

Job Report

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Project Name: Analysis of Populations of Sports and Commercial Fin-Fish and Factors Which Affect These Populations in the Coastal Bays of Texas.
Period Covered: January 1, 1964 to December 31, 1964 Job No. 17

Hydrographic and Meteorological Study of the Corpus Christi Bay System

Abstract: High tides caused by Hurricane Hilda during the first part of October opened Packery Channel and Corpus Christi Pass. Both passes closed after a few days. Salinity dropped from 36.3 p.p.t. in September to 33.1 p.p.t. in October in Corpus Christi Bay and remained below 33 p.p.t. for the rest of the year.

Rainfall was higher than last year by 7.85 inches. Salinity averages varied inversely with rainfall, from a low of 30.4 p.p.t. in May to a high of 36.5 p.p.t. in August.

Air and water temperature averages were lowest in December and highest in August.

Objectives: To gather information on the hydrography and meteorology of Corpus Christi Bay and to present this information in a report that will be convenient for use in this project and other projects.

Procedures: Sixteen hydrographic stations located in Corpus Christi Bay were sampled once each month (Figure 1). Surface water temperature was measured in degrees centigrade, and surface salinity was 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 and

Discussion: Monthly precipitation as recorded at the Corpus Christi Airport, is presented in Table 1. A total of 22.51 inches of rain fell in 1964 compared to 14.66 in 1963. The largest amount of rainfall was 6.98 inches in September and the lowest was 0.08 in April.

Salinities (Table 2) varied inversely with rainfall and river flow. Rainfall, salinity, and river discharge along with a comparison of average salinities in Corpus Christi Bay for the years 1962, 1963 and 1964 are shown in Figure 2.

Monthly salinity averages ranged from a low of 30.4 p.p.t. in May to a high of 36.5 in August. High tides caused by Hurricane Hilda during the first part of October opened up Packery Channel and Corpus Christi Pass. The opening of the passes along with a moderate amount of rainfall during the

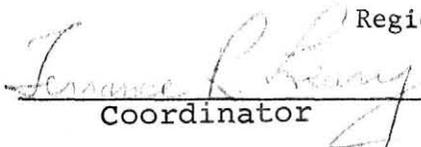
previous month (September 1964) contributed to a drop in salinity from 36.3 p.p.t. in September to 33.1 in October. Salinities remained below 33.0 p.p.t. for the remainder of the year.

Water temperature averages steadily increased from 15.7° C. in January to over 32.8° C. in August (Table 1). The surface water temperatures recorded directly from the bay system are presented in Table 3.

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Table 1
Hydrographic and Meteorological Data for 1964
Corpus Christi Bay

<u>Month</u>	<u>Precipitation in Inches</u>	<u>Average Salinity</u>	<u>Avg. Water Temp. in °C.</u>	<u>Nueces Rvr. Runoff in Acre Feet</u>	<u>Average Wind Speed</u>	<u>Air Temperature °F.</u>		
						<u>Max.</u>	<u>Min.</u>	<u>Avg.</u>
Jan.	1.61	35.7	15.7	4,640	11.4	66.8	46.9	56.9
Feb.	1.53	34.5	18.3	3,950	13.4	65.3	42.0	53.7
March	1.14	33.6	20.8	5,080	14.7	74.4	53.8	64.1
April	0.08	36.2	27.1	6,480	16.5	83.5	65.7	74.6
May	4.39	30.4	26.8	6,360	12.5	88.0	69.5	78.8
June	0.38	31.3	30.4	7,890	12.1	90.8	71.8	81.3
July	2.25	36.4	30.8	8,160	11.2	94.7	73.6	84.2
Aug.	0.50	36.5	32.0	9,670	13.6	96.2	75.0	85.6
Sept.	6.98	36.3	31.1	6,890	10.2	90.0	70.8	80.9
Oct.	0.19	33.1	28.9	No Sample	10.1	83.0	57.5	70.3
Nov.	0.21	32.8	21.9	No Sample	12.7	78.5	57.1	67.8
Dec.	2.45	31.2	13.5	No Sample	12.6	67.3	47.8	53.6

Table 2
 Surface Salinity in Parts Per Thousand by Station
 Corpus Christi Bay Area 1964

<u>Stations</u>	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2	36.3	34.6	33.2	36.4	30.1	30.8	38.5	37.8	36.9	23.8	24.2	23.8
3	35.3	33.4	34.4	36.0	30.8	30.8	40.0	37.2	36.7	28.2	26.0	24.0
4	35.3	33.4	33.6	35.6	29.7	31.5	36.2	36.5	35.8	34.0	32.7	31.6
5	35.6	33.4	33.2	35.6	29.7	31.4	36.0	36.7	35.9	34.2	32.6	31.5
6	35.7	33.8	33.5	35.7	28.4	32.0	35.5	35.9	35.6	34.6	33.4	32.4
7	35.6	34.8	34.4	36.0	28.6	32.2	36.2	35.6	36.6	35.0	34.6	33.5
8	36.4	34.6	34.2	36.2	30.5	32.4	36.4	36.8	37.2	34.2	34.5	33.8
9	35.8	33.4	34.0	36.2	32.8	30.0	36.0	36.8	35.8	34.2	35.0	33.8
10	35.8	33.3	33.8	35.8	29.7	30.0	35.0	36.0	35.7	34.8	34.8	33.9
11	35.4	33.3	33.2	35.8	30.0	30.5	35.4	36.2	36.2	34.0	35.2	32.6
12	35.5	33.6	33.4	36.0	30.2	30.6	35.5	35.6	35.9	35.0	35.1	33.0
13	35.6	33.8	34.3	36.5	31.6	32.0	36.2	37.4	36.3	34.8	35.5	32.2
14	35.6	34.1	33.2	35.9	30.9	31.8	35.0	36.5	35.9	34.6	35.6	34.0
15	35.7	33.6	34.6	36.2	32.6	32.6	38.2	37.6	37.1	35.2	35.5	34.2
16	36.2	34.5	33.8	36.4	30.7	31.4	38.0	37.2	36.8	30.0	28.4	23.8
Total	535.8	517.6	504.8	540.3	456.2	469.9	547.1	548.6	544.4	496.6	493.1	469.1
Average	35.7	34.5	33.6	36.2	30.4	31.3	36.4	36.5	36.3	33.1	32.8	31.2

Table 3
 Water Temperatures in Degrees Centigrade by Station by Month
 Corpus Christi Bay Area - 1964

<u>Stations</u>	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2	15.2	18.5	20.8	26.8	26.3	29.2	30.2	32.3	30.8	29.5	21.5	13.6
3	15.2	18.0	20.6	27.0	26.5	30.0	30.6	32.4	30.6	29.3	21.6	14.0
4	15.5	18.2	20.6	26.9	26.8	30.2	31.0	32.1	30.6	29.6	21.8	13.5
5	16.4	18.2	20.4	26.7	26.6	30.2	31.0	32.1	30.4	29.2	21.8	13.8
6	16.5	18.5	20.8	26.8	27.0	31.1	31.0	31.9	31.2	28.9	21.8	14.0
7	16.3	18.5	20.8	27.2	27.2	31.2	30.8	31.6	31.4	28.8	22.0	13.9
8	16.3	18.8	21.2	27.3	26.5	31.2	30.6	32.5	31.5	28.9	21.8	13.7
9	15.8	18.8	20.5	27.5	26.8	29.4	30.5	32.5	31.4	28.0	22.1	12.9
10	15.8	18.2	20.8	27.2	27.0	30.5	31.0	31.6	31.6	29.0	21.9	13.1
11	15.6	18.0	20.4	26.9	27.0	31.2	31.2	31.5	31.0	28.8	21.8	12.9
12	15.6	18.2	20.4	26.8	27.2	31.2	31.2	31.2	31.8	28.9	21.9	13.0
13	15.5	18.5	21.2	26.5	26.8	30.2	30.8	32.4	30.8	29.0	22.3	13.0
14	15.5	18.4	21.3	27.6	27.6	30.2	30.8	32.3	30.9	29.2	22.5	13.8
15	16.0	18.5	21.3	27.6	27.0	30.0	31.0	32.1	31.2	29.0	22.4	13.5
16	15.2	18.2	21.5	27.8	27.0	30.8	31.2	32.5	31.6	28.8	22.4	13.8
Total	236.4	275.5	312.6	407.6	402.8	426.1	463.0	481.0	466.8	434.1	328.6	202.5
Average	15.7	18.3	20.8	27.1	26.8	30.4	30.8	32.0	31.1	28.9	21.9	13.5

Figure 1
Hydrographic Stations - Corpus Christi Bay Systems

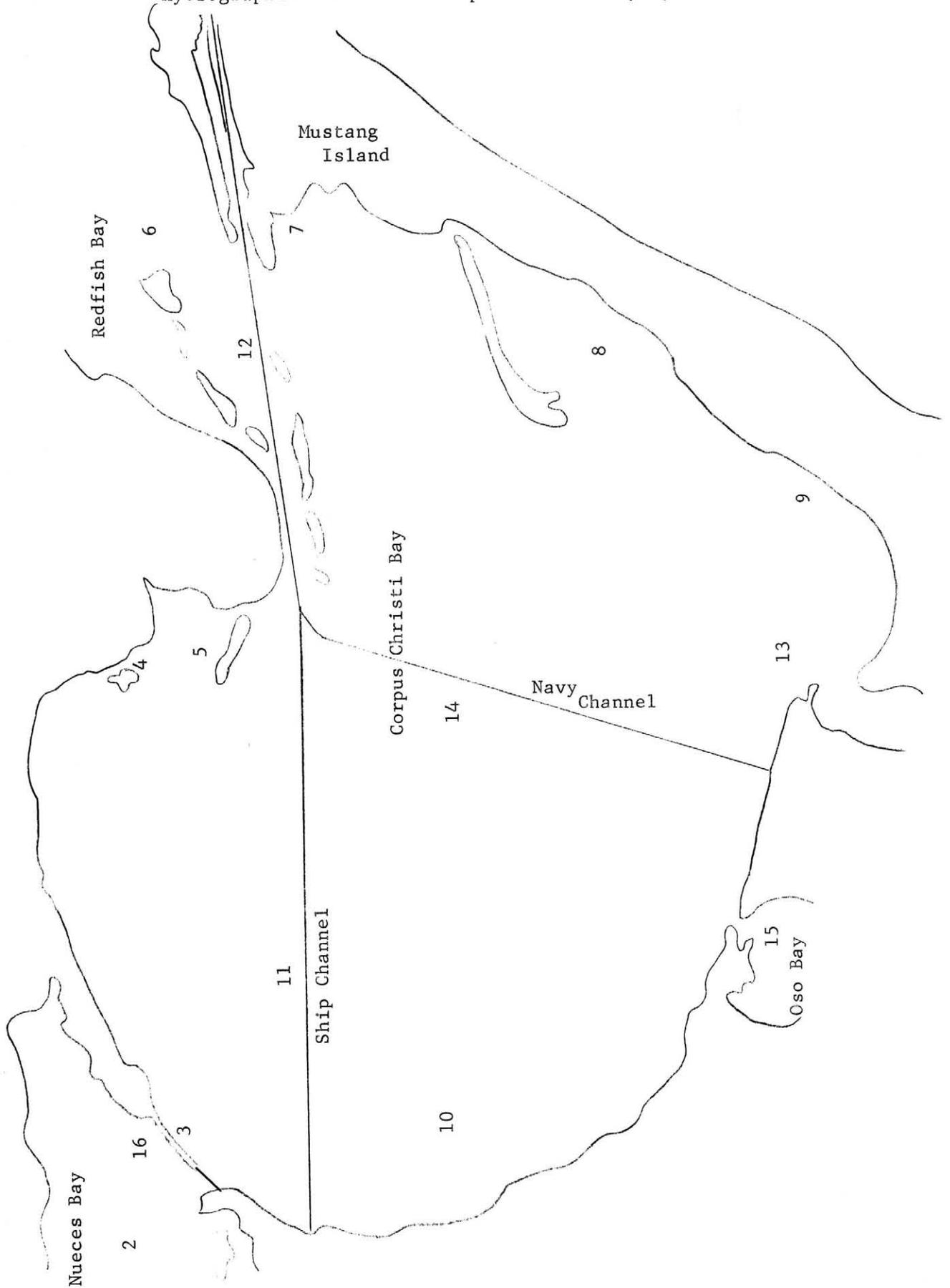


Figure 2
Hydrographic Conditions in the Corpus Christi Bay System

