

Job Report

Ronnee L. Schultz
Marine Biologist

Project No. MF-R-4 Date February 14, 1963
Project Name: Analysis of Populations of Sports and Commercial Fin-Fish
and of Factors Which Affect These Populations in the
Coastal Bays of Texas.
Period Covered: January 1, 1962 to December 31, 1962 Job No. 19

Hydrographic and Meteorological Study of Aransas Bay System

Abstract: Salinities in the Aransas Bay area increased in 1962 as compared to 1961. Aransas and Mesquite Bays reached salinity levels above 35 o/oo in August and September of 1962. Copano Bay salinity averages were lower than Aransas and Mesquite Bays. Rainfall in 1962 was 61 per cent less than that measured in 1961. Water temperature in 1962 was similar in pattern to temperatures recorded in 1961, except for a low in January 1962, when a hard freeze occurred.

Objectives: The objective of this study is to provide data on the hydrographical and climatological conditions prevailing in the Aransas-Copano Bay system for correlation with fluctuations in populations of food and game fisheries animals.

Procedure: Twenty hydrographic stations were established in Aransas, Copano, and Mesquite Bays (Figure 1). These stations were sampled on or near the first and the fifteenth of each month. At each station, water turbidity was measured with a U. S. Geological Survey Turbidity Scale and expressed as parts per million. From a water sample taken near the bay bottom, the temperature was measured in degrees centigrade and the salinity determined with a specific gravity hydrometer and the use of Knudsen's Hydrographic Tables.

All climatological data presented herein were taken from the U. S. Department of Commerce Weather Bureau's publication, 'Climatological Data of Texas.'

Findings: Salinity, precipitation and water temperature comparisons are found in Figure 2.

Discussion: Salinity averages (Figure 2) were higher in 1962 than in 1961. Copano Bay salinities were slightly lower than Mesquite and Aransas Bay averages in 1962. The salinity averages were higher in 1962 than they were in 1961. The general increase in salinity is attributed to the decrease in total rainfall in 1962 as compared to 1961. There was 61 per cent less rainfall in 1962 in the Aransas Bay area than recorded in 1961.

Copano Bay was affected by this decrease in rainfall more than Aransas or Mesquite Bays. It was predicted in 1961 that the Copano Bay salinity would increase greatly if less rainfall were recorded in the future.

Water turbidity was greater in the winter in 1962 as it was in 1961. Turbidity levels were less in 1962 than in 1961 because the waters were free of silt laden waters that floods in 1961 had brought into the Aransas Bay area.

Water temperatures in 1962 were found to correspond closely with 1961 water temperatures, except for January 1962 when a freeze occurred. The water temperatures (Figure 2) at that time dropped in all bays. It was observed that ice was covering most of Copano Bay and portions of Aransas Bay during this freeze. The lowest bottom temperature recorded at the Marine Laboratory in Rockport was 39° F. during this freeze.

Tables of salinities, temperature and turbidities may be found in the files of Region V Headquarters if complete information is desired.

Prepared by: Ronnee L. Schultz
Marine Biologist

James R. Stevens
Project Leader

Ernest G. Simmons
Regional Supervisor

Approved by:



Coordinator

Figure 1
Hydrographical Stations
in the Aransas Bay area

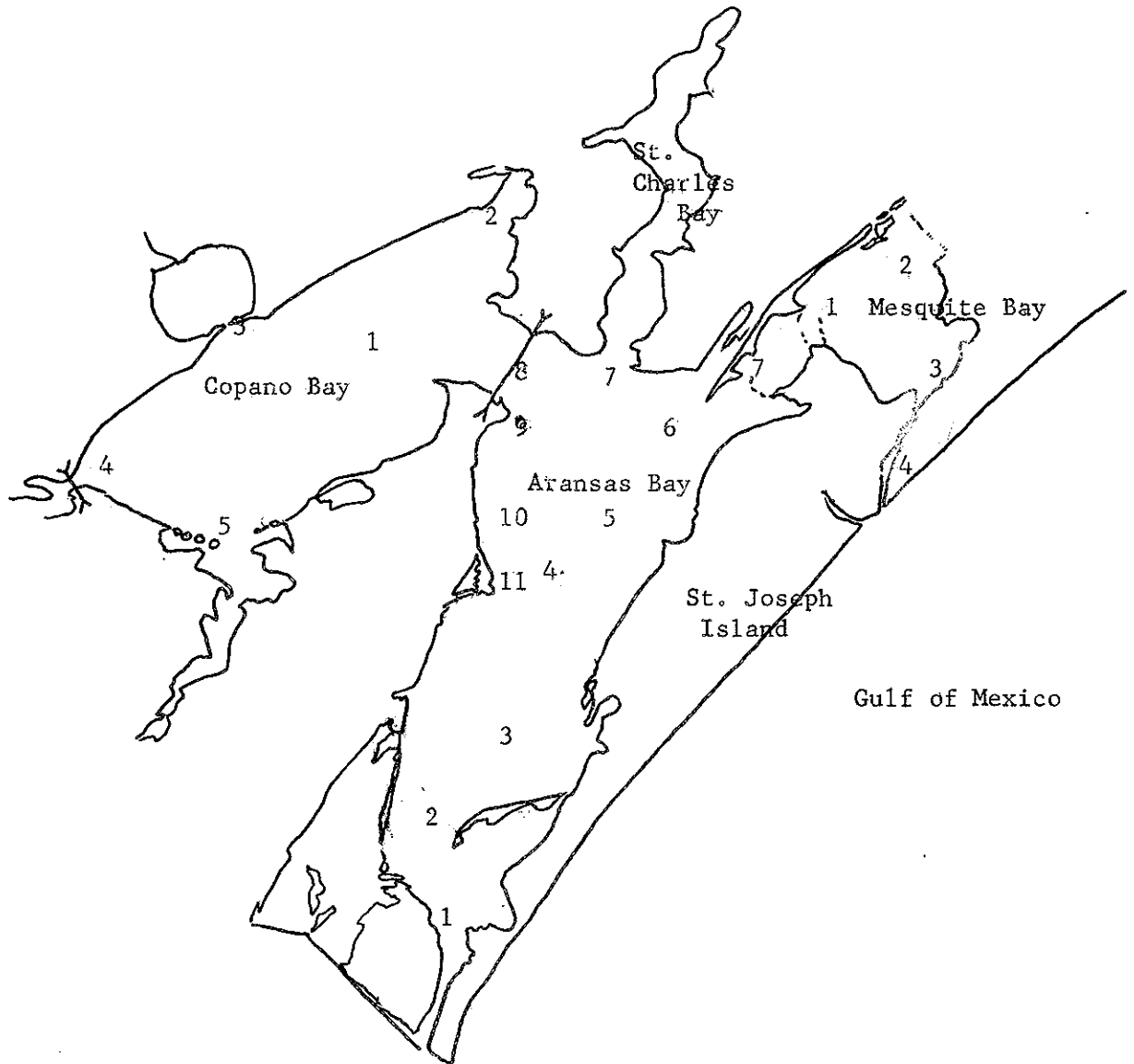


Figure 2

Monthly Salinity, Water Temperature and Rainfall
 Averages for Copano, Aransas and Mesquite Bays in 1961 and 1962

