

Job Report

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Project Name Fisheries Investigations in the Aransas-Copano Bay Systems  
Period Covered: January 1, 1960 to December 31, 1960 Job No. E-2

Hydrographic and Climatological Conditions  
in Aransas and Copano Bays

Objective: The object of this study was to gather hydrographic and climatological data to aid in evaluating changes in flora and fauna.

Procedure: Water samples and temperatures were taken twice each month at approximately 15-day intervals at 28 stations (Figure 1) in Aransas and Copano Bays. These samples were analyzed for total salt content by the Mohr titration method or by the use of hydrometers. Temperatures were taken in degrees centigrade at each station. Results are shown in Tables 1, 2, 3, and 4.

Rainfall data were derived from Texas climatological data records and are presented in Figures 3 and 4.

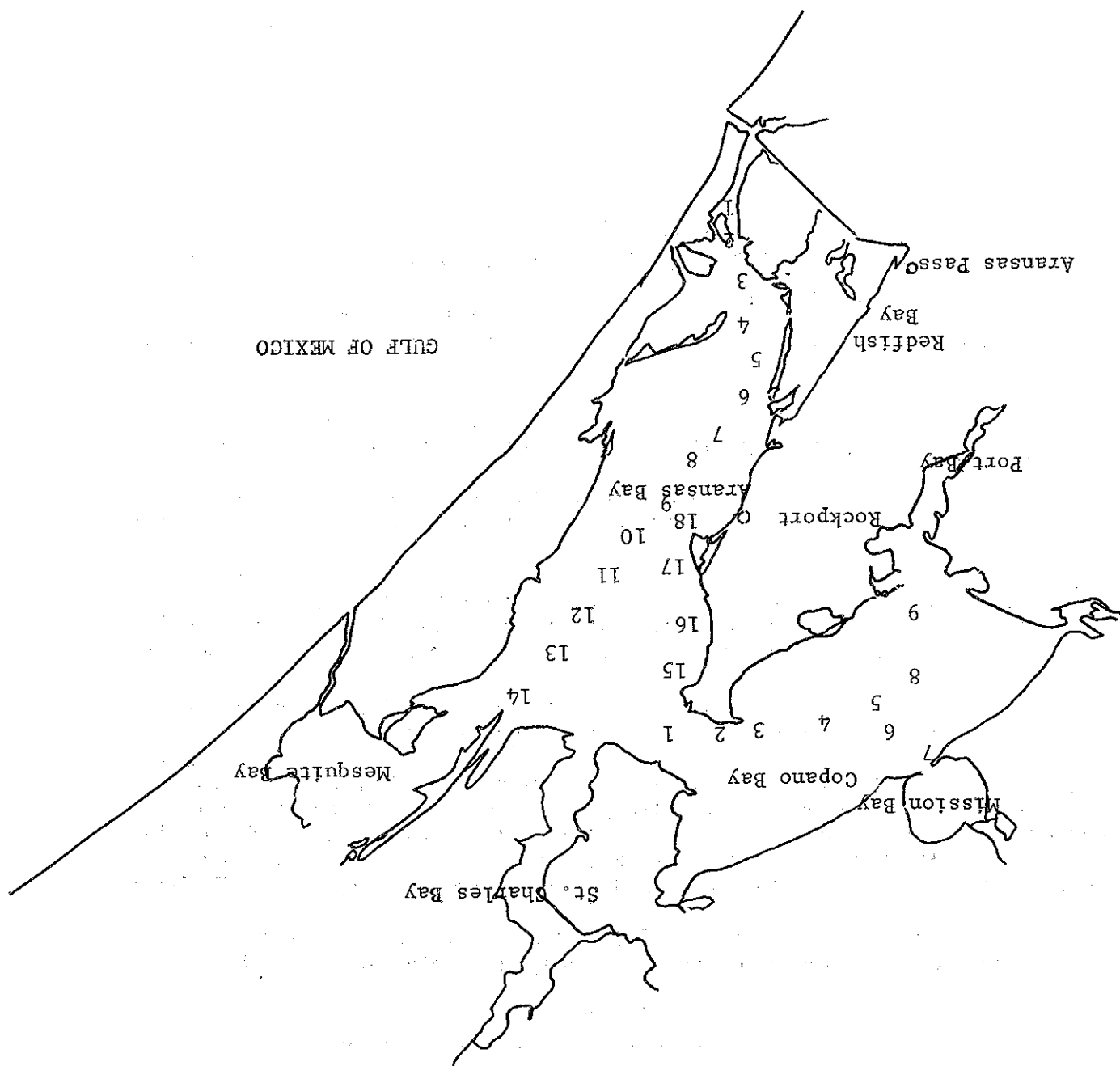
Findings: Copano and Aransas Bays are distinct hydrographic units. Aransas Bay normally has higher salinities than Copano Bay (Figure 2) since the former is influenced primarily by Gulf water and the latter is influenced by rivers.

Summary: Copano and Aransas Bays are distinct hydrographic units. Gulf waters effect the hydrography of Aransas Bay, particularly in the lower portion. Copano Bay's salinities are not directly effected by Gulf water but are largely determined by rainfall.

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Hydrographical Stations 1960

Area M-6

Figure 1

TABLE 1  
Aransas Bay Salinities in ppt for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |    | October |    | November |      | December |    | January |      | February |    |
|-------------------------------|-----------|----|---------|----|----------|------|----------|----|---------|------|----------|----|
|                               | *         | ** | *       | ** | *        | **   | *        | ** | *       | **   | *        | ** |
| 1                             | 32.8      | -  | 23.4    | -  | 18.3     | 29.5 | 28.9     | -  | 22.3    | 22.6 | 31.2     | -  |
| 2                             | 32.2      | -  | 23.4    | -  | 16.7     | 29.6 | 27.0     | -  | 21.7    | 20.0 | 30.8     | -  |
| 3                             | 30.4      | -  | 23.6    | -  | 17.8     | 29.9 | 25.3     | -  | 20.5    | 21.8 | 28.8     | -  |
| 4                             | 27.0      | -  | 22.0    | -  | 16.7     | 20.0 | 24.1     | -  | 19.4    | 19.1 | 25.7     | -  |
| 5                             | 24.9      | -  | 21.7    | -  | 15.2     | 19.5 | 23.7     | -  | 18.5    | 19.1 | 25.7     | -  |
| 6                             | 25.1      | -  | 21.5    | -  | 15.0     | 17.9 | 23.2     | -  | 21.5    | 18.8 | 23.5     | -  |
| 7                             | 24.7      | -  | 21.0    | -  | 14.9     | 17.3 | 22.8     | -  | 17.7    | 18.2 | 24.5     | -  |
| 8                             | 23.4      | -  | 21.0    | -  | 13.9     | 17.0 | 22.1     | -  | 15.7    | 17.7 | 23.7     | -  |
| 9                             | 21.9      | -  | 20.1    | -  | 13.2     | 16.0 | 21.6     | -  | 14.9    | 16.2 | 22.2     | -  |
| 10                            | 20.7      | -  | 18.8    | -  | 14.5     | 15.9 | 19.7     | -  | 14.3    | 16.4 | 22.2     | -  |
| 11                            | 21.0      | -  | 19.0    | -  | 12.8     | 15.4 | 18.1     | -  | 14.8    | 16.2 | 22.0     | -  |
| 12                            | 19.6      | -  | 20.4    | -  | 12.0     | 15.3 | 19.2     | -  | 14.9    | 15.6 | 20.7     | -  |
| 13                            | 19.3      | -  | 21.4    | -  | 10.6     | 15.2 | 17.0     | -  | 14.2    | 14.8 | 20.7     | -  |
| 14                            | 18.8      | -  | 22.9    | -  | 11.1     | 15.3 | 16.0     | -  | 15.2    | 14.6 | 20.7     | -  |
| 15                            | 21.3      | -  | -       | -  | -        | 14.8 | 17.6     | -  | 15.3    | 15.4 | 18.2     | -  |
| 16                            | 20.4      | -  | 18.2    | -  | 12.6     | 14.8 | 19.8     | -  | 15.5    | 15.6 | 19.2     | -  |
| 17                            | 20.6      | -  | 19.0    | -  | 12.9     | 15.3 | 18.6     | -  | 15.2    | 15.6 | 19.2     | -  |
| 18                            | 21.3      | -  | 18.9    | -  | 13.0     | 15.5 | 19.9     | -  | 15.9    | 15.5 | 20.2     | -  |
| Average                       | 23.5      | -  | 20.9    | -  | 14.2     | 18.6 | 21.3     | -  | 17.0    | 17.4 | 23.3     | -  |
| Grand Ave.                    | 23.5      | -  | 20.9    | -  | 16.4     | 17.2 | 21.3     | -  | 17.2    | 17.2 | 23.3     | -  |

\* = First sample of month.

\*\* = Second sample of month.

- = Not sampled.

TABLE 1 (Cont'd)  
 Arkansas Bay Salinities in ppt for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | March |      | April |      | May  |      | June |      | July |      | August |      |
|-------------------------------|-------|------|-------|------|------|------|------|------|------|------|--------|------|
|                               | *     | **   | *     | **   | *    | **   | *    | **   | *    | **   | *      | **   |
| 1                             | 22.8  | 21.9 | 22.8  | 29.0 | 28.3 | 31.2 | 35.5 | 25.2 | 35.1 | 37.8 | 33.78  | 32.0 |
| 2                             | 22.6  | 21.2 | 22.8  | 28.5 | 26.0 | 29.6 | 35.2 | 25.2 | 32.7 | 37.3 | 34.9   | 30.6 |
| 3                             | 21.9  | 20.7 | 22.9  | 25.1 | 24.4 | 27.1 | 35.2 | 26.1 | 29.9 | 37.6 | 34.9   | 28.3 |
| 4                             | 21.8  | 20.2 | 22.4  | 24.6 | 23.4 | 25.9 | 34.1 | 25.5 | 26.4 | 35.0 | 32.9   | 25.7 |
| 5                             | 21.4  | 20.6 | 22.2  | 24.8 | 22.3 | 26.2 | 30.6 | 24.5 | 25.5 | 33.5 | 31.4   | 24.9 |
| 6                             | 21.2  | 20.0 | 21.8  | 24.5 | 22.0 | 26.4 | 29.0 | 23.8 | 24.8 | 31.2 | 30.7   | 24.7 |
| 7                             | 20.2  | 20.0 | 21.7  | 24.7 | 22.1 | 26.4 | 28.9 | 24.3 | 24.2 | 30.2 | 30.7   | 24.7 |
| 8                             | 18.0  | 20.2 | 20.6  | 23.6 | 22.2 | 23.4 | 29.2 | 22.6 | 24.2 | 28.7 | 29.0   | 25.0 |
| 9                             | 17.3  | 20.1 | 20.5  | 22.0 | 21.6 | 22.2 | 26.9 | 20.7 | 22.6 | 26.4 | 27.2   | 23.4 |
| 10                            | 16.7  | 22.8 | 20.7  | 21.2 | 21.6 | 21.7 | 26.5 | 20.5 | 20.6 | 23.7 | 25.9   | 21.8 |
| 11                            | 17.0  | 20.3 | 19.9  | 21.3 | 20.1 | 21.9 | 25.5 | 23.4 | 20.8 | 26.6 | 24.6   | 16.6 |
| 12                            | 17.0  | 19.5 | 20.2  | 22.3 | 20.2 | 21.8 | 25.3 | 26.3 | 19.2 | 23.4 | 27.5   | 17.7 |
| 13                            | 16.6  | 18.0 | 19.7  | 23.2 | 20.2 | 23.2 | 25.1 | 30.4 | 19.7 | 21.2 | 27.2   | 17.7 |
| 14                            | 14.4  | 17.9 | 19.3  | 24.3 | 19.9 | 24.8 | 24.6 | 29.1 | 19.7 | 21.1 | 26.4   | 18.8 |
| 15                            | 17.4  | 19.1 | 19.5  | 20.3 | 18.3 | 21.1 | 23.1 | 14.5 | 16.6 | 20.1 | 18.3   | 10.9 |
| 16                            | 17.6  | 18.9 | 19.1  | 21.3 | 19.3 | 21.0 | 23.5 | 16.0 | 16.6 | 22.1 | 22.3   | 14.3 |
| 17                            | 17.7  | 20.3 | 20.0  | 21.2 | 20.2 | 21.4 | 24.8 | 19.8 | 19.4 | 25.3 | 23.1   | 19.1 |
| 18                            | 17.4  | 20.4 | 20.8  | 22.1 | 21.2 | 22.5 | 28.4 | 20.4 | 22.9 | 26.2 | 27.4   | 24.2 |
| Average                       | 18.8  | 20.1 | 20.9  | 23.6 | 21.9 | 24.3 | 28.2 | 23.2 | 23.4 | 28.2 | 28.2   | 22.2 |
| Grand Ave. 19.5               |       |      | 22.2  |      | 23.8 |      | 25.7 |      | 25.8 |      | 25.2   |      |

\* = First sample of month.

\*\* = Second sample of month.

- = Not sampled.

TABLE 1 (Cont'd)

| MONTHS<br>SAMPLES<br>STATIONS | September |      | October |      | November |    | December |      |
|-------------------------------|-----------|------|---------|------|----------|----|----------|------|
|                               | *         | **   | *       | **   | *        | ** | *        | **   |
| 1                             | 26.3      | 29.5 | 24.1    | 15.8 | 12.6     | -  | 27.1     | 29.2 |
| 2                             | 25.2      | 26.5 | 23.8    | 15.0 | 10.0     | -  | 13.1     | 15.9 |
| 3                             | 25.7      | 24.4 | 23.8    | 15.6 | 7.3      | -  | 13.0     | 15.3 |
| 4                             | 24.9      | 23.3 | 23.2    | 14.6 | 6.9      | -  | 11.2     | 13.2 |
| 5                             | 24.4      | 22.8 | 23.2    | 14.1 | 6.9      | -  | 8.0      | 10.0 |
| 6                             | 23.6      | 22.8 | 22.7    | 14.2 | 7.0      | -  | 7.9      | 9.0  |
| 7                             | 23.6      | 22.0 | 21.9    | 12.9 | 6.8      | -  | 5.8      | 6.7  |
| 8                             | 22.2      | 20.9 | 20.3    | 11.4 | 5.7      | -  | 4.2      | 5.3  |
| 9                             | 20.6      | 20.7 | 19.2    | 10.6 | 4.4      | -  | 3.5      | 4.5  |
| 10                            | 19.8      | 20.5 | 19.0    | 8.2  | 4.2      | -  | 3.0      | 4.0  |
| 11                            | 18.8      | 18.5 | 18.4    | 10.1 | 4.3      | -  | 3.2      | 4.3  |
| 12                            | 18.5      | 18.4 | 18.0    | 10.9 | 5.3      | -  | 3.4      | 4.2  |
| 13                            | 15.8      | 15.0 | 17.5    | 11.6 | 5.8      | -  | 3.9      | 5.0  |
| 14                            | 14.5      | 14.0 | 16.5    | 12.5 | 4.2      | -  | 7.2      | 6.2  |
| 15                            | 19.4      | 15.1 | 16.7    | 14.5 | 2.9      | -  | 2.5      | 3.5  |
| 16                            | 17.4      | 18.3 | 16.6    | 6.9  | 3.5      | -  | 3.5      | 2.5  |
| 17                            | 18.8      | 19.1 | 17.1    | 7.5  | 3.9      | -  | 3.4      | 2.3  |
| 18                            | 18.8      | 19.6 | 18.6    | 8.7  | 4.2      | -  | 3.9      | 2.7  |
| Average                       | 18.9      | 18.5 | 20.0    | 11.9 | 5.8      | -  | 7.1      | 8.0  |
| Grand Ave.                    | 20.8      |      | 15.9    |      | 5.8      |    | 7.5      |      |

\* = First sample of month.

\*\* = Second sample of month

- = Not sampled.

TABLE 2  
Aransas Bay Temperatures in degrees Centigrade, 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |    | October |    | November |      | December |    | January |      | February |    |
|-------------------------------|-----------|----|---------|----|----------|------|----------|----|---------|------|----------|----|
|                               | *         | ** | *       | ** | *        | **   | *        | ** | *       | **   | *        | ** |
| 1                             | 26.5      | -  | 27.5    | -  | 24.0     | 16.6 | 14.6     | -  | 11.2    | 12.6 | 13.9     | -  |
| 2                             | 27.0      | -  | 27.6    | -  | 24.0     | 15.8 | 13.9     | -  | 11.6    | 12.3 | 12.6     | -  |
| 3                             | 26.5      | -  | 27.6    | -  | 24.1     | 15.7 | 13.8     | -  | 11.8    | 12.4 | 12.4     | -  |
| 4                             | 26.0      | -  | 27.7    | -  | 24.1     | 13.8 | 13.5     | -  | 11.7    | 12.6 | 12.4     | -  |
| 5                             | 25.8      | -  | 27.7    | -  | 24.0     | 13.3 | 13.6     | -  | 11.6    | 12.4 | 12.4     | -  |
| 6                             | 25.5      | -  | 27.7    | -  | 24.0     | 13.6 | 13.6     | -  | 11.4    | 12.3 | 12.5     | -  |
| 7                             | 25.3      | -  | 27.5    | -  | 24.3     | 13.8 | 13.7     | -  | 11.2    | 11.7 | 12.7     | -  |
| 8                             | 25.5      | -  | 27.6    | -  | 23.9     | 13.6 | 13.7     | -  | 11.2    | 11.8 | 12.7     | -  |
| 9                             | 25.2      | -  | 27.5    | -  | 24.1     | 13.1 | 13.7     | -  | 11.2    | 11.8 | 13.4     | -  |
| 10                            | 25.3      | -  | 27.4    | -  | 24.4     | 13.0 | 13.2     | -  | 11.2    | 11.4 | 13.1     | -  |
| 11                            | 25.3      | -  | 27.2    | -  | 24.9     | 13.0 | 13.4     | -  | 11.1    | 11.9 | 12.2     | -  |
| 12                            | 25.2      | -  | 27.3    | -  | 25.7     | 13.7 | 13.0     | -  | 11.4    | 12.4 | 11.8     | -  |
| 13                            | 25.4      | -  | 27.4    | -  | 25.5     | 13.6 | 13.4     | -  | 10.9    | 12.7 | 11.7     | -  |
| 14                            | 25.1      | -  | 27.2    | -  | 25.5     | 13.5 | 13.0     | -  | 10.5    | 12.1 | 12.0     | -  |
| 15                            | 26.5      | -  | -       | -  | -        | 14.0 | 13.7     | -  | 11.4    | 13.8 | 14.0     | -  |
| 16                            | 26.4      | -  | 27.4    | -  | -        | 14.1 | 13.6     | -  | 11.1    | 13.8 | 13.5     | -  |
| 17                            | 26.5      | -  | 27.3    | -  | -        | 14.0 | 13.7     | -  | 11.1    | 14.0 | 14.0     | -  |
| 18                            | 26.5      | -  | 27.5    | -  | -        | 13.9 | 13.9     | -  | 11.7    | 14.0 | 13.8     | -  |
| Average                       | 25.9      | -  | 27.4    | -  | 24.2     | 14.0 | 13.6     | -  | 11.2    | 12.6 | 12.8     | -  |
| Grand Ave.                    | 25.9      | -  | 27.4    | -  | 18.8     | -    | 13.6     | -  | 11.9    | -    | 12.8     | -  |

\* = First sample of month.

\*\* = Second sample of month.

- = Not sampled.

TABLE 2 (Cont'd)  
Aransas Bay Temperatures in degrees Centigrade, 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | March |      | April |      | May  |      | June |      | July |      | August |      |
|-------------------------------|-------|------|-------|------|------|------|------|------|------|------|--------|------|
|                               | *     | **   | *     | **   | *    | **   | *    | **   | *    | **   | *      | **   |
| 1                             | 10.0  | 12.0 | 17.0  | 24.1 | 24.0 | 27.2 | 26.4 | 28.1 | 29.1 | 29.2 | 28.5   | 30.2 |
| 2                             | 10.0  | 12.1 | 16.9  | 24.6 | 24.1 | 27.9 | 26.5 | 28.2 | 29.2 | 29.2 | 28.3   | 30.2 |
| 3                             | 9.7   | 12.0 | 17.0  | 24.6 | 23.6 | 27.8 | 26.4 | 28.0 | 29.0 | 29.7 | 28.4   | 30.0 |
| 4                             | 9.7   | 12.2 | 17.2  | 24.6 | 23.5 | 27.5 | 27.5 | 28.2 | 29.2 | 30.5 | 28.0   | 29.8 |
| 5                             | 9.8   | 12.3 | 17.4  | 24.6 | 23.0 | 27.7 | 28.3 | 28.3 | 29.3 | 30.3 | 27.9   | 29.6 |
| 6                             | 9.8   | 12.4 | 17.5  | 24.4 | 23.2 | 27.6 | 28.5 | 28.5 | 29.3 | 30.5 | 27.9   | 29.8 |
| 7                             | 9.7   | 12.4 | 17.5  | 24.7 | 23.1 | 27.9 | 28.7 | 28.6 | 29.6 | 30.6 | 28.4   | 29.9 |
| 8                             | 9.6   | 12.5 | 17.7  | 24.8 | 23.5 | 28.0 | 28.8 | 28.4 | 29.5 | 30.4 | 28.1   | 30.1 |
| 9                             | 8.9   | 12.6 | 17.6  | 24.8 | 23.5 | 27.9 | 28.7 | 28.6 | 29.7 | 30.3 | 28.2   | 30.1 |
| 10                            | 9.3   | 12.6 | 17.4  | 24.6 | 23.6 | 28.1 | 29.1 | 28.7 | 29.8 | 30.4 | 28.0   | 30.0 |
| 11                            | 9.2   | 12.6 | 17.1  | 24.5 | 23.3 | 27.9 | 29.0 | 28.5 | 29.7 | 30.5 | 27.9   | 29.9 |
| 12                            | 9.4   | 12.4 | 16.7  | 24.9 | 23.8 | 27.9 | 28.7 | 28.6 | 29.8 | 30.2 | 27.9   | 29.9 |
| 13                            | 9.5   | 12.2 | 17.5  | 24.9 | 23.8 | 27.9 | 29.0 | 28.9 | 30.0 | 30.2 | 27.2   | 29.8 |
| 14                            | 9.8   | 11.9 | 17.3  | 25.3 | 23.7 | 28.1 | 29.0 | 28.9 | 29.9 | 30.7 | 27.9   | 30.2 |
| 15                            | 10.2  | 13.4 | 19.0  | 25.5 | 24.2 | 29.3 | 29.8 | 28.4 | 30.7 | 31.7 | 28.1   | 30.8 |
| 16                            | 9.9   | 12.6 | 19.1  | 25.7 | 24.3 | 29.0 | 29.7 | 29.1 | 30.6 | 31.6 | 28.3   | 30.8 |
| 17                            | 10.1  | 12.9 | 18.8  | 25.5 | 24.5 | 28.9 | 29.8 | 29.4 | 30.5 | 31.4 | 28.2   | 30.6 |
| 18                            | 10.4  | 13.4 | 19.5  | 25.8 | 24.8 | 29.0 | 29.8 | 29.3 | 30.6 | 31.3 | 28.1   | 30.8 |
| Average                       | 9.7   | 11.8 | 17.6  | 24.8 | 23.7 | 28.0 | 28.5 | 28.7 | 29.8 | 30.5 | 28.0   | 30.1 |
| Grand Ave.                    | 10.7  | 21.2 | 21.2  | 25.6 | 25.6 | 28.6 | 28.6 | 28.6 | 30.1 | 30.1 | 29.0   | 29.0 |

\* = First sample of month. \*\* = Second sample of month. - = Not sampled.

TABLE 2 (Cont'd)  
Aransas Bay Temperatures in degrees Centigrade, 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |      | October |      | November |    | December |      |
|-------------------------------|-----------|------|---------|------|----------|----|----------|------|
|                               | *         | **   | *       | **   | *        | ** | *        | **   |
| 1                             | 27.6      | 27.1 | 27.4    | 20.7 | 23.3     | -  | 20.0     | 11.0 |
| 2                             | 27.6      | 26.1 | 27.4    | 20.7 | 25.3     | -  | 18.7     | 11.4 |
| 3                             | 27.5      | 26.1 | 27.3    | 20.6 | 23.3     | -  | 18.8     | 11.5 |
| 4                             | 27.6      | 26.3 | 27.5    | 21.0 | 23.3     | -  | 18.8     | 11.5 |
| 5                             | 27.7      | 26.4 | 27.5    | 21.0 | 23.4     | -  | 18.7     | 11.4 |
| 6                             | 27.7      | 26.5 | 27.4    | 21.1 | 23.4     | -  | 18.5     | 11.3 |
| 7                             | 27.6      | 26.5 | 27.3    | 21.0 | 23.4     | -  | 18.8     | 11.4 |
| 8                             | 27.9      | 26.2 | 27.4    | 20.8 | 23.4     | -  | 18.9     | 11.5 |
| 9                             | 27.8      | 26.4 | 27.0    | 20.6 | 23.4     | -  | 17.6     | 10.4 |
| 10                            | 27.6      | 26.1 | 26.8    | 20.5 | 23.3     | -  | 17.4     | 10.2 |
| 11                            | 27.9      | 25.8 | 26.4    | 20.5 | 23.1     | -  | 17.9     | 10.4 |
| 12                            | 28.0      | 25.5 | 26.4    | 19.9 | 23.3     | -  | 17.3     | 10.2 |
| 13                            | 27.5      | 25.5 | 26.3    | 19.6 | 23.5     | -  | 17.5     | 10.3 |
| 14                            | 28.0      | 25.3 | 25.3    | 20.1 | 23.7     | -  | 18.4     | 11.4 |
| 15                            | 28.2      | 26.5 | 26.9    | 20.4 | 23.3     | -  | 18.9     | 11.6 |
| 16                            | 28.4      | 26.6 | 27.0    | 20.5 | 23.4     | -  | 18.6     | 11.5 |
| 17                            | 28.3      | 26.7 | 27.1    | 20.4 | 23.4     | -  | 18.8     | 11.5 |
| 18                            | 28.6      | 26.6 | 27.4    | 20.4 | 23.4     | -  | 17.6     | 11.2 |
| Average                       | 27.8      | 26.2 | 26.9    | 20.5 | 23.4     | -  | 18.4     | 10.4 |
| Grand Ave.                    | 27.0      | 23.7 | 23.4    | 23.4 | 14.4     | -  | -        | -    |

\* = First sample of month.    \*\* = Second sample of month.    - = Not sampled.



TABLE 3  
Copano Bay Salinities in ppt for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |    | October |    | November |      | December |    | January |      | February |    |
|-------------------------------|-----------|----|---------|----|----------|------|----------|----|---------|------|----------|----|
|                               | *         | ** | *       | ** | *        | **   | *        | ** | *       | **   | *        | ** |
| 1                             | 20.7      | -  | 18.4    | -  | 12.8     | 14.3 | 17.2     | -  | 14.5    | 15.2 | 17.2     | -  |
| 2                             | 19.7      | -  | 18.2    | -  | 12.4     | 13.5 | 15.8     | -  | 14.3    | 14.9 | 17.2     | -  |
| 3                             | 18.5      | -  | 17.7    | -  | 12.4     | 13.2 | 15.1     | -  | 14.3    | 14.5 | 16.2     | -  |
| 4                             | 17.8      | -  | 17.3    | -  | 11.8     | 12.2 | 13.1     | -  | 14.2    | 14.9 | 14.4     | -  |
| 5                             | 16.0      | -  | 16.4    | -  | 11.5     | 11.9 | 12.7     | -  | 13.7    | 14.6 | 13.2     | -  |
| 6                             | 15.5      | -  | -       | -  | 11.5     | -    | 12.7     | -  | 12.9    | 14.3 | 12.5     | -  |
| 7                             | 15.3      | -  | -       | -  | 11.0     | 11.8 | 12.7     | -  | 12.9    | 13.7 | 12.5     | -  |
| 8                             | 15.8      | -  | 12.6    | -  | 11.3     | 11.8 | 12.9     | -  | 13.0    | 14.3 | 12.9     | -  |
| 9                             | 16.5      | -  | -       | -  | 11.3     | 12.1 | 12.7     | -  | 13.0    | 14.2 | 13.3     | -  |
| Average                       | 17.3      | -  | 15.7    | -  | 11.7     | 12.6 | 13.8     | -  | 13.6    | 14.5 | 14.3     | -  |
| Grand Ave.                    | 17.3      | -  | 15.7    | -  | 12.1     | -    | 13.8     | -  | 14.0    | -    | 14.3     | -  |

\* = First sample of month. \*\* Second sample of month. - = Not sampled.

TABLE 3 (Cont'd)  
Copano Bay Salinities in ppt for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | March |      | April |      | May  |      | June |      | July |      | August |     |
|-------------------------------|-------|------|-------|------|------|------|------|------|------|------|--------|-----|
|                               | *     | **   | *     | **   | *    | **   | *    | **   | *    | **   | *      | **  |
| 1                             | 15.6  | 18.0 | 16.6  | 20.1 | 18.8 | 19.9 | 22.9 | 17.0 | 14.4 | 17.2 | 16.8   | 9.7 |
| 2                             | 15.6  | 17.9 | 16.0  | 18.4 | 18.3 | 19.3 | 21.9 | 20.2 | 13.1 | 16.3 | 15.2   | 8.9 |
| 3                             | 15.5  | 16.9 | 15.8  | 18.0 | 18.2 | 18.3 | 21.5 | 19.9 | 12.9 | 15.1 | 16.0   | 9.6 |
| 4                             | 15.5  | 16.1 | 15.6  | 16.5 | 17.3 | 18.1 | 21.5 | 12.4 | 10.9 | 14.0 | 15.2   | 9.8 |
| 5                             | 15.4  | 15.7 | 14.3  | 16.6 | 16.6 | 17.9 | 21.5 | 9.7  | 9.2  | 12.3 | 13.9   | 8.6 |
| 6                             | 15.2  | 15.7 | 12.3  | 17.4 | 15.6 | 18.2 | 21.2 | 3.8  | 6.9  | 11.3 | 12.0   | 7.5 |
| 7                             | 15.2  | 14.1 | 13.3  | 17.3 | 15.6 | 19.3 | 20.5 | 4.1  | 6.0  | 10.5 | 10.4   | 4.4 |
| 8                             | 14.8  | 15.3 | 13.9  | 16.8 | 15.7 | 17.7 | 20.0 | 8.3  | 10.1 | 11.7 | 12.2   | 7.2 |
| 9                             | 15.5  | 15.6 | 14.7  | 15.6 | 16.2 | 17.3 | 19.9 | 14.4 | 11.4 | 12.3 | 11.8   | 7.3 |
| Average                       | 15.3  | 17.2 | 14.7  | 17.4 | 16.9 | 18.4 | 20.1 | 12.2 | 10.5 | 13.4 | 13.6   | 8.1 |
| Grand Ave.                    | 15.6  |      | 16.6  |      | 17.7 |      | 16.2 |      | 12.0 |      | 10.9   |     |

\* = First sample of month. \*\* = Second sample of month. - = Not sampled.

NOTE: Second sample in the month of June was taken 6 days after a 4-inch rainfall.

TABLE 3 (Cont'd)  
Copano Bay Salinities in ppt for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |      | October |     | November |    | December |      |
|-------------------------------|-----------|------|---------|-----|----------|----|----------|------|
|                               | *         | **   | *       | **  | *        | ** | *        | **   |
| 1                             | 15.6      | 15.7 | 15.3    | 4.3 | 2.4      | -  | 2.5      | 3.2  |
| 2                             | 15.0      | 15.7 | 14.7    | 4.1 | 2.3      | -  | 2.2      | 2.7  |
| 3                             | 14.8      | 14.9 | 14.7    | 1.4 | 1.9      | -  | 2.5      | 2.4  |
| 4                             | 14.5      | 14.1 | 14.2    | 1.5 | 1.4      | -  | 2.5      | 2.5  |
| 5                             | 14.7      | 13.8 | 14.0    | 0.0 | 1.2      | -  | 2.0      | 2.0  |
| 6                             | 12.4      | 14.1 | 13.2    | 0.0 | 0.7      | -  | 2.0      | 2.1  |
| 7                             | 11.8      | 14.6 | 12.8    | 0.0 | 0.9      | -  | 2.3      | 2.3  |
| 8                             | 12.6      | 13.3 | 12.2    | 0.0 | 1.1      | -  | 2.2      | 2.1  |
| 9                             | 12.6      | 13.3 | 13.4    | 3.2 | 1.7      | -  | 2.7      | 2.9  |
| Average                       | 13.7      | 14.4 | 13.8    | 1.6 | 1.6      | -  | 2.3      | 2.46 |
| Grand Ave.                    | 12.67     |      | 7.7     |     | 1.6      |    | 2.39     |      |

\* = First sample of month. \*\* = Second sample of month. - = Not sampled.

TABLE 4  
Copano Bay Temperatures in degrees Centigrade for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |    | October |    | November |      | December |    | January |      | February |    |
|-------------------------------|-----------|----|---------|----|----------|------|----------|----|---------|------|----------|----|
|                               | *         | ** | *       | ** | *        | **   | *        | ** | *       | **   | *        | ** |
| 1                             | 26.5      | -  | 27.1    | -  | 24.5     | 13.4 | 13.1     | -  | 11.1    | 12.7 | 13.6     | -  |
| 2                             | 26.8      | -  | 27.3    | -  | 24.5     | 13.3 | 13.6     | -  | 10.9    | 13.0 | 13.1     | -  |
| 3                             | 25.4      | -  | 27.4    | -  | 24.9     | 12.8 | 13.0     | -  | 10.9    | 13.3 | 13.2     | -  |
| 4                             | 25.6      | -  | 27.3    | -  | 23.9     | 13.3 | 13.0     | -  | 11.1    | 12.9 | 12.4     | -  |
| 5                             | 25.6      | -  | 27.4    | -  | 23.9     | 13.1 | 13.0     | -  | 11.0    | 12.7 | 12.3     | -  |
| 6                             | 25.6      | -  | -       | -  | 23.7     | 12.8 | 13.5     | -  | 11.2    | 13.4 | 12.2     | -  |
| 7                             | 25.5      | -  | -       | -  | 24.1     | 12.4 | 13.2     | -  | 10.9    | 14.8 | 12.6     | -  |
| 8                             | 25.6      | -  | 27.1    | -  | 24.1     | 13.1 | 13.1     | -  | 10.8    | 13.5 | 12.5     | -  |
| 9                             | 25.5      | -  | -       | -  | 24.0     | 13.4 | 12.9     | -  | 11.0    | 13.4 | 12.4     | -  |
| Average                       | 25.7      | -  | 27.3    | -  | 24.2     | 13.1 | 13.3     | -  | 10.9    | 13.3 | 12.6     | -  |
| Grand Ave.                    | 25.7      | -  | 27.3    | -  | 18.6     | -    | 13.3     | -  | 12.1    | -    | 12.6     | -  |

\* = First sample of month.

\*\* Second sample of month.

- = Not sampled.

TABLE 4 (Cont'd)  
Copano Bay Temperatures in degrees Centigrade for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | March |      | April |      | May  |      | June |      | July |      | August |      |
|-------------------------------|-------|------|-------|------|------|------|------|------|------|------|--------|------|
|                               | *     | **   | *     | **   | *    | **   | *    | **   | *    | **   | *      | **   |
| 1                             | 9.9   | 18.9 | 19.4  | 25.8 | 23.5 | 28.7 | 29.0 | 28.8 | 30.4 | 31.1 | 27.8   | 30.6 |
| 2                             | 9.7   | 19.0 | 19.4  | 25.5 | 23.7 | 28.4 | 29.2 | 28.6 | 30.0 | 32.2 | 28.0   | 30.6 |
| 3                             | 10.2  | 19.0 | 19.0  | 25.5 | 23.9 | 28.4 | 29.2 | 28.8 | 30.0 | 31.5 | 28.0   | 30.2 |
| 4                             | 9.9   | 19.1 | 19.5  | 25.0 | 24.1 | 28.4 | 29.1 | 29.5 | 30.1 | 31.5 | 28.2   | 30.2 |
| 5                             | 9.4   | 19.5 | 18.9  | 25.0 | 23.8 | 28.2 | 29.5 | 29.8 | 30.5 | 31.6 | 28.0   | 30.3 |
| 6                             | 9.7   | 19.6 | 18.9  | 25.0 | 24.3 | 28.3 | 29.7 | 29.5 | 30.3 | 31.8 | 28.1   | 30.3 |
| 7                             | 9.9   | 19.6 | 18.8  | 24.9 | 23.4 | 28.6 | 28.4 | 29.4 | 30.4 | 31.6 | 27.5   | 30.3 |
| 8                             | 9.6   | 19.6 | 19.5  | 25.1 | 23.6 | 28.5 | 29.6 | 29.5 | 30.5 | 31.4 | 27.9   | 31.0 |
| 9                             | 9.7   | 19.6 | 19.0  | 25.4 | 24.6 | 28.0 | 29.0 | 28.9 | 30.5 | 31.6 | 27.9   | 31.0 |
| Average                       | 9.7   | 19.3 | 19.2  | 25.3 | 23.9 | 28.4 | 29.2 | 29.2 | 30.3 | 31.6 | 27.9   | 30.5 |
| Grand Ave. 14.5               |       |      | 22.2  |      | 26.2 |      | 29.2 |      | 30.9 |      | 29.2   |      |

\* = First sample of month. \*\* = Second sample of month. - = Not sampled.

TABLE 4 (Cont'd)  
Copano Bay Temperatures in degrees Centigrade for 1959-60

| MONTHS<br>SAMPLES<br>STATIONS | September |      | October |      | November |    | December |      |
|-------------------------------|-----------|------|---------|------|----------|----|----------|------|
|                               | *         | **   | *       | **   | *        | ** | *        | **   |
| 1                             | 27.9      | 26.2 | 26.3    | 20.5 | 23.1     | -  | 18.8     | 11.3 |
| 2                             | 28.0      | 26.5 | 26.2    | 20.3 | 23.6     | -  | 19.9     | 12.4 |
| 3                             | 28.0      | 26.4 | 26.1    | 19.9 | 23.5     | -  | 19.9     | 12.4 |
| 4                             | 28.0      | 26.1 | 26.2    | 20.1 | 23.4     | -  | 20.0     | 12.7 |
| 5                             | 27.8      | 26.3 | 26.0    | 20.0 | 23.6     | -  | 20.0     | 12.6 |
| 6                             | 27.8      | 26.1 | 26.6    | 19.1 | 22.7     | -  | 20.6     | 13.0 |
| 7                             | 27.5      | 25.6 | 25.9    | 20.0 | 23.3     | -  | 20.8     | 13.3 |
| 8                             | 27.8      | 25.8 | 25.8    | 20.0 | 23.1     | -  | 21.0     | 14.0 |
| 9                             | 28.0      | 25.9 | 26.2    | 20.2 | 23.1     | -  | 20.6     | 13.0 |
| Average                       | 27.9      | 26.1 | 26.1    | 20.1 | 23.2     | -  | 20.1     | 12.7 |
| Grand Ave.                    | 27.5      |      | 23.0    |      | 23.2     |    | 16.4     |      |

\* = First sample of month.      \*\* = Second sample of month.      - = Not sampled.

- 14 -

Figure 2

A Comparison of Aransas and Copano Bay Salinities for 1960.

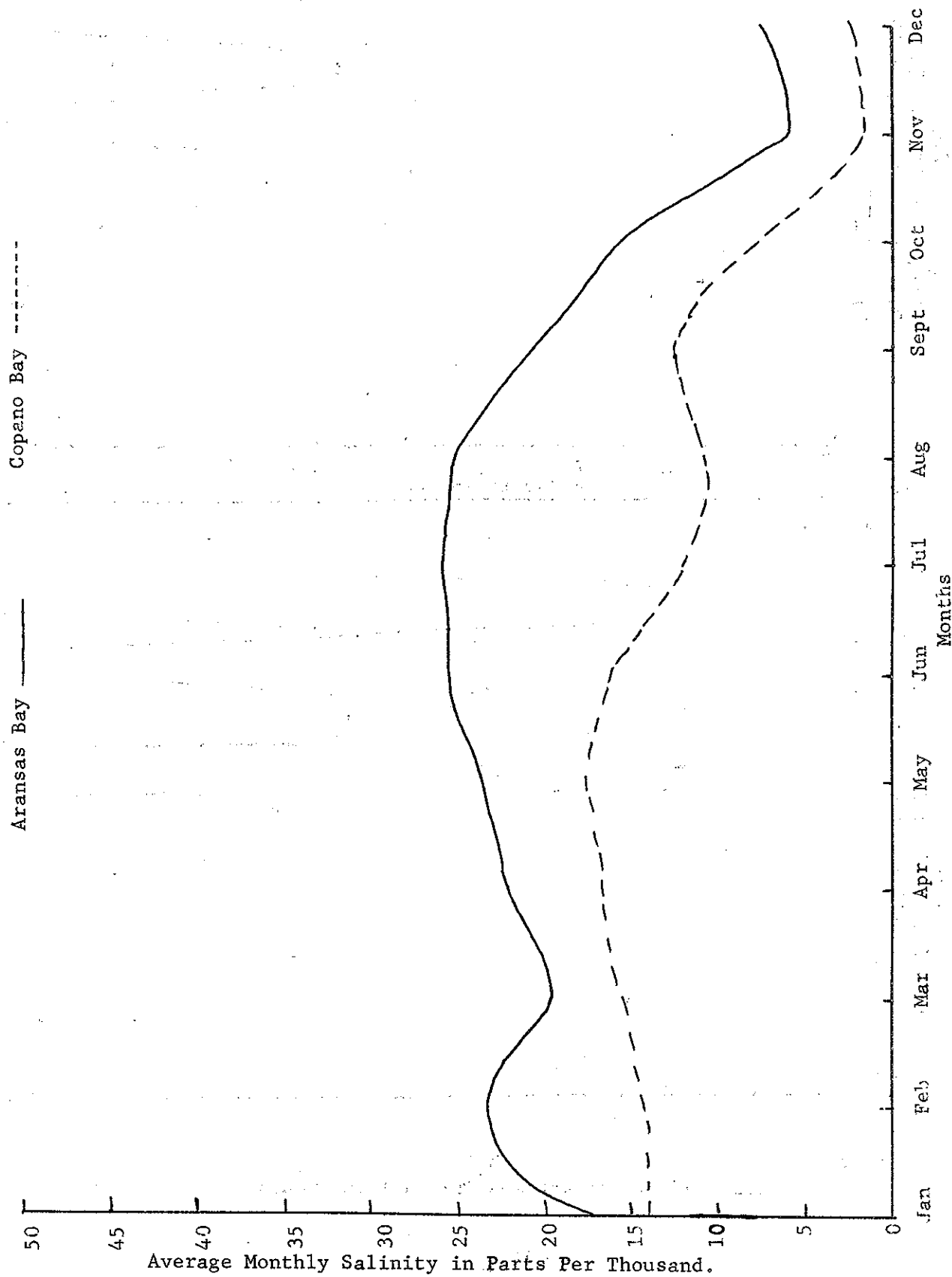


Figure 3  
Salinity of Copano Bay in Relation to  
Rainfall at Rockport 1960

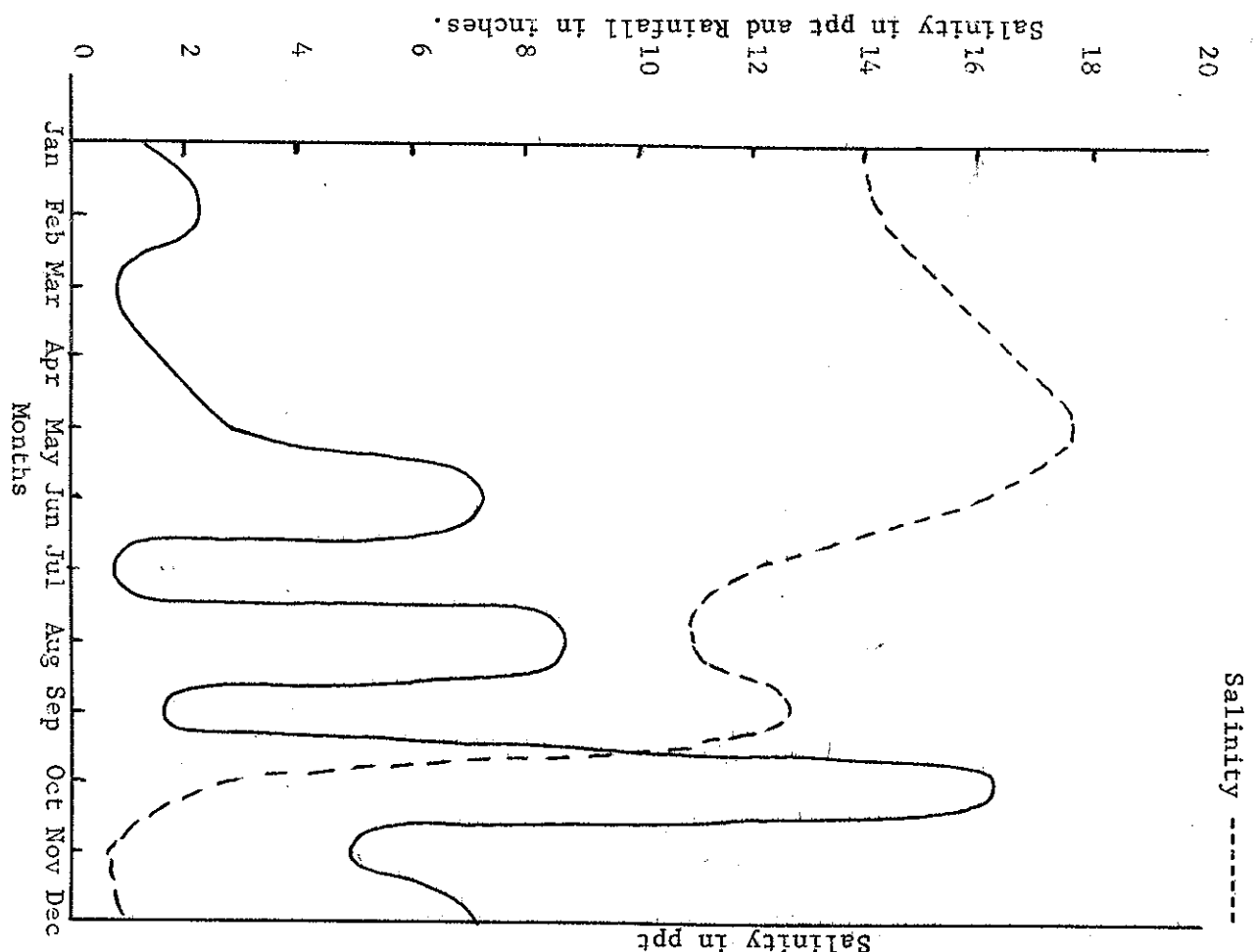


Figure 4  
Salinity of Aransas Bay in Relation to  
Rainfall at Rockport 1960

