

ABSTRACT
Heavy rainfall in the late spring and summer of 1979 caused severe flooding in northwestern Hillsborough County, including north Tampa. Rainfall amounts of 10 to 15 inches were measured at many rain-gaging stations on May 7-9, cumulative rainfall for August and September averaged 30 to 35 inches. The May 7-9 maximum rainfall for some stations had a recurrence interval of about 100 years, and the August and September rainfall total had a recurrence interval of about 20 years. Maximum stages of flooding of streams and lakes in the study area for the May 7-9 event ranged from less than 4 to 20 feet. Flooding of 10 to 20 years and lakes during August to October had recurrence intervals ranging from about 1 to 30 years.

INTRODUCTION
Hillsborough County in west-central Florida (fig. 1) is one of the fastest growing population centers in the country. Although spreading into northern and northeastern parts of the county at approximately the same rate, the area has been rapidly becoming residential developments and shopping centers. The area is flat and has numerous lakes, canals, and drainage structures. The area has several streams (fig. 1), but most drainages by interconnected lakes, swamps, and wetlands. The high ground between the western and eastern portions of the county is a narrow strip of land.

Long-term records for selected streamflow and lake-stage stations indicate that flooding occurred in 1947, 1953, 1959, and 1979. Streamflow at station 10 to 15 inches were measured at many rain-gaging stations on May 7-9, cumulative rainfall for August and September averaged 30 to 35 inches. The May 7-9 maximum rainfall for some stations had a recurrence interval of about 100 years, and the August and September rainfall total had a recurrence interval of about 20 years. Maximum stages of flooding of streams and lakes in the study area for the May 7-9 event ranged from less than 4 to 20 feet. Flooding of 10 to 20 years and lakes during August to October had recurrence intervals ranging from about 1 to 30 years.



Figure 1.—Location of the study area, surface drainage systems, lake-stage and stream-gaging stations, and boundaries of flood maps sheets 218 through 231.

GENERAL FLOOD PROFILES
A general flood profile along upper Sweetwater Creek for September 24-28, 1979 is shown in figure 15. The profile covers the stream reach from Lake Lipsey upstream to Chapman Lake and is based on data from table 4. The maximum stage of 1979 feet for Lake Magdalena had a recurrence interval of about 15 years (table 4). The maximum stage of 46.74 feet for the period of this study occurred on September 28 for Bay Lake and had a recurrence interval of about 20 years (table 4). The maximum stage of 43.00 feet for Lake Ellen had a recurrence interval of about 11 years (table 4). A general flood profile for upper Thirteenthville Run (Cypress Creek basin) for September 24-28, 1979 is shown in figure 16. The profile covers the reach of this stream from Lake Lipsey to Chapman Lake. The maximum stage of 1979 feet for Lake Lipsey had a recurrence interval of about 15 years (table 4). The maximum stage of 46.74 feet for the period of this study occurred on September 28 for Bay Lake and had a recurrence interval of about 20 years (table 4). The maximum stage of 43.00 feet for Lake Ellen had a recurrence interval of about 11 years (table 4).

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Figure 2.—Major existing and planned developments.

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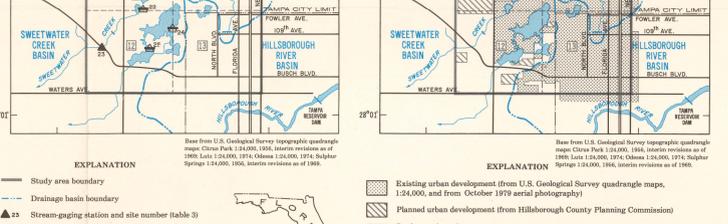
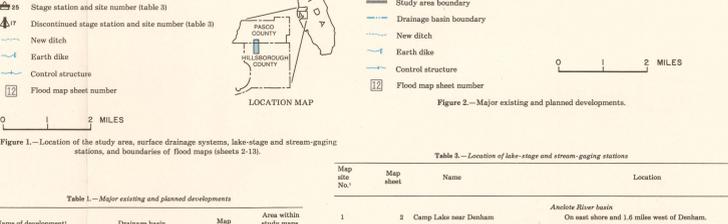


Figure 3.—Location of rainfall and stream-gaging stations in and adjacent to the study area.

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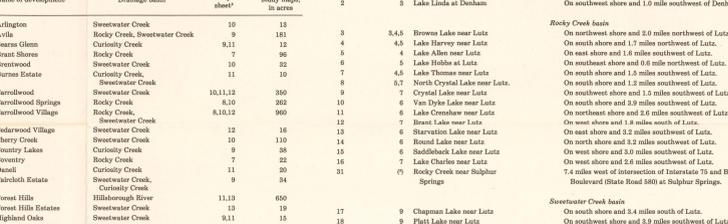


Figure 5.—Generalized flood profile for Thirteenthville Run, September 27-30, 1979.

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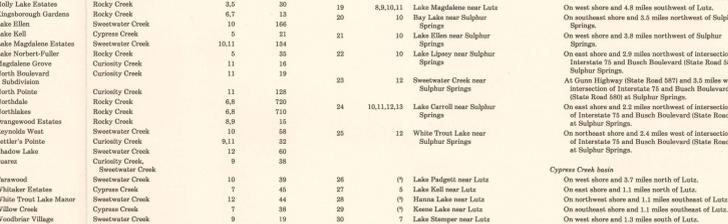


Figure 6.—Generalized flood profile for Sweetwater Creek, September 24-28, 1979.

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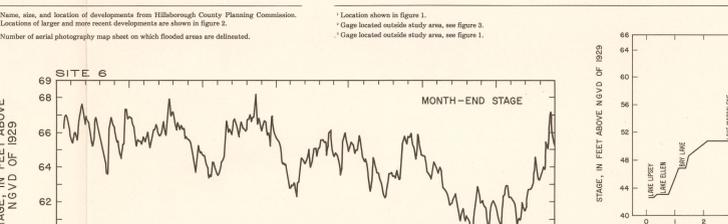


Figure 7.—Discharge hydrograph for Rocky Creek near Sulphur Springs.

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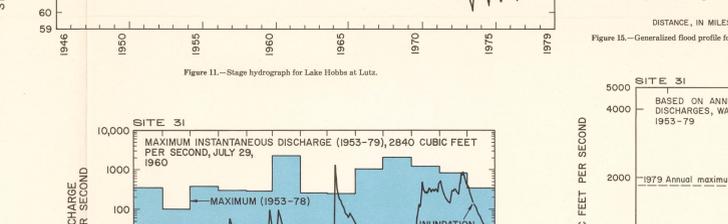


Figure 8.—Flood-frequency curve for Rocky Creek near Sulphur Springs.

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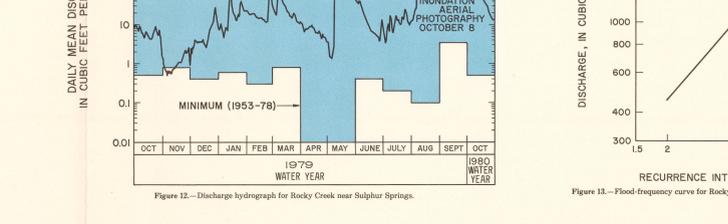


Figure 9.—Flood-frequency curve for Hillsborough River.

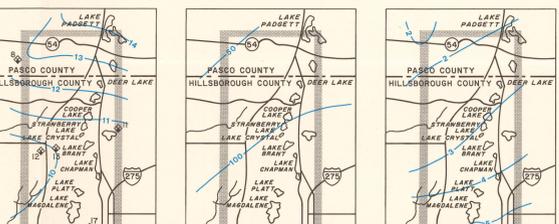


Figure 10.—Stage hydrograph for Lake Carroll near Sulphur Springs.

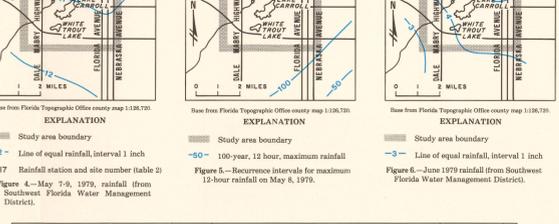


Figure 11.—Stage hydrograph for Hanna Lake near Lutz.

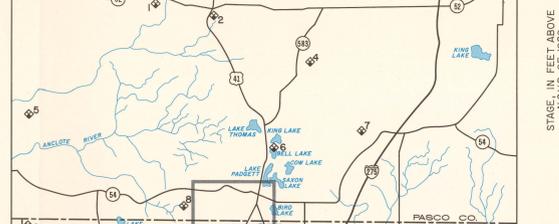


Figure 12.—Stage hydrograph for Kenee Lake near Lutz.



Figure 13.—Stage hydrographs for various lakes in the study area.



Figure 14.—Stage hydrographs for various lakes in the study area.

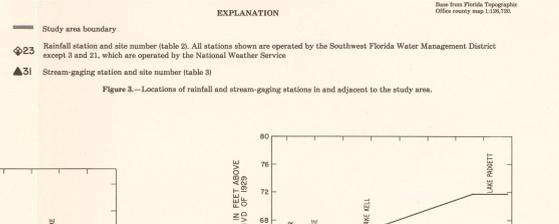


Figure 15.—Stage hydrographs for various lakes in the study area.

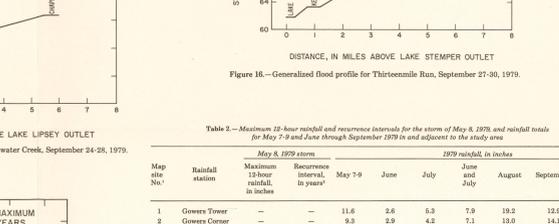


Figure 16.—Stage hydrographs for various lakes in the study area.

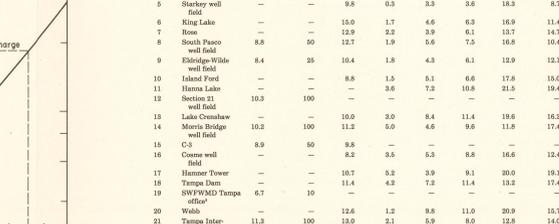


Figure 17.—Stage hydrographs for various lakes in the study area.



Figure 18.—Stage hydrographs for various lakes in the study area.

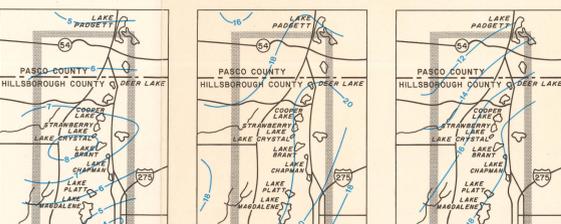


Figure 19.—Stage hydrograph for Lake Carroll near Sulphur Springs.

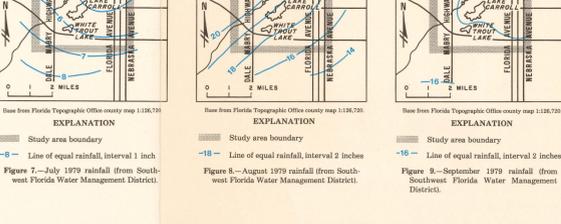


Figure 20.—Stage hydrograph for Hanna Lake near Lutz.

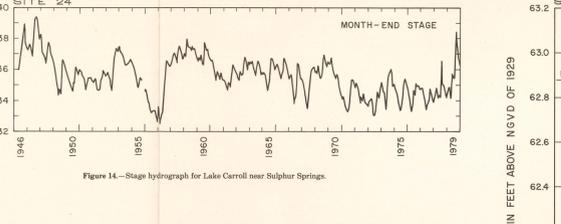


Figure 21.—Stage hydrograph for Kenee Lake near Lutz.

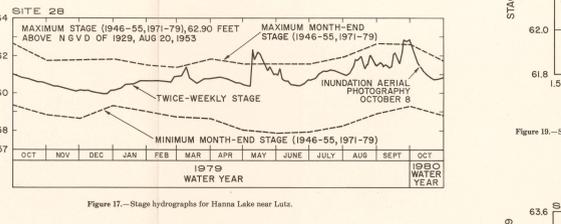


Figure 22.—Stage hydrographs for various lakes in the study area.

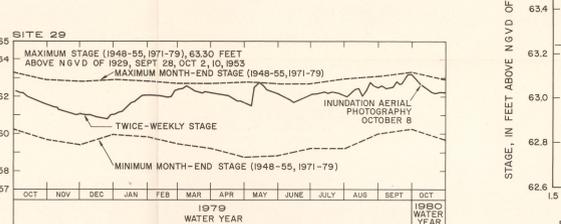


Figure 23.—Stage hydrographs for various lakes in the study area.

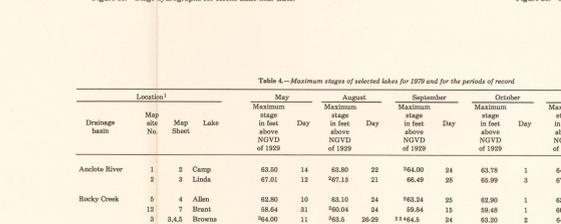


Figure 24.—Stage hydrographs for various lakes in the study area.

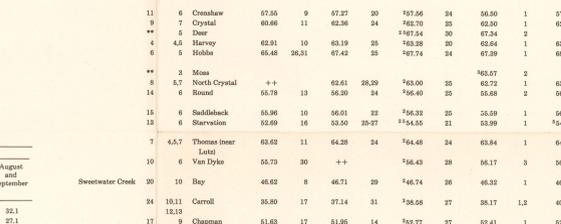


Figure 25.—Stage hydrographs for various lakes in the study area.

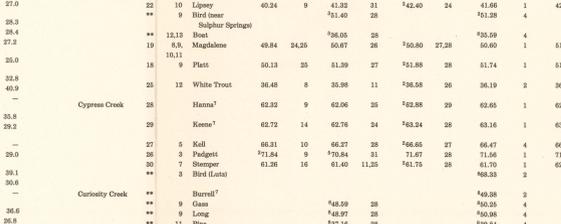


Figure 26.—Stage hydrographs for various lakes in the study area.



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