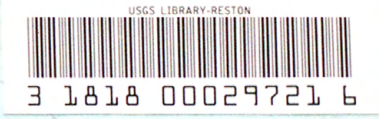


(200)
WRI
no. 74-44



FLOODS IN EAST BATON ROUGE PARISH AND ADJACENT AREAS, LOUISIANA, FOR THE PERIOD 1953-74

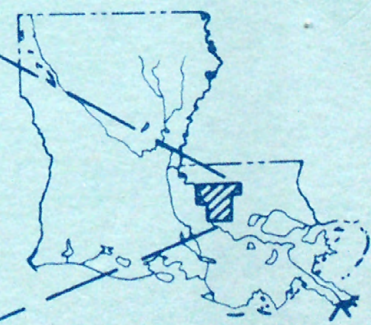
U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 44-74

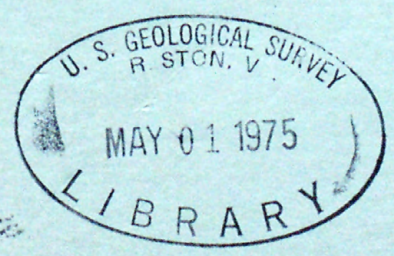
Prepared in cooperation with
East Baton Rouge Parish Department of Public Works
Under the auspices of
Louisiana Department of Public Works

unavailable

	91°15'	91°	90°45'		
30°45'	Port Hudson Plate 1	Zachary Plate 2	Fred Plate 3	Pride Plate 4	Pine Grove Plate 5
	Walls Plate 6	Scotlandville Plate 7	Comite Plate 8	Watson Plate 9	
30°30'		Baton Rouge West Plate 10	Baton Rouge East Plate 11	Denham Springs Plate 12	
	Plaquemine Plate 13	St. Gabriel Plate 14	Prairieville Plate 15		
30°15'					



INDEX MAP OF LOUISIANA



BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No.
4. Title and Subtitle FLOODS IN EAST BATON ROUGE PARISH AND ADJACENT AREAS, LOUISIANA, FOR THE PERIOD 1953-74	5. Report Date March 1975		6.
	7. Author(s) Alfred S. Lowe		8. Performing Organization Rept. No. WRI 44-74
9. Performing Organization Name and Address U.S. Geological Survey P.O. Box 66492 Baton Rouge, Louisiana 70806	10. Project/Task/Work Unit No.		11. Contract/Grant No.
	12. Sponsoring Organization Name and Address U.S. Geological Survey P.O. Box 66492 Baton Rouge, Louisiana 70806		13. Type of Report & Period Covered Final
15. Supplementary Notes Prepared in cooperation with the East Baton Rouge Parish Department of Public Works under the auspices of the Louisiana Department of Public Works		14.	
16. Abstracts Flood damage resulting from development of flood plains in East Baton Rouge Parish, La., has caused considerable economic losses in recent years. The U.S. Geological Survey and other governmental agencies collect and provide flood-inundation information in the form of data reports. This report presents these data by the use of flood-prone maps in an attempt to facilitate the judicious planning of flood plains and to inform the public of potential flood-damage areas. The report pictorially presents, on 7 1/2-minute quadrangle maps, an interpretative delineation of the flood boundaries that existed when the highest elevations occurred between the years 1953 and 1974.			
17. Key Words and Document Analysis. 17a. Descriptors *Floods, *Flood damage, *Flood profiles, *Stage-discharge relations, Flood stages, Louisiana, Flood frequency, Flood plain zoning, Flood recurrence interval, Flood control, Flood discharge, Economics, Planning, Peak discharge.			
17b. Identifiers/Open-Ended Terms *East Baton Rouge Parish (La.), Baton Rouge (La.), Baker (La.), Ward Creek, Comite River, Amite River.			
17c. COSATI Field/Group			
18. Availability Statement No restrictions on distribution		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 17
		20. Security Class (This Page) UNCLASSIFIED	22. Price

FLOODS IN EAST BATON ROUGE PARISH AND ADJACENT AREAS, LOUISIANA, FOR THE PERIOD 1953-74

By Alfred S. Lowe

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 44-74

Prepared in cooperation with

East Baton Rouge Parish Department of Public Works

Under the auspices of

Louisiana Department of Public Works



March 1975

UNITED STATES DEPARTMENT OF THE INTERIOR

Rogers C. B. Morton, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

Open-File Report

For additional information write to:

U.S. Geological Survey
P.O. Box 66492
Baton Rouge, Louisiana 70806

CONTENTS

	Page
Abstract-----	1
Introduction-----	1
Acknowledgments-----	2
Delineation of flood boundaries-----	2
Flood profiles-----	2
Extent of flooding-----	2
Flood frequency-----	2
Definition of selected terms-----	12
Selected references-----	12

ILLUSTRATIONS

[Plates are in pocket]

Plates 1-15. Maps showing floods in East Baton Rouge Parish and adjacent areas for the period 1953-74:

1. Port Hudson quadrangle.
 2. Zachary quadrangle.
 3. Fred quadrangle.
 4. Pride quadrangle.
 5. Northeast quarter of Pine Grove quadrangle.
 6. Walls quadrangle.
 7. Scotlandville quadrangle.
 8. Comite quadrangle.
 9. Watson quadrangle.
 10. Baton Rouge West quadrangle.
 11. Baton Rouge East quadrangle.
 12. Denham Springs quadrangle.
 13. Plaquemine quadrangle.
 14. St. Gabriel quadrangle.
 15. Prairieville quadrangle.
16. Flood profile for Amite River and its tributaries from Port Vincent, La., to Grangeville, La.

Figures 1-6. Graphs showing flood-frequency relation for--

1. Amite River at Magnolia, La., for the period 1949-73-----	3
2. Amite River near Denham Springs, La., for the period 1939-73-----	4
3. Comite River near Olive Branch, La., for the period 1943-73-----	5
4. Comite River near Comite, La., for the period 1944-73-----	6
5. Ward Creek at Government Street, Baton Rouge, La., for the period 1954-73-----	6
6. Ward Creek at Siegen Lane, Baton Rouge, La., for the period 1947-73-----	7

7-12. Stage-frequency curves for--

7. Amite River at Magnolia, La., for varying periods of time-----	8
8. Amite River near Denham Springs, La., for the period 1939-73-----	9
9. Comite River near Olive Branch, La., for varying periods of time-----	10
10. Comite River near Comite, La., for varying periods of time-----	10
11. Ward Creek at Government Street, Baton Rouge, La., for the period 1960-73-----	11
12. Ward Creek at Siegen Lane, Baton Rouge, La., for the period 1954-73-----	11

FLOODS IN EAST BATON ROUGE PARISH AND ADJACENT AREAS, LOUISIANA,
FOR THE PERIOD 1953-74

By Alfred S. Lowe

ABSTRACT

Flood damage resulting from development in flood plains in East Baton Rouge Parish, La., and adjacent areas has caused economic losses, making governmental officials and planners aware of the need for flood maps. Based on information in private and official files, flood maps have been prepared for 7 1/2-minute topographic quadrangles to show the interpretative delineation of the highest flood elevation that occurred between the years 1953 and 1974. The flood boundaries were mapped on the following quadrangles: Port Hudson, Zachary, Fred, Pride, Pine Grove, Walls, Scotlandville, Comite, Watson, Baton Rouge West, Baton Rouge East, Denham Springs, Plaquemine, St. Gabriel, and Prairieville.

INTRODUCTION

The purpose of this report is to present maps of flood-prone areas and hydrologic data of East Baton Rouge Parish, La., and adjacent areas. Although the maps do not establish flood-zone boundaries nor impose limitations on land use, the flood data provide a technical base on which responsible officials can make decisions for developing building and zoning regulations, locating waste-disposal facilities, developing recreational areas, and for evaluating the economic development of flood plains. This map report was prepared by the U.S. Geological Survey in cooperation with the East Baton Rouge Parish Department of Public Works under the auspices of the Louisiana Department of Public Works.

The mapping was done of fifteen 7 1/2-minute quadrangles (pls. 1-15) that include all of East Baton Rouge Parish and, by necessity, small adjacent areas of other parishes. Although some delineations are based on pre-1953 observations, the majority of observations were made during the period 1953-74. The maps present an interpretative delineation of flood boundaries that existed when the highest flood elevations were recorded. Floods that may inundate larger areas are possible, but no attempt has been made to show their probable limits.

ACKNOWLEDGMENTS

Flood-peak data for East Baton Rouge Parish were obtained from the East Baton Rouge Parish Department of Public Works, the Louisiana Department of Public Works, the U.S. Army Corps of Engineers, local newspaper files, and the U.S. Geological Survey.

DELINEATION OF FLOOD BOUNDARIES

Flood Profiles

Profiles (pl. 16) of the water surface of streams in East Baton Rouge Parish were developed from the highest available flood peaks, with some consideration given to streambed profiles. Flood peaks were plotted against stream miles, which are based on a relatively straight base line drawn to conform to the general direction of the valley floodflow. The initial point or mile zero of the composite profile (pl. 16) is on the Amite River at Port Vincent.

Extent of Flooding

The extent of flooding was delineated on the topographic maps by using the flood profiles to define the flood elevations at various points along the channel and locating the elevations on the map by interpolating between contours. The accuracy of the flood boundaries is consistent with the scale and contour interval of the quadrangle. In some areas, ground elevations adjacent to rivers and bayous have been altered, but the new elevations are not yet incorporated on the U.S. Geological Survey quadrangles. Consequently, the flood boundaries shown could be in error, and leveling surveys would be required to determine the extent of flooding or lack of flooding.

At locations where maximum elevations were obtained before extensive dredging and channelization had taken place, elevations may be lower or higher for various frequency floods, and the delineations shown do not reflect these changes. The elevations and dates noted on the quadrangles (pls. 1-15) are for the maximum floods for which data were collected and not necessarily the maximum event that has occurred.

FLOOD FREQUENCY

Frequency of floods at the U.S. Geological Survey gaging stations--Amite River at Magnolia, Amite River near Denham Springs, Comite River near Olive Branch, Comite River near Comite, Ward Creek at Government Street, and Ward Creek at Siegen Lane--was derived from Log-Pearson evaluation of peak discharge. Records of peak elevations and discharges of annual floods are available for the above-mentioned stations. The relation between flood discharge and frequency of occurrence for the six stations is shown in figures 1 through 6.

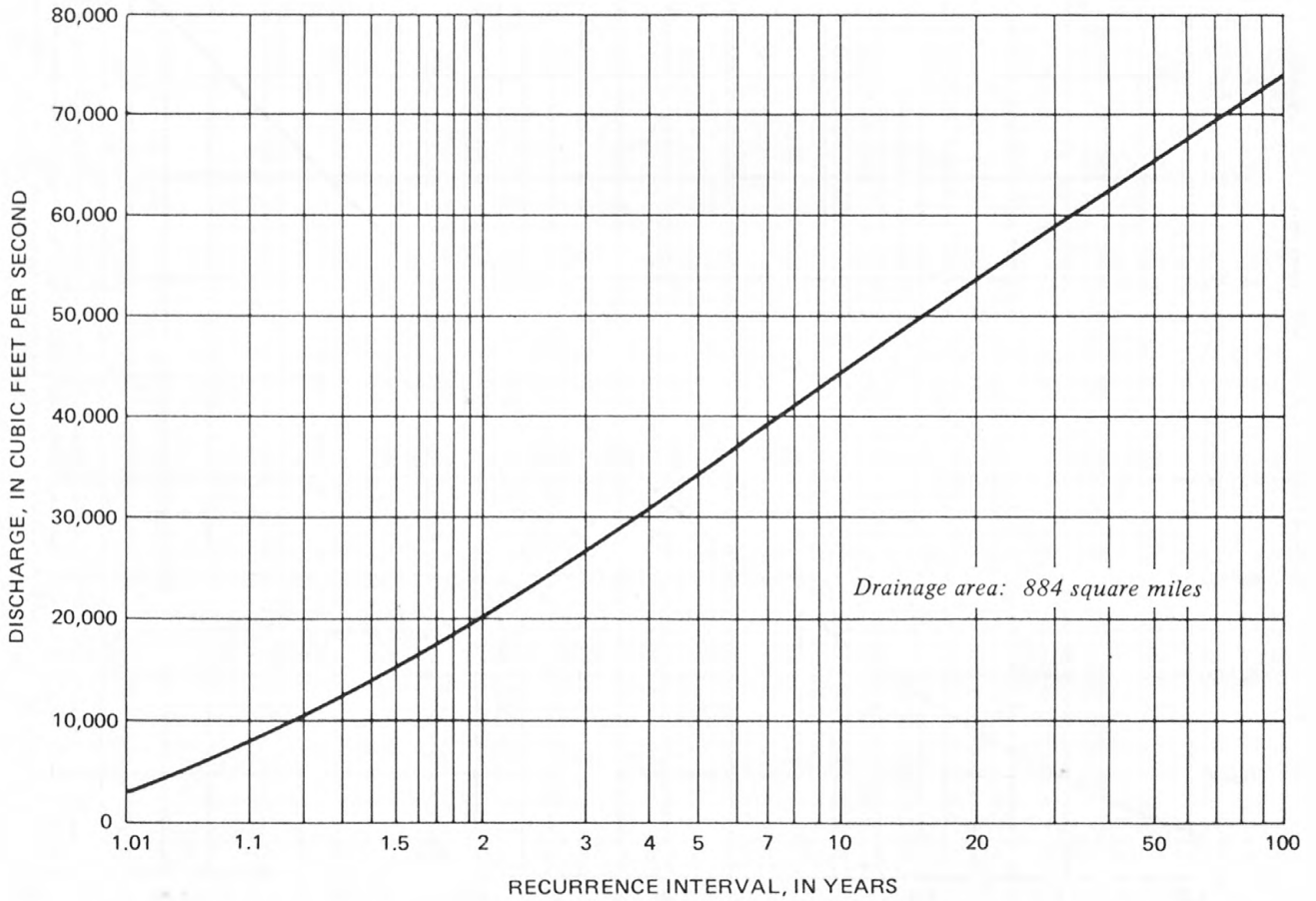


Figure 1. --Flood-frequency relation for Amite River at Magnolia, La., for the period 1949-73.

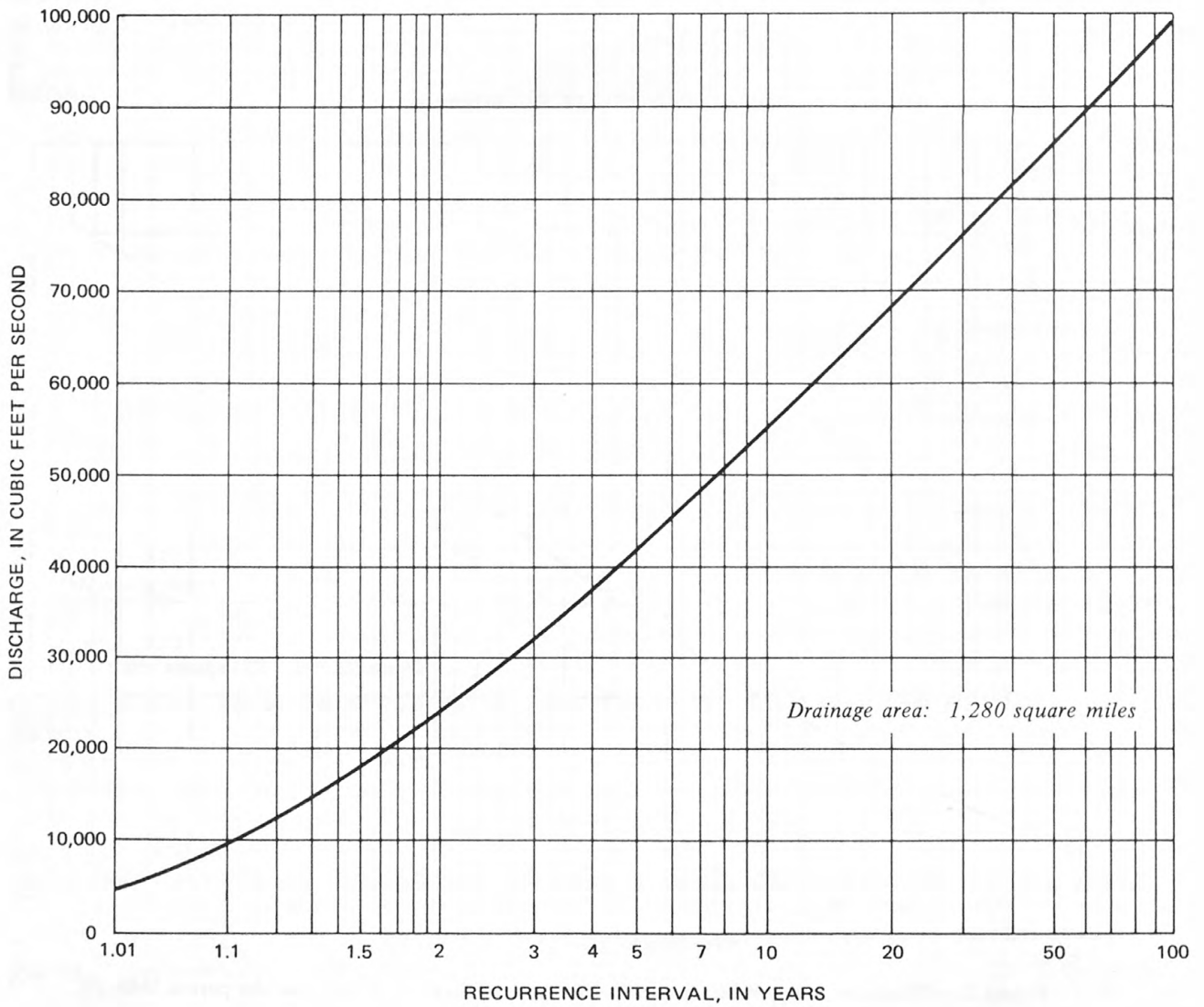


Figure 2. --Flood-frequency relation for Amite River near Denham Springs, La., for the period 1939-73.

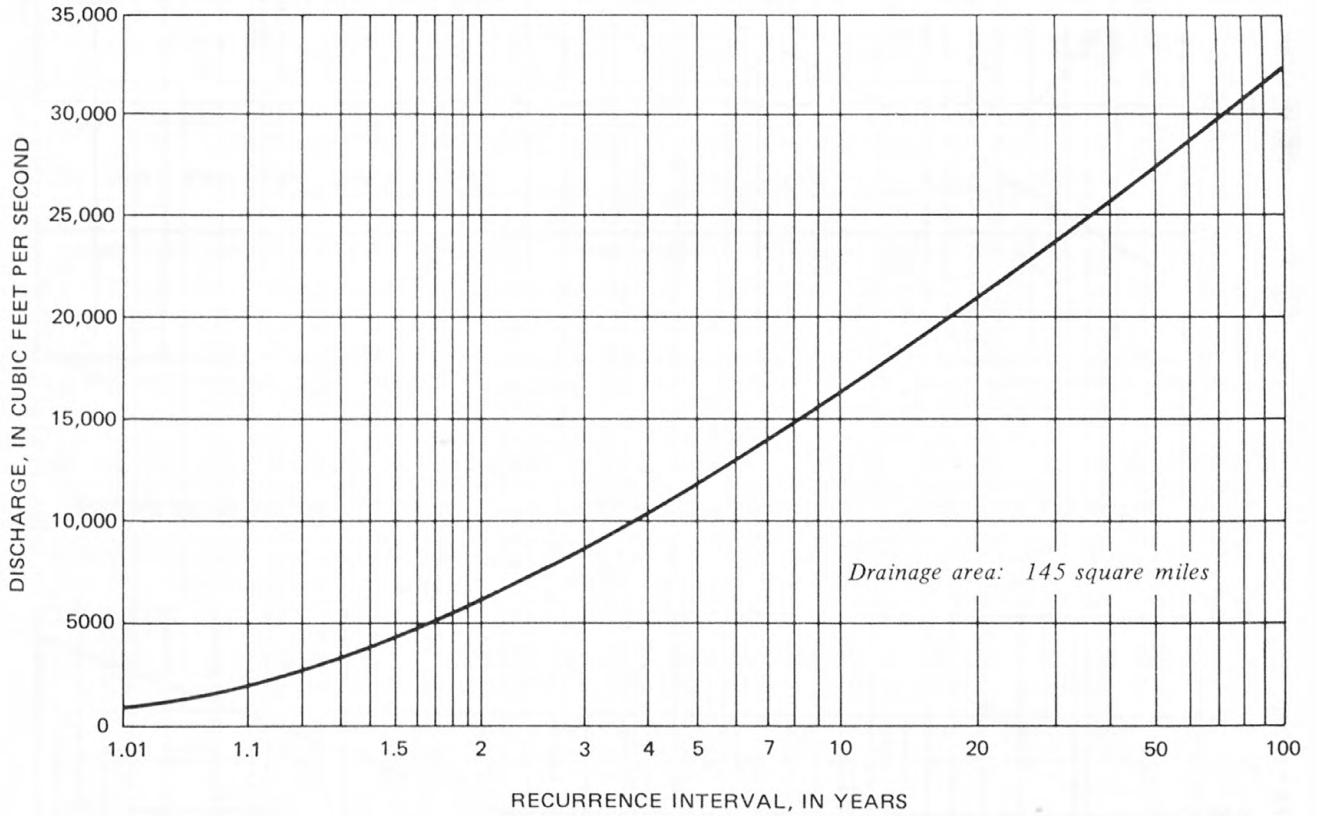


Figure 3. --Flood-frequency relation for Comite River near Olive Branch, La., for the period 1943-73.

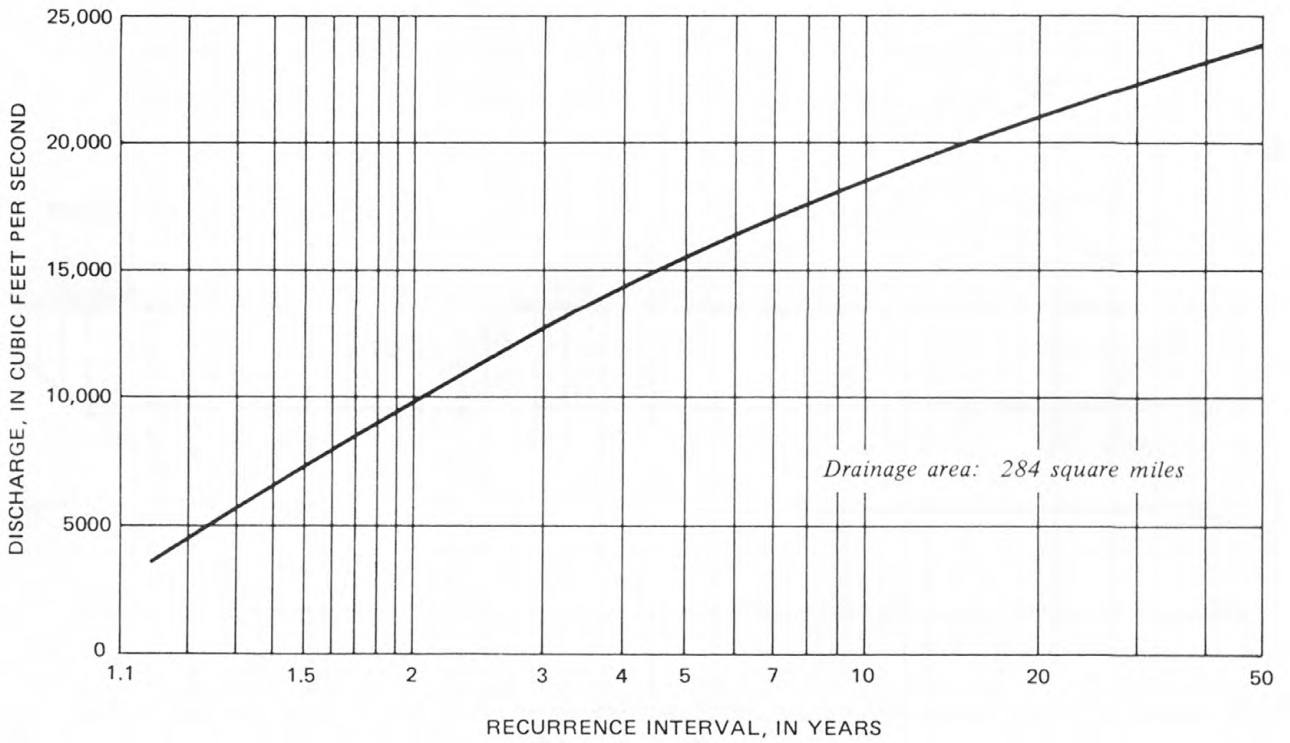


Figure 4. --Flood-frequency relation for Comite River near Comite, La. , for the period 1944-73.

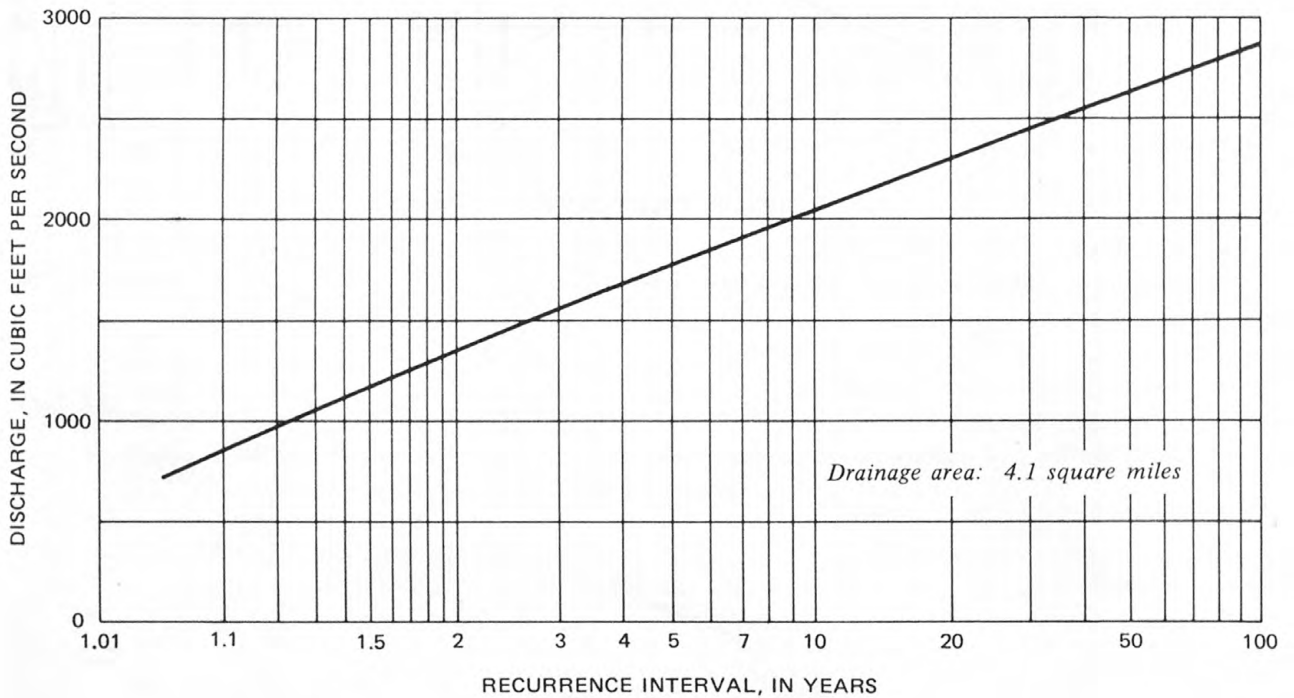


Figure 5. --Flood-frequency relation for Ward Creek at Government Street, Baton Rouge, La. , for the period 1954-73.

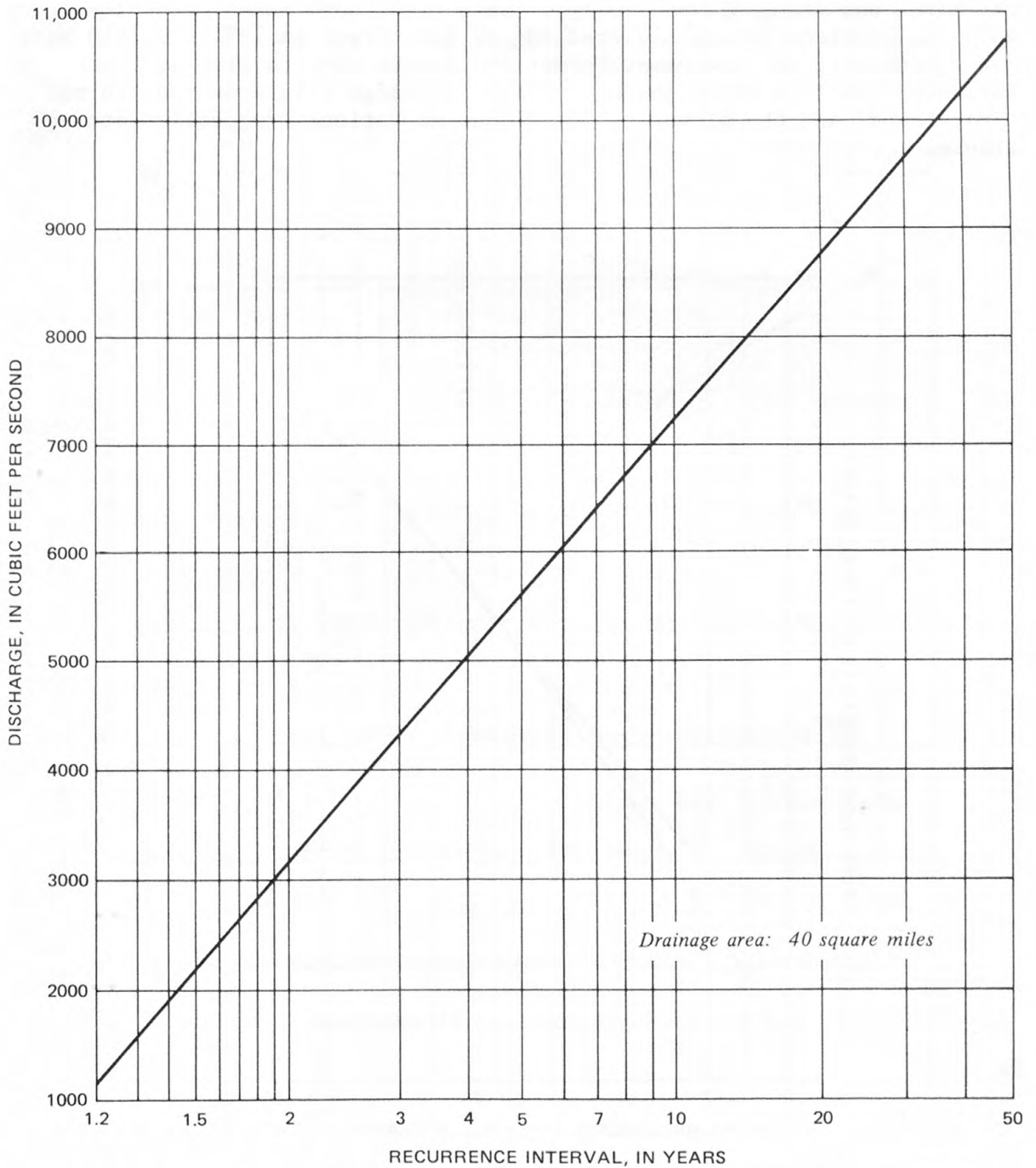


Figure 6. --Flood-frequency relation for Ward Creek at Siegen Lane, Baton Rouge, La. ,
for the period 1947-73.

The relation between frequency and flood elevation is depicted in figures 7 through 12 for the previously mentioned gaging stations. The relation between flood elevation and frequency is affected by changes in physical conditions of stream channels and constrictions. Dredging of the Comite River and dredging and lining of Ward Creek have taken place in recent years. The concrete lining and dredging of Ward Creek in 1954 and 1960 have caused floodwaters at Government Street and Siegen Lane to flow at lower elevations. Prior to these changes, stage-discharge relationships had not been developed, and the elevations of floods at various frequencies are not available.

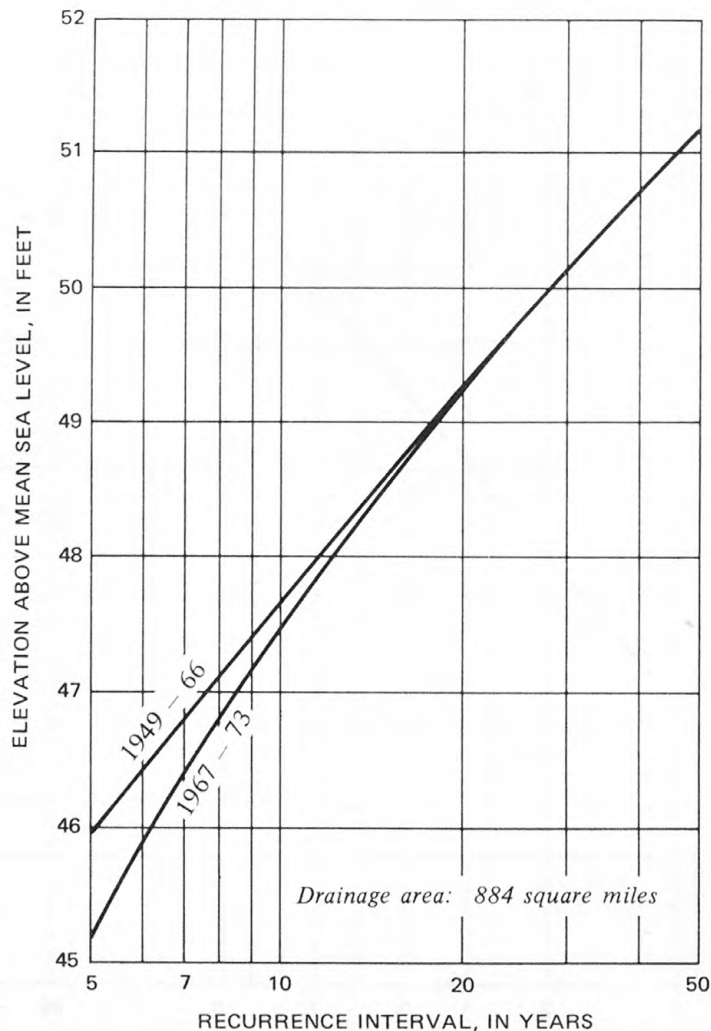


Figure 7. --Stage-frequency curves for Amite River at Magnolia, La., for varying periods of time.

Dredging of the Comite River in 1962 caused a pronounced reduction of the elevations of floods for a period of about 1 year. (See fig. 10.) Since that time, the channel has to some extent stabilized, and the curve for the period 1963-73 in figure 10 depicts the present elevations of the floods.

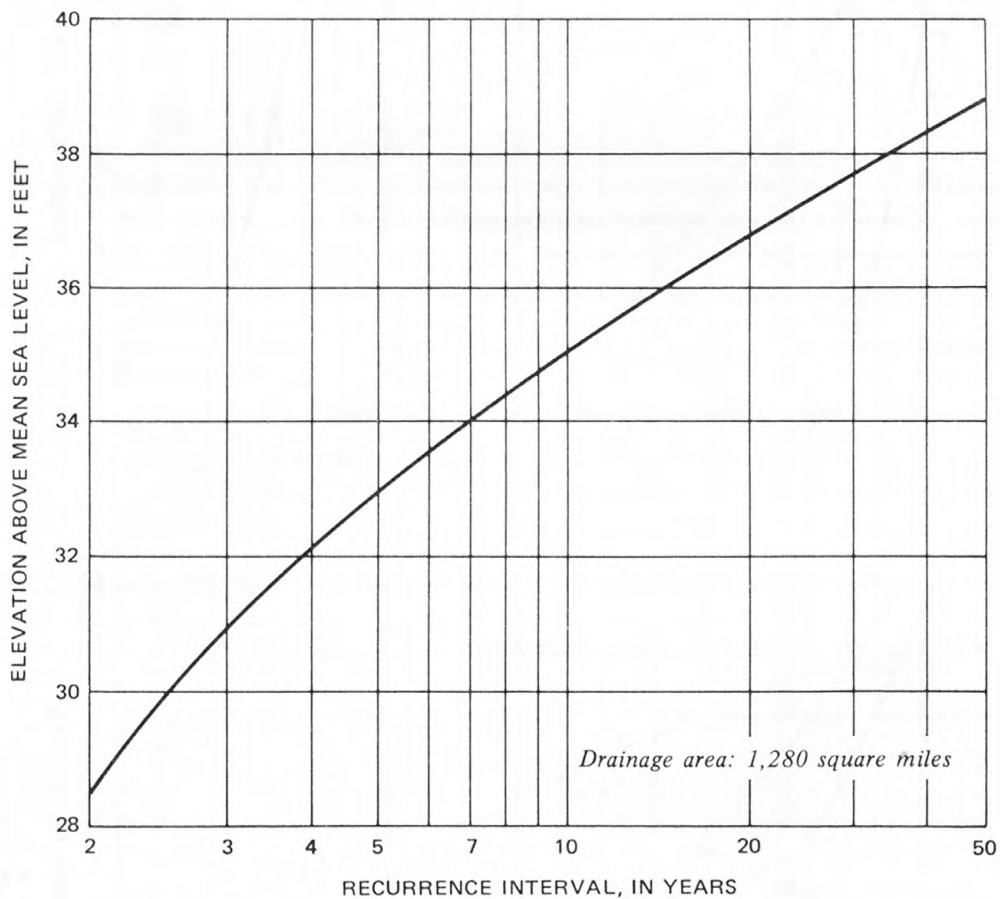


Figure 8. --Stage-frequency curves for Amite River near Denham Springs, La., for the period 1939-73.

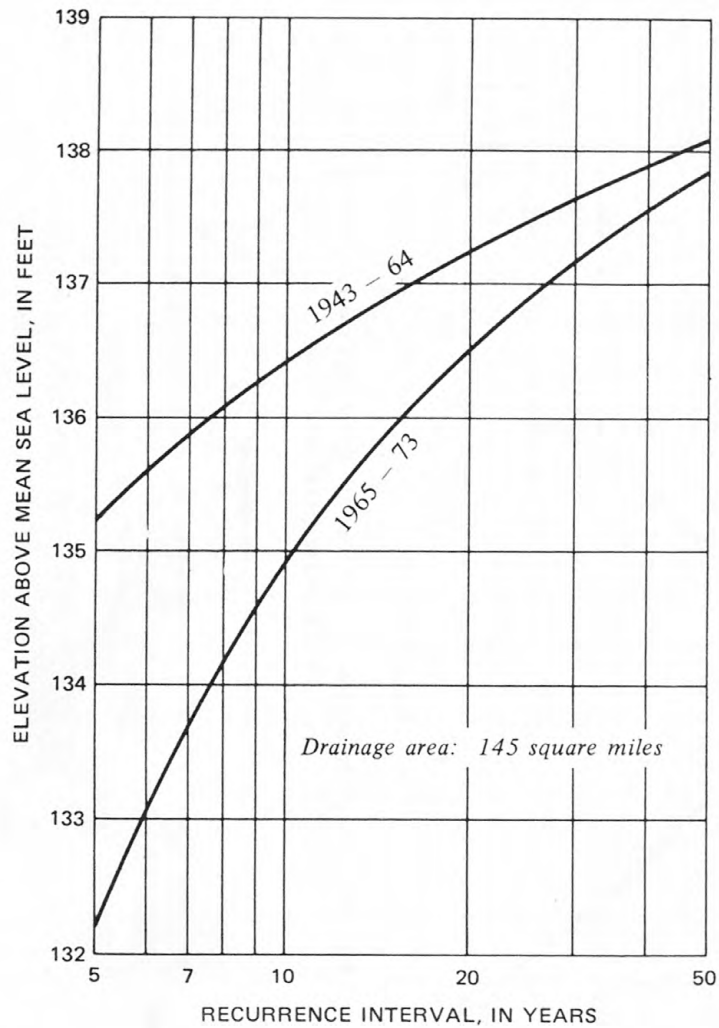


Figure 9. --Stage-frequency curves for Comite River near Olive Branch, La., for varying periods of time.

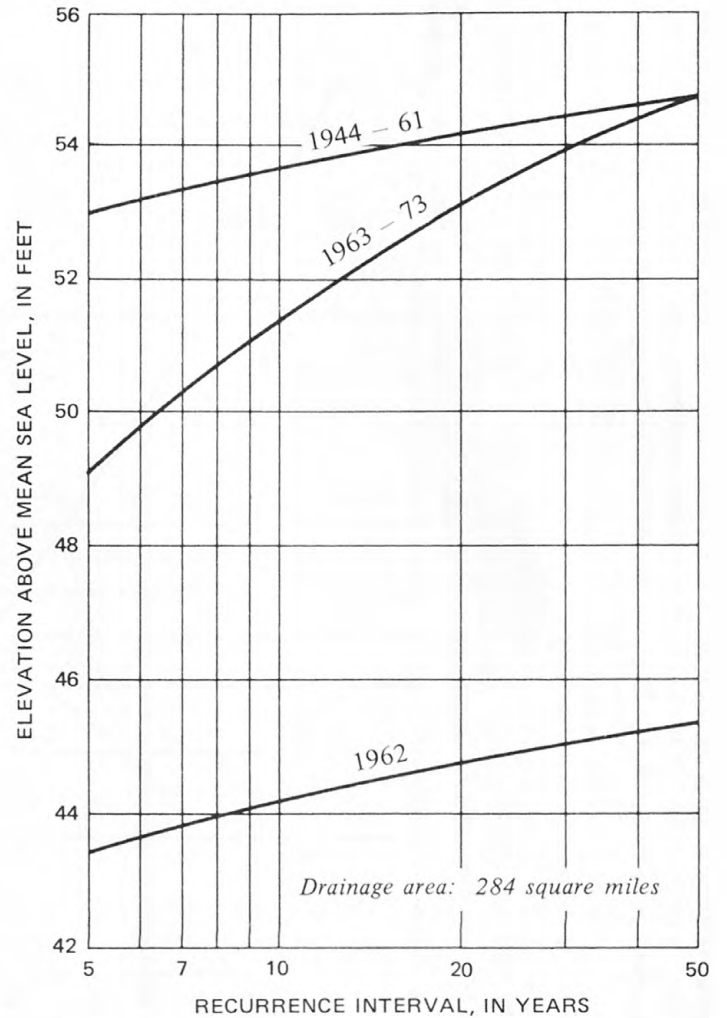


Figure 10. --Stage-frequency curves for Comite River near Comite, La., for varying periods of time.

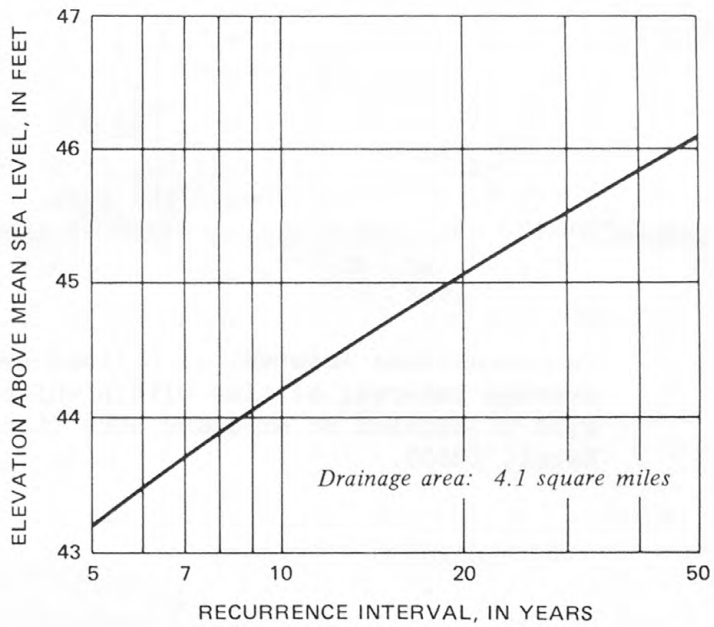


Figure 11. --Stage-frequency curve for Ward Creek at Government Street, Baton Rouge, La., for the period 1960-73.

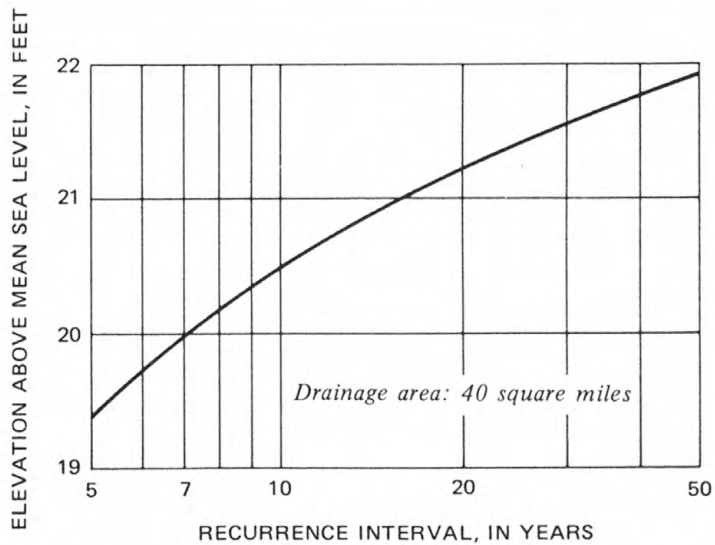


Figure 12. --Stage-frequency curve for Ward Creek at Siegen Lane, Baton Rouge, La., for the period 1954-73.

DEFINITION OF SELECTED TERMS

Discharge	Discharge is the flow of a stream expressed as volume per unit of time, usually cubic feet per second. Peak discharge is the maximum discharge during a flood.
Flood-frequency curve	A frequency curve relates magnitude of a variable to frequency of occurrence. The curve is an estimate of the cumulative distribution of the population of that variable and is prepared from a sample of data (Riggs, 1968, p. 1).
Recurrence interval	The recurrence interval of a flood event is the average interval of time within which a given flood will be equaled or exceeded once (Langbein and Iseri, 1960).

SELECTED REFERENCES

- Camp, J. D., 1964, Flood of 1962 near Baton Rouge, Louisiana: U.S. Geol. Survey Hydrol. Inv. Atlas HA-126.
- Langbein, W. B., and Iseri, K. T., 1960, General introduction and hydrologic definitions: U.S. Geol. Survey Water-Supply Paper 1541-A, p. 1-29.
- Riggs, H. C., 1968, Frequency curves: U.S. Geol. Survey Techniques Water-Resources Inv., book 4, chap. A2, 15 p.
- Sauer, V. B., 1964, Floods in Louisiana, magnitude and frequency, 2d ed.: Louisiana Dept. Highways, 402 p.