

Job Report

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Project Name: Oyster Investigations, Galveston Bay.

Period Covered: January 1958 - June 1959. Job No. E-2

Hydrographic and Climatological Data

Objectives: To maintain records of hydrographic and climatological conditions as an aid in evaluating ecological changes in the bay.

Procedures: Twenty stations, including the Field Laboratory Station, were established in Galveston Bay. Surface water samples were collected at each station for the determination of temperature and salinity. Salinities were determined by hydrometer and corrected for temperature.

A weather station was established at the Field Laboratory in January 1959. Water samples were collected twice a day for the determination of salinity, pH, turbidity and dissolved oxygen. Maximum-minimum thermometers were maintained for air and water temperatures. A tide gauge was set up later in the year and daily readings were taken. Rainfall, wind speed and direction, barometric pressure, cloud cover and visibility were recorded. Observations and records were maintained by the fisheries biologists and chemist.

Station locations are indicated in Figure I. Principle sources of fresh water run-off and tidal influx are shown by arrows. Barriers to water movement such as spoil banks and shell reefs are indicated by stippling.

Table 1 summarizes the station data for each month. Unfortunately, sampling was curtailed and a number of the stations were seldom visited. Data from the Field Laboratory station is not included since observations and records were maintained by other staff members.

The bay has been arbitrarily divided into five areas: Trinity Bay; Upper Galveston Bay; Middle Galveston Bay - West; Middle Galveston Bay - East; and Lower Galveston Bay. West Bay and East Bay were not included in the survey.

Two major sources influencing the salinity-patterns are run-off from the Trinity River and tidal influx through the Galveston jetties. Secondary sources include run-off from the San Jacinto River, Clear Creek, Dickinson Bayou and Cedar Bayou. Lone Oak and Double Bayou are of minor importance.

Since the drainage basin of the Trinity River is large (17,753 square miles), heavy rainfall in the basin can cause severe and prolonged flooding. Drainage basins of the secondary streams are relatively small and heavy rainfall can produce flash floods of short duration which affect more localized areas within the bay.

The more saline waters enter the bay through the Galveston jetties and Bolivar Roads. Strong south and southeast winds tend to push water into the bay creating above normal tides and higher salinities.

FIGURE I

Water Sample Locations - Galveston Bay, 1958-59.

Trinity Bay Stations:

14. Mouth of Double Bayou
- 14A. Mouth of Lone Oak Bayou
15. Entrance, Anahuac Channel
16. Fishers Reef
17. Vingtune Reef

Upper Galveston Bay Stations:

2. Outer Beacon, Clear Creek Channel
3. Marker "89", Houston Ship Channel
4. Five Mile Pass (Marker "75")
9. Entrance, Humble Camp Channel
10. Bay Oaks Pier (Discontinued)

Middle Galveston Bay (West) Stations:

1. Todd's Dump (Southwest Pass)
5. Marker "59", Houston Ship Channel
- 5A. Red Fish Light, Houston Ship Channel
6. Marker "53", Houston Ship Channel
18. Mouth of Dickinson Bay (No samples collected)

Middle Galveston Bay (East) Stations:

11. Marker "24", Trinity River Channel
12. Marker "12", Trinity River Channel
(The channel was abandoned in 1958 and the markers were removed by the Corps of Engineers.)

Lower Galveston Bay Stations:

7. Marker "43", Houston Ship Channel
8. Marker "35", Houston Ship Channel
19. Dollar Reef

East Bay Stations:

13. Moodys Pass (No samples taken)

(Rivers, streams and passes are marked by arrows. Heavy stipling indicates spoil banks and islands; light stipling indicates shell reefs.)

FIGURE I (Continued)

- Galveston Bay -

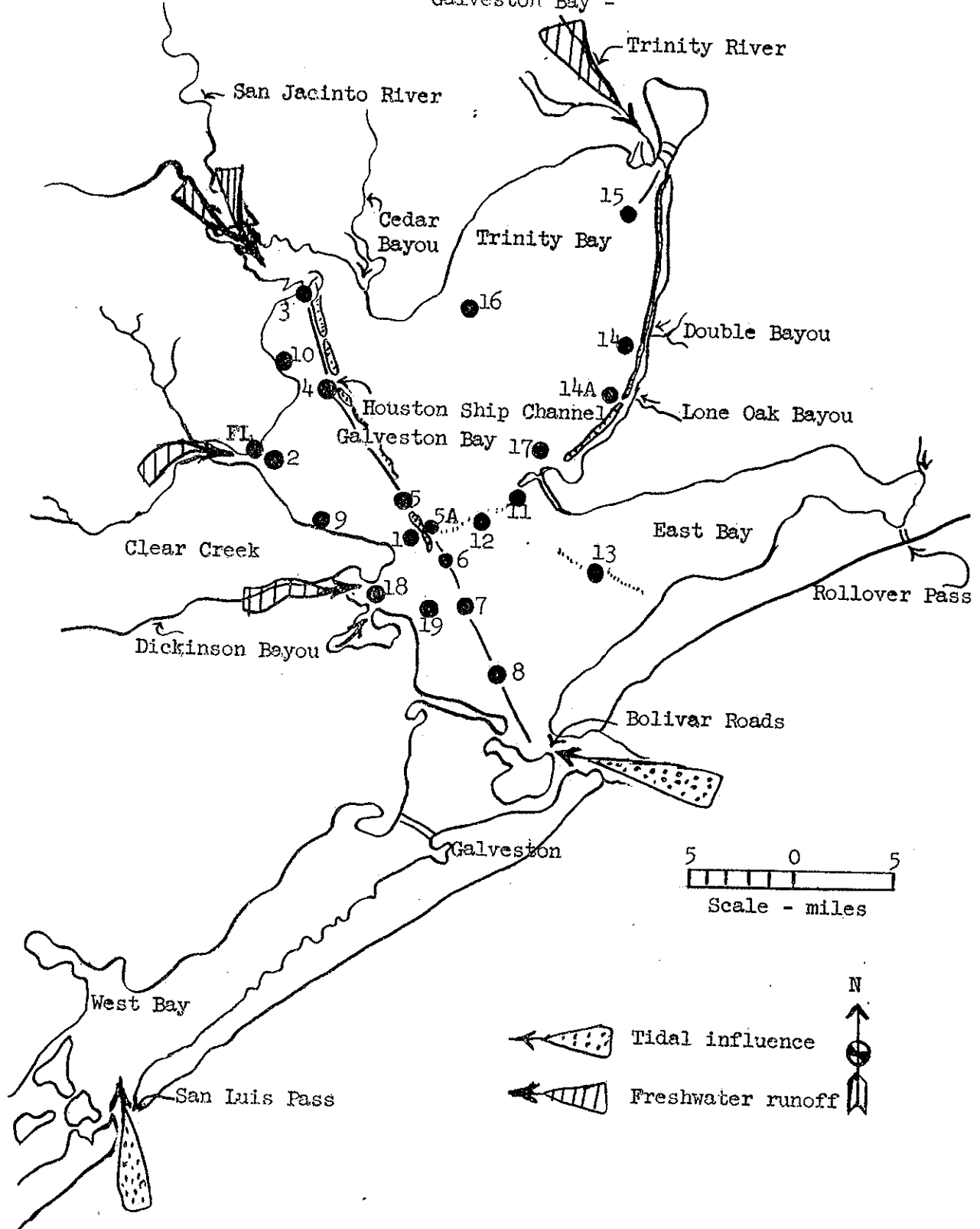


TABLE 1

Salinity and Temperature, Galveston Bay, 1958-59

Salinity - parts per thousand

Month	Trinity	Upper	Middle(W)	Middle(E)	Lower
<u>1958</u>					
January	1.6 (1)	7.5 (3)	10.2 (5)	2.1 (2)	11.8 (1)
February	6.5 (1)	9.1 (1)	9.8 (4)	6.8 (1)	10.9 (1)
March	0.6 (1)	12.3 (7)	13.0 (8)	5.1 (2)	17.9 (3)
April	3.2 (5)	15.2 (4)	16.5 (5)	7.7 (2)	22.2 (1)
May	0.0 (1)	-	6.2 (1)	-	11.3 (1)
June	0.0 (4)	6.8 (3)	8.8 (8)	6.1 (1)	14.0 (6)
July	2.9 (3)	-	10.0 (4)	-	15.6 (4)
August	9.3 (4)	15.2 (1)	14.9 (5)	-	18.8 (4)
September	11.6 (3)	-	14.4 (5)	-	15.0 (5)
October	8.4 (3)	-	11.0 (2)	-	11.5 (2)
November	7.6 (1)	-	12.8 (2)	-	14.6 (2)
December	8.6 (2)	12.8 (2)	18.4 (3)	12.8 (2)	-
<u>1959</u>					
January	15.4 (2)	21.3 (1)	21.8 (2)	-	25.5 (1)
February	12.6 (1)	-	12.0 (1)	-	-
March	-	-	-	-	-
April	-	-	4.1 (1)	-	-
May	2.4	-	7.2 (4)	-	9.8 (3)
June	-	-	-	-	-

(Numbers in parentheses indicate number of samples taken)

Temperature Range - degrees C.

Month	1958	1959
January	6.5 - 12.5	9.2 - 12.2
February	8.9 - 14.2	16.2 - 16.7
March	12.0 - 18.0	-- --
April	17.4 - 25.6	-- --
May	- 28.0	25.2 - 28.0
June	27.8 - 31.0	-- --
July	29.1 - 31.4	
August	27.1 - 30.6	
September	25.1 - 30.4	
October	23.0 - 25.5	
November	16.7 - 18.6	
December	6.2 - 13.9	