

## JOB REPORT

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Project No. M-4-R-3

Date: November 31, 1961

Project Name: General Ecological Survey of the Matagorda Bay Area.

Period Covered: September 1, 1960 to October 1, 1961.\* Job No. E-2

### Compilation of Hydrographic Data

Abstract: Salinities at secondary bay stations which reached 30 parts per thousand and over during drouth periods have decreased to 20 parts per thousand. Two fresh-water influxes have had a detrimental effect on marine organisms in the period of study.

Hurricane Carla, which struck on September 10, 1961, opened seven passes in the Matagorda Peninsula which separates Matagorda Bay from the Gulf of Mexico.

Objectives: To compile monthly salinity data and to determine salinity patterns in the Matagorda Bay system.

Procedure: Fifteen salinity sampling stations were established in the area as shown in Figure 1. Surface and bottom samples were taken at all stations of more than five feet in depth. Surface samples were taken six inches below the surface and bottom samples were taken six inches off the bottom. Only bottom samples were taken at shallow water stations. Salinities were determined by hydrometer method. Precipitation data were obtained from the United States Department of Commerce Publication "Climatological Data." Earlier data are included for comparison.

Findings: Data gathered by W.C. Guest in 1956 and 1957 are shown in Figure 2, and the accompanying precipitation data are shown in Figure 3. These data taken at the end of the drouth years show the high salinities and low precipitation changing toward present conditions. The bay salinity decreased from 30 parts per thousand and over to 20 parts per thousand by the end of 1957 with only one fresh-water dilution occurring, Figure 2. In contrast Figure 4 shows several influential fresh-water influxes and their dilution patterns. Accordingly, Figure 5 shows the monthly percipitation for this same period.

\* Supplement to Project Reports, 1960-1961.

Since the Lavaca watershed has great influence on the southern portion of the bay, salinity patterns are expected to change again with the dredging of the 36 foot deep channel to be constructed from the Gulf of Mexico through Lavaca Bay.

Seven passes between the Gulf of Mexico and Matagorda Bay were opened in the September, 1961 hurricane causing higher salinity on the peninsula side of the bay. They have not, at this time, affected salinity of the northern side or the secondary bay. For the location of the passes see Figure 6.

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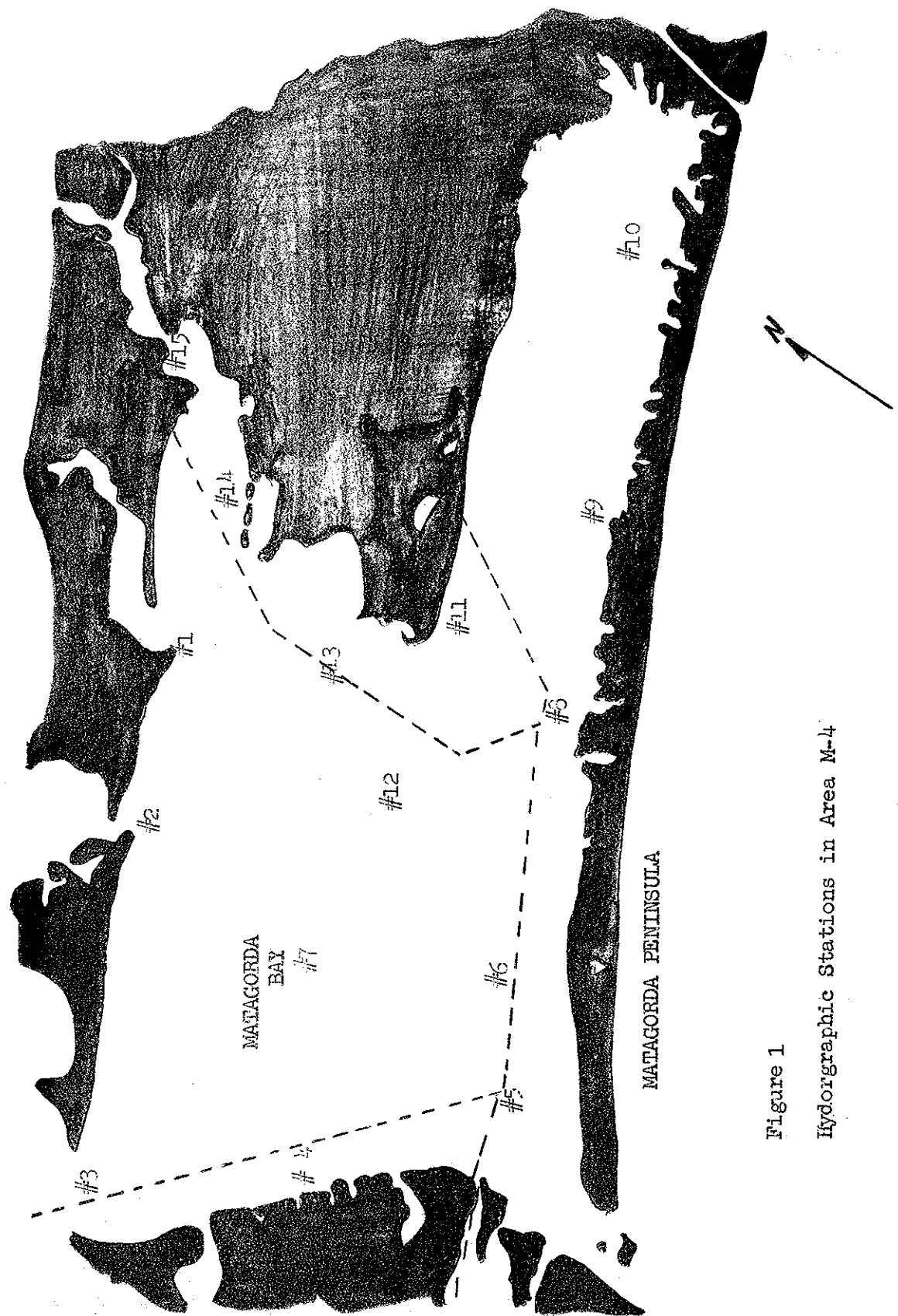


Figure 1  
Hydrographic Stations in Area M-4

Figure 2

Hydrographic Trends, Matagorda Bay, June, 1956 - September, 1957

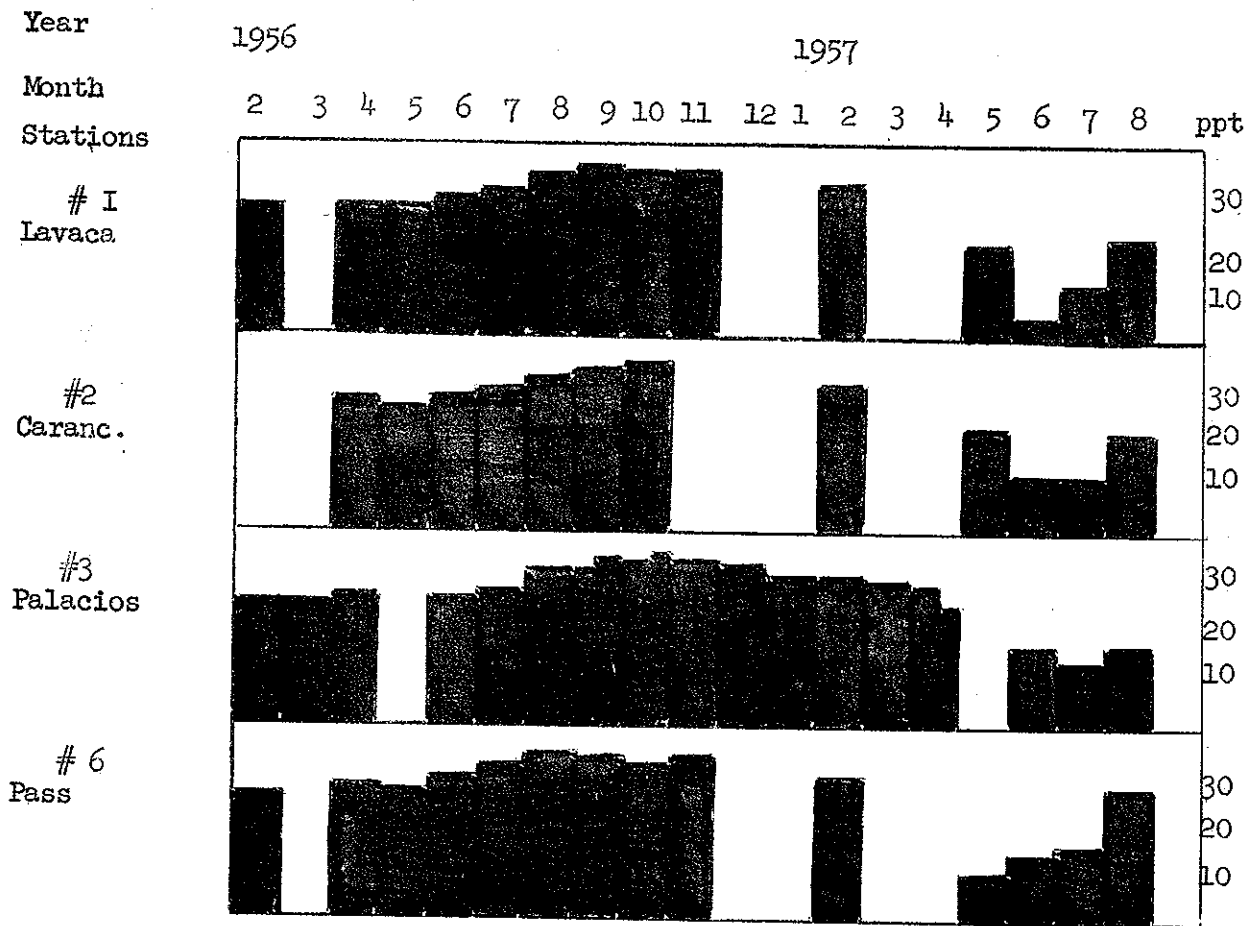


Figure 3

Port Lavaca and Palacios Mean Monthly Precipitation

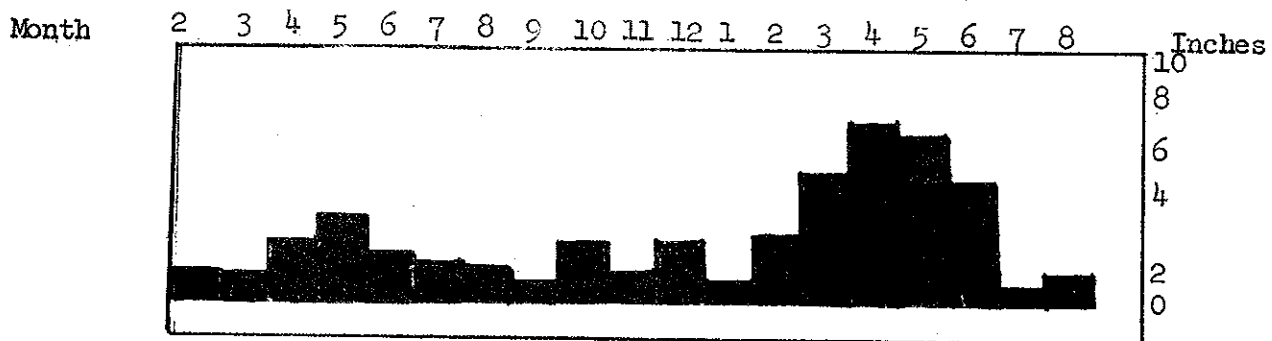


Figure 4

Hydrographic Trends, Matagorda Bay, June, 1959 - December, 1961

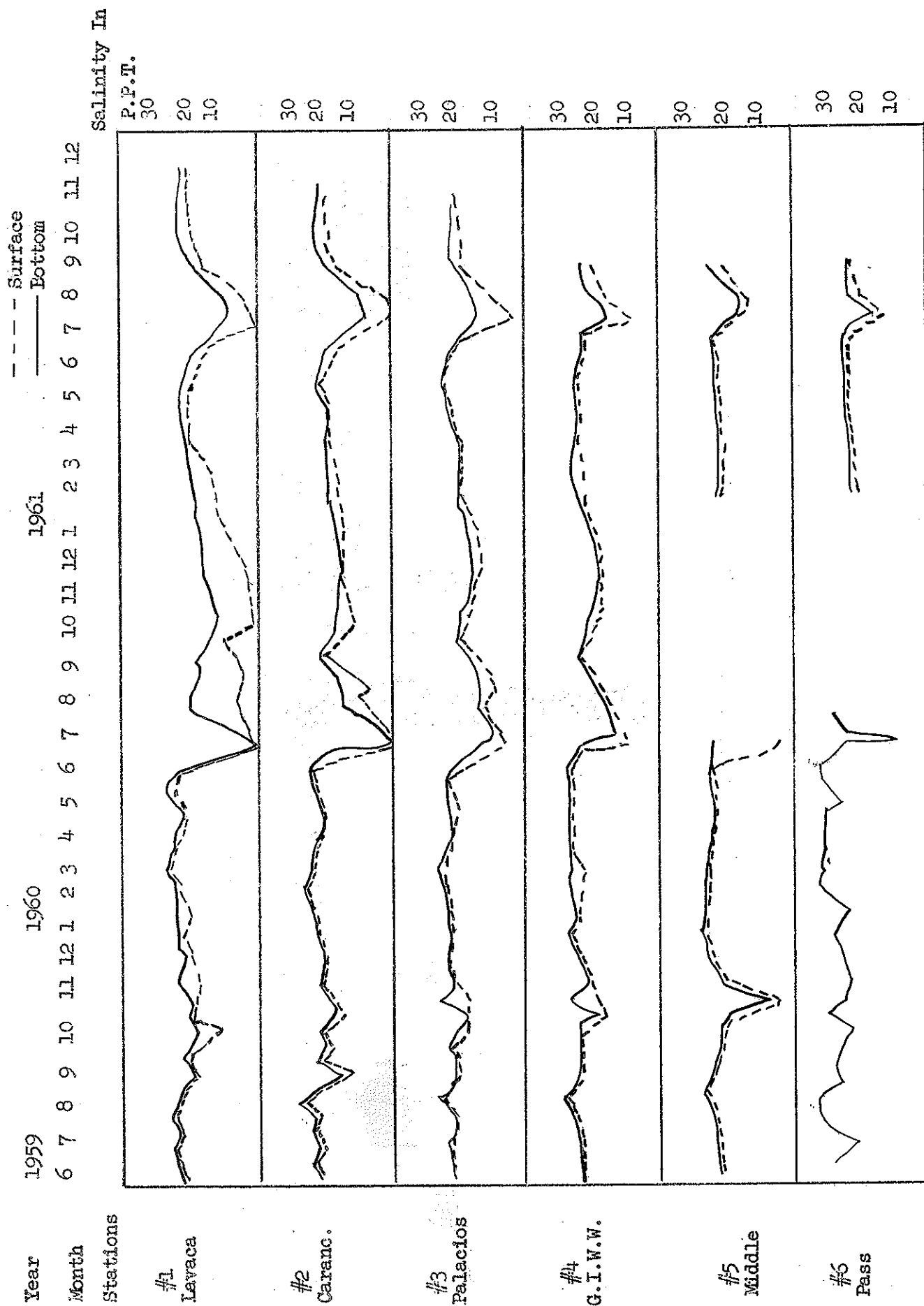


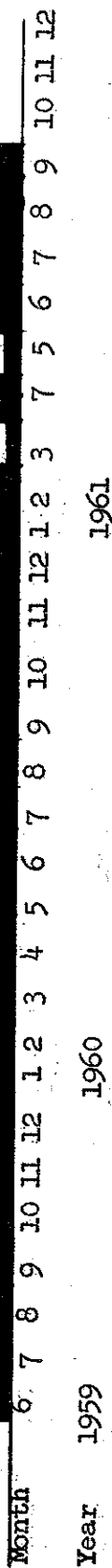
Figure 5

Port Lavaca and Palacios Mean Monthly Precipitation

20

Inches

10  
8  
6  
4  
2



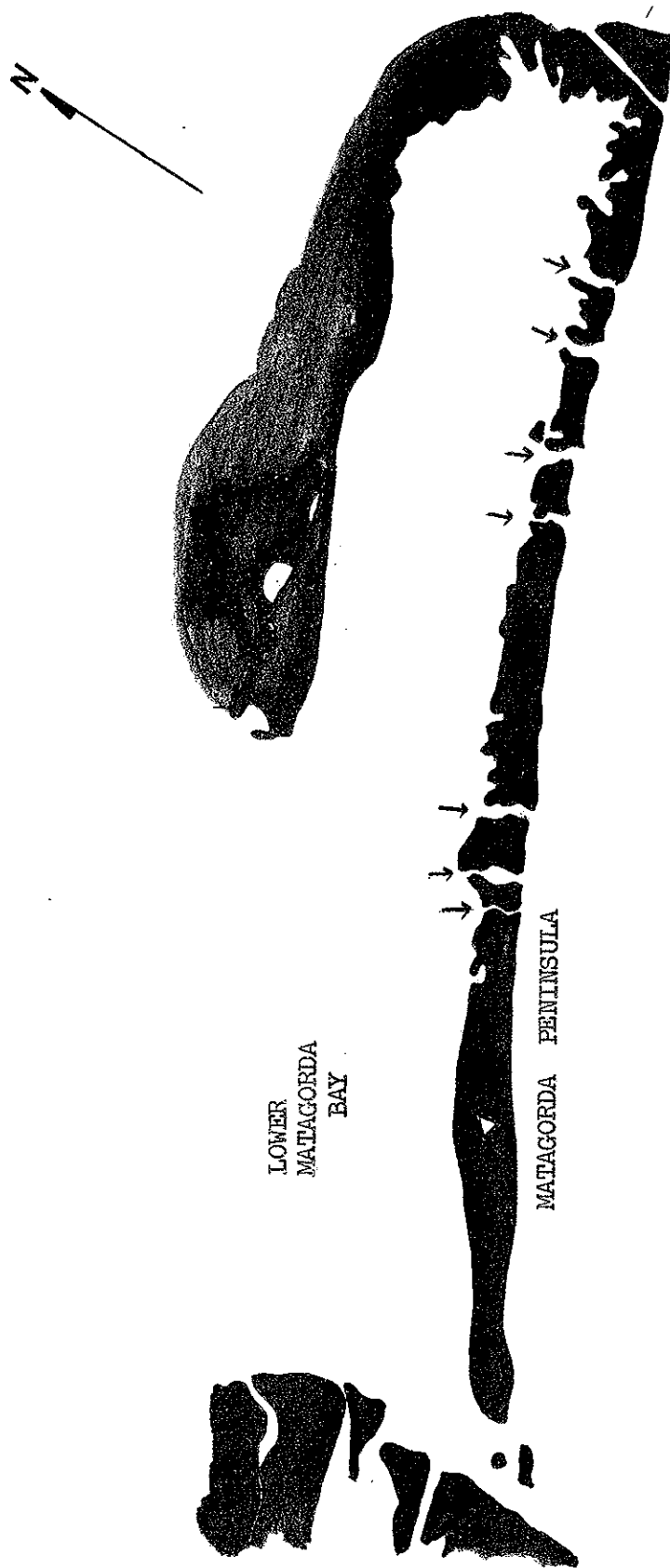


Figure 6

Seven Passes Opened in Matagorda Peninsula By  
Hurricane Carla - 1961

