. In order to eliminate the effect of storage in lakes, an attenuation factor has been computed for adjusting the mean annual flood for a drainage basin containing a significant percentage of lake area. The method of adjustment of mean annual floods for several gaging stations with attenuated flood peaks is shown in table 2. The attenuation factor is shown in figure 10. In defining the relation of mean annual flood to drainage area for each hydrologic area the adjusted mean annual floods as shown in column 6, table 2, has been used in conjunction with mean annual floods for drainage areas devoid of lakes. To compensate for the less tangible factors that influence the mean annual flood, the State was subdivided into several hydrologic areas.

The 7 hydrologic areas of Florida are shown on plate 1. Because of inadequate data defining the areal boundaries, it was necessary to select these boundaries somewhat arbitrarily. In general, the boundaries follow drainage divides. In some areas, however, the boundaries cross stream lines. The crossings were placed at the junctions with large tributaries or lakes, where changes in the relation most logically occur.

Table 2.--Adjustment of mean annual flood for attenuation by storage in lakes

Sta. No. (1)	Total drainage area (sq mi) (1)	Surface area of contributing lakes (sq mi) (2)	Ratio of lake area to total drainage area (Col. 2÷Col. 1) (3)	Mean annual flood (cfs) (4)	Discharge ratio from Fig. 10 (5)	Adjusted mean annual discharge (cfs) (Col. 4÷Col. 5) (6)
24	160	22.1	0.138	285	0.18	1,580
25	640	128	.200	420	.091	4,620
28	1,100	161	.146	1,080	.16	6,750
37	431	55.4	.129	690	.21	3,280
52	31.0	8.3	.268	66	.068	970
55	58.9	7.3	.124	131	.23	570
60	62.2	16.0	.257	86	.071	1,210
62	385	29.6	.077	2,900	.60	4,830
63	109	20.4	.187	630	.100	6,300
65	624	93.1	.149	1,030	.15	6,870
84	50.0	10.5	.210	123	.088	1,400
85	150	15.8	.105	877	.35	2,500
87	26.0	7.3	.280	43	.065	660
88	390	42.0	.108	1,700	.33	5,150
89	840	45.7	.054	7,500	.82	9,150
90	1,370	45.7	.033	10,000	.93	10,800
91	235	8.5	.036	3,200	.92	3,480
97	10.0	1.3	.130	57	.20	285
114	630	15.6	.025	7,000	.96	7,300

Note.--This curve not applicable to main stems of major streams noted as exceptions on fig. 18.

Lake area, in percentage of total drainage area

Flood reduction factor, in ratio of adjusted discharge to normal discharge
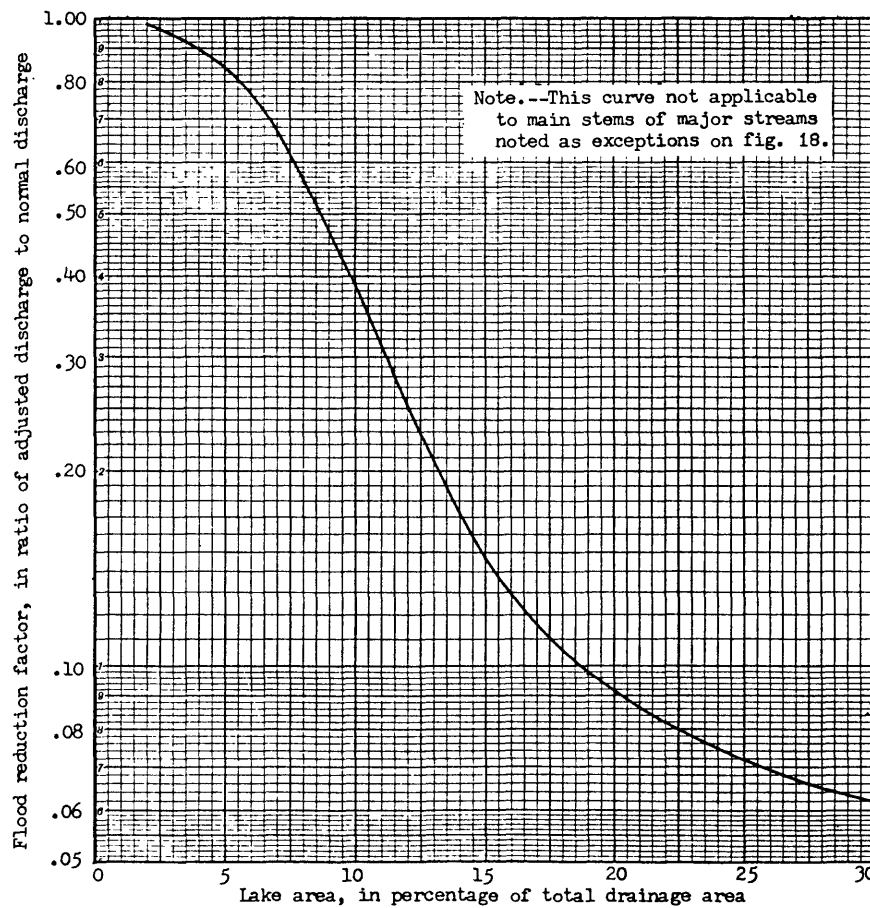
Figure 10.--Relation of lake area above gaging station to reduction of mean annual flood.

The hydrologic areas are designated in numerical order, beginning in the northeast corner of the State.

Delineation of hydrologic areas

Area 1.--Except for small enclosed areas 2A, 2B, and 3, the entire central peninsula, east of the Suwannee River and north of Lake Okeechobee, is included in area 1. Records of mean annual floods for 23 gaging stations on tributary streams were available for defining the relationship with drainage area. Flood peaks for several of these stations are attenuated by storage in lakes within the basin. Mean annual floods for these stations have been adjusted for attenuation as shown on table 2, and the adjusted results have been plotted with mean annual floods for stations not affected by storage in lakes to define the relation of mean annual flood to drainage area. This relation is shown as figure 11 and varies as the 0.70 power of the drainage area. The adjusted results of the mean annual floods for stations 55 and 63 scatter considerably from the curve shown in figure 11. Except for these two stations the relation is satisfactory and is the best estimate of the mean annual flood at ungaged sites in area 1.
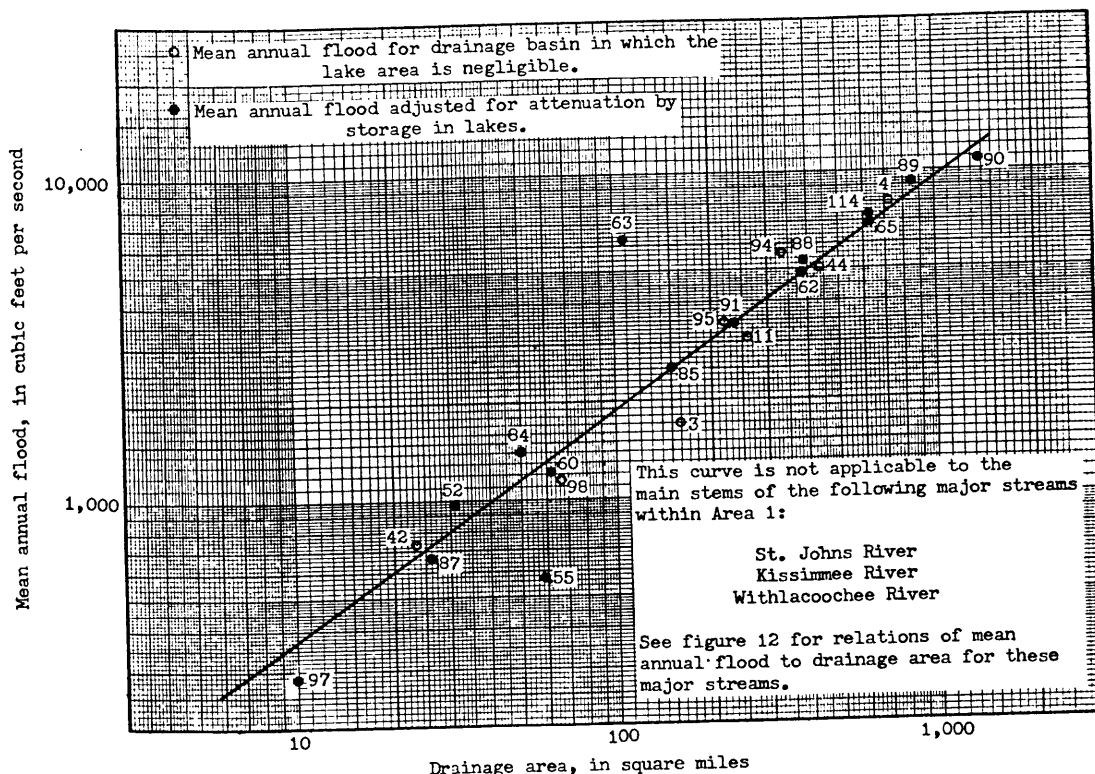
Figure 11.--Relation of mean annual flood to drainage area for area 1.

In computing the actual mean annual flood for an ungaged drainage area in area 1, the value as obtained from figure 11 must be reduced for attenuation by storage in lakes if the lake area is a significant percentage of the total drainage area. The attenuation factor may be obtained from the relation shown in figure 10.

The relation shown in figure 11 is not applicable for the main stems of the major rivers in area 1. Refer to figure 12 for the relations of mean annual flood to drainage area for the St. Johns, lower Oklawaha, Kissimmee, and Withlacoochee Rivers.

Areas 2A and 2B.--Area 2A is the Black Creek basin and area 2B includes the Manatee and Little Manatee River basins. The relation of mean annual flood to drainage area for these two areas is based on data for gaging stations 40, 41, 92, and 93--two stations in each area. The two areas are a considerable distance apart, but the same relation, as shown in figure 13, is applicable within the limits defined for both areas. The curve defining the relation for areas 2A and 2B varies as the 0.70 power of the drainage area.

Area 3.--This area includes the Oklawaha River basin in central Florida. The mean annual floods adjusted for attenuation by storage in lakes for stations 24, 25, 28, and 37 define the relation with drainage area for the Oklawaha basin as shown in figure 13. This relationship, which varies as the 0.70 power of the drainage area, is based entirely on adjusted data. To define the actual value of discharge, estimates of mean annual floods for an ungaged drainage area must be reduced by the attenuation factor.
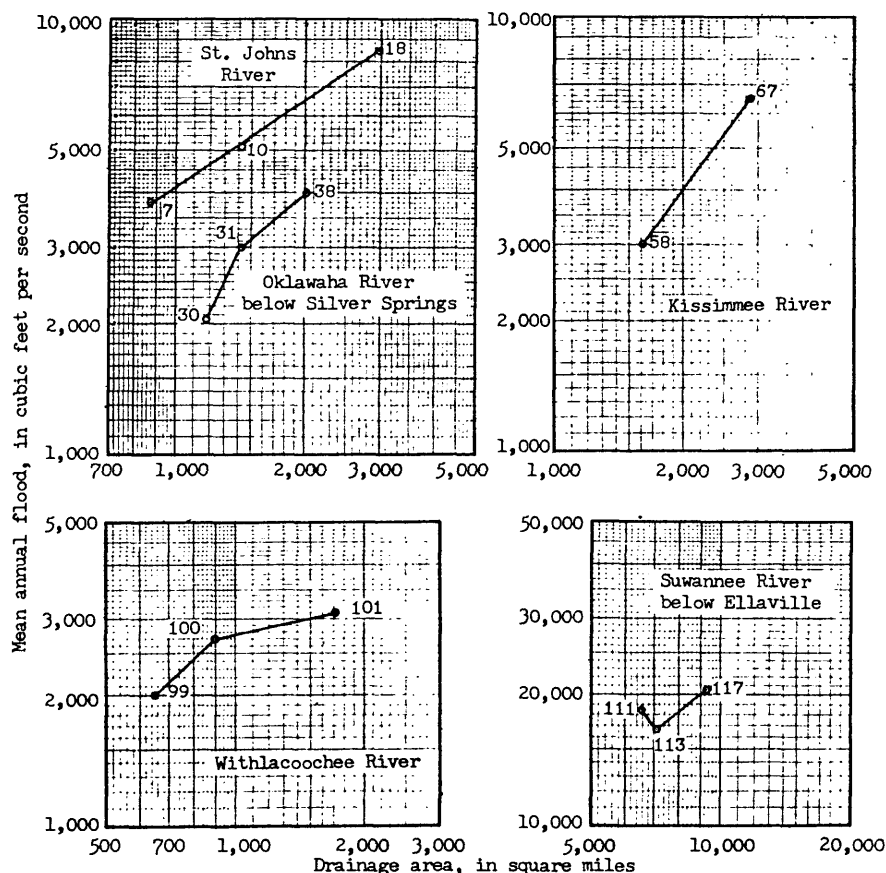
Note: Data unavailable for defining mean annual flood
       along Apalachicola River. Mean annual flood at
       Chattahoochee (drainage area, 17,100 sq mi) is
       90,000 cubic feet per second (see fig. 9).

Figure 12. --Relations of mean annual flood to drainage area along main stems of
large rivers in Florida.

The relation for area 3 as shown in figure 13 is not applicable to the main stem of the Oklawaha River below Silver Springs. Refer to figure 12 for the relation applicable to this reach of the river.

Area 4. --This area includes the Suwannee River basin, except for station 114 in area 1, and stations 108 and 109 in area 5. The western boundary of the area is indefinite, owing to an inadequate network of gaging stations on the small coastal streams between the Suwannee and Ochlockonee Rivers. Because of a lack of any conclusive evidence, the western boundary of area 4 has been arbitrarily drawn along the eastern watershed boundary of the Aucilla River.

The relation of mean annual flood to drainage area for the upper Suwannee River and tributaries are based on data for stations 104, 105, 106, 107, 110, 115, 116, and 119, some of which are in Georgia. This relation is shown in figure 14. The curve has a slope of 0.70. The mean annual flood for Fenholloway River at Foley, station 119, is somewhat lower than that obtained from the relation curve. However, an extension of the lower end of the curve as a straight line with a slope of 0.70 is considered to be more reliable than that indicated by the single gaging station with a short-term record. The relation as shown in figure 14 is the best estimate of mean annual floods of ungaged streams in area 4 in Florida. In Geological Survey Circular 100, "Floods in Georgia, Frequency and Magnitude, " the hydrologic areas were delineated somewhat differently and the relation curves were drawn to give the best results for Georgia, based on gaging stations in Georgia. Even though some of the Georgia gaging station data were used in this report and area 4 is adjacent to Georgia, the relation curve as defined in this report is the best fit of the data for Florida gaging stations and no adjustments were considered in order to obtain better conformity.
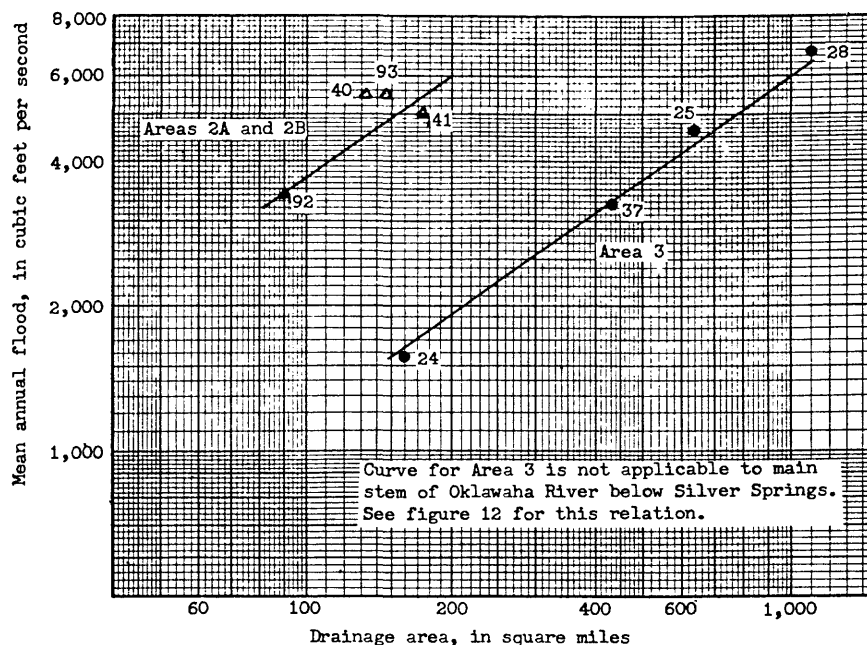
Figure 13.--Relation of mean annual flood to drainage area for areas 2A, 2B, and 3.
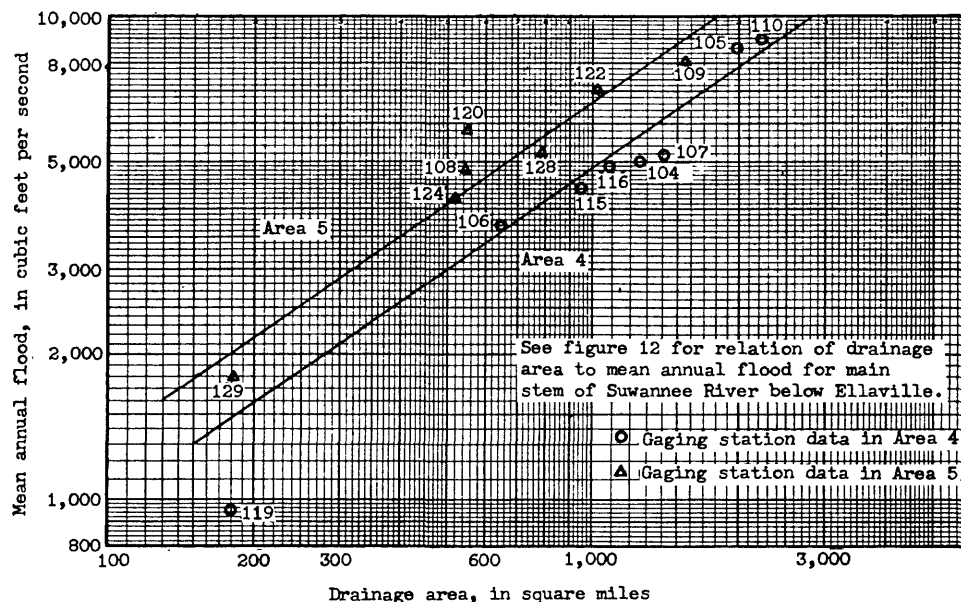
Figure 14.--Relation of mean annual flood to drainage area for areas 4 and 5.

Gaging stations 111, 113, and 117 on the main stem of Suwannee River below the confluence of the Withlacoochee River at Ellaville define flood characteristics slightly different from those of the smaller tributaries. A plot of the mean annual flood versus drainage area for these stations is shown in figure 12 and provides the best basis for determining the mean annual floods at ungaged points along the main stem.

Area 5. --That part of northern Florida extending from the Aucilla River basin to the eastern watershed boundary of the Choctawhatchee River is designated as area 5. The relation of mean annual flood to drainage area is based on stations 108, 109, 120, 122, 124, 128, and 129, and is shown in figure 14. This curve has a slope of 0.70.

Station 120 is in the upper Ochlockonee River basin in Georgia and the plotted data for this station show considerable departure from the relation curve. As indicated in the discussion above for area 4, the relation curve is more applicable to conditions in Florida and therefore its location is more influenced by data from Florida gaging stations.

Records of discharge have been collected at only one station on the Apalachicola River below the confluence of the Flint and Chattahoochee Rivers. The individual flood-frequency curve for this station is shown in figure 9. Mean annual flood for this station may be obtained from the frequency curve. Except for a long-term stage record at station 127, near Blountstown, there is no record on which to base any regional or composite relationships for the main stem of this river.

Area 6.--This area is drained by the Choctawhatchee River which flows in a southward direction from Alabama through Florida. Data for two stations, 132 and 133, in Florida and for several upstream stations in Alabama are available for defining the relationship between mean annual flood and drainage area. This relation is shown by the curve in figure 15. The slope of the curve is 0.70. Data for only two of the stations in Alabama, stations 130 and 131, are repeated in this report. Also from Geological Survey Circular 342, "Floods in Alabama, Magnitude and Frequency," data for two additional upstream stations were obtained for defining the lower limits of the curve. No flood data are available from small drainage areas in this section of Florida.
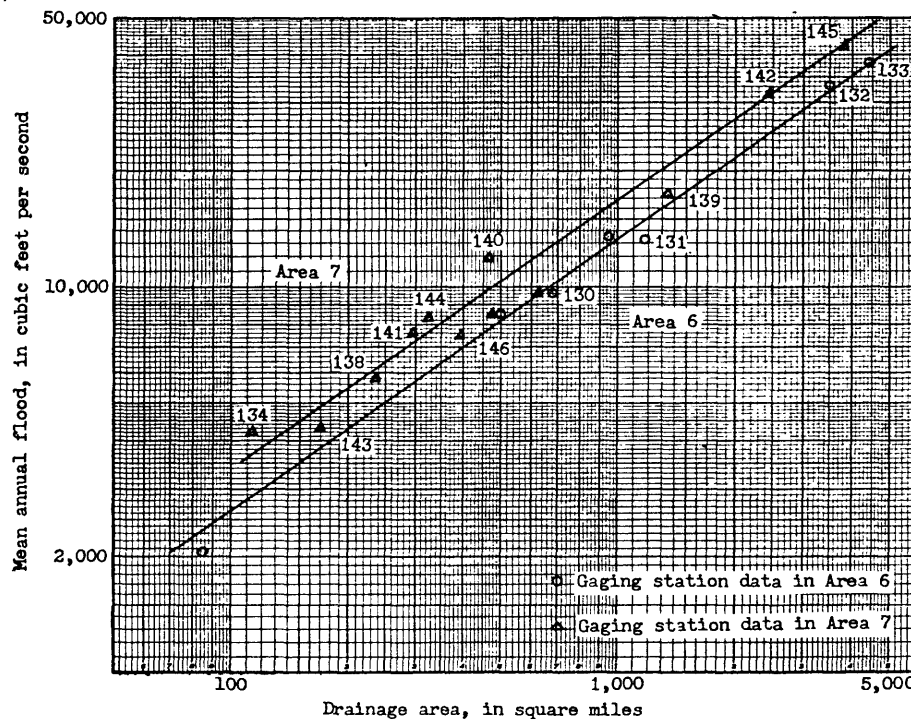
Figure 15.--Relation of mean annual flood to drainage area for areas 6 and 7.

Area 7.--This area includes the extreme northwestern part of Florida. The principal streams draining the area are the Yellow River, Blackwater River, Escambia River, and Perdido River. The relation between mean annual flood and drainage area is based on data from stations 135, 136, 138, 145, and 146 in Florida and several additional headwater stations in Alabama. The relation curve for this area is shown in figure 15. The slope of the curve is 0.70--the same as defined for each area in the State.

Frequency of annual flood stages

The foregoing analyses and discussion of flood frequencies pertain primarily to discharge data. In the coastal lowlands and particularly in Southern Florida where the land surface is low and flat and has little slope, stage is an important index of flood conditions.

In addition to those stations at which both stage and discharge records have been collected, several stations on the St. Johns and Kissimmee Rivers, have been operated for a number of years for the collection of records of stage only. Because of the importance of stage data on the main stem of these two rivers and the meager coverage by discharge stations, flood-frequency plots of annual peak stages have been included in this report.

The base period for these stage-frequency analyses has been selected as the same 24-year period, 1930-53, as was used for the discharge-frequency studies. The methods of analysis and extension of all station records to the same base period are also the same.

St. Johns River

Annual flood stages from stations 5, 6, 7, 8, 9, 10, 12, 16, and 18 on the main stem of the St. Johns River were available for defining the frequency-of-stage plots. Records of highwater elevations of outstanding floods at station 16 extend back to 1871 but there is some doubt as to the reliability of these historical data and also of the gage datum. Correlation with other stations is too unreliable to extend the recurrence interval beyond the 24-year base period, 1930-53. Mean sea level stage curves for floods of 2.33-, 5-, 10-, and 30-year recurrence intervals are plotted against miles above the mouth of the river and are shown in figure 16. The curves in figure 16 have been drawn as straight lines connecting the plotted data, although the actual flood profile undoubtedly does not vary uniformly between stations. However, the approximate stages for various flood frequencies at ungaged sites along the main stem may be estimated from the curves shown in figure 16.
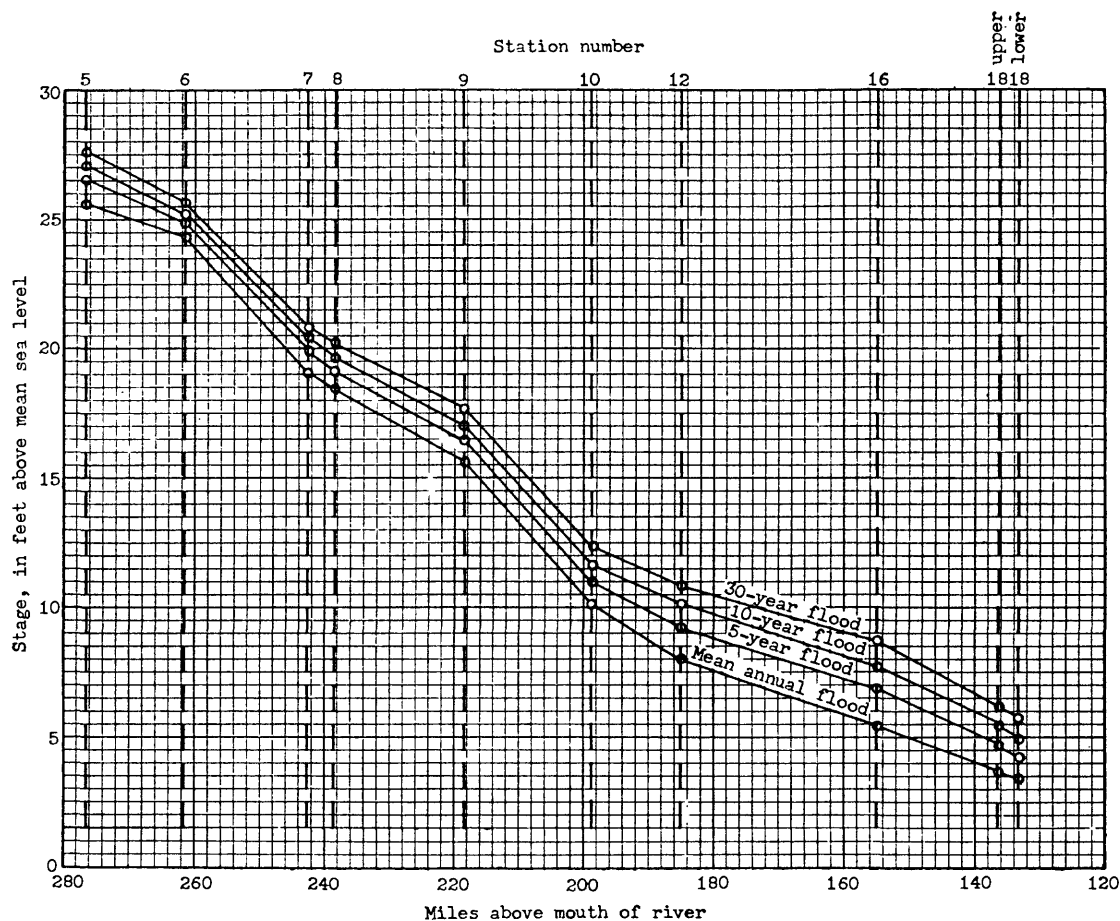
Figure 16.--Variation of mean annual, 5-, 10-, and 30-year flood stages with channel distance for main stem of St. Johns River, Florida.

Kissimmee River

Annual flood-stage records were available from stations 58, 59, 66, and 67 on the main stem of the Kissimmee River; the stage-frequency relations were based on these records. Mean sea level stage curves for floods of 2.33-, 5-, 10-, and 30-year recurrence intervals are plotted against miles above the mouth of the river and are shown in figure 17. This relation provides the best basis for estimates of stage for floods of various frequencies at ungaged sites along the main stem of the Kissimmee River.
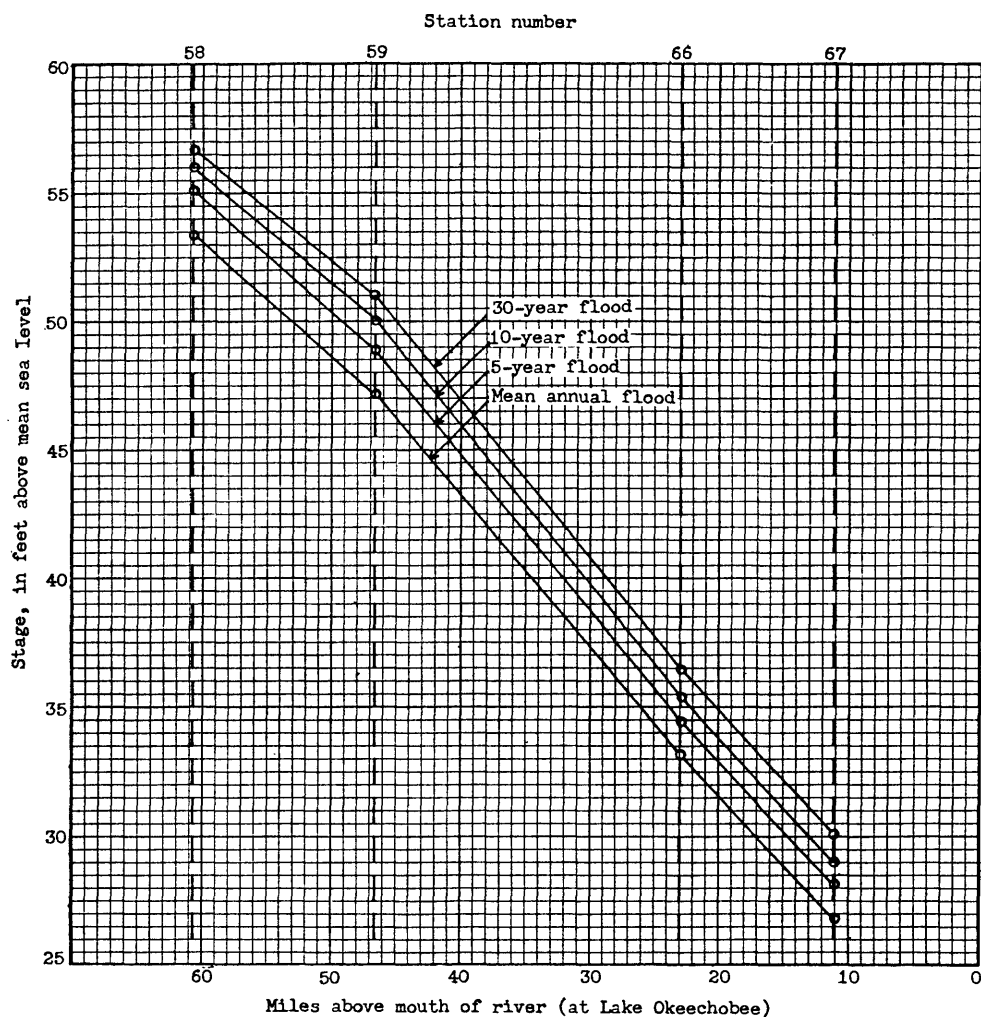
Figure 17. --Variation of mean annual, 5-, 10-, and 30-year flood stages with channel distance for main stem of Kissimmee River, Florida.

Summary of flood-frequency relationships

Composite frequency curves for floods with recurrence interval of 50 years or less have been developed for two flood regions in Florida. These flood regions, designated A and B, are shown in figure 6 and on plate 1. The flood frequency curves have been developed by expressing flood magnitudes as ratios to the mean annual flood. Curves applicable to regions A and B are shown in figures 7 and 8 respectively. Flood data are inadequate for defining the flood-frequency relation applicable to southern Florida.

To estimate the mean annual flood in regions A and B, 7 hydrologic areas have been delineated as shown in plate 1, and in each area the mean annual flood has been expressed as a function of the drainage area. The curves of relation between mean annual flood and drainage area in these areas are shown in figures 11, 13-15, and are combined in figure 18. As shown by relations in figure 12, the main stems of the major rivers do not have the same characteristics as the tributary streams. The relation of the mean annual flood along the main stem of these rivers has been shown as a plot of the mean annual flood against the drainage area. Such relations are required for the St. Johns River main stem, Oklawaha River main stem below Silver Springs, Kissimmee River main stem, the Withlacoochee River main stem, and the lower Suwannee River main stem.
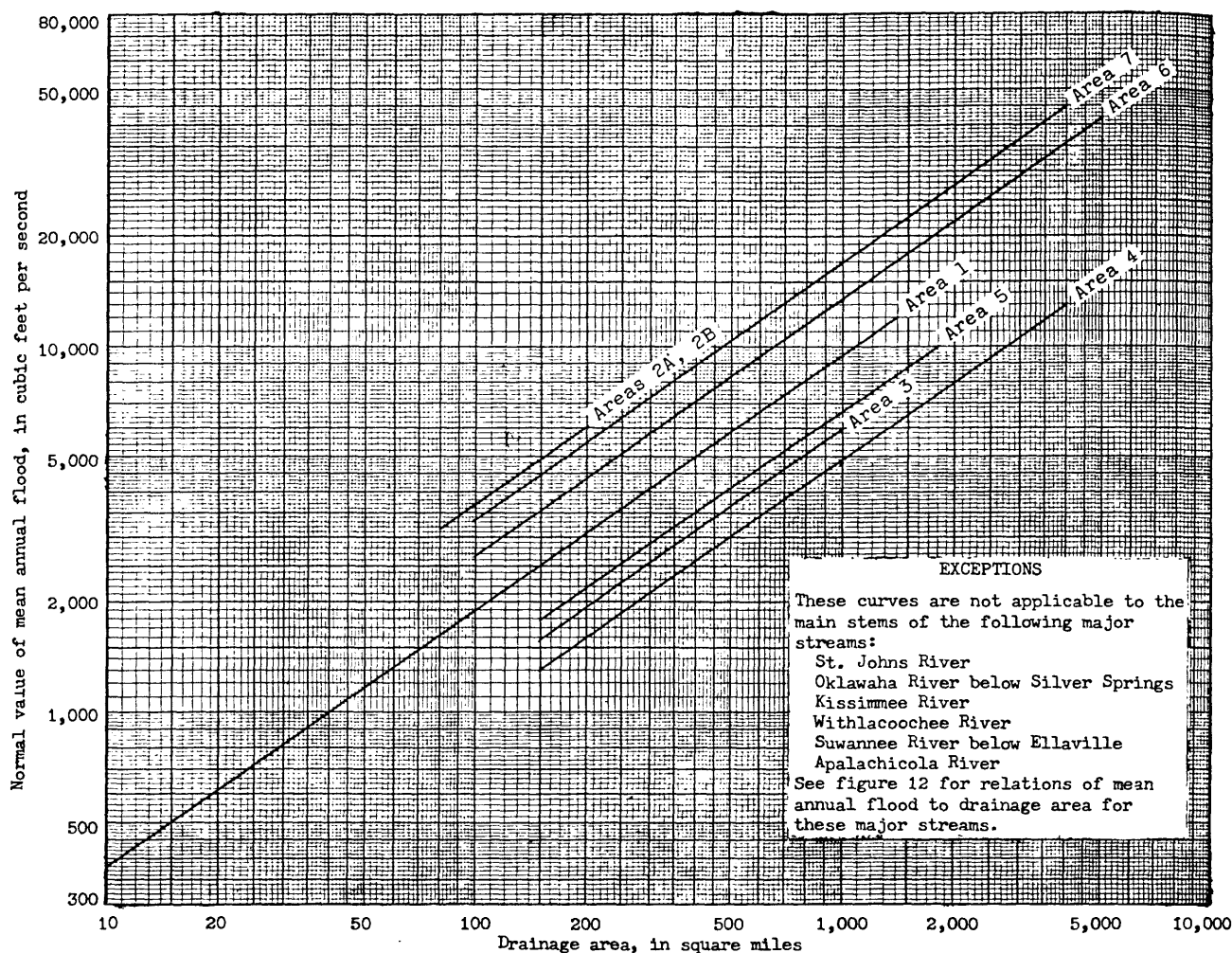
Figure 18.--Summary of relations of mean annual flood to drainage area for Florida.

The following procedure is used to estimate the flood magnitude for any selected recurrence interval within the limits of the frequency curves at a particular site on streams in Florida:

1. Determine, in square miles, the drainage area above the site.
2. Determine the total surface area of lakes connected with the drainage system and express this lake area as a percentage of the total drainage area above the site. (This step not required for the exceptions shown in figure 18).
3. Determine from plate 1 the hydrologic area in which the stream lies.
4. Determine the unadjusted mean annual flood from figure 18, using the hydrologic area determined in step 3.
5. Determine the attenuation factor from figure 10. For drainage basins devoid of lakes this factor is 1.00.
6. Adjust the mean annual flood as obtained in step 4 for attenuation by multiplying by the attenuation factor from step 5.
7. Determine from plate 1 the flood region in which the stream lies.
8. Determine from figure 7 or 8 the flood ratio for the desired recurrence interval, using the curve for the region determined in step 7.
9. Multiply the mean annual flood from step 6 by the flood ratio from step 8 to obtain the desired discharge.

To estimate the flood magnitude at ungaged sites on the main stems of the large rivers that have been excepted from figure 18, obtain the mean annual flood from the relations shown in figure 12 which define the mean annual floods directly without adjustments for attenuation. Steps 2, 5, and 6 as outlined above are therefore not required for the computations when the mean annual flood is determined from figure 12.

If desired, a complete frequency graph may be defined by plotting values determined in the above manner for a number of different recurrence intervals.

It is recommended that the above method be followed to determine magnitude and frequency at gaged sites as well. The results based on a composite frequency curve and an average relation between mean annual flood and drainage area should be more reliable than those obtained from a frequency curve based on data for the individual site alone.

MAXIMUM FLOODS KNOWN

Maximum flood stages and discharges known for Florida streams and lakes are shown in table 3. Discharges are given both in cubic feet per second (cfs) and in cubic feet per second per square mile; stages are given as elevation in feet above the zero of the gage (gage height) and above mean sea level. Nearly all the tabulated data show the maximum occurring during the period of record at a gaging station. At some gaging stations and at several miscellaneous sites, the data for the maximum known flood occurring before the period of record have also been included in the table, where a reliable figure was determined. The index numbers in the first column of the table correspond to those for stations described more fully in the section of this report entitled "GAGING STATION RECORDS. " The stations are listed in downstream order. At stations affected by backwater, the peak gage height and peak discharge did not always occur at the same time and were shown on separate lines.

The comparison of maximum known floods in each combination of hydrologic areas and flood region A with the corresponding flood of 30-year recurrence interval is shown in figure 19. Figure 20 (a, b, and c) shows the comparison of maximum known floods in region B with the corresponding 50-year recurrence interval. These plots provide a rough means of judging the possible frequencies of the maximum flood.
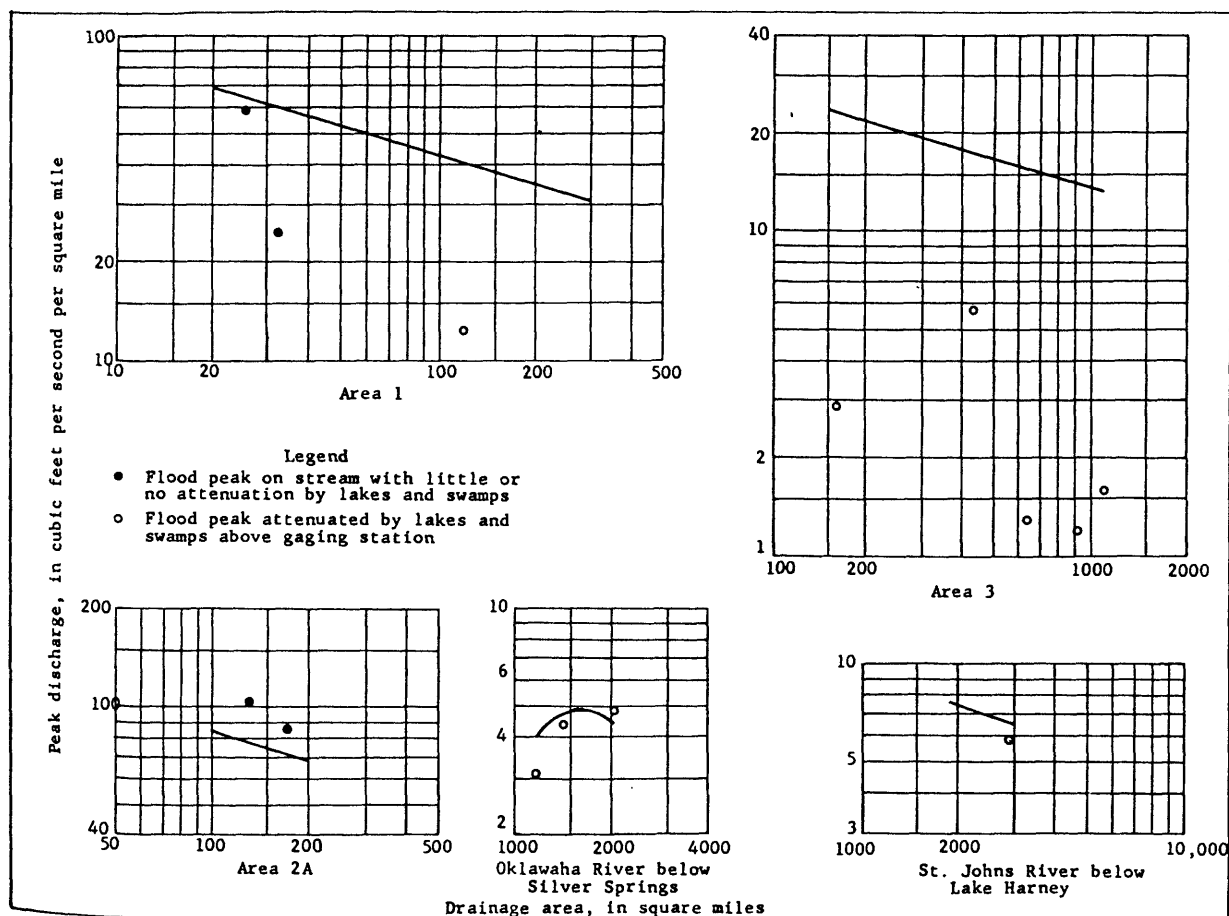
Figure 19. --Relation of maximum to 30-year flood in region A.
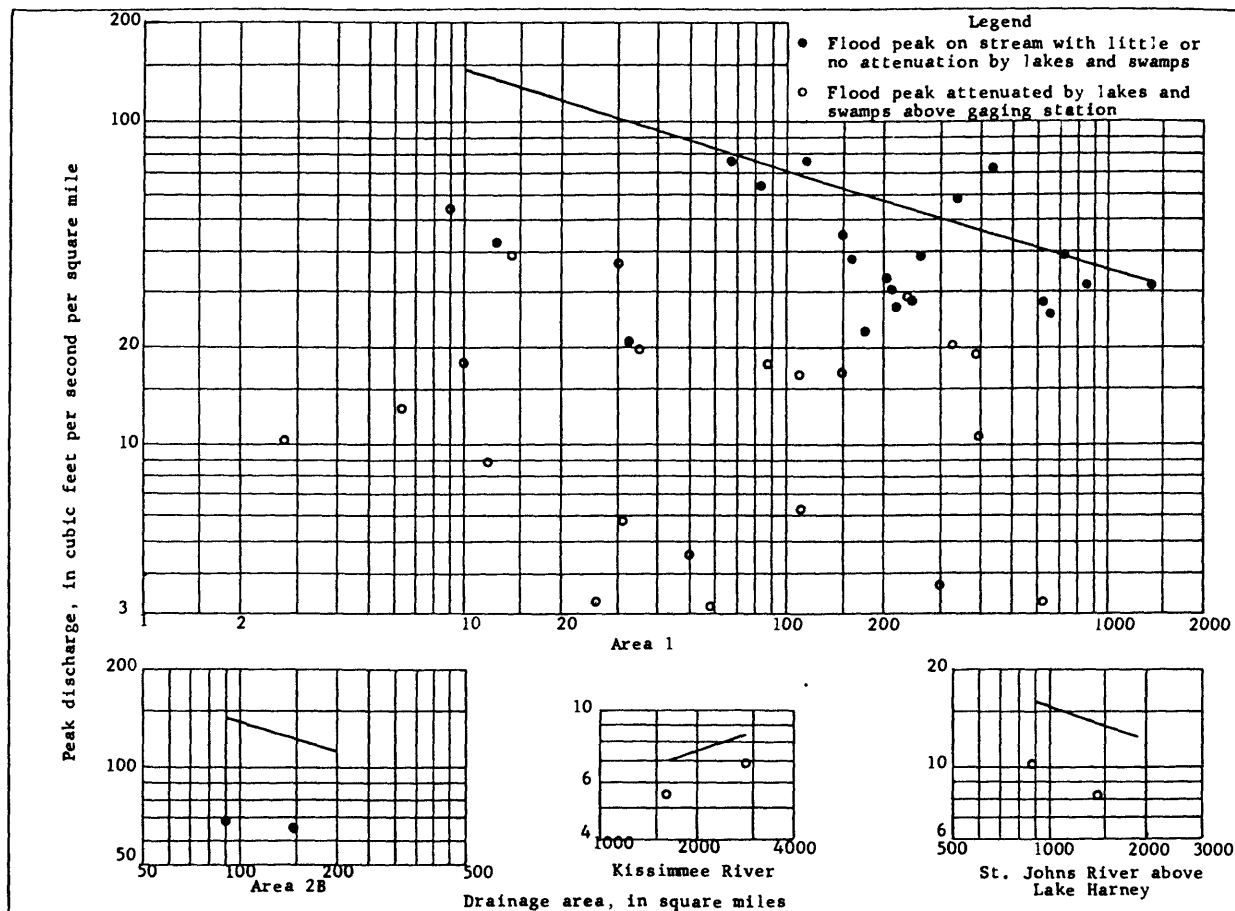
Figure 20a. --Relation of maximum to 50-year flood in region B (areas 1, 2B and Kissimmee
River and St. Johns River above Lake Harney).

The attenuation of flood peaks by storage in lakes and swamps is clearly shown in the plots for several
areas in figures 19 and 20. For areas 1 and 3 in figure 19 and for area 1 in figure 20a the relations for the 30-
or 50-year peak discharge is based on data from gaging stations relatively devoid of lakes or from data adjusted
by the attenuation factor shown in figure 10. The gaging station data plotted in these figures represent the actual
maximum known floods. Thus for a tributary stream with many lakes and swamps in the drainage basins, the re-
lations shown in these figures represent enveloping curves that will rarely be equaled. The relations and the
plotted data shown for several of the larger rivers in the lake region on the Peninsula are based on existing con-
ditions without adjustment for storage.
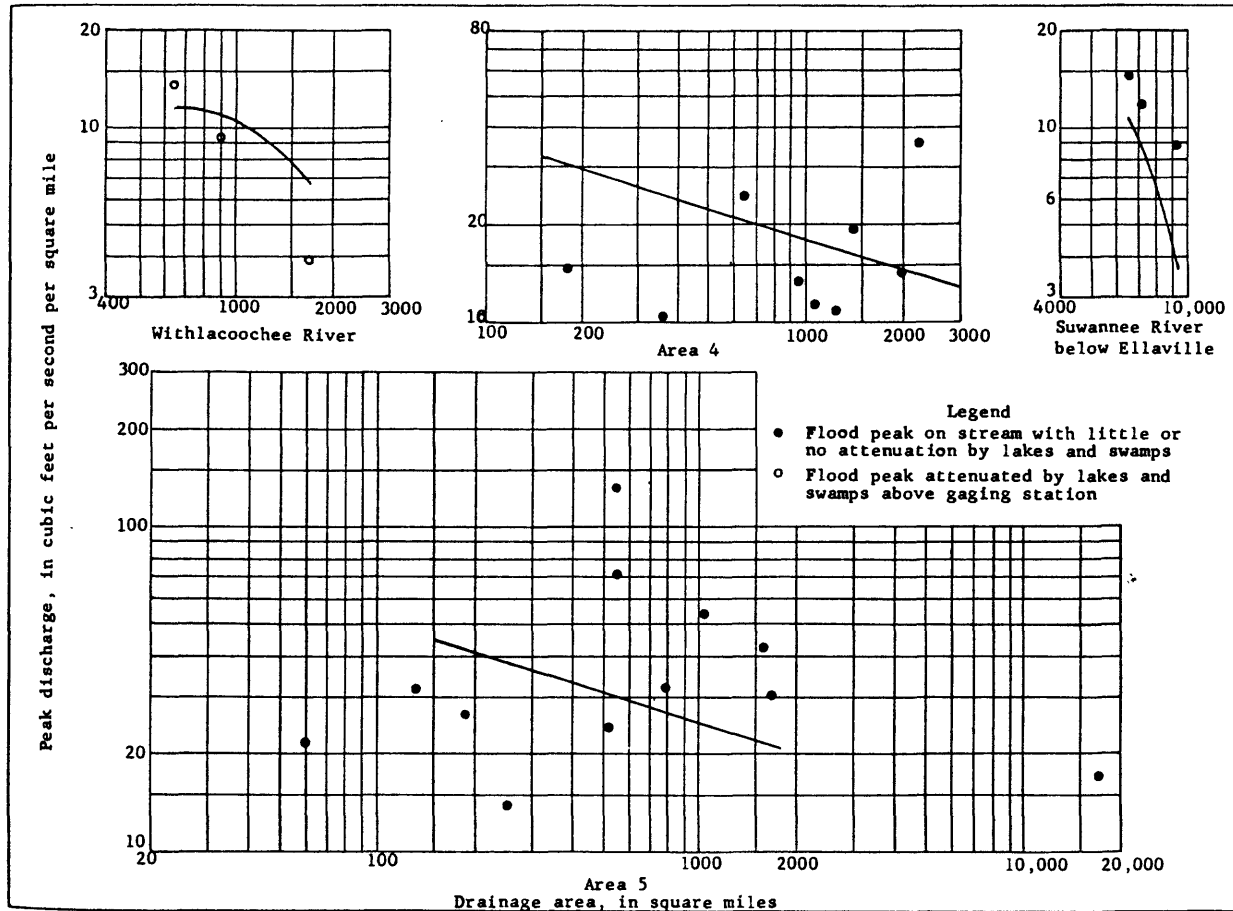
Figure 20b. --Relation of maximum to 50-year flood in region B (areas 4, 5 and Withlacoochee River and Suwannee River below Ellaville).
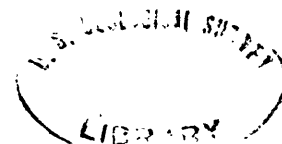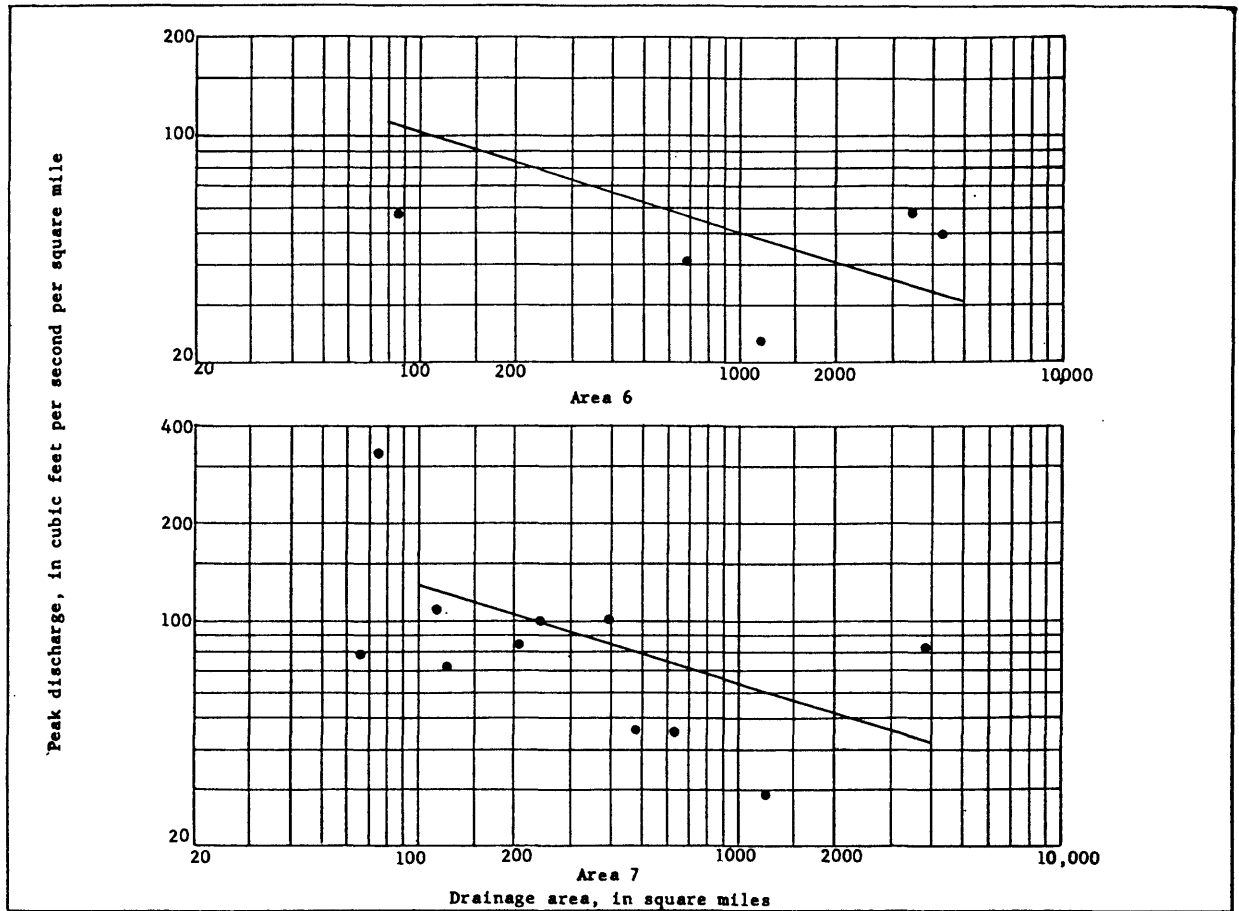
Figure 20c.--Relation of maximum to 50-year flood in region B (areas 6 and 7).

Table 3.--Maximum known stages and discharges prior to 1956 in Florida

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
				Date	Gage height (ft)	Elevation above msl (ft)	Discharge Cfs	Cfs per (sq mi)
	ST. MARYS RIVER BASIN							
3	North Prong St. Marys River at Moniac, Ga.	160	1921-34; 1950-55	Sept. 19, 1928	16.7	109.3	a 6,060	37.9
	South Prong St. Marys River at Glen St. Mary, Fla.	150	1947-55	September 1947	13.0	90.1	6,700	44.7
4	St. Marys River near Macclenny, Fla---	720	1927-55	Sept. 25, 1947	22.29	62.29	28,100	39.0
	ST. JOHNS RIVER BASIN							
5	St. Johns River headwaters near Vero Beach, Fla.	203	1942-55	Oct. 12, 1947	8.81	27.37	--	--
6	St. Johns River headwaters near Kenansville, Fla.	442	1942-55	October 1948	8.52	25.54	--	--
	Jane Green Creek near Deer Park, Fla--	248	1953-55	Oct. 9 or 10, 1953	8.65	27.20	6,880	27.7
7	St. Johns River near Melbourne, Fla---	874	1939-55	Oct. 12, 1953	9.47	20.69	8,850	10.1
8	Lake Washington near Eau Gallie, Fla--	-	1942-55	Oct. 12, 13, 1953	7.68	20.07	--	--
9	Lake Poinsett near Cocoa, Fla---------	-	1941-55	Oct. 11, 1953	12.50	17.56	--	--
10	St. Johns River near Christmas, Fla---	1,418	1933-55	Oct. 12, 1953	10.59	12.21	11,700	8.2
11	Econlockhatchee River near Chuluota, Fla.	260	1935-55	Sept. 24, 1948	18.09	20.23	10,000	38.5
12	St. Johns River above Lake Harney, near Geneva, Fla.	1,910	1941-55	Oct. 14, 1953	10.62	10.62	--	--
13	St. Johns River at Osceola, Fla-------	1,950	1941-47	Sept. 21, 1945	9.62	9.62	--	--
	Lake Maitland at Winter Park, Fla-----	-	1945-52	Sept. 16, 1945	3.04	67.0	--	--
14	Lake Jessup Outlet near Sanford, Fla--	-	-- 1941-47	July 1930 Sept. 26, 1945	-- 7.76	8.4 7.76	-- --	-- --
15	St. Johns River above Lake Monroe, near Sanford, Fla.	2,320	-- 1941-47	October 1924 Sept. 28, 1945	-- 7.62	8.5 7.62	-- --	-- --
16	St. Johns River near Sanford, Fla-----	2,420	1871-1920 1920-55	1880 Oct. 15, 1953	-- 8.61	13.28 8.52	-- --	-- --
17	Wekiva River near Sanford, Fla--------	-	1935-55	Sept. 17, 1945	5.60	--	2,060	--
18	St. Johns River near DeLand, Fla------	2,960	1934-55	Oct. 11, 12, 1953	7.17	6.06	b17,100	5.8
19	Lake Apopka at Winter Garden, Fla-----	130	1936-55	Oct. 12, 1936	--	c69.3	--	--
20	Apopka-Beauclair Canal nr. Astatula, Fla.	-	--	Unknown	--	67.0	--	--
21	Lake Dora at Mount Dora, Fla----------	-	-- 1936-55	September 1926 Jan. 4-7, 1954	-- --	65.8 65.40	-- --	-- --
22	Dead River near Tavares, Fla----------	-	-- 1943-55	1926 Jan. 1-4, 1954	-- 5.24	66.1 64.54	-- --	-- --
23	Lake Minnehaha at Clermont, Fla-------	-	1945-55	Oct. 9, 10, 1953	7.52	98.84	--	--
	Palatlakaha Creek at Groveland, Fla---	-	1945-55	Sept. 17, 1945	--	97.43	--	--
24	Palatlakaha Creek near Mascotte, Fla--	160	1945-55	Oct. 4, 5, 1945 Oct. 11, 12, 1953	-- 7.12	-- 96.66	458 --	2.9 --
25	Haines Creek at Lisbon, Fla----------	640	-- 1943-55	1926 Jan. 3-5, 1954	-- 4.24	65.6 63.46	-- 819	-- 1.3
26	Lake Weir at Oklawaha, Fla------------	-	1936-55	January 1938	--	c59.6	--	--
27	Oklawaha River at Moss Bluff, Fla-----	910	1944-55	Jan. 11, 12, 1954	49.49	49.49	1,060	1.2
28	Oklawaha River near Ocala, Fla--------	1,100	1930-55	Sept. 6, 1933 June 15, 1934	5.52 --	42.04 --	-- 1,810	-- 1.6
29	Silver Springs near Ocala, Fla--------	-	1933-55	Sept. 6, 1933 Nov. 2-4, 1950	5.50 --	44.46 --	-- 1,150	-- --
30	Oklawaha River near Conner, Fla-------	1,180	1930-46	Sept. 6, 1933	9.14	40.93	3,700	3.1
31	Oklawaha River at Eureka, Fla---------	1,420	1930-52	Sept. 7, 1933	11.00	26.44	6,260	4.4
32	Newnans Lake near Gainesville, Fla----	-	1936-52	Mar. 12, 1948	7.88	71.21	--	--

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
				Date	Gage height (ft)	Elevation above msl (ft)	Discharge	
							Cfs	Cfs per (sq mi)
	ST. JOHNS RIVER BASIN-Cont.							
33	Orange Lake near Boardman, Fla--------	-	1936-48	Mar. 19, 1948	8.18	61.62	--	--
34	Orange Lake Outlet near Citra, Fla----	-	1941-55	Mar. 17, 1948	7.81	61.22	677	--
35	Lochloosa Lake at Lochloosa, Fla------	-	1941-52	October 1941	6.2	62.0	--	--
36	Lochloosa Lake Outlet near Lochloosa, Fla.	-	1947-55	Mar. 12, 13, 1948	6.04	61.45	341	--
37	Orange Creek at Orange Springs, Fla---	431	1941-52	October 1941	10.6	30.4	2,500	5.8
38	Oklawaha River near Orange Springs, Fla.	2,010	1930-52	Sept. 9, 1933	11.60	18.72	9,760	4.8
39	Oklawaha River at Riverside Landing, near Orange Springs, Fla.	2,100	1943-55	Sept. 10, 1950	9.50	9.50	7,320	3.5
	Little Haw Creek near Seville, Fla----	120	1951-55	Sept. 24, 1953	8.72	14.46	1,490	12.4
	Pebble Lake near Keystone Heights, Fla	-	1945-55	July 11, 1948	15.20	-	--	--
	Johnson Lake near Keystone Heights, Fla.	-	1945-55	Feb. 6, 1949	9.60	-	--	--
40	South Fork Black Creek near Penney Farms, Fla.	134	1939-55	Oct. 19, 1944	26.33	36.15	13,900	104
	Kingsley Lake at Camp Blanding, Fla---	-	1945-55	Oct. 21, 1950	4.60	177.82	--	--
41	North Fork Black Creek near Middleburg, Fla.	174	1919-55	June 1919	25.3	25.9	15,000	86.2
	MOULTRIE CREEK BASIN							
42	Moultrie Creek near St. Augustine, Fla	25.3	-- 1939-55	1919 Oct. 21, 1941	13 9.31	15 11.48	-- 1,370	-- 58.8
	TOMOKA RIVER BASIN							
	Tomoka River near Daytona Beach, Fla--	-	1941-46	Sept. 17, 1945	11.49	-	2,260	--
	SPRUCE CREEK BASIN							
	Spruce Creek near Samsula, Fla--------	32	1951-55	Oct. 8, 1953	15.49	21.74	798	24.9
	INDIAN RIVER BASIN							
	Indian River at Titusville, Fla-------	-	1951-55	Oct. 9, 1953	2.32	2.32	--	--
	Banana River near Audubon, Fla--------	-	1943-55	Sept. 26, 1948	3.28	3.28	--	--
	Indian River at Melbourne, Fla--------	-	-- 1943-48	1928 Oct. 19, 1943	-- 2.1	7 2.1	-- --	-- --
	Crane Creek at Melbourne, Fla---------	12.6	1951-55	Oct. 9, 1953	9.55	14.00	539	42.8
	Indian River at Sebastian, Fla--------	-	1948-54	Sept. 22, 1948	4.48	4.48	--	--
	Indian River at Wabasso, Fla----------	-	1943-55	Sept. 22, 1948	4.76	4.76	--	--
	North Canal near Vero Beach, Fla------	-	1950-55	Oct. 2, 1951 Oct. 8, 1953	9.6 --	9.6 -	-- 895	-- --
	Main Canal near Vero Beach, Fla-------	-	1950-55	Oct. 18, 1950	13.1	13.1	1,380	--
	South Canal near Vero Beach, Fla------	-	1950-55	Oct. 18, 1950	9.9	9.9	707	--
	Savanna at Fort Pierce, Fla-----------	-	1944-52	Oct. 5, 1947	17.13	17.13	--	--
	Savanna at White City, Fla------------	-	1944-50	Oct. 12, 1947	16.86	16.86	--	--
	Savanna at Walton, Fla----------------	-	1944-49	Oct. 20, 1947	16.38	16.38	--	--
	LAKE OKEECHOBEE AND THE EVERGLADES							
43	Lake Okeechobee, Fla------------------	-	1930-55	Aug. 26, 1949	[d]24.0	[d]24.0	--	--
44	Fisheating Creek at Palmdale, Fla-----	435	1931-55	Oct. 3, 1951	12.44	39.63	31,400	72.2
45	Indian Prairie Canal nr. Okeechobee, Fla.	-	1939-55	Oct. 12, 1947 Oct. 27, 1953	19.10 --	19.10 -	-- 2,480	-- --
	Brick-Alligator Canal near Ashton, Fla	-	1949-55	Oct. 10, 1953	8.09	66.18	--	--
46	Alligator Lake near Ashton, Fla-------	-	--	June 1934	--	67.7	--	--
	Lizzie-Lost Canal near Ashton, Fla----	-	1949-55	Sept. 30, Oct. 1, 10, 11, 1953	7.15	66.13	--	--

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
				Date	Gage height (ft)	Elevation above msl (ft)	Discharge Cfs	Cfs per (sq mi)
	LAKE OKEECHOBEE AND THE EVERGLADES-Cont.							
	Myrtle-Mary Jane Canal near Narcoossee, Fla.	111	1949-55	Oct. 1, 1953	7.67	64.75	703	6.3
	Mary Jane Lake near Narcoossee, Fla---	-	1949-55	Oct. 1, 10-12, 1953	7.33	63.99	--	--
47	Hart Lake near Narcoossee, Fla--------	-	1941-55	Sept. 20, 1945	9.13	64.87	--	--
	Lake Conway near Pinecastle, Fla------	-	--	Unknown	--	e90.4	--	--
		-	1952-55	Dec. 5-8, 1953	19.20	88.20	--	--
48	East Tohopekaliga Lake at St. Cloud, Fla.	-	--	July 1930	--	62.17	--	--
			1941-55	Oct. 12, 13, 1953	10.63	62.01	--	--
	East Tohopekaliga-Tohopekaliga Canal near St. Cloud, Fla.	300	--	Sept. 19, 1945	--	-	f1,140	--
			1950-55	Oct. 13, 1953	9.48	61.80	1,110	3.7
49	Lake Tohopekaliga at Kissimmee, Fla---	-	1942-55	Oct. 10, 11, 1953	58.62	58.62	--	--
	Tohopekaliga-Cypress Canal near St. Cloud, Fla.	-	1942-55	Oct. 9, 1953	10.25	59.01	2,650	--
50	Cypress Lake near St. Cloud, Fla------	-	1942-55	Oct. 12, 13, 1953	8.38	57.16	--	--
	Lake Gentry near St. Cloud, Fla-------	-	1949-55	Oct. 10, 1953	5.71	63.13	--	--
	Canoe Creek near St. Cloud, Fla-------	86.5	--	1935	--	61.7	--	--
			1949-55	Oct. 19, 1950	11.4	59.6	1,550	17.9
51	Lake Butler at Windermere, Fla--------	-	--	September 1926	--	101.30	--	--
			1933-35	Sept. 17, 1945	4.88	101.28	--	--
52	Cypress Creek at Vineland, Fla--------	31.0	1945-55	Sept. 16, 1945	3.83	100.03	181	5.8
53	Reedy Creek near Loughman, Fla--------	-	1939-55	Oct. 22, 23, 1944; Sept. 20, 21, 1947	--	-	530	--
				Aug. 30, 1953	4.08	68.57	--	--
54	Lake Hatchineha near Haines City, Fla-	-	--	1934	--	57.0	--	--
			1942-55	Oct. 14, 15, 19, 1953	9.61	56.84	--	--
55	Catfish Creek near Lake Wales, Fla----	58.9	1947-55	Oct. 9, 1953	5.81	78.51	191	3.2
	Hatchineha-Kissimmee Canal near Lake Wales, Fla.	-	1949-55	Oct. 1, 1953	--	-	2,820	--
	Cypress-Kissimmee Canal near Lake Wales, Fla.	-	1950-55	Oct. 16, 1953	--	-	3,230	--
56	Lake Kissimmee near Lake Wales, Fla---	-	1942-55	September 1947	9.77	56.71	--	--
57	Weohyakapka-Rosalie Canal near Lake Wales, Fla.	-	--	September 1933	--	62.8	--	--
58	Kissimmee River below Lake Kissimmee, Fla.	1,609	1930-55	Oct. 5 or 6, 1948	--	-	8,820	5.5
				Oct. 9, 1953	13.16	56.64	--	--
59	Kissimmee River at Fort Kissimmee, Fla	-	1941-55	Oct. 11, 1953	12.89	50.92	--	--
	Crooked Lake near Babson Park, Fla----	-	1945-55	Oct. 8, 1948	8.30	124.01	--	--
	Lake Clinch at Frostproof, Fla--------	-	1947-55	Oct. 10, 1948	10.21	110.21	--	--
60	Reedy Lake Outlet near Frostproof, Fla	62.2	1946-55	Oct. 5, 1948	4.37	80.42	166	2.7
61	Lake Arbuckle near Avon Park, Fla-----	-	--	1926, 1928	--	58.7	--	--
			1942-55	Sept. 24, 1948	6.7	58.2	--	--
	Lake Lotela at Avon Park, Fla---------	-	1950-55	Sept. 30, 1953	8.92	108.85	--	--
	Lake Letta at Avon Park, Fla----------	-	1951-55	Oct. 7, 1953	5.07	101.38	--	--
62	Arbuckle Creek near DeSota City, Fla--	385	1939-55	Sept. 23, 1948	8.71	44.22	7,380	19.2
	Rex Beach Lake at Sebring, Fla--------	-	--	1941	--	104.1	--	--
			1945-55	Sept. 19, 1947	7.45	103.76	--	--
	Lake Josephine near DeSoto City, Fla--	-	1946-55	Sept. 26, 1948	11.1	76.8	--	--
	Lake Placid near Lake Placid, Fla-----	-	1945-55	Sept. 25, 1948	15.98	95.64	--	--
	Mirror Lake near Lake Placid, Fla-----	-	1951-55	Oct. 10, 1953	10.52	94.93	--	--
	Lake June-in-Winter near Lake Placid, Fla.	-	1945-55	October 1950	12.2	77.6	--	--

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Date	Gage height (ft)	Elevation above msl (ft)	Discharge Cfs	Cfs per (sq mi)
						Maximum known flood		
	LAKE OKEECHOBEE AND THE EVERGLADES-Cont.							
63	Josephine Creek near DeSoto City, Fla-	109	1946-55	Sept. 23, 1948	11.56	64.55	1,780	16.3
	Grassy Lake near Lake Placid, Fla-----	-	1951-55	Sept. 19, 1953	25.36	94.26	--	--
	Lake Huntley at Lake Placid, Fla------	-	1951-55	Oct. 13, 1953	15.50	84.42	--	--
	Lake Clay at Lake Placid, Fla--------	-	1951-55	Oct. 14, 1953	10.50	79.44	--	--
64	Lake Istokpoga near DeSoto City, Fla--	-	1936-55	September 1945	--	43.22	--	--
65	Istokpoga Canal near Cornwell, Fla----	624	1933-55	Sept. 22, 1948 Oct. 12, 1953	-- 11.41	- 41.12	2,040 --	3.3 --
66	Kissimmee River near Cornwell, Fla----	2,703	1928-55	Oct. 12, 13, 1953	11.48	36.12	--	--
67	Kissimmee River near Okeechobee, Fla--	2,886	1928-55	August 1928	30.3	28.9	20,000	6.9
68	St. Lucie Canal at Lake Okeechobee, Fla.	-	1931-51	Nov. 2, 6, 1951	--	-	g7,470	--
69	West Palm Beach Canal at Canal Point, Fla.	-	1940-55	June 15, 1942 Oct. 23, 1947 Mar. 18, 1948	-- 18.54 --	- 18.54 -	gh1,760 -- g 817	-- -- --
	West Palm Beach Canal at 20-mile bend, Fla.	-	1947-50	Oct. 16, 17, 1947	17.48	17.48	--	--
70	West Palm Beach Canal at West Palm Beach, Fla.	-	--	Oct. 23, 24, 1924	[1]13.20	[1]13.20	8,570	--
71	Hillsboro Canal at Belle Glade, Fla---	-	1940-55	Feb. 14, 1940 Sept. 9, 1940 Oct. 15, 16, 1947	-- -- 16.71	- - 16.71	g481 gh289 --	-- -- --
72	Hillsboro Canal at Shawano Plantation, Fla.	-	1929-52	Oct. 12, 13, 1947	17.81	16.37	--	--
	Hillsboro Canal at Indian Run near Deerfield Beach, Fla.	-	1947-53	Oct. 12, 1947	15.54	15.54	--	--
	Indian Run at Hillsboro Canal near Deerfield Beach, Fla.	-	1947-55	Oct. 12, 1947	15.95	15.95	--	--
	Hillsboro Canal at Range Line Road near Deerfield Beach, Fla.	-	1947-52	Oct. 12, 1947	14.70	14.70	--	--
73	Hillsboro Canal near Deerfield Beach, Fla.	-	1939-52	Oct. 17, 1944 Oct. 12, 1947	[1]12.10 --	[1]12.10 -	-- g3,490	-- --
74	North New River Canal at South Bay, Fla.	-	-- 1940-55	July 27, 28, 1926 June 10, 1942 Sept. 30, 1947	20.56 -- --	20.56 - -	-- gh 404 g1,040	-- -- --
75	North New River Canal at 26-mile bend, near Fort Lauderdale, Fla.	-	1942-52	Oct. 12, 1947	[1]12.97	[1]12.97	--	--
76	North New River Canal near Fort Lauderdale, Fla.	-	-- 1940-55	Oct. 15, 1929 Oct. 17, 1947 Nov. 19, 1947	-- [1]10.83 --	- [1]10.83 -	5,400 -- g3,280	-- -- --
	South New River Canal at Davie, Fla---	-	1947-55	Oct. 21, 1947	[1]7.78	[1]7.78	--	--
	Snake Creek Canal at North Miami Beach, Fla.	-	1947-55	Sept. 22, 1948	[1]4.24	[1]4.24	--	--
	Biscayne Canal at North Miami, Fla----	-	1946-55	Oct. 15, 1947	[1]5.43	[1]5.43	--	--
	Little River Canal at N.W. 7th Ave., Miami, Fla.	-	1946-55	Oct. 15, 1947	[1]4.68	[1]4.68	--	--
	Miami Canal above broken dam, near Miami, Fla.	-	1941-55	Oct. 12, 1947	10.05	9.82	--	--
77	Miami Canal at Pennsuco, near Miami, Fla.	-	1926-55	Oct. 12, 1947	9.58	9.00	--	--
	Miami Canal Russian Colony Canal, near Hialeah, Fla.	-	1941-55	Oct. 12, 1947	8.8	8.7	--	--
78	Miami Canal at water plant, Hialeah, Fla.	-	1940-55	Oct. 15, 1947	7.34	7.33	g4,170	--
	Miami Canal at N.W. 27th Ave., Miami, Fla.	-	1945-55	Oct. 11, 1947	4.57	4.57	--	--
79	Tamiami Canal outlets, Miami to Monroe, Fla.	-	1939-55	Oct. 12, 1947	--	-	g17,100	--

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood			Discharge	
				Date	Gage height (ft)	Elevation above msl (ft)	Cfs	Cfs per (sq mi)
	LAKE OKEECHOBEE AND THE EVERGLADES-Cont.							
	Tamiami Canal at 40-mile bend, Fla----	-	1939-55	Oct. 12, 1947	--	J10.3	--	--
	Tamiami Canal at F.E.C. Railway, near Miami, Fla.	-	1947-55	Oct. 14, 1947	l8.27	l8.27	--	--
	Tamiami Canal at Red Road, Miami, Fla-	-	1940-55	Oct. 15, 1947	6.00	6.00	--	--
	Coral Gables Canal at Red Road, Coral Gables, Fla.	-	1946-55	Oct. 11, 1947	l5.28	l5.28	--	--
	Snapper Creek Canal at Coral Gables, Fla.	-	1945-50	Oct. 11, 1947	l3.50	l3.50	--	--
	Barron River Canal near Everglades, Fla.	-	--	1947	--	7.0	--	--
80	Lake Trafford near Immokalee, Fla-----	-	1941-55	Sept. 18, 1947	6.60	22.60	--	--
81	Imperial River near Bonita Springs, Fla.	-	-- 1940-54	June 15, 1936 Sept. 12, 1940	-- --	13.4 --	-- 2,890	-- --
	Estero River at Estero, Fla-----------	-	--	June 1936	--	14.0	--	--
	Mulock Creek near Estero, Fla---------	-.	--	June 1936	--	9.0	--	--
	Line-A Canal near Fort Myers, Fla-----	-	1942-48	Sept. 19, 1947	9.71	9.71	--	--
82	Caloosahatchee Canal at Moore Haven, Fla.	-	1938-55	Dec. 8, 1945	--·	--	g5,660	--
83	Orange River near Fort Myers, Fla-----	83.4	1936-46	June 15, 1936	13.40	15.11	5,300	63.5
	PEACE RIVER BASIN							
	Lake Rochelle near Lake Alfred, Fla---	-	1946-55	Sept. 27, 1948	9.86	129.86	--	--
	Conine Lake at Florence Villa, Fla----	-	1946-54	Sept. 19, 1947	10.63	130.63	--	--
84	Drainage Canal west of Dundee, Fla----	50	1947-55	Sept. 22, 1948	7.37	121.45	231	4.6
	Mountain Lake near Lake Wales, Fla----	-	1945-55	Oct. 8, 15, 1948	9.04	116.80	--	--
85	Peace Creek Marsh outlet near Alturas, Fla.	150	1928-55	1928	13.3	111.0	2,540	16.9
	Lake Mariana near Auburndale, Fla-----	-	1946-55	Oct. 1, 1948	17.80	137.80	--	--
	Lake Jessie near Auburndale, Fla------	-	1946-54	Oct. 3, 1948	12.64	132.64	--	--
	Lake Hartridge at Winter Haven, Fla---	-	1946-55	Sept. 30, 1948	12.76	132.76	--	--
	Deer Lake near Winter Haven, Fla------	-	1946-55	Sept. 7, 1953	20.96	140.96	--	--
86	Lake Howard at Winter Haven, Fla------	-	1945-55	Sept. 28, 1948	12.77	132.77	--	--
	Lulu Lake at Eloise, Fla--------------	-	1946-55	Oct. 7, 1949	12.26	132.26	--	--
87	Lulu Lake Outlet at Eloise, Fla-------	26	1946-55	Aug. 25, 1948 Oct. 10, 1953	k11.18 --	k131.18 --	-- 86	-- 3.3
	Lake Parker at Lakeland, Fla----------	-	1949-55	Oct. 12, 1953	5.28	131.78	--	--
	Ariana Lake at Auburndale, Fla--------	-	1945-48	Aug. 28, 1946	5.80	--	--	--
88	Peace River at Bartow, Fla------------	390	1939-55	Sept. 24, 1947	6.45	97.01	4,140	10.6
89	Peace River at Zolfo Springs, Fla-----	840	1933-55	Sept. 6, 1933	20.05	55.25	26,300	31.3
	Little Charley Bowlegs Creek near Sebring, Fla.	32.4	1952-55	Oct. 10, 1953	m16.83	m79.15	682	21.0
	Charlie Apopka Creek near Zolfo Springs, Fla.	-	--	October 1947	--	51.0	--	--
	Charlie Apopka Creek near Gardner, Fla.	330	-- 1950-55	1928 Oct. 10, 1953	-- 17.85	45.9 39.51	-- 6,640	-- 20.1
90	Peace River at Arcadia, Fla-----------	1,370	1912-55	1912	--	26.6	43,000	31.4
	Joshua Creek at Nocatee, Fla----------	115	1950-55	Oct. 10, 1953	18.80	22.74	8,670	75.3
	Horse Creek near Arcadia, Fla--------	205	-- 1950-55	September 1948 Oct. 2, 1951	-- 16.84	28.8 27.80	-- 6,680	-- 32.6

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
				Date	Gage height (ft)	Elevation above msl (ft)	Discharge	
							Cfs	Cfs per (sq mi)
	MIAKKA RIVER BASIN							
	Upper Lake Miakka near Sarasota, Fla--	-	1946-55	Sept. 20, 1947	19.32	19.32	--	--
91	Miakka River near Sarasota, Fla-------	235	1936-55	Sept. 21, 1947	10.78	18.70	6,620	28.2
	Lower Lake Miakka near Sarasota, Fla--	-	1946-55	Sept. 21, 1947	18.17	18.17	--	--
	MANATEE RIVER BASIN							
92	Manatee River near Bradenton, Fla-----	90	1939-55	Sept. 18, 1947	24.51	36.23	6,170	68.6
	LITTLE MANATEE RIVER BASIN							
93	Little Manatee River near Wimauma, Fla	145	1939-55	June 24, 1945	14.44	16.61	9,450	65.2
	ALAFIA RIVER BASIN							
	North Prong Alafia River at Keysville, Fla.	175	1950-55	Sept. 7, 1950	12.78	51.34	3,890	22.2
94	Alafia River at Lithia, Fla-----------	335	1933-55	Sept. 7, 1933	25.6	35.5	19,300	57.6
	HILLSBOROUGH RIVER BASIN							
	Blackwater Creek near Knights, Fla----	110	1951-55	Sept. 27, 1953	8.13	78.69	1,800	16.4
95	Hillsborough River near Zephyrhills, Fla.	220	1939-55	Sept. 19, 1947 Sept. 7, 1950	-- 13.80	-- 47.08	5,920 --	26.9 --
	Hanna Lake near Lutz, Fla-------------	-	1946-55	Aug. 20, 1953	2.90	62.90	--	--
	Hanna Lake Outlet near Lutz, Fla------	-	1946-51	Sept. 24, 1947	--	--	46	--
	Lake Stemper near Lutz, Fla-----------	-	1946-55	Sept. 27, 1953	31.96	61.96	--	--
96	Hillsborough River near Tampa, Fla----	650	1933-55	Sept. 9, 1933	[n]15.5	[n]34.7	[n]16,400	25.2
	Lake Hobbs near Lutz, Fla-------------	-	1946-55	Sept. 27, 1953	8.10	68.10	--	--
	Cooper Lake near Lutz, Fla------------	-	1946-55	Sept. 24, 1947	32.54	62.54	--	--
	Hutchins Lake outlet near Lutz, Fla---	2.7	1946-52	Aug. 14, 1947	--	--	28	10.4
	Platt Lake near Lutz, Fla-------------	-	1946-55	Sept. 8, 1950	21.38	51.38	--	--
	Drainage Ditch at Bearss Ave. near Sulphur Springs, Fla.	12	1946-55	Sept. 29, 1946 Sept. 23, 25, 1947	20.18 --	50.18 --	-- 107	-- 8.9
	SWEETWATER CREEK BASIN							
	Lake Magdalene near Lutz, Fla--------	-	1946-55	Aug. 22, 1947	20.74	50.74	--	--
	Bay Lake near Sulphur Springs, Fla----	-	1946-55	Aug. 23, 1949	16.70	46.70	--	--
	Lake Ellen near Sulphur Springs, Fla--	-	1946-55	Oct. 12, 1953	11.74	41.74	--	--
	Sweetwater Creek near Sulphur Springs, Fla.	6.4	1951-55	Sept. 16, 1953	3.40	34.08	83	13.0
	Lake Carroll near Sulphur Springs, Fla.	-	1946-55	Sept. 25, 1947	10.08	40.08	--	--
	ROCKY CREEK BASIN							
	Rocky Creek near Sulphur Springs, Fla-	35	1953-55	Sept. 27, 1953	12.00	11.85	697	19.9
	ALLIGATOR CREEK BASIN							
	Alligator Creek near Safety Harbor, Fla.	9.0	1949-55	Sept. 6, 1950	9.00	8.15	490	54.4
	ALLEN CREEK BASIN							
	Allen Creek near Largo, Fla-----------	0.8	1947-51	Sept. 5, 1950	5.45	21.03	--	--
	LONG BAYOU BASIN							
	Seminole Lake Outlet near Largo, Fla--	14	1950-55	Sept. 5, 1950	7.44	7.44	539	38.5
	McKAY CREEK BASIN							
	McKay Creek at Walsingham Reservoir, near Indian Rocks, Fla.	-	1944-55	Sept. 6, 1950	56.62	56.62	--	--
	McKay Creek at Taylor Ave. Reservoir, near Largo, Fla.	-	1944-55	Sept. 5, 1950	(p)	about 42	--	--

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
				Date	Gage height (ft)	Elevation above msl (ft)	Discharge	
							Cfs	Cfs per (sq mi)
	LAKE TARPON BASIN							
97	Brooker Creek near Odessa, Fla--------	10	1946-55	Aug. 23, 1949	13.20	43.20	180	18.0
	Brooker Creek near Tarpon Springs, Fla	30	1950-55	Sept. 6, 1950	12.80	12.80	1,080	36.0
	Lake Tarpon near Tarpon Springs, Fla--	-	1945-55	Sept. 8, 1950	6.44	6.44	--	--
	ANCLOTE RIVER BASIN							
98	Anclote River near Elfers, Fla--------	67	1945-55	Aug. 8 or 9, 1945	--	27.7	5,000	74.6
	WITHLACOOCHEE RIVER BASIN							
99	Withlacoochee River at Trilby, Fla----	650	1928-55	June 21, 1934	q20.5	q69.6	8,840	13.6
100	Withlacoochee River at Croom, Fla-----	900	1939-55	Sept. 12, 1950	12.71	51.65	8,450	9.4
101	Withlacoochee River near Holder, Fla--	1,710	1928-55	July 9, 10, 1934	11.63	39.15	6,740	3.9
	WACCASASSA RIVER BASIN							
102	Waccasassa River near Otter Creek, Fla	-	1945-53	Sept. 7, 1950	7.16	30.68	r1,210	--
103	Otter Creek at Otter Creek, Fla-------	-	1945-53	Sept. 6, 1950	7.93	21.28	3,000	--
	SUWANNEE RIVER BASIN							
104	Suwannee River at Fargo, Ga-----------	1,260	1921-55	Oct. 1, 1928	19.5	111.4	13,800	10.9
	Suwannee River at State Highway 6, near Jasper, Fla.	-	--	April 1948	--	102.1	--	--
105	Suwannee River at White Springs, Fla--	1,990	1927-55	Apr. 5, 1948	36.65	85.19	28,500	14.3
106	Alapaha River near Alapaha, Ga--------	644	1928-55	1928	--	227.3	16,000	24.8
107	Alapaha River at Statenville, Ga------	1,400	1862-1955	Apr. 6, 1948	29.8	106.6	27,300	19.5
108	Little River near Adel, Ga------------	547	1862-1955	Apr. 2, 1948	21.0	192.1	38,800	70.9
109	Withlacoochee River near Quitman, Ga--	1,560	1862-1955	Apr. 4, 1948	31.7	116.0	66,000	42.3
110	Withlacoochee River near Pinetta, Fla-	2,220	1862-1955	Apr. 5, 1948	38.64	85.85	79,400	35.8
	Withlacoochee River at State Highway 6, near Madison, Fla.	-	--	April 1948	--	75.5	--	--
111	Suwannee River at Ellaville, Fla------	6,580	1862-1955	Apr. 7, 8, 1948	40.88	68.70	95,300	14.5
	Suwannee River at Dowling Park, Fla---	-	--	April 1948	--	61.5	--	--
112	Suwannee River at Luraville, Fla------	6,900	1862-1955	April 1948	--	53.5	--	--
113	Suwannee River at Branford, Fla-------	7,090	1862-1955	Apr. 11, 1948	34.07	38.88	83,900	11.8
	New River at Lake Butler, Fla---------	212	1950-55	Sept. 8, 1950	12.02	95.8	6,470	30.5
114	Santa Fe River at Worthington, Fla----	630	1931-55	June 17, 1934 Oct. 21, 1944	-- 24.94	-- 67.68	17,500 --	27.8 --
115	Santa Fe River near High Springs, Fla-	950	1931-55	Mar. 14, 1948	15.71	42.07	12,700	13.4
116	Santa Fe River near Fort White, Fla---	1,080	1926-55	Mar. 14, 1948 Apr. 12, 1948	-- 13.70	-- 34.56	12,300 --	11.4 --
117	Suwannee River near Bell, Fla---------	9,260	1862-1955	Apr. 13, 1948	27.43	31.03	82,300	8.9
118	Suwannee River near Wilcox, Fla-------	9,500	1862-1955	Apr. 14, 1948	22.32	22.32	84,700	8.9
	STEINHATCHEE RIVER BASIN							
	Steinhatchee River near Cross City, Fla.	360	1950-55	Sept. 30, Oct. 1, 1953	15.39	23.23	3,740	10.4
	FENHOLLOWAY RIVER BASIN							
119	Fenholloway River at Foley, Fla-------	180	1946-55	Mar. 10, 1948	16.03	45.39	2,640	14.7
	ECONFINA RIVER BASIN							
	Econfina River near Perry, Fla--------	230	1950-55	Apr. 17, 1953	10.75	25.10	758	3.3
	AUCILLA RIVER BASIN							
	Aucilla River at Lamont, Fla----------	680	1950-55	Apr. 16, 1953	10.64	53.54	1,640	2.4
	Aucilla River at Nuttall Rise, Fla----	-	--	April 1948	--	8.8	--	--

Table 3.--Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
				Date	Gage height (ft)	Elevation above msl (ft)	Discharge Cfs	Cfs per (sq mi)
	OCHLOCKONEE RIVER BASIN							
120	Ochlockonee River near Thomasville, Ga.	550	1862-1955	Apr. 2, 1948	29.1	162.7	72,000	131
121	Tired Creek near Cairo, Ga------------	55	1943-55	Apr. 1, 1948	16.3	175.3	28,100	511
122	Ochlockonee River near Havana, Fla----	1,020	1862-1955	Apr. 4, 1948	35.08	94.24	55,900	54.8
	Little River near Quincy, Fla---------	250	1950-55	Sept. 1, 1950	13.69	96.88	3,480	13.9
123	Ochlockonee River near Bloxham, Fla---	1,660	1862-1955	Apr. 5, 1948	23.50	53.19	50,200	30.2
	Telogia Creek near Bristol, Fla-------	130	1950-55	Mar. 20, 1951	8.35	107.85	4,080	31.4
	APALACHICOLA RIVER BASIN							
124	Spring Creek near Iron City, Ga-------	520	1937-55	Apr. 1, 1948	19.9	105.6	12,600	24.2
125	Apalachicola River at Chattahoochee, Fla.	17,100	1919-55	Mar. 20, 1929	$34.70	$79.55	293,000	17.1
126	Mosquito Creek at Chattahoochee, Fla--	60	1937-42	Sept. 1, 1937	11.54	--	1,310	21.8
127	Apalachicola River near Blountstown, Fla.	17,300	1916-55	Mar. 21, 1929	28.6	55.6	--	--
128	Chipola River near Altha, Fla---------	781	1922-55	Sept. 20, 1926	33.55	53.50	25,000	32.0
	BEAR CREEK BASIN							
129	Econfina Creek near Bennett, Fla------	182	-- 1936-55	1926 or 1928 Apr. 2, 1948	15.0 12.46	16.0 13.49	-- 4,860	-- 26.7
	CHOCTAWHATCHEE RIVER BASIN							
130	Choctawhatchee River near Newton, Ala-	683	-- 1922-27, 1930-55	Mar. 15, 1929 Jan. 17, 1925	45 28.0	184 166.6	-- 28,000	-- 41.0
131	Pea River near Samson, Ala------------	1,187	-- 1936-55	Mar. 15, 1929 Jan. 22, 1936	45.3 37.2	143.2 135.2	-- 27,800	-- 23.4
	Choctawhatchee River at Geneva, Ala---	1,347	1925-55	Mar. 16, 1929	46.9	108.0	--	--
	Choctawhatchee River at State Highway 2, near Miller Cross Roads, Fla.	3,200	--	March 1929	--	93.1	--	--
132	Choctawhatchee River at Caryville, Fla	3,499	1928-55	Mar. 17, 1929	27.1	66.1	206,000	58.9
	Holmes Creek at Vernon, Fla-----------	386	1950-55	Sept. 2, 1950	19.02	29.72	5,240	13.6
133	Choctawhatchee River near Bruce, Fla--	4,384	1929-55	March 1929	--	t28.7	220,000	50.2
	ALAQUA CREEK BASIN							
	Alaqua Creek near DeFuniak Springs, Fla.	65.6	1951-55	Sept. 26, 1953	18.47	38.12	5,160	78.7
	YELLOW RIVER BASIN							
134	Lightwood Knot Creek at Babbie, Ala---	113	1944-53	Sept. 11, 1944	11.9	--	12,100	107
135	Yellow River at Milligan, Fla---------	624	-- 1938-55	March 1929 Dec. 6, 1953	-- 15.13	77.8 66.68	-- 28,000	-- 44.9
	Shoal River near Mossy Head, Fla------	123	1951-55	Sept. 27, 1953	21.86	127.45	8,690	70.7
136	Shoal River near Crestview, Fla-------	474	-- 1938-55	March 1929 July 7, 1940	-- 14.26	64.2 61.47	-- 21,700	-- 45.8
137	Yellow River near Holt, Fla-----------	1,220	-- 1933-41	March 1929 July 9, 1940	-- 15.62	43.4 33.57	-- 35,100	-- 28.8
	BLACKWATER RIVER BASIN							
	Blackwater River near Baker, Fla------	205	1950-55	Dec. 4, 1953	20.80	81.3	17,200	83.9
138	Coldwater Creek near Milton, Fla------	237	1938-55	Aug. 17, 1939	17.33	26.43	23,100	97.5
	ESCAMBIA RIVER BASIN							
145	Escambia River near Century, Fla------	3,817	--	March 1929	37.8	66.1	·315,000	82.5
	Pine Barren Creek near Barth, Fla-----	75.3	1952-55	Apr. 14, 1955	18.0	47.9	24,800	329
	Escambia River at Molino, Fla---------	-	--	March 1929	--	31.5	--	--
	Escambia River near Gonzalez, Fla-----	4,160	1951-55	Dec. 9, 1953	6.77	6.77	--	--

Table 3. --Maximum known stages and discharges prior to 1956 in Florida--continued

No.	Stream or lake and place of determination	Drainage area (sq mi)	Period of known floods	Maximum known flood				
							Discharge	
				Date	Gage height (ft)	Elevation above msl (ft)	Cfs	Cfs per (sq mi)
	ESCAMBIA RIVER BASIN-Cont. Escambia River at Regans Landing at Chemstrand Plant, Fla. PERDIDO RIVER BASIN	-	--	March 1929	--	18	--	--
146	Perdido River at Barrineau Park, Fla-	394	-- 1941-55	Mar. 15, 1929 Apr. 15, 1955	-- 23.94	51.4 49.65	-- u39,000	-- 98.9

a   Discharge estimated.
b   Occurred on Oct. 15, 1953.
c   Maximum observed monthly reading; probably not maximum during year.
d   At Hurricane Gate No. 4; caused by hurricane.
e   Average of elevations varying from 89.9 to 90.8 ft determined from evidence around lake.
f   Result of discharge measurement.
g   Maximum daily.
h   Negative figures indicate flow toward lake.
i   Above control.
j   Approximately; water over gage.
k   At former site 1,500 ft upstream.
m   Below control.
n   At site of former station near Harney, 8½ miles upstream.
p   Water over upper limit of gage which is at 13.5 ft.
q   At former site 1½ miles downstream.
r   Main channel only.
s   At former site seven-eights of a mile downstream.
t   At former site 1 mile downstream
u   From rating curve extended above 5,500 cfs.

GAGING STATION RECORDS

Annual peak gage heights and discharges at gaging stations in Florida are tabulated in this section. These data provide the basis for the study of flood frequency and magnitude presented on previous pages of this report.

Gage heights represent the water level in feet above an arbitrary datum which is referenced to local bench-marks at the gaging station. The elevation of this arbitrary datum above mean sea level is also given in the station description. Changes in datum are noted in the station description. Where a change in datum has been made and the gage has remained at essentially the same site, all gage heights have been converted to the datum of the present gage in the tabulation of annual flood peaks. Significant changes in site are denoted by a full line between two items in the tabulation.

Gage heights listed are the maximum gage height during each calendar year from the beginning of the record to Dec. 31, 1953. The calendar year was chosen rather than the water year as the base period for listing of annual peaks as it more nearly coincides with the climatic year in Florida than does the water year.

The gage heights were obtained generally from water-stage recorder charts or from gage readings by an observer. Many of the gage heights shown for major floods outside the period of record were obtained by leveling to floodmarks pointed out by local residents.

Peak discharges are computed from peak gage heights through the medium of a stage-discharge relation, except for those streams where this relation is affected by backwater. Above the range defined by current-meter measurements the stage-discharge relation is based upon measurements made by the slope-area method or upon a study of the conveyance characteristics of the stream channel. Where the stage-discharge relation is affected by backwater, the slope of the stream is commonly used as a second variable in computing discharge, and the peak discharge and peak stage do not necessarily occur at the same time. For these floods the peak discharge and the peak gage height have been tabulated as separate items.

Some of the figures of peak discharge shown in this report are not in agreement with figures published in the U. S. Geological Survey Water-Supply Papers. Most of these revisions are based upon data obtained after the discharge records were originally published. If the revised figures differ considerably from figures previously published, the appropriate changes will be noted as revisions in subsequent Water-Supply Papers.

Unless otherwise noted, the streamflow data in this report were collected by the U. S. Geological Survey in cooperation with many State and municipal agencies, the Corps of Engineers, and the Florida Power Corporation. When records collected by other agencies or private organizations are used, credit is given under the heading "Records available" in the manuscript.

In the station description the present site of the gaging station is described in "Location"; previous locations are described under "Gage". Where there has been a significant change in location, the appropriate notes have been shown in the tabulation of the annual flood peaks.

Satilla River Basin

(1) Satilla River near Waycross, Ga.

Location.--Lat 31°14', long 82°19', on downstream side of bridge pier near center of span on
State Route 38, 3 miles northeast of Waycross, Ware County, and 16 miles upstream from Alabama
River.

Drainage area.--1,300 sq mi, approximately.

Records available.--U. S. Geological Survey: March 1937 to December 1953, daily gage heights and
discharges.

Gage.--Water-stage recorder. Datum of gage is 66.43 ft above mean sea level, datum of 1929,
supplementary adjustment of 1936. Prior to Nov. 22, 1952, staff gage at site 300 ft down-
stream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 23,000 cfs and by slope-
conveyance determination at 39,000 cfs.

Historical data.--The flood of September 1928 reached a stage of 22.2 ft, from information by
pumping-station operator. This flood was reported by a local newspaper to be the highest
known to the oldest settlers of the area.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Sept. -	22.2	37,000	1946	July 31	14.6	4,820
				1947	Apr. 21	16.5	8,520
1937	Apr. 11	16.2	9,240	1948	Apr. 4	22.4	39,000
1938	July 30	14.1	4,160	1949	Sept. 4	18.1	13,800
1939	Mar. 4	17.0	11,000	1950	July 15	13.4	3,450
1940	Feb. 23	14.2	4,300				
				1951	Apr. 4	16.2	7,770
1941	Mar. 29, 30	10.8	1,960	1952	Mar. 4,5,6	12.7	2,870
1942	Jan. 6	17.6	12,800	1953	Oct. 1	18.1	13,800
1943	Mar. 12	13.0	3,120				
1944	Mar. 10	18.0	13,400				
1945	Aug. 25	15.1	5,560				

(2) Satilla River at Atkinson, Ga.

Location.--Lat 31°13', long 81°52', on downstream side of right pier of bridge on U. S. Highway
84, 400 ft downstream from Atlantic Coast Line Railroad bridge and 1 mile west of Atkinson,
Brantley County.

Drainage area.--2,880 sq mi, approximately.

Records available.--U. S. Geological Survey: October 1931 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 14.79 ft above mean sea level, datum of 1929,
supplementary adjustment of 1936. Prior to Dec. 5, 1933, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 68,000 cfs.

Historical data.--Maximum stage known, 27.2 ft, from information by local residents, in September
1928.

Remarks.--Peak stage of Jan. 26, 1931, from records by Corps of Engineers.

Satilla River Basin

(2) Satilla River at Atkinson, Ga.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Sept. -	27.2	110,000	1942	Jan. 9	18.8	26,600
				1943	Mar. 17, 18	13.0	5,650
1931	Jan. 26	13.0	5,510	1944	Mar. 31	18.3	26,100
1932	Aug. 31	15.4	12,200	1945	Aug. 27	15.3	11,200
1933	Feb. 18	16.96	15,200				
1934	June 11	15.79	11,900	1946	Jan. 7	14.4	8,500
1935	Sept. 18	16.25	13,000	1947	Apr. 25	16.0	13,800
				1948	Apr. 6	23.9	68,100
1936	Feb. 17	14.5	8,770	1949	Sept. 5	19.6	33,200
1937	Apr. 14	16.27	13,300	1950	Sept. 11	16.6.	15,500
1938	Aug.. 5, 6	13.68	7,140				
1939	Mar. 7	17.54	17,000	1951	Apr. 9	16.0	13,000
1940	Feb. 26, 27	14.5	7,920	1952	Mar. 11	12.9	5,360
				1953	Oct. 3	19.8	34,600
1941	July 27	13.2	6,080				

St. Marys River Basin

(3) North Prong St. Marys River at Moniac, Ga.

Location.--Lat 30°31', long 82°14', in sec. 8, T. 1 N., R. 21 E., near right bank at upstream
side of bridge on State Highway 94, 950 ft upstream from Georgia Southern and.Florida Railway
bridge, 0.5 mile west of Moniac, and 1.0 mile downstream from Moccasin Creek.

Drainage area.--About 160 sq mi, includes part of watershed in Okefenokee Swamp which is
indefinite.

Records available.--U. S. Geological Survey: January 1921 to December 1923, January 1927 to June
1930, July 1932 to June 1934, October 1950 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 89.40 ft above mean sea level, datum of 1929.
January 1921 to June 1934, staff gage 800 ft downstream at datum 3.22 ft higher. Oct. 3 to
Dec. 13, 1950, wire-weight gage at present site and datum.

Stage discharge relation.--Defined by current-meter measurements below 3,700 cfs.

Remarks.--Peak stage for flood of Sept. 19, 1928, determined from high-water mark; discharge
estimated.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1921	Aug. 2	-	2,200	1932	Sept. 16	10.20	1,870
1922	Oct. 19	7.0	670	1933	Feb. 9	9.89	1,770
1923	Jan. 7, 8	7.0	670	1934	June 18	7.00	550
1927	July 23	8.2	1,100	1951	Dec. 28	10.01	492
1928	Sept. 19	16.7	6,060	1952	Mar. 14	12.36	1,330
1929	Oct. 2	11.51	2,640	1953	Oct. 1	14.27	2,140

St. Marys River Basin

(4) St. Marys River near Macclenny, Fla.

Location.--Lat 30°21'35", long 82°04'55", in sec. 2, T. 2 S., R. 22 E., on right bank, 200 ft
downstream from site of former Stokes Bridge on county road, 1 mile downstream from confluence
of North and South Prongs, and 6 miles northeast of Macclenny.

Drainage area.--720 sq mi, approximately, includes part of watershed in Okefenokee Swamp which
is indeterminate.

Records available.--U. S. Geological Survey: October 1926 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 40.00 ft above mean sea level (levels by Mees and
Mees). Prior to Feb. 21, 1939, staff gage at site of former bridge 200 ft upstream at same
datum. Feb. 21, 1939, to Aug. 15, 1948, water-stage recorder on downstream wing wall of
former bridge 200 ft upstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1927	Aug. 24	12.4	3,070	1941	Dec. 29	13.50	4,240
1928	Sept. 20	21.9	26,100	1942	Jan. 6	15.36	6,800
1929	Oct. 2	18.18	11,400	1943	Aug. 21	8.98	1,450
1930	Mar. 25	17.30	9,760	1944	Oct. 21	19.67	16,100
				1945	Aug. 22	16.00	7,750
1931	Apr. 7	10.62	2,080				
1932	Sept. 18	14.10	4,860	1946	Aug. 2	15.13	6,260
1933	Apr. 17	14.38	5,250	1947	Sept. 25	22.29	28,100
1934	June 18	16.39	8,260	1948	Apr. 3	21.97	26,600
1935	Sept. 8	14.20	4,990	1949	Feb. 8	16.58	8,230
				1950	Sept. 7	21.96	26,600
1936	Feb. 23	9.40	1,540				
1937	Oct. 4	16.00	7,580	1951	Dec. 29	6.74	735
1938	Aug. 8	16.25	7,920	1952	Feb. 28	10.23	1,810
1939	July 12	13.15	3,770	1953	Oct. 2	18.27	11,900
1940	Feb. 20	11.11	2,250				

St. Johns River Basin

(5) St. Johns River headwaters near Vero Beach, Fla.

Location.--Lat 27°38', long 80°40', in sec. 6, T. 33 S., R. 37 E., on upstream side of right
abutment of bridge on State Highway 60, 16¾ miles west of city hall in Vero Beach.

Drainage area.--203 sq mi.

Records available.--U. S. Geological Survey: February 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 18.56 ft above mean sea level, datum of 1929
(levels by Corps of Engineers).

Stage-discharge relation.--Not defined.

St. Johns River Basin

(5) St. Johns River headwaters near Vero Beach, Fla.--Continued

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	Mar. 19	6.76	1948	Oct. -	8.44
1943	Oct. 15	6.83	1949	Oct. 11	8.03
1944	Nov. 2, 4	6.94	1950	Oct. 23	7.71
1945	Sept. 22	7.31			
			1951	Oct. 24	7.02
1946	Oct. 8	6.43	1952	Oct. 27, 28	7.62
1947	Oct. 12	8.81	1953	Oct. 14	8.63

(6) St. Johns River headwaters near Kenansville, Fla.

Location.--Lat 27°49', long 80°49', in sec. 2, T. 31 S., R. 35 E., near left bank on upstream
   side of county road between Kenansville and Fellsmere, 11½ miles east of Kenansville.

Drainage area.--442 sq mi.

Records available.--U. S. Geological Survey: February 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 17.02 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Not defined.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	June 13	6.99	1948	Oct. -	8.52
1943	Oct. 8, 9		1949	Oct. 3-6	7.65
1944	Oct. 19	7.85	1950	Oct. 19	7.46
1945	Sept. 20, 21	7.40			
			1951	Nov. 23-27	6.52
1946	Sept. -	6.93	1952	Oct. 27, 28	7.40
1947	Sept. -	8.38	1953	Oct. 12	8.33

(7) St. Johns River near Melbourne, Fla.

Location.--Lat 28°05'03", long 80°45'11", in NE¼ sec. 6, T. 28 S., R. 36 E., on left bank 10 ft
   upstream from bridge on U. S. Highway 192, 1.0 mile downstream from Sawgrass Lake, 1.8 miles
   upstream from Lake Washington, and 9.2 miles west of Melbourne.

Drainage area.--874 sq mi.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights
   and discharges.

Gage.--Water-stage recorder. Datum of gage is 11.22 ft above mean sea level, datum of 1929.
   Prior to July 26, 1940, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 8,800 cfs. High-water
   shifts have occurred.

FLOODS IN FLORIDA

St. Johns River Basin

(7) St. Johns River near Melbourne, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1940	Sept. 19	5.96	675	1947	Oct. 1	9.16	7,350
				1948	Oct. 2	9.33	8,160
1941	Nov. 19-21	7.73	3,730	1949	Oct. 5, 6	8.56	5,600
1942	July 4, 5	6.94	1,360	1950	Oct. 23	8.45	5,350
1943	Oct. 13	7.36	2,320				
1944	Oct. 26, 27	7.75	3,800	1951	Oct. 9	7.23	2,520
1945	Sept. 22	8.04	4,360	1952	Oct. 28	8.39	4,780
				1953	Oct. 12	9.47	8,850
1946	Aug. 9	7.21	3,060				

(8) Lake Washington near Eau Gallie, Fla.

Location.--Lat 28°09', long 80°44', near sec. line 8 and 9, T. 27 S., R. 36 E., in canal on east shore of lake, at fish camp known as Lake Washington Resort, Inc., 6½ miles west of Eau Gallie.

Records available.--U. S. Geological Survey: July 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 12.39 ft above mean sea level, datum of 1929. Prior to July 21, 1950, gage was attached to dock in lake at same site and datum.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	July 26	5.24	1948	Oct. 2, 3	7.43
1943	Oct. 8	5.72	1949	Oct. 11	6.73
1944	Oct. 29, 30	5.88	1950	Oct. -	6.32
1945	Sept. 28	5.94			
			1951	Oct. 9, 10	5.65
1946	Aug. 11	5.36	1952	Oct. 28, 29	6.48
1947	Oct. 5	7.32	1953	Oct. 12, 13	7.68

(9) Lake Poinsett near Cocoa, Fla.

Location.--Lat 28°21', long 80°49', in SW¼ sec. 34, T. 24 S., R. 35 E., on pile at northeast end of boat shed on canal at fishing camp on northeast shore of lake, 5½ miles west of Cocoa.

Records available.--U. S. Geological Survey: November 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 5.06 ft above mean sea level, datum of 1929. Prior to Feb. 23, 1943, at datum 4.32 ft higher.

St. Johns River Basin

(9) Lake Poinsett near Cocoa, Fla.--Continued

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	Jan. 9	a9.26	1948	Oct. 5-8	12.48
1943	Oct. 12	10.54	1949	Oct. 1	11.46
1944	Oct. 22	10.10	1950	Oct. 28-31	10.04
1945	Sept. 19	10.48			
			1951	Oct. 5, 6	10.30
1946	Sept. 20-22	9.12	1952	Oct. 27 to Nov. 1	10.60
1947	Oct. 7	11.41	1953	Oct. 11	12.50

a Present datum.

(10) St. Johns River near Christmas, Fla.

Location.--Lat 28°32'35", long 80°56'40", in SW¼ sec. 29, T. 22 S., R. 34 E., on left bank about
    15 ft downstream from bridge on State Highway 50, 2 miles upstream from Lake Cone and
    Tosohatchee Creek, and 4.5 miles east of Christmas.

Drainage area.--1,418 sq mi.

Records available.--U. S. Geological Survey: December 1933 to December 1953, daily gage heights
    and discharges.

Gage.--Water-stage recorder. Datum of gage is 1.62 ft above mean sea level, datum of 1929.
    Prior to July 23, 1934, staff gage at same site and datum.

Stage discharge relation.--Defined by current-meter measurements below 11,500 cfs. Minor high-
    water shifts have occurred.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1934	June 20	8.9	4,800	1944	Oct. 22	8.32	4,270
1935	Oct. 16	8.56	4,700	1945	Sept. 21	9.14	9,230
1936	Mar. 12, 13	7.83	4,120	1946	Aug. 31	7.01	3,500
1937	Dec. 1, 2	8.17	3,620	1947	Oct. 12, 13	9.68	10,700
1938	July 17	6.60	1,260	1948	Oct. 9	9.86	10,200
1939	Sept. 29, 30	7.66	2,860	1949	Oct. 5-9	-	a6,600
1940	Oct. 1	7.00	2,120	1950	Oct. 20, 23	8.22	4,910
1941	July 28, 29	8.82	5,270	1951	Oct. 6	8.0	4,860
1942	July 11	7.40	2,350	1952	Oct. 29	8.36	5,750
1943	Sept. 21-24	-	a3,700	1953	Oct. 12	10.59	11,700

a Estimated maximum daily.

St. Johns River Basin

(11) Econlockhatchee River near Chuluota, Fla.

Location.--Lat 28°40'40", long 81°06'50", in sec. 10, T. 21 S., R. 32 E., on right bank, 10 ft
downstream from highway bridge, 2.6 miles northeast of Chuluota, and 10 miles upstream from
mouth.

Drainage area.--260 sq mi, approximately.

Records available.--U. S. Geological Survey: November 1935 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 2.14 ft above mean sea level (Corps of Engineers
benchmark). Prior to May 18, 1939, staff gage at same site and datum.
    Water-stage recorder for station on St. Johns River above Lake Harney, near Geneva is
used as an auxiliary gage for this station.

Stage-discharge relation.--Defined by current-meter measurements below 4,300 cfs; affected at
times by backwater from St. Johns River. Since September 1943, discharge computed by using
fall, as determined from auxiliary gage, as a factor.

Remarks.--Records include some flow diverted from Lake Mary Jane in Lake Okeechobee and the
Everglades basin through Econlockhatchee Headwaters Canal.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1936	Oct. 15	10.55	1,760	1946	Aug. 5	9.72	1,200
1937	Dec. 1	10.57	1,760	1947	Sept. 25	13.87	4,560
1938	July 17	9.81	1,490	1948	Sept. 24	18.09	10,000
1939	June 18	11.61	2,430	1949	Oct. 1	13.28	3,700
1940	Aug. 6, 7	-	950	1950	Oct. 20	16.54	7,350
1941	July 14	-	2,160	1951	Oct. 5	11.03	2,000
1942	July 9	9.43	1,360	1952	Oct. 23	12.00	2,630
1943	Sept. 22	11.75	2,000	1953	Sept. 6	13.72	4,080
1944	Oct. 21	14.96	6,100				
1945	Sept. 18	17.93	9,040				

(12) St. Johns River above Lake Harney, near Geneva, Fla.

Location.--Lat 28°43', long 81°02', in sec. 33, T. 20 S., R. 33 E., near right bank at upstream
side of bridge on State Highway 46, 1 mile upstream from Lake Harney, 5½ miles southeast of
Geneva, and 15½ miles southeast of Sanford.

Drainage area.--1,910 sq mi, approximately.

Records available.--Corps of Engineers: July 1941 to August 1943, daily gage heights. U. S.
Geological Survey: September 1943 to December 1953, daily gage heights; July 1951 to
December 1953, periodic discharge measurements.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of
Engineers benchmark). Prior to Sept. 4, 1943, staff gage at same site and datum.

Stage-discharge relation.--Not defined; affected by backwater from Lake Harney.

St. Johns River Basin

(12) St. Johns River above Lake Harney, near Geneva, Fla.--Continued

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1941	Aug. 1	7.8	1948	Oct. 10	9.72
1942	Mar. 22-25	4.8	1949	Oct. 4	8.44
1943	Sept. 25	7.45	1950	Oct. 24	8.29
1944	Oct. 25	7.81			
1945	Sept. 21	9.87	1951	Oct. 8	6.88
			1952	Oct. 28	7.52
1946	Sept. 23	6.53	1953	Oct. 14	10.62
1947	Oct. -	9.49			

(13) St. Johns River at Osceola, Fla.

Location.--Lat 28°48', long 81°04', in sec. 31, T. 19 S., R. 33 E., on right bank on upstream
    fender piling of Florida East Coast Railway bridge at Osceola, half a mile downstream from
    Lake Harney.

Drainage area.--1,950 sq mi, approximately.

Records available.--Corps of Engineers: August 1941 to August 1943, daily gage heights.
    U. S. Geological Survey: September 1943 to July 1948, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of
    Engineers benchmark). Aug. 8, 1941, to Sept. 2, 1943, staff gage at same site and datum.
    Sept. 2, 1943, to Nov. 4, 1943, water-stage recorder at site a quarter of a mile downstream
    at same datum.

Stage-discharge relation.--Not defined.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1941	· Aug. -	(a)	1945	Sept. 21	9.62
1942	Mar. 24, 25	4.35			
1943	Sept. 25	(a)	1946	Sept. -	6.41
1944	Oct. 26	7.61	1947	Oct. 16	9.22

a No gage-height record.

St. Johns River Basin

(14) Jessup Lake Outlet near Sanford, Fla.

Location.--Lat 28°47', long 81°11', in sec. 1, T. 20 S., R. 31 E., near left bank on downstream
   side of bridge on State Highway 46, 5¼ miles southeast of Sanford.

Records available.--Corps of Engineers: July 1941 to August 1943, daily gage heights.
   U. S. Geological Survey: August 1943 to July 1948, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of
   Engineers benchmark). Prior to Aug. 28, 1943, staff gage at same site and datum.

Stage-discharge relation.--Not defined.

Historical data.--Flood of July 1930 reached a stage of 8.4 ft, from information by local
   resident.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1930	July -	8.4	1944	Oct. 28	6.10
			1945	Sept. 26	7.76
1941	Aug. 1-9	5.8			
1942	Mar. 21	3.6	1946	Sept. 26	5.03
1943	Sept. -	5.8	1947	Oct. 21	7.60

(15) St. Johns River above Lake Monroe, near Sanford, Fla.

Location.--Lat 28°48', long 81°13', in sec. 27, T. 19 S., R. 31 E., near left bank on downstream
   side of bridge on State Highway 415, about 2 miles upstream from Lake Monroe and 3¼ miles
   east of Sanford.

Drainage area.--2,320 sq mi, approximately.

Records available.--Corps of Engineers: July 1941 to August 1943, daily gage heights.
   U. S. Geological Survey: August 1943 to July 1948, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of
   Engineers benchmark). Prior to Aug. 28, 1943, staff gage at same site and datum.

Stage-discharge relation.--Not defined.

Historical data.--Flood of October 1924 reached a stage of 8.5 ft, from information by local
   resident. See additional high-water data for Lake Monroe listed with data for following
   station (St. Johns River near Sanford, Fla.).

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1924	Oct. -	8.5	1944	Oct. 29	5.95
			1945	Sept. 28	7.62
1941	Aug. 4-7	5.1			
1942	Jan. 3, 4	3.6	1946	Sept. 26	4.89
1943	Oct. 10	5.92	1947	Oct. 22	7.42

St. Johns River Basin

(16) St. Johns River near Sanford, Fla.

Location.--Lat 28°50', long 81°19', in sec. 16, T. 19 S., R. 30 E., on left bank 25 ft downstream from bridge on U. S. Highways 17 and 92, near downstream end of Lake Monroe, and 4 miles northwest of Sanford.

Drainage area.--2,420 sq mi, approximately.

Records available.--City of Sanford: July 1920 to January 1940, once-weekly gage heights. U. S. Geological Survey: August 1941 to December 1953, daily gage heights and periodic discharge measurements.

Gage.--Water-stage recorder. Datum of gage is 0.09 ft below mean sea level, datum of 1929. Gage used by city of Sanford was staff gage in Lake Monroe upstream from present site. Datum of gage was at mean sea level (levels by city engineer). (All gage heights shown below have been reduced to elevations above mean sea level).

Stage-discharge relation.--Not defined; affected by backwater. Insufficient data for computation of annual discharge maxima.

Historical data.--Elevations for floods of 1871, 1880, 1898, and 1910, furnished by Mr. Fred T. Williams, former city engineer for Sanford. (Several datum adjustments have been used in Southern Florida; it is assumed that these elevations have been adjusted to datum of 1929).

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1871	-	11.78	1934	June -, July -	6.0
			1935	Oct. -	5.0
1880	-	13.28			
			1936	Mar. -	4.0
1898	-	9.37	1937	Dec. -	4.5
			1938	Aug. -	2.5
1910	-	7.16	1939	Oct. -	3.6
			1940	-	(a)
1920	Oct. -	4.1			
			1941	Aug. 6	5.38
1921	Nov. -	4.0	1942	Mar. 20, 21	3.25
1922	Nov. -	5.2	1943	Oct. 11	5.69
1923	June -, July -	6.0	1944	Oct. 30	5.70
1924	Oct. -	8.06	1945	Sept. 28, 29	7.30
1925	Sept. -	4.2			
			1946	Sept. 27	4.63
1926	Aug. -	7.10	1947	Oct. 22, 23	7.14
1927	Oct. -	1.6	1948	Oct. 13	7.32
1928	Oct. -	6.5	1949	Oct. 11	5.91
1929	Oct. -	6.2	1950	Oct. 29, 30	5.66
1930	July -	8.16			
			1951	Oct. 18, 25	4.27
1931	Jan. -	3.4	1952	Nov. 3, 4	4.97
1932	June -	2.4	1953	Oct. 15	8.52
1933	Sept. -	5.4			

a No gage-height record.

St. Johns River Basin

(17) Wekiva River near Sanford, Fla.

Location.--Lat 28°49', long 81°25', on line between secs. 21 and 28, T. 19 S., R. 29 E., near
right bank at downstream side of bridge on State Highway 46, 4½ miles downstream from Little
Wekiva River, 5½ miles upstream from mouth, and 9 miles west of Sanford.

Records available.--U. S. Geological Survey: October 1931 to September 1935, periodic discharge
measurements; October 1935 to December 1953, daily gage heights and discharges.

Gage.--Staff gage read once daily. Datum of gage is not determined. Prior to Nov. 6, 1935,
reference point at same site.

Stage-discharge relation.--Defined by current-meter measurements below 820 cfs. Considerable
shifting at all stages and backwater effect from hyacinths jams and the St. Johns River.

Remarks.--Wekiva River is fed by numerous springs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1936	June 5	4.36	912	1946	July 29	4.52	890
1937	Oct. 2	3.98	673	1947	Sept. 23	4.82	1,130
1938	July 18	3.74	490	1948	Jan. 25	4.19	671
1939	Sept. 27	-	711	1949	Aug. 29	4.54	929
1940	Apr. 9	3.45	484	1950	Oct. 19	5.40	1,610
1941	July 27	3.84	927	1951	Oct. 3	4.00	551
1942	Sept. 7	3.72	511	1952	Oct. 9	4.18	689
1943	Aug. 22	4.28	884	1953	Aug. 29	-	a1,100
1944	Oct. 20	5.08	a1,580				
1945	Sept. 17	5.60	2,060				

a Maximum daily.

St. Johns River Basin

(18) St. Johns River near De Land, Fla.

Location.--Lat 29°01', long 81°23', T. 17 S., R. 29 E., on left bank 1,000 ft downstream from Crows Bluff Bridge on State Highway 44 and 5 miles west of DeLand.

Drainage area.--2,960 sq mi, approximately.

Records available.--U. S. Geological Survey: January 1934 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 1.114 ft below mean sea level (levels by Corps of Engineers). Prior to May 8, 1936, staff gage at Crows Bluff Bridge 1,000 ft upstream at same datum.
Auxiliary water-stage recorder at St. Francis Landing, 4 miles downstream from Crows Bluff Bridge. Datum of gage is .716 ft below mean sea level (levels by Corps of Engineers). Prior to Jan. 16, 1943, an additional auxiliary water-stage recorder 1½ miles upstream from Crows Bluff Bridge.

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs; affected by fall. Discharge computed by using fall, as determined by auxiliary water-stage recorder at St. Francis Landing, as a factor.

Remarks.--Slight tide effect at low stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)		Daily discharge (cfs)	Calendar year	Date	Gage height (feet)		Daily discharge (cfs)
		Crows Bluff	St. Francis Landing				Crows Bluff	St. Francis Landing	
1934	July 5	5.1	4.04	10,600	1944	Oct. 22-24	–	4.38	–
1935	Oct. 13	4.6	5.70	–		Oct. 25-27	5.08	–	–
	Oct. 23	–	–	7,900		Oct. 31	–	–	8,290
					1945	Sept. 29	6.12	5.03	–
1936	Feb. 24	3.6	2.84	–		Sept. 30	–	–	14,400
	Mar. 17	–	–	5,950	1946	Sept. 26	–	–	6,230
1937	Oct. 4	4.15	4.65	–		Oct. 8	4.45	3.85	–
	Dec. 21	–	–	6,290	1947	Oct. 18	6.12	5.14	–
1938	July 25	–	–	3,880		Oct. 23	–	–	13,400
	Nov. 12	–	.74	–	1948	Oct. 12, 13	6.33	5.43	–
1939	Sept. 25, 26	3.95	4.36	–		Oct. 15, 16	–	–	13,900
	Oct. 27	–	–	5,120	1949	Oct. 11	5.22	4.42	10,000
1940	Oct. 2	3.51	3.05	–	1950	Oct. 29, 30	5.23	4.47	–
	Oct. 3, 4	–	–	3,820		Nov. 4	–	–	10,800
1941	Aug. 7	4.51	–	9,020	1951	Oct. 6-10	–	–	a7,500
	Oct. 27	–	3 81	–		Oct. 18	4.55	–	–
1942	Jan. 2	3.48	–	–	1952	Oct. 29, 30	4.55	3.92	–
	Jan. 11	–	2.85	–		Nov. 10	–	–	8,560
	Mar. 27	–	–	5,370	1953	Oct. 11, 12	7.17	6.32	–
1943	Oct. 9	5.31	4 57	–		Oct. 15	–	–	17,100
	Oct. 12	–	–	7,800					

a Estimated average for 5-day period.

St. Johns River Basin

(19) Lake Apopka at Winter Garden, Fla.

Location.--Lat 28°35', long 81°35', in sec. 14, T. 22 S., R. 27 E., in southeast corner of west
boat basin in city park at Winter Garden.

Drainage area above outlet.--130 sq mi, approximately.

Records available.--Corps of Engineers: December 1935 to December 1942, once monthly gage
heights. U. S. Geological Survey: September 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 62.57 ft above mean sea level, datum of 1929.
Prior to Sept. 19, 1942, Corps of Engineers staff gage on city dock at datum approximately
0.3 ft higher. Gage heights shown below have been reduced to elevations above mean sea level.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1936	Oct. 12	ᵃ69.3	1946	Sept. 27, 30	67.59
1937	-	ᵃ68.7	1947	Sept. 27	68.90
1938	Jan. 10	ᵃ68.1	1948	Jan. 31	68.71
1939	Oct. 2	ᵃ67.2	1949	Jan. 1	67.09
1940	-	ᵃ67.1	1950	Oct. 24	66.56
1941	Dec. 1	ᵃ67.6	1951	Feb. 8, Dec. 27	66.47
1942	Mar. 3	ᵃ68.2	1952	Feb. 27	66.74
1943	Sept. 23	67.49	1953	Oct. 9	68.32
1944	Oct. 24	67.83			
1945	Sept. 20	67.94			

ᵃ Maximum observed monthly reading; probably not maximum during year.
Note.--Momentary peak stages are wind affected and elevations shown for years 1943 to
1953 are maximum daily figures.

(20) Apopka-Beauclair Canal near Astatula, Fla.

Location.--Lat 28°45', long 81°41', in E½ sec. 15, T. 20 S., R. 26 E., on left bank near timber
control and bridge on State Highway 448, 1½ miles west of Lake Jem, 3½ miles northeast of
Astatula and 5 miles southwest of Mount Dora.
Upper gage is 280 ft upstream from bridge and 330 ft upstream from control. Lower gage is
330 ft downstream from control.

Records available.--U. S. Geological Survey: July 1942 to July 1948, daily gage heights and
periodic discharge measurements prior to the construction of the timber control (completed
about Aug. 15, 1950). November 1950 to December 1953, fragmentary gage heights only, from
upper and lower gages.

Gage.--Staff gages at upper and lower locations read once daily when an observer is available.
Datum of each gage is at mean sea level, datum of 1929. Prior to July 1948, before control
was constructed, staff gage at approximately same site as upper gage. Gage was read twice
daily. Datum of this gage was 60.68 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Not defined.

Historical data.--High water mark on bridge for some flood prior to July 1942 (date unknown) was
at elevation 67.0 ft.

St. Johns River Basin

(20) Apopka-Beauclair Canal near Astatula, Fla.--Continued

Annual peak stages

Calendar year	Date	Elevation (feet above mean sea level)	
		Former gage	-
-	-	67.0	
1943	Mar. 7,Apr. 19	65.07	
1944	Oct. 20	65.73	
1945	Sept. 16	65.71	
1946	Jan. 16	65.13	
1947	Sept. 24	65.18	
1948	Mar. 6, 12	65.99	
Control constructed August 1950			
		Upper gage	Lower gage
1951	Jan. 1	-	64.13
	Feb. 5	65.85	-
1952	Apr. 14	[a]66.55	[a]64.17
1953	Dec. 23	66.78	65.78

[a] Maximum observed during period of fragmentary gage-height record; probably not maximum during year.

(21) Lake Dora at Mount Dora, Fla.

Location.--Lat 28°48', long 81°38', near boundary between secs. 31 and 32, T. 19 S., R. 27 E., at boat dock in Elizabeth Evans Park in Mount Dora.

Records available.--Corps of Engineers: November 1935 to July 1942, gage heights read monthly or oftener. U. S. Geological Survey: July 1942 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level, datum of 1929. Prior to Nov. 17, 1950, datum of gage was 59.88 ft above mean sea level, datum of 1929.
    Prior to July 14, 1942, staff gage in boat slip at Wise Boat Works at datum about 0.08 ft higher.

Historical data.--High-water of September 1926 reached a stage of 65.8 ft above mean sea level, from information by Mr. Wise, owner of Wise Boat Works, and Mr. Tremain, Mount Dora realtor.

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1926	Sept. -	65.8	1945	Oct. 2, 5	64.90
1936	Oct. -	[a]64.1	1946	Jan. 17	64.50
1937	Oct. -, Dec. -	[a]64.2	1947	Nov. 25, 26	63.96
1938	Jan. -	[a]64.3	1948	Oct. 6	65.21
1939	Oct. -	[a]62.3	1949	Oct. 5	65.22
1940	Sept. -, Oct.-	[a]62.3	1950	Jan. 1	64.5
1941	Aug. -	[a]63.6	1951	Jan. 8, 15, 16	63.82
1942	Jan. -, Apr. -	[a]63.6	1952	Apr. 1, 2	63.70
1943	Sept. 22	63.18	1953	Dec. 28-31	65.36
1944	Nov. 5, 6, 10	64.28			

[a] Maximum observed monthly reading; probably not maximum during year.

St. Johns River Basin

(22) Dead River near Tavares, Fla.

Location.--Lat 28°49', long 81°45', near corner of secs. 24 and 25 of R. 25 E., and 19 and 30 of
R. 26 E., T. 19 S., on right bank 15 ft upstream from bridge on U. S. Highway 441, and 2 miles
west of Tavares.

Records available.--U. S. Geological Survey: July 1942 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 59.30 ft above mean sea level, datum of
1929.

Stage-discharge relation.--Not defined. The normal flow in Dead River is in northeasterly
direction or from Lake Harris to Lake Eustis, but at times during occurrence of strong
northeast winds, the flow has been observed to reverse, or from Lake Eustis to Lake Harris.

Historical data.--High-water of 1926 reached a stage of 66.1 ft above mean sea level, from
information by Mr. T. W. Camp, Seaboard Railway station agent.

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1926	-	66.1	1948	Oct. 8, 9	64.08
			1949	Oct. 8, 9, 15,16	64.50
1943	Sept. 20, 23, 24	62.26	1950	Jan. 1, 2	63.76
1944	Oct. 23	63.20			
1945	Oct. 3-7, 10-14	63.98	1951	Jan. 5-7	63.10
			1952	Mar. 29-Apr. 2	62.70
1946	Jan. 1	63.68	1953	Dec. 31	64.52
1947	Nov. 4-17	63.36			

(23) Lake Minnehaha at Clermont, Fla.

Location.--Lat 28°33', long 81°45', in sec. 30, T. 22 S., R. 26 E., on north shore, 96 ft south
of centerline of Lake Shore Drive between East Avenue and Drew Avenue in Clermont.

Records available.--U. S. Geological Survey: May 1945 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 91.32 ft above mean sea level, datum of 1929.
Prior to June 5, 1946, staff gage at same site and datum read once daily.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1945	Sept. 24 to Oct. 4	7.50	1950	Oct. 26-28	6.00
1946	Oct. 8	5.90	1951	Dec. 1	6.36
1947	Oct. 6, 7	6.96	1952	Jan. -	5.6
1948	Oct. 13-15	6.98	1953	Oct. 9, 10	7.52
1949	Oct. 11-13	6.72			

St. Johns River Basin

(24) Palatlakaha Creek near Mascotte, Fla.

Location.--Lat 28°37', long 81°51', in sec. 36, T. 21 S., R. 24 E., on right bank 5 ft upstream
from county highway bridge, 0.2 mile downstream from Lake Emma, and 3¼ miles northeast of
Mascotte.

Drainage area.--160 sq mi, approximately.

Records available.--U. S. Geological Survey: May 1945 to December 1953, daily gage heights and
discharges.

Gage.--Water-stage recorder. Datum of gage is 89.54 ft above mean sea level, datum of 1929.
Prior to May 21, 1946, staff gage at same site and datum read once daily.

Stage-discharge relation.--Defined by current-meter measurements below 420 cfs. Considerable
shifting at all stages and backwater effect from hyacinths jams and lakes below station.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1945	Oct. 4, 5	7.06	. 458	1950	Oct. 21	5.52	222
1946	Sept. 21	5.20	164	1951	Dec. 27	5.84	206
1947	Oct. 16	6.61	362	1952	Mar. 28	5.50	152
1948	Oct. 18	6.35	326	1953	Oct. 11, 12	7.12	372
1949	Sept. 29	6.31	342				

(25) Haines Creek at Lisbon, Fla.

Location.--Lat 28°53', long 81°47', in sec. 2, T. 19 S., R. 25 E., on left bank 15 ft downstream
from bridge on State Highway 44, a quarter of a mile west of Lisbon, and 8½ miles northeast
of Leesburg.

Drainage area.--640 sq mi, approximately.

Records available.--U. S. Geological Survey: July 1942 to December 1953, daily gage heights and
discharges.

Gage.--Staff gage read once daily. Datum of gage is 59.22 ft above mean sea level, datum of
1929 (Corps of Engineers benchmark).

Stage-discharge relation.--Defined by current-meter measurements below 805 cfs. Considerable
shifting at all stages.

Historical data.--Flood of 1926 reached a stage about 6.4 ft, from information by Mr. George R.
Gastfield, observer.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1926	-	6.4	-	1948	Oct. 5, 9, 10	3.84	557
				1949	Oct. 7, 8, 11	4.22	704
1943	Sept. 21-23	2.51	196	1950	Oct. 29	3.04	361
1944	Oct. 26	3.16	384				
1945	Oct. 26	3.68	585	1951	Feb. 7	3.11	382
				1952	Mar. 31 to Apr. 2	2.77	400
1946	Feb. 28	3.39	489	1953	Dec. 29	4.20	805
1947	Nov. 12	3.24	429				

St. Johns River Basin

(26) Lake Weir at Oklawaha, Fla.

Location.--Lat 29°02'30", long 81°55'30", in sec. 5, T. 17 S., R. 24 E., on dock 100 ft east of
Johnsons Beach Pavilion, 0.2 mile south of Post Office in Oklawaha.

Drainage area above outlet.--37 sq mi, approximately.

Records available.--Corps of Engineers: April 1936 to December 1943, once monthly gage heights.
U. S. Geological Survey: November 1942 to December 1953, daily gage heights and occasional
discharge measurements of flow at the outlet.

Gage.--Water-stage recorder. Datum of gage is 55.58 ft above mean sea level (Corps of Engineers
benchmark). Prior to Nov. 5, 1942, Corps of Engineers staff gage at approximately same site
at datum at mean sea level. (All gage heights shown below have been reduced to elevations
above mean sea level).

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1936	Apr. -, Oct. -	ª59.0	1946	Mar. 14,15,28,29	58.02
1937	Sept.-,Oct.-,Dec.-	ª59.5	1947	Oct. 24	58.44
1938	Jan. -	ª59.6	1948	Oct. 5	58.34
1939	Oct. -	ª58.4	1949	Oct. 1, 2	58.44
1940	Aug. -	ª58.1	1950	Oct. 19	57.83
1941	Aug. -	ª58.4	1951	Jan. 4-7	57.49
1942	Jan. -	ª58.6	1952	Mar. 27, 28	57.71
1943	Sept. 22	57.63	1953	Dec. 25,26,29-31	58.11
1944	Oct. 20	57.76			
1945	Sept. 17	57.78			

ª Maximum observed monthly reading; probably not maximum during year.
Note.--Momentary peak stages are wind affected and elevations shown for years 1943 to
1953 are maximum daily figures.

(27) Oklawaha River at Moss Bluff, Fla.

Location.--Lat 29°05', long 81°53', in sec. 22 or 23, T. 16 S., R. 24 E., on left bank 25 ft
upstream from old channel, 50 ft upstream from highway bridge, 600 ft downstream from power-
plant, and 0.4 mile southwest of Moss Bluff.

Drainage area.--910 sq mi, approximately.

Records available.--U. S. Geological Survey: February to September 1943, occasional discharge
measurements. October 1943 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers benchmark).
Prior to Aug. 12, 1943, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 1,050 cfs. Considerable
shifting at all stages.

Remarks.--Records include flow of old Oklawaha River channel. Flow regulated by powerplant
above station.

St. Johns River Basin

(27) Oklawaha River at Moss Bluff, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1944	Oct. 19	49.31	988	1950	Oct. 19	48.10	796
1945	Aug. 23	48.90	910				
				1951	Feb. 7	46.41	555
1946	Feb. 28	48.37	811	1952	Feb. 17	47.94	731
1947	Sept. 23	48.50	831	1953	Dec. 28	49.20	1,020
1948	Aug. 19	48.42	811				
1949	Aug. 28	48.47	-				
	Sept. 23	-	855				

(28) Oklawaha River near Ocala, Fla.

Location.--Lat 29°11', long 82°00', in sec. 15, T. 15 S., R. 23 E., on left bank about 15 ft upstream from county highway bridge known as Sharpes Ferry, 2 miles upstream from Silver River, and 9 miles east of Ocala.

Drainage area.--1,100 sq mi, approximately.

Records available.--U. S. Geological Survey: February 1930 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 36.52 ft above mean sea level, datum of 1929, supplementary adjustment of 1937 (Corps of Engineers benchmark). Prior to Mar. 2, 1932, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs. Considerable shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1930	Mar. 29	4.12	1,110	1942	Jan. 6, 7	3.55	905
				1943	Aug. 21	3.00	723
1931	Apr. 5	4.00	1,160	1944	Oct. 19	4.26	1,340
1932	May 20	1.25	333	1945	Sept. 17	4.08	1,250
1933	Sept. 6	5.52	1,030				
1934	June 15	5.14	1,810	1946	Feb. 28	3.99	1,200
1935	Aug. 25	3.59	862	1947	Sept. 24	3.92	1,160
				1948	Aug. 19-22	-	1,020
1936	Apr. 1	-	862	1949	Aug. 28	4.15	1,220
1937	Aug. 31	4.58	1,720	1950	Sept. 6	4.86	1,590
1938	July 19	-	736				
1939	Aug. 29	-	906	1951	Nov. 17	2.74	631
1940	Feb. 19	2.04	525	1952	Feb. 18	3.63	968
				1953	Dec. 24	4.55	1,470
1941	July 31	2.85	698				

St. Johns River Basin

(29) Silver Springs near Ocala, Fla.

Location.--Measuring point for discharge measurements at lat 29,13', long 82°02', in sec. 6, T. 15 S., R. 23 E., 700 ft downstream from Paradise Landing, 0.7 mile downstream from head of springs and 6.0 miles northeast of Ocala.

Records available.--U. S. Geological Survey: January 1933 to December 1953, daily or weekly gage heights and daily discharges.

Gage.--Water-stage recorder at head of springs in boat repair basin. Datum of gage is 38.96 ft above mean sea level, datum of 1929. Prior to Feb. 20, 1947, staff gage at same site and datum.

    Auxiliary water-stage recorder on Sharpes Ferry artesian well about 400 ft east of Oklawaha River, 2 miles upstream from Silver River, and 4.2 miles southeast of head of springs. Datum of gage is 42.36 ft above mean sea level, datum of 1929, supplementary adjustment of 1937 (Corps of Engineers benchmark).

Stage-discharge relation.--No relation between stage at head of springs and discharge of springs becuase of backwater effect from Oklawaha River. Discharge computed from relation between artesian pressure at Sharpes Ferry well and discharge at measuring point. This relation is well defined by current-meter measurements and minor shifts have occurred.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet) head of springs	Discharge (cfs)	Calendar year	Date	Gage height (feet) head of springs	Discharge (cfs)
1933	Sept. 6	5.50	-	1944	Oct. 20	2.87	-
	Oct. 7	-	1,140		Nov. 28	-	838
1934	June 16	3.40	-	1945	Sept. 17	3.18	-
	July 7	-	1,060		Oct. 3-6	-	1,060
1935	Sept. 28	2.79	-				
	Oct. 19	-	958	1946	Sept. 22	2.60	-
					Dec. 2	-	1,010
1936	June 6	2.79	-	1947	Sept. 24	-2.92	-
	June 20	-	974		Nov. 11	-	1,050
1937	Oct. 16	2.54	-	1948	Sept. 22	-	1,110
	Oct. 23	-	926		Oct. 4	2.86	-
1938	Jan. 1	-	894	1949	Oct. 11-13	2.83	-
	July 30	2.19	-		Oct. 12-15	-	1,120
1939	Sept. 30	2.05	854	1950	Oct. 19	3.51	-
1940	Jan. 1, 2	-	758		Nov. 2-4	-	1,150
	Jan. 4	1.19	-				
				1951	Jan. 1-3	2.31	-
1941	Dec. 18	2.02	-		Jan. 7	-	1,030
	Dec. 31	-	908	1952	Feb. 17	2.21	-
1942	Apr. 17-19	-	1,030		Apr. 13	-	938
	July 27	2.96	-	1953	Oct. 24	-	1,030
1943	Sept. 20	2.07	-		Dec. 24	3.15	-
	Oct. 2	-	854				

St. Johns River Basin

(30) Oklawaha River near Conner, Fla.

Location.--Lat 29°13', long 81°59', in sec. 3, T. 15 S., R. 23 E., on right bank about 15 ft
downstream from bridge on State Highway 40, a quarter of a mile downstream from Silver River,
about 1½ miles southwest of Connor, and 8 miles east of Ocala.

Drainage area.--1,180 sq mi, approximately.

Records available.--U. S. Geological Survey: February 1930 to September 1946, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 31.79 ft above mean sea level, datum of 1929.
Feb. 13, 1930, to Aug. 23, 1935, staff gage and Aug. 24, 1935, to June 11, 1939, water-stage
recorder at upstream side of bridge at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 3,630 cfs. Considerable
shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1930	Mar. 29	7.37	2,280	1939	Aug. 30	6.28	1,720
				1940	Feb. 19, 20	5.41	1,290
1931	Apr. 6	7.29	2,430				
1932	June 19	4.69	945	1941	Apr. 5	–	1,460
1933	Sept. 6	9.14	3,700	1942	July 27	6.67	1,890
1934	June 15	8.50	3,430	1943	Aug. 21,Sept. 22	–	1,450
1935	Sept. 5	6.65	1,860	1944	Oct. 20	7.33	2,320
				1945	Sept. 17	7.14	2,190
1936	June 3	6.78	1,860				
1937	Aug. 31	7.58	2,590	1946	Feb. 28	6.86	2,120
1938	July 29	6.50	1,680				

(31) Oklawaha River at Eureka, Fla.

Location.--Lat 29°22', long 81°54', in sec. 9, T. 13 S., R. 24 E., on right bank 20 ft upstream
from bridge on State Highway 316 in Eureka, and 3 miles downstream from Eaton Creek.

Drainage area.--1,420 sq mi, approximately.

Records available.--U. S. Geological Survey: February 1930 to June 1934, September 1943 to
December 1952, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 15.44 ft above mean sea level, datum of 1929
(Corps of Engineers benchmark). Prior to Nov. 19, 1943, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs. Considerable
shifting at all stages.

St. Johns River Basin

(31) Oklawaha River at Eureka, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1930	Mar. 31	8.02	3,400	1946	Mar. 2	7.60	2,760
				1947	Sept. 25	7.81	2,940
1931	Apr. 7	7.88	3,030	1948	Oct. 5	7.52	2,750
1932	June 20	5.13	1,080	1949	Aug. 30	8.03	3,230
1933	Sept. 7	11.0	6,260	1950	Sept. 7	10.12	5,370
1934	June 17	10.06	5,360				
				1951	Sept. 21	6.74	2,120
1943	Sept. 22	7.00	2,220	1952	Feb. 19	7.16	2,460
1944	Oct. 21	8.75	3,950				
1945	Sept. 18	8.42	3,520				

(32) Newnans Lake near Gainesville, Fla.

Location.--Lat 29°39', long 82°14', in W½ sec. 5, T. 10 S., R. 21 E., on west shore of lake at Myers fish camp, 5 miles east of Gainesville.

Records available.--Corps of Engineers: April 1936 to December 1947, once monthly gage heights. U. S. Geological Survey: November 1945 to September 1952, twice weekly gage heights.

Gage.--Staff gage. Datum of gage is 63.33 ft above mean sea level, datum of 1929. Prior to June 27, 1951, at various nearby locations at same datum.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1936	Apr. -	a3.7	1945	Dec. 29	5.14
1937	Oct. -	a5.0			
1938	Jan. -	a4.3	1946	Aug. 5	6.39
1939	July -	a5.9	1947	Oct. 27	6.64
1940	Mar. -	a4.1	1948	Mar. 12	7.88
			1949	Sept. 6	5.42
1941	Nov. -	a5.2	1950	Sept. 12	6.18
1942	Jan. -	a4.8			
1943	Oct. -	a2.6	1951	Nov. 23	4.50
1944	Nov. -	a5.2	1952	Mar. 4	4.85

a Maximum observed monthly reading; probably not maximum during year.
Note.--Readings for years 1945-52 were maximum observed at twice-weekly intervals; peak stage may have been slightly higher.

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St. Johns River Basin

(33) Orange Lake near Boardman, Fla.

Location.--Lat 29°27', long 82°11', in sec. 15, T. 12 S., R. 21 E., on southwest shore of lake, 1¾ miles southeast of Boardman.

Records available.--Corps of Engineers: November 1935 to December 1947, once monthly gage heights from gage located in town of Orange Lake. U. S. Geological Survey: November 1945 to May 1948, daily or twice weekly gage heights.

Gage.--Staff gage. Datum of gage is 53.44 ft above mean sea level, datum of 1929. Datum of Corps of Engineers staff gage at town of Orange Lake was 56.2 ft above mean sea level. Gage heights collected at the two locations are comparable. (All gage heights shown below have been reduced to elevations above mean sea level).

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1936	Mar. -	ª59.0	1943	Jan. -	ª57.4
1937	Oct. -	ª59.6	1944	Nov. -	ª58.4
1938	Jan. -	ª59.1	1945	Oct. -	ª59.0
1939	Aug. -	ª60.0			
1940	May-,Aug.-,Sept.-	ª58.2	1946	Oct. 12	60.84
			1947	Nov. 19	60.68
1941	Nov. -	ª61.5	1948	Mar. 19	61.62
1942	Jan. -, Apr. -	ª60.1			

ª Maximum observed monthly reading; probably not maximum during year.

(34) Orange Lake Outlet near Citra, Fla.

Location.--Lat 29°26', long 82°07', in sec. 21, T. 12 S., R. 22 E., on left bank 15 ft upstream from bridge on U. S. Highway 301 and State Highway 200, 0.8 mile south of Island Grove, and 1.5 miles north of Citra.

Drainage area.--Indeterminate. Total drainage area of Orange Lake Outlet and Lochloosa Lake Outlet above highway is 323 sq mi.

Records available.--U. S. Geological Survey: November 1941, three discharge measurements; July 1942 to December 1946, daily gage heights; January 1947 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 53.41 ft above mean sea level, datum of 1929. July 2, 1942, to June 27, 1943, staff gage at same site and at datum 2.00 ft higher. June 28, 1943, to Mar. 27, 1947, staff gage and same site and datum.

Stage-discharge relation.--Defined by current-meter measurements for period 1947 to 1953. Shifting channel and channel improvement work preclude computation of discharge maxima for other years.

Historical data.--Flood of October 1941 reached a stage of 7.7 ft, from floodmarks on bridge.

Remarks.--Orange and Lochloosa are connected by Cross Creek through which there may be a natural diversion from one lake to the other.

FLOODS IN FLORIDA

St. Johns River Basin

(34) Orange Lake Outlet near Citra, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1941	October	ª7.7	-	1947	Nov. 18	7.06	417
				1948	Mar. 17	7.81	677
1943	Jan. 1, 2	ª3.97	-	1949	Oct. 12-14	5.63	139
1944	Nov. 11	4.92	-	1950	Oct. 27	6.06	401
1945	Sept. 17	5.60	-				
				1951	Dec. 27	4.98	173
1946	Aug. 15,			1952	Feb. 27	5.44	251
	Oct. 11-14	7.30	-	1953	Oct. 10	6.26	467

ª Present datum.

(35) Lochloosa Lake at Lochloosa, Fla.

Location.--Lat 29°30', long 82°06', in sec. 27, T. 11 S., R. 22 E., at Cassels' dock on southeast shore of lake in town of Lochloosa.

Records available.--U. S. Geological Survey: July 1942 to December 1952, daily gage heights.

Gage.--Staff gage. Datum of gage is 55.83 ft above mean sea level, datum of 1929.

Historical data.--Flood of October 1941 reached a stage of 6.2 ft.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1941	October	6.2	1947	Nov. 14	5.18
			1948	Mar. 16	6.11
1943	Jan. 1	2.16	1949	Oct. 10-12	3.84
1944	Oct. 23-26	2.92	1950	Oct. 23	4.60
1945	Dec. 31	3.66			
			1951	Jan. 1, 3	3.34
1946	Oct. 11	5.50	1952	Mar. 13	3.60

St. Johns River Basin

(36) Lochloosa Lake Outlet near Lochloosa, Fla.

Location.—Lat 29°29'10", long 82°06'10", in sec. 3, T. 12 S., R. 22 E., on right bank at upstream side of wingwall of culvert on U. S. Highway 301 and State Highway 200, 1.3 miles south of Lochloosa, and 2.4 miles north of Island Grove.

Drainage area.—Indeterminate. Total drainage area of Orange Lake Outlet and Lochloosa Lake Outlet above highway is 323 sq mi.

Records available.—U. S. Geological Survey: January 1947 to December 1953, daily gage heights and discharges.

Gage.—Water-stage recorder. Datum of gage is 55.41 ft above mean sea level, datum of 1929. Prior to Mar. 28, 1947, staff gage at same site and datum.

Stage-discharge relation.—Defined by current-meter measurements below 332 cfs. Considerable shifting at all stages.

Remarks.—Orange and Lochloosa Lakes are connected by Cross Creek through which there may be a natural diversion from one lake to the other.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1947	Nov. 18, 19	5.11	194	1951	Dec. 27	3.38	20
1948	Mar. 12, 13	6.04	341	1952	Feb. 27	3.65	45
1949	Apr. 8, 9	3.98	–	1953	Sept. 30	–	116
	Oct. 9	–	50		Oct. 1-3	4.45	–
1950	Oct. 22, 23, 24	4.49	138				

(37) Orange Creek at Orange Springs, Fla.

Location.—Lat 29°31', long 81°57', in sec. 25, T. 11 S., R. 23 E., on right bank at downstream side of bridge on State Highway 318, a quarter of a mile northwest of Orange Springs, and 1¼ miles upstream from Little Orange Creek.

Drainage area.—431 sq mi.

Records available.—U. S. Geological Survey: July 1942 to December 1952, daily gage heights and periodic discharge measurements.

Gage.—Staff gage read once daily. Datum of gage is 19.81 ft above mean sea level, datum of 1929. Prior to Nov. 12, 1942, staff gage at datum 3.00 ft higher.

Stage-discharge relation.—Defined by current-meter measurements below 1,500 cfs. Relation is fairly permanent.

Historical data.—Flood of October 1941 reached a stage of 10.6 ft, present datum, from information by observer (discharge, 2,500 cfs, from rating curve extended above 1,490 cfs, which was the result of a discharge measurement made on Nov. 16, 1941).

St. Johns River Basin

(37) Orange Creek at Orange Springs, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1941	October	10.6	2,500	1947	Sept. 23	8.04	980
				1948	Mar. 10	8.62	1,290
1943	Sept. 19	7.00	500	1949	Apr. 5	7.50	700
1944	Oct. 19	7.64	760	1950	Sept. 6	8.40	1,180
1945	Dec. 29	7.26	590				
				1951	Oct. 2	7.40	650
1946	Oct. 9	8.04	980	1952	Feb. 24	7.04	510

Note.--Gage heights for years 1943-52 are maximum observed on once daily basis; peak stage may have been slightly higher.

(38) Oklawaha River near Orange Springs, Fla.

Location.--Lat 29°30'15", long 81°54'45", in sec. 29, T. 11 S., R. 24 E., on left bank at Jordans Ferry and mouth of Orange Creek, 2 miles east of Orange Springs.

Drainage area.--2,010 sq mi, approximately (including Orange Creek).

Records available.--U. S. Geological Survey: February 1930 to December 1952, daily gage heights and discharges.

Gage.--Staff gage read twice daily. Datum of gage is 7.12 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Oct. 1, 1936, at site a quarter of a mile downstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs; considerable shifting in lower limits.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1930	Mar. 31	8.64	3,860	1942	Mar. 30	8.36	3,450
				1943	Sept. 23	8.02	3,120
1931	Apr. 9	8.04	3,860	1944	Oct. 22	9.38	4,560
1932	Mar. 24	4.76	1,180	1945	Sept. 19	9.06	4,170
1933	Sept. 9	a11.60	9,760				
1934	June 19	10.10	6,350	1946	Oct. 12	7.95	3,120
1935	Sept. 6	8.36	4,100	1947	Sept. 26, 27	8.84	3,830
				1948	Mar. 12	9.35	4,560
1936	Feb. 10	8.15	3,880	1949	Sept. 1	8.44	3,450
1937	Sept. 3	8.70	4,120	1950	Sept. 9	11.12	7,420
1938	Aug. 7	7.54	2,980				
1939	Aug. 29	7.64	3,060	1951	Nov. 18	6.97	2,380
1940	Feb. 21	5.76	1,640	1952	Feb. 27	7.91	3,040
1941	Oct. 23	10.75	6,900				

a At site then in use; 12.00 ft, present site, from floodmarks.

St. Johns River Basin

(39) Oklawaha River at Riverside Landing, near Orange Springs, Fla.

Location.--Lat 29°30', long 81°48', in sec. 33, T. 11 S., R. 25 E., at Riverside Landing on right
bank near boat dock, 8¼ miles east of Orange Springs.

Drainage area.--2,100 sq mi, approximately.

Records available.--U. S. Geological Survey: October 1943 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of
Engineers benchmark).

Stage-discharge relation.--Defined by current-meter measurements below 5,800 cfs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1944	Oct. 23	8.54	5,550	1949	Sept. 2	7.74	4,370
1945	Sept. 20	8.25	5,040	1950	Sept. 10	9.50	7,320
1946	Sept. 21	7.60	4,100	1951	Oct. 3	7.57	4,180
1947	Sept. 24	8.57	5,720	1952	Feb. 27	7.35	3,840
1948	Mar. 12	8.83	6,060	1953	Oct. 4	8.30	5,480

(40) South Fork Black Creek near Penney Farms, Fla.

Location.--Lat 29°59', long 81°51', in sec. 13, T. 6 S., R. 24 E., on right bank about 20 ft
downstream from bridge on State Highway 16, half a mile downstream from Greens Creek, 2½ miles
west of Penney Farms, and 10 miles west of Green Cove Springs.

Drainage area.--134 sq mi.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 9.82 ft above mean sea level, datum of 1929
(levels by Corps of Engineers). Prior to July 18, 1940, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1940	Dec. 25	14.16	1,650	1947	Sept. 24	22.60	9,390
				1948	Mar. 11	19.24	5,970
1941	Oct. 21, 22	21.65	8,560	1949	Oct. 2	14.77	1,900
1942	Mar. 15	14.74	1,850	1950	Oct. 19	21.25	7,970
1943	Aug. 15	19.87	6,240				
1944	Oct. 19	26.33	13,900	1951	Nov. 17	10.95	970
1945	Sept. 17	17.13	3,940	1952	Oct. 22	13.71	1,470
				1953	Apr. 20	19.40	5,790
1946	May 20	13.91	1,530				

St. Johns River Basin

(41) North Fork Black Creek near Middleburg, Fla.

Location.--Lat 30°06'50", long 81°54'35", in sec. 33, T. 4 S., R. 24 E., at left bank, a third of
a mile upstream from Big Branch, 4 miles northwest of Middleburg, and 6½ miles upstream from
confluence with South Fork.

Drainage area.--174 sq mi.

Records available.--U. S. Geological Survey: November 1931 to December 1953, daily gage heights
and discharges.

Gage.--Staff gage read twice daily. Datum of gage is 0.62 ft above mean sea level, datum of
1929 (levels by Corps of Engineers). Prior to Mar. 29, 1933, at site three-eighths of a mile
downstream at different datum.

Stage-discharge relation.--Defined by current-meter measurements below 7,000 cfs.

Historical data.--Maximum stage known, 25.3 ft in June 1919, from information by old resident
(discharge, 15,000 cfs, from rating curve extended above 7,000 cfs).

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1919	June	25.3	15,000	1942	Jan. 5	16.07	2,890
				1943	Aug. 15	15.28	2,290
1932	Sept. 16	8.88	929	1944	Oct. 19	23.76	10,400
1933	Sept. 6	19.35	6,720	1945	Sept. 18	17.32	3,950
1934	June 15	18.53	5,580				
1935	Sept. 6	16.38	3,340	1946	Oct. 9	16.88	3,580
				1947	Sept. 24	22.34	9,560
1936	Feb. 8	10.72	1,190	1948	Oct. 3	21.57	8,840
1937	Oct. 2	18.05	4,620	1949	Feb. 7	17.92	5,020
1938	Oct. 25	20.2	6,990	1950	Oct. 19	20.88	8,120
1939	Aug. 15	12.66	1,410				
1940	Feb. 19	13.68	1,630	1951	Nov. 18	6.22	516
				1952	Sept. 24	11.60	1,270
1941	Oct. 22	18.44	5,020	1953	Aug. 28	17.78	4,890

Moultrie Creek Basin

(42) Moultrie Creek near St. Augustine, Fla.

Location.--Lat 29°49'40", long 81°21'00", in sec. 11, T. 8 S., R. 29 E., on right bank 6 ft
downstream from bridge on Kings Road, two-fifths of a mile upstream from Fort Peyton Branch,
and 5 miles southwest of St. Augustine.

Drainage area.--23.3 sq mi.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder and wooden control. Datum of gage is 2.17 ft above mean sea level,
datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Historical data.--Maximum stage known, about 13 ft in 1919, from information by local resident.

Moultrie Creek Basin

(42) Moultrie Creek near St. Augustine, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1919	-	about 13	-	1946	Sept. 16	7.25	546
				1947	Sept. 23	6.91	433
1940	Feb. 18	6.07	115	1948	Mar. 11	7.92	763
				1949	Oct. 1	8.31	909
1941	Oct. 21	9.31	1,370	1950	Oct. 19	7.58	661
1942	Mar. 14	6.11	180				
1943	Sept. 20	7.32	563	1951	Nov. 11	6.59	333
1944	Oct. 19	9.25	1,320	1952	Oct. 23	7.83	738
1945	Sept. 17	8.17	852	1953	Sept. 24	7.76	714

Lake Okeechobee and the Everglades

(43) Lake Okeechobee, Fla.

Location.--Center of lake, lat 26°57', long 80°50', in southern Florida.

Records available.--Everglades Drainage District: 1912 to 1931, intermittent records of stage at various locations on the lake. Reliability of these records is questionable due to uncertainty of gage datum and location with respect to lake outlets and consequent drawdown and lockage effects. U. S. Geological Survey: April 1931 to December 1953, daily gage heights collected and furnished by Corps of Engineers.

Gage.--Three staff gages, at Hurricane Gate No. 2, Hurricane Gate No. 6, and Port Mayaca, read once daily. Oct. 1, 1941, to Dec. 31, 1950, seven staff gages at various locations on rim of lake. Prior to Oct. 1, 1941, staff gage at St. Lucie Canal.
   Datum of gages is at mean sea level (levels by Corps of Engineers). Oct. 1, 1933, to June 30, 1947, datum of gage or gages was 1.44 ft below mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1933, datum of gage was 1.01 ft below mean sea level. (All gage heights tabulated below have been converted to present datum, at mean sea level).

Remarks.--Stage of lake regulated by gates at several lake outlets. Since Oct. 1, 1940, average elevation is computed from readings of 3 or more gages.

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1930	July 20-23	17.5	1942	Feb. 25	15.20
			1943	Dec. 16, 17	13.92
1931	Jan. 6	16.4	1944	Jan. 1	13.75
1932	Nov. 12, 27	13.6	1945	Oct. 31	15.78
1933	Sept. 4	20.1			
1934	Oct. 8, 9, 12	15.4	1946	Mar. 19	15.46
1935	Jan. 23	15.3	1947	Nov. 2	18.77
			1948	Oct. 18, 19	17.77
1936	July 20	15.4	1949	Jan. 1	15.53
1937	Dec. 2	15.8	1950	Jan. 2	15.16
1938	Jan. 4	15.1			
1939	Nov. 1	15.90	1951	Oct. 13	15.97
1940	Feb. 22	15.78	1952	Oct. 28, 29	15.81
			1953	Oct. 29	17.66
1941	Oct. 23, 25	15.21			

Note.--Maximum stages shown above computed from readings of one gage prior to Oct. 1, 1941, and from average of 3 or more gages at various locations subsequent to that date.

Lake Okeechobee and the Everglades

(44) Fisheating Creek at Palmdale, Fla.

Location.--Lat 26°56', long 81°19', in sec. 3, T. 41 S., R. 30 E., near right bank on downstream
side of bridge on U. S. Highway 27, 1 mile south of Palmdale, and 16 miles upstream from
Lake Okeechobee.

Drainage area.--435 sq mi, approximately.

Records available.--U. S. Geological Survey: April 1931 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 27.19 ft above mean sea level, datum of 1929.
Prior to Mar. 16, 1949, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 21,000 cfs. Considerable
shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1932	Sept. 13	8.26	5,570	1943	Oct. 5	7.30	3,620
1933	Sept. 6	8.60	6,460	1944	Sept. 2	6.30	1,500
1934	Aug. 9	-	920	1945	Sept. 17	9.18	8,980
1935	Sept. 7	6.42	1,480	1946	Sept. 23	5.96	946
1936	June 15, 16	8.10	5,800	1947	Sept. 19	11.06	16,400
1937	July 1	6.98	3,010	1948	Sept. 24	10.52	14,500
1938	Oct. 17	7.14	3,230	1949	Aug. 29	7.86	5,300
1939	Aug. 29	6.92	2,790	1950	Sept. 9	5.88	583
1940	Sept. 12	6.92	3,090	1951	Oct. 3	12.44	31,400
1941	Apr. 10	6.70	2,790	1952	Oct. 21	7.77	4,920
1942	Feb. 26	7.04	3,260	1953	Oct. 10	8.53	7,520

(45) Indian Prairie Canal near Okeechobee, Fla.

Location.--Lat 27°04', long 80°59', in sec. 24, T. 39 S., R. 33 E., on right bank at downstream
side of bridge on State Highway 78, 2 miles upstream from shore of Lake Okeechobee corres-
ponding to lake elevation of 12.5 ft above mean sea level, and 15 miles southwest of town of
Okeechobee.

Records available.--U. S. Geological Survey: April 1931 to February 1933, daily gage heights
and discharges, at site 3 miles upstream published as "near Lakeport".   June 1939 to December
1950, daily gage heights and discharges.   Corps of Engineers: January 1951 to December 1953,
daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, unadjusted (levels by Corps of
Engineers). April 1931 to February 1933, at site 3 miles upstream at different datum.

Stage-discharge relation.--Poorly defined by current-meter measurements, affected by backwater
from Lake Okeechobee and hyacinth jams.

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Lake Okeechobee and the Everglades

(45) Indian Prairie Canal near Okeechobee, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1931	Mar. 7	20.4	a900	1947	Sept. 18	-	1,610
1932	Sept. 15	21.00	1,140		Oct. 12	19.10	-
				1948	Oct. 5	-	1,880
1939	Aug. 12	17.62	704		Oct. 16	18.50	-
1940	Sept. 11, 12	17.46	b517	1949	Aug. 28	18.44	1,880
				1950	Oct. 21	14.05	b149
1941	July 18	17.22	1,090				
1942	June 14	17.49	1,240	1951	Oct. 3	18.16	-
1943	Aug. 31	17.37	728		Oct. 9	-	b1,500
1944	Sept. 12	15.73	77	1952	Oct. 20	-	b1,500
1945	Sept. 16	18.05	1,540		Oct. 21	18.01	-
				1953	Oct. 27	18.76	b2,480
1946	Aug. 4	16.34	315				

a Estimated.
b Maximum daily.

(46) Alligator Lake near Ashton, Fla.

Location.--Lat 28°13'59", long 81°11'25", in sec. 14, T. 26 S., R. 31 E., on dock on northeast
shore of lake, 300 ft east of canal connecting Alligator Lake and Lake Lizzie, 350 ft
southwest of U. S. Highway 192, and 4 miles east of Ashton.

Records available.--U. S. Geological Survey: November 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 60.74 ft above mean sea level (levels by
Corps of Engineers).

Historical data.--High water of June 1934, reached a stage of about 7.0 ft, from information by
observer.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1934	June -	7.0	1948	Oct. 6, 7	5.48
			1949	Oct. 6	4.80
1942	July 6	4.96	1950	Jan. 1	3.50
1943	Sept. 22, 23	4.55			
1944	Oct. 21	5.64	1951	Nov. 23	4.32
1945	Sept. 19, 20	5.28	1952	Oct. 28-31; Nov. 1, 3	4.00
1946	Oct. 10	3.92	1953	Oct. 11	5.54
1947	Oct. 13	5.28			

Lake Okeechobee and the Everglades

(47) Hart Lake near Narcoossee, Fla.

Location.--Lat 28°22'40", long 81°13'30", in sec. 21, T. 24 S., R. 31 E., near west shore of lake, 1.2 miles east of State Highway 15, and 5.5 miles north-northeast of Narcoossee.

Records available.--U. S. Geological Survey: November 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 55.74 ft above mean sea level (levels by Corps of Engineers). Prior to Dec. 11, 1942, staff gage at same site and at datum 2.22 ft higher.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	July 18	ª5.65	1948	Oct. 7	8.83
1943	Sept. 23	6.41	1949	Oct. 6, 7	6.98
1944	Oct. 27-30	5.78	1950	Oct. 24	5.76
1945	Sept. 20	9.13			
			1951	Oct. 7-9	5.24
1946	Oct. 1, 2	5.13	1952	Oct. 30, 31	5.42
1947	Oct. 3	7.82	1953	Oct. 2, 4	8.30

ª Present datum.

(48) East Tohopekaliga Lake at St. Cloud, Fla.

Location.--Lat 28°15'29", long 81°16'57", in sec. 2, T. 25 S., R. 30 E., in boat basin on south side of lake at St. Cloud.

Records available.--U. S. Geological Survey: November 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 51.35 ft above mean sea level (Corps of Engineers benchmark). Prior to Mar. 5, 1943, staff gage was located on former city pier at approximately same location, at datum 2.61 ft higher.

Historical data.--Flood of July 1930 reached a stage of 10.79 ft, present datum, from information by Mr. J. C. Gallatin, St. Cloud.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1930	July -	ª10.79	1947	Oct. 13	9.37
			1948	Oct. 13, 14	10.06
1942	Mar. 31	ª6.69	1949	Oct. 7-14	8.67
1943	Oct. 10, 11	6.66	1950	Jan. 1, 2	6.66
1944	Nov. 3, 4, 6	6.70			
1945	Sept. 24, 25	10.37	1951	Nov. 29	7.28
			1952	Jan. 1	6.68
1946	Jan. 1	6.38	1953	Oct. 12, 13	10.63

ª Present datum.

Lake Okeechobee and the Everglades

(49) Lake Tohopekaliga at Kissimmee, Fla.

Location.--Lat 28°17'20", long 81°24'22", in sec. 27, T. 25 S., R. 29 E., on southeast end of municipal dock on north shore of lake at Kissimmee.

Records available.--U. S. Geological Survey: January 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to June 15, 1950, water stage recorder was located on the west shore of lake about 9 miles south of Kissimmee. Datum of gage at this location was 50.36 ft above mean sea level (levels by Corps of Engineers). (All gage heights tabulated below have been reduced to present datum, at mean sea level).

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1942	July 8	55.32	1948	Oct. 13	57.79
1943	Oct. 7, 11, 12	54.56	1949	Oct. -	57.62
1944	Sept. 24, 25	55.12	1950	Jan. 2-5	55.75
1945	Sept. 23, 24	58.32			
		.	1951	Nov. 26	55.70
1946	Oct. 11	55.62	1952	Jan. 1	55.02
1947	Oct. 13	58.5	1953	Oct. 10, 11	58.62

Note.--Momentary peaks are wind-affected and elevations shown are maximum mean dailies.

(50) Cypress Lake near St. Cloud, Fla.

Location.--Lat 28°03'40", long 81°19'58", in SW¼ sec. 8, T. 28 S., R. 30 E., about 580 ft from south shore of lake, 1,600 ft east of head of Cypress-Hatchineha Canal, and about 13 miles south of St. Cloud.

Records available.--U. S. Geological Survey: January 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 48.78 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 6, 1950, at site on northwest shore of lake at same datum.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	July 7, 8	5.99	1948	Oct. 8	7.54
1943	Oct. 10	4.90	1949	Oct. 6, 7	7.07
1944	Nov. 1	5.78	1950	Jan. 5, 6	5.39
1945	Sept. 23, 24	7.70			
			1951	Nov. 28, 29	5.28
1946	Oct. 9-11	5.40	1952	Oct. 29	4.87
1947	Oct. 11	8.33	1953	Oct. 12, 13	8.38

Note.--Momentary peaks are wind-affected and elevations shown are maximum mean dailies.

Lake Okeechobee and the Everglades

(51) Lake Butler at Windermere, Fla.

Location.--Lat 28°30', long 81°32', in sec. 17, T. 23 S., R. 28 E., on east shore of lake at
boat house of George A. Morley, near intersection of 9th Avenue and Main Street, Windermere.

Records available.--Samuel Morley: January 1933 to November 1941, once weekly gage heights.
U. S. Geological Survey: November 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 96.40 ft above mean sea level, datum of
1929. January 1933 to November 1941, readings from reference point were made once weekly by
Samuel Morley. Elevation of reference point was 100.17 ft above mean sea level. (All gage
heights shown below have been reduced to elevations above mean sea level).

Historical data.--High water of September 1926 reached a stage of 101.30 ft, from information by
a local resident.

Annual peak stages

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1926	Sept. -	101.30	1943	Sept. 22, 23	100.25
			1944	Oct. 20, 21	101.06
1933	Sept. 10	ᵃ100.92	1945	Sept. 17	101.28
1934	Aug. 12	ᵃ100.89			
1935	Sept. 29	ᵃ100.32	1946	Sept. 24, 27	100.85
			1947	Sept. 24	101.17
1936	Mar. 15	ᵃ100.42	1948	Oct. 5	100.98
1937	Oct. 24	ᵃ100.22	1949	Jan. 1, 2	100.09
1938	Jan. 2, 9	ᵃ100.11	1950	Oct. 24	99.80
1939	Oct. 22	ᵃ100.02			
1940	Sept. 15	ᵃ99.50	1951	Feb. 7, 8	99.79
			1952	Mar. 27-30	99.86
1941	Aug. 4	ᵃ100.42	1953	Oct. 1	101.03
1942	July 11	100.55			

ᵃ Maximum observed weekly elevation; peak stage may have been slightly higher.

(52) Cypress Creek at Vineland, Fla.

Location.--Lat 28°23'25", long 81°31'11", in sec. 21, T. 24 S., R. 28 E., on left bank at down-
stream side of bridge on State Highway 535, 1 mile west of Vineland.

Drainage area.--31.0 sq mi.

Records available.--U. S. Geological Survey: August 1945 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 96.20 ft above mean sea level. Prior to June 13,
1946, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 140 cfs. Considerable
shifting at all stages.

Lake Okeechobee and the Everglades

(52) Cypress Creek at Vineland, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1945	Sept. 16	3.83	181	1950	Oct. 19	2.87	36
1946	Aug. 14	3.27	68	1951	Aug. 6	3.03	57
1947	Sept. 18	3.51	112	1952	Mar. 27	2.53	16
1948	Jan. 24	3.25	69	1953	Sept. 27	3.61	135
1949	Sept. 29	3.20	64				

(53) Reedy Creek near Loughman, Fla.

Location.--Lat 28°15'48", long 81°32'12", in sec. 32, T. 25 S., R. 28 E., on left bank, 20 ft upstream from bridge on U. S. Highways 17 and 92, 2½ miles northeast of Loughman, and 3 miles downstream from Davenport Creek.

Drainage area.--117 sq mi (includes part of watershed in Reedy Creek Swamp which is indeterminate).

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 64.49 ft above mean sea level, datum of 1929. Prior to Aug. 20, 1940, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs. Some shifting and backwater from hyacinths at all stages.

Remarks.--Records do not include diversions above station into Shingle Creek.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1940	July 11	3.14	215	1947	Sept. 20, 21	4.02	530
				1948	Sept. 24	3.89	484
1941	July 26	3.97	501	1949	Aug. 30	3.97	508
1942	June 13, 14	3.27	–	1950	Oct. 21	3.71	381
	Sept. 8, 9	–	282				
1943	July 21, 22	3.34	304	1951	Nov. 21	3.72	405
1944	Oct. 22, 23	4.02	530	1952	Mar. 30, 31	3.22	207
1945	Sept. 19	3.92	487	1953	Aug. 30	4.08	513
1946	Sept. 23, 24	3.68	383		–		

Lake Okeechobee and the Everglades

(54) Lake Hatchineha near Haines City, Fla.

Location.--Lat 28°00'00", long 81°22'50", in sec. 36, T. 28 S., R. 29 E., at the southeastern
 shore of lake, at head of Hatchineha-Kissimmee Canal, 3½ miles upstream from Lake Kissimmee,
 14 miles east of Lake Wales, and 17 miles southeast of Haines City.

Records available.--U. S. Geological Survey: January 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 47.23 ft above mean sea level, datum of 1929
 (levels by Corps of Engineers). Prior to June 8, 1950, at site on northwest shore of lake at
 same datum.

Historical data.--Flood of June 1934 reached a stage of about 9.8 ft, from information by local
 resident.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1934	June -	about 9.8	1947	Oct. 11	9.56
			1948	Oct. 7, 8	8.72
1942	Mar. 20	6.55	1949	Oct. 6	8.08
1943	Oct. 13	5.01	1950	Jan. 5, 6, 9	5.62
1944	Oct. -	ª6.2			
1945	Sept. 24, 25	8.89	1951	Nov. 29	5.77
			1952	Oct. 29	5.83
1946	Oct. 8	5.96	1953	Oct. 14, 15, 19	9.61

ª Estimated.

Note.--Momentary peaks are wind-affected and gage heights shown are maximum mean dailies.

(55) Catfish Creek near Lake Wales, Fla.

Location.--Lat 27°57'40", long 81°29'48", in sec. 14, T. 29 S., R. 28 E., on left bank 6 ft
 downstream from bridge on private road, a quarter of a mile downstream from Lake Pierce, and
 7 miles northeast of Lake Wales.

Drainage area.--58.9 sq mi.

Records available.--U. S. Geological Survey: October 1947 to December 1953, daily gage heights
 and discharges.

Gage.--Water-stage recorder. Datum of gage is 72.70 ft above mean sea level (Corps of Engineers
 benchmark).

Stage-discharge relation.--Defined by current-meter measurements below 170 cfs. Considerable
 shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1948	Oct. 3, 4	5.46	180	1951	Oct. 2, 3	4.61	92
1949	Oct. 2	5.32	160	1952	Oct. 27	-	113
1950	Oct. 25	4.18	68	1953	Oct. 9	5.81	191

Lake Okeechobee and the Everglades

(56) Lake Kissimmee near Lake Wales, Fla.

Location.--Lat 27°57'05", long 81°20'15", in NE¼ sec. 34, T. 29 S., R. 30 E., at the northwestern shore of lake, 1 mile southeast of the outlet of Hatchineha-Kissimmee Canal, and 16 miles east of Lake Wales.

Records available.--U. S. Geological Survey: March 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 46.94 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 12, 1950, at site on southwest shore of lake and same datum.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	Mar. 30	6.22	1948	Oct. 6-8	8.78
1943	Oct. 14	4.45	1949	Oct. 5-7	7.70
1944	Nov. 11, 12	5.32	1950	Jan. 1	4.95
1945	Sept. 18-22	8.80			
			1951	Dec. 8	4.83
1946	Oct. 13	5.32	1952	Nov. 1	5.70
1947	Sept. -	9.77	1953	Oct. 12, 13	9.70

Note.--Momentary peaks are wind-affected and gage heights shown are maximum mean dailies except that for September 1947.

(57) Weohyakapka-Rosalie Canal near Lake Wales, Fla.

Location.--Lat 27°52', long 81°23', in sec. 14, T. 30 S., R. 29 E., near left bank at downstream side of bridge on State Highway 60, 11½ miles east of Lake Wales.

Records available.--U. S. Geological Survey: August 1942 to August 1948, daily gage heights and periodic discharge measurements.

Gage.--Water-stage recorder. Datum of gage is 55.23 ft above mean sea level (Corps of Engineers benchmark).

Stage-discharge relation.--Not defined; affected by backwater from Lake Rosalie.

Historical data.--Flood of September 1933 reached a stage of 7.6 ft, from floodmarks on piles and information by a local resident.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1933	Sept. -	7.6	1945	Sept. 18	5.99
1943	Oct. 11	3.38	1946	Aug. 4-6	4.23
1944	Sept. 15, 18	4.40	1947	Sept. 24	6.21

Lake Okeechobee and the Everglades

(58) Kissimmee River below Lake Kissimmee, Fla.

Location.--Lat 27°46'13", long 81°10'45", in sec. 24, T. 31 S., R. 31 E., on right bank about 3
miles downstream from Lake Kissimmee and bridge on State Highway 60, and 22 miles east of
Frostproof.

Drainage area.--1,609 sq mi at State Highway 60 (includes areas drained by Lake Weohyakapka and
Lake Marian).

Records available.--Okeechobee Flood Control District: January 1930 to June 1931, daily gage
heights.   U. S. Geological Survey: June 1931 to December 1953, daily gage heights and
discharges (records unpublished prior to October 1933).

Gage.--Water-stage recorder. Datum of gage is 43.48 ft above mean sea level, datum of 1929
(levels by Corps of Engineers). Prior to Mar. 21, 1934, staff gage at bridge 3 miles upstream
at datum 44.73 ft lower. Mar. 21, 1934, to Sept. 30, 1950, water-stage recorder at present
site at datum 45.00 ft lower than present datum. Since Mar. 21, 1934, gage at bridge 3 miles
upstream used as supplemental gage. (All gage heights shown below have been reduced to mean
sea level).

Stage-discharge relation.--Defined by current-meter measurements. Considerable shifting at all
stages caused by dikes and levees in the flood plain below the station.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1930	June, July -	55.45	8,750	1942	July 22	52.79	1,630
				1943	Oct. 17	51.13	962
1931	Jan. 21	52.95	2,230	1944	Nov. 21	51.91	1,160
1932	Oct. 6	48.54	499	1945	Sept. 20	55.16	6,130
1933	Sept. 22-24	54.57	5,350				
1934	June 24	54.74	7,150	1946	Oct. 15	51.88	1,810
1935	Oct. 25	50.11	849	1947	Oct. 13	56.18	6,850
				1948	Oct. 5 or 6	55.40	8,820
1936	Mar. 17	52.40	1,940	1949	Oct. 4, 7	54.15	5,130
1937	Dec. 3, 6	52.35	1,940	1950	Nov. 25	50.64	1,120
1938	Aug. 10	49.81	768				
1939	Sept. 29	52.66	2,230	1951	Dec. 12	51.70	-
1940	Mar. 8	51.00	1,130		Dec. 17	-	1,650
				1952	Oct. 29	52.57	2,010
1941	Sept. 20	52.61	2,040	1953	Oct. 9	56.64	7,170

(59) Kissimmee River at Fort Kissimmee, Fla.

Location.--Lat 27°35', long 81°09', in sec. 19, T. 33 S., R. 32 E., on right bank at Fort
Kissimmee, 21 miles east of Avon Park.

Records available.--U. S. Geological Survey: December 1941 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 38.03 ft above mean sea level, datum of 1929
(levels by Corps of Engineers). Dec. 9, 1941, to Feb. 25, 1942, staff gage at site 500 ft
downstream at different datum.

Stage-discharge relation.--Not defined.

Lake Okeechobee and the Everglades

(59) Kissimmee River at Fort Kissimmee, Fla.--Continued

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1942	June 30	7.99	1948	Sept. 24	11.97
1943	Oct. 11, 12	7.21	1949 .	Oct. 1	a10.24
1944	Oct. 25, 26	7.48	1950	Oct. -	7.4
1945	Sept. 18	12.17			
			1951	Nov. 20, 21	7.26
1946	Sept. 22	8.29	1952	Oct. 23	9.07
1947	Sept. 23	11.84	1953	Oct. 11	12.89

a From fragmentary gage-height record; peak may have been slightly higher.

(60) Reedy Lake Outlet near Frostproof, Fla.

Location.--Lat 27°43'13", long 81°28'40", in NW¼ sec. 1, T. 32 S., R. 28 E., on left bank 15 ft
    upstream from county road bridge, 100 ft downstream from Reedy Lake, and 3½ miles southeast
    of Frostproof.

Drainage area.--62.2 sq mi.

Records available.--U. S. Geological Survey: October 1946 to December 1953, daily gage heights
    and discharges.

Gage.--Water-stage recorder and concrete control. Datum of gage is 76.05 ft above mean sea
    level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements. Considerable shifting as the
    result of changes in the elevation of the control and aquatic vegetation.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1947	Sept. 29	4.00	141	1951	Oct. 2	2.85	57
1948	Oct. 5	4.37	166	1952	Oct. 21	2.48	40
1949	Oct. 2	3.49	107	1953	Oct. 9	4.09	116
1950	Oct. 21-24	-	54				

Lake Okeechobee and the Everglades

(61) Lake Arbuckle near Avon Park, Fla.

Location.--Lat 27°39'50", long 81°22'40", in SW¼ sec. 25, T. 32 S., R. 29 E., on downstream side of bridge across Arbuckle Creek at south side of lake, and 9 miles northeast of Avon Park.

Records available.--U. S. Geological Survey: December 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 51.53 ft above mean sea level, datum of 1929.

Historical data.--Hurricane floods of 1926 and 1928 reached a stage of 7.2 ft.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1926	-	7.2	1947	Sept. 24	6.14
			1948	Sept. 24	6.7
1928	-	7.2	1949	Aug. 30, Oct. 1	5.80
			1950	Oct. 21, 22	5.00
1942	Mar. 19	3.56			
1943	Sept. 1, 2	4.20	1951	Oct. 6	4.50
1944	Oct. 27, 28	3.62	1952	Oct. 24, 25	5.00
1945	Sept. 17	6.20	1953	Oct. 10, 11	6.20
1946	Sept. 21	4.32			

(62) Arbuckle Creek near De Soto City, Fla.

Location.--Lat 27°26'33", long 81°17'51", in SE¼ sec. 11, T. 35 S., R. 30 E., on right bank 20 ft downstream from bridge on State Highway 700, 1 mile upstream from Lake Istokpoga, and 7 miles east of De Soto City.

Drainage area.--385 sq mi (excludes area drained by Lake Weohyakapka and includes area drained by Lake Sebring).

Records available.--U. S. Geological Survey: June 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 35.51 ft above mean sea level, datum of 1929. June 24, 1942, to Oct. 19, 1943, staff gage at same site and datum.

Stage-discharge relation.--Poorly defined by current-meter measurements below 5,300 cfs; affected by backwater from Lake Istokpoga.

Remarks.--Records include flow through 2 overflow bridges, 1.9 and 2.1 miles west of main channel.

Lake Okeechobee and the Everglades

(62) Arbuckle Creek near De Soto City, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	Sept. 1	7.84	3,270	1946	Sept. 23, 24	-	700
1940	Sept. 11, 12	7.26	1,920	1947	Sept. 23	8.20	5,610
				1948	Sept. 23	8.71	7,380
1941	July 26, 27	7.52	2,710	1949	Aug. 29	7.42	3,180
1942	Feb. 26	6.33	1,030	1950	Oct. 23	6.07	1,380
1943	July 18-21,						
	Oct. 7	-	1,290	1951	July 26	-	1,720
	Oct. 7	6.78			Oct. 4	6.11	-
1944	Aug. 17	6.22	1,090	1952	Oct. 23	6.80	2,720
1945	Sept. 17	8.47	6,540	1953	Oct. 10	8.16	5,490

(63) Josephine Creek near De Soto City, Fla.

Location.--Lat 27°22'26", long 81°23'37", in SE¼ sec. 2, T. 36 S., R. 29 E., on left bank 320 ft downstream from bridge on State Highway 17, 1 mile downstream from Jack Creek, and 4 miles south of De Soto City.

Drainage area.--109 sq mi (excludes area drained by Lake Sebring).

Records available.--U. S. Geological Survey: October 1946 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 52.99 ft above mean sea level, datum of 1929 (State Road Department benchmark). Prior to May 21, 1952, at site half a mile upstream at datum 0.89 ft higher.

Stage-discharge relation.--Defined by current-meter measurements.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1947	Sept. 19	9.55	900	1951	Oct. 2	8.30	487
1948	Sept. 23	11.56	1,780	1952	Oct. 21	5.55	184
1949	Aug. 28	9.31	792	1953	Oct. 10	7.97	1,180
1950	Oct. 18	5.81	88				

Lake Okeechobee and the Everglades

(64) Lake Istokpoga near De Soto City, Fla.

Location.--Lat 27°26'05", long 81°17'05", in sec. 13, T. 35 S., R. 30 E., near north shore of
    lake, about 500 ft east of mouth of Arbuckle Creek, 1 mile southeast of bridge on U. S.
    Highway 98 crossing Arbuckle Creek, and 7 miles east of De Soto City.

Records available.--Corps of Engineers: August 1936 to August 1942, daily gage heights. U. S.
    Geological Survey: August 1942 to December 1953, daily gage heights.

Gage.--Water-stage recorder. Datum of gage is 34.07 ft above mean sea level, datum of 1929.
    Prior to Aug. 20, 1942, Corps of Engineers staff gage on west shore of lake was read once
    daily. Aug. 11, 1936, to May 18, 1937, datum of gage was 40.54 ft above mean sea level,
    datum of 1929, and May 19, 1937, to Aug. 19, 1942, datum was 38.54 ft above mean sea level,
    datum of 1929. (All gage heights shown below have been reduced to elevations above mean
    sea level).

<div align="center">Annual peak stages</div>

Calendar year	Date	Elevation, feet above mean sea level	Calendar year	Date	Elevation, feet above mean sea level
1937	Dec. 9-21	39.4	1946	Jan. 6	39.79
1938	Aug. -	(a)	1947	Sept. 23	42.47
1939	Oct. 6, 7	41.2	1948	Sept. 24	42.44
1940	Sept. 29 to		1949	Oct. 11	40.63
	Oct. 3	41.6	1950	Jan. 4-6	38.77
1941	Aug. 2-9	41.0	1951	Apr. 22	39.51
1942	July 24-28	40.4	1952	Nov. 5, 6	39.52
1943	Oct. 11	41.38	1953	Oct. 12	42.27
1944	Jan. 2	39.16			
1945	Sept. -	43.22			

a No gage-height record.
Note.--Momentary peaks are wind-affected and gage heights shown are maximum mean dailies
except that for September 1945.

(65) Istokpoga Canal near Cornwell, Fla.

Location.--Lat 27°24'01", long 81°09'35", in sec. 30, T. 35 S., R. 32 E., on right bank 30 ft
    downstream from old highway bridge, a quarter of a mile downstream from Seaboard Air Line
    Railroad bridge, 1½ miles upstream from Kissimmee River, and 4½ miles northwest of Cornwell
    Post Office.

Drainage area.--624 sq mi.

Records available.--U. S. Geological Survey: March 1934 to December 1953, daily gage heights
    and discharges.

Gage.--Water-stage recorder. Datum of gage is 29.71 ft above mean sea level (levels by Corps
    of Engineers). May 15, 1942, to Aug. 19, 1949, staff gage at same site and datum.
        Since June 3, 1953, auxiliary water-stage recorder, below control, 1¾ miles upstream.

Stage-discharge relation.--Defined by current-meter measurements; affected by backwater from
    Kissimmee River. Since June 1953, discharges computed by using fall as determined from
    auxiliary water-stage recorder, as a factor.

Historical data.--Flood of September 1933 reached a stage of 10.1 ft.

Remarks.--Some diversions at times during high water from Lake Istokpoga into Indian Prairie and
    Harney Pond Canals when levees on southeast shore of lake are overtopped or washed out.

Lake Okeechobee and the Everglades

(65) Istokpoga Canal near Cornwell, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1933	September	10.1	-	1945	Sept. 20	9.67	1,640
1934	June 21	8.59	-				
	June 22	-	755	1946	Oct. 8	6.32	-
1935	Oct. 14	6.47	860		Nov. 2	-	399
				1947	Sept. 24, 25	9.90	1,610
1936	Mar. 17	7.02	899	1948	Sept. 22	-	2,040
1937	Oct. 23	8.00	-		Oct. 6	10.62	-
	Dec. 6	-	714	1949	Oct. 4	8.46	-
1938	Jan. 8	6.32	471		Oct. 14, 15	-	1,280
1939	Oct. 1, 2	7.16	912	1950	Oct. 24	6.56.	401
1940	Oct. 5	7.16	1,030				
				1951	Oct. 2	-	1,130
1941	July 30	7.47	948		Oct. 26	7.37	-
1942	Mar. 23	7.40	-	1952	Oct. 27	8.13	1,070
	June 13	-	763	1953	Oct. 9	-	1,860
1943	Oct. 3	7.28	1,100		Oct. 12	11.41	-
1944	Sept. 1	-	426				
	Nov. 2-4	5.99	-				

(66) Kissimmee River near Cornwell, Fla.

Location.--Lat 27°21'44", long 81°03'03", in sec. 8, T. 36 S., R. 33 E., on right bank 1,000 ft downstream from new Pearce Bridge on U. S. Highway 98 and State Highway 700, 3 miles southeast of Cornwell Post Office, and 10½ miles downstream from Istokpoga Canal.

Drainage area.--2,703 sq mi.

Records available.--Everglades Drainage District: August 1928 to December 1930, daily gage heights. Okeechobee Flood Control District: January to June 1931, daily gage heights. U. S. Geological Survey: June 1931 to December 1953, daily gage heights. October 1948 to September 1951, daily discharges.

Gage.--Staff gage read twice daily. Datum of gage is 24.64 ft above mean sea level (Corps of Engineers benchmark). Prior to Feb. 14, 1934, at same site at datum 5.36 ft below mean sea level. (All gage heights shown below have been reduced to elevations above mean sea level).

Stage-discharge relation.--Relation for use October 1948 to September 1951 was defined by current-meter measurements below 8,500 cfs. Backwater effect and shifting channel preclude computation of discharge maxima for other years.

Lake Okeechobee and the Everglades

(66) Kissimmee River near Cornwell, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. 11, 12	35.9	-	1941	Aug. 3	32.26	-
1929	Oct. 31	33.1	-	1942	Feb. 25, 26	32.32	-
1930	June 23, 24	34.8	-	1943	Oct. 5	32.22	-
				1944	Nov. 5-7	30.66	-
1931	Mar. 11	32.4	-	1945	Sept. 22	34.64	-
1932	Sept. 14	31.40	-				
1933	Sept. 5	ª33.64	-	1946	Jan. 1, 2	31.22	-
1934	June 22	33.88	-	1947	Sept. 24	34.90	-
1935	Oct. 15, 16	31.92	-	1948	Oct. 6	35.45	16,800
				1949	Oct. 5	33.20	8,600
1936	Mar. 15-18	32.10	-	1950	Oct. 26	31.64	4,000
1937	Oct. 24	33.26	-				
1938	Jan. 8	31.29	-	1951	Oct. 3	32.80	-
1939	Sept. 26	32.40	-	1952	Oct. 28	32.74	-
1940	Oct. 6, 7	31.84	-	1953	Oct. 12, 13	36.12	-

ª Gage washed out Sept. 6, 1933, to Feb. 13, 1934; may have been higher during this period.

(67) Kissimmee River near Okeechobee, Fla.

Location.--Lat 27°14'18", long 80°58'57", in sec. 24, T. 37 S., R. 33 E., on downstream end of left pier of bridge on State Highway 70, 9.4 miles west of Okeechobee, and approximately 13 miles upstream from Lake Okeechobee.

Drainage area.--2,886 sq mi.

Records available.--Everglades Drainage District: August 1928 to December 1930, daily gage heights. U. S. Geological Survey: January 1931 to December 1953, daily gage heights and discharges (records unpublished prior to October 1930).

Gage.--Water-stage recorder. Datum of gage is 1.37 ft below mean sea level, datum of 1929. Prior to Apr. 28, 1949, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs. Considerable shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. -	30.3	20,000	1941	July 31 to Aug. 5	25.98	4,280
1929	Oct. 2	ª27.0	ª7,260	1942	Feb. 27, 28	26.20	4,650
1930	June 23, 24	28.7	13,000	1943	Oct. 7	26.28	4,840
				1944	Nov. 10-14	23.88	1,840
1931	Mar. 8-10	26.2	3,910	1945	Sept. 22	27.90	11,700
1932	Sept. 16	25.70	3,210				
1933	Sept. 9	29.32	15,600	1946	Sept. 20	24.88	2,970
1934	June 24	27.72	9,000	1947	Sept. 25	28.42	13,000
1935	Oct. 13	26.04	4,330	1948	Oct. 7	29.34	17,400
				1949	Oct. 6	26.84	8,300
1936	Mar. 16, 17	25.84	3,270	1950	Oct. 28	24.92	3,740
1937	Oct. 27	26.90	6,080				
1938	Jan. 9-13	24.88	2,320	1951	Oct. 4	26.25	7,280
1939	Sept. 27	26.56	5,150	1952	Oct. 29	25.72	5,750
1940	Oct. 8	25.54	3,360	1953	Oct. 14	28.37	17,800

ª Result of discharge measurement; peak may have been slightly higher.
Note.--Gage heights shown have not been reduced to elevations above mean sea level.

Lake Okeechobee and the Everglades

(68) St. Lucie Canal at Lake Okeechobee, Fla.

Location.--Lat 26°59', long 80°37', in sec. 22, T. 40 S., R. 37 E., on downstream side of left pier of bridge on State Highway 15 at Lake Okeechobee, and 23.9 miles upstream from lock near Stuart.

Records available.--U. S. Geological Survey: April 1931 to September 1952, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Jan. 17, 1934, staff gage at site a quarter of a mile downstream at datum 1.13 ft lower. Jan. 17, 1934, to Mar. 16, 1951, water-stage recorder at Florida East Coast Railway bridge, 0.7 mile downstream at datum 1.56 ft lower. (All gage heights tabulated below have been reduced to present datum, at mean sea level).

Since Jan. 17, 1934, auxiliary water-stage recorder 10.8 miles downstream.

Stage-discharge relation.--Defined by current-meter measurements; affected by fall. Discharge computed by using fall, as determined by auxiliary water-stage recorder, as a factor.

Remarks.--Prior to Mar. 1, 1942, flow regulated by lock 1. Subsequent to Mar. 1, 1942, flow regulated by lock near Stuart.

Annual peak stages and discharges

Calendar year	Date	Daily gage height (feet above mean sea level)	Discharge (cfs)	Calendar year	Date	Daily gage height (feet above mean sea level)	Discharge (cfs)
1931		(a)	(a)	1943	Jan. 2	-	1,050
1932	Sept. 29	-	2,820		Oct. 26,		
1933	Oct. 25	14.93	4,740		Nov. 29,		
1934	Oct. 4	-	4,540		Dec. 12	13.78	-
	Oct. 8	14.91	-	1944	Jan. 3	13.73	-
1935	Oct. 15	14.44	-		Nov. 11	-	591
	Oct. 29	-	4,500	1945	Oct. 25, 26	-	6,120
					Dec. 31	15.51	-
1936	Mar. 17	-	5,020				
	July 13	14.51	-	1946	Feb. 24	(b)	-
1937	Dec. 4	14.74	-		Mar. 21	-	4,800
	Dec. 6	-	5,070	1947	Nov. 2, 3	18.04	7,070
1938	Jan. 2	-	4,690	1948	Oct. 18	17.10	-
	Jan. 16	14.19	-		Oct. 22-24	-	6,110
1939	Oct. 7	-	3,490	1949	Sept. 2-5	-	6,700
	Nov. 8	14.50	-		Nov. 25	14.99	-
1940	Apr. 8	14.58	-	1950	Jan. 3, 4	14.99	(c)
	Oct. 1, 2	-	4,500				
				1951	Oct. 15	15.73	-
1941	Sept. 29	-	4,040		Nov. 2, 6	-	7,470
	Oct. 23	14.60	-	1952	-	(a)	(a)
1942	Mar. 3	14.55	4,170				

a Incomplete records for year.
b No gage-height record.
c Lock closed entire year; discharge less than 10 cfs.

Lake Okeechobee and the Everglades

(69) West Palm Beach Canal at Canal Point, Fla.

Location.--Lat 26°52', long 80°38', in sec. 34, T. 41 S., R. 37 E., at upstream end of lock at
right bank in Canal Point, 350 ft downstream from State Highway 15 and 550 ft downstream from
outlet from Lake Okeechobee.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights
and discharges.

Gage.--Staff gage read three times a day. Datum of gage is at mean sea level, datum of 1929.
Since May 1940, auxiliary water-stage recorder below lock and dam.

Stage-discharge relation.--There is no definite relation between stage and discharge at this
station due to manipulation of boards in the spillway dam and because of various amounts of
submergence. Ratings are based on relations between velocity at a point and mean velocity
and between stage and area as defined by current-meter measurements. Velocity at a point
observed three times a day.

Remarks.--Flow regulated at station by manipulation of stoplogs in lock and dam and hurricane
gates. Flow occasionally reversed after periods of considerable rainfall owing to downstream
natural drainage and to pumping from agricultural lands in Everglades.

Annual peak stages and discharges

Calendar year	Date	Daily gage height (feet above mean sea level)	Daily discharge (cfs) From lake	Daily discharge (cfs) To lake
1940	Mar. 8	15.74	-	-
	May 17, 23	-	577	-
	Aug. 29	-	-	780
1941	Sept. 29	-	-	1,050
	Oct. 22	15.23	-	-
	Nov. 6	-	541	-
1942	Mar. 3	15.73	-	-
	June 15	-	-	1,760
	Aug. 11	-	534	-
1943	Sept. 9	-	-	575
	Nov. 10	-	440	-
	Dec. 16	14.14	-	-
1944	Jan. 18	14.01	-	-
	Oct. 24, 25	-	-	938
	Dec. 11	-	450	-
1945	Sept. 16	-	-	1,210
	Nov. 4	15.98	-	-
	Nov. 29	-	462	-
1946	Feb. 24	15.62	-	-
	Sept. 23	-	-	724
	Oct. 28, 29	-	581	-
1947	Feb. . 5	-	524	-
	July 21	-	-	1,280
	Oct. 23	18.54	-	-
1948	Mar. 18	-	817	-
	Sept. 28	-	-	1,360
	Oct. 9, 10	17.41	-	-
1949	Jan. 1	15.60	-	-
	May 25	-	749	-
	Sept. 2	-	-	1,020
1950	Jan. 3	15.11	-	-
	Apr. 6, 15	-	644	-
	Oct. 26, 27	-	-	1,130
1951	Apr. 3	-	584	-
	Sept. 5	-	-	484
	Oct. 10, 11	16.15	-	-
1952	Apr. 5	-	583	-
	Oct. 22	-	-	589
	Oct. 29	16.03	-	-
1953	June 1	-	586	-
	Aug. 1, 8	-	-	736
	Oct. 12	17.07	-	-

Lake Okeechobee and the Everglades

(70) West Palm Beach Canal at West Palm Beach, Fla.

Location.--Lat 26°38'40", long 80°03'24", in NE¼ sec. 16, T. 44 S., R. 43 E., on left bank at upstream side of lock and dam 20 ft upstream from bridge on State Highway 805 on Poinsettia Avenue and 4.9 miles south of court house in West Palm Beach.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (State Road Department benchmark). Prior to Apr. 26, 1940, staff gage, and Apr. 26, 1940, to Dec. 19, 1949, water-stage recorder at same site at datum 0.25 ft higher. (All gage heights tabulated below have been reduced to present datum, at mean sea level).

Stage-discharge relation.--Head-discharge relation for flow through 4 bays in spillway dam and stage-discharge relation for flow through lock chamber defined by current-meter measurements.

Historical data.--Maximum stage known, 13.20 ft, present datum, Oct. 23, 24, 1924, from records by Everglades Drainage District (discharge, 8,570 cfs).

Remarks.--Flow regulated by manipulation of stoplogs in dam and gates in lock chamber for irrigation and drainage purposes by Central and Southern Florida Flood Control District. Lock chamber not used for navigation.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet above mean sea level)	Daily discharge (cfs)	Calendar year	Date	Gage height (feet above mean sea level)	Daily discharge (cfs)
1924	Oct. 23 or 24	13.20	8,570	1946	May 14, Nov. 29	9.79	–
					Sept. 22	–	2,680
				1947	Oct. 13	10.89	5,280
1940	Sept. 9	–	3,780	1948	Oct. 7	9.94	4,760
	Oct. 25	9.54	–	1949	Dec. 26	9.52	–
					Dec. 31	–	3,180
1941	June 14	9.33	–	1950	Oct. 19	–	4,160
	Sept. 24	–	4,280		Nov. 27	9.27	–
1942	Apr. 18	10.33	5,320				
1943	Oct. 3	–	2,060	1951	Oct. 15	9.86	–
	Nov. 1	9.73	–		Oct. 16	–	4,060
1944	Oct. 16	9.93	–	1952	Feb. 4	9.33	–
	Oct. 18	–	3,040		Oct. 28	–	2,850
1945	June 23	9.95	–	1953	June 6	9.36	–
	Sept. 18	–	3,120		Oct. 10	–	4,150

Lake Okeechobee and the Everglades

(71) Hillsboro Canal at Belle Glade, Fla.

Location.--Lat 26°41', long 80°40', in sec. 31, T. 43 S., R. 37 E., on southwest bank 20 ft
northwest of bridge on State Highway 15 in Belle Glade, 3 miles southeast of Lake Okeechobee.

Records available.--U. S. Geological Survey: January 1940 to October 1942, daily gage heights
and discharges measured at semi-weekly to weekly intervals; October 1942 to September 1950,
daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to
May 11, 1940, staff gage at same site at datum 11.18 ft higher. May 11, 1940, to Mar. 14,
1944, water-stage recorder at same site at datum 1.69 ft lower than present datum. (All
gage heights tabulated below have been reduced to present datum, at mean sea level).

Stage-discharge relation.--There is no definite relation between stage and discharge at this
station. Ratings are based on relations between velocity at a point and mean velocity and
between stage and area as defined by current-meter measurements. Velocity at a point
observed three times a day.

Remarks.--Flow regulated by hurricane gates at Lake Okeechobee. Flow occasionally reversed
after periods of considerable rainfall owing to downstream natural drainage and to pumping
from agricultural lands in Everglades.

Annual peak stages and discharges

Calendar year	Date	Daily gage height (feet above mean sea level)	Daily discharge (cfs) From lake	Daily discharge (cfs) To lake
1940	Feb. 14	-	[a]481	-
	Sept. 9	-	-	[a]289
	Sept. 30	15.47	-	-
1941	Jan. 2	-	[a]301	-
	July 11	-	-	[a]195
	Oct. 21-24	15.19	-	-
1942	Jan. 16	-	[a]215	-
	June 23	-	-	[a]206
	June 28, 29	15.13	-	-
1943	Sept. 9	-	-	62
	Oct. 17	13.79	-	-
	Nov. 11	-	228	-
1944	Oct. 18	-	-	241
	Oct. 24	13.86	-	-
	Dec. 2	-	261	-
1945	Jan. 2	-	229	-
	Sept. 16	-	-	206
	Oct. 3	15.41	-	-
1946	Mar. 19	15.13	-	-
	Mar. 21	-	263	-
	Dec. 2	-	-	169
1947	Sept. 15	-	222	-
	Oct. 15, 16	16.71	-	-
	Oct. 27	-	-	250
1948	Sept. 26	-	-	188
	Oct. 7	16.13	-	-
	Dec. 7	-	429	-
1949	Mar. 19	-	424	-
	Sept. 9	-	-	224
	Oct. 1	14.77	-	-
1950	Jan. 9	-	-	[b]173
	Mar. 31	-	[b]319	-
	Oct. 18	[c]14.70	-	-

[a] Maximum measured.
[b] For period January to September; may have been exceeded during
period October to December.
[c] At site 6.0 miles downstream.

Lake Okeechobee and the Everglades

(72) Hillsboro Canal at Shawano Plantation, Fla.

Location.--Lat 26°33', long 80°31', in sec. 14, T. 45 S., R. 38 E., on pier on right bank at office of Shawano Plantation at end of State Highway 827, 7 miles southeast of junction with U. S. Highway 441 and 13½ miles southeast of Belle Glade.

Records available.--Shawano Plantation, Inc.: Station established at some unknown date prior to January 1929. Prior records were lost in hurricane in 1928. January 1929 to September 1940, daily gage heights. U. S. Geological Survey: September 1940 to July 1952, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 1.44 ft below mean sea level (levels by Soil Conservation Service, U. S. Department of Agriculture).

Stage-discharge relation.--Not defined.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1929	Oct. 14	. 16.73	1941	July 15, 16	16.91
1930	June 23, 24	17.63	1942	June 14	17.06
			1943	Oct. 10	15.30
1931	Mar. 3	14.94	1944	Oct. 21	15.76
1932	Nov. 11	16.70	1945	Sept. 18	16.34
1933	Sept. 6, 7	17.23			
1934	Sept. 25	16.57	1946	Sept. 22	16.48
1935	Oct. 16, 17	17.19	1947	Oct. 12, 13	17.81
			1948	Oct. 5	17.38
1936	July 14, 15	17.29	1949	Oct. 1	16.20
1937	July 30,		1950	Oct. 19	16.18
	Oct. 23	16.31			
1938	Aug. 1	15.60	1951	Oct. 4	16.70
1939	July 14	16.07			
1940	Sept. 22, 23	16.81			

Lake Okeechobee and the Everglades

(73) Hillsboro Canal near Deerfield Beach, Fla.

Location.--Lat 26°19'39", long 80°07'52", in SW¼ sec. 35, T. 47 S., R. 42 E., at upstream end of
lock at right end of dam, 1.8 miles west of Deerfield Beach, and 4.4 miles downstream from
bridge on State Highway 7.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of
Engineers benchmark). Prior to Apr. 15, 1940, staff gage at same site at datum 0.92 ft
lower. Since July 31, 1947, auxiliary water-stage recorder at downstream end of lock or at
site 500 ft downstream from lock.

Stage-discharge relation.--Head-discharge relation for flow through 5 bays in spillway dam
defined by current-meter measurements.

Remarks.--Flow partly regulated at station by Central and Southern Florida Flood Control District
for irrigation and drainage and by a flood-control levee 11 miles above station. Pumps above
station divert water for irrigation during growing season.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Daily discharge (cfs)	Calendar year	Date	Gage height (feet)	Daily discharge (cfs)
1940	July 29	11.83	-	1946	Jan. 5	11.61	-
	Sept. 21	-	1,920		Oct. 7, 8,		
					Nov. 2	-	895
1941	Apr. 9,			1947	Oct. 12	11.80	3,490
	July 15, 16,			1948	Oct. 6	11.12	3,290
	Sept. 23	-	2,040	1949	Dec. 25	10.99	-
	June 20	11.55	-		Dec. 31	-	2,280
1942	Jan. 19	11.67	-	1950	Apr. 6	10.90	-
	June 11	-	2,460		Oct. 18	-	2,380
1943	Oct. 9	11.62	-				
	Oct. 12	-	1,030	1951	Feb. 3	10.85	-
1944	Oct. 17	12.10	-		Oct. 17	-	2,480
	Oct. 19	-	1,420	1952	Mar. 28	10.97	-
1945	Aug. 25	11.46	-		Oct. 27	-	2,230
	Oct. 30	-	2,030	1953.	Jan. 9	11.07	-
					Oct. 9	-	2,680

Lake Okeechobee and the Everglades

(74) North New River Canal at South Bay, Fla.

Location.--Lat 26°40', long 80°43', in sec. 14, T. 44 S., R. 36 E., on right bank on downstream side of lock and dam in South Bay, 410 ft downstream from bridge on State Highway 80, and 2.5 miles south of Lake Okeechobee.

Records available.--U. S. Geological Survey: November 1939 to March 1942, daily gage heights and weekly or twice weekly discharge measurements. April 1942 to December 1953, daily gage heights and discharges.

Gage.--Staff gage read twice daily. Datum of gage is at mean sea level, datum of 1929.

Stage-discharge relation.--There is no definite relation between stage and discharge at this station. Ratings are based on relations between velocity at a point and mean velocity and between stage and area as defined by current-meter measurements. Velocity at a point observed twice daily.

Historical data.--Flood of July 27, 28, 1926, reached a stage of 20.56 ft, from records by Everglades Drainage District.

Remarks.--Flow regulated by hurricane gates at Lake Okeechobee and by operation of drainage pumps.

Annual peak stages and discharges

Calendar year	Date	Daily gage height (feet above mean sea level)	Daily discharge (cfs)	
			From lake	To lake
1926	July 27, 28	20.56	-	-
1940	May 23	-	a341	-
	Sept. 24,28,29	14.78	-	-
	Oct. 18	-	-	a15
1941	May 12	-	a321	-
	July 20,	14.97	-	-
	July 25	-	-	a391
1942	June 10	-	-	404
	June 14	14.62	-	-
	Nov. 26	-	254	-
1943	Nov. 11	-	312	-
	Nov. 17-19	12.55	-	-
1944	Mar. 9	-	325	-
	Mar. 1	13.17	-	-
	Oct. 19	-	-	27
1945	Jan. 2	-	241	-
	Oct. 17	14.14	-	-
1946	Sept. 22	13.96	-	-
	Dec. 15	-	365	-
1947	Sept. 30	-	1,040	-
	Oct. 15, 16	16.38	-	-
1948	May 19	-	506	-
	Oct. 11	15.73	-	-
	Nov. 22	-	-	43
1949	Mar. 11	-	742	-
	Oct. 1	14.45	-	-
1950	Jan. 1	13.89	-	-
	Apr. 7	-	602	-
	Oct. 18	-	-	379
1951	Oct. 10	15.20	-	-
	Nov. 26, 27	-	-	58
	Dec. 15	-	544	-
1952	Jan. 7	-	677	-
	Oct. 21	15.35	-	-
	Nov. 30	-	-	137
1953	Apr. 20	-	642	-
	Oct. 10	15.88	-	-
	Dec. 13	-	-	115

a Result of discharge measurement.

Lake Okeechobee and the Everglades

(75) North New River Canal at 26-mile bend, near Fort Lauderdale, Fla.

Location.--Lat 26°13'50", long 80°27'35", in NE¼ sec. 32, T. 48 S., R. 39 E., on right bank 50 ft upstream from control dam at 26-mile bend on U. S. Highway 27, 22 miles northwest of Fort Lauderdale.

Records available.--U. S. Geological Survey: June 1942 to December 1952, daily gage heights and periodic discharge measurements.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (State Road Department benchmark).

Stage-discharge relation.--Not defined; stage is affected by manipulation of stoplogs in the control.

Remarks.--Flow is regulated by hurricane gates at Lake Okeechobee and manipulation of stoplogs in the control.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1943	Nov. 19	10.62	1948	Oct. 5	11.82
1944	Aug. 4	11.05	1949	Mar. 11	10.29
1945	Jan. 10	10.51	1950	Oct. 20	10.60
1946	Aug. 24	10.80	1951	Oct. 4	10.60
1947	Oct. 12	12.97	1952	Nov. 6	10.74

Lake Okeechobee and the Everglades

(76) North New River Canal near Fort Lauderdale, Fla.

Location.--Lat 26°05'39", long 80°13'48", in SW¼ sec. 14, T. 50 S., R. 41 E., on right bank 20 ft upstream from lock and dam on State Highway 84, 6 miles southwest of Fort Lauderdale.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Apr. 13, 1940, staff gage at same site and datum. Auxiliary water-stage recorder at downstream end of lock chamber. Aug. 1, 1947, to July 20, 1950, at site 500 ft downstream.

Stage-discharge relation.--Head-discharge relation for flow through 8 bays in spillway dam defined by current-meter measurements.

Historical data.--Maximum discharge known, 5,400 cfs Oct. 15, 1929 (gage height, 7.66 ft, present datum), from records by Everglades Drainage District.

Remarks.--Flow regulated at and above station by dams for irrigation, drainage, and flood and fire control.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Daily discharge (cfs)	Calendar year	Date	Gage height (feet)	Daily discharge (cfs)
1929	Oct. 15	7.66	[a]5,400	1947	Oct. 17	10.83	-
					Nov. 19	-	3,280
1940	Sept. 12, 13,			1948	Oct. 5	-	2,800
	Oct. 11	-	1,440		Oct. 9	9.39	-
	Oct. 24	6.81	-	1949	Mar. 7	6.46	-
					Oct. 1	-	2,110
1941	June 20	6.85	-	1950	Oct. 19	-	1,690
	Aug. 8	-	1,970		Nov. 27, 28	6.14	-
1942	Mar. 3	6.18	-	1951	Jan. 5, 7	6.38	-
	June 12	-	1,820		Oct. 23	-	1,460
1943	July 10	6.87	-	1952	Jan. 29	6.35	-
	Sept. 13-15	-	608		Oct. 29,		
1944	Aug. 2	6.78	-		Nov. 3	-	1,860
	Oct. 23	-	1,070	1953	Mar. 17	5.86	-
1945	Oct. 1	6.77	-		Oct. 20	-	1,700
	Nov. 13-15	-	1,390				
1946	Sept. 19	-	1,070				
	Dec. 16	6.93	-				

[a] Peak discharge.

Lake Okeechobee and the Everglades

(77) Miami Canal at Pennsuco, near Miami, Fla.

Location.--Lat 25°55', long 80°22', in sec. 30, T. 52 S., R. 40 E., on left bank at upstream
  side of road bridge in Pennsuco, 7.4 miles northwest of Miami water plant in Hialeah and
  14.3 miles northwest of Miami Post Office.

Records available.--Grahams Dairy: July 1926 to November 1939, daily gage heights. U. S.
  Geological Survey: November 1939 to December 1953, daily gage heights. November 1939 to
  July 1943, daily discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to
  Sept. 28, 1940, staff gage. Nov. 12, 1939, to Mar. 25, 1953, datum was from 0.54 to 0.60 ft
  lower. Gage read by employees of Grahams Dairy was approximately at same datum as Geological
  Survey gage set on Nov. 3, 1939. (All gage heights shown below have been reduced to present
  datum, at mean sea level).

Stage-discharge relation.--Not defined; affected by tide. Discharge record for period November
  1939 to July 1943 based on current-meter measurements made at approximately weekly intervals.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet above mean sea level)	Daily discharge (cfs)	Calendar year	Date	Gage height (feet above mean sea level)	Daily discharge (cfs)
1926	Oct. 25	a7.50	-	1941	Feb. 13, 14	-	848
1927	Oct. 25	a4.5	-		Oct. 6	5.10	-
1928	Sept. 27	a6.16	-	1942	July 4	5.89	-
1929	Oct. 20	a8.54	-		Oct. 5	-	774
1930	Jan. 1	a5.91	-	1943	Oct. 12, 13	5.64	-
				1944	Oct. 25,26,27	5.14	-
1931	Sept. 28-30	a5.44	-	1945	Nov. 18	5.17	-
1932	Nov. 9	a6.06	-				
1933	Oct. 27	a6.16	-	1946	Oct. 7	4.88	-
1934	May 22, 23	a5.15	-	1947	Oct. 12	9.00	-
1935	Nov. 8	a5.74	-	1948	Oct. 12	6.83	-
				1949	Oct. 13	5.52	-
1936	July 14	a6.87	-	1950	Oct. 18	4.35	-
1937	Oct. 18	a5.17	-				
1938	July 16	a3.93	-	1951	Oct. 18	4.31	-
1939	Nov. 4	a5.35	-	1952	Oct. 28	5.76	-
	Nov. 25-28	-	730	1953	Oct. 9	5.93	-
1940	Sept. 22, 23	5.89	-				
	Nov. 25	-	956				

a Mean daily.

Lake Okeechobee and the Everglades

(78) Miami Canal at water plant, Hialeah, Fla.

Location.--Lat 25°49'38", long 80°17'15", in SW¼ sec. 18, T. 53 S., R. 41 E., on left bank at Miami water plant in Hialeah, on U. S. Highway 27, half a mile upstream from 54th Street bridge.

Records available.--U. S. Geological Survey: January 1940 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 0.01 ft below mean sea level, datum of 1929 (levels by Dade County). Nov. 8, 1940, to Sept. 30, 1946, water-stage recorder on Biscayne Bay at Coconut Grove was used as auxiliary gage for this station and since Oct. 1, 1946, at site 2 miles downstream from base gage.

Stage-discharge relation.--Defined by current-meter measurements; affected by backwater from tides. Discharge computed by using gage heights and tide ranges at auxiliary gage as a factor.

Remarks.--Some seepage losses above station into city of Miami well field for recharge of ground-water withdrawals.

Annual peak stages and discharges

Calendar year	Date		Gage height (feet)	Daily discharge (cfs)	Calendar year	Date		Gage height (feet)	Daily discharge (cfs)
1940	Oct.	1	3.89	-	1947	Oct.	15	7.34	4,170
	Nov.	8-10	-	1,670	1948	Oct.	5	5.20	-
1941	Feb.	12-14	-	1,330		Oct.	12	-	2,530
	Oct.	6	3.43	-	1949	Oct.	22	3.91	-
1942	Sept.	3, 5	-	1,610		Oct.	27	-	1,480
	Sept.	4,			1950	Oct.	18	4.17	-
	Oct.	12	3.18	-		Nov.	24, 25	-	982
1943	Oct.	14	3.26	-	1951	Oct.	2	3.25	-
	Nov.	30	-	823		Dec.	5	-	878
1944	Oct.	18	3.59	-	1952	Oct.	27	4.23	-
	Nov.	20-24	-	684		Oct.	28	-	1,560
1945	Sept.	15	4.42	-	1953	Oct.	9	4.11	-
	Nov.	19-22	-	1,540		Oct.	9, 10	-	1,600
1946	Oct.	8, 9, 13	-	1,250					
	Oct.	7	3.40	-					

(79) Tamiami Canal outlets, Miami to Monroe, Fla.

Location.--Lat 25°45'40", long 80°49'40", in NE¼ sec. 21, T. 54 S., R. 35 E., at 40-mile bend on U. S. Highway 41, 38 miles west of Miami.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Dec. 9, 1939, to Aug. 30, 1949, staff gage read once daily at same site at datum 0.87 ft lower. Aug. 31, 1949, to Dec. 28, 1951, staff gage at present site and datum. (All gage heights tabulated below have been reduced to present datum, at mean sea level).

Stage-discharge relation.--Prior to Oct. 1, 1949, no stage-discharge relation was developed and daily discharges were estimated on basis of gage heights and interpolation between current-meter measurements. Since Oct. 1, 1949, daily discharges computed from very unstable stage-discharge relations. Considerable shifting occurs at all stages.

Remarks.--Discharge consists of runoff from Everglades as represented by flow through all outlets of Tamiami Canal from Monroe, 55 miles west of Miami, to point 18 miles west of Miami where a levee aids in diverting flow through 60 outlets to the area immediately south of canal.

Lake Okeechobee and the Everglades

(79) Tamiami Canal outlets, Miami to Monroe, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	40-mile bend gage height (feet)	Daily discharge (cfs)	Calendar year	Date	40-mile bend gage height (feet)	Daily discharge (cfs)
1940	Sept. 11, 12	-	1,670	1946	Aug. 23	8.47	-
	Sept. 13	8.75	-		Sept. 25	-	1,160
				1947	Oct. 12	a10.3	17,000
1941	Feb. 11	-	1,430	1948	Oct. 6	10.03	12,900
	July 17	8.92	-	1949	Sept. 30	9.06	3,500
1942	June 11-13	8.89	-	1950	Oct. 15	8.92	2,610
	June 12	-	1,730				
1943	Sept. 14-16	8.93	-	1951	Oct. 10, 11	8.44	1,210
	Sept. 15	-	1,820	1952	Oct. 21	8.97	-
1944	Aug. 7,				Oct. 25	-	2,720
	Oct. 27, 28	8.43	-	1953	Oct. 8	9.04	-
	Oct. 22	-	541		Nov. 1, 2	-	4,450
1945	Sept. 18	-	2,140				
	Sept. 22	8.95	-				

a Approximate; water over gage.

(80) Lake Trafford near Immokalee, Fla.

Location.--Lat 26°26', long 81°29', in NW$\frac{1}{4}$ sec. 35, T. 46 S., R. 28 E., on north shore of lake, 10 ft lakeward from dock at Pepper's Camp, 4$\frac{1}{2}$ miles west of Immokalee.

Records available.--U. S. Geological Survey: March 1941 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 16.00 ft ($\pm$ 1.00 ft), above mean sea level (State Road Department benchmark which was reputed to be in error by one foot). Prior to Aug. 21, 1952, at various sites in same vicinity at same datum.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1941	July 17	5.8	1948	Sept. 27-29,	
1942	June 17-20,25,26	4.46		Oct. 2	4.70
1943	Oct. 3	4.12	1949	Oct. 4	4.82
1944	Sept. 13	3.78	1950	Jan. 1, 2	3.34
1945	Sept. 19	5.00			
			1951	Oct. 3	5.82
1946	Sept. 20	4.66	1952	Oct. 24, 25	4.60
1947	Sept. 18	6.60	1953	Oct. 11	5.12

Lake Okeechobee and the Everglades

(81) Imperial River near Bonita Springs, Fla.

Location.--Lat 26°20', long 81°45', in sec. 36, T. 47 S., R. 25 E., on right bank 1½ miles east of Bonita Springs.

Records available.--U. S. Geological Survey: May 1940 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Sept. 10, 1941, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements. Slight tide effect at low stages.

Historical data.--Flood of June 15, 1936, reached a stage of 13.4 ft, from floodmarks.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1936	June 15	13.4	-	1946	Aug. 2	5.71	332
				1947	Sept. 23, 24	12.04	2,400
1940	Sept. 12	12.45	2,890	1948	Sept. 27	9.58	1,240
				1949	Oct. 5	8.78	972
1941	Apr. 8	7.89	550	1950	Sept. 6	8.53	873
1942	Sept. 14	5.73	329				
1943	June 28	7.47	520	1951	Oct. 2	12.74	2,810
1944	Oct. 19	7.51	520	1952	Oct. 20	7.72	591
1945	July 23	9.58	1,160	1953	Sept. 21	8.93	909

(82) Caloosahatchee Canal at Moore Haven, Fla.

Location.--Lat 26°50', long 81°05', in sec. 12, T. 42 S., R. 32 E., on right bank at Moore Haven, 0.5 mile downstream from hurricane gate and lock 1 at Lake Okeechobee Outlet and 15 miles upstream from lock 2.

Records available.--U. S. Geological Survey: July 1938 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 17, 1952, at datum 1.44 ft lower. Auxiliary water-stage recorder a quarter of a mile upstream from Lake Hicpochee and 2.5 miles downstream from base gage. (All gage heights tabulated below have been reduced to present datum, at mean sea level).

Stage-discharge relation.--Defined by current-meter measurements, affected by fall. Discharge computed by using fall as determined by auxiliary water-stage recorder, as a factor.

Remarks.--Flow regulated by lock 1 at Lake Okeechobee. Since July 1951, records furnished by Corps of Engineers.

Lake Okeechobee and the Everglades

(82) Caloosahatchee Canal at Moore Haven, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Daily gage height (feet) (upper gage)	Daily discharge (cfs)	Calendar year	Date	Daily gage height (feet) (upper gage)	Daily discharge (cfs)
1939	Sept. 9	-	3,310	1947	Sept. 24	14.87	-
	Sept. 16	12.15	-		Dec. 31	-	5,320
1940	Oct. 11	13.22	-	1948	Sept. 26	15.45	-
	Oct. 13	-	4,850		Oct. 14		
					Nov. 11	-	5,320
1941	May 1	-	4,890	1949	Jan. 4	13.11	4,780
	Oct. 31	12.41	-	1950	Jan. 1	12.37	-
1942	Mar. 14	12.62	-		Jan. 5	-	4,410
	July 8	-	5,390				
1943	May 19	-	1,190	1951	Oct. 20	-	4,500
	July 20	11.48	-		Oct. 26	13.11	-
1944	Mar. 10	-	1,140	1952	Oct. 29	12.94	-
	Sept. 17	11.39	-		Nov. 6	-	4,060
1945	Sept. 19	14.76	-	1953	Oct. 12	14.20	-
	Dec. 8	-	5,660		Dec. 22	-	4,770
1946	Mar. 19	-	4,150				
	Apr. 2	12.79	-				

(83) Orange River near Fort Myers, Fla.

Location.--Lat 26°40', long 81°43', in sec. 9, T. 44 S., R. 26 E., 1½ miles southeast of Buckingham and 8 miles east of Fort Myers.

Drainage area.--83.4 sq mi, approximately.

Records available.--U. S. Geological Survey: November 1935 to October 1946, daily gage heights and discharges. Prior to Oct. 1, 1941, published as "Twelvemile Creek near Fort Myers".

Gage.--Staff gage read twice daily, and wooden control. Datum of gage is 1.71 ft above mean sea level, datum of 1929. Prior to Mar. 21, 1939, at site 50 ft downstream at same datum and with no artificial control.

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1936	June 15	13.40	5,300	1942	Sept. 14	6.40	283
1937	July 3	7.70	850	1943	July 11	9.51	1,440
1938	July 14	7.40	810	1944	Aug. 15	6.62	301
1939	July 2	9.00	733	1945	July 23	9.10	1,200
1940	Sept. 12	10.90	1,310				
				1946	Aug. 28	7.58	417
1941	July 17	8.38	842				

Peace River Basin

(84) Drainage Canal west of Dundee, Fla.

Location.--Lat 28°01', long 81°38', in sec. 29, T. 28 S., R. 27 E., on right bank at upstream
side of bridge on State Highway 542, 1.2 miles west of Dundee, and 1.4 miles downstream from
Lake Hamilton Outlet.

Drainage area.--50 sq mi, approximately.

Records available.--U. S. Geological Survey: December 1946 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 114.08 ft above mean sea level, datum of 1929.
Jan. 25, 1950, to July 26, 1951, at site 150 ft downstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements. Considerable shifting at all
stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1947	Sept. 18	6.86	188 ·	1951	Nov. 17	6.36	104
1948	Sept. 22	7.37	231	1952	Oct. 20	6.99	104
1949	Aug. 27	6.77	203	1953	Oct. 4	6.88	222
1950	Oct. 18 or 19	6.41	116				

(85) Peace Creek Marsh outlet near Alturas, Fla.

Location.--Lat 27°55', long 81°43', in sec. 34, T. 29 S., R. 26 E., near left bank at upstream
side of highway bridge half a mile north of State Highway 60, 3.5 miles north of Alturas, and
8¼ miles east of Bartow.

Drainage area.--150 sq mi, approximately.

Records available.--U. S. Geological Survey: January 1947 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 97.67 ft above mean sea level, datum of 1929
(State Road Department benchmark).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Historical data.--Maximum stage known, 13.3 ft in 1928, from information by local resident.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	–	13.3	2,540	1951	July 30, Sept. 20	7.93	532
1947	Sept. 19	10.88	1,360	1952	Oct. 21	10.14	1,090
1948	Sept. 23	11.51	1,640	1953	Oct. 10	9.90	1,020
1949	Aug. 28	11.67	1,740				
1950	Oct. 19	9.71	975				

Peace River Basin

(86) Lake Howard at Winter Haven, Fla.

Location.--Lat 28°01', long 81°44', in NW¼ sec. 29, T. 28 S., R. 26 E., on city dock and boat
 house near intersection of West Central Avenue and Lake Howard Drive in Winter Haven.

Records available.--U. S. Geological Survey: June 1945 to February 1946, gage heights read at
 periodic intervals; February 1946 to December 1953, daily gage heights.

Gage.--W'ter-stage recorder. Datum of gage is 120.00 ft above mean sea level, datum of 1929.
 Prior to Feb. 13, 1946, staff gage at same site at datum 7.85 ft higher.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1945	July 15	ª12.66	1950	Oct. 18, 21	11.95
1946	Aug. 3	12.01	1951	Oct. 2	12.13
1947	Sept. 23	12.46	1952	Mar. 27	12.24
1948	Sept. 28	12.77	1953	Oct. 9	12.70
1949	Sept. 29	12.57			

ª Present datum.

(87) Lulu Lake Outlet at Eloise, Fla.

Location.--Lat 27°59', long 81°43', in SE¼ sec. 5, T. 29 S., R. 26 E., on left downstream
 abutment of culvert on State Highway 540-A at intersection with Rifle Range Road, 1,800 ft
 downstream from concrete control at outlet of Lulu Lake, and 0.8 mile southeast of Eloise.

Drainage area.--26 sq mi, approximately.

Records available.--U. S. Geological Survey: February 1946 to December 1953, daily gage heights
 and discharges.

Gage.--Water-stage recorder. Datum of gage is 120.00 ft above mean sea level, datum of 1929.
 Prior to Jan. 8, 1953, at site 1,500 ft upstream at same datum.

Stage-discharge relation.--Poorly defined by current-meter measurements. Considerable shifting
 at all stages and backwater effect from hyacinths and aquatic vegetation.

Remarks.--Some regulation by Lulu Lake.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1946	Sept. 26	7.82	26	1950	Oct. 18	8.93	23
1947	Sept. 19	9.56	52		18		
1948	Aug. 25	11.18	-	1951	Sept. 20, 29, 30	10.10	35
	Sept. 24	-	83	1952	Oct. 28	9.40	25
1949	Aug. 28,			1953	Oct. 10	10.33	86
	Sept. 29	10.53	72				

Peace River Basin

(88) Peace River at Bartow, Fla.

Location.--Lat 27°54'07", long 81°49'03", in NE¼ sec. 4, T. 30 S., R. 25 E., near center of span on downstream side of bridge on State Highway 60, 500 ft downstream from McKinney Branch, and 0.6 mile east of Bartow.

Drainage area.--390 sq mi, approximately.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 90.56 ft above mean sea level, datum of 1929. Prior to July 12, 1940, staff gage and July 12, 1940, to Nov. 5, 1948, water-stage recorder at site 200 ft downstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 2,900 cfs. Considerable shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1940	Mar. 23	3.88	638	1947	Sept. 24	6.45	4,140
				1948	Sept. 29	6.13	2,920
1941	Apr. 6	4.73	1,280	1949	Aug. 30	6.11	2,850
1942	July 6	5.02	1,300	1950	Oct. 20	5.40	1,590
1943	Aug. 20, 21	5.07	1,340				
1944	Oct. 22	4.62	1,010	1951	July 26	5.04	1,210
1945	July 26	5.80	1,880	1952	Oct. 23, 24	5.73	1,650
				1953	Oct. 11	5.97	2,030
1946	Aug. 3	4.53	1,060				

(89) Peace River at Zolfo Springs, Fla.

Location.--Lat 27°30', long 81°48', in sec. 22, T. 34 S., R. 25 E., near right bank at downstream side of bridge on U. S. Highway 17, 0.8 mile north of Zolfo Springs.

Drainage area.--840 sq mi, approximately.

Records available.--U. S. Geological Survey: September 1933 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 35.20 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 22,500 cfs. Considerable shifting at medium and low water.

Peace River Basin

(89) Peace River at Zolfo Springs, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1933	Sept. 6	20.05	26,300	1944	Aug. 17	8.48	2,600
1934	June 22	15.5	9,850	1945	June 25	16.63	12,100
1935	Sept. 7	13.20	6,550				
				1946	Sept. 21	9.19	3,030
1936	Feb. 18	11.82	4,680	1947	Sept. 20	19.15	21,300
1937	July 3	9.89	3,440	1948	Sept. 24	16.55	11,600
1938	Oct. 17	15.15	9,200	1949	Aug. 29	18.11	15,900
1939	June 17	15.52	9,800	1950	Oct. 20	9.44	3,370
1940	July 7	9.17	2,970				
				1951	Oct. 4	9.07	3,150
1941	July 17	10.98	4,240	1952	Oct. 22	14.70	8,680
1942	June 13	10.76	4,180	1953	Aug. 30	15.39	9,300
1943	Aug. 6	10.63	4,030				

(90) Peace River at Arcadia, Fla.

Location.--Lat 27°13', long 81°52', in sec. 26, T. 37 S., R. 24 E., on left bank 75 ft upstream from bridge on State Highway 70, half a mile west of Arcadia, and about 5 miles upstream from Joshua Creek.

Drainage area.--1,370 sq mi, approximately.

Records available.--U. S. Geological Survey: April 1931 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 8.25 ft above mean sea level, datum of 1929. Prior to July 19, 1931, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 30,000 cfs.

Historical data.--Maximum stage known, 18.3 ft in 1912, from information by county engineer.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1912	-	18.3	43,000	1942	June 15	10.94	7,460
				1943	July 29	10.60	7,040
1931	Apr. 20	9.68	5,930	1944	Aug. 18	7.55	3,880
1932	Sept. 16	9.98	6,230	1945	July 24	12.45	9,750
1933	Sept. 9	17.67	36,200				
1934	June 23	12.80	10,400	1946	July 31	9.55	5,840
1935	Sept. 9	12.42	9,750	1947	Sept. 22	16.34	23,600
				1948	Sept. 28	15.06	16,200
1936	Feb. 19	12.48	9,920	1949	Aug. 31	16.49	26,600
1937	Apr. 9	9.20	5,130	1950	Oct. 22	8.83	5,210
1938	Oct. 21	12.76	10,400				
1939	June 19	14.47	14,200	1951	Oct. 3	11.68	8,620
1940	Sept. 28	10.00	6,300	1952	Oct. 25	13.55	12,100
				1953	Oct. 1	13.35	11,700/
1941	July 20	9.25	5,380				

Miakka River Basin

(91) Miakka River near Sarasota, Fla.

Location.--Lat 27°14'25", long 82°18'50", in sec. 21, T. 37 S., R. 20 E., on right bank, half a mile upstream from bridge on State Highway 72, 2 miles upstream from Lower Miakka Lake, and about 14 miles southeast of Sarasota.

Drainage area.--235 sq mi, approximately.

Records available.--U. S. Geological Survey: August 1936 to December 1953, daily gage heights and discharges.

Gage.--Staff gage read once daily. Datum of gage is 7.92 ft above mean sea level, datum of 1929. Prior to Apr. 10, 1941, at highway bridge at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 6,600 cfs. Considerable shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1937	Apr. 9, 10	-	1,340	1945	Aug. 28	8.68	3,360
	Sept. 6	7.65	-				
1938	July 13	8.80	-	1946	Aug. 5	7.44	1,010
	Oct. 15, 16	-	3,870	1947	Sept. 21	10.78	6,620
1939	Aug. 15	8.52	4,040	1948	Sept. 30	9.92	4,800
1940	Sept. 30	7.02	1,350	1949	Aug. 16	8.54	3,160
				1950	Sept. 9	8.38	3,000
1941	July 20	7.04	1,020				
1942	Feb. 28	7.12	1,190	1951	Oct. 4	9.24	3,440
1943	June 30,			1952	Oct. 23, 24	9.11	3,630
	July 1, 2	9.00	3,850	1953	Oct. 12	8.67	2,520
1944	Aug. 8, 9	6.16	268				

Manatee River Basin

(92) Manatee River near Bradenton, Fla.

Location.--Lat 27°28'30", long 82°18'05", in sec. 34, T. 34 S., R. 20 E., on left bank 20 ft downstream from bridge on State Highway 675, 800 ft upstream from Craig Branch, 6¼ miles northwest of Verna, and 17 miles east of Bradenton.

Drainage area.--90 sq mi, approximately.

Records available.--U. S. Geological Survey: April 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 11.72 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs. Considerable shifting at medium and low water.

Manatee River Basin

(92) Manatee River near Bradenton, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	Aug. 12	23.17	4,690	1947	Sept. 18	24.51	6,170
1940	Aug. 7	17.41	1,360	1948	Sept. 28	22.22	3,500
				1949	Sept. 29	23.05	4,430
1941	July 15	13.55	868	1950	Sept. 6	19.70	1,790
1942	Feb. 25	19.70	1,780				
1943	June 27	24.14	5,710	1951	Oct. 2	19.54	1,750
1944	Aug. 4	17.45	1,350	1952	Oct. 21	22.28	3,600
1945	Aug. 26	22.80	4,200	1953	Sept. 28	22.02	3,290
1946	Aug. 3	18.74	1,580				

Little Manatee River Basin

(93) Little Manatee River near Wimauma, Fla.

Location.--Lat 27°40'15", long 82°21'10", in sec. 25, T. 32 S., R. 19 E., on left bank 25 ft downstream from bridge on U. S. Highway 301, 1½ miles upstream from Cypress Creek, and 4 miles southwest of Wimauma.

Drainage area.--145 sq mi, approximately.

Records available.--U. S. Geological Survey: March 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 2.17 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 7,200 cfs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	Aug. 13	14.00	8,410	1946	July 2	13.13	6,130
1940	Aug. 5	7.54	1,310	1947	Sept. 19	13.69	7,630
				1948	Sept. 29	10.06	2,880
1941	July 17	8.13	1,620	1949	Aug. 28	12.52	5,070
1942	Feb. 25	8.40	1,740	1950	Sept. 6	11.37	3,870
1943	June 28	12.34	4,840				
1944	Aug. 1, Oct. 20	-	1,520	1951	Sept. 20	9.52	2,530
	Oct. 20	7.61	-	1952	Oct. 20	13.05	6,020
1945	June 24	14.44	9,450	1953	Nov. 26	12.50	5,070

Alafia River Basin

(94) Alafia River at Lithia, Fla.

Location.--Lat 27°52', long 82°12', in sec. 16, T. 30 S., R. 21 E., on left bank 11 ft downstream
from Marvinia Bridge on highway, 1 mile northwest of Lithia, and 1¼ miles downstream from
Little Alafia River.

Drainage area.--335 sq mi, approximately.

Records available.--U. S. Geological Survey: January 1933 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 9.86 ft above mean sea level, datum of 1929.
Prior to Aug. 8, 1939, staff gage at site 250 ft upstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs. Considerable
shifting in lower limits of rating curve.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1933	Sept. 7	25.6	· 19,300	1944	Oct. 20	11.45	2,540
1934	June 16	16.40	6,410	1945	July 26	16.83	6,850
1935	Sept. 6	18.08	8,300				
				1946	July 31	10.60	2,220
1936	Feb. 11	11.80	2,420	1947	Sept. 20	20.38	11,100
1937	Apr. 7	9.60	1,710	1948	Sept. 30	15.59	5,590
1938	Oct. 17	16.85	6,870	1949	Aug. 29	19.28	9,740
1939	June 17	13.90	3,720	1950	Sept. 7	15.04	5,030
1940	Feb. 19	6.84	1,140				
				1951	Oct. 2	8.41	1,550
1941	July 16	13.66	4,050	1952	Oct. 21	16.27	6,280
1942	Mar. 20	9.23	1,760	1953	Nov. 25 or 26	14.38	4,420
1943	June 28	16.14	6,390				

Hillsborough River Basin

(95) Hillsborough River near Zephyrhills, Fla.

Location.--Lat 28°09', long 82°14', in sec. 8, T. 27 S., R. 21 E., on left bank 10 ft downstream
from footbridge in Hillsborough River State Park, 2 miles downstream from Blackwater Creek,
and 7 miles southwest of Zephyrhills.

Drainage area.--220 sq mi, approximately.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights
and discharges.

Gage.--Staff gage read once daily. Datum of gage is 33.28 ft above mean sea level (Corps of
Engineers benchmark).

Stage-discharge relation.--Defined by current-meter measurements.

FLOODS IN FLORIDA

Hillsborough River Basin

(95) Hillsborough River near Zephyrhills, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1940	Feb. 18	4.84	724	1947	Sept. 19	13.71	5,920
				1948	Jan. 25	12.02	3,600
1941	Apr. 4	12.65	4,230	1949	Aug. 28	12.90	4,620
1942	Mar. 3	8.72	1,760	1950	Sept. 7	13.80	5,890
1943	Aug. 31	10.23	2,350				
1944	Oct. 20	8.20	1,590	1951	Sept. 19	6.18	1,060
1945	July 26	13.30	5,330	1952	Mar. 27	7.60	1,420
				1953	Sept. 28	12.66	4,310
1946	Aug. 2	9.40	2,010				

(96) Hillsborough River near Tampa, Fla.

Location.--Lat 28°01'25", long 82°25'40", in sec. 29, T. 28 S., R. 19 E., on left bank just upstream from spillway of Tampa reservoir dam, at Thirtieth Street, 5½ miles northeast of Tampa.

Drainage area.--650 sq mi, approximately.

Records available.--U. S. Geological Survey: October 1933 to December 1939, daily gage heights and discharges at former station upstream published as "Hillsborough River near Harney". October 1938 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (city of Tampa benchmark). Oct. 1, 1938, to Sept. 30, 1945, at Fortieth Street Bridge 1.4 miles upstream at datum 0.66 ft higher.
    Oct. 17, 1933, to Dec. 31, 1939, staff gage at Fowler Street Bridge, 2½ miles north of Harney, and about 8½ miles upstream from present site. Datum of this gage was 19.14 ft above mean sea level (levels by Hillsborough County Engineering Department).

Stage-discharge relation.--At sites prior to 1945 when the reservoir dam was completed, stage-discharge relations were defined by current-meter measurements below 16,400 cfs. Since 1945, head-discharge relation and rating of taintor gates and flashboards on crest of dam have been defined by current-meter measurements.

Historical data.--Maximum stage known, about 15.5 ft Sept. 9, 1933, at site and datum of Harney gage, following failure of Tampa Power Dam about 8½ miles downstream (discharge, 16,400 cfs, from current-meter measurement near crest).

Remarks.--Flow regulated by Tampa reservoir dam since Oct. 1, 1945.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1933	Sept. 9	15.5	*16,400	1944	Oct. 26	8.83	1,780
1934	June 20	13.42	11,700	1945	July 28, 29	20.85	9,890
1935	Sept. 8	10.49	6,550				
				1946	Aug. 5	-	b2,810
1936	Feb. 19	7.32	3,530	1947	Sept. 25	-	b7,580
1937	Sept. 3, 4	8.12	1,960	1948	Jan. 28, 29	-	b4,130
1938	Oct. 18	8.82	2,740	1949	Oct. 3	-	b5,580
1939	July 12	11.74	2,980	1950	Sept. 10	-	b8,990
1940	Feb. 22	8.48	1,300				
				1951	Oct. 4	-	b1,550
1941	Apr. 8	12.81	4,500	1952	Apr. 5	-	b1,900
1942	Mar. 8-10	9.98	2,230	1953	Sept. 30	-	b6,830

    * Following failure of power dam on Sept. 7.
    b Maximum daily discharge (regulated).

Lake Tarpon Basin

(97) Brooker Creek near Odessa, Fla.

Location.--Lat 28°08'05", long 82°35'40", in sec. 10, T. 27 S., R. 17 E., on left bank 20 ft
   upstream from bridge on State Highway 232, 30 ft downstream from outlet of Keystone Lake,
   and 3.2 miles south of Odessa.

Drainage area.--10 sq mi, approximately.

Records available.--U. S. Geological Survey: April 1946 to December 1953, daily gage heights
   and discharges.

Gage.--Water-stage recorder. Datum of gage is 30.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Poorly defined by current-meter measurements below 124 cfs. Consider-
   able shifting at all stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1946	Oct. 11, 12	11.88	33	1951	Oct. 2, 3	10.73	5.8
1947	Aug. 21	12.62	65	1952	Apr. 1	-	23
1948	Feb. 1	11.61	23		Oct. 26	11.44	-
1949	Aug. 23	13.20	180	1953	Oct. 1	12.60	73
1950	Sept. 8	12.87	130				

Anclote River Basin

(98) Anclote River near Elfers, Fla.

Location.--Lat 28°12'50", long 82°40'00", in sec. 23, T. 26 S., R. 16 E., on left bank 40 ft
   downstream from bridge on State Highway 54, and 3½ miles southeast of Elfers.

Drainage area.--67 sq mi, approximately.

Records available.--U. S. Geological Survey: May 1946 to December 1953, daily gage heights and
   discharges.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,200 cfs. Slight shift
   in stage-discharge relation following channel changes and construction of new bridge in 1951.

Historical data.--Flood of Aug. 8 or 9, 1945, reached a stage of 27.7 ft, from information by
   local residents and high-water marks (discharge, 5,000 cfs, from rating curve extended above
   3,200 cfs).

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1945	Aug. 8 or 9	27.7	5,000	1950	Sept. 6	26.02	3,500
1946	Oct. 10	19.55	866	1951	July 30	14.81	457
1947	Sept. 20	21.76	1,160	1952	Mar. 28	19.36	881
1948	Jan. 26	20.54	974	1953	Apr. 14	24.37	2,340
1949	Aug. 22	23.02	1,550				

Withlacoochee River Basin

(99) Withlacoochee River at Trilby, Fla.

Location.--Lat 28°29', long 82°11', on line between secs. 14 and 23, T. 23 S., R. 21 E., on right bank at downstream side of bridge on U. S. Highway 301, 1½ miles northeast of Trilby, and 10 miles upstream from Little Withlacoochee River.

Drainage area.--650 sq mi, approximately.

Records available.--U. S. Geological Survey: August 1928 to February 1929, February 1930 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 49.27 ft above mean sea level (Corps of Engineers benchmark). Prior to Oct. 1, 1938, staff gage at site 1½ miles downstream at datum 0.12 ft lower.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--See information in regard to 1933 and 1934 floods for station at Croom.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Oct. 3, 4	15.35	3,340	1941	July 26, 27	11.93	1,790
				1942	Mar. 12	10.34	1,190
1930	Apr. 10	12.22	2,070	1943	Aug. 23, 24	9.93	1,070
				1944	Oct. 29	11.10	1,510
1931	Apr. 19	10.75	1,590	1945	July 31	14.20	2,830
1932	Sept. 17	4.04	354				
1933	Sept. 12	20.18	8,300	1946	Aug. 6	8.93	853
1934	June 21	20.5	8,840	1947	Sept. 30	12.86	2,050
1935	Sept. 16	12.58	2,270	1948	Aug. 23	13.38	2,250
				1949	Sept. 7	13.13	2,130
1936	Feb. 29	10.30	1,360	1950	Sept. 11	17.93	4,790
1937	Sept. 3	11.55	1,760				
1938	Oct. 27	8.67	764	1951	Oct. 9, 10	10.88	1,400
1939	Sept. 6	12.59	1,970	1952	Apr. 7	9.15	900
1940	July 7	9.28	902	1953	Sept. 19	13.79	2,420

(100) Withlacoochee River at Croom, Fla.

Location.--Lat 28°36', long 82°13', in sec. 8, T. 22 S., R. 21 E., on left bank at upstream side of old county highway bridge at Croom, 2 miles downstream from Little Withlacoochee River.

Drainage area.--900 sq mi, approximately.

Records available.--U. S. Geological Survey: November 1939 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 38.94 ft above mean sea level (Corps of Engineers benchmark). Prior to Feb. 2, 1940, staff gage at railroad bridge 500 ft upstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--A former observer at this station obtained the information from long-time local residents that the flood of September 1933 reached the bridge floor and the flood of June 1934 was from one-half to one foot over the bridge floor. Residents also indicated that it had been at least 75 years since a stage even approaching the 1933 and 1934 stages had occurred.

Withlacoochee River Basin

(100) Withlacoochee River at Croom, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1940	July 12	7.45	1,080	1947	Sept. 28, 29	9.67	3,160
				1948	Aug. 25	9.62	3,100
1941	Apr. 12	8.62	2,060	1949	Sept. 3	9.97	3,330
1942	Mar. 18	7.92	1,400	1950	Sept. 12	12.71	8,450
1943	Aug. 25	7.90	1,400				
1944	Oct. 29, 30	8.56	1,800	1951	Oct. 11	8.00	1,390
1945	July 29	10.44	4,290	1952	Apr. 7	7.39	1,070
				1953	Sept. 22, 23	10.12	3,560
1946	Aug. 6	7.58	1,180				

(101) Withlacoochee River near Holder, Fla.

Location.--Lat 28°59'15", long 82°20'50", in sec. 19, T. 17 S., R. 20 E., on right bank, 100 ft downstream from bridge on State Highway 200, 4½ miles northeast of Holder.

Drainage area.--1,710 sq mi, approximately.

Records available.--U. S. Geological Survey: August 1928 to February 1929, August 1931 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 27.52 ft above mean sea level (levels by Corps of Engineers). Aug. 14, 1928, to Feb. 15, 1929, staff gage at bridge 100 ft upstream at datum 2.00 ft higher.

Stage-discharge relation.--Defined by current-meter measurements.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Oct. 16	ᵃ11.26	5,830	1942	Mar. 28	6.13	1,900
				1943	Sept. 2	7.86	2,780
1931	Sept. 19	4.36	1,210	1944	Nov. 10	6.36	2,060
1932	Sept. 9	-	555	1945	Aug. 20	10.54	5,330
1933	Sept. 26	11.17	5,860				
1934	July 9, 10	11.63	6,740	1946	Oct. 12	7.55	2,700
1935	Sept. 30	8.86	3,290	1947	Oct. 16, 17	8.73	3,320
				1948	Sept. 2	9.49	3,970
1936	Mar. 17	7.66	2,800	1949	Oct. 2	10.36	4,930
1937	Aug. 31	8.46	3,090	1950	Sept. 28	10.40	4,980
1938	Nov. 6	5.48	1,560				
1939	Sept. 25	7.94	2,720	1951	Oct. 23	4.10	1,250
1940	Aug. 8, 9	4.76	1,400	1952	Mar. 30, 31	5.25	1,550
				1953	Oct. 9	10.46	5,050
1941	Apr. 22	5.90	1,890				

ᵃ Present datum.

Waccasassa River Basin

(102) Waccasassa River near Otter Creek, Fla.

Location.--Lat 29°22', long 82°44', in sec. 17, T. 13 S., R. 16 E., near right bank at upstream side of bridge on State Highway 24, 2.8 miles northeast of village of Otter Creek, and 11 miles upstream from Otter Creek.

Records available.--U. S. Geological Survey: May 1945 to November 1953, daily gage heights and discharges for main channel only.

Gage.--Water-stage recorder. Datum of gage is 23.52 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs for main channel only. Considerable shifting at all stages.

Remarks.--Waccasassa River and Otter Creek are connected above State Highway 24 by swamps and numerous cross channels.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1945	Aug. 20	5.57	506	1950	Sept. 7	7.16	1,210
1946	July 30	4.72	255	1951	Nov. 17	5.00	354
1947	Sept. 25, 26	5.21	399	1952	Feb. 26	5.10	376
1948	Mar. 12	6.39	902	1953	Aug. 25	5.60	577
1949	Aug. 13	5.48	490				

(103) Otter Creek at Otter Creek, Fla.

Location.--Lat 29°19', long 82°46', in sec. 26, T. 13 S., R. 15 E., near right bank at upstream side of bridge on State Highway 24, 0.5 mile southwest of village of Otter Creek and about 7 miles upstream from mouth.

Records available.--U. S. Geological Survey: May 1945 to November 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 13.35 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs.

Remarks.--Records include flow in main channel and a relief channel 0.4 mile east of gage. Waccasassa River and Otter Creek are connected above State Highway 24 by swamps and numerous cross channels.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1945	Aug. 20	5.91	560	1950	Sept. 6	7.93	3,000
1946	July 31	4.99	322	1951	Nov. 17	5.08	509
1947	Oct. 17	5.38	542	1952	Feb. 17	5.05	496
1948	Mar. 12	6.18	1,350	1953	Aug. 9	5.00	474
1949	Aug. 14	5.60	788				

Suwannee River Basin

(104) Suwannee River at Fargo, Ga.

Location.--Lat 30°41', long 82°34', on downstream side of Southern Railway bridge at Fargo, Clinch County, 4 miles upstream from Suwanoochee Creek and 12 miles downstream from Mixons Ferry dam site.

Drainage area.--About 1,260 sq mi (includes part of watershed in Okefenokee Swamp which is indeterminate).

Records available.--U. S. Geological Survey: January 1927 to December 1931, April 1937 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 91.90 ft above mean sea level, datum of 1929, supplementary adjustment of 1936. January 1927 to December 1931 (incomplete) and April 1937 to June 10, 1938, staff gage at site 1,000 ft upstream at datum 1.00 ft higher. June 11, 1938, to Nov. 26, 1952, staff gage at site 1,000 ft upstream at present datum. (All gage readings listed below have been reduced to present datum).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs; affected by backwater.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Oct. 1	19.5	13,800	1945	Aug. 22	17.3	9,690
1929	Oct. 3	19.6	11,900				
1930	Oct. 3	11.4	2,460	1946	Aug. 8, 9	14.2	5,920
				1947	Oct. 29	19.6	11,900
1938	Aug. 8, 9	8.2	1,300	1948	Apr. 4, 5	19.1	11,000
1939	Aug. 29	11.6	2,490	1949	Sept. 10	14.3	5,900
1940	Feb. 21	11.0	2,060	1950	Oct. 26-30	11.9	3,260
1941	Nov. 8-12	7.8	870	1951	Dec. 31	12.8	4,300
1942	Jan. 11	15.9	7,960	1952	Mar. 4	11.0	2,390
1943	Mar. 7	3.8	258	1953	Oct. 6	14.6	5,640
1944	Aug. 14-18	12.8	4,280				

(105) Suwannee River at White Springs, Fla.

Location.--Lat 30°20', long 82°44', in sec. 8, T. 2 S., R. 16 E., on left bank at downstream side of bridge on U. S. Highway 41, 1 mile southeast of White Springs.

Drainage area.--1,990 sq mi (includes part of watershed in Okefenokee Swamp which is indeterminate).

Records available.--U. S. Geological Survey: May 1906 to December 1908, February 1927 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 48.54 ft above mean sea level (Corps of Engineers benchmark). May 28, 1906, to Dec. 31, 1908, chain gage, and Feb. 8, 1927, to July 31, 1932, staff gage at site 1 mile downstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 28,000 cfs.

Historical data.--The flood of Apr. 5, 1948 was reported to be the highest known to residents of the area (since 1862). Flood of 1928 was reported to be highest known at that time.

Suwannee River Basin

(105) Suwannee River at White Springs, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1906	July 16	23.2	7,400	1938	Aug. 8	15.23	4,150
1907	Oct. 4	13.0	3,540	1939	Aug. 28	19.01	5,640
1908	Jan. 1, 2	20.9	6,520	1940	Feb. 20	17.75	5,180
1927	July 27	9.8	2,610	1941	Dec. 29	14.90	4,080
1928	Sept. 30,			1942	Jan. 15	30.22	11,700
	Oct. 1	33.9	20,600	1943	Mar. 8	4.74	594
1929	Oct. 5	33.5	19,600	1944	Aug. 11, 12	24.37	7,690
1930	Mar. 30, 31,			1945	Aug. 26	33.20	16,500
	Apr. 1	30.4	12,600	1946	Aug. 11	26.11	8,340
1931	Jan. 24, 25	15.0	4,280	1947	Oct. 29	35.47	23,700
1932	Sept. 22	29.26	10,100	1948	Apr. 5	36.65	28,500
1933	Feb. 17	28.97	10,200	1949	Sept. 12	24.91	7,880
1934	Aug. 13	10.10	2,220	1950	Oct. 30	15.16	4,200
1935	Sept. 22	21.07	6,330	1951	Nov. 17	19.29	5,760
1936	Feb. 24	16.00	4,480	1952	Jan. 5	19.34	5,780
1937	Apr. 18	29.54	11,100	1953	Oct. 10	28.36	10,100

(106) Alapaha River near Alapaha, Ga.

Location.--Lat 31°23', long 83°10', on downstream side of bridge on State Highway 50, 2 miles east of Alapaha, Berrien County, and 6 miles upstream from Willacoochee River.

Drainage area.--644 sq mi.

Records available.--U. S. Geological Survey: April 1937 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 209.34 ft above mean sea level, datum of 1929. Prior to Sept. 8, 1943, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs.

Historical data.--Flood of 1928 reached a stage of 18.0 ft from information by Georgia Highway Department.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	-	18.0	16,000	1946	Jan. 23	11.6	3,040
				1947	Apr. 21	13.7	6,160
1938	Apr. 15	8.6	1,060	1948	Apr. 4	16.8	12,700
1939	Mar. 3	15.3	9,220	1949	Feb. 12	11.5	2,920
1940	Feb. 25	10.8	2,290	1950	Mar. 22	8.9	1,130
1941	Mar. 25, 26	9.5	1,450	1951	Dec. 25, 26	10.9	2,300
1942	Jan. 9	12.9	4,960	1952	Feb. 24	10,8	2,220
1943	Mar. 26, 27	11.3	2,700	1953	Oct. 6	10.9	2,300
1944	Apr. 21	15.0	8,620				
1945	July 22	11.5	2,920				

Suwannee River Basin

(107) Alapaha River at Statenville, Ga.

Location.--Lat 30°40', long 83°01', at downstream side of left bank pier of bridge on State
    Highway 94, a quarter of a mile west of Statenville, Echols County.

Drainage area.--1,400 sq mi, approximately.

Records available.--U. S. Geological Survey: December 1931 to December 1953, daily gage heights
    and discharges.

Gage.--Water-stage recorder. Datum of gage is 76.77 ft above mean sea level (levels by Georgia
    State Highway Department). Dec. 10, 1931, to July 9, 1935, chain gage, July 10, 1935, to
    Nov. 30, 1949, staff gage at site 200 ft upstream, Dec. 1, 1949, to Nov. 22, 1952, wire-
    weight gage at present datum.

Stage-discharge relation.--Defined by current-meter measurements throughout range in stage.

Historical data.--Flood of May 1, 1928, reached a stage of 28.5 ft, from information furnished
    by local resident. Flood of April 1948 was the highest since 1862, from information
    furnished by a local resident.

Remarks.--Records for period from October 1928 to September 1931, obtained at Mayday, Georgia,
    11 miles upstream from present site. Drainage area 1,300 sq mi, approximately.

Annual peak stages and discharges

Calendar year	Date		Gage height (feet)	Discharge (cfs)	Calendar year	Date		Gage height (feet)	Discharge (cfs)
1928	May	1	28.5	17,400	1941	Mar.	31	9.4	1,910
1929	Mar.	22	-	14,200	1942	Mar.	23	22.3	6,370
1930	Feb.	8	-	4,730	1943	Apr.	3, 4	12.2	2,700
					1944	Apr.	27	26.8	11,100
1931	May	19	-	3,370	1945	Aug.	25	22.8	6,630
1932	Aug.	30	11.6	2,740					
1933	Feb.	22	21.8	6,140	1946	Jan.	30	17.2	4,160
1934	June	4, 5, 7	10.8	2,420	1947	Apr.	28	22.4	5,990
1935	Sept.	6, 8	14.6	3,440	1948	Apr.	6	29.8	27,300
					1949	Sept.	5	18.5	4,620
1936	Feb.	19	18.5	4,900	1950	Apr.	5	8.7	1,740
1937	Apr.	14	22.8	6,560					
1938	Sept.	30	6.4	1,130	1951	Apr.	5	14.9	3,480
1939	Mar.	9	26.4	10,500	1952	Mar.	13	14.5	3,360
1940	Feb.	28, 29	11.7	2,630	1953	Oct.	1	16.9	4,100

(108) Little River near Adel, Ga.

Location.--Lat 31°09', long 83°33', on right bank 500 ft downstream from bridge on State Highway
    37, half a mile downstream from Georgia and Florida Railroad bridge, 5½ miles upstream from
    Bear Creek, 6 miles downstream from Warrior Creek, and 7 miles west of Adel, Cook County.

Drainage area.--547 sq mi.

Records available.--U. S. Geological Survey: June 1940 to December 1953, daily gage heights
    and discharges.

Gage.--Water-stage recorder. Datum of gage is 171.08 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 13,000 cfs and by
    contracted-opening determination for peak flow of Apr. 2, 1948.

Historical data.--The flood of August 1928 reached a stage of 20.5 ft, from information by
    Georgia Highway Department.
        The flood of April 1948 was the highest known to local residents.

Suwannee River Basin

(108) Little River near Adel, Ga.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. -	20.5	32,500	1947	Mar. 10	17.1	7,580
				1948	Apr. 2	21.0	38,800
1941	Mar. 24	11.5	1,520	1949	Apr. 14	14.8	3,210
1942	Jan. 6	16.7	5,900	1950	July 15	14.4	2,750
1943	May 26	15.6	3,950				
1944	Mar. 8	18.7	16,700	1951	Dec. 25	15.8	4,360
1945	July 22	15.3	3,670	1952	Mar. 27	14.7	3,010
				1953	Sept. 30	14.9	3,210
1946	Jan. 25	14.6	2,920				

(109) Withlacoochee River near Quitman, Ga.

Location.--Lat 30°47', long 83°27', at bridge on U. S. Highway 84, 500 ft upstream from Tiger Creek, 800 ft downstream from Atlantic Coast Line Railroad bridge, a quarter of a mile east of Blue Springs, and 6 miles east of Quitman, Brooks County.

Drainage area.--1,560 sq mi, approximately.

Records available.--U. S. Geological Survey: October 1920 to March 1921, September 1928 to December 1931, June 1937 to September 1948, daily gage heights and discharges. Since January 1953, annual flood peaks.

Gage.--Non-recording gage. Datum of gage is 84.30 ft above mean sea level, datum of 1929, supplementary adjustment of 1936. Gage used 1928-31 was at datum 5.0 ft lower. Since September 1948, crest-stage gage (too high to indicate annual flood peaks prior to January 1953). All gage heights tabulated below have been reduced to present datum for this report.

Stage-discharge relation.--Defined by current-meter measurements below 50,000 cfs.

Historical data.--At the time of the August 1928 flood, it was reported to be the highest known to the oldest residents of the area.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. 19	31.3	62,000	1942	Jan. 9	22.0	11,600
1929	Mar. 20	24.8	18,000	1943	Mar. 11	12.5	3,730
1930	Feb. 12	21.6	6,250	1944	Mar. 11	25.5	21,000
				1945	July 27	21.4	10,600
1931	Aug. 21	9.6	2,760				
				1946	Mar. 21	18.2	6,860
1938	Apr. 17	5.13	955	1947	Dec. 17	25.5	21,000
1939	Mar. 5	22.6	12,800	1948	Apr. 4	31.7	66,000
1940	Feb. 25	11.0	3,450	1949	Apr. 19	16.6	5,660
1941	Mar. 29	8.3	2,320	1953	Oct. 1	18.0	6,700

Suwannee River Basin

(110) Withlacoochee River near Pinetta, Fla.

Location.--Lat 30°36', long 83°16', on line between secs. 6 and 7, T. 2 N., R. 11 E., on right
bank 30 ft downstream from highway bridge a quarter of a mile west of Bellville, and 5 miles
east of Pinetta.

Drainage area.--2,220 sq mi, approximately.

Records available.--U. S. Geological Survey: December 1931 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 47.21 ft above mean sea level (levels by Corps of
Engineers). Prior to Jan. 27, 1939, chain gage and Jan. 27, 1939, to Dec. 2, 1941, wire-
weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 58,000 cfs. Slight
shifting at medium and low stages.

Historical data.--Flood of Apr. 5, 1948, is the maximum known. Flood of August 1928 reached a
stage of 36.75 ft, from floodmarks, and was the highest known at that time, according to
local residents.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. -	36.75	53,000	1942	Jan. 11	24.14	11,300
				1943	Mar. 12	14.81	5,150
1932	June 18	14.48	5,380	1944	Mar. 30	31.57	19,100
1933	Feb. 24	22.79	9,820	1945	July 29	26.92	13,600
1934	June 12	11.92	3,270				
1935	Sept. 15	22.66	9,770	1946	Mar. 22	23.55	11,000
				1947	Dec. 21	32.70	20,900
1936	Feb. 15	19.72	8,240	1948	Apr. 5	38.64	79,400
1937	Apr. 14	28.32	14,900	1949	Apr. 20	17.47	6,590
1938	Mar. 24	9.27	1,450	1950	Mar. 24	11.66	2,970
1939	Mar. 8	22.83	10,800				
1940	Feb. 20	12.92	4,000	1951	Apr. 7	15.40	5,280
				1952	Mar. 5	16.03	5,870
1941	Mar. 31	10.63	2,420	1953	Apr. 20	18.01	7,180

(111) Suwannee River at Ellaville, Fla.

Location.--Lat 30°23', long 83°10', in sec. 24, T. 1 S., R. 11 E., on left bank at Ellaville,
200 ft upstream from Seaboard Air Line Railroad bridge, 200 ft downstream from Withlacoochee
River, and a quarter of a mile upstream from bridge on U. S. Highway 90.

Drainage area.--6,580 sq mi, approximately.

Records available.--U. S. Geological Survey: January 1927 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 27.82 ft above mean sea level, (levels by Corps
of Engineers). Prior to June 20, 1932, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of Apr. 7, 8, 1948, is the maximum known.

Suwannee River Basin

(111) Suwannee River at Ellaville, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date		Gage height (feet)	Discharge (cfs)	Calendar year	Date			Gage height (feet)	Discharge (cfs)
1927	Aug.	28	6.0	5,900	1941	July	29		6.24	5,710
1928	Aug.	20	37.1	73,000	1942	Mar.	26		24.90	27,200
1929	Oct.	12, 13	26.9	34,000	1943	Mar.	14		7.43	6,790
1930	Apr.	3, 4	24.28	29,200	1944	Apr.	9		23.53	25,000
					1945	Aug.	28		24.26	26,200
1931	Jan.	25, 26	10.70	9,730						
1932	Sept.	27	15.67	15,500	1946	Mar.	23		17.71	17,500
1933	Feb.	25, 26	24.02	26,400	1947	Nov.	22, 23		30.57	39,800
1934	June	16	6.6	6,200	1948	Apr.	7, 8		40.88	95,300
1935	Sept.	18	18.35	18,300	1949	Sept.	11		16.10	15,700
					1950	Apr.	7		6.82	6,480
1936	Feb.	27	15.16	14,600						
1937	Apr.	17	23.66	25,200	1951	Apr.	9		10.96	10,100
1938	Aug.	13	5.61	5,120	1952	Mar.	7		14.76	14,300
1939	Mar.	13	15.10	14,500	1953	Oct.	9		18.80	19,200
1940	Feb.	28	10.59	9,670						

(112) Suwannee River at Luraville, Fla.

Location.--Lat 30°06', long 83°10', in sec. 30, T. 4 S., R. 12 E., near left bank on upstream
   side of county highway bridge, three miles upstream from Grants Ferry Shoals, and one mile
   south of Luraville.

Drainage area.--6,900 sq mi, approximately.

Records available.--U. S. Geological Survey: February 1927 to December 1937, daily gage heights
   and discharges.

Gage.--Staff gage read once daily. Datum of gage was 16.49 ft above mean sea level (Corps of
   Engineers benchmark).

Stage-discharge relation.--Defined by current-meter measurements below 33,000 cfs.

Historical data.--Maximum known flood of April 1948 reached a stage of about 37.0 ft, from
   information furnished by Corps of Engineers.

Annual peak stages and discharges

Calendar year	Date		Gage height (feet)	Discharge (cfs)	Calendar year	Date		Gage height (feet)	Discharge (cfs)
1927	Aug.	29	5.8	6,090	1934	June	17	6.67	6,560
1928	Aug.	24	33.7	66,000	1935	Sept.	22, 23	15.80	17,500
1929	Mar.	29, 30	22.5	27,200					
1930	Apr.	7-10	21.6	25,900	1936	Feb. 29,			
						Mar. 1, 2		13.10	13,900
1931	Jan.	27	9.84	9,810	1937	Apr.	19	19.70	23,300
1932	Sept.	28-30	13.80	14,800					
1933	Mar.	1	20.28	24,000	1948	Apr.	-	37.0	-

GAGING STATION RECORDS

Suwannee River Basin

(113) Suwannee River at Branford, Fla.

Location.—Lat 29°57', long 82°56', in sec. 17 or 20, T. 6 S., R. 14 E., near left bank on upstream side of bridge on U. S. Highways 27 and 129 at Branford, 10¼ miles upstream from Santa Fe River.

Drainage area.—7,090 sq mi, approximately.

Records available.—U. S. Geological Survey: July 1931 to December 1953, daily gage heights and discharges.

Gage.—Wire-weight gage read once daily. Datum of gage is 4.81 ft above mean sea level, datum of 1929. Prior to June 15, 1933, chain gage at same site and datum.

Stage-discharge relation.—Defined by current-meter measurements.

Historical data.—Flood of Aug. 26, 1928, reached a stage of 32.0 ft, from floodmarks.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. 26	32.0	61,100	1942	Mar. 28	23.70	24,900
				1943	Mar. 17	9.20	6,730
1932	Sept. 30	16.66	14,800	1944	Apr. 11	21.42	21,700
1933	Mar. 1	21.96	24,100	1945	Aug. 31	22.44	22,500
1934	June 20	12.76	8,350				
1935	Sept. 24	19.08	16,200	1946	Aug. 13	17.77	14,700
				1947	Nov. 24-26	26.95	32,500
1936	Mar. 1	16.18	14,200	1948	Apr. 11	34.07	83,900
1937	Apr. 20	21.65	22,700	1949	Sept. 13	18.11	15,600
1938	Aug. 14, 15	8.31	5,530	1950	Oct. 28	10.75	7,180
1939	Mar. 15	14.48	13,300				
1940	Feb. 29	12.08	8,900	1951	Apr. 11	12.19	9,480
				1952	Mar. 16-19	16.40	13,700
1941	Apr. 1, 3	-	5,790	1953	Oct. 11	18.96	16,700
	Aug. 1	8.86	-				

(114) Santa Fe River at Worthington, Fla.

Location.—Lat 29°55', long 82°26', on line between secs. 32 and 33, T. 6 S., R. 19 E., near left bank on downstream side of bridge on State Highway 23, half a mile south of Worthington, and three-quarters of a mile downstream from New River.

Drainage area.—630 sq mi, approximately.

Records available.—U. S. Geological Survey: November 1931 to December 1953, daily gage heights and discharges.

Gage.—Water-stage recorder. Datum of gage is 42.74 ft above mean sea level (levels by Corps of Engineers). Prior to Jan. 16, 1939, staff gage at site a quarter of a mile downstream at same datum. Jan. 17, 1939, to July 23, 1953, wire-weight gage read once daily at same site and datum.

Stage-discharge relation.—Defined by current-meter measurements; considerable shifting at all stages.

Suwannee River Basin

(114) Santa Fe River at Worthington, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1932	Sept. 17	16.46	1,540	1943	Aug. 18	17.05	2,160
1933	Sept. 8	18.20	3,120	1944	Oct. 21	24.94	15,700
1934	June 17	24.83	17,500	1945	Aug. 22	18.74	4,000
1935	Sept. 8	22.37	11,200				
				1946	Aug. 2	19.1	4,500
1936	Apr. 5	16.90	1,780	1947	Sept. 26	24.58	14,900
1937	Sept. 1	21.36	8,780	1948	Mar. 12	24.60	14,900
1938	Oct. 26	21.07	8,120	1949	Sept. 3	21.25	7,570
1939	Aug. 10	16.61	2,140	1950	Sept. 8	24.03	12,400
1940	Feb. 22	16.62	1,950				
				1951	Nov. 19	15.14	1,110
1941	Oct. 22	24.61	14,900	1952	Feb. 20	15.90	1,450
1942	Jan. 6	18.66	4,000	1953	Aug. 29	20.44	6,120

(115) Santa Fe River near High Springs, Fla.

Location.--Lat 29°51', long 82°38', in sec. 29, T, 7 S., R. 17 E., near right bank at upstream side of bridge on U. S. Highway 27, 150 ft upstream from Atlantic Coast Line Railroad bridge, and 2 miles northwest of High Springs.

Drainage area.--950 sq mi, approximately.

Records available.--U. S. Geological Survey: January 1931 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 26.36 ft above mean sea level, datum of 1929 (levels by Florida State Road Department). Prior to Jan. 9, 1933, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements, considerable shifting at medium and low stages. Extremely high stages of the Suwannee River causes backwater at the station.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1931	Apr. 10	3.84	1,480	1943	Aug. 22, 23	3.57	1,180
1932	Sept. 19	3.44	1,230	1944	Oct. 23	13.23	9,560
1933	Sept. 11	6.10	2,760	1945	Aug. 25	6.36	2,940
1934	June 18	14.90	11,800				
1935	Sept. 10	11.10	6,830	1946	Aug. 4, 5	6.73	3,140
				1947	Sept. 28	12.62	8,800
1936	Apr. 8	3.84	1,490	1948	Mar. 14	15.71	12,700
1937	Oct. 7	8.85	4,610	1949	Sept. 5	9.34	5,080
1938	Oct. 29	8.41	4,280	1950	Sept. 11	11.64	7,600
1939	Aug. 12	4.65	1,890				
1940	Aug. 28	3.99	1,470	1951	Nov. 21	3.21	1,060
				1952	Mar. 1	3.77	1,220
1941	Oct. 25	11.90	7,960	1953	Dec. 30	8.10	4,040
1942	Mar. 11	7.93	3,930				

Suwannee River Basin

(116) Santa Fe River near Fort White, Fla.

Location.--Lat 29°51', long 82°43', in sec. 28, T. 7 S., R. 16 E., on left bank 2 miles upstream
from bridge on State Highway 47, 5 miles south of Fort White, and 15 miles upstream from
mouth.

Drainage area.--1,080 sq mi, approximately.

Records available.--Mees and Mees, Inc.: July 1925 to September 1927, daily gage heights and
discharges. U. S. Geological Survey: October 1927 to January 1930 and June 1932 to December
1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 20.86 ft above mean sea level (levels by Corps of
Engineers). Prior to June 4, 1932, staff gage at several sites within 200 ft of present site
and at various datums.
Oct. 1, 1947, to Feb. 10, 1949, auxiliary wire-weight gage and since Feb. 11, 1949, water-
stage recorder at bridge on State Highway 49, 13.1 miles downstream. Datum of auxiliary gage
is 3.5 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements; affected by backwater from
Suwannee River. Discharge is computed using fall as a factor.

Annual peak stages and discharges

Calendar year	Date		Gage height (feet)	Discharge (cfs)	Calendar year	Date		Gage height (feet)	Discharge (cfs)
1926	Aug.	3-6	4.8	4,120	1942	Mar.	11-13	-	4,750
1927	Mar.	1-7	3.0	2,370		Mar.	23	6.58	-
1928	Aug.	27-29	9.5	4,750	1943	Aug.	23	1.95	1,760
1929	Oct.	3-6	6.9	4,180	1944	Oct.	24	9.48	9,300
					1945	Aug.	26	4.82	3,650
1932	Sept.	20	-	1,740					
1933	Apr.	20	4.19	2,810	1946	Aug.	6	4.79	3,820
1934	June	20	11.04	11,400	1947	Sept.	29	8.73	8,110
1935	Sept.	10	8.26	6,680	1948	Mar.	14	-	12,300
						Apr.	12	13.70	-
1936	Feb.	13, 14	2.46	2,140	1949	Sept.	6	6.76	5,510
1937	Oct.	7, 8	6.00	4,730	1950	Oct.	26	8.16	7,520
1938	Oct.	30	5.51	4,250					
1939	Aug.	12	2.84	2,480	1951	Nov.	23	1.64	1,670
1940	Aug.	28, 29	2.16	2,000	1952	Mar.	4	2.29	2,020
					1953	Dec.	31	5.85	5,080
1941	Oct.	26	8.14	7,410					

(117) Suwannee River near Bell, Fla.

Location.--Lat 29°48', long 82°55', in sec. 16 or 17, T. 8 S., R. 14 E., on left bank at Rock
Bluff Ferry, 4½ miles northwest of Bell and 10 miles downstream from Santa Fe River.

Drainage area.--9,260 sq mi, approximately.

Records available.--U. S. Geological Survey: June 1932 to December 1953, daily gage heights and
discharges.

Gage.--Water-stage recorder. Datum of gage is 3.60 ft above mean sea level (levels by Corps of
Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of Aug. 28, 1928, reached stage of about 25.9 ft, from information by a
local resident.

Suwannee River Basin

(117) Suwannee River near Bell, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. 28	25.9	-	1942	Mar. 28	17.28	30,000
				1943	Mar. 18	6.37	8,270
1932	Sept. 30	12.21	16,100	1944	Apr. 12	15.26	24,000
1933	Mar. 2	15.36	24,500	1945	Sept. 3	15.98	25,300
1934	June 21	11.30	14,800				
1935	Sept. 25	14.63	22,100	1946	Aug. 19	13.59	18,800
				1947	Nov. 26, 27	19.52	38,400
1936	Mar. 2	12.09	16,200	1948	Apr. 13	27.43	82,300
1937	Apr. 22	15.53	24,800	1949	Sept. 12	14.00	18,800
1938	Aug. 15	6.40	8,130	1950	Oct. 28	9.56	11,700
1939	Mar. 16	10.28	13,600				
1940	Feb. 28-Mar. 1	8.88	11,700	1951	Apr. 12	8.85	10,700
				.1952	Mar. 11	12.25	15,900
1941	Aug. 1	7.14	9,110	1953	Oct. 12	14.33	20,700

(118) Suwannee River near Wilcox, Fla.·

Location.--Lat 29°36', long 82°56', in sec. 29, T. 10 S., R. 14 E., on left bank about 400 ft
downstream from Fort Fannin bridge on U. S. Highway 19, and 2 miles southwest of Wilcox.

Drainage area.--About 9,500 sq mi.

Records available.--U. S. Geological Survey: September 1930 to September 1931 and March 1942 to
December 1953, gage heights and discharges (fragmentary March 1942 to January 1951).

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to July 4,
1931, staff gage at site 400 ft upstream at same datum. July 4 to Sept. 30, 1931, and
Mar. 26 to May 14, 1942, water-stage recorder at present site and datum. May 15, 1942, to
Jan. 24, 1951, staff gage at present site and datum. Staff gage read once daily when stage
exceeded 6.0 ft. Since Feb. 1, 1951, auxiliary water-stage recorder about 9 miles downstream.

Stage-discharge relation.--Defined by current-meter measurements. Flow affected by tide for
discharges less than 12,000 cfs. Discharges computed using fall as a factor below 12,000 cfs.

Historical data.--Flood of August 1928 reached stage of about 20.0 ft (source of information
unknown).

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Aug. -	20.0	-	1947	Nov. 26-29	15.15	37,800
				1948	Apr. 14	22.32	84,700
1931	Feb. 1	6.60	14,500	1949	Sept. 13-15	9.90	20,100
				1950	Oct. 29	6.40	12,400
1942	Mar. 28-31	12.96	29,200				
				1951	Apr. 14	-	12,000
1944	Apr. 13	10.68	22,300	1952	Mar. 11	8.43	16,700
1945	Sept. 3, 4	11.40	24,300	1953	Oct. 13, 14	9.87	20,000
1946	Aug. 19	9.27	18,600				/

Fenholloway River Basin

(119) Fenholloway River at Foley, Fla.

Location.--Lat 30°04', long 83°32', in sec. 9, T. 5 S., R. 8 E., on right bank at upstream side of highway bridge in Foley.

Drainage area.--180 sq mi, approximately.

Records available.--U. S. Geological Survey: September 1946 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 29.36 ft above mean sea level, datum of 1929. Prior to June 24, 1947, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements. Considerable shifting at medium and low stages.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1947	Nov. 12	14.46	1,140	1951	Nov. 18	13.92	842
1948	Mar. 10	16.03	2,640	1952	Feb. 18	13.66	725
1949	Feb. 8	13.80	826	1953	Sept. 28	15.32	1,860
1950	July 10	11.37	216				

Ochlockonee River Basin

(120) Ochlockonee River near Thomasville, Ga.

Location.--Lat 30°52', long 84°03', on downstream side of left bank pier of bridge on U. S. Highway 84, 2 miles upstream from Atlantic Coast Line Railroad bridge, 4 miles upstream from Barnetts Creek, 5 miles northwest of Thomasville, Thomas County, and 6 miles downstream from Little Ochlockonee River.

Drainage area.--550 sq mi, approximately.

Records available.--U. S. Geological Survey: August 1937 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 133.6 ft above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Jan. 7, 1947, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 25,000 cfs and extended above by logarithmic plotting.

Historical data.--Flood of April 1948 was reported to be the highest in the memory of residents of the area.

FLOODS IN FLORIDA

Ochlockonee River Basin

(120) Ochlockonee River near Thomasville, Ga.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1937	Sept. 21	17.6	9,090	1946	May 22	15.8	5,480
1938	Mar. 22	8.8	1,310	1947	Apr. 17	17.0	7,920
1939	Mar. 3	14.0	3,240	1948	Apr. 2	29.1	72,000
1940	Feb. 21	10.7	1,820	1949	Apr. 15	-	3,900
				1950	Mar. 17	11.9	2,090
1941	Mar. 10	10.4	1,730				
1942	Jan. 5	17.8	9,900	1951	Apr. 2	13.2	2,660
1943	Mar. 9	14.8	4,040	1952	Mar. 27	13.8	3,000
1944	Mar. 8	17.8	9,900	1953	Apr. 14	15.6	5,140
1945	July 12	15.3	4,680				

(121) Tired Creek near Cairo, Ga.

Location.--Lat 30°54', long 84°16', on left bank 140 ft upstream from highway bridge, a quarter of a mile downstream from Wolf Creek, 1 mile downstream from Atlantic Coast Line Railroad bridge, and 3 miles west of Cairo, Grady County.

Drainage area.--55 sq mi, approximately.

Records available.--U. S. Geological Survey: July 1943 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 159.0 ft above mean sea level, datum of 1929, supplementary adjustment of 1936.

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs and by slope-area measurement at 28,000 cfs.

Historical data.--Flood of April 1948 was reported to be the highest in memory of residents of the area.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1944	Mar. 7	9.2	4,640	1949	Apr. 12	7.38	1,850
1945	Apr. 23	8.3	3,100	1950	July 7	7.30	1,730
1946	Mar. 17	10.5	7,300	1951	Mar. 19	7.27	1,670
1947	Apr. 16	8.2	2,940	1952	Sept. 22	6.55	955
1948	Apr. 1	16.3	28,100	1953	Apr. 7	7.53	1,940

Ochlockonee River Basin

(122) Ochlockonee River near Havana, Fla.

Location.--Lat 30°33', long 84°23', in sec. 24, T. 2 N., R. 2 W., on upstream side near center of span of bridge on U. S. Highway 90, three-quarters of a mile upstream from Seaboard Air Line Railroad bridge, 4 miles downstream from Mill Creek, and 5 miles southeast of Havana.

Drainage area.--1,020 sq mi, approximately.

Records available.--West Florida Power Co.: September 1921 to December 1928, daily gage heights. U. S. Geological Survey: December 1928 to December 1953, daily gage heights and discharges.

Gage.--Wire-weight gage read once daily. Datum of gage is 59.16 ft above mean sea level, datum of 1929. Dec. 13, 1928, to Aug. 11, 1934, chain gage at same site and datum. Prior to Dec. 13, 1928, staff gage at datum 60.00 ft lower.

Stage-discharge relation.--Defined by current-meter measurements. Annual peak discharges prior to 1929 computed from rating developed during period 1926 to 1953.

Historical data.--Flood of April 1948 was reported to be highest in the memory of residents of the area.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1922	June 4	28.1	9,400	1938	Mar. 25	19.76	1,760
1923	Aug. 30	27.9	8,910	1939	Mar. 8	22.76	3,150
1924	Oct. 3	27.6	8,210	1940	Feb. 23	22.35	2,950
1925	Jan. 23	a28.1	9,400				
				1941	Mar. 13	21.59	2,610
1926	Sept. 25	27.4	7,770	1942	Jan. 7	29.58	14,100
1927	Feb. 25	19.3	1,520	1943	Mar. 9	27.28	7,570
1928	Aug. 17 or 18	31.7	21,300	1944	Mar. 12	28.38	10,300
1929	Mar. 19	30.3	15,300	1945	May 1	26.74	6,460
1930	Apr. 10	27.07	7,160				
				1946	Mar. 21	27.05	6,990
1931	May 9	23.10	3,190	1947	Dec. 18	28.16	9,420
1932	Sept. 21	–	5,680	1948	Apr. 4	35.08	55,900
	Nov. 5	26.31	–	1949	Apr. 17	26.07	5,130
1933	Apr. 17	27.83	8,670	1950	Sept. 1	22.64	2,560
1934	June 10	17.44	1,230				
1935	Sept. 10	27.96	9,150	1951	Apr. 5	23.64	3,040
				1952	Feb. 27	25.36	4,620
1936	Apr. 16	26.20	6,280	1953	Apr. 18	26.35	5,920
1937	Sept. 24	28.42	10,100				

a May have been higher during period of no gage-height record.

(123) Ochlockonee River near Bloxham, Fla.

Location.--Lat 30°23'00", long 84°39'15", in NE¼ sec. 20, T. 1 S., R. 4 W., on downstream side of left pier of bridge on State Highway 20, 3,000 ft downstream from powerplant and dam, and 1½ miles southwest of Bloxham.

Drainage area.--1,660 sq mi, approximately.

Records available.--U. S. Geological Survey: June 1926 to December 1953, daily gage heights and discharge.

Gage.--Water-stage recorder. Datum of gage is 29.69 ft above mean sea level, datum of 1929. Prior to Apr. 9, 1930, staff gage at site 2,700 ft upstream at same datum. Apr. 9, 1930, to Jan. 19, 1939, water-stage recorder at site 2,000 ft upstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 38,800 cfs. Since 1929 flow regulated by powerplant above station and storage in Lake Talquin.

Ochlockonee River Basin

(123) Ochlockonee River near Bloxham, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1926	Sept. 27	15.5	8,050	1941	Mar. 11	-	a3,120
1927	Feb. 27	7.15	2,380	1942	Jan. 8	-	a13,300
1928	Aug. 19	21.4	19,900	1943	Mar. 7	-	a12,600
1929	Mar. 22	17.61	10,400	1944	Mar. 13, 30	-	a10,200
1930	Apr. 12	-	a7,840	1945	May 4	-	a6,600
1931	Jan. 23	-	a2,800	1946	Mar. 18	-	a12,500
1932	Nov. 6	-	a8,050	1947	Apr. 17	-	a12,500
1933	Apr. 15	-	a10,500	1948	Apr. 5	23.50	50,200
1934	July 21	-	a1,830	1949	Apr. 13	-	a9,450
1935	Sept. 13	-	a9,020	1950	Apr. 5	-	a4,260
1936	Feb. 14	-	a6,390	1951	Apr. 2	-	a3,850
1937	Sept. 2	-	a16,100	1952	Feb. 24	-	a6,250
1938	Mar. 9	-	a2,510	1953	Apr. 19	-	a5,670
1939	June 15	-	a7,980				
1940	Feb. 23-26	-	a3,470				

aMean daily (regulated).

Apalachicola River Basin

(124) Spring Creek near Iron City, Ga.

Location.--Lat 31°03', long 84°43', on right bank 125 ft downstream from highway bridge, 1½ miles downstream from Aycock Creek, 1½ miles upstream from Dry Creek, 5 miles north of Brinson, and 5½ miles northeast of Iron City, Seminole County.

Drainage area.--520 sq mi, approximately.

Records available.--U. S. Geological Survey: October 1920 to June 1921, June 1937 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 85.7 ft above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Oct. 18, 1952, staff gage at site 125 ft upstream at same datum. Oct. 21, 1920, to June 30, 1921, at different datum.

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs and extended above by logarithmic plotting.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1937	Nov. 16	13.4	3,160	1946	Mar. 30	16.5	5,900
1938	Apr. 11	10.9	1,780	1947	Mar. 10	17.6	7,900
1939	Mar. 2	16.0	5,300	1948	Apr. 1	19.9	12,600
1940	Feb. 20	17.3	7,080	1949	Feb. 10	13.4	2,860
				1950	Apr. 2	9.3	1,120
1941	Mar. 26	7.7	812				
1942	Mar. 24	14.4	3,780	1951	Dec. 29	8.5	925
1943	Mar. 10	13.0	2,810	1952	Feb. 19	12.4	2,310
1944	Mar. 9	17.4	7,240	1953	Dec. 27	12.7	2,460
1945	Apr. 30	11.0	1,840				

Apalachicola River Basin

(125) Apalachicola River at Chattahoochee, Fla.

Location.--Lat 30°42'03", long 84°51'33", in sec. 32, T. 4 N., R. 6 W., near center of span on
downstream side of bridge on U. S. Highway 90, 0.8 mile downstream from confluence of Flint
and Chattahoochee Rivers, and 1 mile west of Chattahoochee.

Drainage area.--17,100 sq mi, approximately.

Records available.--U. S. Weather Bureau: October 1919 to December 1928, daily gage heights.
U. S. Geological Survey: December 1928 to December 1953, daily gage heights and discharges.
Records prior to October 1939, published as "near River Junction".

Gage.--Wire-weight gage read twice daily. Datum of gage is 45.58 ft above mean sea level, datum
of 1929 (U. S. Weather Bureau benchmark). Prior to Dec. 11, 1928, U. S. Weather Bureau staff
gage read once daily and Dec. 11, 1928, to Dec. 15, 1939, water-stage recorder at site seven-
eighths of a mile downstream, at datum 0.73 ft lower. Dec. 16, 1939, to June 25, 1952, water-
stage recorder at present site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 200,000 cfs. Maximum
annual discharges prior to 1929 computed from average rating curve used during period 1929-39.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1919	Dec. 17	24.7	130,000	1937	Apr. 12	19.20	74,500
1920	Apr. 7	23.4	114,000	1938	Apr. 13	22.88	108,000
				1939	Mar. 5	22.37	101,000
1921	Feb. 15	18.8	72,000	1940	Feb. 21	18.98	70,700
1922	Mar. 15	23.8	119,000				
1923	Mar. 22	21.4	93,000	1941	Dec. 29	17.02	58,800
1924	Jan. 28	16.0	54,000	1942	Mar. 27	22.40	99,000
1925	Jan. 24	32.1	246,000	1943	Mar. 27	25.93	143,000
				1944	Apr. 2	25.78	142,000
1926	Apr. 4	20.8	87,000	1945	Dec. 30	17.33	60,300
1927	Feb. 17	12.0	38,000				
1928	Apr. 27	26.6	157,000	1946	Apr. 2	21.62	85,200
1929	Mar. 20	34.70	293,000	1947	Mar. 11, 12	19.39	72,800
1930	Nov. 21	19.10	71,500	1948	Dec. 5	25.42	137,000
				1949	May 4	20.92	86,200
1931	Apr. 7	10.40	32,900	1950	Mar. 18	11.83	37,100
1932	Feb. 25	14.34	45,600				
1933	Mar. 24	19.53	73,900	1951	Dec. 26	13.89	44,000
1934	Mar. 8	17.57	63,400	1952	Mar. 28	21.02	87,400
1935	Mar. 10	14.46	46,800	1953	May 7, 8	21.39	91,300
1936	Apr. 15	25.83	145,000				

(126) Mosquito Creek at Chattahoochee, Fla.

Location.--Lat 30°43', long 84°49', in sec. 34, T. 4 N., R. 6 W., at Chattahoochee, 500 ft
upstream from bridge on U. S. Highway 90, 600 ft downstream from pumping plant and dam, and
3 miles upstream from mouth.

Drainage area.--60 sq mi, approximately.

Records available.--U. S. Geological Survey: March 1936 to August 1942, daily gage heights and
discharges.

Gage.--Water-stage recorder. Datum of gage was not determined.

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs.

Remarks.--About 3 cfs diverted by pumping from reservoir for Florida State Hospital. Some
regulation from changes in reservoir pool.

Apalachicola River Basin

(126) Mosquito Creek at Chattahoochee, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1937	Sept. 1	11.54	1,310	1940	Feb. 18	8.48	765
1938	Mar. 18	5.33	296	1941	Mar. 7	5.47	320
1939	June 1	6.82	492	1942	Jan. 4	10.99	1,200

(127) Apalachicola River near Blountstown, Fla.

Location.--Lat 30°25'25", long 85°01'55", in sec. 3, T. 1 S., R. 8 W., on right bank at old ferry landing near office and mill of Neal Lumber Co. at McNeal, half a mile upstream from Old River Cutoff, and about 1½ miles southeast of Blountstown.

Drainage area.--17,300 sq mi, approximately.

Records available.--U. S. Weather Bureau: January 1920 to December 1953, daily gage heights.

Gage.--Staff gage read once daily. Datum of gage is 26.96 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Not defined.

Historical data.--Flood of July 1916 reached a stage of 23.8 ft, from Weather Bureau records.

Annual peak stages

Calendar year	Date	Gage height (feet)	Calendar year	Date	Gage height (feet)
1916	July -	23.8	1936	Apr. 15	23.6
			1937	Apr. 13	20.7
1920	Apr. 8	17.6	1938	Apr. 14	22.2
			1939	Mar. 6	22.1
1921	Feb. 15, 16	15.5	1940	Feb. 22	20.9
1922	Mar. 16	22.2			
1923	Mar. 22	21.0	1941	Dec. 30	19.4
1924	Jan. 29	19.2	1942	Mar. 27, 28	22.1
1925	Jan. 27	27.9	1943	Mar. 27	23.5
			1944	Apr. 3	23.6
1926	Apr. 5	21.7	1945	Dec. 31	20.0
1927	Feb. 19, 20	16.5			
1928	Apr. 28	24.6	1946	Apr. 3	21.7
1929	Mar. 21	28.6	1947	Mar. 13, 18	20.7
1930	Nov. 22	20.9	1948	Dec. 6	23.5
			1949	May 5	21.5
1931	Apr. 8	14.9	1950	Mar. 19	16.3
1932	Feb. 26	17.8			
1933	Mar. 25	21.0	1951	Dec. 28	17.8
1934	Mar. 9, 10	20.0	1952	Mar. 29	21.5
1935	Mar. 11, 17	17.8	1953	May 8	21.9

Apalachicola River Basin

(128) Chipola River near Altha, Fla.

Location.--Lat 30°32'02", long 85°09'55", in NW¼ sec. 32, T. 2 N., R. 9 W., on right bank on
downstream side of bridge on State Highway 274, 0.9 mile downstream from Holliman Branch, and
3½ miles southwest of Altha.

Drainage area.--781 sq mi.

Records available.--U. S. Geological Survey: November 1912 to December 1913, September 1921 to
September 1927, August 1929 to September 1931, March 1943 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 19.95 ft above mean sea level (levels by Corps of
Engineers). Prior to Jan. 13, 1950, staff, chain, or wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and by slope-
area measurement at 25,000 cfs.

Remarks.--Discharges for 1913, 1922-25 revised for this report.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1913	Mar. 22	21.1	5,650	1943	Mar. 12	14.58	2,920
				1944	Mar. 28	19.18	4,780
1922	June 2	15.98	3,620	1945	Dec. 31	17.55	4,040
1923	June 29	20.7	5,460				
1924	Sept. 16	17.6	4,200	1946	May 22	23.85	7,070
1925	Jan. 24	23.7	7,010	1947	Mar. 13	26.42	9,080
				1948	Apr. 4, 5	32.2	19,100
1926	Sept. 20	33.55	25,000	1949	Feb. 7	17.02	3,810
				1950	Sept. 1	22.5	6,350
1929	Oct. 2	25.20	7,980				
1930	Nov. 22	19.44	4,880	1951	Dec. 27	12.20	2,060
				1952	Feb. 21	17.93	4,180
1931	Aug. 17	17.27	3,950	1953	Apr. 13	19.12	4,720

Bear Creek Basin

(129) Econfina Creek near Bennett, Fla.

Location.--Lat 30°23'04", long 85°33'24", in sec. 20, T. 1 S., R. 13 W., near left bank on
downstream side of bridge on State Highway 388, 0.5 mile downstream from Old Mill Branch, and
1.6 miles southwest of Bennett.

Drainage area.--182 sq mi.

Records available.--U. S. Geological Survey: November 1935 to December 1953, daily gage heights
and discharges.

Gage.--Staff gage read once daily. Datum of gage is 1.03 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,200 cfs.

Historical data.--Maximum stage known, 15.0 ft, from floodmarks, either in September 1926 or
April 1928 (based on a study of rainfall records).

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1936	Aug. 2	9.60	1,310	1946	May 18	9.96	1,820
1937	Sept. 2	11.00	2,670	1947	Apr. 16	9.44	1,530
1938	July 28	6.84	708	1948	Apr. 2	12.46	4,860
1939	Aug. 15	10.50	2,200	1949	Aug. 15	10.30	2,050
1940	Feb. 18	8.46	1,210	1950	Sept. 1	10.34	2,050
1941	Mar. 9	8.29	1,150	1951	Mar. 20	6.90	850
1942	Jan. 5	8.16	1,120	1952	Feb. 18	7.44	-
1943	May 26	7.80	1,000		Sept. 22, 23	-	943
1944	Sept. 12	10.60	2,280	1953	Sept. 26	9.47	1,560
1945	Sept. 15	9.22	1,440				

Choctawhatchee River Basin

(130) Choctawhatchee River near Newton, Ala.

Location.--Lat 31°21', long 85°37', in SE¼ sec. 2, T. 4 N., R. 24 E., on left bank at downstream
side of bridge on U. S. Highway 231, 200 ft downstream from mill dam, 1,500 ft upstream from
Hurricane Creek, 0.8 mile north of Newton, and 1 mile downstream from Atlantic Coast Line
Railroad bridge.

Drainage area.--683 sq mi.

Records available.--U. S. Geological Survey: June 1906 to August 1908, October 1911 to August
1912, daily gage heights. November 1921 to September 1927, May 1935 to December 1953, daily
gage heights and discharges. U. S. Weather Bureau: January 1931 to December 1953, daily
gage heights.

Gage.--Water-stage recorder. Datum of gage is 138.56 ft above mean sea level, datum of 1929,
supplementary adjustment of 1943. Non-recording gage June 1906 to August 1908, October 1911
to August 1912, and recording gage from November 1921 to Sept. 30, 1927, at site 800 ft
upstream, at different datum. Non-recording gage at present site from May 10, 1935, to
Sept. 8, 1938, and recording gage thereafter.

Stage-discharge relation.--Defined by current-meter measurements below 20,000 cfs.

Historical data.--Flood of Mar. 15, 1929, reached a stage of 45 ft, from information by local
residents. (This information is of doubtful accuracy and could not be substantiated in 1954).

Remarks.--Gage-height records since 1931 are contained in reports of U. S. Weather Bureau. Peak
stage for Nov. 19, 1930, was computed on basis of U. S. Weather Bureau gage heights at
Geneva and a stage-relation curve.

Choctawhatchee River Basin

(130) Choctawhatchee River near Newton, Ala.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1922	June 2	16.6	11,400	1938	July 28	18.5	8,760
1923	Mar. 20	18.5	13,200	1939	Mar. 1	19.7	9,430
1924	Jan. 25	10.6	7,340	1940	Feb. 19	20.0	9,600
1925	Jan. 17	a28.0	a28,000				
				1941	Dec. 26	10.8	4,710
1926	Sept. 22	23.2	14,700	1942	Feb. 17	10.0	4,280
1927	Feb. 18	6.4	3,760	1943	Jan. 20	27.4	19,300
				1944	Apr. 16	23.4	12,500
1929	Mar. 15	45	-	1945	Dec. 25	13.1	5,000
1930	Nov. 19	15.6	6,980				
				1946	Mar. 29	25.0	14,600
1931	Jan. 14	7.2	2,430	1947	Mar. 9	23.7	12,800
1932	May 24	9.8	3,810	1948	Mar. 8	21.8	10,700
1933	Mar. 21	23.8	12,800	1949	Jan. 7	18.5	8,610
1934	Mar. 5	12.6	5,330	1950	Apr. 5	10.7	4,390
1935	July 14	12.4	5,220				
				1951	Mar. 29	12.6	5,400
1936	Jan. 20	29.5	25,800	1952	Feb. 16	12.6	5,740
1937	Sept. 2	26.4	16,200	1953	May 4	29.6	23,900

aMay have been higher.

(131) Pea River near Samson, Ala.

Location.--Lat 31°07', long 86°06', in sec. 25, T. 2 N., R. 19 E., on right bank at downstream side of bridge on State Highway 12, 500 ft downstream from Boyenton Creek, 1¾ miles downstream from Louisville and Nashville Railroad bridge, 3 miles west of Samson, and 6½ miles upstream from Flat Creek.

Drainage area.--1,187 sq mi.

Records available.--U. S. Geological Survey: May 1935 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 97.95 ft above mean sea level, datum of 1929, supplementary adjustment of 1943 (levels by Corps of Engineers). May 9, 1935, to July 24, 1937, wire-weight gage at present site and datum.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of Jan. 20, 1925, reached a stage of 42.0 ft, from floodmarks (at site 1½ miles upstream, at different datum). Flood of Mar. 15, 1929, reached a stage of 45.3 ft, from floodmarks (present site and datum).

Choctawhatchee River Basin

(131) Pea River near Samson, Ala.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1925	Jan. 20	42.0	-	1944	Mar. 26	33.4	19,500
				1945	Dec. 26	22.5	8,920
1929	Mar. 15	45.3	-				
				1946	May 22	30.5	16,000
1936	Jan. 22	37.2	27,800	1947	Apr. 6	26.7	12,900
1937	Apr. 7	35.9	23,400	1948	Dec. 1	29.9	15,700
1938	Mar. 18	35.8	23,300	1949	May 3	24.0	10,000
1939	Mar. 2	28.8	14,200	1950	Sept. 2	19.5	7,100
1940	Feb. 19	22.8	9,120				
				1951	Mar. 30	19.5	7,100
1941	Dec. 29	15.0	4,790	1952	Mar. 28	24.7	10,600
1942	Apr. 11	20.2	7,460	1953	Dec. 5	31.7	17,400
1943	Jan. 21	33.2	19,200				

(132) Choctawhatchee River at Caryville, Fla.

Location.--Lat 30°46'32", long 85°49'40", in sec. 10, T. 4 N., R. 16 W., near right bank on
downstream side of bridge on U. S. Highway 90, 300 ft downstream from Louisville and Nashville
Railroad bridge, three-quarters of a mile west of Caryville, and 1.8 miles downstream from
Wrights Creek.

Drainage area.--3,499 sq mi.

Records available.--U. S. Weather Bureau: November 1928 to August 1929, daily gage heights.
U. S. Geological Survey: August 1929 to December 1953, daily gage heights and discharges.

Gage.--Wire-weight gage read twice daily. Datum of gage is 39.00 ft above mean sea level, datum
of 1929. Prior to Oct. 12, 1929, staff gage and Oct. 12, 1929, to Sept. 11, 1951, water-stage
recorder at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 50,000 cfs and by slope-
area measurement at 206,000 cfs.

Historical data.--Maximum stage known, 27.1 ft Mar. 17, 1929, from Weather Bureau records and
floodmarks. Flood of Apr. 24, 1928, reached a stage of 21.6 ft, from Weather Bureau records.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	Apr. 24	21.6	129,000	1941	Dec. 29	10.45	13,700
1929	Mar. 17	27.1	206,000	1942	Jan. 5	11.86	21,400
1930	Nov. 19	13.17	31,700	1943	Jan. 24	13.42	33,800
				1944	Mar. 28	13.60	35,800
1931	Jan. 21	9.78	9,780	1945	Dec. 29	12.22	23,300
1932	Jan. 16	12.19	23,400				
1933	Mar. 24	13.58	35,800	1946	Mar. 31	14.03	39,800
1934	Mar. 8	12.28	24,000	1947	Mar. 10	14.46	44,800
1935	Mar. 12	10.17	12,600	1948	Mar. 10	14.47	44,800
				1949	Jan. 9	12.46	25,300
1936	Jan. 24	14.16	41,800	1950	Sept. 3	12.44	25,100
1937	Sept. 4	15.55	56,600				
1938	Mar. 22	13.03	30,100	1951	Apr. 2	11.14	16,500
1939	Aug. 18	14.84	45,800	1952	Feb. 19, 20	11.52	17,900
1940	Feb. 21, 22	12.90	29,200	1953	Dec. 9	15.50	54,800

Choctawhatchee River Basin

(133) Choctawhatchee River near Bruce, Fla.

Location.--Lat 30°27'03", long 85°53'54", in sec. 36, T. 1 N., R. 17 W., on downstream fender
pile at center swing pier of bridge on State Highway 20, about 4 miles southeast of Bruce,
and 5.8 miles downstream from Holmes Creek.

Drainage area.--4,384 sq mi.

Records available.--U. S. Geological Survey: October 1930 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 3.94 ft above mean sea level, datum of 1929.
Prior to Apr. 6, 1934, staff gage at site 1 mile downstream at datum 0.25 ft lower.

Stage-discharge relation.--Defined by current-meter measurements below 66,000 cfs and extended
above on basis of records for station at Caryville.

Historical data.--Maximum stage known about 25.0 ft, from floodmarks at former site and datum,
in March 1929.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	25.0	220,000	1942	Jan. 5	12.45	35,200
1930	Nov. 22	12.25	39,100	1943	Jan. 26	12.13	33,000
				1944	Mar. 30	12.90	39,200
1931	Jan. 24	7.80	12,100	1945	Dec. 31	10.81	24,500
1932	Jan. 19	10.30	25,100				
1933	Apr. 18	12.40	40,700	1946	Aug. 10	13.88	47,200
1934	Mar. 11	10.58	27,200	1947	Mar. 12	14.79	54,400
1935	Mar. 16	8.23	13,600	1948	Apr. 4	15.22	57,600
				1949	May 6	10.97	25,800
1936	Jan. 10	13.96	49,500	1950	Sept. 5	12.15	33,400
1937	Sept. 6	16.04	64,000				
1938	Mar. 24	11.78	30,900	1951	Apr. 5	8.93	15,900
1939	Aug. 19	16.68	69,600	1952	Feb. 22	10.16	21,300
1940	Feb. 23	12.07	33,000	1953	Dec. 12	13.82	46,600
1941	Mar. 27	7.78	12,400				

Yellow River Basin

(134) Lightwood Knot Creek at Babbie, Ala.

Location.--Lat 31°16', long 86°19', in SW¼ sec. 36, T. 4 N., R. 17 E., on downstream side of
right pier on U. S. Highway 84, 1 mile east of Babbie, 1¼ miles downstream from Poley Creek,
2 miles upstream from mouth, and 3½ miles west of Opp.

Drainage area.--113 sq mi.

Records available.--U. S. Geological Survey: February 1944 to April 1953, daily gage heights
and discharges. Prior to October 1947, published as "Poley Creek".

Gage.--Water-stage recorder. Prior to Dec. 30, 1947, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 9,000 cfs.

Yellow River Basin

(134) Lightwood Knot Creek at Babbie, Ala.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1944	Sept. 11	11.9	12,100	1949	Jan. 6	7.5	3,260
1945	Dec. 25	7.8	3,500	1950	Apr. 5	6.8	2,000
1946	May 20	8.6	5,100	1951	Apr. 20	7.1	1,660
1947	Apr. 16	7.5	3,260	1952	Mar. 24	7.4	2,100
1948	Apr. 1	7.6	3,440	1953	May 6	9.4	6,700

(135) Yellow River at Milligan, Fla.

Location.--Lat 30°45'10", long 86°37'45", in sec. 15, T. 3 N., R. 24 W., on right bank 10 ft downstream from bridge on U. S. Highway 90, half a mile east of Milligan, half a mile upstream from Trammel Creek, and 6¾ miles upstream from Shoal River.

Drainage area.--624 sq mi.

Records available.--U. S. Geological Survey: July 1938 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 51.55 ft above mean sea level, datum of 1929. Prior to Dec. 6, 1939, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs. Slight shifting at all stages.

Historical data.--Floods of 1928 and 1929 reached stages of 20.2 ft and 26.2 ft, respectively, from information by local residents.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1928	—	20.2	—	1946	Mar. 30	11.13	11,300
1929	Mar. —	26.2	—	1947	Mar. 10	11.20	11,800
				1948	Mar. 9	11.23	11,800
1939	Aug. 19	12.44	14,700	1949	May 3	9.12	5,260
1940	July 8	12.00	13,500	1950	Sept. 2	9.67	7,000
1941	Mar. 23, 24	7.47	2,430	1951	Mar. 22	8.03	2,930
1942	June 26	9.10	4,800	1952	Mar. 28	8.85	4,490
1943	Jan. 22	10.80	9,420	1953	Dec. 6	15.13	28,000
1944	Sept. 13	13.29	21,200				
1945	Apr. 30	8.84	4,140				

Yellow River Basin

(136) Shoal River near Crestview, Fla.

Location.--Lat 30°41'50", long 86°34'15", in sec. 5, T. 2 N., R. 23 W., on right bank on down-
stream side of bridge on State Highway 85, 3½ miles downstream from Titi Creek, 4¼ miles
south of Crestview, and 7 miles upstream from mouth.

Drainage area.--474 sq mi.

Records available.--U. S. Geological Survey: July 1938 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 47.21 ft above mean sea level, datum of 1929.
Prior to Feb. 12, 1939, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements. Slight shifting at medium and
low stages.

Historical data.--Flood of March 1929 reached a stage of about 17 ft, from floodmarks.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	about 17	-	1946	Mar. 29	9.23	8,030
				1947	Mar. 9	12.57	17,100
1939	Aug. 18	11.18	13,400	1948	Apr. 3	9.54	8,870
1940	July 7	14.26	21,700	1949	Apr. 14	7.68	4,650
				1950	Sept. 2	10.38	11,200
1941	July 7	7.26	3,700				
1942	Jan. 3	8.33	5,960	1951	Mar. 20	7.56	4,380
1943	Mar. 8	7.15	3,520	1952	Feb. 16, 17	6.96	3,120
1944	Sept. 12	11.05	13,000	1953	Sept. 28	13.93	20,000
1945	Jan. 8	7.67	4,560				

(137) Yellow River near Holt, Fla.

Location.--Lat 30°40'25", long 86°44'50", in sec. 16, T. 2 N., R. 25 W., at county highway
bridge 2½ miles south of Holt.

Drainage area.--1,220 sq mi, approximately.

Records available.--U. S. Geological Survey: October 1933 to September 1941, daily gage heights
and discharges.

Gage.--Staff gage read once daily. Datum of gage is 17.95 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs. Considerable
shifting at all stages.

Historical data.--Flood of March 1929 reached a stage of 25.4 ft, from information by local
residents.

Yellow River Basin

(137) Yellow River near Holt, Fla.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	25.4	-	1937	Apr. 9	11.02	16,300
				1938	Mar. 21	8.50	7,900
1934	Oct. 9	12.80	25,000	1939	Aug. 19	13.90	27,800
1935	Mar. 13	7.20	4,850	1940	July 9	15.62	35,100
1936	Jan. 22	11.48	16,600	1941	July 8	7.76	6,030

Blackwater River Basin

(138) Coldwater Creek near Milton, Fla.

Location.--Lat 30°42'30", long 86°58'20", in sec. 5, T. 2 N., R. 27 W., on right bank at down-
stream side of bridge on State Highway 191, 2¾ miles upstream from mouth and 6½ miles
northeast of Milton.

Drainage area.--237 sq mi.

Records available.--U. S. Geological Survey: November 1938 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 9.10 ft above mean sea level, datum of 1929.
Prior to Dec. 2, 1938, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	Aug. 17	17.33	23,100	1947	Mar. 8	11.90	10,400
1940	July 6	10.64	7,810	1948	Mar. 7	9.59	6,260
				1949	Apr. 30	6.86	3,000
1941	Mar. 21	5.55	1,790	1950	Sept. 1	8.32	4,640
1942	Sept. 27	7.49	3,740				
1943	Jan. 20	8.33	4,620	1951	Mar. 20	8.71	5,100
1944	Sept. 11	13.61	13,800	1952	Mar. 25	6.52	2,610
1945	Dec. 26	10.23	7,120	1953	Dec. 7	8.85	4,490
1946	July 31	9.64	6,260				

Escambia River Basin

(139) Conecuh River near Andalusia, Ala.

Location.--Lat 31°16', long 86°36', in NE¼ sec. 1, T. 3 N., R. 14 E., on left bank on downstream
side of Simmons Bridge on State Highway 83, 7½ miles southwest of Andalusia, and 10½ miles
downstream from Patsaliga Creek.

Drainage area.--1,343 sq mi.

Records available.--U. S. Geological Survey: August 1904 to December 1919, September 1929 to
December 1953, daily gage heights and discharges. Records published as "at Beck" 1904-19.

Gage.--Water-stage recorder. Datum of gage is 106.77 ft above mean sea level, datum of 1929,
supplementary adjustment of 1943 (levels by Corps of Engineers). Aug. 21, 1904, to Dec. 31,
1919, chain gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 37,000 cfs and by slope-
area determination at 154,000 cfs.

Remarks.--Annual floods listed for 1905-19 are mean daily discharges; peak discharges undeter-
mined but probably did not exceed the figures shown by more than 10 percent.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1905	Feb. 18	24.1	11,400	1934	Mar. 9	24.1	11,300
				1935	Mar. 11	27.2	13,900
1906	Oct. 4	17.6	7,900				
1907	Dec. 31	25.1	12,000	1936	Jan. 20	34.2	24,800
1908	Mar. 28	31.9	19,000	1937	Apr. 9	35.8	28,400
1909	June 7	25.3	12,200	1938	Mar. 17	37.3	30,900
1910	Apr. 22	16.0	7,100	1939	Aug. 20	38.4	35,900
				1940	Feb. 18	25.2	11,400
1911	Apr. 13	14.2	6,100				
1912	Apr. 22	31.6	18,500	1941	Dec. 30	20.6	8,600
1913	Mar. 19	39.2	42,000	1942	Jan. 2	21.8	9,290
1914	Feb. 10	7.7	2,900	1943	Mar. 24	37.4	32,000
1915	Jan. 25	15.5	6,800	1944	Mar. 25	36.3	29,800
				1945	Apr. 29	20.5	8,550
1916	July 8	29.9	16,000				
1917	Oct. 3	29.1	15,000	1946	May 22	30.7	17,200
1918	Dec. 26	34.5	24,600	1947	Apr. 6	29.4	15,300
1919	Feb. 25	31.5	18,400	1948	Nov. 30	37.5	35,400
				1949	May 5	22.2	9,750
1929	Mar. 15	47.6	154,000	1950	Apr. 9	23.6	10,300
1930	Nov. 20	26.1	12,900				
				1951	Apr. 21	17.8	7,300
1931	Apr. 6	17.7	6,800	1952	Mar. 29	30.7	16,900
1932	Feb. 24	15.9	5,920	1953	Dec. 8	31.9	19,000
1933	Mar. 24	29.6	16,800				

Escambia River Basin

(140) Sepulga River near McKenzie, Ala.

Location.--Lat 31°27', long 86°47', in SE¼ sec. 30, T. 6 N., R. 13 E., on left bank at downstream side of Watt Bridge on U. S. Highway 31, three-eights of a mile upstream from Old Town Creek, 2½ miles upstream from Piney Woods Creek, 5½ miles downstream from Persimmon Creek, and 7 miles southwest of McKenzie.

Drainage area.--464 sq mi.

Records available.--U. S. Geological Survey: October 1937 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 155.96 ft above mean sea level, unadjusted (levels by Corps of Engineers). Prior to Mar. 25, 1939, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 25,000 cfs.

Historical data.--The flood of March 1929 reached a stage of about 33 ft, from information by local residents.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	33	-	1946	Jan. 8	21.9	19,400
				1947	Apr. 4	16.5	9,470
1938	Mar. 17	24.5	28,100	1948	Nov. 28	23.6	21,200
1939	Aug. 18	19.5	13,400	1949	May 4	11.9	6,120
1940	Feb. 20	16.0	9,000	1950	July 30	7.7	2,950
1941	Dec. 26	13.5	7,100	1951	Apr. 21	12.9	6,920
1942	Mar. 24	11.4	5,750	1952	Mar. 25	11.6	5,880
1943	Mar. 23	21.8	19,100	1953	Dec. 8	14.1	7,940
1944	Mar. 31	22.3	20,600				
1945	Dec. 27	8.2	3,290				

(141) Pigeon Creek near Thad, Ala.

Location.--Lat 31°29', long 86°39', in N½ sec. 21, T. 6 N., R. 14 E., on left bank near downstream side of bridge on U. S. Highway 84, 1½ miles upstream from Louisville and Nashville Railroad bridge, 2 miles southeast of Thad, 3 miles upstream from Reedy Creek, and 5½ miles southeast of McKenzie.

Drainage area.--296 sq mi.

Records available.--U. S. Geological Survey: October 1937 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 172.58 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Oct. 24, 1938, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs.

Historical data.--The flood of March 1929 reached a stage of about 30 ft, from information by local residents.

Escambia River Basin

(141) Pigeon Creek near Thad, Ala.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	30	-	1946	Jan. 8	25.1	12,600
				1947	Apr. 5	18.5	4,220
1938	Mar. 18	26.1	14,400	1948	Nov. 29	27.1	17,100
1939	Aug. 17, 18	25.3	12,600	1949	July 19	16.5	3,270
1940	Feb. 18	17.6	3,740	1950	July 29	10.1	1,110
1941	Dec. 27	20.6	5,730	1951	Apr. 20	14.9	2,520
1942	Mar. 25	15.9	2,820	1952	Mar. 25	16.6	3,320
1943	Mar. 23	25.2	13,400	1953	Dec. 7	20.6	5,860
1944	Apr. 28	25.0	12,800				
1945	Dec. 30	13.1	1,710				

(142) Conecuh River near Brooklyn, Ala.

Location.--Lat 31°10', long 86°48', in W½ sec. 6, T. 2 N., R. 13 E., on downstream side of right
pier of bridge on U. S. Highway 29, 3 miles downstream from Sepulga River and 7 miles
southwest of Brooklyn.

Drainage area.--2,460 sq mi.

Records available.--U. S. Geological Survey: May 1935 to December 1953, daily gage heights and
discharges.

Gage.--Water-stage recorder. Datum of gage is 76.95 ft above mean sea level, datum of 1929,
supplementary adjustment of 1943. Prior to Sept. 5, 1937, wire-weight gage at same site and
datum.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--The flood of March 1929 reached a stage of about 47 ft, from information by
Alabama State Highway Department.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	47	-	1945	Apr. 30	21.8	14,300
1936	Jan. 22	34.4	39,000	1946	May 25	31.4	29,900
1937	Apr. 9	36.6	50,100	1947	Apr. 7	30.1	27,000
1938	Mar. 20	38.0	60,700	1948	Dec. 1	38.6	67,300
1939	Aug. 21	37.8	59,100	1949	May 5	23.4	16,400
1940	Feb. 22	28.0	21,300	1950	Apr. 10	18.8	10,800
1941	Dec. 29	23.3	14,400	1951	Apr. 23	23.7	16,800
1942	Jan. 4	23.3	14,400	1952	Mar. 29	27.2	21,900
1943	Mar. 25	37.8	59,100	1953	Dec. 10	30.7	28,300
1944	Mar. 27	37.1	53,300				

Escambia River Basin

(143) Murder Creek near Evergreen, Ala.

Location.--Lat 31°25', long 87°00', in NW¼ sec. 8, T. 5 N., R. 11 E., on left bank near upstream
side of bridge on U. S. Highway 31, 1 mile upstream from Louisville and Nashville Railroad
bridge and 2½ miles southwest of Evergreen.

Drainage area.--170 sq mi.

Records available.--U. S. Geological Survey: October 1937 to December 1953, daily gage heights
and discharges.

Gage.--Water-stage recorder. Datum of gage is 178.29 ft above mean sea level, datum of 1929,
supplementary adjustment of 1943 (levels by Corps of Engineers). Prior to Mar. 25, 1939,
wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended
above on basis of records for Sepulga River near McKenzie.

Historical data.--The flood of March 1929 reached a stage of 26.6 ft, from information by local
residents.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	26.6	-	1946	Jan. 7	12.6	6,900
				1947	Apr. 2	11.0	3,180
1938	Mar. 16	16.6	20,000	1948	Nov. 27	13.5	10,000
1939	Mar. 30	12.3	5,610	1949	May 2	-	ᵃ3,500
1940	Dec. 17	11.0	3,010	1950	Apr. 5	8.9	1,190
1941	Dec. 24	11.5	3,900	1951	Mar. 29	10.0	2,220
1942	Apr. 10	10.2	1,870	1952	Mar. 24	10.2	2,400
1943	Nov. 8	12.8	6,800	1953	Dec. 4	10.9	2,840
1944	Mar. 29	12.6	6,660				
1945	Apr. 29	10.3	2,090				

ᵃNo gage-height record; peak discharge estimated on basis of records for Escambia River at
Flomaton and Sepulga River near McKenzie.

(144) Escambia Creek at Flomaton, Ala.

Location.--Lat 31°01', long 87°15', in NE¼ sec. 33, T. 1 N., R. 8 E., on downstream side of left
pier of bridge on U. S. Highway 31 at north edge of Flomaton, 1¼ miles upstream from Louis-
ville and Nashville Railroad bridge, 1½ miles upstream from Alabama-Florida State line, and
4 miles upstream from mouth.

Drainage area.--323 sq mi.

Records available.--U. S. Geological Survey: January 1939 to December 1951, daily gage heights
and discharges. 1952, 1953, annual flood peaks. Prior to October 1949 published as
"Escambia River".

Gage.--Water-stage recorder. Datum of gage is 52.40 ft above mean sea level, datum of 1929.
Prior to June 1, 1942, at site 400 ft upstream at same datum. Since January 1952, crest-stage
gage..

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and by slope-
area determination at 41,400 cfs.

Historical data.--The flood of March 1929 reached a stage of 25.9 ft, from information furnished
by Alabama State Highway Department. Flood of Mar. 17, 1938, reached a stage of 18.0 ft,
from floodmarks.

Escambia River Basin

(144) Escambia Creek at Flomaton, Ala.--Continued

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	25.9	-	1946	Mar. 29	10.6	7,060
				1947	Mar. 8	11.1	7,880
1938	Mar. 17	18.0	33,000	1948	Nov. 28	14.5	15,400
1939	Sept. 27	19.3	41,400	1949	May 2	10.6	6,810
1940	May 1	10.4	6,250	1950	Apr. 5	8.9	4,570
1941	Dec. 24	8.0	3,800	1951	Mar. 19	10.3	6,330
1942	Jan. 2	11.9	8,250	1952	Mar. 24	9.0	4,670
1943	Nov. 9	10.8	7,430	1953	Dec. 6	11.8	8,870
1944	Mar. 23	12.2	9,990				
1945	Apr. 29	9.6	5,850				

(145) Escambia River near Century, Fla.

Location.--Lat 30°57'25", long 87°14'00", in sec. 10, T. 5 N., R. 30 W., on left bank 16 ft downstream from bridge on State Highway 4, 1.2 miles downstream from Escambia Creek, and 1¾ miles east of Century.

Drainage area.--3,817 sq mi.

Records available.--U. S. Geological Survey: October 1934 to December 1953, daily gage heights and discharges.

Gage.--Water-stage recorder. Datum of gage is 28.34 ft above mean sea level (State Road Department benchmark). Prior to Jan. 13, 1940, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 72,000 cfs.

Historical data.--Maximum stage known, 37.8 ft in March 1929, from information by local residents (affected by failure of a dam upstream).

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. -	37.8	315,000	1944	Mar. 30	20.00	64,400
				1945	May 1	16.57	22,700
1935	Mar. 9	17.72	33,300				
				1946	Mar. 29	17.69	33,900
1936	Jan. 3	19.40	57,100	1947	Apr. 17	17.68	33,900
1937	Apr. 11	20.05	64,400	1948	Dec. 2	20.43	70,200
1938	Mar. 22	20.66	73,900	1949	May 3	17.13	27,700
1939	Aug. 22	20.10	69,800	1950	Apr. 6	15.38	17,400
1940	July 11	17.56	32,700				
				1951	Apr. 24	16.49	23,100
1941	Mar. 10	13.11	11,000	1952	Mar. 26	17.25	28,800
1942	Jan. 3	17.41	30,300	1953	Dec. 7	18.59	45,300
1943	Mar. 26, 27	20.57	72,600				

Perdido River Basin

(146) Perdido River at Barrineau Park, Fla.

Location.--Lat 30°41'25", long 87°26'25", in sec. 15, T. 2 N., R. 32 W., on right bank 25 ft
   downstream from highway bridge, 1,000 ft downstream from Alligator Creek, and half a mile
   southwest of Barrineau Park.

Drainage area.--394 sq mi.

Records available.--U. S. Geological Survey: June 1941 to December 1953, daily gage heights
   and discharges.

Gage.--Water-stage recorder. Datum of gage is 25.71 ft above mean sea level, datum of 1929.
   Prior to Aug. 22, 1949, staff gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 5,500 cfs. Sight shifting
   at all stages.

Historical data.--Maximum stage known, 25.7 ft Mar. 15, 1929, from information by local
   residents.

Annual peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 15	25.7	-	1947	Mar. 9	15.62	8,740
				1948	Nov. 29	13.5	6,600
1942	Jan. 3	-	a9,200	1949	Mar. 24	14.30	7,390
1943	Jan. 19	12.04	5,260	1950	Apr. 6	14.07	6,800
1944	Mar. 24	16.17	9,390				
1945	Apr. 23	8.16	2,570	1951	Mar. 21	14.45	7,150
				1952	Feb. 17	9.40	3,250
1946	Mar. 29	14.33	7,390	1953	Dec. 6	16.60	11,100

a Result of discharge measurement.