

DENSITY OF SEA WATER  
AT TIDE STATIONS  
ATLANTIC COAST  
NORTH AND SOUTH AMERICA

C&GS PUBLICATION 31-2  
FIFTH EDITION  
(WITH DATA THROUGH 1956)

U. S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY  
WASHINGTON

GC  
151  
U 58

Coast and Geodetic Survey Publications on  
Sea Water Temperatures and Densities

- C&GS Special Publication No. 278, Surface Water Temperatures, Atlantic Coast, North and South America (Fifth Edition) 1955.
- C&GS Publication 31-2, Density of Sea Water, Atlantic Coast, North and South America (Fifth Edition) 1957. (Formerly Special Publication No. 279.)
- C&GS Special Publication No. 280, Surface Water Temperatures, Pacific Coast, North and South America and Pacific Ocean Islands (Fifth Edition) 1956.
- C&GS Special Publication No. 281, Density of Sea Water, Pacific Coast, North and South America and Pacific Ocean Islands (Fourth Edition) 1954.
- C&GS Special Publication No. 298, Sea Water Temperature and Density Reduction Tables, 1953.

Sold by the Superintendent of Documents, U. S. Government Printing Office,  
Washington 25, D. C.

U. S. DEPARTMENT OF COMMERCE  
SINCLAIR WEEKS, Secretary  
COAST AND GEODETIC SURVEY  
H. ARNOLD KARO, Director

C&GS PUBLICATION 31-2  
FIFTH EDITION  
(WITH DATA THROUGH 1956)

DENSITY OF SEA WATER  
AT TIDE STATIONS  
ATLANTIC COAST  
NORTH AND SOUTH AMERICA



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1957

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. - Price 45 cents



## Contents

|   | Page |
|---|------|
| Introduction-----   | 1    |
| Index map-----  | 2    |
| List of stations-----   | 4    |
| Table 1. Density of sea water - monthly and<br>yearly means and extremes----- | 6    |
| Mean salinity curves-----   | 68   |
| Table 2. Corresponding densities and salinities-----                          | 71   |
| Sea water density at various temperatures-----                                | 72   |
|   | III  |



## Introduction

The summaries of sea water densities presented in this publication are based on observations made in Atlantic harbor and coastal waters through the year 1956. The densities were observed primarily at tide stations which, in the United States, were maintained by the Coast and Geodetic Survey, often with the cooperation of other organizations. Final results for places in Venezuela were supplied by the Ministerio de Obras Publicas, Estados Unidos de Venezuela. For other countries, the Coast and Geodetic Survey derived the data from observations made by organizations in the countries concerned. In Latin America the observations were obtained through the cooperation of the Inter American Geodetic Survey.

Table 1 presents monthly means and annual mean and extremes for each year of observations. Maximum and minimum densities are shown for each year in which observations were made, whether or not the observations covered the whole year. In all cases the yearly extremes are from the months of the year for which means are given. If they are from an incomplete year, they are followed by an asterisk.

For each station at which the series of observations covered two or more years, there are given also the following monthly values for the series: the mean of the monthly means together with its corresponding salinity, the maximum density observed, the mean of the monthly maxima, the mean of the monthly minima, and minimum observed.

Following the table of densities are graphs of monthly mean salinities showing the seasonal variations for many places listed in Table 1.

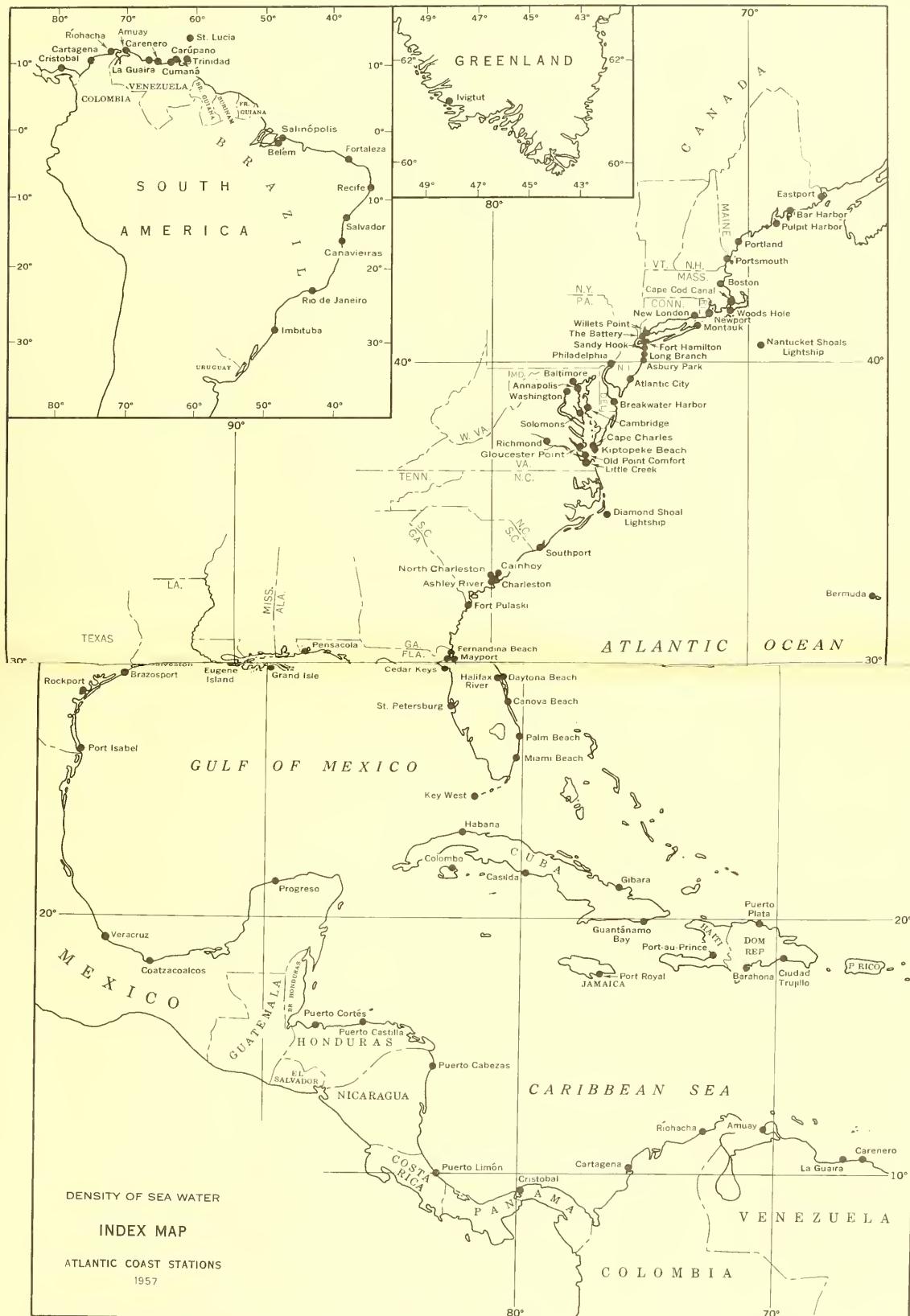
The observations are made by drawing a sample of water from near the surface and observing its density by means of a hydrometer. They are usually made once each weekday at whatever time the observer attends the tide gage. It may be assumed that in the course of a month or a year the distribution of observations is fairly uniform over all phases of the tide. At some stations situated within or near the entrance of an estuary, the density varies with the stage of the tide or with the direction of the tidal current.

The densities in Table 1 are given with respect to the density of pure water at a temperature of 4°C (39.2°F) as unity. The actual density of the water may vary from a little less than unity for fresh water at a temperature other than 4°C to approximately 1.0310 for the heaviest sea water. Since the density of sea water, as observed, depends not only upon the amount of soluble matter contained in a unit volume but also upon the temperature of the water at the time the reading was made, it is necessary to reduce the observed densities to some standard temperature in order that they may be comparable. In this publication the observed densities have been reduced to a standard temperature of 15°C (59°F). The density of pure water free from air at a temperature of 15°C is 0.9991.

The salinity of sea water, denoted by the symbol o/oo, is defined as the number of grams of salts contained in 1000 grams of sea water. Salinity can be determined by several different methods, one of the simplest being based upon the density of the water as obtained from the use of the hydrometer. Table 2 gives the salinity corresponding to different values of density at the standard temperature of 59°F. (15°C.) to which all densities in this publication are referred.

For some practical uses of density data, it is more important to know the density at the temperature apt to be encountered than at the standard temperature. The graph, Sea Water Density at Various Temperatures, provides for converting density at 59°F (15°C) to density at other temperatures.





## List of Stations

| Station  | Lat.<br>°   °   ' | Long.<br>°   °   ' | Page     |
|--|-------------------|--------------------|----------|
| Amuay, Venezuela-----                          | 11 45N.           | 70 13W.            | 59       |
| Annapolis, Md.-----                            | 38 59N.           | 76 29W.            | 29,69    |
| Asbury Park, N. J.-----                        | 40 13N.           | 74 00W.            | 19       |
| Ashley River, Charleston, S. C.-----           | 32 50N.           | 79 58W.            | 34       |
| Atlantic City, N. J.-----                      | 39 21N.           | 74 25W.            | 19,68    |
| Baltimore, Md.-----                            | 39 16N.           | 76 35W.            | 29,69    |
| Barahona, Dominican Republic-----              | 18 12N.           | 71 05W.            | 56       |
| Bar Harbor, Me.-----                           | 44 23N.           | 68 12W.            | 7,68     |
| Battery, The, New York, N. Y.-----             | 40 42N.           | 74 01W.            | 15,68    |
| Belém, Brazil-----                             | 1 27S.            | 48 30W.            | 62,70    |
| Bermuda (Ferry Reach, St. Georges Island)----- | 32 22N.           | 64 42W.            | 52,70    |
| Boston, Mass.-----                             | 42 21N.           | 71 03W.            | 10,68    |
| Brazosport, Freeport Harbor, Tex.-----         | 28 57N.           | 95 19W.            | 46       |
| Breakwater Harbor, Del.-----                   | 38 47N.           | 75 06W.            | 21,68    |
| Cainhoy, Wando River, S. C.-----               | 32 55N.           | 79 50W.            | 34       |
| Cambridge, Md.-----                            | 38 34N.           | 76 04W.            | 28,69    |
| Canavieiras, Brazil-----                       | 15 41S.           | 38 59W.            | 65       |
| Canova Beach, Fla.-----                        | 28 08N.           | 80 35W.            | 38,69    |
| Cape Charles (town), Va.-----                  | 37 16N.           | 76 01W.            | 23       |
| Cape Cod Canal (east entrance), Mass.-----     | 41 46N.           | 70 30W.            | 11       |
| Cape Cod Canal (west entrance), Mass.-----     | 41 44N.           | 70 37W.            | 12       |
| Carenero, Venezuela-----                       | 10 32N.           | 66 07W.            | 60       |
| Cartagena, Colombia-----                       | 10 24N.           | 75 33W.            | 59,70    |
| Carúpano, Venezuela-----                       | 10 40N.           | 63 15W.            | 62       |
| Casilda, Cuba-----                             | 21 45N.           | 79 59W.            | 54       |
| Cedar Keys, Fla.-----                          | 29 08N.           | 83 02W.            | 41,69    |
| Charleston (Customhouse Wharf), S. C.-----     | 32 47N.           | 79 55W.            | 32,33,69 |
| Charleston (Ashley River), S. C.-----          | 32 50N.           | 79 58W.            | 34       |
| Ciudad Trujillo, Dominican Republic-----       | 18 28N.           | 69 53W.            | 56       |
| Coatzacoalcos (Puerto Mexico), Mexico-----     | 18 09N.           | 94 25W.            | 48,70    |
| Colombo, Isla de Pinos, Cuba-----              | 21 54N.           | 82 46W.            | 55       |
| Cristobal, Canal Zone-----                     | 9 21N.            | 79 55W.            | 51,70    |
| Cumaná, Venezuela-----                         | 10 28N.           | 64 11W.            | 61,70    |
| Daytona Beach (Halifax River), Fla.-----       | 29 13N.           | 81 01W.            | 38       |
| Daytona Beach (ocean), Fla.-----               | 29 14N.           | 81 00W.            | 37,69    |
| Diamond Shoal Lightship-----                   | 35 05N.           | 75 20W.            | 31,69    |
| Eastport, Me.-----                             | 44 54N.           | 66 59W.            | 6,68     |
| Eugene Island, La.-----                        | 29 22N.           | 91 23W.            | 44,70    |
| Fernandina Beach, Fla.-----                    | 30 40N.           | 81 28W.            | 35,69    |
| Fortaleza (Mucuripe), Brazil-----              | 3 43S.            | 38 29W.            | 63,70    |
| Fort Hamilton, New York, N. Y.-----            | 40 37N.           | 74 02W.            | 17       |
| Fort Pulaski, Savannah River, Ga.-----         | 32 02N.           | 80 54W.            | 34,69    |
| Galveston, Tex.-----                           | 29 19N.           | 94 48W.            | 45,70    |
| Gibara, Cuba-----                              | 21 07N.           | 76 07W.            | 53       |
| Gloucester Point, Va.-----                     | 37 15N.           | 76 30W.            | 26       |
| Grand Isle, 8 miles SE. of, La.-----           | 29 10N.           | 89 55W.            | 44,69    |
| Guantánamo Bay, Cuba-----                      | 19 54N.           | 75 09W.            | 54,70    |
| Habana, Cuba-----                              | 23 09N.           | 82 20W.            | 52,70    |
| Halifax River, Daytona Beach, Fla.-----        | 29 13N.           | 81 01W.            | 38       |
| Imbituba, Brazil-----                          | 28 17S.           | 48 40W.            | 66       |
| Ivigtut, Greenland-----                        | 61 12N.           | 48 11W.            | 6,68     |

## List of Stations -Continued

5

| Station  | Lat.<br>°   °   ' | Long.<br>°   °   ' | Page  |
|--|-------------------|--------------------|-------|
| Jacksonville, Fla.                               | 30 21N.           | 81 37W.            | 37    |
| Key West, Fla.                                   | 24 33N.           | 81 48W.            | 39,69 |
| Kiptopeke Beach, Va.                             | 37 10N.           | 75 59W.            | 23,68 |
| La Guaira, Venezuela                             | 10 36N.           | 66 56W.            | 60,70 |
| Little Creek, Va.                                | 36 55N.           | 76 11W.            | 24    |
| Long Branch, N. J.                               | 40 18N.           | 73 59W.            | 18,68 |
| Mayport, Fla.                                    | 30 24N.           | 81 26W.            | 36,69 |
| Miami Beach, Fla.                                | 25 46N.           | 80 08W.            | 39,69 |
| Monrovia, Liberia                                | 6 20N.            | 10 48W.            | 67    |
| Montauk, Fort Pond Bay, L. I., N.Y.              | 41 03N.           | 71 58W.            | 14,68 |
| Nantucket Shoals Lightship                       | 40 37N.           | 69 37W.            | 13    |
| New London, Conn.                                | 41 22N.           | 72 06W.            | 13,68 |
| Newport, R.I.                                    | 41 30N.           | 71 20W.            | 13    |
| New York (Fort Hamilton), N.Y.                   | 40 37N.           | 74 02W.            | 17    |
| New York (The Battery), N.Y.                     | 40 42N.           | 74 01W             | 15,68 |
| New York (Willets Point), N.Y.                   | 40 48N.           | 73 47W.            | 14,68 |
| North Charleston Terminals, Cooper River, S.C.   | 32 54N.           | 79 58W.            | 34    |
| Old Point Comfort, Va.                           | 37 00N.           | 76 18W.            | 24,68 |
| Palm Beach, Fla.                                 | 26 43N.           | 80 02W.            | 39    |
| Pensacola, Fla.                                  | 30 24N.           | 87 13W.            | 42,69 |
| Philadelphia, Pa.                                | 39 57N.           | 75 08W.            | 22 68 |
| Port-au-Prince, Haiti                            | 18 33N.           | 72 21W.            | 55,70 |
| Port Isabel, Tex.                                | 26 04N.           | 97 13W.            | 47,70 |
| Portland, Me.                                    | 43 40N.           | 70 15W.            | 8,68  |
| Port Royal, Jamaica                              | 17 56N.           | 76 51W.            | 55    |
| Portsmouth, N. H.                                | 43 05N.           | 70 45W.            | 9,68  |
| Progreso, Mexico                                 | 21 17N.           | 89 40W.            | 49    |
| Puerto Cabezas, Nicaragua                        | 14 01N.           | 83 23W.            | 50    |
| Puerto Castilla, Honduras                        | 16 00N.           | 86 02W.            | 50    |
| Puerto Cortés, Honduras                          | 15 50N.           | 87 57W.            | 50    |
| Puerto Limón, Costa Rica                         | 10 00N.           | 83 02W.            | 51    |
| Puerto Mexico (Coatzacoalcos), Mexico            | 18 09N.           | 94 25W.            | 48,70 |
| Puerto Plata, Dominican Republic                 | 19 49N.           | 70 42W.            | 57 70 |
| Pulpit Harbor, Me.                               | 44 09N.           | 68 53W.            | 8     |
| Recife, Brazil                                   | 8 03S.            | 34 52W             | 64,70 |
| Richmond, Va.                                    | 37 32N.           | 77 25W.            | 25,68 |
| Rio de Janeiro (Fortaleza de Santa Cruz), Brazil | 22 56S.           | 43 08W.            | 65,70 |
| Ríohacha, Colombia                               | 11 34N.           | 72 55W.            | 59    |
| Rockport, Tex.                                   | 28 01N.           | 97 03W.            | 47,70 |
| St. Lucia (Castries), B.W.I.                     | 14 01N.           | 61 00W.            | 57    |
| St. Lucia (Vieux Fort), B.W.I.                   | 13 44N.           | 60 58W.            | 58    |
| St. Petersburg, Fla.                             | 27 46N.           | 82 38W.            | 41,69 |
| Salinópolis, Brazil                              | 0 37S.            | 47 23W.            | 63    |
| Salvador, Brazil                                 | 12 58S.           | 38 31W.            | 64,70 |
| Sandy Hook, N.J.                                 | 40 28N.           | 74 01W.            | 17,68 |
| Solomons, Md.                                    | 38 19N.           | 76 27W.            | 27,68 |
| Southport, N. C.                                 | 33 55N.           | 78 01W.            | 31,69 |
| Trinidad (Carenage Bay), B.W.I.                  | 10 41N.           | 61 36W.            | 58,70 |
| Veracruz, Mexico                                 | 19 11N.           | 96 07W.            | 48    |
| Washington, D. C.                                | 38 52N.           | 77 01W.            | 26,68 |
| Willets Point, New York, N.Y.                    | 40 48N.           | 73 47W.            | 14,68 |
| Woods Hole, Mass.                                | 41 31N.           | 70 40W.            | 12,68 |

**Table 1. Density of Sea Water  
Means and Extremes**

| Year                      | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.    |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| <b>IVIGTUT, GREENLAND</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| 1945                      | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0160 | 1.0137 | 1.0178 | 1.0200 | 1.0240 | 1.0242 | ---     |
| 1946                      | 1.0245 | 1.0247 | 1.0248 | 1.0250 | 1.0223 | 1.0211 | 1.0211 | 1.0211 | 181    | 170    | 204    | 231    | 240    | 247    | 1.0225  |
| 1947                      | 256    | 258    | 249    | 251    | 242    | 224    | 204    | 174    | 208    | 226    | 241    | 246    | 246    | 232    | 258     |
| 1948                      | 249    | 250    | 248    | 246    | 237    | 204    | 178    | 145    | 197    | 227    | 241    | 249    | 223    | 274    | 157     |
| 1949                      | 247    | 252    | 249    | 255    | 252    | 217    | 184    | 196    | 185    | 222    | 243    | 246    | 229    | 262    | 131     |
| 1950                      | 249    | 256    | ---    | 246    | 251    | 220    | 187    | 162    | 143    | 158    | 222    | 241    | 247    | 214    | 127     |
| 1951                      | 245    | 248    | 242    | 247    | 246    | 228    | 182    | 155    | 151    | 150    | ---    | 223    | ---    | 256    | 101     |
| 1952                      | 248    | 242    | 247    | 246    | 247    | 246    | 246    | 246    | 246    | 246    | 246    | 246    | 246    | 252*   | 116*    |
| Mean<br>Density           | 1.0248 | 1.0250 | 1.0249 | 1.0249 | 1.0233 | 1.0205 | 1.0176 | 1.0159 | 1.0184 | 1.0222 | 1.0242 | 1.0243 | 1.0222 | 1.0244 | 1.0225* |
| Mean<br>Salinity          | 33.5   | 33.7   | 33.6   | 33.6   | 31.5   | 27.8   | 24.1   | 21.8   | 25.1   | 30.1   | 32.7   | 32.8   | 32.8   | 30.1   | 30.1    |
| Max.                      | 1.0274 | 1.0264 | 1.0260 | 1.0260 | 1.0262 | 1.0242 | 1.0224 | 1.0213 | 1.0243 | 1.0258 | 1.0263 | 1.0274 | 1.0274 | 1.0274 | 1.0274  |
| Mean Max.                 | 1.0256 | 1.0257 | 1.0256 | 1.0254 | 1.0252 | 1.0230 | 1.0202 | 1.0185 | 1.0213 | 1.0240 | 1.0250 | 1.0252 | 1.0252 | 1.0252 | 1.0252  |
| Mean Min.                 | 1.0238 | 1.0226 | 1.0221 | 1.0242 | 1.0199 | 1.0177 | 1.0177 | 1.0148 | 1.0128 | 1.0146 | 1.0191 | 1.0227 | 1.0231 | 1.0231 | 1.0231  |
| Min.                      | 1.0219 | 1.0173 | 1.0156 | 1.0235 | 1.0145 | 1.0142 | 1.0096 | 1.0076 | 1.0106 | 1.0106 | 1.0132 | 1.0205 | 1.0213 | 1.0213 | 1.0213  |
| <b>EASTPORT, ME.</b>      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| 1930                      | 1.0236 | 1.0235 | 1.0230 | 1.0230 | 1.0232 | 1.0236 | 1.0240 | 1.0239 | 1.0239 | 1.0236 | 1.0236 | 1.0237 | 1.0235 | 1.0244 | 1.0215  |
| 1931                      | 237    | 236    | 233    | 227    | 225    | 227    | 230    | 233    | 235    | 236    | 238    | 240    | 240    | 233    | 244     |
| 1932                      | 239    | 236    | 235    | ---    | ---    | 234    | 236    | 237    | 239    | 237    | 234    | 236    | 236    | ---    | 245*    |
| 1933                      | 236    | 236    | 235    | 229    | 228    | 230    | 234    | 235    | ---    | 237    | 236    | 236    | 236    | ---    | 241*    |
| 1934                      | 236    | 234    | 234    | 228    | 228    | 230    | 234    | 236    | 237    | 237    | 238    | 237    | 237    | 242    | 218     |
| 1935                      | 236    | 234    | 233    | 230    | 228    | 230    | 233    | 236    | 238    | 239    | 239    | 232    | 234    | 243    | 215     |
| 1936                      | 232    | 234    | 230    | 228    | 223    | 231    | 234    | 235    | 238    | 238    | 238    | 235    | 235    | 244    | 213     |
| 1937                      | 234    | 233    | 234    | 232    | 228    | 229    | 234    | 235    | 237    | 239    | 239    | 237    | 237    | 243    | 222     |
| 1938                      | 236    | 234    | 233    | 228    | 227    | 230    | 232    | 234    | 233    | 236    | 235    | 234    | 234    | 240    | 216     |
| 1939                      | 235    | 233    | 231    | 228    | 228    | 230    | 232    | 234    | 233    | 236    | 235    | 236    | 236    | 241    | 223     |

|                 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|
| 1940            | 236    | 234    | 224    | 227    | 228    | 230    | 234    | 233    | 237    | 238    | 238    | 233    | 237    | 237    | 237    | 238    | 238    | 237    | 233    | 242            | 218    |
| 1941            | 235    | 235    | 230    | 228    | 231    | 233    | 230    | 232    | 237    | 237    | 238    | 235    | 237    | 239    | 239    | 240    | 239    | 235    | 235    | 244            | 223    |
| 1942            | 238    | 236    | 234    | 236    | 234    | 230    | 230    | 232    | 239    | 240    | 240    | 242    | 241    | 242    | 242    | 240    | 239    | 235    | 244    | 222            |        |
| 1943            | 242    | 239    | 242    | 239    | 237    | 239    | 237    | 239    | 242    | 241    | 242    | 240    | 240    | 242    | 242    | 240    | 238    | 240    | 246    | 226            |        |
| 1944            | 240    | 240    | 239    | 236    | 237    | 239    | 239    | 243    | 246    | 247    | 247    | 243    | 247    | 247    | 247    | 243    | 238    | 241    | 251    | 230            |        |
| 1945            | 237    | 240    | 239    | 238    | 234    | 239    | 234    | 239    | 245    | 246    | 249    | 248    | 241    | 248    | 241    | 241    | 237    | 241    | 255    | 228            |        |
| 1946            | 238    | 236    | 234    | 234    | 233    | 233    | 236    | 232    | 240    | 245    | 249    | 251    | 249    | 247    | 247    | 244    | 247    | 245    | 253    | 227            |        |
| 1947            | 243    | 239    | 242    | 238    | 236    | 233    | 232    | 240    | 231    | 241    | 244    | 244    | 241    | 242    | 247    | 247    | 244    | 240    | 249    | 214            |        |
| 1948            | 242    | 241    | 240    | 234    | 235    | 232    | 233    | 237    | 244    | 247    | 248    | 246    | 246    | 248    | 247    | 244    | 239    | 237    | 245    | 226            |        |
| 1949            | 233    | 235    | 235    | 235    | 232    | 233    | 237    | 237    | 244    | 247    | 248    | 246    | 244    | 247    | 247    | 241    | 241    | 240    | 250    | 221            |        |
| 1950            | 241    | 239    | 239    | 237    | 235    | 235    | 235    | 235    | 239    | 242    | 242    | 243    | 241    | 242    | 243    | 241    | 233    | 239    | 246    | 217            |        |
| 1951            | 238    | 237    | 236    | 236    | 230    | 230    | 235    | 235    | 239    | 242    | 242    | 243    | 240    | 242    | 242    | 242    | 240    | 238    | 249    | 217            |        |
| 1952            | 236    | 233    | 234    | 234    | 231    | 231    | 232    | 232    | 234    | 239    | 241    | 242    | 242    | 242    | 242    | 242    | 240    | 237    | 237    | 245            | 215    |
| 1953            | 237    | 234    | 236    | 236    | 233    | 233    | 233    | 237    | 239    | 242    | 243    | 244    | 241    | 244    | 242    | 243    | 236    | 238    | 247    | 228            |        |
| 1954            | 236    | 235    | 232    | 232    | 229    | 232    | 237    | 237    | 239    | 241    | 242    | 242    | 243    | 242    | 243    | 240    | 237    | 237    | 246    | 213            |        |
| 1955            | 242    | 242    | 244    | 240    | 239    | 238    | 236    | 235    | 237    | 238    | 240    | 243    | 247    | 247    | 247    | 247    | 241    | 251    | 228    | 230            |        |
| 1956            | 247    | 244    | 244    | 240    | 240    | 239    | 238    | 238    | 241    | 244    | 244    | 245    | 245    | 245    | 245    | 242    | 242    | 242    | 253    | 230            |        |
| Mean Density    | 2.57   | 2.57   | 2.57   | 2.54   | 2.49   | 2.48   | 2.49   | 2.48   | 2.47   | 2.47   | 2.47   | 2.47   | 2.47   | 2.47   | 2.47   | 2.50   | 2.51   | 2.54   | 2.57   | 2.57           |        |
| Max.            | 1.0238 | 1.0237 | 1.0235 | 1.0235 | 1.0232 | 1.0232 | 1.0231 | 1.0231 | 1.0233 | 1.0237 | 1.0239 | 1.0241 | 1.0241 | 1.0241 | 1.0240 | 1.0240 | 1.0238 | 1.0237 | 1.0255 | 1.0255         |        |
| Mean Max.       | 1.0241 | 1.0240 | 1.0238 | 1.0236 | 1.0236 | 1.0236 | 1.0236 | 1.0237 | 1.0239 | 1.0242 | 1.0242 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244         |        |
| Mean Min.       | 1.0233 | 1.0232 | 1.0230 | 1.0225 | 1.0225 | 1.0225 | 1.0225 | 1.0229 | 1.0233 | 1.0236 | 1.0237 | 1.0237 | 1.0238 | 1.0238 | 1.0238 | 1.0236 | 1.0236 | 1.0234 | 1.0234 | 1.0234         |        |
| Min.            | 1.0213 | 1.0213 | 1.0213 | 1.0213 | 1.0213 | 1.0213 | 1.0213 | 1.0213 | 1.0214 | 1.0215 | 1.0215 | 1.0215 | 1.0215 | 1.0215 | 1.0215 | 1.0215 | 1.0215 | 1.0215 | 1.0213 | 1.0213         |        |
| BAR HARBOR, ME. |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |
| 1947            | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0239 | 1.0242 | ---    | 1.0243 | 1.0243 | 1.0243 | 1.0243 | ---    | 1.0246*1.0236* | 1.0255 |
| 1948            | 1.0242 | 1.0241 | 1.0238 | 1.0234 | 1.0229 | 1.0228 | 1.0230 | 1.0232 | 1.0237 | 1.0239 | 1.0242 | 1.0242 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244 | 1.0244         | 1.0244 |
| 1949            | 234    | 235    | 233    | 232    | 234    | 235    | 235    | 236    | 236    | 239    | 242    | 242    | 242    | 242    | 242    | 242    | 241    | 241    | 237    | 247            | 220    |
| 1950            | 239    | 241    | 238    | 234    | 237    | 238    | 234    | 237    | 238    | 239    | 240    | 244    | 244    | 244    | 244    | 244    | 234    | 234    | 237    | 247            | 220    |
| 1951            | 235    | 236    | 232    | 235    | 234    | 234    | 234    | 234    | 237    | 238    | 238    | 241    | 241    | 241    | 241    | 241    | 238    | 238    | 236    | 245            | 224    |
| 1952            | 235    | 233    | 231    | 230    | 229    | 229    | 228    | 228    | 230    | 233    | 234    | 237    | 237    | 237    | 237    | 237    | 236    | 236    | 246    | 216            |        |
| 1953            | 234    | 230    | 231    | 224    | 228    | 228    | 226    | 225    | 229    | 231    | 235    | 237    | 237    | 237    | 237    | 237    | 236    | 236    | 246    | 214            |        |
| 1954            | 232    | 230    | 228    | 226    | 225    | 225    | 226    | 225    | 229    | 231    | 232    | 233    | 236    | 236    | 236    | 236    | 232    | 232    | 244    | 210            |        |
|                 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 230    | 207            |        |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                      | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.    | Min.    |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| <b>BAR HARBOR, ME. —Continued</b>         |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|   |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
| 1955                                      | 1.0232 | 1.0234 | 1.0230 | 1.0228 | 1.0229 | 1.0231 | 1.0232 | 1.0236 | 1.0239 | 1.0236 | 1.0240 | 1.0233 | 1.0246 | 1.0209  |         |
| 1956                                      | 233    | 236    | 233    | 226    | 229    | 230    | 231    | 232    | 233    | 236    | 237    | 234    | 232    | 245     | 212     |
| Mean<br>Density                           | 1.0235 | 1.0235 | 1.0233 | 1.0230 | 1.0231 | 1.0231 | 1.0233 | 1.0235 | 1.0237 | 1.0240 | 1.0238 | 1.0237 | 1.0235 |         |         |
| Salinity                                  | 31.8   | 31.8   | 31.5   | 31.1   | 31.2   | 31.2   | 31.5   | 31.8   | 32.0   | 32.4   | 32.1   | 32.0   | 31.8   |         |         |
| Max.                                      | 1.0245 | 1.0248 | 1.0245 | 1.0242 | 1.0246 | 1.0242 | 1.0239 | 1.0242 | 1.0244 | 1.0247 | 1.0248 | 1.0250 | 1.0246 |         |         |
| Mean Max.                                 | 1.0241 | 1.0242 | 1.0239 | 1.0236 | 1.0237 | 1.0235 | 1.0235 | 1.0238 | 1.0239 | 1.0242 | 1.0244 | 1.0243 | 1.0242 |         |         |
| Mean Min.                                 | 1.0225 | 1.0225 | 1.0224 | 1.0219 | 1.0221 | 1.0221 | 1.0227 | 1.0227 | 1.0229 | 1.0230 | 1.0233 | 1.0227 | 1.0230 |         |         |
| Min.                                      | 1.0213 | 1.0207 | 1.0212 | 1.0209 | 1.0208 | 1.0220 | 1.0216 | 1.0220 | 1.0216 | 1.0218 | 1.0215 | 1.0221 | 1.0207 |         |         |
| <b>PULPIT HARBOR, PENOBSQUIT BAY, ME.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|   |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
| 1945                                      | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0234* | 1.0218* |
| 1946                                      | 1.0223 | 1.0216 | ---    | 1.0208 | 1.0203 | 1.0218 | 1.0225 | 1.0229 | 1.0228 | 1.0231 | 1.0227 | ---    | ---    | 240*    | 189*    |
| <b>PORTLAND, ME.</b>                      |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|   |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
| 1922                                      | 1.0236 | 1.0230 | 1.0212 | 1.0212 | 1.0206 | ---    | 1.0204 | 1.0215 | 1.0219 | 1.0220 | 1.0224 | 1.0225 | ---    | 1.0244* | 1.0137* |
| 1923                                      | 223    | 224    | 216    | 206    | 197    | 1.0215 | 222    | 223    | 224    | 229    | 227    | 222    | 1.0219 | 239     | 134     |
| 1924                                      | 225    | 225    | 223    | 214    | 205    | 223    | 230    | 230    | 222    | 228    | 230    | 223    | 223    | 236     | 157     |
| 1925                                      | 228    | 218    | 218    | 199    | 217    | 224    | 223    | 226    | 224    | 229    | 226    | 223    | 221    | 246     | 114     |
| 1926                                      | 224    | 225    | 227    | 214    | 220    | 224    | 225    | 224    | 225    | 228    | 223    | 221    | 223    | 235     | 202     |
| 1927                                      | 218    | 214    | 212    | 215    | 218    | 221    | 221    | 218    | 219    | 216    | 209    | 216    | 216    | 232     | 192     |
| 1928                                      | 210    | 209    | 212    | 207    | ---    | ---    | ---    | ---    | ---    | ---    | 213    | ---    | ---    | 230*    | 197*    |
| 1929                                      | 211    | 211    | 230    | 224    | ---    | ---    | 234    | 236    | 237    | 226    | 215    | 217    | ---    | 253*    | 181*    |
| 1930                                      | 215    | ---    | 213    | 219    | 222    | 230    | 234    | 231    | 226    | 228    | 215    | ---    | ---    | 254*    | 204*    |
| 1931                                      | 222    | 220    | 211    | 212    | 226    | 220    | 232    | 230    | 230    | 225    | 222    | 227    | 223    | 248     | 155     |
| 1932                                      | 219    | 227    | 225    | 220    | 226    | 240    | 235    | 232    | 222    | 221    | 218    | 227    | 250    | 178     |         |
| 1933                                      | 222    | 224    | 222    | 231    | 241    | 233    | 229    | 216    | 224    | 223    | 226    | 223    | 248    | 146     |         |
| 1934                                      | ---    | 217    | 219    | 210    | 231    | 231    | 231    | 231    | 232    | 232    | 232    | 232    | 237*   | 116*    |         |

|               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1935          | —      | —      | —      | —      | 227    | 218    | 226    | 232    | 223    | 213    | —      | —      | 252*   | 169*   |
| 1936          | —      | 204    | 208    | 228    | 227    | 223    | 224    | 226    | 222    | 220    | 216    | —      | 238*   | 100*   |
| 1937          | —      | 216    | 163    | 175    | 166    | 195    | 222    | 226    | 230    | 228    | 220    | —      | 213    | 104    |
| 1938          | —      | 219    | 213    | 220    | 198    | 166    | 195    | 219    | 222    | 223    | 215    | —      | 217    | 167    |
| 1939          | —      | 225    | 214    | 215    | 204    | 208    | 215    | 219    | 218    | 222    | 225    | —      | 218    | 126    |
| 1940          | —      | 229    | 227    | 221    | 186    | 196    | 200    | 222    | 227    | 228    | 224    | —      | 218    | 124    |
| 1941          | —      | 224    | 220    | 223    | 220    | 223    | 231    | 235    | 235    | 238    | 234    | —      | 242    | 127    |
| 1942          | —      | 232    | 231    | 211    | 213    | 212    | 210    | 221    | 223    | 227    | 223    | —      | 230    | 189    |
| 1943          | —      | 226    | 227    | 215    | 220    | 201    | 217    | 223    | 224    | 222    | 218    | —      | 221    | 242    |
| 1944          | —      | 225    | 223    | 214    | 203    | 208    | 222    | 225    | 230    | 224    | 227    | —      | 219    | 126    |
| 1945          | —      | 221    | 220    | 194    | 207    | 182    | 188    | 216    | 222    | 221    | 222    | —      | 216    | 171    |
| 1946          | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | 238    | 158    |
| Mean Density  | 1.0223 | 1.0221 | 1.0214 | 1.0207 | 1.0209 | 1.0218 | 1.0216 | 1.0226 | 1.0226 | 1.0226 | 1.0223 | —      | 200*   |        |
| Mean Salinity | 30.2   | 29.9   | 29.0   | 28.1   | 28.4   | 29.5   | 29.5   | 30.6   | 30.6   | 30.6   | 30.6   | —      | —      | —      |
| Max.          | 1.0244 | 1.0246 | 1.0236 | 1.0237 | 1.0245 | 1.0246 | 1.0246 | 1.0252 | 1.0254 | 1.0246 | 1.0244 | —      | —      | —      |
| Mean Max.     | 1.0232 | 1.0231 | 1.0228 | 1.0225 | 1.0226 | 1.0231 | 1.0237 | 1.0236 | 1.0236 | 1.0236 | 1.0235 | 1.0232 | 1.0242 | 1.0254 |
| Mean Min.     | 1.0209 | 1.0205 | 1.0187 | 1.0176 | 1.0175 | 1.0191 | 1.0191 | 1.0203 | 1.0209 | 1.0209 | 1.0210 | 1.0209 | 1.0206 | 1.0231 |
| Min.          | 1.0194 | 1.0175 | 1.0100 | 1.0114 | 1.0104 | 1.0126 | 1.0126 | 1.0182 | 1.0166 | 1.0166 | 1.0169 | 1.0169 | 1.0172 | 1.0100 |

### PORTSMOUTH, N.H.

1944 1.0233 1.0230 1.0209 1.0178 1.0204 1.0221 1.0217 1.0238 1.0227 1.0231 1.0226 1.0199 1.0218 1.0241 1.0136

|      |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 1945 | 211 | 220 | 176 | 196 | 176 | 196 | 210 | 224 | 228 | 229 | 222 | 202 | 208 | 238  | 102  |
| 1946 | 210 | 215 | 184 | 194 | 197 | —   | 224 | 212 | 217 | 219 | 228 | —   | —   | 236* | 125* |
| 1947 | 228 | 208 | 193 | 191 | 190 | 198 | 211 | 218 | 228 | 236 | 232 | 235 | 214 | 241  | 156  |
| 1948 | 248 | 247 | 199 | 198 | 188 | 183 | 212 | 224 | 228 | 230 | 226 | 221 | 217 | 253  | 098  |
| 1949 | 202 | 203 | 192 | 191 | 208 | 224 | 231 | 234 | 235 | 238 | 234 | 231 | 219 | 241  | 153  |
| 1950 | 221 | 218 | 212 | 180 | 210 | 228 | 236 | 237 | 230 | 234 | 225 | 196 | 219 | 242  | 117  |
| 1951 | 210 | 184 | 182 | 168 | 201 | 208 | 223 | 221 | 223 | 225 | 180 | 198 | 202 | 236  | 091  |
| 1952 | 188 | 184 | 188 | 157 | 176 | 191 | 220 | 224 | 229 | 231 | 233 | 207 | 202 | 236  | 070  |
| 1953 | 198 | 186 | 161 | 146 | —   | 213 | 227 | 228 | 232 | 233 | 227 | 204 | —   | 236* | 066* |
| 1954 | 220 | 210 | 185 | 180 | 140 | 195 | 218 | 225 | 181 | 209 | 195 | 193 | 196 | 235  | 068  |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                               | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>PORTSMOUTH, N.H. -Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1955                               | 1.0205 | 1.0210 | 1.0191 | 1.0191 | 1.0196 | 1.0210 | 1.0225 | 1.0226 | 1.0231 | 1.0226 | 1.0192 | 1.0222 | 1.0210 | 1.0237 | 1.0151 |
| 1956                               | 190    | 214    | 210    | 162    | 189    | 205    | 225    | 231    | 232    | 230    | 227    | 208    | 210    | 240    | 091    |
| Mean Density                       | 1.0213 | 1.0210 | 1.0191 | 1.0179 | 1.0190 | 1.0206 | 1.0221 | 1.0226 | 1.0225 | 1.0229 | 1.0219 | 1.0211 | 1.0210 |        |        |
| Mean Min. Salinity                 | 28.9   | 28.5   | 26.0   | 24.4   | 25.9   | 28.0   | 29.9   | 30.6   | 30.4   | 31.0   | 29.7   | 28.6   | 28.5   |        |        |
| Max. Mean                          | 1.0251 | 1.0253 | 1.0239 | 1.0228 | 1.0231 | 1.0238 | 1.0240 | 1.0242 | 1.0238 | 1.0241 | 1.0241 | 1.0241 |        |        |        |
| Mean Max.                          | 1.0234 | 1.0233 | 1.0227 | 1.0219 | 1.0219 | 1.0227 | 1.0232 | 1.0233 | 1.0234 | 1.0235 | 1.0232 | 1.0232 |        |        |        |
| Mean Min.                          | 1.0181 | 1.0179 | 1.0138 | 1.0125 | 1.0149 | 1.0174 | 1.0207 | 1.0216 | 1.0211 | 1.0221 | 1.0198 | 1.0183 |        |        |        |
| Min.                               | 1.0113 | 1.0124 | 1.0072 | 1.0072 | 1.0066 | 1.0068 | 1.0126 | 1.0180 | 1.0192 | 1.0105 | 1.0198 | 1.0137 | 1.0146 |        |        |
| <b>BOSTON, MASS.</b>               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1922                               | 1.0228 | 1.0227 | 1.0206 | 1.0206 | 1.0204 | 1.0199 | 1.0194 | 1.0220 | 1.0214 | 1.0225 | 1.0228 | 1.0230 | 1.0215 | 1.0236 | 1.0128 |
| 1923                               | 211    | 219    | 204    | 197    | 204    | 219    | 224    | 227    | 230    | 229    | 225    | 209    | 216    | 234    | 140    |
| 1924                               | 213    | 220    | 211    | 197    | 201    | 218    | 224    | 223    | 212    | 223    | 227    | 229    | 216    | 234    | 160    |
| 1925                               | 229    | 214    | 208    | 207    | 220    | 225    | 230    | 229    | 231    | 228    | 231    | 227    | 217    | 222    | 167    |
| 1926                               | 225    | 224    | 209    | 210    | 215    | 226    | 230    | 226    | 231    | 232    | 227    | 226    | 223    | 238    | 165    |
| 1927                               | 222    | 216    | 206    | 217    | 220    | 234    | 227    | 216    | 208    | 215    | 219    | 206    | 217    | 232    | 166    |
| 1928                               | 217    | 215    | 219    | 220    | 201    | 206    | 215    | 225    | 221    | 226    | 226    | 226    | 216    | 234    | 167    |
| 1929                               | 222    | 221    | 209    | 194    | 210    | 222    | 228    | 232    | 231    | 231    | 230    | 226    | 221    | 235    | 143    |
| 1930                               | 221    | 223    | 218    | 223    | 228    | 229    | 228    | 233    | 230    | 226    | 227    | 226    | 227    | 238    | 202    |
| 1931                               | 224    | 216    | 187    | 203    | 207    | 186    | 211    | 219    | 222    | 229    | 229    | 227    | 213    | 232    | 117    |
| 1932                               | 217    | 220    | 214    | 205    | 220    | 228    | 233    | 230    | 225    | 209    | 196    | 220    | 218    | 236    | 140    |
| 1933                               | 202    | 222    | 185    | 170    | 208    | 223    | 224    | 226    | 210    | 211    | 222    | 221    | 210    | 230    | 141    |
| 1934                               | 205    | 227    | 194    | 187    | 212    | 217    | 227    | 227    | 221    | 220    | 222    | 223    | 225    | 233    | 159    |

|                       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1935                  | 209    | 182    | 209    | 206    | 220    | 227    | 224    | 231    | 224    | 225    | 225    | 224    | 231    | 224    | 231    | 234    | 231    | 233    | 233    | 131    |
| 1936                  | 220    | 171    | 215    | 201    | 199    | 205    | 218    | 226    | 221    | 227    | 219    | 228    | 219    | 227    | 219    | 200    | 213    | 213    | 129    | 129    |
| 1937                  | 205    | 215    | 208    | 201    | 205    | 210    | 192    | 189    | 203    | 198    | 214    | 203    | 196    | 214    | 203    | 203    | 213    | 213    | 152    | 152    |
| 1938                  | 212    | 213    | 166    | 192    | 192    | 219    | 229    | 230    | 229    | 229    | 228    | 229    | 228    | 228    | 228    | 213    | 233    | 233    | 132    | 132    |
| 1939                  | 215    | 210    | 192    | 192    | 192    | 219    | 229    | 230    | 229    | 229    | 228    | 229    | 228    | 228    | 228    | 213    | 235    | 235    | 102    | 102    |
| 1940                  | 223    | 228    | 199    | 169    | 191    | 202    | 220    | 228    | 229    | 229    | 224    | 229    | 224    | 224    | 224    | 214    | 214    | 214    | 238    | 101    |
| 1941                  | 215    | 216    | 225    | 213    | 219    | 223    | 232    | 231    | 234    | 234    | 233    | 231    | 231    | 231    | 231    | 226    | 243    | 243    | 175    | 175    |
| 1942                  | 224    | 219    | 172    | 200    | 214    | 216    | 222    | 222    | 229    | 227    | 223    | 216    | 216    | 216    | 216    | 215    | 235    | 235    | 098    | 098    |
| 1943                  | 203    | 216    | 191    | 217    | 192    | 216    | 229    | 230    | 230    | 226    | 226    | 229    | 229    | 229    | 229    | 217    | 257    | 257    | 118    | 118    |
| 1944                  | 229    | 228    | 217    | 197    | 206    | 225    | —      | 232    | 222    | 224    | 219    | 210    | 210    | 210    | 210    | —      | 237*   | 237*   | 160*   | 160*   |
| 1945                  | 220    | 217    | 176    | 213    | 192    | 198    | 210    | 219    | 226    | 230    | 215    | 215    | 217    | 217    | 217    | 208    | 208    | 208    | 237    | 112    |
| 1946                  | 188    | 206    | 181    | 211    | 204    | 192    | 226    | 199    | 205    | 224    | 229    | 228    | 228    | 228    | 228    | 208    | 233    | 233    | 123    | 123    |
| 1947                  | 212    | 224    | 212    | 211    | 196    | 217    | 220    | 219    | 218    | 233    | 219    | 228    | 217    | 217    | 217    | 217    | 238    | 238    | 149    | 149    |
| 1948                  | 229    | 223    | 171    | 187    | 191    | 175    | 202    | 221    | 227    | 219    | 217    | 221    | 221    | 221    | 221    | 207    | 239    | 239    | 117    | 117    |
| 1949                  | 213    | 212    | 212    | 195    | 209    | 226    | 231    | 231    | 215    | 228    | 223    | 230    | 223    | 223    | 223    | 219    | 236    | 236    | 140    | 140    |
| 1950                  | 226    | 221    | 206    | 210    | 209    | 230    | 231    | 233    | 231    | 232    | 222    | 222    | 219    | 219    | 219    | 222    | 222    | 222    | 239    | 139    |
| 1951                  | 214    | 180    | 171    | 175    | 196    | 191    | 224    | 221    | 225    | 218    | 189    | 204    | 204    | 204    | 204    | 201    | 231    | 231    | 091    | 091    |
| 1952                  | 195    | 184    | 171    | 173    | 188    | 200    | 226    | 214    | 227    | 228    | 227    | 227    | 227    | 227    | 227    | 205    | 234    | 234    | 062    | 062    |
| 1953                  | 211    | 203    | 176    | 154    | 153    | 210    | 224    | 227    | 228    | 228    | 202    | 198    | 202    | 202    | 202    | 201    | 236    | 236    | 089    | 089    |
| 1954                  | 214    | 207    | 199    | 188    | 141    | 189    | 214    | 221    | 165    | 206    | 193    | 195    | 195    | 195    | 195    | 194    | 232    | 232    | 068    | 068    |
| 1955                  | 204    | 204    | 198    | 185    | 193    | 204    | 214    | 169    | 178    | 176    | 173    | 211    | 192    | 192    | 192    | 229    | 229    | 029    | 029    | 085    |
| 1956                  | 177    | 189    | 178    | 147    | 188    | 200    | 217    | 222    | 210    | 210    | 218    | 218    | 199    | 199    | 199    | 196    | 228    | 228    | 085    | 085    |
| Mean Density Salinity | 2.0214 | 1.0214 | 1.0214 | 1.0198 | 1.0195 | 1.0201 | 1.0212 | 1.0221 | 1.0221 | 1.0222 | 1.0219 | 1.0223 | 1.0219 | 1.0219 | 1.0217 | 1.0213 | 1.0213 | 1.0213 | 1.0213 | 1.0213 |
| Max.                  | 1.0238 | 1.0239 | 1.0235 | 1.0257 | 1.0230 | 1.0237 | 1.0243 | 1.0239 | 1.0246 | 1.0246 | 1.0246 | 1.0238 | 1.0238 | 1.0238 | 1.0238 | 1.0237 | 1.0237 | 1.0237 | 1.0237 | 1.0237 |
| Mean Max.             | 1.0228 | 1.0228 | 1.0224 | 1.0221 | 1.0221 | 1.0226 | 1.0231 | 1.0231 | 1.0230 | 1.0230 | 1.0232 | 1.0232 | 1.0232 | 1.0232 | 1.0232 | 1.0228 | 1.0228 | 1.0228 | 1.0228 | 1.0228 |
| Mean Min.             | 1.0183 | 1.0183 | 1.0152 | 1.0153 | 1.0165 | 1.0178 | 1.0201 | 1.0199 | 1.0198 | 1.0198 | 1.0201 | 1.0201 | 1.0195 | 1.0195 | 1.0195 | 1.0195 | 1.0190 | 1.0190 | 1.0190 | 1.0190 |
| Min.                  | 1.0103 | 1.0062 | 1.0089 | 1.0084 | 1.0068 | 1.0101 | 1.0118 | 1.0029 | 1.0105 | 1.0105 | 1.0116 | 1.0116 | 1.0085 | 1.0085 | 1.0085 | 1.0085 | 1.0029 | 1.0029 | 1.0029 | 1.0029 |
| 1955                  | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0257 | 1.0257 |
| 1956                  | 1.0232 | 1.0231 | 1.0231 | 1.0230 | 1.0230 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 | 1.0229 |

## CAPE COD CANAL (east entrance), MASS.

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                  | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.           |
|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|
| CAPE COD CANAL (west entrance), MASS. |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |
| 1955                                  | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0231 | 1.0229 | 1.0231 | 1.0227 | 1.0229 | ---            |
| 1956                                  | 1.0233 | 1.0230 | 1.0231 | 1.0228 | 1.0228 | 1.0230 | 1.0230 | 1.0230 | 1.0231 | 231    | 232    | 232    | 232    | 1.0231 | 1.0222*        |
| 1944                                  | ---    | ---    | 1.0237 | 1.0236 | 1.0238 | 1.0240 | 1.0240 | 1.0241 | 1.0240 | 1.0238 | 1.0237 | 1.0237 | 1.0237 | ---    | 1.0254*1.0223* |
| 1945                                  | 1.0237 | 1.0240 | 237    | 239    | 238    | 241    | 239    | 237    | 240    | 239    | 238    | 233    | 1.0238 | 264    | 230            |
| 1946                                  | 231    | 232    | 236    | 234    | 235    | 235    | 238    | 237    | 241    | 240    | 241    | 242    | 237    | 248    | 227            |
| 1947                                  | 241    | 239    | 239    | 239    | 240    | 243    | 244    | 241    | 242    | 244    | 240    | 240    | 241    | 258    | 234            |
| 1948                                  | 238    | 237    | 238    | 240    | 238    | 237    | 237    | 237    | 237    | 235    | 234    | 232    | 236    | 249    | 125            |
| 1949                                  | 233    | 232    | ---    | 230    | 235    | 240    | 241    | 241    | 245    | 244    | 243    | 241    | ---    | 256*   | 217*           |
| 1950                                  | 240    | 239    | 238    | 240    | 241    | 242    | 243    | 243    | 244    | 244    | 242    | 239    | 241    | 247    | 233            |
| 1951                                  | 238    | 237    | 235    | 236    | 239    | 239    | 240    | 239    | 240    | 240    | 238    | 237    | 238    | 242    | 234            |
| 1952                                  | 236    | 235    | 233    | 236    | 239    | 238    | 239    | 234    | 239    | 239    | 239    | 239    | 238    | 244    | 181            |
| 1953                                  | 235    | 234    | 230    | 229    | 228    | 231    | 233    | 232    | 236    | 235    | 234    | 230    | 232    | 239    | 225            |
| 1954                                  | 229    | 233    | 234    | 236    | 234    | 235    | 236    | 235    | 235    | 235    | 234    | 233    | 229    | 234    | 226            |
| 1955                                  | 229    | 231    | 231    | 234    | 234    | 235    | 238    | 234    | 233    | 232    | 229    | 229    | 232    | 243    | 226            |
| 1956                                  | 229    | 229    | 229    | 229    | 232    | 235    | 234    | 234    | 235    | 237    | 235    | 235    | 233    | 240    | 226            |
| Mean Density                          | 1.0235 | 1.0235 | 1.0235 | 1.0235 | 1.0236 | 1.0238 | 1.0239 | 1.0237 | 1.0239 | 1.0239 | 1.0237 | 1.0236 | 1.0237 | 1.0237 | 1.0237         |
| Salinity                              | 31.8   | 31.8   | 31.8   | 31.8   | 31.9   | 32.1   | 32.3   | 32.0   | 32.3   | 32.3   | 32.0   | 32.0   | 31.9   | 32.0   | 32.0           |
| Max.                                  | 1.0254 | 1.0242 | 1.0245 | 1.0264 | 1.0255 | 1.0253 | 1.0258 | 1.0247 | 1.0248 | 1.0249 | 1.0256 | 1.0254 |        |        |                |
| Mean Max.                             | 1.0238 | 1.0237 | 1.0238 | 1.0240 | 1.0240 | 1.0242 | 1.0244 | 1.0241 | 1.0243 | 1.0242 | 1.0242 | 1.0240 |        |        |                |
| Mean Min.                             | 1.0232 | 1.0222 | 1.0231 | 1.0230 | 1.0233 | 1.0235 | 1.0235 | 1.0229 | 1.0235 | 1.0235 | 1.0234 | 1.0232 |        |        |                |
| Min.                                  | 1.0226 | 1.0125 | 1.0223 | 1.0217 | 1.0225 | 1.0228 | 1.0228 | 1.0181 | 1.0225 | 1.0230 | 1.0227 | 1.0226 |        |        | 1.0125         |

## NEWPORT, R.I.

|      |        |        |        |        |        |        |        |        |        |        |     |                |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|----------------|
| 1955 | 1.0228 | 1.0219 | 1.0216 | 1.0220 | 1.0227 | 1.0230 | 1.0225 | 1.0222 | 1.0216 | 1.0226 | --- | 1.0234*1.0142* |
| 1956 | 1.0228 | 1.0219 | 1.0216 | 1.0220 | 1.0227 | 1.0230 | 233    | 233    | 232    | 233    | 230 | 1.0227         |

## NANTUCKET SHOALS LIGHTSHIP

|      |        |        |        |        |        |        |        |        |        |        |     |        |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| 1923 | 1.0240 | 1.0243 | 1.0244 | 1.0245 | 1.0247 | 1.0242 | 1.0242 | 1.0251 | 1.0252 | 1.0244 | 237 | 241    |
| 1924 | 241    | 243    | 244    | 244    | 247    | 245    | 243    | ---    | ---    | ---    | --- | 1.0244 |
| 1925 | 241    | 243    | 244    | 244    | 247    | 245    | 243    | ---    | ---    | ---    | --- | 252*   |

## NEW LONDON, CONN.

|              |        |        |        |        |        |        |        |        |        |        |        |        |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1947         | 1.0170 | 1.0099 | 1.0071 | 1.0075 | 1.0073 | 1.0075 | 1.0018 | 1.0193 | 1.0189 | 1.0211 | 1.0164 | ---    |
| 1948         | 103    | 105    | 105    | 105    | 108    | 108    | 160    | 203    | 174    | 208    | 210    | 177    |
| 1949         | 105    | 107    | 107    | 107    | 111    | 111    | 111    | 160    | 213    | 212    | 218    | 159    |
| 1950         | 155    | 149    | 111    | 96     | 95     | 117    | 178    | 191    | 203    | 209    | 179    | 151    |
| 1951         | 107    | 112    | 111    | 107    | 115    | 142    | 173    | 184    | 200    | 207    | 113    | 105    |
| 1952         | 112    | 116    | 116    | 107    | 134    | 133    | 184    | 158    | 198    | 203    | 197    | 148    |
| 1953         | 116    | 158    | 116    | 116    | 116    | 167    | 192    | 202    | 213    | 214    | 187    | 106    |
| 1954         | 158    | 158    | 116    | 134    | 116    | 168    | 197    | 192    | 124    | 160    | 126    | 111    |
| 1955         | 144    | 130    | 104    | 126    | 116    | 164    | 185    | 142    | 152    | 083    | 064    | 127    |
| 1956         | 148    | 116    | 102    | 102    | 064    | 095    | 123    | 152    | 199    | 200    | 192    | 176    |
| Mean Density | 1.0135 | 1.0119 | 1.0098 | 1.0094 | 1.0102 | 1.0139 | 1.0176 | 1.0185 | 1.0190 | 1.0191 | 1.0158 | 1.0140 |
| Salinity     | 18.7   | 16.6   | 13.9   | 13.3   | 14.4   | 19.2   | 24.1   | 25.2   | 25.9   | 26.0   | 21.7   | 19.3   |
| Max.         | 1.0203 | 1.0205 | 1.0182 | 1.0182 | 1.0169 | 1.0200 | 1.0216 | 1.0228 | 1.0230 | 1.0238 | 1.0224 | 1.0216 |
| Mean Max.    | 1.0178 | 1.0170 | 1.0160 | 1.0142 | 1.0150 | 1.0181 | 1.0199 | 1.0218 | 1.0214 | 1.0216 | 1.0201 | 1.0186 |
| Mean Min.    | 1.0082 | 1.0070 | 1.0043 | 1.0057 | 1.0062 | 1.0085 | 1.0144 | 1.0138 | 1.0152 | 1.0154 | 1.0095 | 1.0091 |
| Min.         | 1.0043 | 1.0048 | 1.0002 | 1.0022 | 1.0043 | 1.0047 | 1.0066 | 1.0028 | 1.0049 | 1.0031 | 1.0042 | 1.0044 |

1.0002

1.0238

1.0224\*1.0078\*

1.0245\*1.0237\*

269

232

252\*

238\*

---

218

---

214

---

211

---

183

---

183

---

177

---

159

---

159

---

159

---

159

---

159

---

159

---

159

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                      | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means   | Max.    | Min.   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|
| <b>MONTAUK, FORT POND BAY, L.I., N.Y.</b> |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1947                                      | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0238* | 1.0224* | ---    |
| 1948                                      | 1.0240 | 1.0229 | 1.0223 | 1.0219 | 1.0223 | 1.0220 | 1.0222 | 1.0222 | 1.0231 | 1.0233 | 1.0230 | 1.0228 | ---     | 245*    | 203*   |
| 1949                                      | 221    | 220    | 217    | 215    | 219    | 222    | 225    | 230    | 231    | 233    | 233    | 228    | 236     | 202     | 202    |
| 1950                                      | 231    | 229    | 228    | 223    | 225    | 227    | 230    | 231    | 234    | 235    | 233    | 227    | 239     | 218     | 218    |
| 1951                                      | 225    | 224    | 222    | 214    | 218    | 224    | 225    | 226    | 229    | 231    | 224    | 224    | 234     | 198     | 198    |
| 1952                                      | 222    | 220    | 221    | 213    | 213    | 215    | 215    | 220    | 223    | 228    | 233    | 229    | ---     | 237*    | 202*   |
| 1953                                      | 226    | 219    | 217    | 205    | 210    | 215    | 222    | 225    | 228    | 231    | 231    | 226    | 221     | 197     | 197    |
| 1954                                      | 227    | 228    | 223    | 222    | 215    | 221    | 222    | 223    | 225    | 224    | 226    | 220    | 223     | 232     | 209    |
| 1955                                      | 220    | 224    | 219    | 217    | 216    | 225    | 226    | 222    | 223    | 223    | 213    | 216    | 220     | 232     | 188    |
| 1956                                      | 218    | 218    | 218    | 216    | 214    | 215    | 221    | 221    | 227    | 229    | 230    | 228    | 222     | 236     | 207    |
| Mean<br>Density                           | 1.0226 | 1.0223 | 1.0221 | 1.0216 | 1.0217 | 1.0220 | 1.0224 | 1.0226 | 1.0229 | 1.0230 | 1.0228 | 1.0226 | 1.0224  | 1.0224  | 1.0224 |
| Mean<br>Salinity                          | 30.6   | 30.2   | 29.9   | 29.3   | 29.4   | 29.8   | 30.3   | 30.6   | 31.0   | 31.1   | 30.8   | 30.6   | 30.3    | 30.6    | 30.3   |
| Max.                                      | 1.0245 | 1.0232 | 1.0231 | 1.0232 | 1.0233 | 1.0232 | 1.0235 | 1.0235 | 1.0238 | 1.0240 | 1.0241 | 1.0236 | 1.0245  | 1.0245  | 1.0245 |
| Mean Max.                                 | 1.0229 | 1.0228 | 1.0226 | 1.0224 | 1.0223 | 1.0225 | 1.0230 | 1.0230 | 1.0234 | 1.0235 | 1.0234 | 1.0230 | 1.0230  | 1.0230  | 1.0230 |
| Mean Min.                                 | 1.0220 | 1.0218 | 1.0216 | 1.0207 | 1.0211 | 1.0216 | 1.0218 | 1.0216 | 1.0223 | 1.0226 | 1.0223 | 1.0221 | 1.0221  | 1.0221  | 1.0221 |
| Min.                                      | 1.0210 | 1.0212 | 1.0209 | 1.0197 | 1.0201 | 1.0208 | 1.0202 | 1.0188 | 1.0216 | 1.0214 | 1.0205 | 1.0213 | 1.0188  | 1.0188  | 1.0188 |
| <b>NEW YORK (Willets Point), N.Y.</b>     |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1932                                      | 1.0189 | 1.0186 | 1.0192 | 1.0184 | 1.0184 | 1.0193 | 1.0191 | 1.0202 | 1.0203 | 1.0196 | 1.0188 | 1.0192 | 1.0192  | 1.0169  | 1.0169 |
| 1933                                      | 192    | 193    | 190    | 174    | 173    | 180    | 185    | 190    | 184    | 184    | 184    | 189    | 185     | 198     | 160    |
| 1934                                      | 186    | —      | —      | 173    | 177    | 182    | 187    | 192    | 187    | 185    | 187    | 190    | —       | 201*    | 161*   |
| 1935                                      | 192    | 176    | 176    | 185    | 186    | 193    | 196    | 204    | 195    | 188    | 188    | 188    | 189     | 214     | 164    |
| 1936                                      | 192    | —      | 183    | 182    | —      | 186    | 187    | 193    | 196    | 193    | 190    | 190    | —       | 204*    | 151*   |
| 1937                                      | 180    | 175    | 176    | 174    | 171    | 176    | 178    | 185    | 180    | 182    | 178    | 178    | 178     | 192     | 158    |
| 1938                                      | 178    | 174    | 176    | 174    | 178    | 181    | 180    | 185    | —      | 177    | 174    | 163    | —       | 191*    | 149*   |
| 1939                                      | 168    | 167    | 163    | 157    | 171    | 183    | 190    | 191    | 191    | 191    | 189    | 191    | 177     | 200     | 148    |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                    | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| NEW YORK (The Battery), N.Y. —Continued |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1935                                    | 1.0159 | 1.0165 | 1.0142 | 1.0155 | 1.0159 | 1.0181 | 1.0159 | 1.0177 | 1.0186 | 1.0191 | 1.0171 | 1.0156 | 1.0167 | 1.0203 | 1.0101 |
| 1936                                    | 1.059  | 1.080  | 1.06   | 1.10   | 1.054  | 1.076  | 1.088  | 1.099  | 1.091  | 1.086  | 1.060  | 1.060  | 1.063  | 204    | 024    |
| 1937                                    | 1.033  | 1.042  | 1.053  | 1.04   | 1.038  | 1.062  | 1.067  | 1.076  | 1.069  | 1.073  | 1.052  | 1.053  | 1.054  | 192    | 080    |
| 1938                                    | 1.056  | 1.058  | 1.041  | 1.041  | 1.057  | 1.065  | 1.052  | 1.055  | 1.038  | 1.044  | 1.052  | 1.053  | 1.044  | 182    | 035    |
| 1939                                    | 1.048  | 1.038  | 1.012  | 1.012  | 1.088  | 1.034  | 1.063  | 1.079  | 1.081  | 1.082  | 1.080  | 1.065  | 1.069  | 197    | 063    |
| 1940                                    | 1.074  | 1.080  | 1.062  | 1.084  | 1.023  | 1.030  | 1.057  | 1.071  | 1.066  | 1.074  | 1.055  | 1.044  | 1.052  | 196    | 052    |
| 1941                                    | 1.044  | 1.041  | 1.048  | 1.022  | 1.060  | 1.077  | 1.083  | 1.090  | 1.094  | 1.092  | 1.077  | 1.070  | 1.066  | 220    | 094    |
| 1942                                    | 1.058  | 1.064  | 1.028  | 1.024  | 1.054  | 1.051  | 1.053  | 1.063  | 1.066  | 1.046  | 1.032  | 1.041  | 1.048  | 193    | 062    |
| 1943                                    | 1.041  | 1.041  | 1.098  | 1.020  | 0.086  | 1.030  | 1.065  | 1.070  | 1.077  | 1.079  | 1.047  | 1.054  | 1.042  | 206    | 046    |
| 1944                                    | 1.073  | 1.073  | 1.037  | 1.01   | 1.025  | 1.052  | 1.066  | 1.080  | 1.078  | 1.077  | 1.071  | 1.053  | 1.057  | 206    | 063    |
| 1945                                    | 1.058  | 1.064  | 0.098  | 1.022  | 0.090  | 1.026  | 1.035  | 1.034  | 1.048  | 1.026  | 1.026  | 1.026  | 1.029  | 187    | 043    |
| 1946                                    | 1.026  | 1.050  | 1.011  | 1.041  | 1.038  | 1.021  | 1.069  | 1.069  | 1.070  | 1.066  | 1.067  | 1.068  | 1.050  | 199    | 068    |
| 1947                                    | 1.061  | 1.043  | 1.036  | 1.09   | 0.099  | 1.015  | 1.052  | 1.064  | 1.075  | 1.082  | 1.059  | 1.065  | 1.047  | 193    | 035    |
| 1948                                    | 1.079  | 1.076  | 1.012  | 1.016  | 1.026  | 1.039  | 1.056  | 1.068  | 1.077  | 1.083  | 1.079  | 1.065  | 1.056  | 199    | 052    |
| 1949                                    | 1.110  | 1.133  | 1.137  | 1.138  | 1.147  | 1.166  | 1.180  | 1.181  | 1.183  | 1.184  | 1.177  | 1.162  | 1.158  | 199    | 035    |
| 1950                                    | 1.043  | 1.047  | 1.036  | 1.018  | 1.043  | 1.052  | 1.073  | 1.079  | 1.069  | 1.078  | 1.064  | 1.033  | 1.053  | 198    | 048    |
| 1951                                    | 1.041  | 1.026  | 1.023  | 0.091  | 1.044  | 1.058  | 1.052  | 1.061  | 1.062  | 1.066  | 1.035  | 1.037  | 1.041  | 194    | 041    |
| 1952                                    | 1.027  | 1.034  | 1.029  | 0.088  | 1.018  | 1.030  | 1.058  | 1.069  | 1.065  | 1.078  | 1.079  | 1.047  | 1.044  | 207    | 053    |
| 1953                                    | 1.036  | 1.028  | 1.010  | 0.091  | 0.099  | 1.056  | 1.076  | 1.077  | 1.085  | 1.082  | 1.076  | 1.047  | 1.047  | 201    | 053    |
| 1954                                    | 1.063  | 1.049  | 1.030  | 1.025  | 1.013  | 1.042  | 1.077  | 1.084  | 1.075  | 1.075  | 1.042  | 1.039  | 1.051  | 201    | 022    |
| 1955                                    | 1.047  | 1.062  | 1.017  | 1.014  | 1.051  | 1.066  | 1.083  | 1.054  | 1.066  | 1.023  | 1.020  | 1.049  | 1.046  | 205    | 049    |
| 1956                                    | 1.064  | 1.051  | 1.028  | 0.091  | 1.020  | 1.041  | 1.070  | 1.079  | 1.068  | 1.072  | 1.067  | 1.047  | 1.050  | 195    | 035    |
| Mean Density Salinity                   | 1.0152 | 1.0152 | 1.0130 | 1.0117 | 1.0134 | 1.0153 | 1.0166 | 1.0173 | 1.0173 | 1.0171 | 1.0159 | 1.0152 | 1.0153 |        |        |
| Max. Mean Min. Min.                     | 1.0197 | 1.0197 | 1.0195 | 1.0179 | 1.0187 | 1.0201 | 1.0200 | 1.0205 | 1.0206 | 1.0207 | 1.0199 |        |        |        |        |
| Mean Max. Mean Min. Min.                | 1.0177 | 1.0177 | 1.0167 | 1.0149 | 1.0163 | 1.0175 | 1.0185 | 1.0189 | 1.0191 | 1.0191 | 1.0184 | 1.0180 |        |        |        |
| Mean Min. Min.                          | 1.0118 | 1.0115 | 1.0084 | 1.0080 | 1.0096 | 1.0122 | 1.0142 | 1.0150 | 1.0150 | 1.0146 | 1.0127 | 1.0113 |        |        |        |
| Min.                                    | 1.0035 | 1.0072 | 1.0024 | 1.0035 | 1.0035 | 1.0079 | 1.0081 | 1.0037 | 1.0049 | 1.0069 | 1.0035 |        |        |        | 1.0022 |

## NEW YORK (Fort Hamilton), N.Y.

|                       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1911                  | 1.0183 | 1.0189 | 1.0175 | 1.0129 | 1.0166 | 1.0181 | 1.0197 | 1.0207 | 1.0194 | 1.0168 | 1.0159 | 1.0158 | 1.0176 | 1.0224 | 1.0084 |
| 1912                  | 184    | 190    | 150    | 099    | 135    | 172    | 201    | 211    | 206    | 197    | 164    | 157    | 172    | 223    | 008    |
| 1913                  | 132    | 173    | 132    | 128    | 169    | 178    | 200    | 209    | 207    | 198    | 167    | 175    | 172    | 226    | 017    |
| 1914                  | 187    | 172    | 164    | 096    | 139    | 184    | 191    | 202    | 203    | 209    | 210    | 198    | 180    | 226    | 048    |
| 1915                  | 165    | 158    | 161    | 167    | 182    | 199    | 174    | 164    | 175    | 181    | 184    | 160    | 172    | 213    | 075    |
| 1916                  | 130    | 146    | 157    | 110    | 140    | 153    | 166    | 180    | 188    | 193    | 185    | 156    | 159    | 214    | 058    |
| 1917                  | 168    | 179    | 138    | 123    | 148    | 144    | 166    | 190    | 191    | 158    | 162    | 179    | 162    | 222    | 044    |
| 1918                  | --     | --     | 123    | 118    | 147    | 170    | 184    | 221    | 201    | 152    | 167    | 164    | --     | 242*   | 088*   |
| 1919                  | 160    | 174    | 140    | 124    | 144    | 171    | 175    | 177    | 169    | 166    | 144    | 151    | 158    | 215    | 083    |
| 1920                  | 176    | 187    | 138    | 104    | 141    | 163    | 174    | 175    | 177    | 169    | 167    | --     | --     | 218*   | 060*   |
| 1927                  | 182    | 176    | 142    | 164    | 161    | 174    | 190    | 184    | 163    | 166    | 120    | 126    | 162    | 216    | 054    |
| 1928                  | 156    | 160    | 155    | 134    | 148    | 149    | 151    | 164    | 167    | 193    | 193    | 187    | 163    | 209    | 078    |
| Mean Density Salinity | 1.0166 | 1.0173 | 1.0148 | 1.0125 | 1.0152 | 1.0170 | 1.0181 | 1.0190 | 1.0187 | 1.0179 | 1.0168 | 1.0165 | 1.0167 |        |        |
|                       | 22.7   | 23.7   | 20.4   | 17.4   | 20.9   | 23.3   | 24.7   | 25.9   | 25.5   | 24.4   | 23.0   | 22.6   | 22.9   |        |        |
| Max.                  | 1.0224 | 1.0223 | 1.0213 | 1.0206 | 1.0208 | 1.0211 | 1.0218 | 1.0242 | 1.0231 | 1.0226 | 1.0226 | 1.0222 |        |        |        |
| Mean Max.             | 1.0198 | 1.0208 | 1.0196 | 1.0170 | 1.0184 | 1.0190 | 1.0201 | 1.0206 | 1.0210 | 1.0205 | 1.0199 | 1.0197 |        |        |        |
| Mean Min.             | 1.0125 | 1.0131 | 1.0086 | 1.0076 | 1.0113 | 1.0142 | 1.0156 | 1.0164 | 1.0157 | 1.0144 | 1.0132 | 1.0113 |        |        |        |
| Min.                  | 1.0087 | 1.0085 | 1.0085 | 1.0017 | 1.0008 | 1.0089 | 1.0091 | 1.0116 | 1.0117 | 1.0102 | 1.0054 | 1.0072 |        |        |        |
|                       |        |        |        |        |        |        |        |        |        |        |        |        |        | 1.0008 |        |

## SANDY HOOK, N.J.

|      |        |        |        |        |        |        |        |        |        |        |        |        |        |                |      |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|------|
| 1887 | ---    | ---    | ---    | 1.0125 | 1.0149 | 1.0179 | 1.0181 | 1.0171 | 1.0183 | 1.0194 | 1.0193 | 1.0187 | ---    | 1.0217*1.0088* |      |
| 1888 | 1.0153 | 1.0161 | 1.0147 | 120    | 151    | 176    | 194    | 198    | 180    | 175    | 166    | 157    | 1.0165 | 209            | 081  |
| 1889 | 144    | 170    | 172    | 162    | 168    | 174    | 176    | 161    | 183    | 177    | 149    | 146    | 165    | 214            | 102  |
| 1890 | 164    | 173    | 152    | 154    | 160    | 166    | 187    | 199    | 181    | 170    | 167    | 182    | 171    | 220            | 116  |
| 1891 | 157    | 143    | 140    | 141    | 182    | 194    | 202    | 200    | 191    | 199    | 202    | 188    | 178    | 216            | 104  |
| 1892 | 150    | 189    | 178    | 164    | 184    | 177    | 193    | 201    | 194    | 199    | 188    | 171    | 182    | 227            | 116  |
| 1893 | 175    | 155    | 150    | 150    | 137    | 181    | --     | --     | --     | --     | --     | --     | --     | 205*           | 072* |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                        | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means   | Max. | Min.    |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|------|---------|
| SANDY HOOK, N.J. —Continued |        |        |        |        |        |        |        |        |        |        |        |        |         |      |         |
| 1944                        |        |        |        |        |        |        |        |        |        |        |        |        |         |      |         |
| 1945                        | 1.0173 | 1.0182 | 1.0133 | 1.0162 | 1.0141 | 1.0163 | 1.014  | 1.0157 | 1.0172 | 1.0161 | 1.0165 | 1.0151 | 1.0160  | 209  | 093     |
| 1946                        | 1.018  | 1.0180 | 1.0144 | 1.0172 | 1.0178 | 1.0146 | 1.0177 | 1.0181 | 1.0187 | 1.0184 | 1.0190 | 1.0202 | 1.0174  | 230  | 112     |
| 1947                        | 1.0169 | 1.0167 | 1.0149 | 1.0142 | 1.0149 | 1.0174 | 1.0182 | 1.0187 | 1.0187 | 1.0159 | 1.0159 | 1.0184 | 1.0174* | 210* | 111*    |
| 1948                        | 1.0184 | 1.0149 | 1.0150 | 1.0154 | 1.0151 | 1.0169 | 1.0182 | 1.0191 | 1.0191 | 1.0198 | 1.0197 | 1.0181 | 1.0174  | 205  | 112     |
| 1949                        | 1.0150 | 1.0149 | 1.0159 | 1.0166 | 1.0183 | 1.0194 | 1.0199 | 1.0195 | 1.0195 | 1.0192 | 1.0192 | 1.0184 | 1.0174  | 203  | 093     |
| 1950                        | 1.0167 | 1.0164 | 1.0151 | 1.0172 | 1.0180 | 1.0187 | 1.0191 | 1.0191 | 1.0193 | 1.0190 | 1.0156 | 1.0176 | 1.0176  | 205  | 125     |
| 1951                        | 1.0168 | 1.0141 | 1.0151 | 1.0128 | 1.0164 | 1.0176 | 1.0182 | 1.0177 | 1.0187 | 1.0185 | 1.0158 | 1.0161 | 1.0165  | 202  | 090     |
| 1952                        | 1.0152 | 1.0151 | 1.0158 | 1.0130 | 1.0135 | 1.0142 | 1.0182 | 1.0184 | 1.0178 | 1.0189 | 1.0195 | 1.0168 | 1.0164  | 207  | 071     |
| 1953                        | 1.0157 | 1.0147 | 1.0143 | 1.0125 | 1.0134 | 1.0171 | 1.0191 | 1.0187 | 1.0198 | 1.0202 | 1.0190 | 1.0176 | 1.0168  | 211  | 099     |
| 1954                        | 1.0182 | 1.0175 | 1.0164 | 1.0166 | 1.0149 | 1.0172 | 1.0187 | 1.0196 | 1.0187 | 1.0187 | 1.0184 | 1.0168 | 1.0176  | 205  | 132     |
| 1955                        | 1.0169 | 1.0180 | 1.0159 | 1.0152 | 1.0168 | 1.0190 | 1.0200 | 1.0176 | 1.0178 | 1.0154 | 1.0148 | 1.0172 | 1.0170  | 213  | 090     |
| 1956                        | 1.0185 | 1.0164 | 1.0152 | 1.0134 | 1.0153 | 1.0172 | 1.0188 | 1.0193 | 1.0194 | 1.0189 | 1.0183 | 1.0169 | 1.0173  | 214  | 101     |
| Mean Density                | 1.0164 | 1.0165 | 1.0154 | 1.0147 | 1.0157 | 1.0171 | 1.0185 | 1.0186 | 1.0187 | 1.0186 | 1.0179 | 1.0173 | 1.0171  |      |         |
| Mean Salinity               | 22.5   | 22.6   | 21.2   | 20.3   | 21.6   | 23.4   | 25.2   | 25.4   | 25.5   | 25.4   | 24.4   | 23.7   | 23.7    |      |         |
| Max.                        | 1.0210 | 1.0216 | 1.0209 | 1.0207 | 1.0216 | 1.0227 | 1.0214 | 1.0231 | 1.0244 | 1.0215 | 1.0230 | 1.0244 |         |      |         |
| Mean Max.                   | 1.0189 | 1.0190 | 1.0185 | 1.0175 | 1.0182 | 1.0191 | 1.0200 | 1.0201 | 1.0202 | 1.0203 | 1.0197 | 1.0195 |         |      |         |
| Mean Min.                   | 1.0139 | 1.0133 | 1.0121 | 1.0118 | 1.0127 | 1.0149 | 1.0167 | 1.0169 | 1.0168 | 1.0167 | 1.0157 | 1.0148 |         |      |         |
| Min.                        | 1.0093 | 1.0072 | 1.0090 | 1.0071 | 1.0081 | 1.0096 | 1.0129 | 1.0103 | 1.0134 | 1.0090 | 1.0102 | 1.0104 | 1.0071  |      |         |
| LONG BRANCH, N.J.           |        |        |        |        |        |        |        |        |        |        |        |        |         |      |         |
| 1948                        | ---    | ---    | ---    | 1.0223 | 1.0231 | 1.0206 | 1.0198 | 1.0213 | 1.0217 | 1.0223 | 1.0224 | ---    | ---     | ---  | 1.0236* |
| 1949                        | ---    | ---    | ---    | 232    | 234    | 240    | 233    | 236    | 230    | 230    | 230    | 230    | 230     | 230  | 205*    |

|                     |        |        |        |        |        |        |        |        |        |        |        |        |                |        |     |
|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|-----|
| 1950                | 1.0237 | 1.0232 | 229    | 236    | 243    | 254    | 260    | 261    | 257    | 242    | 247    | 231    | 1.0244         | 282    | 210 |
| 1951                | 234    | 230    | 240    | 240    | 244    | 247    | 239    | 254    | 247    | 231    | 231    | 232    | 239            | 269    | 207 |
| 1952                | 229    | 230    | 233    | 240    | 238    | 259    | 242    | 239    | 248    | 231    | 233    | 231    | 238            | 277    | 213 |
| 1953                | 228    | 230    | 231    | 242    | 240    | 249    | 237    | 239    | 258    | 234    | 233    | 233    | 238            | 278    | 213 |
| 1954                | 232    | 228    | 231    | 235    | 234    | 236    | 254    | 264    | 256    | 249    | 240    | 228    | 241            | 281    | 210 |
| 1955                | 228    | 227    | 230    | 232    | 233    | 242    | 247    | 240    | 260    | 255    | 235    | 229    | 238            | 275    | 206 |
| Mean Density        | 1.0231 | 1.0230 | 1.0230 | 1.0237 | 1.0233 | 1.0240 | 1.0242 | 1.0242 | 1.0249 | 1.0239 | 1.0236 | 1.0231 | 1.0237         |        |     |
| Mean Salinity       | 31.2   | 31.1   | 31.1   | 32.0   | 31.5   | 32.4   | 32.7   | 32.7   | 33.6   | 32.3   | 31.9   | 31.2   | 32.0           |        |     |
| Max.                | 1.0253 | 1.0256 | 1.0258 | 1.0263 | 1.0260 | 1.0277 | 1.0278 | 1.0282 | 1.0281 | 1.0270 | 1.0258 | 1.0250 |                |        |     |
| Mean Max.           | 1.0246 | 1.0246 | 1.0245 | 1.0255 | 1.0253 | 1.0257 | 1.0264 | 1.0258 | 1.0265 | 1.0252 | 1.0247 | 1.0245 |                |        |     |
| Mean Min.           | 1.0220 | 1.0219 | 1.0214 | 1.0216 | 1.0209 | 1.0220 | 1.0220 | 1.0223 | 1.0229 | 1.0221 | 1.0224 | 1.0218 |                |        |     |
| Min.                | 1.0217 | 1.0217 | 1.0205 | 1.0206 | 1.0150 | 1.0156 | 1.0181 | 1.0201 | 1.0201 | 1.0212 | 1.0221 | 1.0215 | 1.0215         |        |     |
| ASBURY PARK, N.J.   |        |        |        |        |        |        |        |        |        |        |        |        |                |        |     |
| 1945                | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0214 | ---    | 1.0228*1.0194* |        |     |
| 1946                | 1.0220 | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 235    | ---    | ---    | 246*           | 193*   |     |
| 1947                | 231    | 1.0231 | 1.0233 | 1.0216 | 1.0222 | 211    | 223    | ---    | ---    | ---    | ---    | ---    | 244*           | 147*   |     |
| ATLANTIC CITY, N.J. |        |        |        |        |        |        |        |        |        |        |        |        |                |        |     |
| 1912                | 1.0232 | 1.0239 | 1.0231 | 1.0233 | 1.0234 | 1.0240 | 1.0241 | 1.0239 | 1.0238 | 1.0237 | 1.0237 | 1.0236 | 1.0247         | 1.0211 | 243 |
| 1913                | 232    | 238    | 231    | 225    | 231    | 242    | 238    | 239    | 235    | 233    | 236    | 237    | 235            | 245    | 202 |
| 1914                | 240    | 238    | 237    | 234    | 221    | 234    | 232    | 232    | 236    | 237    | 237    | 237    | 235            | 247    | 210 |
| 1915                | 236    | 227    | 230    | 234    | 235    | 233    | 237    | 235    | 232    | 233    | 236    | 235    | 234            | 212    | 239 |
| 1916                | 232    | 232    | 230    | ---    | 232    | 229    | 230    | 230    | 236    | 233    | 229    | ---    | 239*           | 219*   |     |
| 1917                | 231    | 231    | 228    | 224    | 225    | 231    | 231    | 230    | 230    | 231    | 228    | 229    | 239            | 212    | 237 |
| 1918                | —      | 233    | 226    | 224    | 230    | 229    | 231    | 231    | 233    | 231    | 230    | 230    | 240*           | 210*   |     |
| 1919                | 228    | 230    | 225    | 226    | 225    | 229    | 232    | 230    | 230    | 228    | 226    | 227    | 228            | 240    | 212 |
| 1920                | 231    | 229    | 226    | 228    | 223    | 219    | 230    | 229    | 229    | 235    | 233    | 228    | 228            | 239    | 214 |
| —                   | 1923   | 231    | 229    | 228    | 235    | 237    | 233    | 232    | 232    | 230    | 228    | 227    | 231            | 242    | 210 |
| 1924                | 225    | 226    | 227    | 226    | 222    | 225    | 230    | 231    | 229    | 227    | 230    | 229    | 238            | 199    |     |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                           | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ATLANTIC CITY, N.J. -Continued |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1925                           | 1.0234 | 1.0233 | 1.0230 | 1.0224 | 1.0235 | 1.0243 | 1.0241 | 1.0236 | 1.0239 | 1.0236 | 1.0232 | 1.0234 | 1.0235 | 1.0247 | 1.0205 |
| 1926                           | 237    | 237    | 237    | 236    | 242    | 240    | 237    | 236    | 241    | 242    | 235    | 238    | 247    | 217    |        |
| 1927                           | 237    | 237    | 232    | 231    | 242    | 239    | 238    | 231    | 229    | 226    | 222    | 234    | 250    | 209    |        |
| 1928                           | 227    | 229    | 231    | 236    | 227    | 238    | 241    | 233    | 226    | 237    | 251    | 235    | 251    | 208    |        |
| 1929                           | 238    | 238    | 230    | 236    | 240    | 242    | 242    | 241    | 238    | 236    | 235    | 238    | 250    | 210    |        |
| 1930                           | 232    | 233    | 233    | 237    | 243    | 245    | 242    | 244    | 241    | 240    | 240    | 241    | 257    | 223    |        |
| 1931                           | 238    | 239    | 236    | 235    | 239    | 236    | 232    | 229    | 234    | 238    | 239    | 238    | 236    | 247    | 207    |
| 1932                           | 234    | 232    | 229    | 231    | 232    | 243    | 248    | 245    | 244    | 242    | 235    | 232    | 237    | 256    | 213    |
| 1933                           | 232    | 241    | 245    | 237    | 241    | 244    | 242    | 236    | 236    | 237    | 236    | 234    | 238    | 260    | 210    |
| 1934                           | 227    | 232    | 228    | 223    | 231    | 235    | 235    | 230    | 227    | 232    | 234    | 236    | 231    | 248    | 212    |
| 1935                           | 232    | 231    | 232    | 226    | 235    | 234    | 237    | 234    | 235    | 223    | 231    | 228    | 234    | 243    | 206    |
| 1936                           | 231    | 230    | 230    | 228    | 239    | 237    | 237    | 234    | 235    | 234    | 235    | 227    | 231    | 249    | 205    |
| 1937                           | 223    | 222    | 229    | 227    | 225    | 235    | 228    | 228    | 233    | 231    | 232    | 232    | 230    | 247    | 207    |
| 1938                           | 230    | 231    | 234    | 235    | 237    | 235    | 235    | 235    | 236    | 232    | 222    | 234    | 228    | 244    | 204    |
| 1939                           | 230    | 229    | 230    | 231    | 224    | 237    | 237    | 239    | 229    | 230    | 237    | 237    | 240    | 233    | 246    |
| 1940                           | 237    | 237    | 235    | 225    | 227    | 229    | 231    | 237    | 234    | 237    | 234    | 232    | 233    | 244    | 202    |
| 1941                           | 231    | 235    | 237    | 236    | 242    | 241    | 243    | 242    | 247    | 247    | 246    | 242    | 241    | 253    | 221    |
| 1942                           | 240    | 238    | 239    | 237    | 240    | 239    | 237    | 232    | 232    | 230    | 234    | 229    | 236    | 254    | 220    |
| 1943                           | 228    | 230    | 229    | 230    | 233    | 236    | 239    | 243    | 239    | 241    | 240    | 244    | 236    | 251    | 211    |
| 1944                           | 246    | 238    | 228    | 237    | 237    | 243    | 239    | 238    | 239    | 232    | 229    | 228    | 237    | 256    | 207    |
| 1945                           | 229    | 236    | 228    | 236    | 239    | 237    | 232    | 224    | 230    | 230    | 220    | 220    | 231    | 242    | 206    |
| 1946                           | 221    | 224    | 220    | 227    | 233    | 229    | 228    | 231    | 231    | 231    | 238    | 237    | 229    | 245    | 205    |
| 1947                           | 235    | 237    | 235    | 236    | 235    | 235    | 239    | 233    | 234    | 242    | 240    | 234    | 236    | 248    | 221    |
| 1948                           | 237    | 236    | 229    | 231    | 227    | 221    | 235    | 226    | 232    | 230    | 233    | 231    | 231    | 245    | 197    |
| 1949                           | 224    | 226    | 223    | 230    | 234    | 237    | 238    | 240    | 241    | 237    | 233    | 231    | 233    | 247    | 199    |
| 1950                           | 238    | 233    | 234    | 237    | 231    | 243    | 244    | 242    | 238    | 239    | 239    | 234    | 238    | 251    | 216    |
| 1951                           | 235    | 225    | 228    | 229    | 236    | 228    | 234    | 236    | 237    | 236    | 230    | 234    | 232    | 243    | 202    |
| 1952                           | 228    | 235    | 235    | 231    | 230    | 224    | 235    | 235    | 230    | 235    | 235    | 235    | 231    | 245    |        |

|              |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1953         | 230    | 228    | 225    | 222    | 226    | 225    | 229    | 227    | 234    | 235    | 230    | 228    | 228    | 241    | 209    |
| 1954         | 235    | 237    | 238    | 237    | 223    | 236    | 235    | 238    | 232    | 235    | 228    | 225    | 233    | 251    | 212    |
| 1955         | 226    | 229    | 232    | 227    | 230    | 234    | 235    | 233    | 229    | 230    | 226    | 224    | 230    | 245    | 207    |
| 1956         | 228    | 228    | 222    | 223    | 231    | 230    | 233    | 231    | 232    | 226    | 224    | 226    | 228    | 240    | 203    |
| Mean Density | 1.0232 | 1.0233 | 1.0231 | 1.0230 | 1.0232 | 1.0234 | 1.0236 | 1.0234 | 1.0234 | 1.0234 | 1.0234 | 1.0234 | 1.0233 | 1.0233 | 1.0233 |
| Salinity     | 31.4   | 31.5   | 31.2   | 31.1   | 31.4   | 31.6   | 31.6   | 31.9   | 31.6   | 31.6   | 31.6   | 31.4   | 31.5   |        |        |
| Max.         | 1.0256 | 1.0253 | 1.0249 | 1.0254 | 1.0257 | 1.0260 | 1.0257 | 1.0253 | 1.0253 | 1.0252 | 1.0253 | 1.0249 |        |        |        |
| Mean Max.    | 1.0239 | 1.0239 | 1.0239 | 1.0240 | 1.0241 | 1.0242 | 1.0243 | 1.0241 | 1.0241 | 1.0240 | 1.0240 | 1.0238 |        |        |        |
| Mean Min.    | 1.0223 | 1.0224 | 1.0221 | 1.0217 | 1.0220 | 1.0225 | 1.0228 | 1.0226 | 1.0226 | 1.0227 | 1.0226 | 1.0224 |        |        |        |
| Min.         | 1.0199 | 1.0202 | 1.0205 | 1.0201 | 1.0199 | 1.0197 | 1.0211 | 1.0210 | 1.0207 | 1.0204 | 1.0206 | 1.0206 |        |        |        |
|              |        |        |        |        |        |        |        |        |        |        |        |        | 1.0197 |        |        |

| BREAKWATER HARBOR, DEL. |        |        |        |        |        |        |        |        |        |        |        |        |        |         |          |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
| 1921                    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0222 | 1.0225 | 1.0231 | 1.0225 | 1.0214 | ---    | 1.0235* | 1.0203** |
| 1922                    | 1.0203 | 1.0209 | ---    | 1.0205 | 1.0209 | 1.0208 | 214    | 220    | 218    | 219    | 220    | 214    | ---    | 241*    | 187*     |
| 1923                    | 216    | 209    | 1.0206 | 198    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 226*    | 166*     |
| ---                     | ---    | ---    | ---    | ---    | 208    | 215    | 219    | 219    | 220    | 217    | 215    | 215    | ---    | 239*    | 168*     |
| 1947                    | 207    | 218    | 211    | 200    | 202    | 200    | 211    | 212    | 214    | 206    | 219    | 211    | 1.0209 | 233     | 154      |
| 1948                    | 194    | 184    | 190    | 208    | 205    | 210    | 220    | 223    | 224    | 227    | 219    | 220    | 210    | 234     | 159      |
| 1949                    | 218    | 208    | 220    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 229*    | 180*     |
| ---                     | ---    | ---    | ---    | ---    | 196    | 214    | 220    | 219    | 215    | 219    | 201    | 201    | ---    | 231*    | 145*     |
| 1952                    | 203    | 196    | 197    | 194    | 200    | 204    | 212    | 216    | 223    | 224    | 218    | 217    | 209    | 230     | 157      |
| 1953                    | 203    | 216    | 209    | 208    | 207    | 217    | 226    | 233    | 227    | 229    | 226    | 214    | 218    | 239     | 169      |
| 1954                    | 195    | 213    | 211    | 209    | 212    | ---    | 228    | 215    | 209    | 209    | 201    | 204    | ---    | 233*    | 162*     |
| 1955                    | 199    | 219    | 203    | 195    | 199    | 203    | 211    | 216    | 218    | 216    | 211    | 211    | 208    | 234     | 150      |
| Mean Density            | 1.0205 | 1.0208 | 1.0206 | 1.0202 | 1.0205 | 1.0207 | 1.0218 | 1.0220 | 1.0220 | 1.0218 | 1.0212 | 1.0212 | 1.0241 |         |          |
| Salinity                | 27.8   | 28.2   | 28.0   | 27.5   | 27.8   | 28.1   | 29.5   | 29.8   | 29.8   | 29.8   | 29.5   | 28.8   | 28.8   |         |          |
| Max.                    | 1.0229 | 1.0233 | 1.0232 | 1.0241 | 1.0228 | 1.0230 | 1.0234 | 1.0239 | 1.0234 | 1.0239 | 1.0238 | 1.0230 |        |         |          |
| Mean Max.               | 1.0223 | 1.0222 | 1.0219 | 1.0220 | 1.0218 | 1.0219 | 1.0221 | 1.0227 | 1.0229 | 1.0229 | 1.0228 | 1.0227 | 1.0222 |         |          |
| Mean Min.               | 1.0182 | 1.0190 | 1.0177 | 1.0182 | 1.0189 | 1.0185 | 1.0205 | 1.0206 | 1.0208 | 1.0208 | 1.0202 | 1.0198 |        |         |          |
| Min.                    | 1.0150 | 1.0157 | 1.0157 | 1.0154 | 1.0176 | 1.0145 | 1.0187 | 1.0162 | 1.0168 | 1.0186 | 1.0182 | 1.0185 | 1.0145 |         |          |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                     | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.    | Min.    |         |         |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| <b>PHILADELPHIA, PA.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |
| 1923                     | 0.9995 | 0.9995 | 0.9996 | 0.9996 | 0.9996 | 1.0001 | 0.9999 | 0.9999 | 0.9997 | 0.9995 | 0.9995 | 0.9997 | 0.9997 | 1.0012  | 0.9990  |         |         |
| 1924                     | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9999 | —      | 0.9994 | 0.9997 | 0.9995 | 0.9992 | 0.9991 | 0.9990 | —      | 1.0002* | 0.9988* |         |         |
| 1925                     | 0.9991 | 0.9992 | 0.9992 | 0.9994 | 0.9996 | 0.9996 | 0.9997 | 0.9996 | 0.9994 | 0.9992 | 0.9991 | 0.9994 | 0.9994 | 1.0005  | 0.9989  |         |         |
| 1926                     | 0.9992 | 0.9992 | 0.9991 | 0.9991 | 0.9995 | 0.9995 | 0.9997 | 0.9996 | 0.9995 | 0.9993 | 0.9992 | 0.9992 | 0.9993 | 1.0000  | 0.9990  |         |         |
| 1927                     | 0.9992 | 0.9992 | 0.9991 | 0.9992 | 0.9994 | 0.9994 | 0.9997 | 0.9999 | 0.9996 | 0.9995 | 0.9992 | 0.9992 | 0.9994 | 1.0004  | 0.9990  |         |         |
| 1928                     | 0.9993 | 0.9994 | 0.9994 | 0.9992 | 0.9996 | 0.9999 | 1.0000 | 0.9999 | 1.0001 | 0.9999 | 0.9999 | 0.9997 | 0.9996 | 1.0009  | 0.9989  |         |         |
| 1929                     | 0.9995 | 0.9996 | 0.9998 | 0.9998 | 0.9999 | 0.9999 | 1.0000 | 1.0000 | 1.0001 | 1.0000 | 1.0000 | 0.9997 | 0.9999 | 1.0007  | 0.9991  |         |         |
| 1930                     | 0.9997 | 0.9996 | 0.9998 | 0.9999 | 0.9999 | 1.0002 | 1.0003 | 1.0003 | 0.9999 | 0.9999 | 0.9998 | 0.9998 | 0.9997 | 0.9999  | 1.0009  | 0.9992  |         |
| 1931                     | 0.9996 | 0.9997 | 0.9996 | 0.9999 | 0.9999 | 1.0001 | 1.0001 | 1.0002 | 1.0002 | 1.0003 | 1.0001 | 1.0001 | 1.0000 | 0.9999  | 1.0011  | 0.9993  |         |
| 1932                     | 0.9999 | 0.9999 | 0.9999 | 0.9999 | 0.9999 | 1.0000 | 0.9999 | 0.9999 | 1.0001 | 1.0001 | 1.0002 | 1.0000 | 0.9997 | 0.9999  | 1.0007  | 0.9992  |         |
| 1933                     | 0.9998 | 0.9998 | 0.9999 | 0.9999 | 0.9996 | 1.0000 | 1.0000 | 1.0003 | 1.0003 | 1.0002 | 1.0003 | 1.0001 | 1.0001 | 0.9999  | 1.0000  | 0.9991  |         |
| 1934                     | 0.9999 | 0.9996 | 0.9998 | 1.0000 | 1.0001 | 1.0002 | 1.0001 | 1.0001 | 1.0000 | 1.0000 | 1.0000 | 0.9998 | 0.9997 | 0.9999  | 1.0007  | 0.9985  |         |
| 1935                     | 0.9998 | 0.9996 | 0.9999 | 1.0000 | 1.0000 | 1.0002 | 1.0003 | 1.0001 | 1.0000 | 1.0000 | 1.0002 | 0.9998 | 0.9998 | 1.0000  | 1.0008  | 0.9992  |         |
| 1936                     | 0.9995 | 0.9996 | 0.9995 | 0.9997 | 0.9999 | 0.9997 | 0.9998 | 0.9999 | 0.9999 | 0.9995 | 0.9994 | 0.9994 | 0.9994 | 0.9997  | 1.0011  | 0.9989  |         |
| 1937                     | 0.9994 | 0.9995 | 0.9995 | 0.9994 | 0.9996 | 1.0000 | 1.0000 | 0.9996 | 1.0000 | 0.9997 | 0.9997 | 0.9995 | 0.9995 | 0.9996  | 1.0006  | 0.9989  |         |
| 1938                     | 0.9996 | 0.9995 | 0.9996 | 0.9998 | 0.9998 | 1.0003 | 1.0000 | 1.0000 | 1.0001 | 1.0000 | 0.9998 | 0.9998 | 0.9993 | 0.9998  | 1.0008  | 0.9992  |         |
| 1939                     | 0.9993 | 0.9993 | 0.9992 | 0.9993 | 0.9995 | 0.9995 | 0.9997 | 0.9996 | 0.9997 | 0.9997 | 0.9994 | 0.9993 | 0.9993 | 0.9995  | 1.0001  | 0.9988  |         |
| 1940                     | 0.9992 | 0.9993 | 0.9993 | 0.9992 | 0.9995 | 0.9996 | 0.9996 | 0.9996 | 0.9995 | 0.9993 | 0.9996 | 0.9996 | 0.9993 | 0.9994  | 1.0005  | 0.9987  |         |
| 1941                     | 0.9993 | 0.9993 | 0.9994 | 0.9994 | 0.9996 | 0.9996 | 0.9996 | 0.9998 | 0.9998 | 0.9997 | 0.9997 | 0.9994 | 0.9995 | 0.9995  | 1.0002  | 0.9987  |         |
| 1942                     | 0.9993 | 0.9993 | 0.9994 | 0.9994 | 0.9997 | 0.9997 | 1.0000 | 0.9997 | 0.9998 | 0.9998 | 0.9996 | 0.9995 | 0.9995 | 0.9996  | 1.0007  | 0.9989  |         |
| 1943                     | 0.9994 | 0.9994 | 0.9994 | 0.9995 | 0.9998 | 0.9999 | 0.9999 | 0.9997 | 0.9998 | 0.9997 | 0.9996 | 0.9994 | 0.9994 | 0.9996  | 1.0005  | 0.9991  |         |
| 1944                     | 0.9992 | 0.9992 | 0.9990 | 0.9991 | 0.9998 | 0.9998 | 0.9998 | 0.9997 | 0.9997 | 0.9996 | 0.9995 | 0.9993 | 0.9993 | 0.9994  | 1.0002  | 0.9988  |         |
| 1945                     | 0.9991 | 0.9991 | 0.9991 | 0.9995 | 0.9994 | 0.9995 | 0.9995 | 0.9996 | 0.9995 | 0.9993 | 0.9992 | 0.9992 | 0.9992 | 0.9993  | 1.0003  | 0.9987  |         |
| 1946                     | 0.9992 | 0.9994 | 0.9994 | 0.9996 | 0.9997 | 0.9999 | 0.9998 | 0.9999 | 0.9997 | 0.9995 | 0.9996 | 0.9996 | 0.9996 | 0.9996  | 1.0007  | 0.9991  |         |
| 1947                     | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —       | —       | 1.0002* | 0.9988* |

|                                 |        |        |        |        |        |        |        |        |        |        |        |         |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 1955                            | 0.9990 | 0.9991 | 0.9992 | 0.9993 | 0.9996 | 0.9994 | 0.9990 | 0.9989 | 0.9988 | 0.9992 | 1.0000 | 0.9987  |
| 1956                            | 0.9989 | 0.9988 | 0.9988 | 0.9989 | 0.9993 | 0.9994 | 0.9996 | 0.9995 | 0.9993 | 0.9993 | 0.9992 | 0.9986  |
| Mean Density                    | 0.9994 | 0.9994 | 0.9994 | 0.9995 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9996 | 0.9994 | 0.9996 | 0.9986  |
| Mean Salinity                   | 0.3    | 0.3    | 0.3    | 0.4    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.4    | 0.3    | 0.6     |
| Max.                            | 1.0002 | 1.0002 | 1.0002 | 1.0005 | 1.0008 | 1.0012 | 1.0009 | 1.0011 | 1.0005 | 1.0004 | 1.0012 | 1.0012  |
| Mean Max.                       | 0.9997 | 0.9997 | 0.9997 | 0.9999 | 1.0002 | 1.0003 | 1.0003 | 1.0002 | 1.0001 | 0.9998 | 0.9997 | 0.9986  |
| Mean Min.                       | 0.9992 | 0.9991 | 0.9992 | 0.9992 | 0.9993 | 0.9994 | 0.9994 | 0.9993 | 0.9994 | 0.9992 | 0.9992 | 0.9986  |
| Min.                            | 0.9988 | 0.9985 | 0.9986 | 0.9988 | 0.9989 | 0.9990 | 0.9988 | 0.9990 | 0.9988 | 0.9987 | 0.9988 | 0.9985  |
| <b>KIPTOPEKE BEACH, VA.</b>     |        |        |        |        |        |        |        |        |        |        |        |         |
| 1951                            | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —       |
| 1952                            | 1.0194 | 1.0182 | 1.0176 | 1.0162 | 1.0152 | 1.0167 | 1.0180 | 1.0191 | 1.0199 | 1.0196 | 1.0211 | 1.0197  |
| 1953                            | 186    | 174    | 169    | 159    | 160    | 169    | 188    | 194    | 201    | 196    | 193    | 1.0182  |
| 1954                            | 194    | 199    | 182    | 186    | 173    | 186    | 191    | 206    | 204    | 202    | 183    | 1.0182  |
| 1955                            | 208    | 204    | 181    | 196    | 189    | 203    | 210    | 213    | 198    | 195    | 190    | 195     |
| 1956                            | 199    | 185    | 181    | 166    | —      | 193    | 199    | 213    | 205    | 206    | 190    | 192     |
| Mean Density                    | 1.0196 | 1.0189 | 1.0178 | 1.0174 | 1.0168 | 1.0184 | 1.0194 | 1.0203 | 1.0200 | 1.0202 | 1.0197 | 1.0195  |
| Mean Salinity                   | 26.7   | 25.8   | 24.3   | 23.8   | 23.0   | 25.1   | 26.4   | 27.6   | 27.2   | 27.5   | 26.8   | 25.9    |
| Max.                            | 1.0231 | 1.0241 | 1.0224 | 1.0222 | 1.0206 | 1.0224 | 1.0238 | 1.0240 | 1.0240 | 1.0234 | 1.0233 | 1.0235  |
| Mean Max.                       | 1.0227 | 1.0225 | 1.0213 | 1.0210 | 1.0199 | 1.0212 | 1.0225 | 1.0227 | 1.0226 | 1.0227 | 1.0223 | 1.0224  |
| Mean Min.                       | 1.0170 | 1.0165 | 1.0150 | 1.0149 | 1.0128 | 1.0155 | 1.0158 | 1.0158 | 1.0177 | 1.0179 | 1.0172 | 1.0170  |
| Min.                            | 1.0162 | 1.0150 | 1.0136 | 1.0132 | 1.0095 | 1.0125 | 1.0140 | 1.0163 | 1.0154 | 1.0173 | 1.0161 | 1.0161  |
| <b>CAPE CHARLES (town), VA.</b> |        |        |        |        |        |        |        |        |        |        |        |         |
| 1947                            | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —       |
| 1948                            | 1.0166 | 1.0169 | 1.0167 | 1.0158 | 1.0145 | 1.0150 | 1.0150 | 1.0150 | 1.0150 | 1.0150 | 1.0150 | 1.0154* |
| 1949                            | 148    | 141    | 143    | 145    | 153    | 164    | 171    | 171    | 174    | 167    | 177    | 159     |
| 1950                            | 179    | 174    | 163    | 155    | 157    | 168    | 175    | 182    | 175    | 171    | 153    | 170     |
| 1951                            | 146    | 148    | 144    | 142    | 147    | 154    | 168    | 172    | 179    | 186    | 173    | 175     |
| 1952                            | 162    | 148    | 141    | 140    | 130    | 147    | 162    | 174    | 176    | 168    | 161    | 161     |
| Mean                            | 1.0095 | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —       |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                       | Jan.           | Feb.           | Mar.           | Apr.           | May            | June           | July           | Aug.           | Sept.          | Oct.           | Nov.           | Dec.           | Means          | Max.           | Min. |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|
| <b>CAPE CHARLES (town), VA. —Continued</b> |                |                |                |                |                |                |                |                |                |                |                |                |                |                |      |
| Mean Density Salinity                      | 1.0160<br>22.0 | 1.0156<br>21.4 | 1.0152<br>20.9 | 1.0148<br>20.4 | 1.0146<br>20.1 | 1.0157<br>21.6 | 1.0169<br>23.1 | 1.0174<br>23.8 | 1.0178<br>24.3 | 1.0177<br>24.2 | 1.0176<br>24.1 | 1.0168<br>23.0 | 1.0163<br>22.4 |                |      |
| Max.                                       | 1.0188         | 1.0196         | 1.0191         | 1.0175         | 1.0183         | 1.0198         | 1.0199         | 1.0195         | 1.0200         | 1.0209         | 1.0208         | 1.0204         | 1.0209         |                |      |
| Mean Max.                                  | 1.0172         | 1.0175         | 1.0180         | 1.0164         | 1.0169         | 1.0175         | 1.0190         | 1.0189         | 1.0193         | 1.0192         | 1.0197         | 1.0183         |                |                |      |
| Mean Min.                                  | 1.0149         | 1.0138         | 1.0134         | 1.0130         | 1.0122         | 1.0135         | 1.0146         | 1.0154         | 1.0160         | 1.0163         | 1.0160         | 1.0156         |                |                |      |
| Min.                                       | 1.0133         | 1.0124         | 1.0124         | 1.0124         | 1.0101         | 1.0101         | 1.0109         | 1.0105         | 1.0150         | 1.0154         | 1.0152         | 1.0137         | 1.0101         |                |      |
| <b>LITTLE CREEK, VA.</b>                   |                |                |                |                |                |                |                |                |                |                |                |                |                |                |      |
| 1954                                       | 1.0163         | 1.0167         | ---            | ---            | 1.0160         | 1.0164         | 1.0175         | 1.0190         | 1.0191         | 1.0201         | 1.0192         | 1.0173         | ---            | 1.0208*1.0125* |      |
| 1955                                       | 168            | 171            | 1.0151         | 1.0156         | 154            | 172            | ---            | 173            | 146            | 166            | 168            | 160            | ---            | 192*           | 133* |
| 1956                                       | 163            | 153            | 165            | 152            | 149            | 154            | 172            | 169            | 179            | 170            | 152            | 162            | 1.0162         | 189            | 114  |
| Mean Density Salinity                      | 1.0165<br>22.6 | 1.0164<br>22.5 | 1.0158<br>21.7 | 1.0154<br>21.2 | 1.0163<br>21.2 | 1.0174<br>22.4 | 1.0177<br>23.8 | 1.0172<br>24.2 | 1.0179<br>23.5 | 1.0171<br>24.4 | 1.0165<br>23.4 | 1.0166<br>22.7 |                |                |      |
| Max.                                       | 1.0175         | 1.0182         | 1.0186         | 1.0170         | 1.0174         | 1.0184         | 1.0183         | 1.0203         | 1.0199         | 1.0208         | 1.0201         | 1.0183         | 1.0203         |                |      |
| Mean Max.                                  | 1.0173         | 1.0171         | 1.0176         | 1.0168         | 1.0168         | 1.0175         | 1.0183         | 1.0190         | 1.0181         | 1.0192         | 1.0179         | 1.0177         |                |                |      |
| Mean Min.                                  | 1.0149         | 1.0156         | 1.0136         | 1.0139         | 1.0145         | 1.0154         | 1.0158         | 1.0158         | 1.0164         | 1.0165         | 1.0154         | 1.0153         |                |                |      |
| Min.                                       | 1.0125         | 1.0147         | 1.0133         | 1.0134         | 1.0141         | 1.0145         | 1.0156         | 1.0156         | 1.0134         | 1.0138         | 1.0145         | 1.0114         | 1.0145         | 1.0114         |      |
| <b>OLD POINT COMFORT, VA.</b>              |                |                |                |                |                |                |                |                |                |                |                |                |                |                |      |
| 1943                                       | ---            | ---            | ---            | ---            | ---            | ---            | ---            | ---            | ---            | 1.0167         | 1.0166         | 1.0170         | ---            | 1.0186*1.0149* |      |
| 1944                                       | 1.0158         | 1.0157         | 1.0117         | 1.0125         | 1.0144         | 1.0145         | 1.0164         | 1.0182         | 1.0169         | 1.0153         | 1.0167         | 1.0157         | 1.0153         | 192            | 068  |
| 1945                                       | 144            | 148            | 134            | 150            | 144            | 144            | 144            | 138            | 130            | 141            | 136            | 153            | ---            | 169*           | 106* |
| —  | —              | —              | —              | —              | —              | —              | —              | —              | —              | —              | —              | —              | —              | —              | —    |
| 1948                                       | —              | 121            | 119            | 107            | 120            | 129            | 155            | 149            | 154            | 147            | 146            | 102            | ---            | 174*           | 029* |
| 1949                                       | 105            | 097            | 113            | 111            | 136            | 142            | 146            | 143            | 159            | 140            | 151            | 130            | 151            | 180            | 074  |

|                       |        |        |        |        |        |        |        |        |        |        |        |        |        |                |               |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|---------------|
| 1950                  | 150    | 134    | 135    | 138    | 129    | 131    | 154    | 162    | 154    | 147    | 162    | 144    | 145    | 175            | 104           |
| 1951                  | 144    | 134    | 119    | 105    | 118    | 120    | 143    | 152    | 158    | 164    | 158    | 157    | 139    | 188            | 086           |
| 1952                  | 127    | 108    | 103    | 112    | 107    | 130    | 149    | 167    | 161    | 157    | 160    | 141    | 135    | 178            | 058           |
| 1953                  | 132    | 113    | 109    | 107    | 134    | 141    | 151    | 153    | 164    | 164    | 169    | 161    | 142    | 176            | 079           |
| 1954                  | 154    | 156    | 131    | 143    | 142    | 146    | 161    | 171    | 178    | 182    | 171    | 154    | 157    | 193            | 107           |
| 1955                  | 147    | 155    | 117    | 134    | —      | 152    | —      | —      | —      | —      | —      | —      | —      | —              | —             |
| Mean Density Salinity | 1.0153 | 1.0147 | 1.29   | 1.25   | 1.20   | 1.17   | 1.21   | 1.30   | 1.37   | 1.50   | 1.63   | 1.61   | 1.40   | 1.94*          | 080*          |
| Max.                  | 1.0175 | 1.0188 | 1.0164 | 1.0171 | 1.0163 | 1.0194 | 1.0189 | 1.0192 | 1.0188 | 1.0193 | 1.0185 | 1.0186 | 1.0194 | —              | —             |
| Mean Max.             | 1.0159 | 1.0156 | 1.0145 | 1.0145 | 1.0120 | 1.0123 | 1.0128 | 1.0137 | 1.0151 | 1.0157 | 1.0158 | 1.0159 | 1.0149 | 1.0143         | —             |
| Mean Min.             | 1.0118 | 1.0101 | 1.0098 | 1.0096 | 1.0105 | 1.0115 | 1.0135 | 1.0142 | 1.0137 | 1.0143 | 1.0143 | 1.0122 | 1.0029 | 1.0029         | 1.0029        |
| Min.                  | 1.0086 | 1.0058 | 1.0079 | 1.0043 | 1.0066 | 1.0092 | 1.0111 | 1.0106 | 1.0110 | 1.0116 | 1.0119 | 1.0029 | 1.0029 | 1.0029         | 1.0029        |
| RICHMOND, VA.         |        |        |        |        |        |        |        |        |        |        |        |        |        |                |               |
| 1947                  | —      | —      | 0.9990 | 0.9991 | 0.9993 | 0.9994 | 0.9992 | 0.9994 | 0.9994 | 0.9990 | 0.9992 | —      | —      | 0.9999*0.9985* | —             |
| 1948                  | 0.9991 | 0.9990 | 0.9990 | 0.9991 | 0.9993 | 0.9995 | 0.9995 | 0.9994 | 0.9992 | 0.9990 | 0.9991 | 0.9990 | 0.9990 | 0.9992         | 1.0001 0.9986 |
| 1949                  | 0.9990 | 0.9989 | 0.9993 | 0.9993 | 0.9993 | 0.9995 | 0.9997 | 0.9995 | 0.9993 | 0.9993 | 0.9992 | 0.9993 | 0.9993 | 1.0003 0.9986  | —             |
| 1950                  | 0.9992 | 0.9990 | 0.9990 | 0.9994 | 0.9997 | 0.9997 | 0.9998 | 0.9997 | 0.9996 | 0.9995 | 0.9994 | 0.9995 | 0.9995 | 1.0006 0.9988  | —             |
| 1951                  | 0.9995 | 0.9992 | 0.9995 | 0.9997 | 0.9999 | 1.0000 | 1.0001 | 0.9999 | 0.9999 | 0.9995 | 0.9993 | 0.9995 | 0.9995 | 0.9997         | 1.0006 0.9988 |
| 1952                  | 0.9994 | 0.9993 | 0.9991 | 0.9994 | 0.9998 | 0.9995 | 0.9997 | 0.9999 | 0.9995 | 0.9992 | 0.9991 | 0.9991 | 0.9994 | 1.0006 0.9983  | —             |
| 1953                  | 0.9993 | 0.9992 | 0.9992 | 0.9992 | 0.9997 | 0.9996 | 0.9996 | 0.9995 | 0.9996 | 0.9994 | 0.9993 | 0.9992 | 0.9994 | 1.0007 0.9987  | —             |
| 1954                  | 0.9992 | 0.9994 | 0.9994 | 0.9994 | 0.9993 | 0.9994 | 0.9995 | 0.9994 | 0.9994 | 0.9994 | 0.9996 | 0.9994 | 0.9994 | 1.0005 0.9989  | —             |
| 1955                  | 0.9995 | 0.9994 | 0.9996 | 0.9996 | 0.9993 | 0.9994 | 0.9994 | 0.9993 | 0.9994 | 0.9994 | 0.9995 | 0.9995 | 0.9995 | 1.0003*0.9987* | —             |
| 1956                  | 0.9997 | 0.9997 | 0.9996 | 0.9998 | 0.9997 | 0.9999 | 0.9998 | 0.9999 | 0.9998 | 0.9999 | 0.9997 | 0.9995 | 0.9997 | 1.0007 0.9992  | —             |
| Mean Density Salinity | 0.9993 | 0.9992 | 0.9993 | 0.9994 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9995 | 0.9994 | 0.9993 | 0.9993 | 0.9994 | 1.0007         | —             |
| Max.                  | 1.0000 | 1.0000 | 1.0003 | 1.0002 | 1.0004 | 1.0007 | 1.0005 | 1.0006 | 1.0007 | 1.0004 | 1.0003 | 0.9999 | 0.9999 | —              | —             |
| Mean Max.             | 0.9997 | 0.9996 | 0.9997 | 0.9999 | 1.0000 | 1.0001 | 1.0002 | 1.0001 | 1.0000 | 1.0002 | 0.9999 | 0.9998 | 0.9997 | —              | —             |
| Mean Min.             | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9992 | 0.9991 | 0.9992 | 0.9991 | 0.9990 | 0.9989 | 0.9990 | 0.9990 | 0.9990 | 0.9983         | 0.9983        |
| Min.                  | 0.9986 | 0.9986 | 0.9988 | 0.9987 | 0.9989 | 0.9986 | 0.9986 | 0.9987 | 0.9989 | 0.9989 | 0.9989 | 0.9985 | 0.9986 | 0.9983         | 0.9983        |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                         | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.           |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|
| <b>Gloucester Point, VA.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |
| 1950                         | ---    | ---    | ---    | ---    | ---    | ---    | 1.0133 | 1.0151 | 1.0155 | 1.0152 | 1.0145 | 1.0164 | 1.0148 | ---    | 1.0193*1.0115* |
| 1951                         | 1.0143 | 1.0134 | 1.0124 | 1.0119 | 1.0120 | 1.0120 | 1.31   | 1.47   | 1.52   | 1.56   | 1.63   | 1.59   | 1.57   | 1.0142 | 1.10           |
| 1952                         | 1.0142 | 1.0142 | 1.0121 | 1.0114 | 1.0108 | 1.0126 | 1.34   | 1.60   | 1.56   | 1.55   | 1.55   | 1.42   | 1.36   | 201    | 0.74           |
| 1953                         | 1.0137 | 1.0120 | 1.0119 | 1.0109 | 1.0116 | 1.0126 | 1.32   | 1.34   | 1.48   | 1.51   | 1.53   | 1.54   | 1.33   | 1.61   | 0.79           |
| 1954                         | 1.0153 | 1.0150 | 1.0146 | 1.0145 | 1.0144 | 1.0155 | 1.69   | 1.75   | 1.77   | 1.77   | 1.68   | 1.58   | 1.58   | 1.84   | 1.29           |
| 1955                         | 1.0162 | 1.0157 | 1.0138 | 1.0131 | 1.0126 | 1.0124 | 1.0134 | 1.0163 | 1.0133 | 1.0150 | 1.0152 | 1.0155 | 1.0154 | 1.0150 | 1.0142         |
| 1956                         | 1.0151 | 1.0141 | 1.0138 | 1.0131 | 1.0125 | 1.0126 | 1.0139 | 1.0145 | 1.0145 | 1.0148 | 1.0148 | 1.0143 | 1.0143 | 1.0144 | 0.59           |
| Mean<br>Density<br>Salinity  | 20.4   | 19.1   | 18.2   | 17.5   | 17.3   | 18.6   | 20.1   | 20.6   | 20.9   | 20.9   | 21.3   | 21.2   | 20.6   | 19.6   | 113            |
| Max.                         | 1.0168 | 1.0164 | 1.0155 | 1.0153 | 1.0150 | 1.0165 | 1.0169 | 1.0186 | 1.0201 | 1.0184 | 1.0193 | 1.0175 | 1.0201 |        |                |
| Mean Max.                    | 1.0159 | 1.0147 | 1.0144 | 1.0141 | 1.0134 | 1.0148 | 1.0156 | 1.0164 | 1.0165 | 1.0164 | 1.0165 | 1.0165 | 1.0160 |        |                |
| Mean Min.                    | 1.0134 | 1.0125 | 1.0116 | 1.0111 | 1.0112 | 1.0122 | 1.0234 | 1.0132 | 1.0141 | 1.0147 | 1.0147 | 1.0140 | 1.0136 |        |                |
| Min.                         | 1.0114 | 1.0108 | 1.0100 | 1.0079 | 1.0074 | 1.0104 | 1.0118 | 1.0059 | 1.0101 | 1.0130 | 1.0113 | 1.0121 | 1.0059 |        |                |
| <b>Washington, D.C.</b>      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |
| 1944                         | 0.9994 | 0.9994 | 0.9994 | 0.9993 | 0.9997 | 0.9996 | 0.9997 | 0.9997 | 0.9997 | 0.9996 | 0.9995 | 0.9995 | 0.9995 | 1.0007 | 0.9988         |
| 1945                         | 0.9993 | 0.9994 | 0.9994 | 0.9996 | 0.9995 | 0.9995 | 0.9993 | 0.9994 | 0.9994 | 0.9992 | 0.9991 | 0.9991 | 0.9998 | 0.9993 | 1.0006         |
| 1946                         | 0.9987 | 0.9988 | 0.9988 | 0.9989 | 0.9991 | 0.9994 | 0.9994 | 0.9994 | 0.9993 | 0.9992 | 0.9991 | 0.9991 | 0.9990 | 0.9991 | 0.9985         |
| 1947                         | 0.9988 | 0.9987 | 0.9988 | 0.9992 | 0.9995 | 0.9996 | 0.9996 | 0.9997 | 0.9997 | 0.9995 | 0.9994 | 0.9992 | 0.9990 | 0.9992 | 0.9985         |
| 1948                         | 0.9990 | 0.9990 | 0.9994 | ---    | ---    | ---    | 0.9998 | 0.9997 | 0.9997 | 0.9993 | 0.9992 | 0.9992 | 0.9992 | ---    | 0.0007*0.9988* |
| 1949                         | 0.9992 | 0.9992 | 0.9993 | 0.9993 | 0.9996 | 0.9999 | 0.9998 | 0.9998 | 0.9995 | 0.9995 | 0.9993 | 0.9993 | 0.9995 | 1.0010 | 0.9989         |
| 1950                         | 0.9992 | 0.9992 | 0.9992 | 0.9993 | 0.9999 | 0.9998 | 0.9999 | 0.9999 | 0.9997 | 0.9996 | 0.9995 | 0.9995 | 0.9996 | 1.0007 | 0.9990         |
| 1951                         | 0.9994 | 0.9995 | 0.9996 | 0.9996 | 0.9998 | 0.9997 | 0.9999 | 0.9998 | 0.9997 | 0.9996 | 0.9996 | 0.9995 | 0.9996 | 1.0006 | 0.9992         |
| 1952                         | 0.9995 | 0.9995 | 0.9996 | 0.9997 | 0.9997 | 0.9998 | 0.9998 | 0.9997 | 0.9996 | 0.9996 | 0.9997 | 0.9997 | 0.9996 | 1.0007 | 0.9992         |
| 1953                         | 0.9994 | 0.9994 | 0.9997 | 0.9997 | 0.9996 | 0.9998 | 0.9996 | 0.9996 | 0.9992 | 0.9992 | 0.9993 | 0.9992 | 0.9994 | 1.0003 | 0.9986         |
| 1954                         | 0.9991 | 0.9990 | 0.9990 | 0.9993 | 0.9992 | 0.9992 | 0.9993 | 0.9993 | 0.9992 | 0.9992 | 0.9990 | 0.9990 | 0.9991 | 1.0000 | 0.9987         |

|               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1955          | 0.9989 | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9992 | 0.9991 | 0.9992 | 0.9991 | 0.9990 | 0.9990 | 0.9991 | 0.9994 | 0.9995 | 0.9986 |
| 1956          | 0.9991 | 0.9990 | 0.9989 | 0.9990 | 0.9990 | 0.9993 | 0.9993 | 0.9993 | 0.9992 | 0.9991 | 0.9990 | 0.9990 | 0.9991 | 0.9995 | 0.9987 |
| Mean Density  | 0.9992 | 0.9992 | 0.9992 | 0.9993 | 0.9995 | 0.9996 | 0.9996 | 0.9995 | 0.9995 | 0.9994 | 0.9993 | 0.9992 | 0.9994 | 0.9995 | 0.9986 |
| Mean Salinity | 0.0    | 0.0    | 0.0    | 0.2    | 0.4    | 0.6    | 0.6    | 0.6    | 0.4    | 0.4    | 0.3    | 0.2    | 0.0    | 0.3    | 0.0    |
| Max. Max.     | 0.9998 | 0.9998 | 1.0005 | 1.0002 | 1.0008 | 1.0010 | 1.0005 | 1.0007 | 1.0007 | 1.0005 | 0.9999 | 0.9999 | 1.0010 | 1.0010 | 1.0010 |
| Mean Min.     | 0.9994 | 0.9995 | 0.9997 | 0.9997 | 1.0000 | 1.0001 | 1.0000 | 1.0001 | 0.9999 | 0.9997 | 0.9995 | 0.9995 | 1.0010 | 1.0010 | 1.0010 |
| Min.          | 0.9985 | 0.9985 | 0.9986 | 0.9987 | 0.9986 | 0.9988 | 0.9988 | 0.9988 | 0.9985 | 0.9989 | 0.9987 | 0.9986 | 0.9985 | 0.9985 | 0.9985 |
| 1938          | 1.0093 | 1.0094 | 1.0084 | 1.0074 | 1.0082 | 1.0089 | 1.0099 | 1.0097 | 1.0103 | 1.0108 | 1.0122 | 1.0127 | 1.0096 | 1.0064 | 1.0127 |
| 1939          | 107    | 101    | 063    | ---    | 059    | 078    | 088    | 101    | 108    | 117    | 123    | ---    | ---    | 131*   | 041*   |
| 1940          | 124    | 127    | ---    | 066    | 062    | 071    | 087    | 098    | 108    | 116    | 120    | 109    | ---    | 139*   | 042*   |
| 1941          | 099    | 108    | 108    | 086    | 093    | 106    | 107    | 112    | 124    | 136    | 140    | 113    | 148    | 065    | 065    |
| 1942          | 137    | 132    | 117    | 088    | 092    | 079    | 096    | 105    | 106    | 113    | 105    | 093    | 105    | 145    | 068    |
| 1943          | 077    | 078    | 069    | 067    | 061    | 054    | 077    | 094    | 107    | 128    | 123    | 116    | 088    | 135    | 033    |
| 1944          | 118    | 126    | 114    | 085    | 069    | 083    | 099    | 100    | 109    | 120    | 132    | 130    | 107    | 136    | 047    |
| 1945          | 120    | 122    | 083    | 067    | 076    | 065    | 071    | 066    | 084    | 083    | 090    | 073    | 083    | 129    | 045    |
| 1946          | 070    | 082    | 074    | 079    | 086    | 056    | 064    | 079    | 097    | 110    | 116    | 119    | 086    | 123    | 040    |
| 1947          | 118    | 106    | 105    | 091    | 079    | 063    | 075    | 078    | 093    | 102    | 118    | 120    | 096    | 126    | 044    |
| 1948          | 117    | 114    | 100    | 069    | 066    | 070    | 082    | 081    | 093    | 112    | 122    | 104    | 094    | 127    | 039    |
| 1949          | 075    | 069    | 066    | 067    | 070    | 080    | 085    | 095    | 111    | 124    | 128    | 131    | 092    | 137    | 046    |
| 1950          | 113    | 096    | 107    | 074    | 076    | 086    | 088    | 098    | 102    | 108    | 118    | 081    | 096    | 128    | 050    |
| 1951          | 079    | 069    | 082    | 074    | 063    | 080    | 087    | 090    | 107    | 114    | 122    | 117    | 090    | 126    | 049    |
| 1952          | 097    | 075    | 074    | 056    | 064    | 062    | 077    | 089    | 090    | 106    | 114    | 095    | 083    | 119    | 037    |
| 1953          | 096    | 082    | 073    | 065    | 056    | 057    | 064    | 084    | 097    | 102    | 115    | 120    | 084    | 123    | 044    |
| 1954          | 115    | 112    | 092    | 075    | 093    | 103    | 113    | 128    | 131    | 129    | 131    | 110    | 136    | 063    | 063    |
| 1955          | 113    | 116    | 099    | 082    | 089    | 102    | 110    | 106    | 101    | 104    | 093    | 088    | 100    | 123    | 072    |
| 1956          | 098    | 106    | 085    | 072    | 069    | 068    | 082    | 089    | 101    | 104    | 108    | 108    | 091    | 118    | 054    |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                            | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.  |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| <b>SOLOMONS, MD. -Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |
|                                 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |
| Mean Density                    | 1.0103 | 1.0101 | 1.0089 | 1.0075 | 1.0073 | 1.0076 | 1.0086 | 1.0093 | 1.0104 | 1.0113 | 1.0118 | 1.0110 | 1.0095 |        |       |
| Salinity                        | 14.5   | 14.2   | 12.7   | 10.8   | 10.6   | 11.0   | 12.3   | 13.2   | 14.6   | 15.8   | 16.5   | 15.4   | 13.5   |        |       |
| Max.                            | 1.0145 | 1.0139 | 1.0130 | 1.0121 | 1.0111 | 1.0117 | 1.0125 | 1.0133 | 1.0143 | 1.0142 | 1.0148 |        | 1.0148 |        |       |
| Mean Max.                       | 1.0113 | 1.0109 | 1.0103 | 1.0090 | 1.0085 | 1.0089 | 1.0095 | 1.0104 | 1.0112 | 1.0120 | 1.0124 | 1.0119 |        |        |       |
| Mean Min.                       | 1.0092 | 1.0090 | 1.0070 | 1.0060 | 1.0058 | 1.0063 | 1.0078 | 1.0083 | 1.0095 | 1.0105 | 1.0108 | 1.0099 |        |        |       |
| Min.                            | 1.0046 | 1.0054 | 1.0043 | 1.0037 | 1.0039 | 1.0033 | 1.0051 | 1.0055 | 1.0076 | 1.0080 | 1.0082 | 1.0060 | 1.0033 |        |       |
| <b>CAMBRIDGE, MD.</b>           |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |
|                                 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |
| 1945                            | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —     |
| 1946                            | 1.0039 | 1.0048 | 1.0052 | 1.0053 | 1.0054 | 1.0053 | 1.0041 | 1.0048 | 1.0067 | 1.0079 | 1.0085 | 1.0086 | 1.0059 | 0.92   | 0.29  |
| 1947                            | 0.82   | 0.78   | 0.76   | 0.75   | 0.67   | 0.60   | 0.57   | 0.57   | 0.66   | 0.80   | 0.94   | 0.93   | 0.74   | 102    | 0.41  |
| 1948                            | 0.60   | 0.63   | 0.76   | 0.62   | 0.50   | 0.46   | 0.51   | 0.45   | 0.65   | 0.82   | 0.82   | 0.63   | 0.62   | 0.95   | 0.06  |
| 1949                            | 0.49   | 0.42   | 0.43   | 0.44   | 0.50   | 0.58   | 0.62   | 0.68   | 0.83   | 0.92   | 0.95   | 0.96   | 0.65   | 104    | 0.33  |
| 1950                            | 0.97   | 0.90   | 0.83   | 0.73   | 0.63   | 0.64   | 0.64   | 0.71   | 0.79   | 0.88   | 0.95   | 0.80   | 0.79   | 105    | 0.57  |
| 1951                            | 0.70   | 0.60   | 0.60   | 0.58   | 0.57   | 0.64   | 0.69   | 0.72   | 0.79   | 0.84   | 0.86   | 0.75   | 0.70   | 103    | 0.43  |
| 1952                            | 0.64   | 0.45   | 0.48   | 0.42   | 0.41   | 0.46   | 0.59   | 0.56   | 0.66   | 0.78   | 0.81   | 0.73   | 0.58   | 0.87   | 0.23  |
| 1953                            | 0.65   | 0.59   | 0.48   | 0.40   | 0.36   | 0.35   | 0.44   | 0.56   | 0.68   | 0.77   | —      | —      | —      | 0.85*  | 0.28* |
| Mean Density                    | 1.0066 | 1.0061 | 1.0061 | 1.0056 | 1.0052 | 1.0052 | 1.0056 | 1.0057 | 1.0070 | 1.0080 | 1.0084 | 1.0076 | 1.0064 | 9.4    |       |
| Salinity                        | 9.7    | 9.0    | 9.0    | 8.4    | 7.9    | 7.9    | 8.4    | 8.4    | 8.5    | 10.2   | 11.5   | 12.0   | 11.0   |        |       |
| Max.                            | 1.0105 | 1.0093 | 1.0093 | 1.0084 | 1.0079 | 1.0075 | 1.0076 | 1.0081 | 1.0091 | 1.0103 | 1.0102 | 1.0104 |        | 1.0105 |       |
| Mean Max.                       | 1.0079 | 1.0072 | 1.0070 | 1.0064 | 1.0060 | 1.0060 | 1.0062 | 1.0066 | 1.0078 | 1.0090 | 1.0091 | 1.0088 |        |        |       |
| Mean Min.                       | 1.0046 | 1.0047 | 1.0050 | 1.0044 | 1.0042 | 1.0045 | 1.0045 | 1.0048 | 1.0048 | 1.0058 | 1.0070 | 1.0067 | 1.0062 |        |       |
| Min.                            | 1.0006 | 1.0018 | 1.0037 | 1.0023 | 1.0027 | 1.0028 | 1.0033 | 1.0025 | 1.0041 | 1.0052 | 1.0050 | 1.0029 |        | 1.0006 |       |

| ANNAPOLIS, MD. |        |        |        |        |        |        |        |        |        |        |        |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1947           | 1.0079 | 1.0064 | 1.0080 | 1.0037 | 1.0025 | 1.0040 | 1.0043 | 1.0057 | 1.0076 | 1.0092 | 1.0093 |
| 1948           | 0.94   | 0.92   | 0.95   | 0.29   | 0.35   | 0.44   | 0.53   | 0.54   | 0.66   | 0.98   | 0.81   |
| 1949           | 0.32   | 0.43   | 0.53   | 0.50   | 0.42   | 0.50   | 0.61   | 0.67   | 0.86   | 0.99   | 1.03   |
| 1950           | 0.64   | 0.71   | 0.74   | 0.44   | 0.51   | 0.49   | 0.55   | 0.68   | 0.78   | 0.93   | 0.97   |
| 1951           | 0.51   | 0.37   | 0.48   | 0.36   | 0.40   | 0.60   | 0.58   | 0.63   | 0.79   | 0.90   | 1.02   |
| 1952           | 0.67   | 0.47   | 0.56   | 0.33   | 0.42   | 0.42   | 0.57   | 0.59   | 0.62   | 0.89   | 0.98   |
| 1953           | 0.78   | 0.58   | 0.55   | 0.39   | 0.29   | 0.27   | 0.37   | 0.57   | 0.75   | 0.81   | 0.97   |
| 1954           | 0.94   | 0.91   | 0.66   | 0.60   | 0.46   | 0.68   | 0.79   | 0.98   | 1.08   | 1.09   | 1.07   |
| 1955           | 0.82   | 0.91   | 0.56   | 0.59   | 0.72   | 0.82   | 0.86   | 0.85   | 0.80   | 0.77   | 0.62   |
| 1956           | 0.87   | 0.92   | 0.48   | 0.40   | 0.38   | 0.43   | 0.54   | 0.60   | 0.75   | 0.86   | 0.89   |
| Mean Density   | 1.0073 | 1.0069 | 1.0059 | 1.0043 | 1.0043 | 1.0049 | 1.0058 | 1.0065 | 1.0077 | 1.0089 | 1.0095 |
| Salinity       | 10.6   | 10.1   | 8.8    | 6.7    | 6.7    | 7.5    | 8.6    | 9.6    | 11.1   | 12.7   | 13.5   |
| Max.           | 1.0100 | 1.0106 | 1.0089 | 1.0071 | 1.0086 | 1.0091 | 1.0091 | 1.0107 | 1.0116 | 1.0118 | 1.0118 |
| Mean Max.      | 1.0087 | 1.0081 | 1.0076 | 1.0056 | 1.0054 | 1.0059 | 1.0066 | 1.0075 | 1.0085 | 1.0100 | 1.0103 |
| Mean Min.      | 1.0052 | 1.0045 | 1.0034 | 1.0025 | 1.0032 | 1.0040 | 1.0052 | 1.0056 | 1.0066 | 1.0079 | 1.0094 |
| Min.           | 1.0008 | 1.0019 | 1.0010 | 1.0011 | 1.0016 | 1.0019 | 1.0028 | 1.0036 | 1.0044 | 1.0054 | 1.0061 |
|                |        |        |        |        |        |        |        |        |        |        | 1.0004 |
| BALTIMORE, MD. |        |        |        |        |        |        |        |        |        |        |        |
| 1944           | 1.0076 | 1.0053 | 1.0062 | 1.0024 | 1.0026 | 1.0042 | 1.0051 | 1.0058 | 1.0066 | 1.0089 | 1.0100 |
| 1945           | 0.65   | 0.50   | 0.74   | 0.74   | 0.61   | 0.52   | 0.47   | 0.41   | 0.48   | 0.58   | 0.67   |
| 1946           | 0.50   | 0.59   | 0.31   | 0.26   | 0.25   | 0.19   | 0.23   | 0.51   | 0.57   | 0.66   | 0.71   |
| 1947           | 0.62   | 0.61   | 0.47   | 0.31   | 0.45   | 0.39   | 0.24   | 0.32   | 0.47   | 0.70   | 0.63   |
| 1948           | 0.59   | 0.56   | 0.26   | 0.32   | 0.30   | 0.23   | 0.38   | 0.47   | 0.59   | 0.62   | 0.67   |
| 1949           | 0.62   | 0.80   | 0.60   | 0.46   | 0.31   | 0.18   | 0.28   | 0.35   | 0.49   | 0.55   | 0.58   |
| 1950           | 0.63   | 0.67   | 0.41   | 0.14   | 0.22   | 0.36   | 0.45   | 0.36   | 0.59   | 0.64   | 0.63   |
| 1951           | 0.50   | 0.58   | 0.35   | 0.26   | 0.31   | 0.40   | 0.47   | 0.49   | 0.63   | 0.73   | 0.64   |
| 1952           | 0.61   | 0.69   | 0.46   | 0.30   | 0.28   | 0.25   | 0.21   | 0.42   | 0.50   | 0.60   | 0.72   |
| 1953           | 0.80   | 0.74   | 0.50   | 0.28   | 0.36   | 0.33   | 0.53   | 0.57   | 0.79   | 0.87   | 0.74   |
| 1954           | 0.42   | 0.48   | ---    | 0.15   | 0.14   | 0.09   | 0.10   | 0.26   | 0.43   | 0.40   | 0.62   |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                     | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>BALTIMORE, MD. - <i>Continued</i></b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1925                                     | 1.0069 | 1.0043 | 1.0031 | 1.0050 | 1.0056 | 1.0050 | 1.0051 | 1.0058 | 1.0071 | 1.0077 | 1.0072 | 1.0081 | 1.0059 | 1.0096 | 1.0014 |
| 1926                                     | 0.983  | 0.68   | 0.53   | 0.45   | 0.48   | 0.59   | 0.64   | 0.65   | 0.61   | 0.60   | 0.43   | 0.35   | 0.57   | 0.94   | 0.26   |
| 1927                                     | 0.63   | 0.44   | 0.42   | 0.34   | 0.36   | 0.27   | 0.43   | 0.47   | 0.71   | 0.64   | 0.45   | 0.34   | 0.46   | 0.81   | 0.16   |
| 1928                                     | 0.43   | 0.43   | 0.50   | 0.32   | 0.24   | 0.27   | 0.14   | 0.20   | 0.38   | 0.49   | 0.59   | 0.65   | 0.39   | 0.71   | 0.09   |
| 1929                                     | 0.70   | 0.80   | 0.44   | 0.23   | 0.12   | 0.22   | 0.37   | 0.50   | 0.62   | 0.65   | 0.63   | 0.61   | 0.49   | 0.88   | 0.08   |
| 1930                                     | 0.50   | 0.62   | 0.46   | 0.39   | 0.49   | 0.66   | 0.58   | 0.65   | 0.83   | 1.06   | 1.25   | 1.24   | 0.73   | 1.32   | 0.28   |
| 1931                                     | 1.23   | 1.22   | 1.25   | 0.67   | 0.51   | 0.41   | 0.54   | 0.62   | 0.83   | 0.86   | 0.94   | 0.91   | 0.83   | 1.32   | 0.22   |
| 1932                                     | 0.78   | 0.61   | 0.75   | 0.43   | 0.37   | 0.36   | 0.56   | 0.65   | 0.76   | 0.81   | 0.68   | 0.70   | 0.62   | 0.90   | 0.25   |
| 1933                                     | 0.70   | 0.70   | 0.60   | 0.30   | 0.23   | 0.42   | 0.51   | 0.53   | 0.47   | 0.59   | 0.71   | 0.68   | 0.53   | 0.80   | 0.15   |
| 1934                                     | 0.63   | 0.78   | 0.62   | 0.40   | 0.39   | 0.44   | 0.48   | 0.53   | 0.58   | 0.70   | 0.69   | 0.65   | 0.57   | 0.84   | 0.26   |
| 1935                                     | 0.62   | 0.64   | 0.43   | 0.42   | 0.45   | 0.49   | 0.42   | 0.44   | 0.61   | 0.70   | 0.72   | 0.73   | 0.56   | 0.89   | 0.24   |
| 1936                                     | 0.66   | 0.51   | 0.23   | 0.13   | 0.17   | 0.35   | 0.51   | 0.63   | 0.68   | 0.77   | 0.82   | 0.79   | 0.52   | 0.89   | 0.06   |
| 1937                                     | 0.50   | 0.58   | 0.63   | 0.53   | 0.26   | 0.28   | 0.48   | 0.49   | 0.64   | 0.79   | 0.57   | 0.59   | 0.53   | 0.91   | 0.16   |
| 1938                                     | 0.59   | 0.52   | 0.50   | 0.42   | 0.48   | 0.50   | 0.52   | 0.55   | 0.70   | 0.83   | 0.84   | 0.78   | 0.60   | 0.93   | 0.28   |
| 1939                                     | 0.77   | 0.53   | 0.33   | 0.30   | 0.35   | 0.42   | 0.52   | 0.62   | 0.81   | 0.83   | 0.89   | 1.00   | 0.61   | 1.05   | 0.16   |
| 1940                                     | 1.02   | 1.00   | 0.92   | 0.31   | 0.29   | 0.37   | 0.53   | 0.64   | 0.79   | 0.81   | 0.80   | 0.67   | 0.68   | 1.15   | 0.15   |
| 1941                                     | 0.78   | 0.85   | 0.80   | 0.45   | 0.70   | 0.69   | 0.59   | 0.81   | 0.85   | 0.93   | 1.00   | 1.06   | 0.79   | 1.11   | 0.28   |
| 1942                                     | 0.96   | 1.02   | 0.73   | 0.51   | 0.49   | 0.40   | 0.58   | 0.57   | 0.69   | 0.70   | 0.58   | 0.52   | 0.64   | 1.26   | 0.24   |
| 1943                                     | 0.35   | 0.46   | 0.33   | 0.40   | 0.19   | 0.19   | 0.30   | 0.50   | 0.82   | 1.01   | 0.78   | 0.86   | 0.52   | 1.07   | 0.12   |
| 1944                                     | 0.86   | 0.94   | 0.71   | 0.53   | 0.24   | 0.43   | 0.43   | 0.53   | 0.78   | 0.97   | 1.04   | 0.97   | 0.70   | 1.18   | 0.17   |
| 1945                                     | 0.78   | 0.95   | 0.33   | 0.23   | 0.31   | 0.28   | 0.29   | 0.30   | 0.46   | 0.40   | 0.44   | 0.43   | 0.43   | 1.05   | 0.14   |
| 1946                                     | 0.40   | 0.49   | 0.29   | 0.41   | 0.47   | 0.25   | 0.28   | 0.39   | 0.48   | 0.72   | 0.78   | 0.74   | 0.48   | 0.93   | 0.18   |
| 1947                                     | 0.68   | 0.53   | 0.72   | 0.42   | 0.38   | 0.23   | 0.28   | 0.27   | 0.40   | 0.68   | 0.73   | 0.81   | 0.51   | 0.93   | 0.11   |
| 1948                                     | 0.85   | 0.81   | 0.61   | 0.22   | 0.32   | 0.37   | 0.45   | 0.46   | 0.72   | 0.86   | 0.81   | 0.70   | 0.60   | 0.95   | 0.14   |
| 1949                                     | 0.34   | 0.39   | 0.45   | 0.42   | 0.32   | 0.44   | 0.48   | 0.61   | 0.79   | 0.88   | 0.95   | 0.80   | 0.57   | 1.02   | 0.04   |
| 1950                                     | 0.50   | 0.63   | 0.62   | 0.37   | 0.35   | 0.29   | 0.40   | 0.61   | 0.61   | 0.75   | 0.73   | 0.37   | 0.52   | 0.83   | 0.19   |
| 1951                                     | 0.33   | 0.33   | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | 0.89*  |

|               |        |        |        |        |        |        |        |        |        |        |        |        |        |      |      |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|
| 1952          | 0.52   | 038    | 045    | 024    | 033    | 030    | 036    | 047    | 053    | 078    | 074    | 066    | 048    | 096  | C10  |
| 1953          | 0.62   | 044    | 038    | 030    | 015    | 016    | 031    | 054    | 061    | 072    | 088    | 074    | 049    | 092  | 003  |
| 1954          | 0.72   | 071    | 054    | 042    | —      | 051    | 072    | 083    | 084    | 085    | 093    | 090    | —      | 107* | 025* |
| 1955          | 081    | 076    | 047    | 045    | 056    | 065    | 069    | 056    | 060    | 058    | 048    | 059    | 060    | 103  | 025  |
| 1956          | 085    | 075    | 044    | 035    | 026    | 030    | 039    | 052    | 064    | 072    | 071    | 063    | 055    | 096  | 016  |
| Mean Density  | 1.0066 | 1.0064 | 1.0053 | 1.0037 | 1.0035 | 1.0037 | 1.0043 | 1.0050 | 1.0063 | 1.0073 | 1.0074 | 1.0071 | 1.0056 |      |      |
| Mean Salinity | 9.7    | 9.4    | 8.0    | 5.9    | 5.6    | 5.9    | 6.7    | 7.6    | 9.3    | 10.6   | 10.7   | 10.3   | 8.4    |      |      |
| Max.          | 1.0126 | 1.0130 | 1.0132 | 1.0114 | 1.0086 | 1.0082 | 1.0079 | 1.0091 | 1.0104 | 1.0128 | 1.0132 | 1.0127 |        |      |      |
| Mean Max.     | 1.0078 | 1.0078 | 1.0072 | 1.0051 | 1.0044 | 1.0046 | 1.0050 | 1.0060 | 1.0073 | 1.0081 | 1.0083 | 1.0082 |        |      |      |
| Mean Min.     | 1.0052 | 1.0049 | 1.0036 | 1.0024 | 1.0026 | 1.0028 | 1.0035 | 1.0040 | 1.0052 | 1.0062 | 1.0064 | 1.0058 |        |      |      |
| Min.          | 1.0019 | 1.0014 | 1.0007 | 1.0006 | 1.0008 | 1.0003 | 1.0007 | 1.0014 | 1.0023 | 1.0027 | 1.0026 | 1.0004 |        |      |      |
|               |        |        |        |        |        |        |        |        |        |        |        |        | 1.0003 |      |      |

### DIAMOND SHOAL LIGHTSHIP

|               |        |        |        |        |        |        |        |        |        |        |        |        |        |      |         |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|---------|
| 1923          | —      | —      | —      | —      | 1.0272 | 1.0274 | 1.0261 | 1.0247 | 1.0239 | —      | —      | 1.0255 | —      | —    | 1.0285* |
| 1924          | —      | —      | 1.0236 | 1.0242 | 239    | 244    | 256    | 267    | 260    | 1.0249 | 1.0247 | 267    | —      | —    | 293*    |
| 1925          | 1.0254 | 1.0264 | 268    | 260    | 266    | 277    | 276    | 275    | 274    | 269    | 266    | 272    | 1.0268 | 286  | 229     |
| 1926          | 267    | 258    | 260    | 262    | 273    | 275    | 272    | 271    | 262    | 270    | 266    | 245    | 265    | 294  | 224     |
| 1927          | 259    | 259    | 249    | 253    | 272    | 253    | 255    | 265    | 252    | 253    | 254    | 255    | 257    | 291  | 213     |
| 1928          | 270    | 268    | 268    | 271    | —      | —      | —      | —      | —      | —      | —      | —      | —      | 281* | 227*    |
| Mean Density  | 1.0262 | 1.0262 | 1.0256 | 1.0258 | 1.0264 | 1.0265 | 1.0264 | 1.0265 | 1.0257 | 1.0260 | 1.0258 | 1.0259 | 1.0261 |      |         |
| Mean Salinity | 35.3   | 35.3   | 34.5   | 34.8   | 35.5   | 35.7   | 35.5   | 35.7   | 34.6   | 35.0   | 34.8   | 34.9   | 35.1   |      |         |
| Max.          | 1.0284 | 1.0283 | 1.0280 | 1.0281 | 1.0294 | 1.0290 | 1.0284 | 1.0284 | 1.0287 | 1.0285 | 1.0288 | 1.0286 | 1.0294 |      |         |
| Mean Max.     | 1.0280 | 1.0278 | 1.0276 | 1.0279 | 1.0284 | 1.0282 | 1.0281 | 1.0284 | 1.0278 | 1.0281 | 1.0283 | 1.0276 |        |      |         |
| Mean Min.     | 1.0232 | 1.0234 | 1.0227 | 1.0225 | 1.0240 | 1.0237 | 1.0237 | 1.0238 | 1.0235 | 1.0230 | 1.0237 | 1.0240 |        |      |         |
| Min.          | 1.0224 | 1.0222 | 1.0215 | 1.0215 | 1.0207 | 1.0222 | 1.0200 | 1.0204 | 1.0221 | 1.0199 | 1.0217 | 1.0231 |        |      |         |
|               |        |        |        |        |        |        |        |        |        |        |        |        | 1.0199 |      |         |

### SOUTHPORT, N.C.

|      |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 1946 | —      | —      | 1.0141 | 1.0145 | 1.0114 | 1.0146 | 1.0093 | 1.0114 | 1.0145 | 1.0146 | 1.0164 | 1.0173 | —      | 1.0240* | 1.0020* |
| 1947 | 1.0113 | 1.0169 | 125    | 98     | 177    | 204    | 168    | 180    | 138    | 147    | 119    | 140    | 1.0148 | 260     | 018     |
| 1948 | 132    | 064    | 091    | 121    | 171    | 159    | 197    | 200    | 224    | 194    | 155    | 103    | 151    | 260     | 000     |
| 1949 | 135    | 126    | 136    | 151    | 126    | 161    | 138    | 165    | 132    | 193    | 165    | 183    | 151    | 249     | 016     |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year  | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.           | Min.   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|
| <b>SOUTHPORT, N.C. - Continued</b>            |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |
| 1950  | 1.0163 | 1.0170 | 1.0153 | 1.0190 | 1.0161 | 1.0182 | 1.0100 | 1.0168 | 1.0188 | 1.0203 | 1.0204 | 1.0187 | 1.0172 | 1.0268         | 0.9991 |
| 1951  | 193    | 195    | 172    | 145    | 191    | 219    | 200    | 184    | 223    | 234    | 208    | 188    | 196    | 256            | 1.0009 |
| 1952  | 183    | 133    | 89     | 137    | 159    | 199    | 219    | 202    | 171    | 206    | 177    | 173    | 256    | 015            |        |
| 1953  | 155    | 98     | 93     | 151    | 165    | 212    | 210    | 225    | 235    | 226    | 230    | 178    | 182    | 258            | 0.9992 |
| 1954  | 133    | 149    | 128    | 114    | 179    | 213    | 238    | 241    | 250    | ---    | ---    | ---    | ---    | 271*1.0035*    |        |
| Mean<br>Density                               | 1.0151 | 1.0138 | 1.0125 | 1.0139 | 1.0160 | 1.0188 | 1.0174 | 1.0187 | 1.0190 | 1.0194 | 1.0181 | 1.0166 | 1.0166 |                |        |
| Salinity                                      | 20.8   | 19.1   | 17.4   | 19.2   | 22.0   | 25.6   | 23.8   | 25.5   | 25.9   | 26.4   | 24.7   | 22.7   | 22.7   |                |        |
| Max.  | 1.0249 | 1.0255 | 1.0256 | 1.0238 | 1.0251 | 1.0252 | 1.0259 | 1.0271 | 1.0265 | 1.0268 | 1.0256 | 1.0255 | 1.0271 |                |        |
| Mean Max.                                     | 1.0240 | 1.0230 | 1.0235 | 1.0222 | 1.0232 | 1.0239 | 1.0231 | 1.0250 | 1.0251 | 1.0251 | 1.0249 | 1.0244 |        |                |        |
| Mean Min.                                     | 1.0062 | 1.0047 | 1.0047 | 1.0046 | 1.0046 | 1.0080 | 1.0119 | 1.0100 | 1.0103 | 1.0126 | 1.0095 | 1.0103 | 1.0085 |                |        |
| Min.  | 1.0016 | 0.9992 | 1.0015 | 1.0015 | 1.0009 | 1.0026 | 1.0025 | 1.0001 | 1.0021 | 1.0021 | 0.9991 | 1.0030 | 1.0009 | 0.9991         |        |
| <b>CHARLESTON (Customhouse Wharf), S.C. †</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |
| 1922  | 1.0239 | 1.0227 | 1.0203 | 1.0208 | 1.0219 | 1.0211 | 1.0219 | 1.0214 | 1.0217 | 1.0222 | 1.0224 | 1.0220 | ---    | 1.0244*1.0185* |        |
| 1923  | 203    | 208    | 207    | 197    | 209    | 206    | 200    | 208    | 207    | 220    | 237    | 226    | 1.0212 | 249            | 184    |
| 1924  | 206    | 201    | 199    | 171    | 198    | 220    | 200    | 208    | 207    | 134    | 198    | 210    | 196    | 240            | 023    |
| 1925  | 184    | 158    | 195    | 212    | 233    | 237    | 233    | 250    | 252    | 244    | 238    | 223    | 258    | 130            |        |
| 1926  | 214    | 179    | 174    | 187    | 216    | 224    | 228    | 234    | 241    | 249    | 247    | 246    | 220    | 255            | 147    |
| 1927  | 245    | 244    | 240    | 249    | 248    | 239    | 198    | 217    | 234    | 240    | 244    | 236    | 257    | 181            | 202    |
| 1928  | 240    | 232    | 182    | 198    | 197    | 222    | 214    | 210    | 169    | 215    | 227    | 205    | 248    | 070            | 195    |
| 1929  | 219    | 191    | 170    | 196    | 210    | 215    | 224    | 222    | 211    | 217    | 211    | 208    | 240    | 143            | 197    |
| 1930  | 202    | 199    | 209    | 195    | 218    | 229    | 230    | 245    | 246    | 241    | 238    | 225    | 262    | 166            | 214    |
| 1931  | 227    | 228    | 226    | 213    | 228    | 242    | 241    | 249    | 247    | 253    | 254    | 238    | 269    | 196            | 217    |
| 1932  | 250    | 243    | 240    | 246    | 243    | 222    | 221    | 240    | 229    | 217    | 206    | 219    | 255    | 130            | 207    |
| 1933  | 216    | 188    | 191    | 216    | 229    | 240    | 233    | 233    | 187    | 222    | 236    | 218    | 248    | 122            | 207    |
| 1934  | 240    | 235    | 239    | 242    | 243    | 241    | 251    | 253    | 248    | 237    | 241    | 236    | 242    | 259            |        |

|      |     |     |     |     |     |     |     |     |     |     |     |     |      |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 1935 | 235 | 234 | 239 | 245 | 246 | 225 | 214 | 175 | 211 | 228 | 235 | 228 | 254  |
| 1936 | 223 | 201 | 191 | 184 | 195 | 229 | 237 | 238 | 239 | 225 | 217 | 223 | 251  |
| 1937 | 218 | 187 | 192 | 199 | 200 | 220 | 228 | 211 | 224 | 230 | 230 | 214 | 243  |
| 1938 | 222 | 230 | 234 | 238 | 239 | 236 | 241 | 240 | 244 | 238 | 239 | 243 | 237  |
| 1939 | 243 | 237 | 185 | 214 | 228 | 222 | 226 | 228 | 235 | 244 | 245 | 245 | 229  |
| 1940 | 244 | 227 | 215 | 222 | 234 | 241 | 242 | 218 | 216 | 234 | 245 | 241 | 232  |
| 1941 | 238 | 242 | 236 | 224 | 243 | 240 | 168 | 194 | 214 | 235 | 240 | 225 | 255  |
| 1942 | 200 | 205 | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 157* |

Mean Density 1.0224 1.0214 1.0208 1.0212 1.0224 1.0229 1.0226 1.0227 1.0221 1.0223 1.0232 1.0232 1.0223  
 Salinity 30.3 29.0 28.2 28.8 30.3 31.0 30.6 30.7 29.9 30.2 31.4 31.4 30.2

Max. 1.0264 1.0251 1.0249 1.0252 1.0256 1.0255 1.0259 1.0260 1.0264 1.0269 1.0256 1.0260 1.0260

Mean Max. 1.0240 1.0232 1.0225 1.0228 1.0238 1.0241 1.0243 1.0245 1.0241 1.0241 1.0242 1.0244 1.0244

Mean Min. 1.0210 1.0194 1.0190 1.0197 1.0207 1.0213 1.0204 1.0202 1.0189 1.0203 1.0218 1.0218 1.0218

Min. 1.0150 1.0130 1.0143 1.0146 1.0161 1.0159 1.0088 1.0160 1.0070 1.0023 1.0180 1.0173 1.0023

### CHARLESTON (Customhouse Wharf), S.C. - Second Series †

|      |        |        |        |        |        |        |        |        |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1942 | —      | —      | 1.0144 | 1.0139 | 1.0142 | 1.0108 | 1.0160 | 1.0175 | 1.0164 | 1.0166 | 1.0146 | 1.0135 | —      |
| 1943 | 1.0121 | 1.0109 | 1.01   | 0.98   | 0.99   | 117    | 112    | 121    | 137    | 154    | 138    | 155    | 1.0121 |
| 1944 | 147    | 117    | 084    | 085    | 086    | 110    | 114    | 116    | 135    | 132    | 153    | 132    | 118    |
| 1945 | 128    | 125    | 118    | 125    | 127    | 133    | 113    | 126    | 100    | 093    | 123    | 128    | 120    |
| 1946 | 107    | 094    | 112    | 089    | 074    | 103    | 137    | 112    | 133    | 131    | 115    | 130    | 111    |
| 1947 | 132    | 102    | 101    | 102    | 105    | 129    | 109    | 123    | 136    | 154    | 139    | 106    | 120    |
| 1948 | 092    | 086    | 061    | 070    | 089    | 103    | 114    | 125    | 144    | 137    | 127    | 091    | 103    |
| 1949 | 078    | 083    | 085    | 076    | 102    | 106    | 113    | 079    | 108    | 101    | 112    | 094    | 214    |
| 1950 | 113    | 125    | 124    | 111    | 109    | 111    | 116    | 150    | 128    | 152    | 151    | 133    | 127    |
| 1951 | 122    | 119    | 117    | 126    | 121    | 115    | 119    | 130    | 142    | 183    | 188    | 168    | 229    |
| 1952 | 162    | 141    | 078    | 111    | 111    | 125    | 151    | 134    | 123    | 141    | 129    | 124    | 247    |
| 1953 | 156    | 130    | 070    | 079    | 117    | 137    | 156    | 121    | 149    | 174    | 170    | 146    | 237    |
| 1954 | 126    | 105    | 098    | 104    | 122    | 112    | 124    | 196    | 206    | 207    | 190    | 182    | 262    |

\*Observations for the year are incomplete; extremes are for the months shown.

† A distinct change in the density of the water in Charleston Harbor took place when the hydro-electric plant near Moncks Corner, S. C. began diverting large quantities of water from the Santee River into the Cooper River. The plant began operation in January 1942 but did not reach average production before March 1942. Since lighter densities have persisted under the changed conditions, the observations have been separated at the end of February 1942 and are presented as two series.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year  | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means   | Max.    | Min.   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|
| <b>CHARLESTON (Customhouse Wharf), S.C. † - Continued</b>                   |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1955  | 1.0150 | 1.0161 | 1.0130 | 1.0124 | 1.0134 | 1.0177 | 1.0200 | 1.0156 | 1.0140 | 1.0160 | 1.0182 | 1.0154 | 1.0249  | 1.0073  |        |
| 1956  | 189    | 160    | 112    | 103    | 105    | 136    | 159    | 186    | 218    | 217    | 169    | 179    | 161     | 256     | 043    |
| Mean<br>Density   | 1.0130 | 1.0118 | 1.0102 | 1.0102 | 1.0107 | 1.0117 | 1.0129 | 1.0143 | 1.0144 | 1.0151 | 1.0147 | 1.0141 | 1.0128  |         |        |
| Salinity  | 18.0   | 16.5   | 14.4   | 14.4   | 15.0   | 16.3   | 17.9   | 19.7   | 19.9   | 20.8   | 20.3   | 19.5   | 17.8    |         |        |
| Max.  | 1.0227 | 1.0237 | 1.0195 | 1.0198 | 1.0213 | 1.0228 | 1.0249 | 1.0256 | 1.0253 | 1.0262 | 1.0250 |        | 1.0262  |         |        |
| Mean Max.   | 1.0184 | 1.0174 | 1.0153 | 1.0153 | 1.0162 | 1.0185 | 1.0196 | 1.0211 | 1.0214 | 1.0224 | 1.0212 | 1.0201 |         |         |        |
| Mean Min.   | 1.0080 | 1.0073 | 1.0063 | 1.0063 | 1.0060 | 1.0066 | 1.0069 | 1.0071 | 1.0086 | 1.0086 | 1.0091 | 1.0089 | 1.0086  |         |        |
| Min.  | 1.0034 | 1.0041 | 1.0025 | 1.0025 | 1.0029 | 1.0030 | 1.0052 | 1.0034 | 1.0035 | 1.0024 | 1.0034 | 1.0047 | 1.0038  | 1.0024  |        |
| <b>CAINHOY, WANDO RIVER, S.C.</b>   |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1951  | ---    | ---    | ---    | ---    | 1.0097 | 1.0091 | 1.0109 | 1.0127 | 1.0138 | 1.0129 | ---    | ---    | 1.0148* | 1.0084* |        |
| 1952  | 1.0124 | 1.0105 | 1.0084 | 1.0064 | 078    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 135*    | 054*    |        |
| <b>NORTH CHARLESTON TERMINALS, COOPER RIVER, S.C.</b>                       |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1951  | ---    | ---    | ---    | ---    | 1.0007 | 1.0015 | 1.0019 | 1.0028 | 1.0050 | 1.0057 | 1.0040 | ---    | ---     |         |        |
| 1952  | 1.0026 | 1.0017 | 1.0001 | 0.9998 | 1.0010 | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0137* | 0.9992* |        |
| <b>CHARLESTON (Virginia - Carolina Chemical Co. Wharf), ASHLEY R., S.C.</b> |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1951  | ---    | ---    | ---    | ---    | 1.0129 | 1.0134 | 1.0131 | 1.0127 | 1.0139 | 1.0163 | 1.0172 | 1.0156 | ---     |         |        |
| 1952  | 1.0150 | 1.0112 | 1.0085 | 1.0089 | 124    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 167*    | 038*    |        |
| <b>FORT PULASKI, SAVANNAH RIVER, GA.</b>                                    |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |
| 1940  | 1.0114 | 1.0099 | 1.0083 | 1.0108 | 1.0122 | 1.0139 | 1.0139 | 1.0115 | 1.0101 | 1.0142 | 1.0140 | 1.0120 | 1.0118  | 1.0231  | 1.0013 |
| 1941  | 092    | 116    | 106    | 115    | 148    | 160    | 084    | 148    | 161    | 168    | 159    | 137    | 133     | 237     | 015    |
| 1942  | 087    | 091    | 049    | 074    | 123    | 114    | 154    | 146    | 139    | 157    | 168    | 139    | 120     | 234     | 001    |
| 1943  | —      | —      | 067    | 087    | 114    | —      | —      | —      | —      | 156    | 148    | 147    | —       | 224*    | 027*   |
| 1944  | 094    | 118    | 052    | 029    | 062    | 119    | 142    | 124    | 144    | 152    | 160    | 160    | 113     | 211     | 0.9998 |

|                        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |     |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|-----|
| 1945                   | 101    | 094    | 113    | 097    | 154    | 159    | 132    | 116    | 123    | 134    | 107    | 124    | 227    | 0.9997         |     |
| 1946                   | 067    | 062    | 054    | 066    | 098    | 126    | 139    | 114    | 114    | 140    | 097    | 224    | 1.0016 |                |     |
| 1947                   | 082    | 063    | 052    | 106    | 110    | 124    | 145    | 157    | 130    | 072    | 101    | 221    | 009    |                |     |
| 1948                   | 082    | 042    | 045    | 039    | 093    | 098    | 125    | 150    | 131    | 141    | 052    | 094    | 225    | 004            |     |
| 1949                   | 073    | 066    | 068    | 070    | 063    | 095    | 101    | 116    | 105    | 104    | 102    | 116    | 090    | 232            | 025 |
| 1950                   | 115    | 100    | 101    | 117    | 134    | 116    | 163    | 159    | 104    | 137    | 120    | 140    | 232    | 045            |     |
| 1951                   | 126    | 113    | 111    | 097    | 113    | 144    | 162    | 161    | 173    | 170    | 165    | 138    | 229    | 043            |     |
| 1952                   | 114    | 115    | 058    | 044    | 110    | 141    | 173    | 178    | 182    | 163    | 163    | 148    | 234    | 010            |     |
| 1953                   | 145    | 129    | 075    | 083    | 098    | 128    | 138    | 140    | 130    | 128    | 146    | 127    | 203    | 023            |     |
| 1954                   | 118    | 119    | 112    | 089    | 122    | 142    | 136    | 158    | 166    | 162    | 171    | 164    | 138    | 063            |     |
| 1955                   | 143    | 143    | 140    | 123    | 129    | 155    | 153    | 157    | 142    | 165    | 153    | 147    | 215    | 072            |     |
| 1956                   | 174    | 141    | 132    | 129    | 133    | 148    | 168    | 163    | 164    | 164    | 170    | 149    | 226    | 054            |     |
| Mean Density           | 1.0111 | 1.0103 | 1.0083 | 1.0084 | 1.0108 | 1.0129 | 1.0146 | 1.0142 | 1.0144 | 1.0143 | 1.0130 | 1.0122 |        |                |     |
| Mean Salinity          | 15.6   | 14.5   | 11.9   | 12.0   | 15.2   | 17.9   | 19.3   | 20.1   | 19.6   | 19.9   | 19.7   | 18.0   | 17.0   |                |     |
| Max.                   | 1.0220 | 1.0216 | 1.0221 | 1.0208 | 1.0237 | 1.0220 | 1.0231 | 1.0234 | 1.0227 | 1.0229 | 1.0230 | 1.0218 |        |                |     |
| Mean Max.              | 1.0184 | 1.0172 | 1.0153 | 1.0147 | 1.0175 | 1.0199 | 1.0212 | 1.0216 | 1.0206 | 1.0205 | 1.0199 | 1.0189 |        |                |     |
| Mean Min.              | 1.0061 | 1.0052 | 1.0040 | 1.0035 | 1.0051 | 1.0067 | 1.0067 | 1.0079 | 1.0084 | 1.0080 | 1.0086 | 1.0087 | 1.0077 |                |     |
| Min.                   | 1.0009 | 0.9997 | 0.9998 | 1.0000 | 1.0012 | 1.0030 | 1.0024 | 1.0025 | 1.0032 | 1.0025 | 1.0025 | 1.0004 | 0.9997 |                |     |
| FERNANDINA BEACH, FLA. |        |        |        |        |        |        |        |        |        |        |        |        |        |                |     |
| 1944                   | —      | —      | —      | —      | —      | 1.0219 | 1.0204 | 1.0197 | 1.0188 | 1.0185 | 1.0195 | 1.0216 | —      | 1.0246*1.0097* |     |
| 1945                   | 1.0203 | 1.0209 | 1.0226 | 1.0243 | 1.0246 | 256    | 215    | 203    | 186    | 194    | 210    | 216    | 1.0217 | 275            |     |
| 1946                   | 192    | 195    | 213    | 218    | 223    | 228    | 223    | 206    | 196    | 189    | 206    | 221    | 209    | 155            |     |
| 1947                   | 226    | 215    | 194    | 185    | 214    | 227    | 222    | —      | 218    | 148    | 146    | 153    | —      | 104*           |     |
| 1948                   | 169    | 171    | 156    | 134    | 215    | 239    | 242    | 218    | 212    | 189    | 230    | 218    | 199    | 082            |     |
| 1949                   | 199    | 177    | 193    | 211    | 216    | 227    | 236    | 239    | 193    | 190    | 216    | 225    | 210    | 147            |     |
| 1950                   | 228    | 233    | 222    | 233    | 249    | 259    | 241    | 239    | 176    | 178    | 195    | 225    | 223    | 069            |     |
| 1951                   | 220    | 220    | 227    | 247    | 242    | 254    | 261    | 260    | 258    | 221    | 214    | 223    | 237    | 176            |     |
| 1952                   | 221    | —      | —      | 205    | 230    | 231    | 245    | 242    | 225    | 223    | 234    | 238    | —      | 063*           |     |
| 1953                   | 237    | 230    | 221    | 213    | 234    | 252    | 245    | 211    | 182    | 144    | 192    | 196    | 213    | 081            |     |
| 1954                   | 192    | 206    | 223    | 237    | 240    | 249    | 253    | 260    | 241    | 237    | 241    | 235    | 234    | 139            |     |

<sup>†</sup> See footnote (†) on page 33.

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                      | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.    |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| <b>FERNANDINA BEACH, FLA. - Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| 1955                                      | 1.0240 | 1.0230 | 1.0238 | 1.0252 | 1.0254 | 1.0262 | 1.0266 | 1.0260 | 1.0229 | 1.0209 | 1.0233 | 1.0235 | 1.0242 | 1.0277 | 1.0156  |
| 1956                                      | 238    | 236    | 237    | 251    | 244    | 246    | 251    | 256    | 258    | 233    | 227    | 246    | 244    | 271    | 092     |
| Mean Density Salinity                     | 29.0   | 28.6   | 29.0   | 29.7   | 31.6   | 32.7   | 32.3   | 31.5   | 28.8   | 26.5   | 28.6   | 29.7   | 29.8   |        |         |
| Max.                                      | 1.0259 | 1.0249 | 1.0256 | 1.0272 | 1.0271 | 1.0275 | 1.0277 | 1.0273 | 1.0276 | 1.0265 | 1.0262 | 1.0259 |        |        |         |
| Mean Max.                                 | 1.0238 | 1.0234 | 1.0239 | 1.0245 | 1.0256 | 1.0262 | 1.0263 | 1.0264 | 1.0255 | 1.0239 | 1.0241 | 1.0243 |        |        |         |
| Mean Min.                                 | 1.0179 | 1.0188 | 1.0178 | 1.0192 | 1.0200 | 1.0219 | 1.0205 | 1.0181 | 1.0165 | 1.0152 | 1.0168 | 1.0191 |        |        |         |
| Min.                                      | 1.0139 | 1.0147 | 1.0097 | 1.0082 | 1.0162 | 1.0173 | 1.0134 | 1.0063 | 1.0069 | 1.0081 | 1.0092 | 1.0112 | 1.0063 |        |         |
| <b>MAYPORT, FLA.</b>                      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| 1945                                      | 1.0154 | 1.0166 | 1.0185 | 1.0221 | 1.0215 | 1.0236 | 1.0116 | 1.0096 | 1.0089 | 1.0120 | 1.0128 | 1.0150 | 1.0156 | 1.0284 | 1.0020  |
| 1946                                      | 145    | 158    | 184    | 186    | 183    | 176    | 162    | 114    | 992    | 138    | 152    | 164    | 155    | 267    | 0.9999  |
| 1947                                      | 182    | 169    | 139    | 138    | 169    | 198    | 118    | 140    | 150    | 103    | 110    | 135    | 146    | 258    | 0.9998  |
| 1948                                      | 137    | 107    | 100    | ---    | 184    | 199    | 188    | 136    | 160    | 107    | ---    | 132    | ---    | 266*   | 1.0001* |
| 1949                                      | 151    | 154    | 169    | 190    | 206    | 214    | 209    | 189    | 143    | 115    | 102    | 165    | 167    | 269    | 009     |
| 1950                                      | 141    | 187    | 183    | 217    | 241    | 232    | 206    | 243    | 175    | 129    | 109    | 148    | 184    | 270    | 014     |
| 1951                                      | 145    | 164    | 187    | 219    | 247    | 233    | 223    | 221    | 221    | 159    | 144    | 150    | 193    | 274    | 036     |
| 1952                                      | 156    | 160    | 133    | 154    | 200    | 207    | 221    | 227    | 212    | 143    | 114    | 161    | 174    | 267    | 060     |
| 1953                                      | 154    | 173    | 184    | 133    | 203    | 248    | 236    | 171    | 096    | 071    | 114    | 101    | 157    | 273    | 019     |
| 1954                                      | 128    | 150    | 161    | 216    | 230    | 234    | 223    | 227    | 220    | 201    | 164    | 183    | 195    | 281    | 041     |
| 1955                                      | 216    | 175    | 196    | 232    | 239    | 250    | 237    | 245    | 213    | 185    | 178    | 199    | 214    | 282    | 108     |
| 1956                                      | 206    | 174    | 199    | 236    | 238    | 211    | 243    | 245    | 209    | 138    | 148    | 207    | 274    | 077    |         |

|                                    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6    | 1/6  | 1/6  | 1/6  |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|------|
| Mean Density                       | 1.0160 | 1.0161 | 1.0168 | 1.0195 | 1.0213 | 1.0222 | 1.0281 | 1.0196 | 1.0188 | 1.0168 | 1.0140 | 1.0132 | 1.0153 | 1.0175 |      |      |      |
| Salinity                           | 22.0   | 22.1   | 23.0   | 26.5   | 28.9   | 30.1   | 26.7   | 25.6   | 23.0   | 19.3   | 18.3   | 21.0   | 23.9   |        |      |      |      |
| Max.                               | 1.0262 | 1.0253 | 1.0266 | 1.0284 | 1.0272 | 1.0282 | 1.0274 | 1.0276 | 1.0274 | 1.0271 | 1.0256 | 1.0256 |        |        |      |      |      |
| Mean Max.                          | 1.0228 | 1.0231 | 1.0240 | 1.0257 | 1.0261 | 1.0267 | 1.0261 | 1.0256 | 1.0246 | 1.0232 | 1.0229 | 1.0228 |        |        |      |      |      |
| Mean Min.                          | 1.0072 | 1.0083 | 1.0089 | 1.0114 | 1.0114 | 1.0138 | 1.0143 | 1.0120 | 1.0114 | 1.0085 | 1.0052 | 1.0054 | 1.0073 |        |      |      |      |
| Min.                               | 1.0023 | 1.0020 | 1.0001 | 1.0035 | 1.0088 | 1.0088 | 1.0062 | 1.0043 | 1.0029 | 0.9999 | 0.9999 | 1.0004 | 1.0020 |        |      |      |      |
|                                    |        |        |        |        |        |        |        |        |        |        |        |        |        | 0.9998 |      |      |      |
| <b>JACKSONVILLE, FLA.</b>          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |      |      |      |
| 1955                               | —      | 1.0042 | 1.0086 | 1.0101 | 1.0153 | 1.0139 | 1.0090 | 1.0136 | 1.0083 | 1.0051 | 1.0033 | 1.0081 | —      |        |      |      |      |
| 1956                               | 1.0083 | 048    | 105    | 130    | 133    | 121    | 071    | 107    | 137    | 103    | 040    | 028    | 1.0092 | —      |      |      |      |
| <b>DAYTONA BEACH (ocean), FLA.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |      |      |      |
| 1925                               | —      | —      | —      | —      | 1.0257 | 1.0262 | 1.0270 | —      | 1.0267 | 1.0269 | —      | —      | —      | —      | —    | —    | —    |
| 1926                               | —      | 1.0271 | 1.0278 | 1.0257 | 272    | 275    | —      | —      | —      | —      | —      | —      | —      | —      | —    | —    | —    |
| 1927                               | —      | —      | —      | —      | —      | —      | 271    | 1.0267 | —      | 262    | 1.0258 | 1.0265 | —      | —      | —    | 288* | 252* |
| 1928                               | 1.0266 | 271    | 266    | 273    | 268    | 271    | 268    | 269    | 226    | 230    | —      | —      | —      | —      | —    | 276* | 250* |
| 1929                               | —      | —      | —      | —      | —      | 266    | 265    | —      | 241    | 251    | 247    | —      | —      | —      | —    | 278* | 184* |
| —                                  | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —    | 279* | 191* |
| 1930                               | 236    | 231    | —      | 256    | 268    | 270    | 265    | 268    | 259    | —      | 254    | —      | —      | 280*   | 220* | —    | —    |
| 1931                               | 253    | 251    | —      | 262    | 266    | 268    | 265    | 262    | 261    | 264    | 265    | —      | —      | 274*   | 244* | —    | —    |
| 1932                               | 267    | 263    | 263    | 270    | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | 279* | 257* | —    |
| —                                  | —      | —      | —      | —      | —      | —      | —      | 272    | 267    | 254    | 255    | 258    | —      | —      | —    | 278* | 240* |
| 1939                               | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —    | —    | —    |
| 1940                               | 257    | 267    | 269    | 270    | 271    | 270    | 267    | 266    | 258    | 262    | 257    | 251    | 1.0264 | 277    | 244  | —    | —    |
| 1941                               | 252    | 252    | 253    | 263    | 270    | 270    | 271    | 272    | 269    | 269    | 265    | 266    | 265    | 260    | 275  | 236  | —    |
| 1942                               | 248    | 259    | 260    | 257    | 271    | 271    | 272    | 274    | 275    | 269    | 266    | 266    | 266    | 264    | 276  | 235  | —    |
| 1943                               | 270    | 269    | 263    | 271    | 276    | 274    | 275    | 268    | 266    | 270    | 266    | 266    | 266    | 262    | 268  | 293  | 240  |
| 1944                               | 257    | 264    | 267    | 262    | 268    | 266    | 263    | 279    | 269    | 258    | 256    | 252    | 252    | 263    | 278  | 222  | —    |
| —                                  | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —    | —    | —    |
| 1945                               | 256    | 263    | 270    | 272    | 273    | 269    | 270    | 264    | 246    | 247    | 248    | 262    | 244    | —      | 281  | 226  | —    |
| 1946                               | 251    | 246    | —      | 263    | 270    | 274    | 272    | 270    | 260    | 249    | 246    | —      | —      | —      | 283* | 228* | —    |
| 1947                               | 254    | 251    | 258    | 263    | 266    | 267    | 267    | 267    | 261    | 244    | —      | 225    | —      | —      | 278* | 212* | —    |
| 1948                               | 240    | 226    | 241    | 256    | 267    | 272    | 272    | 266    | 261    | 242    | 261    | 261    | 255    | 280    | 255  | 213  | 226  |
| 1949                               | 258    | 244    | 247    | 250    | 256    | 265    | 267    | 263    | 243    | 256    | 256    | 250    | 254    | 254    | 254  | 291  | 226  |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year   | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>DAYTONA BEACH (ocean), FLA. - Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Mean   | 1.0257 | 1.0266 | 1.0265 | 1.0268 | 1.0271 | 1.0271 | 1.0266 | 1.0264 | —      | —      | —      | —      | —      | —      | —      |
| Density  | 1.0255 | 1.0256 | 1.0261 | 1.0263 | 1.0267 | 1.0269 | 1.0268 | 1.0265 | 1.0253 | 1.0255 | 1.0253 | 1.0253 | 1.0261 | 1.0261 | 1.0261 |
| Salinity                                       | 34.4   | 34.5   | 35.1   | 35.4   | 35.9   | 35.9   | 36.2   | 36.2   | 36.0   | 35.7   | 34.1   | 34.4   | 34.1   | 35.1   | 35.1   |
| Max.   | 1.0274 | 1.0278 | 1.0288 | 1.0286 | 1.0285 | 1.0285 | 1.0293 | 1.0278 | 1.0291 | 1.0289 | 1.0275 | 1.0275 | 1.0273 | 1.0273 | 1.0273 |
| Mean Max.                                      | 1.0263 | 1.0263 | 1.0269 | 1.0272 | 1.0274 | 1.0276 | 1.0275 | 1.0273 | 1.0273 | 1.0266 | 1.0264 | 1.0264 | 1.0261 | 1.0261 | 1.0261 |
| Mean Min.                                      | 1.0245 | 1.0248 | 1.0251 | 1.0253 | 1.0256 | 1.0262 | 1.0261 | 1.0260 | 1.0250 | 1.0236 | 1.0246 | 1.0246 | 1.0244 | 1.0244 | 1.0244 |
| Min.   | 1.0215 | 1.0213 | 1.0216 | 1.0230 | 1.0241 | 1.0238 | 1.0241 | 1.0247 | 1.0234 | 1.0184 | 1.0213 | 1.0212 | 1.0184 | 1.0184 | 1.0184 |
| <b>DAYTONA BEACH (Halifax River), FLA.</b>     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1946   | —      | —      | 1.0096 | 1.0155 | 1.0190 | 1.0200 | 1.0161 | 1.0061 | 1.0040 | 1.0082 | 1.0125 | 1.0165 | —      | —      | —      |
| 1947   | 1.0179 | 1.0178 | 104    | 041    | 082    | 101    | 015    | —      | —      | 094    | 069    | 085    | 136    | —      | —      |
| 1948   | 153    | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      |
| <b>CANOVA BEACH, FLA.</b>                      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1951   | —      | —      | —      | —      | —      | —      | 1.0271 | 1.0269 | 1.0269 | 1.0274 | 1.0263 | 1.0265 | —      | —      | —      |
| 1952   | 1.0265 | 1.0266 | 1.0267 | 1.0269 | 1.0270 | 1.0271 | 271    | 270    | 269    | 258    | 261    | 267    | 1.0267 | 284    | 244    |
| 1953   | 274    | 272    | 276    | 274    | 269    | 268    | 271    | 271    | 264    | 241    | 251    | 266    | 266    | 288    | 223    |
| 1954   | 267    | 269    | 270    | 272    | 271    | 273    | 269    | 269    | 270    | 270    | 271    | 269    | 270    | 288    | 260    |
| 1955   | 269    | 268    | 270    | 273    | 274    | 272    | 273    | 275    | 277    | 274    | 276    | 270    | 273    | 289    | 257    |
| 1956   | 265    | 267    | 270    | 273    | 272    | 273    | 268    | 268    | —      | 267    | 260    | 265    | —      | 282*   | 252*   |
| Mean   | 1.0268 | 1.0268 | 1.0271 | 1.0272 | 1.0271 | 1.0271 | 1.0271 | 1.0270 | 1.0270 | 1.0270 | 1.0264 | 1.0267 | 1.0269 | 1.0269 | 1.0269 |
| Density  | 36.0   | 36.0   | 36.4   | 36.6   | 36.4   | 36.4   | 36.4   | 36.3   | 36.3   | 36.3   | 35.5   | 35.5   | 35.9   | 36.2   | 36.2   |
| Salinity                                       | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      |
| Max.   | 1.0284 | 1.0284 | 1.0288 | 1.0287 | 1.0279 | 1.0288 | 1.0282 | 1.0281 | 1.0288 | 1.0304 | 1.0289 | 1.0281 | 1.0281 | 1.0281 | 1.0281 |
| Mean Max.                                      | 1.0277 | 1.0274 | 1.0278 | 1.0280 | 1.0277 | 1.0280 | 1.0276 | 1.0277 | 1.0277 | 1.0276 | 1.0275 | 1.0275 | 1.0275 | 1.0275 | 1.0275 |
| Mean Min.                                      | 1.0262 | 1.0262 | 1.0264 | 1.0266 | 1.0266 | 1.0266 | 1.0261 | 1.0261 | 1.0259 | 1.0252 | 1.0254 | 1.0254 | 1.0254 | 1.0254 | 1.0254 |
| Min.   | 1.0260 | 1.0257 | 1.0260 | 1.0264 | 1.0263 | 1.0263 | 1.0262 | 1.0263 | 1.0257 | 1.0244 | 1.0223 | 1.0240 | 1.0240 | 1.0240 | 1.0240 |

## PALM BEACH, FLA.

— 1.0274 1.0275 1.0272 1.0273 1.0269 1.0271 1.0271

— 1.0286\*1.0258\*

## MIAMI BEACH, FLA.

|         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1940    | 1.0267 | 1.0269 | 1.0268 | 1.0270 | 1.0269 | 1.0267 | 1.0269 | 1.0253 | 1.0259 | 1.0260 | 1.0263 | 1.0265 | 1.0274 | 1.0229 |
| 1941    | 263    | —      | 264    | 267    | 271    | 266    | 269    | 261    | —      | 265    | 262    | —      | 275*   | 255*   |
| 1942    | 266    | 270    | 272    | 269    | 267    | 271    | 279    | 274    | 276    | 278    | —      | —      | 287*   | 255*   |
| 1943    | 270    | 268    | 271    | 272    | 272    | 272    | 265    | 256    | 257    | 260    | 275    | 267    | 280    | 252    |
| 1944    | 261    | 263    | —      | 270    | 267    | 272    | 271    | 266    | 266    | 259    | 264    | —      | 278*   | 250*   |
| 1945    | 266    | 267    | 270    | 274    | 276    | 274    | 268    | 265    | 257    | 257    | 262    | 266    | 283    | 244    |
| 1946    | 262    | 266    | 270    | 274    | 277    | 278    | 269    | 274    | 266    | 263    | 259    | 268    | 303    | 252    |
| 1947    | 262    | 265    | 265    | 264    | 262    | 262    | 256    | 256    | 255    | 241    | 259    | 257    | 273    | 221    |
| 1948    | 262    | 261    | 265    | 265    | 266    | 268    | 272    | 272    | —      | —      | 249    | 261    | —      | 275*   |
| 1949    | 257    | 266    | 265    | 269    | 267    | 267    | 266    | 264    | 257    | 247    | 260    | 257    | 262    | 234    |
| 1950    | 252    | 264    | 269    | 269    | 274    | 274    | 274    | —      | 262    | 266    | —      | —      | —      | 278*   |
| 1951    | 265    | —      | 268    | 268    | 272    | 272    | 270    | 259    | 257    | 256    | 262    | —      | —      | 278*   |
| —       | —      | —      | 268    | 271    | 276    | 272    | 265    | 267    | 266    | 263    | —      | —      | —      | 278*   |
| 1955    | 270    | 270    | 274    | 277    | 275    | 276    | 277    | 275    | 262    | 265    | 268    | 270    | 272    | 281*   |
| 1956    | 247    | 248    | 249    | 249    | 249    | 249    | 249    | 249    | 249    | 249    | 249    | 249    | 249    | 254*   |
| Mean    | 1.0263 | 1.0266 | 1.0269 | 1.0270 | 1.0271 | 1.0271 | 1.0269 | 1.0267 | 1.0261 | 1.0258 | 1.0262 | 1.0263 | 1.0266 | 283    |
| Density | 35.4   | 35.8   | 36.2   | 36.3   | 36.4   | 36.4   | 36.4   | 36.2   | 35.9   | 35.1   | 34.8   | 35.3   | 35.4   | 35.8   |

|           |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Max.      | 1.0283 | 1.0282 | 1.0283 | 1.0285 | 1.0290 | 1.0303 | 1.0288 | 1.0283 | 1.0281 | 1.0286 | 1.0274 | 1.0303 | —      | —      |
| Mean Max. | 1.0271 | 1.0272 | 1.0275 | 1.0274 | 1.0272 | 1.0268 | 1.0261 | 1.0264 | 1.0261 | 1.0261 | 1.0268 | 1.0268 | 1.0279 | 1.0233 |
| Mean Min. | 1.0255 | 1.0261 | 1.0261 | 1.0264 | 1.0264 | 1.0263 | 1.0261 | 1.0260 | 1.0252 | 1.0249 | 1.0251 | 1.0254 | 284    | 235    |
| Min.      | 1.0234 | 1.0254 | 1.0238 | 1.0257 | 1.0255 | 1.0255 | 1.0247 | 1.0243 | 1.0229 | 1.0221 | 1.0217 | 1.0242 | 267    | 237    |

1.0217

## KEY WEST, FLA.

|      |        |        |        |        |        |        |        |        |        |        |        |        |        |     |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
| 1926 | 1.0272 | 1.0270 | 1.0274 | 1.0275 | 1.0272 | 1.0268 | 1.0261 | 1.0264 | 1.0261 | 1.0261 | 1.0268 | 1.0279 | 1.0233 |     |
| 1927 | 270    | 271    | 274    | 276    | 278    | 275    | 273    | 265    | 260    | 270    | 275    | 272    | 284    | 235 |
| 1928 | 275    | 273    | 268    | 272    | 271    | 275    | 266    | 261    | 256    | 255    | 264    | 267    | 280    | 237 |
| 1929 | 261    | 268    | 271    | 274    | 277    | 272    | 269    | 274    | 270    | 258    | 258    | 255    | 283    | 242 |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

|                             |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Max.                        | 1.0279 | 1.0280 | 1.0285 | 1.0287 | 1.0288 | 1.0289 | 1.0284 | 1.0280 | 1.0284 | 1.0289 | 1.0286 |
| Mean Max.                   | 1.0272 | 1.0273 | 1.0276 | 1.0278 | 1.0280 | 1.0280 | 1.0278 | 1.0277 | 1.0274 | 1.0273 | 1.0274 |
| Mean Min.                   | 1.0261 | 1.0263 | 1.0266 | 1.0267 | 1.0267 | 1.0265 | 1.0264 | 1.0265 | 1.0261 | 1.0254 | 1.0262 |
| Min.                        | 1.0206 | 1.0245 | 1.0246 | 1.0248 | 1.0248 | 1.0247 | 1.0238 | 1.0233 | 1.0233 | 1.0250 | 1.0246 |
|                             |        |        |        |        |        |        |        |        |        |        | 1.0206 |
| <b>ST. PETERSBURG, FLA.</b> |        |        |        |        |        |        |        |        |        |        |        |
| 1947                        | 1.0218 | 1.0216 | 1.0209 | 1.0197 | 1.0204 | 1.0208 | 1.0187 | 1.0155 | 1.0141 | 1.0184 | 1.0187 |
| 1948                        | 176    | 158    | 172    | 179    | 194    | 207    | 205    | 177    | 167    | 191    | 1.0181 |
| 1949                        | 194    | 197    | 207    | 215    | 222    | 228    | 233    | 204    | 145    | 143    | 194    |
| 1950                        | 186    | 199    | 204    | 210    | 218    | 223    | 201    | 168    | 173    | 185    | 191    |
| 1951                        | 186    | 189    | 196    | 200    | 205    | 222    | 211    | 203    | 191    | 201    | 205    |
| 1952                        | 209    | 211    | 209    | 200    | 208    | 218    | ---    | ---    | ---    | 199    | 202    |
| 1953                        | 198    | 192    | 196    | 199    | 205    | 215    | 219    | 196    | 161    | 143    | 168    |
| 1954                        | 160    | 168    | 183    | 188    | 198    | 207    | 204    | 182    | 182    | 178    | 188    |
| 1955                        | 192    | 197    | 205    | 212    | 222    | 233    | 238    | 209    | 181    | 189    | 203    |
| 1956                        | 216    | 217    | 224    | 236    | 240    | 257    | 255    | 253    | 245    | 235    | 239    |
| Mean Density                | 1.0194 | 1.0194 | 1.0200 | 1.0204 | 1.0212 | 1.0222 | 1.0220 | 1.0199 | 1.0177 | 1.0192 | 1.0195 |
| Salinity                    | 26.4   | 26.4   | 27.2   | 27.7   | 28.8   | 30.1   | 29.8   | 27.1   | 24.2   | 24.2   | 26.5   |
| Max.                        | 1.0227 | 1.0224 | 1.0230 | 1.0241 | 1.0252 | 1.0260 | 1.0261 | 1.0254 | 1.0245 | 1.0245 | 1.0244 |
| Mean Max.                   | 1.0202 | 1.0200 | 1.0208 | 1.0209 | 1.0220 | 1.0229 | 1.0227 | 1.0214 | 1.0191 | 1.0190 | 1.0199 |
| Mean Min.                   | 1.0185 | 1.0187 | 1.0193 | 1.0198 | 1.0204 | 1.0207 | 1.0209 | 1.0182 | 1.0162 | 1.0165 | 1.0183 |
| Min.                        | 1.0156 | 1.0146 | 1.0159 | 1.0166 | 1.0168 | 1.0140 | 1.0170 | 1.0134 | 1.0125 | 1.0125 | 1.0155 |
|                             |        |        |        |        |        |        |        |        |        |        | 1.0125 |
| <b>CEDAR KEYS, FLA.</b>     |        |        |        |        |        |        |        |        |        |        |        |
| 1922                        | 1.0204 | 1.0214 | 1.0208 | 1.0213 | 1.0211 | 1.0206 | 1.0198 | 1.0192 | 1.0191 | 1.0206 | 1.0201 |
| 1923                        | 208    | 203    | 208    | 212    | 186    | 212    | 192    | 175    | 195    | 184    | 200    |
| 1924                        | 207    | 188    | 160    | 171    | 171    | 172    | 177    | 189    | 205    | 196    | 206    |
| 1925                        | 214    | 184    | 166    | 179    | 196    | 211    | 202    | 193    | 219    | 211    | 207    |
| 1926                        | 201    | 160    | 152    | 151    | 166    | 188    | ---    | ---    | ---    | ---    | 181    |
| 1944                        | ---    | ---    | ---    | ---    | 212    | 204    | 200    | 209    | 213    | 180    | 193    |
|                             |        |        |        |        |        |        |        |        |        |        | ---    |
|                             |        |        |        |        |        |        |        |        |        |        | 233*   |
|                             |        |        |        |        |        |        |        |        |        |        | 109*   |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>CEDAR KEYS, FLA. - Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1945                                | 1.0194 | 1.0192 | 1.0207 | 1.0224 | 1.0200 | 1.0197 | 1.0214 | 1.0199 | 1.0181 | 1.0190 | 1.0205 | 1.0186 | 1.0199 | 1.0237 | 1.0138 |
| 1946                                | 1.0181 | 1.0177 | 1.0153 | 1.0189 | 1.0201 | 1.0198 | 1.0178 | 1.0198 | 1.0196 | 1.0220 | 1.0196 | 1.0215 | 1.0191 | 1.0230 | 1.0106 |
| 1947                                | 1.0223 | 1.0186 | 1.0180 | 1.0184 | 1.0180 | 1.0199 | 1.0193 | 1.0186 | 1.0181 | 1.0181 | 1.0175 | 1.0175 | 1.0190 | 1.0235 | 1.0119 |
| 1948                                | 1.0162 | 1.0188 | 1.0134 | 1.0150 | 1.0158 | 1.0171 | 1.0199 | 1.0170 | 1.0184 | 1.0192 | 1.0200 | 1.0204 | 1.0176 | 1.0220 | 0.92   |
| 1949                                | 1.0167 | 1.0186 | 1.0175 | 1.0168 | 1.0187 | 1.0203 | 1.0205 | 1.0169 | 1.0156 | 1.0170 | 1.0185 | 1.0200 | 1.0181 | 1.0226 | 0.99   |
| 1950                                | 200    | 209    | 208    | 182    | 219    | 222    | 193    | 190    | 144    | 172    | 183    | 190    | 193    | 251    | 0.66   |
| 1951                                | 202    | 205    | 207    | 170    | 185    | 190    | 201    | 199    | 188    | 196    | 191    | 181    | 193    | 235    | 102    |
| —                                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1954                                | 188    | 176    | 180    | 204    | 205    | 222    | 203    | 209    | 225    | 207    | 219    | 219    | —      | 244*   | 106*   |
| 1955                                | 212    | 213    | 241    | 234    | 225    | 227    | 233    | 226    | 221    | 227    | 225    | 221    | 225    | 253    | 180    |
| 1956                                | 227    | 237    | 234    | 210    | 212    | 228    | 212    | 224    | 245    | 225    | 220    | 226    | 225    | 255    | 175    |
| Mean<br>Density                     | 1.0199 | 1.0195 | 1.0189 | 1.0186 | 1.0194 | 1.0204 | 1.0202 | 1.0194 | 1.0197 | 1.0196 | 1.0202 | 1.0201 | 1.0197 |        |        |
| Salinity                            | 27.1   | 26.5   | 25.8   | 25.4   | 26.4   | 27.7   | 27.5   | 26.4   | 26.8   | 26.7   | 27.5   | 27.3   | 26.8   |        |        |
| Max.                                | 1.0247 | 1.0251 | 1.0254 | 1.0251 | 1.0252 | 1.0253 | 1.0242 | 1.0248 | 1.0254 | 1.0255 | 1.0241 | 1.0243 | 1.0255 |        |        |
| Mean Max.                           | 1.0219 | 1.0218 | 1.0213 | 1.0214 | 1.0219 | 1.0223 | 1.0221 | 1.0215 | 1.0218 | 1.0219 | 1.0221 | 1.0219 |        |        |        |
| Mean Min.                           | 1.0172 | 1.0157 | 1.0152 | 1.0152 | 1.0158 | 1.0181 | 1.0179 | 1.0168 | 1.0169 | 1.0159 | 1.0180 | 1.0183 |        |        |        |
| Min.                                | 1.0119 | 1.0095 | 1.0092 | 1.0092 | 1.0102 | 1.0102 | 1.0139 | 1.0155 | 1.0120 | 1.0066 | 1.0109 | 1.0128 | 1.0150 | 1.0066 |        |
| <b>PENSACOLA, FLA.</b>              |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1924                                | 1.0113 | 1.0061 | 1.0095 | 1.0098 | 1.0104 | 1.0088 | 1.0099 | 1.0122 | 1.0169 | 1.0180 | 1.0196 | 1.0177 | 1.0125 | 1.0227 | 1.0010 |
| 1925                                | 078    | 049    | 111    | 154    | 175    | 181    | 175    | 193    | 206    | 203    | 180    | 174    | 157    | 228    | 001    |
| 1926                                | 110    | 081    | 084    | 037    | 097    | 120    | 141    | 107    | 056    | 063    | 130    | 129    | 096    | 202    | 010    |
| 1927                                | 143    | 108    | 066    | 086    | 147    | 136    | 125    | 110    | 162    | 163    | 176    | 154    | 131    | 218    | 017    |
| 1928                                | 125    | 140    | 098    | 077    | 052    | 040    | 047    | 097    | 136    | 143    | 176    | 165    | 108    | 215    | 010    |
| 1929                                | 126    | 130    | 026    | 084    | 094    | 117    | 090    | 110    | 134    | 107    | 107    | 075    | 100    | 189    | 000    |

|                       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1930                  | 107    | 127    | 135    | 135    | 166    | 164    | 154    | 149    | 159    | 167    | 171    | 146    | 146    | 151    | 151    | 017    |
| 1931                  | 117    | 131    | 137    | 145    | 142    | 141    | 151    | 111    | 091    | 153    | 191    | 201    | 188    | 122    | 229    | 027    |
| 1932                  | 111    | 131    | 103    | 083    | 029    | 057    | 151    | 111    | 091    | 153    | 191    | 201    | 188    | 122    | 229    | 011    |
| 1933                  | 107    | 108    | 105    | 189    | 130    | 140    | 140    | 155    | 121    | 152    | 096    | 151    | 153    | 148    | 237    | 029    |
| 1934                  | 194    | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | 018**  |
| 1935                  | 155    | 154    | 075    | 013    | 070    | 109    | 131    | 102    | 124    | 176    | 191    | 174    | 128    | 229    | 007    | 018**  |
| 1936                  | 047    | 065    | 090    | 083    | 107    | 132    | 124    | 072    | 126    | 135    | 127    | 115    | 102    | 215    | 004    | 014    |
| 1937                  | 109    | 108    | 090    | 050    | 035    | 067    | 105    | 102    | 092    | 120    | 107    | 099    | 090    | 158    | 013    | 014    |
| 1938                  | 104    | 105    | 086    | 045    | 087    | 112    | 110    | 075    | 138    | 105    | 142    | 182    | 108    | 239    | 014    | 014    |
| 1939                  | —      | —      | —      | —      | 060    | 095    | —      | —      | 068    | 108    | 175    | 175    | —      | —      | 212*   | 018**  |
| 1940                  | 182    | 113    | 070    | 102    | 109    | 106    | 039    | 093    | 154    | 176    | 176    | 157    | 123    | 220    | 009    | 009    |
| 1941                  | 121    | 154    | 125    | 085    | 174    | 181    | 119    | 111    | 159    | 174    | 188    | 156    | 146    | 217    | 019    | 019    |
| 1942                  | 106    | 132    | 061    | 055    | 093    | 109    | 070    | 082    | 123    | 145    | 181    | 172    | 111    | 217    | 003    | 003    |
| 1943                  | 150    | 150    | 072    | 059    | 118    | 123    | 118    | 124    | 160    | 191    | 163    | 179    | 134    | 216    | 002    | 002    |
| 1944                  | 131    | 119    | 073    | 014    | 032    | 102    | 144    | 092    | 059    | 134    | 176    | 128    | 099    | 230    | 0.9997 | 0.9997 |
| 1945                  | 134    | 108    | 105    | 108    | 088    | 122    | 144    | 105    | 147    | 171    | 175    | 172    | 132    | 211    | 0.0047 | 0.0047 |
| 1946                  | 080    | 090    | 070    | 042    | 057    | 054    | 066    | 031    | 104    | 127    | 160    | 156    | 086    | 196    | 0.9997 | 0.9997 |
| 1947                  | 096    | 123    | 063    | 022    | 062    | 056    | 114    | 150    | 140    | 171    | 150    | 102    | 104    | 217    | 0.9997 | 0.9997 |
| 1948                  | 132    | 099    | 038    | 049    | 125    | 138    | 142    | 116    | 148    | 171    | 144    | 048    | 112    | 206    | 0.9996 | 0.9996 |
| 1949                  | 074    | 089    | 091    | 080    | 081    | 102    | 076    | 084    | 142    | 179    | 182    | 168    | 112    | 214    | 1.0018 | 1.0018 |
| 1950                  | 162    | 167    | 140    | 087    | 098    | 148    | 148    | 125    | —      | —      | —      | —      | —      | 214*   | 037*   | 037*   |
| 1951                  | —      | —      | 144    | 081    | 130    | 144    | 137    | 167    | 166    | 187    | 173    | 184    | —      | 229*   | 027*   | 027*   |
| 1952                  | 159    | 144    | 109    | 068    | 100    | 132    | 171    | 174    | 182    | 210    | 219    | 199    | 156    | 245    | 012    | 012    |
| 1953                  | 151    | 127    | 097    | 100    | 045    | 130    | 142    | 146    | 183    | 144    | 175    | 073    | 126    | 253    | 006    | 006    |
| 1954                  | 072    | 138    | 113    | 105    | 172    | 195    | 191    | 203    | 215    | 219    | 219    | 206    | 171    | 243    | 021    | 021    |
| 1955                  | 196    | 152    | 170    | 114    | 115    | 133    | 169    | 123    | 180    | 198    | 204    | 207    | 163    | 236    | 002    | 002    |
| 1956                  | 212    | 149    | 094    | 118    | 154    | 184    | 135    | 156    | 178    | 129    | 186    | 169    | 155    | 240    | 037    | 037    |
| Mean Density Salinity | 1.0126 | 1.0119 | 1.0094 | 1.0080 | 1.0105 | 1.0125 | 1.0125 | 1.0118 | 1.0145 | 1.0157 | 1.0169 | 1.0152 | 1.0126 | 17.5   | 20.9   | 17.5   |
| Max.                  | 1.0253 | 1.0231 | 1.0237 | 1.0216 | 1.0222 | 1.0215 | 1.0225 | 1.0229 | 1.0238 | 1.0242 | 1.0245 | 1.0243 | 1.0253 | —      | —      | —      |
| Mean Max.             | 1.0185 | 1.0171 | 1.0160 | 1.0140 | 1.0162 | 1.0173 | 1.0174 | 1.0172 | 1.0184 | 1.0198 | 1.0208 | 1.0200 | 1.0253 | —      | —      | —      |
| Mean Min.             | 1.0059 | 1.0065 | 1.0038 | 1.0037 | 1.0057 | 1.0079 | 1.0077 | 1.0073 | 1.0101 | 1.0115 | 1.0128 | 1.0095 | 1.0096 | 0.9996 | 0.9996 | 0.9996 |
| Min.                  | 1.0001 | 1.0006 | 0.9997 | 0.9997 | 1.0002 | 1.0013 | 1.0021 | 1.0014 | 1.0027 | 1.0032 | 1.0032 | 1.0032 | 1.0032 | 0.9996 | 0.9996 | 0.9996 |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year  | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.           | Min.   |        |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|
| <b>GRAND ISLE (Drilling Platform 8 miles SE. of), LA.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |        |
| 1949  | ---    | ---    | ---    | ---    | 1.0170 | 1.0178 | 1.0185 | 1.0204 | 1.0203 | 1.0208 | 1.0232 | 1.0238 | ---    | 1.0255*1.0121* |        |        |
| 1950  | 1.0164 | 1.0119 | ---    | ---    | ---    | ---    | ---    | 1.058  | 1.099  | 1.190  | 1.239  | 1.221  | ---    | 2.56*0.9984*   |        |        |
| 1951  | 1.016  | 1.0151 | 1.0151 | 1.0187 | 1.0187 | 1.0191 | 1.0156 | 1.0187 | 1.0200 | 1.0219 | 1.0241 | 1.0214 | 1.0190 | 2.69           | 1.0010 |        |
| 1952  | 1.0180 | 1.0199 | 1.0194 | 1.0194 | 1.0194 | 1.0194 | 1.0194 | 1.0204 | 1.0229 | 1.0228 | 1.0247 | 1.0259 | 1.0257 | 2.73*          | 1.07*  |        |
| 1953  | 1.0154 | 1.0167 | 1.0169 | 1.0157 | 1.0157 | 1.0193 | 1.0243 | 1.0239 | 1.0209 | 1.0248 | 1.0258 | 1.0249 | 1.0217 | 2.89           | --     |        |
| 1954  | 1.0140 | 1.0232 | 1.0246 | 1.0213 | 1.0195 | 1.0196 | 1.0240 | 1.0244 | 1.0244 | 1.0244 | 1.0250 | 1.0260 | 1.0260 | 2.68*          | 1.18*  |        |
| 1955  | 1.0155 | 1.0215 | 1.0216 | 1.0165 | 1.0167 | 1.0222 | 1.0204 | 1.0227 | 1.0227 | 1.0245 | 1.0254 | 1.0245 | 1.0227 | 2.64*          | 1.09*  |        |
| 1956  | 1.0156 | 1.0222 | 1.0186 | 1.0200 | 1.0185 | 1.0227 | 1.0227 | 1.0236 | 1.0235 | 1.0235 | 1.0247 | 1.0249 | 1.0227 | 2.65           | 1.26   |        |
| Mean<br>Density   | 1.0219 | 1.0199 | 1.0194 | 1.0188 | 1.0173 | 1.0201 | 1.0211 | 1.0216 | 1.0212 | 1.0227 | 1.0248 | 1.0242 | 1.0211 |                |        |        |
| Salinity  | 29.7   | 27.1   | 26.4   | 25.6   | 23.7   | 27.3   | 28.6   | 29.3   | 28.8   | 30.7   | 33.5   | 32.7   | 28.6   |                |        |        |
| Max.  | 1.0282 | 1.0270 | 1.0269 | 1.0260 | 1.0256 | 1.0284 | 1.0276 | 1.0289 | 1.0254 | 1.0266 | 1.0273 | 1.0270 | 1.0289 |                |        |        |
| Mean Max.   | 1.0256 | 1.0249 | 1.0244 | 1.0239 | 1.0230 | 1.0251 | 1.0241 | 1.0247 | 1.0234 | 1.0249 | 1.0262 | 1.0260 |        |                |        |        |
| Mean Min.   | 1.0168 | 1.0111 | 1.0134 | 1.0131 | 1.0119 | 1.0119 | 1.0162 | 1.0154 | 1.0180 | 1.0190 | 1.0201 | 1.0219 | 1.0191 |                |        |        |
| Min.  | 1.0081 | 0.9984 | 1.0012 | 1.0009 | 1.0097 | 1.0133 | 1.0021 | 1.0133 | 1.0013 | 1.0113 | 1.0170 | 1.0156 | 1.0121 | 0.9984         |        |        |
| <b>EUGENE ISLAND, LA.</b>                                 |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |        |
| 1944  | ---    | ---    | ---    | 1.0040 | 1.0001 | 0.9998 | 1.0010 | 1.0055 | 1.0079 | 1.0062 | 1.0073 | 1.0034 | ---    | 1.0221*0.9991* |        |        |
| 1945  | 1.0008 | 1.0022 | 1.0002 | 0.9997 | 0.9997 | 1.0003 | 0.9997 | 1.0012 | 1.0045 | 1.0026 | 1.0043 | 1.0018 | 1.0014 | 1.0209         | 0.9989 |        |
| 1946  | 1.0039 | 0.9998 | 0.9998 | 1.0001 | 1.0001 | 1.0007 | 1.0001 | 1.0004 | 1.0027 | 1.0085 | 1.0054 | 1.0064 | 1.0018 | 1.0025         | 1.0221 | 0.9992 |
| 1947  | 1.0001 | 1.0000 | 1.0026 | 1.0018 | 1.0000 | 1.0006 | 1.0005 | 1.0041 | 1.0033 | 1.0061 | 1.0052 | 1.0041 | 1.0024 | 1.0220         | 0.9986 |        |
| 1948  | 1.0013 | 1.0006 | 1.0009 | 1.0016 | 1.0003 | 1.0019 | 1.0013 | 1.0034 | 1.0064 | 1.0072 | 1.0071 | 1.0007 | 1.0027 | 1.0207         | 0.9987 |        |
| 1949  | 1.0003 | 0.9997 | 1.0002 | 0.9998 | 1.0014 | 1.0011 | 1.0009 | 1.0006 | 1.0072 | 1.0078 | 1.0019 | 1.0076 | 1.0024 | 1.0216         | 0.9988 |        |
| 1950  | 1.0033 | 1.0007 | 0.9999 | 0.9996 | 0.9999 | 0.9999 | 1.0002 | 1.0008 | 1.0007 | 1.0025 | 1.0030 | 1.0009 | 1.0010 | 1.0207         | 0.9973 |        |
| 1951  | 1.0002 | 0.9996 | 1.0002 | 0.9996 | 0.9998 | 1.0001 | 1.0001 | 1.0015 | 1.0021 | 1.0042 | 1.0015 | 1.0017 | 1.0009 | 1.0159         | 0.9986 |        |

|                 |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 1952            | 1.0011 | 1.0004 | 1.0006 | 1.0000 | 1.0002 | 1.0006 | 1.0026 | 1.0031 | 1.0062 | 1.0064 | ---    | 1.0047 | ---     | 1.0040  | 1.0185* | 0.9977* |
| 1953            | 1.0035 | 1.0033 | 1.0019 | 1.0030 | 1.0023 | 1.0012 | 1.0010 | 1.0039 | 1.0045 | 1.0082 | 1.0068 | ---    | 1.0068  | ---     | 1.0231  | 0.9986  |
| 1954            | 1.0076 | 1.0044 | 1.0055 | ---    | 1.0030 | 1.0008 | 1.0033 | 1.0060 | 1.0113 | 1.0127 | ---    | ---    | ---     | 1.0237* | 0.9994* |         |
| 1955            | ---    | ---    | 1.0038 | 1.0013 | 1.0016 | 1.0012 | 1.0012 | 1.0026 | 1.0094 | ---    | 1.0049 | 1.0051 | ---     | 1.0214* | 0.9981* |         |
| 1956            | ---    | ---    | 1.0002 | 1.0012 | 1.0012 | 1.0013 | 1.0012 | 1.0026 | 1.0066 | 1.0076 | 1.0085 | 1.0044 | ---     | 1.0208* | 0.9985* |         |
| Mean Density    | 1.0022 | 1.0011 | 1.0013 | 1.0010 | 1.0008 | 1.0007 | 1.0010 | 1.0029 | 1.0060 | 1.0064 | 1.0053 | 1.0036 | 1.0027  | 1.0027  | 1.0027  |         |
| Salinity        | 3.9    | 2.5    | 2.8    | 2.4    | 2.1    | 2.0    | 2.4    | 4.8    | 8.9    | 9.4    | 8.0    | 5.8    | 4.6     | 4.6     | 4.6     |         |
| Max.            | 1.0221 | 1.0206 | 1.0214 | 1.0220 | 1.0198 | 1.0139 | 1.0186 | 1.0221 | 1.0237 | 1.0211 | 1.0231 | 1.0237 | 1.0237  | 1.0237  | 1.0237  |         |
| Mean Max.       | 1.0121 | 1.0095 | 1.0121 | 1.0106 | 1.0085 | 1.0066 | 1.0079 | 1.0127 | 1.0166 | 1.0177 | 1.0182 | 1.0156 | 1.0156  | 1.0156  | 1.0156  |         |
| Mean Min.       | 0.9993 | 0.9990 | 0.9991 | 0.9991 | 0.9993 | 0.9993 | 0.9996 | 0.9995 | 0.9997 | 1.0002 | 1.0000 | 0.9996 | 0.9991  | 0.9991  | 0.9991  |         |
| Min.            | 0.9990 | 0.9973 | 0.9983 | 0.9981 | 0.9988 | 0.9992 | 0.9985 | 0.9983 | 0.9985 | 0.9986 | 0.9988 | 0.9977 | 0.9973  | 0.9973  | 0.9973  |         |
| GALVESTON, TEX. |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |
| 1922            | 1.0196 | 1.0171 | 1.0171 | ---    | 1.0063 | 1.0138 | 1.0177 | 1.0226 | 1.0204 | 1.0192 | 1.0197 | ---    | 1.0259* | 1.0020* |         |         |
| 1923            | 207    | 146    | 154    | 1.0063 | 1.0138 | 134    | 143    | 224    | 191    | 175    | 171    | 124    | 1.0156  | 249     | 0.018   |         |
| 1924            | 090    | 146    | 110    | 121    | 126    | 95     | 186    | 229    | 221    | 192    | 185    | 193    | 158     | 250     | 0.022   |         |
| 1925            | 200    | 218    | 204    | 199    | 203    | 191    | 228    | 256    | 244    | ---    | 130    | 169    | ---     | 270*    | 0.59*   |         |
| 1926            | 148    | 151    | 123    | 064    | 066    | 137    | 172    | 209    | ---    | 182    | 169    | 161    | ---     | 231*    | 0.20*   |         |
| 1927            | 162    | 117    | ---    | 193    | 115    | ---    | 158    | 201    | 195    | 147    | 178    | 153    | ---     | 245*    | 0.41*   |         |
| 1928            | 155    | 151    | 156    | 159    | 171    | 182    | 192    | 208    | 171    | 168    | 178    | 163    | 171     | 250     | 0.097   |         |
| 1929            | 141    | 125    | 129    | 110    | 118    | 85     | 121    | 191    | 170    | ---    | ---    | ---    | ---     | 239*    | 0.36*   |         |
| 1930            | ---    | ---    | 162    | 202    | 154    | 130    | 230    | 243    | 234    | 187    | ---    | 155    | ---     | 256*    | 0.40*   |         |
| 1931            | 141    | 136    | 174    | 180    | 188    | 227    | 230    | 235    | 237    | 213    | 211    | 193    | 197     | 282     | 0.51    |         |
| 1932            | 125    | 065    | 099    | 171    | 149    | 175    | 222    | 234    | 212    | 197    | 206    | 213    | 172     | 299     | 0.11    |         |
| 1933            | 181    | 167    | 143    | 165    | 153    | 156    | 196    | 176    | 188    | 177    | 194    | 210    | 176     | 242     | 0.61    |         |
| 1934            | 177    | 127    | 132    | 096    | 163    | 208    | 226    | 241    | 222    | 218    | 212    | 187    | 184     | 263     | 0.028   |         |
| 1935            | 179    | 148    | ---    | 184    | 084    | 079    | 140    | 206    | 189    | 166    | 164    | 131    | ---     | 248*    | 0.022*  |         |
| 1936            | 171    | 175    | 185    | 200    | 168    | 152    | 179    | 229    | 202    | 191    | 184    | 201    | 186     | 278     | 0.087   |         |
| 1937            | 163    | 149    | 135    | 151    | 193    | 205    | 230    | 244    | 221    | 208    | 209    | 193    | 192     | 256     | 0.011   |         |
| 1938            | 151    | 152    | 150    | 134    | 104    | 167    | 220    | 225    | 185    | 212    | 210    | 209    | 177     | 251     | 0.031   |         |
| 1939            | 196    | 186    | 182    | 202    | 176    | 179    | 189    | 234    | 248    | 228    | 226    | 216    | 216     | 256     | 0.069   |         |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                     | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.           | Min.   |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|
| <b>GALVESTON, TEX. -Continued</b>        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |
| 1940                                     | 1.0200 | 1.0217 | 1.0219 | 1.0210 | 1.0202 | 1.0187 | 1.0190 | 1.0219 | 1.0205 | 1.0208 | 1.0178 | 1.0048 | 1.0190 | 1.0246         | 1.0015 |
| 1941                                     | 101    | 119    | 122    | 146    | 125    | 099    | 124    | 206    | 205    | 133    | 114    | 154    | 137    | 259            | 038    |
| 1942                                     | 159    | 182    | 191    | 150    | 078    | 119    | 119    | 195    | 152    | 169    | 179    | 181    | 156    | 231            | 021    |
| 1943                                     | 162    | 191    | 192    | 179    | 192    | 169    | —      | —      | —      | —      | 181    | 173    | —      | 264*           | 052*   |
| 1944                                     | 155    | 135    | 149    | 168    | 111    | 116    | 210    | 247    | 216    | 191    | 200    | 163    | 172    | 265            | 034    |
| 1945                                     | 114    | 127    | 114    | 068    | 123    | 152    | 156    | 182    | 126    | 128    | 166    | 152    | 134    | 245            | 020    |
| 1946                                     | 132    | 132    | 102    | 155    | 120    | 075    | 149    | 231    | 182    | 160    | 081    | 113    | 136    | 260            | 020    |
| 1947                                     | 118    | 142    | 157    | 151    | 154    | 148    | 188    | 176    | 181    | 203    | 199    | 171    | 166    | 244            | 045    |
| 1948                                     | 172    | 167    | 134    | 145    | 141    | 196    | 215    | 244    | 191    | 200    | 213    | 210    | 186    | 269            | 077    |
| 1949                                     | 191    | 170    | 111    | 128    | 132    | 170    | 188    | 191    | 208    | 116    | 155    | 146    | 159    | 246            | 055    |
| 1950                                     | 118    | 104    | 113    | 140    | 119    | 110    | 175    | 202    | 163    | 156    | 187    | 201    | 149    | 238            | 031    |
| 1951                                     | 198    | 185    | 196    | 203    | 188    | 225    | 225    | 242    | 209    | 183    | 197    | 200    | 204    | 266            | 144    |
| 1952                                     | 195    | 196    | 192    | 152    | 180    | 183    | 176    | 220    | 212    | 202    | 206    | 202    | 193    | 265            | 099    |
| 1953                                     | 214    | 205    | 176    | 163    | 132    | —      | 182    | 196    | 175    | 192    | 194    | 188    | —      | 242*           | 046*   |
| 1954                                     | 196    | 205    | 228    | 223    | 217    | 221    | 251    | 268    | 246    | 232    | 223    | 243    | 229    | 279            | 123    |
| 1955                                     | 228    | 194    | 186    | 193    | 205    | 214    | 235    | 226    | 198    | 200    | 216    | 215    | 209    | 257            | 137    |
| 1956                                     | 217    | 203    | 197    | 205    | 206    | 221    | 259    | 270    | 250    | 240    | 233    | 224    | 227    | 277            | 152    |
| Mean Density                             | 1.0166 | 1.0159 | 1.0158 | 1.0157 | 1.0150 | 1.0157 | 1.0191 | 1.0221 | 1.0202 | 1.0186 | 1.0178 | 1.0176 | —      | —              | —      |
| Salinity                                 | 22.7   | 21.8   | 21.7   | 21.6   | 20.6   | 21.6   | 26.0   | 29.9   | 27.5   | 25.4   | 25.4   | 24.3   | 24.1   | —              | —      |
| Max.                                     | 1.0252 | 1.0241 | 1.0282 | 1.0254 | 1.0264 | 1.0253 | 1.0277 | 1.0299 | 1.0295 | 1.0253 | 1.0247 | 1.0261 | 1.0299 | —              | —      |
| Mean Max.                                | 1.0214 | 1.0205 | 1.0211 | 1.0205 | 1.0203 | 1.0212 | 1.0232 | 1.0253 | 1.0235 | 1.0214 | 1.0218 | 1.0215 | —      | —              | —      |
| Mean Min.                                | 1.0106 | 1.0102 | 1.0093 | 1.0095 | 1.0090 | 1.0105 | 1.0142 | 1.0179 | 1.0166 | 1.0153 | 1.0143 | 1.0135 | —      | —              | —      |
| Min.                                     | 1.0022 | 1.0015 | 1.0011 | 1.0011 | 1.0021 | 1.0020 | 1.0038 | 1.0094 | 1.0058 | 1.0060 | 1.0020 | 1.0015 | 1.0011 | —              | —      |
| <b>BRAZOSPORT, FREEPORT HARBOR, TEX.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |
| 1955                                     | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —              | —      |
|  |        |        |        |        |        |        |        |        |        |        |        |        |        | 1.0267*1.0119* | —      |

|                | 1.0226 | 1.0214 | 1.0214 | 1.0227 | 195    | 243    | 271    | 276    | 255    | 250    | 236    | 213    | 1.0235 | 284     | 125     |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| ROCKPORT, TEX. |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
| 1948           | ---    | 1.0159 | 1.0161 | 1.0187 | 1.0193 | 1.0230 | 1.0259 | 1.0283 | 1.0217 | 1.0210 | 1.0221 | 1.0224 | ---    | 1.0305* | 1.0107* |
| 1949           | 1.0225 | 210    | 194    | 182    | 150    | 184    | 196    | 210    | 226    | 175    | 178    | 164    | 1.0191 | 252     | 129     |
| 1950           | 158    | 168    | 170    | 182    | 192    | 209    | 209    | 288    | 260    | 251    | 261    | 223    | ---    | 301*    | 144*    |
| 1951           | 252    | 242    | 242    | 250    | 254    | 254    | 292    | 299    | 269    | 238    | 232    | 223    | ---    | 315*    | 214*    |
| 1952           | 224    | 231    | 228    | 236    | 247    | 258    | 264    | 279    | 243    | 185    | 187    | 182    | 230    | 298     | 171     |
| 1953           | 200    | 198    | 167    | 189    | 197    | 213    | 248    | 276    | 178    | 167    | 152    | 169    | 196    | 292     | 109     |
| 1954           | 174    | 194    | 207    | 218    | 231    | 247    | 279    | 298    | 279    | 279    | 279    | 279    | 279    | 305*    | 155*    |
| Mean Density   | 1.0206 | 1.0200 | 1.0196 | 1.0206 | 1.0209 | 1.0224 | 1.0256 | 1.0276 | 1.0232 | 1.0204 | 1.0205 | 1.0192 | 1.0217 | ---     | 1.0217  |
| Mean Salinity  | 28.0   | 27.2   | 26.7   | 28.0   | 28.4   | 30.3   | 34.5   | 37.1   | 31.4   | 27.7   | 27.8   | 26.1   | 29.4   | 29.4    | 29.4    |
| Max. Mean Max. | 1.0265 | 1.0271 | 1.0251 | 1.0265 | 1.0276 | 1.0272 | 1.0303 | 1.0312 | 1.0315 | 1.0271 | 1.0272 | 1.0242 | 1.0315 | ---     | 1.0315  |
| Mean Min.      | 1.0222 | 1.0225 | 1.0212 | 1.0228 | 1.0226 | 1.0248 | 1.0277 | 1.0295 | 1.0273 | 1.0229 | 1.0224 | 1.0240 | 1.0240 | ---     | 1.0240  |
| Min.           | 1.0190 | 1.0182 | 1.0180 | 1.0192 | 1.0195 | 1.0201 | 1.0201 | 1.0226 | 1.0256 | 1.0186 | 1.0182 | 1.0192 | 1.0171 | 1.0171  | 1.0171  |
| 1944           | ---    | ---    | ---    | 1.0254 | 1.0246 | 1.0247 | 1.0276 | 1.0266 | 1.0119 | 1.0215 | 1.0248 | 1.0252 | ---    | 1.0290* | 1.0040* |
| 1945           | 1.0244 | 1.0230 | 1.0245 | 248    | 240    | 271    | 284    | 274    | 216    | 267    | 273    | 1.0256 | 300    | 092     | 092     |
| 1946           | 243    | 239    | 233    | 257    | 247    | 239    | 278    | 284    | 272    | 216    | 238    | 234    | 248    | 297     | 176     |
| 1947           | 234    | 236    | 237    | 245    | 247    | 256    | 282    | 248    | 263    | 253    | 270    | 244    | 251    | 293     | 195     |
| 1948           | 252    | 235    | 233    | 229    | 241    | 272    | 274    | 283    | 273    | 252    | 229    | 248    | 254    | 201*    | 195*    |
| 1949           | ---    | ---    | ---    | 229    | 241    | 266    | 268    | 272    | 252    | 229    | 248    | 254    | 254    | 279*    | 137*    |
| 1950           | 242    | 241    | 233    | 246    | 267    | 220    | 275    | 279    | 271    | 244    | 275    | 272    | 255    | 310     | 145     |
| 1951           | 267    | 258    | 250    | 264    | 262    | 262    | 281    | 279    | 260    | 254    | 264    | 261    | 264    | 291     | 184     |
| 1952           | 254    | 263    | 262    | 266    | 276    | 280    | 282    | 283    | 275    | 267    | 277    | 266    | 271    | 295     | 238     |
| 1953           | 274    | 276    | 264    | 258    | 252    | 270    | 280    | 272    | 244    | 254    | 244    | 261    | 262    | 296     | 177     |
| 1954           | 252    | 257    | 268    | 270    | 279    | 279    | 276    | 278    | 278    | 223    | 250    | 250    | 250    | 289*    | 131*    |
| 1955           | ---    | 267    | 260    | 263    | 275    | 279    | 271    | 277    | 216    | 234    | 253    | 242    | 242    | 288*    | 147*    |
| 1956           | 250    | 258    | 259    | 242    | 259    | 279    | 278    | 280    | 277    | 281    | 279    | 274    | 268    | 296     | 187     |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                   | Jan.                                 | Feb.                                 | Mar.                                 | Apr.                                 | May                                  | June                                 | July                                 | Aug.                                 | Sept.                                | Oct.                                 | Nov.                                 | Dec.                                 | Means                                | Max.          | Min.   |  |
|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------|--|--|
| <b>PORT ISABEL, TEX. -Continued</b>    |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |               |  |  |
| <b>VERACRUZ, MEXICO</b>                |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |               |  |  |
| Mean<br>Density<br>Salinity            | 1.0251<br>33.8                       | 1.0251<br>33.8                       | 1.0249<br>33.6                       | 1.0254<br>34.2                       | 1.0257<br>34.6                       | 1.0263<br>35.4                       | 1.0277<br>37.2                       | 1.0276<br>37.1                       | 1.0252<br>34.0                       | 1.0240<br>32.4                       | 1.0259<br>34.9                       | 1.0258<br>34.8                       | 1.0257<br>34.6                       |               |  |  |
| Max.<br>Mean Max.<br>Mean Min.<br>Min. | 1.0284<br>1.0264<br>1.0236<br>1.0210 | 1.0283<br>1.0261<br>1.0230<br>1.0146 | 1.0280<br>1.0267<br>1.0238<br>1.0216 | 1.0286<br>1.0272<br>1.0234<br>1.0215 | 1.0289<br>1.0280<br>1.0265<br>1.0243 | 1.0296<br>1.0287<br>1.0239<br>1.0089 | 1.0301<br>1.0287<br>1.0239<br>1.0040 | 1.0299<br>1.0285<br>1.0206<br>1.0092 | 1.0293<br>1.0285<br>1.0195<br>1.0221 | 1.0310<br>1.0276<br>1.0244<br>1.0223 | 1.0300<br>1.0273<br>1.0244<br>1.0040 | 1.0310<br>1.0273<br>1.0244<br>1.0040 |                                      |               |  |  |
| 1953<br>1954                           | 1.0266<br>269                        | 1.0269<br>268                        | 1.0270<br>268                        | 1.0265<br>267                        | 1.0267<br>266                        | 1.0264<br>256                        | 1.0252<br>226                        | 1.0244<br>244                        | 1.0262<br>251                        | 1.0259<br>249                        | 1.0266<br>262                        | 1.0262<br>261                        | 1.0295<br>257                        | 1.0237<br>274 | 178  |  |
| 1955<br>1956                           | 266<br>262                           | 270<br>264                           | 270<br>267                           | 273<br>269                           | 271<br>266                           | 272<br>253                           | 218<br>230                           | 234<br>242                           | 240<br>250                           | 242<br>258                           | 260<br>265                           | 261<br>267                           | 256<br>258                           | 277<br>274    | 132<br>200   |  |
| Mean<br>Density<br>Salinity            | 1.0266<br>35.8                       | 1.0268<br>36.0                       | 1.0269<br>36.2                       | 1.0268<br>36.0                       | 1.0268<br>36.0                       | 1.0261<br>35.1                       | 1.0232<br>31.4                       | 1.0241<br>32.5                       | 1.0251<br>33.8                       | 1.0253<br>34.1                       | 1.0262<br>35.3                       | 1.0264<br>35.5                       | 1.0259<br>34.9                       |               |  |  |
| Max.<br>Mean Max.<br>Mean Min.<br>Min. | 1.0271<br>1.0269<br>1.0261<br>1.0255 | 1.0274<br>1.0271<br>1.0263<br>1.0259 | 1.0284<br>1.0276<br>1.0263<br>1.0259 | 1.0295<br>1.0279<br>1.0261<br>1.0248 | 1.0293<br>1.0273<br>1.0253<br>1.0248 | 1.0276<br>1.0273<br>1.0257<br>1.0240 | 1.0273<br>1.0257<br>1.0253<br>1.0240 | 1.0257<br>1.0274<br>1.0267<br>1.0132 | 1.0274<br>1.0272<br>1.0264<br>1.0223 | 1.0269<br>1.0272<br>1.0264<br>1.0223 | 1.0272<br>1.0271<br>1.0270<br>1.0229 | 1.0271<br>1.0270<br>1.0270<br>1.0132 | 1.0295<br>1.0295<br>1.0295<br>1.0132 |               |  |  |
| 1946<br>1947<br>1948<br>1949           | ---                                  | ---                                  | ---                                  | ---                                  | ---                                  | ---                                  | ---                                  | ---                                  | 1.0017<br>1.0018<br>1.0013<br>1.0014 | 1.0011<br>1.0018<br>0.999<br>0.981   | 1.0008<br>0.9996<br>0.9998<br>0.9994 | 1.0007<br>0.9998<br>0.9998<br>0.9994 | 1.0004<br>0.9998<br>0.9998<br>0.9994 | ---           | 1.0033*<br>252<br>0.9989<br>264<br>0.9991<br>273<br>0.9992 |  |

**COATZACOALCOS (Puerto Mexico), MEXICO**

|      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1946 | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    |
| 1947 | 1.0009 | 1.0018 | 1.0039 | 1.0070 | 1.0065 | 1.0070 | 1.0018 | 0.9996 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 |
| 1948 | 0.99   | 0.13   | 0.37   | 0.92   | 119    | 0.99   | 0.01   | 0.25   | 1.0027 | 0.9998 | 0.06   | 0.13   | 0.37   | 0.252  | 0.9989 |
| 1949 | 0.14   | 0.37   | 0.52   | 135    | 163    | 150    | 0.94   | 0.81   | 0.09   | 1.0004 | 0.14   | 0.48   | 0.67   | 264    | 0.9991 |

|                       |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 1950                  | 006    | 028    | 048    | 070    | 143    | 074    | 005    | 000    | 003    | 0.9998 | 014    | 029    | 035    | 269     | 0.9993  |
| 1951                  | 035    | 028    | 100    | 104    | 142    | 110    | 012    | 006    | 0.9996 | 0.9996 | 0.9999 | 009    | 045    | 268     | 0.9991  |
| 1952                  | 020    | 060    | 099    | 094    | 067    | 004    | 0.9995 | 0.9994 | 0.9994 | 0.9995 | 1.0005 | 014    | 028    | 263     | 0.9989  |
| 1953                  | 050    | 064    | 056    | 143    | 190    | 116    | 1.0029 | 1.0005 | 1.0002 | 0.9995 | 001    | 020    | 056    | 270     | 0.9991  |
| 1954                  | 006    | 021    | 024    | 043    | 065    | 031    | 0.9995 | 001    | 0.9996 | —      | 006    | —      | —      | 284*    | 0.9992* |
| 1955                  | —      | —      | 070    | 117    | 159    | 126    | 1.0019 | 003    | 0.9994 | 0.9996 | 002    | 004    | —      | 268*    | 0.9991* |
| 1956                  | 031    | 049    | 067    | 109    | 062    | 0.9999 | 1.0000 | 0.9998 | 0.9998 | 0.9998 | 009    | 003    | 027    | 260     | 0.9991  |
| Mean Density Salinity | 1.0020 | 1.0035 | 1.0059 | 1.0098 | 1.0118 | 1.0078 | 1.0017 | 1.0012 | 1.0002 | 0.9999 | 1.0007 | 1.0016 | 1.0038 | —       | —       |
| Max.                  | 1.0252 | 1.0186 | 1.0268 | 1.0273 | 1.0284 | 1.0268 | 1.0200 | 1.0174 | 1.0055 | 1.0029 | 1.0076 | 1.0194 | —      | —       | —       |
| Mean Max.             | 1.0090 | 1.0103 | 1.0179 | 1.0233 | 1.0238 | 1.0197 | 1.0064 | 1.0037 | 1.0014 | 1.0008 | 1.0030 | 1.0062 | 1.0284 | 1.0284* | 1.0284* |
| Mean Min.             | 0.9998 | 1.0009 | 1.0019 | 1.0035 | 1.0049 | 1.0018 | 1.0000 | 0.9998 | 0.9995 | 0.9992 | 0.9994 | 0.9995 | 0.9989 | 0.9991  | 0.9991  |
| Min.                  | 0.9991 | 1.0000 | 1.0000 | 1.0002 | 0.9994 | 0.9993 | 0.9991 | 0.9990 | 0.9989 | 0.9989 | 0.9991 | 0.9991 | 0.9989 | 0.9989  | 0.9989  |
| Mean Density Salinity | 3.7    | 5.6    | 8.8    | 13.9   | 16.5   | 11.2   | 3.3    | 2.6    | 1.3    | 0.9    | 2.0    | 3.0    | 6.0    | —       | —       |
| Max.                  | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —       | —       |
| Mean Max.             | 1.0272 | 1.0275 | 1.0283 | 1.0289 | 1.0286 | 1.0285 | 1.0283 | 1.0280 | 1.0277 | 1.0277 | 1.0276 | 1.0271 | 1.0278 | 294     | 260     |
| Mean Min.             | 1948   | 275    | 279    | 282    | 282    | 276    | 274    | 273    | 274    | 274    | 270    | 270    | 275    | 288     | 264     |
| Min.                  | 1949   | 269    | 268    | 266    | 282    | 284    | 279    | 279    | 281    | 276    | 270    | 270    | 275    | 289     | 261     |
| 1950                  | 277    | 277    | 279    | —      | 278    | 275    | 276    | 279    | 275    | 279    | 270    | 270    | 275    | 290*    | 267*    |
| 1951                  | —      | —      | 281    | 280    | 278    | 278    | 274    | 269    | 267    | 270    | 272    | 271    | 271    | 285*    | 265*    |
| 1952                  | 281    | 279    | 282    | 285    | 282    | 271    | 269    | 268    | 268    | 267    | 262    | 268    | 273    | 290     | 248     |
| 1953                  | 272    | 273    | 280    | 282    | 280    | 276    | 274    | 273    | 269    | 265    | 265    | 267    | 273    | 287     | 260     |
| 1954                  | 271    | 276    | 279    | 286    | 280    | 273    | 271    | —      | —      | —      | 279    | 273    | —      | 292*    | 263*    |
| 1955                  | 276    | 274    | 274    | 279    | 279    | 273    | 272    | 269    | 269    | 269    | 268    | 273    | 294    | 262     | —       |
| 1956                  | 267    | 276    | 282    | 282    | 281    | 277    | 274    | —      | —      | 274    | 270    | 269    | —      | 289*    | 261*    |
| Mean Density Salinity | 36.7   | 36.8   | 37.3   | 37.9   | 37.9   | 37.3   | 37.0   | 36.8   | 36.6   | 36.4   | 36.6   | 36.3   | 37.0   | —       | —       |
| Max.                  | 1.0273 | 1.0274 | 1.0278 | 1.0282 | 1.0281 | 1.0278 | 1.0275 | 1.0274 | 1.0272 | 1.0271 | 1.0272 | 1.0270 | 1.0275 | —       | —       |
| Mean Max.             | 1.0286 | 1.0283 | 1.0291 | 1.0293 | 1.0294 | 1.0294 | 1.0287 | 1.0288 | 1.0280 | 1.0286 | 1.0286 | 1.0280 | 1.0280 | 1.0280  | 1.0280  |
| Mean Min.             | 1.0277 | 1.0278 | 1.0283 | 1.0288 | 1.0286 | 1.0284 | 1.0280 | 1.0279 | 1.0277 | 1.0276 | 1.0277 | 1.0276 | 1.0277 | 1.0276  | 1.0276  |
| Min.                  | 1.0268 | 1.0268 | 1.0272 | 1.0276 | 1.0277 | 1.0273 | 1.0271 | 1.0270 | 1.0267 | 1.0265 | 1.0265 | 1.0264 | 1.0264 | 1.0264  | 1.0264  |
| 1.0263                | 1.0261 | 1.0261 | 1.0263 | 1.0268 | 1.0271 | 1.0267 | 1.0266 | 1.0263 | 1.0261 | 1.0252 | 1.0248 | 1.0251 | 1.0251 | 1.0251  | 1.0248  |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                             | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means   | Max.    | Min.    |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| <b>PUERTO CORTÉS, HONDURAS</b>   |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
|                                  |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| 1949                             | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0222  | 1.0219  | 1.0228  |
| 1950                             | 1.0236 | 1.0235 | 1.0254 | 1.0257 | 1.0264 | 1.0240 | 1.0220 | 1.0196 | 1.0204 | 1.0243 | 1.0222 | 1.0228 | ---     | 1.0264* | 1.0142* |
| 1951                             | 249    | 253    | 257    | 258    | 258    | 258    | 258    | 258    | 258    | 258    | 258    | 258    | 209     | 1.0224  | 271     |
| 1952                             | ---    | ---    | ---    | 253    | 248    | 235    | 204    | 192    | 181    | 135    | 185    | 178    | ---     | 272*    | 216*    |
| 1953                             | 230    | ---    | 261    | 260    | 265    | 226    | 223    | 205    | 196    | 193    | 180    | 221    | ---     | 264*    | 050*    |
| 1954                             | 206    | 227    | 256    | 256    | 241    | 202    | 190    | 198    | 159    | 139    | 172    | 195    | 203     | 271     | 040     |
| 1955                             | ---    | ---    | 260    | 264    | 262    | 238    | 213    | 200    | 195    | 148    | 157    | ---    | 272*    | 054*    | 045*    |
| 1956                             | ---    | 241    | 247    | 255    | 256    | 189    | 211    | 200    | 184    | 153    | 150    | 187    | ---     | 262*    | 045*    |
| Mean<br>Density                  | 1.0230 | 1.0239 | 1.0255 | 1.0257 | 1.0256 | 1.0226 | 1.0214 | 1.0201 | 1.0187 | 1.0173 | 1.0178 | 1.0196 | 1.0218  |         |         |
| Salinity                         | 31.1   | 32.3   | 34.4   | 34.6   | 34.5   | 30.6   | 29.0   | 27.3   | 25.5   | 23.7   | 24.3   | 26.7   | 29.5    |         |         |
| Max.                             | 1.0269 | 1.0272 | 1.0271 | 1.0272 | 1.0278 | 1.0269 | 1.0266 | 1.0264 | 1.0243 | 1.0253 | 1.0264 | 1.0262 | 1.0278  |         |         |
| Mean Max.                        | 1.0261 | 1.0260 | 1.0266 | 1.0267 | 1.0266 | 1.0260 | 1.0257 | 1.0251 | 1.0229 | 1.0229 | 1.0237 | 1.0247 |         |         |         |
| Mean Min.                        | 1.0172 | 1.0209 | 1.0234 | 1.0235 | 1.0240 | 1.0151 | 1.0140 | 1.0140 | 1.0137 | 1.0122 | 1.0093 | 1.0089 | 1.0100  |         |         |
| Min.                             | 1.0146 | 1.0190 | 1.0217 | 1.0216 | 1.0219 | 1.0085 | 1.0104 | 1.0118 | 1.0040 | 1.0045 | 1.0046 | 1.0054 | 1.0040  |         |         |
| <b>PUERTO CASTILLA, HONDURAS</b> |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
|                                  |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| 1955                             | 1.0251 | 1.0272 | 1.0276 | 1.0275 | 1.0273 | 1.0276 | 1.0271 | 1.0274 | 1.0263 | 1.0247 | 1.0234 | 1.0263 | 1.0283* | 1.0211* |         |
| 1956                             | ---    | ---    | ---    | ---    | ---    | 1.0276 | 1.0273 | 269    | 1.0271 | 1.0274 | 267    | 245    | 223     | 257     | 196     |
| 1949                             | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0256 | 1.0244 | 1.0246 | ---     | 1.0266* | 1.0224* |
| 1950                             | ---    | 1.0249 | 1.0262 | 1.0261 | ---    | ---    | ---    | 1.0251 | 249    | 229    | 238    | ---    | 269*    | 222*    |         |
| 1951                             | 1.0243 | 244    | 1.0256 | 263    | 264    | ---    | ---    | 246    | 248    | ---    | ---    | 270*   | 225*    |         |         |
| 1952                             | ---    | ---    | 266    | 265    | ---    | ---    | 1.0214 | 250    | 243    | ---    | ---    | 275*   | 174*    |         |         |
| 1953                             | ---    | 259    | 259    | 231    | 1.0210 | 1.0173 | 238    | 238    | 244    | 235    | 235    | 232    | 241     | 261*    | 197*    |
| 1954                             | 238    | 255    | 255    | 259    | 259    | 259    | 259    | 259    | 259    | 259    | 259    | 259    | 270     | 270     | 000     |

|              |        |        |        |        |        |        |        |        |        |        |        |        |        |     |     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|-----|
| 1955         | 257    | 247    | 263    | 272    | 269    | 271    | 219    | 234    | 253    | 245    | 217    | 229    | 248    | 284 | 078 |
| Mean Density | 1.0246 | 1.0249 | 1.0259 | 1.0264 | 1.0258 | 1.0240 | 1.0196 | 1.0229 | 1.0246 | 1.0246 | 1.0231 | 1.0238 | 1.0242 |     |     |
| Salinity     | 33.2   | 33.6   | 34.9   | 35.5   | 34.8   | 32.4   | 26.7   | 31.0   | 33.2   | 33.2   | 31.2   | 32.1   | 32.7   |     |     |
| Max.         | 1.0280 | 1.0262 | 1.0276 | 1.0284 | 1.0280 | 1.0277 | 1.0260 | 1.0268 | 1.0274 | 1.0273 | 1.0266 | 1.0262 |        |     |     |
| Mean Max.    | 1.0264 | 1.0260 | 1.0270 | 1.0273 | 1.0272 | 1.0264 | 1.0256 | 1.0260 | 1.0262 | 1.0261 | 1.0250 | 1.0256 |        |     |     |
| Mean Min.    | 1.0226 | 1.0233 | 1.0239 | 1.0255 | 1.0202 | 1.0138 | 1.0103 | 1.0149 | 1.0220 | 1.0218 | 1.0209 | 1.0200 |        |     |     |
| Min.         | 1.0217 | 1.0225 | 1.0230 | 1.0251 | 1.0000 | 1.0017 | 1.0028 | 1.0078 | 1.0197 | 1.0182 | 1.0179 | 1.0116 | 1.0000 |     |     |

### PUERTO LIMÓN, COSTA RICA

|           |        |        |        |        |        |        |        |        |        |        |        |        |        |                |      |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|------|
| 1948      | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0258 | 1.0239 | 1.0253 | ---    | 1.0275*1.0220* |      |
| 1949      | 1.0249 | 1.0264 | 1.0266 | 1.0264 | 1.0250 | 1.0253 | 1.0256 | 1.0259 | 261    | 221    | 201    | 1.0249 | 275    | 112            |      |
| 1950      | 253    | 237    | 255    | 259    | 205    | 244    | 220    | 236    | 258    | 255    | 229    | 208    | 238    | 271            | 088  |
| 1951      | 225    | 240    | 245    | 262    | 257    | 250    | 250    | 255    | 261    | 249    | 245    | 215    | ---    | 273*           | 136* |
| 1952      | ---    | ---    | ---    | ---    | ---    | 267    | 267    | 262    | 261    | 249    | 245    | 215    | ---    | 273*           | 125* |
| ---       | ---    | ---    | ---    | ---    | ---    | 249    | 256    | 249    | 258    | 262    | 258    | 224    | 230    | 279*           | 126* |
| 1955      | 224    | 254    | 258    | 254    | 232    | 248    | 225    | 240    | 247    | 254    | 253    | 229    | 243    | 272            | 144  |
| 1956      | Mean   | 1.0238 | 1.0249 | 1.0255 | 1.0259 | 1.0242 | 1.0251 | 1.0239 | 1.0252 | 1.0258 | 1.0256 | 1.0235 | 1.0223 | 1.0246         |      |
| Density   | 32.1   | 33.6   | 34.6   | 34.9   | 32.7   | 33.8   | 33.8   | 32.3   | 34.0   | 34.8   | 34.5   | 31.8   | 30.2   | 33.2           |      |
| Salinity  | 32.1   | 33.6   | 34.6   | 34.9   | 32.7   | 33.8   | 33.8   | 32.3   | 34.0   | 34.8   | 34.5   | 31.8   | 30.2   | 33.2           |      |
| Max.      | 1.0270 | 1.0272 | 1.0274 | 1.0274 | 1.0279 | 1.0275 | 1.0275 | 1.0279 | 1.0275 | 1.0273 | 1.0273 | 1.0275 |        | 1.0279         |      |
| Mean Max. | 1.0263 | 1.0266 | 1.0269 | 1.0271 | 1.0271 | 1.0268 | 1.0268 | 1.0263 | 1.0267 | 1.0270 | 1.0270 | 1.0264 | 1.0259 |                |      |
| Mean Min. | 1.0154 | 1.0185 | 1.0213 | 1.0203 | 1.0181 | 1.0219 | 1.0185 | 1.0219 | 1.0214 | 1.0242 | 1.0210 | 1.0159 | 1.0148 |                |      |
| Min.      | 1.0122 | 1.0102 | 1.0156 | 1.0184 | 1.0090 | 1.0181 | 1.0123 | 1.0128 | 1.0218 | 1.0130 | 1.0112 | 1.0088 | 1.0088 |                |      |

### CRISTOBAL, CANAL ZONE

|      |        |        |        |        |        |        |        |     |        |        |        |        |        |      |                |  |
|------|--------|--------|--------|--------|--------|--------|--------|-----|--------|--------|--------|--------|--------|------|----------------|--|
| 1949 | ---    | ---    | ---    | ---    | ---    | ---    | ---    | --- | 1.0206 | 1.0216 | 1.0223 | 1.0190 | 1.0187 | ---  | 1.0245*1.0131* |  |
| 1950 | 1.0212 | 1.0204 | 1.0203 | 1.0207 | 1.0211 | 1.0226 | 1.0200 | 201 | ---    | 237    | 192    | ---    | ---    | 246* | 153*           |  |
| 1951 | ---    | 212    | 209    | 212    | 212    | 214    | 214    | 204 | ---    | 208    | 202    | ---    | ---    | 234* | 167*           |  |
| 1952 | 214    | 223    | 224    | 217    | ---    | 230    | 216    | 210 | 230    | 234    | 210    | 200    | ---    | 253* | 173*           |  |
| 1953 | 200    | 199    | 205    | 217    | 238    | 234    | 203    | 201 | 206    | 219    | 205    | ---    | ---    | 257* | 152*           |  |
| 1954 | 215    | 206    | 211    | 219    | 225    | 223    | 201    | 198 | 232    | 242    | 209    | 188    | 188    | 272  | 146            |  |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year  | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.            | Min. |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------|------|
| <b>CRISTOBAL, CANAL ZONE -Continued</b>     |        |        |        |        |        |        |        |        |        |        |        |        |        |                 |      |
|   |        |        |        |        |        |        |        |        |        |        |        |        |        |                 |      |
| Mean Density Salinity                       | 1.0210 | 1.0209 | 1.0210 | 1.0214 | 1.0222 | 1.0225 | 1.0205 | 1.0203 | 1.0221 | 1.0231 | 1.0202 | 1.0194 | 1.0212 |                 |      |
| 28.5  | 28.4   | 28.5   | 29.0   | 30.1   | 30.4   | 27.8   | 27.6   | 29.9   | 31.2   | 27.5   | 26.4   | 28.8   |        |                 |      |
| Max.  | 1.0229 | 1.0233 | 1.0240 | 1.0239 | 1.0257 | 1.0251 | 1.0236 | 1.0241 | 1.0253 | 1.0272 | 1.0237 | 1.0229 | 1.0272 |                 |      |
| Mean Max.                                   | 1.0224 | 1.0219 | 1.0223 | 1.0230 | 1.0241 | 1.0244 | 1.0222 | 1.0228 | 1.0244 | 1.0251 | 1.0230 | 1.0221 |        |                 |      |
| Mean Min.                                   | 1.0195 | 1.0196 | 1.0191 | 1.0190 | 1.0193 | 1.0172 | 1.0200 | 1.0174 | 1.0196 | 1.0197 | 1.0166 | 1.0155 |        |                 |      |
| Min.  | 1.0187 | 1.0186 | 1.0184 | 1.0180 | 1.0179 | 1.0196 | 1.0152 | 1.0159 | 1.0186 | 1.0177 | 1.0131 | 1.0135 | 1.0131 |                 |      |
| <b>FERRY REACH, ST. GEORGES I., BERMUDA</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |                 |      |
|   |        |        |        |        |        |        |        |        |        |        |        |        |        |                 |      |
| 1954  | ---    | ---    | 1.0271 | 1.0274 | 1.0274 | 1.0272 | 1.0273 | 1.0271 | 1.0272 | 1.0272 | 1.0270 | 1.0270 | ---    | 1.02280*1.0251* |      |
| 1955  | 1.0271 | 1.0272 | 274    | 273    | 273    | 271    | 272    | 272    | 269    | 270    | 271    | 271    | 1.0272 | 276             | 263  |
| 1956  | 271    | 272    | 272    | 273    | 274    | 275    | 274    | 273    | 272    | 269    | 271    | 271    | 272    | 277             | 264  |
| Mean Density Salinity                       | 1.0271 | 1.0272 | 1.0272 | 1.0273 | 1.0274 | 1.0274 | 1.0273 | 1.0273 | 1.0272 | 1.0276 | 1.0270 | 1.0271 | 1.0272 |                 |      |
| 36.4  | 36.6   | 36.6   | 36.7   | 36.8   | 36.7   | 36.7   | 36.7   | 36.7   | 36.6   | 36.6   | 36.3   | 36.4   |        |                 |      |
| Max.  | 1.0275 | 1.0275 | 1.0276 | 1.0276 | 1.0280 | 1.0277 | 1.0277 | 1.0276 | 1.0274 | 1.0275 | 1.0273 | 1.0274 | 1.0280 |                 |      |
| Mean Max.                                   | 1.0274 | 1.0275 | 1.0275 | 1.0275 | 1.0275 | 1.0276 | 1.0276 | 1.0275 | 1.0275 | 1.0273 | 1.0273 | 1.0273 |        |                 |      |
| Mean Min.                                   | 1.0268 | 1.0270 | 1.0268 | 1.0271 | 1.0271 | 1.0263 | 1.0267 | 1.0267 | 1.0269 | 1.0267 | 1.0266 | 1.0269 |        |                 |      |
| Min.  | 1.0268 | 1.0270 | 1.0265 | 1.0269 | 1.0268 | 1.0251 | 1.0264 | 1.0268 | 1.0265 | 1.0263 | 1.0266 | 1.0268 | 1.0251 |                 |      |
| <b>HABANA, CUBA</b>                         |        |        |        |        |        |        |        |        |        |        |        |        |        |                 |      |
|   |        |        |        |        |        |        |        |        |        |        |        |        |        |                 |      |
| 1947  | ---    | ---    | 1.0254 | 1.0255 | 1.0255 | 1.0255 | 1.0252 | 1.0260 | 1.0243 | 1.0233 | 1.0252 | 1.0254 | ---    | 1.0269*1.0185*  |      |
| 1948  | 1.0250 | 1.0258 | 260    | 255    | 254    | 261    | 261    | 258    | 262    | 272    | 255    | 257    | 1.0259 | 303             | 225  |
| 1949  | 260    | 263    | 262    | 258    | 264    | 252    | 255    | 256    | 258    | 253    | 257    | 258    | 258    | 279             | 190  |

|                     |        |        |        |        |        |        |        |        |        |        |        |        |                |             |       |
|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|-------------|-------|
| 1950                | 264    | 260    | 261    | 260    | 258    | 262    | 261    | 250    | 242    | 229    | 249    | 256    | 254            | 272         | 137   |
| 1951                | 255    | 256    | 260    | 250    | 261    | 263    | 242    | 246    | 254    | 245    | 261    | 260    | 254            | 283         | 156   |
| 1952                | 267    | 260    | 265    | 268    | 250    | 262    | 264    | 256    | 257    | 226    | 252    | 253    | 257            | 284         | 154   |
| 1953                | 248    | 262    | 263    | 263    | 259    | 234    | 248    | 255    | 232    | 212    | 241    | 256    | 248            | 273         | 122   |
| 1954                | 253    | 256    | 252    | 258    | 231    | 242    | 247    | 256    | 247    | 247    | 251    | 256    | 250            | 272         | 160   |
| 1955                | 260    | 258    | 261    | 264    | 259    | 256    | 258    | 256    | 251    | 248    | 256    | 249    | 256            | 269         | 221   |
| 1956                | 255    | 260    | 257    | 258    | 252    | 252    | 253    | 253    | 245    | 242    | 249    | 257    | 253            | 265         | 168   |
| Mean Density        | 1.0257 | 1.0259 | 1.0260 | 1.0259 | 1.0254 | 1.0254 | 1.0254 | 1.0255 | 1.0249 | 1.0241 | 1.0252 | 1.0256 | 1.0254         |             |       |
| Mean Salinity       | 34.6   | 34.9   | 35.0   | 34.9   | 34.2   | 34.2   | 34.2   | 34.2   | 34.4   | 33.6   | 32.5   | 34.0   | 34.5           | 34.2        |       |
| Max.                | 1.0278 | 1.0278 | 1.0279 | 1.0284 | 1.0276 | 1.0281 | 1.0283 | 1.0277 | 1.0287 | 1.0303 | 1.0281 | 1.0272 |                |             |       |
| Mean Max.           | 1.0270 | 1.0270 | 1.0271 | 1.0269 | 1.0269 | 1.0268 | 1.0268 | 1.0269 | 1.0267 | 1.0267 | 1.0266 | 1.0268 | 1.0268         |             |       |
| Mean Min.           | 1.0226 | 1.0240 | 1.0238 | 1.0232 | 1.0216 | 1.0218 | 1.0222 | 1.0221 | 1.0221 | 1.0203 | 1.0183 | 1.0214 | 1.0234         |             |       |
| Min.                | 1.0132 | 1.0226 | 1.0221 | 1.0175 | 1.0154 | 1.0124 | 1.0168 | 1.0163 | 1.0133 | 1.0122 | 1.0151 | 1.0187 |                | 1.0122      |       |
| <b>GIBARA, CUBA</b> |        |        |        |        |        |        |        |        |        |        |        |        |                |             |       |
| 1949                | ---    | ---    | ---    | 1.0275 | ---    | ---    | ---    | ---    | ---    | 1.0229 | 1.0235 | ---    | 1.0282*1.0037* |             |       |
| 1950                | 1.0236 | 1.0251 | ---    | ---    | ---    | 1.0260 | 1.0264 | 1.0262 | 1.0243 | 1.0236 | 202    | 248    | ---            | 273*0.9993* |       |
| 1951                | 259    | 259    | 1.0262 | ---    | ---    | ---    | ---    | ---    | 251    | 231    | 254    | ---    | 273*1.0154*    |             |       |
| 1952                | 260    | ---    | 265    | ---    | 268    | 1.0270 | 268    | 249    | 266    | 261    | 245    | 234    | 250            | 293*        | 0111* |
| 1953                | 261    | 262    | 265    | 261    | 262    | 250    | 257    | 258    | 261    | 262    | 258    | 255    | 275            | 198         |       |
| 1954                | 265    | 256    | 259    | 261    | 262    | 250    | 258    | 260    | 262    | 254    | 239    | 243    | 256            | 274         | 146   |
| 1955                | 257    | 245    | 253    | 264    | 264    | 263    | 267    | 271    | 253    | 250    | 257    | 263    | 259            | 280         | 190   |
| 1956                | 265    | 268    | 264    | 266    | 270    | 260    | 261    | 269    | 273    | 270    | 244    | 245    | 263            | 281         | 101   |
| Mean Density        | 1.0258 | 1.0257 | 1.0261 | 1.0267 | 1.0266 | 1.0260 | 1.0259 | 1.0265 | 1.0259 | 1.0237 | 1.0249 | 1.0258 |                |             |       |
| Mean Salinity       | 34.8   | 34.6   | 35.1   | 35.9   | 35.8   | 35.0   | 34.9   | 35.7   | 34.9   | 34.1   | 32.0   | 33.6   | 34.8           |             |       |
| Max.                | 1.0273 | 1.0273 | 1.0281 | 1.0281 | 1.0273 | 1.0275 | 1.0293 | 1.0276 | 1.0278 | 1.0282 | 1.0275 |        | 1.0293         |             |       |
| Mean Max.           | 1.0270 | 1.0268 | 1.0271 | 1.0273 | 1.0275 | 1.0270 | 1.0272 | 1.0276 | 1.0270 | 1.0271 | 1.0269 | 1.0268 |                |             |       |
| Mean Min.           | 1.0237 | 1.0230 | 1.0245 | 1.0259 | 1.0255 | 1.0237 | 1.0233 | 1.0246 | 1.0226 | 1.0157 | 1.0116 | 1.0204 |                |             |       |
| Min.                | 1.0206 | 1.0195 | 1.0230 | 1.0247 | 1.0238 | 1.0219 | 1.0187 | 1.0227 | 1.0189 | 1.0011 | 0.9993 | 1.0150 | 0.9993         |             |       |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                        | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.           | Min. |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|------|
| <b>GUANTÁNAMO BAY, CUBA</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |                |      |
| 1947                        | ---    | ---    | ---    | ---    | 1.0270 | 1.0268 | 1.0269 | 1.0273 | 1.0260 | 1.0262 | 1.0271 | 1.0270 | ---    | 1.0280*1.0203* |      |
| 1948                        | 1.0271 | 1.0272 | 1.0274 | 1.0277 | 270    | 219    | 271    | 274    | 266    | 260    | 265    | 266    | 1.0265 | 282            | 112  |
| 1949                        | 270    | 269    | 274    | 274    | 275    | 272    | 274    | 277    | 274    | 255    | 268    | 266    | 271    | 283            | 205  |
| 1950                        | 269    | 273    | 275    | 276    | 278    | 279    | 277    | 277    | 269    | 258    | 250    | 264    | 270    | 285            | 233  |
| 1951                        | 269    | 273    | 276    | 281    | 273    | 274    | 278    | 277    | 277    | 274    | 275    | 274    | 275    | 291            | 252  |
| 1952                        | 276    | 280    | 281    | 280    | 276    | 271    | 275    | 278    | 274    | 278    | 276    | 277    | 277    | 291            | 245  |
| 1953                        | 274    | 278    | 280    | 282    | 281    | 274    | 274    | 274    | 273    | 263    | 270    | 271    | 274    | 292            | 238  |
| 1954                        | 270    | 272    | 270    | 274    | 263    | 269    | 273    | 275    | 248    | 257    | 258    | 264    | 266    | 281            | 156  |
| 1955                        | 267    | 272    | ---    | ---    | ---    | ---    | 273    | 271    | 266    | 231    | 261    | 264    | ---    | 277*           | 167* |
| 1956                        | ---    | 270    | 270    | 274    | 275    | 269    | 273    | 277    | 275    | 241    | 258    | 264    | ---    | 280*           | 147* |
| Mean<br>Density             | 1.0271 | 1.0273 | 1.0275 | 1.0277 | 1.0273 | 1.0266 | 1.0274 | 1.0275 | 1.0268 | 1.0258 | 1.0265 | 1.0268 | 1.0270 |                |      |
| Mean<br>Salinity            | 36.4   | 36.7   | 37.0   | 37.2   | 36.7   | 35.8   | 36.8   | 36.8   | 37.0   | 36.0   | 34.8   | 35.7   | 36.0   |                | 36.3 |
| Max.                        | 1.0282 | 1.0284 | 1.0288 | 1.0292 | 1.0291 | 1.0283 | 1.0283 | 1.0285 | 1.0288 | 1.0285 | 1.0282 | 1.0280 |        |                |      |
| Mean Max.                   | 1.0277 | 1.0278 | 1.0280 | 1.0284 | 1.0283 | 1.0275 | 1.0279 | 1.0280 | 1.0278 | 1.0274 | 1.0274 | 1.0274 |        |                |      |
| Mean Min.                   | 1.0265 | 1.0268 | 1.0269 | 1.0268 | 1.0258 | 1.0249 | 1.0266 | 1.0269 | 1.0246 | 1.0222 | 1.0253 | 1.0261 |        |                |      |
| Min.                        | 1.0261 | 1.0264 | 1.0255 | 1.0245 | 1.0211 | 1.0112 | 1.0261 | 1.0261 | 1.0156 | 1.0147 | 1.0230 | 1.0251 |        |                |      |
| <b>CASILDA, CUBA</b>        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |      |
| 1949                        | ---    | ---    | ---    | ---    | 1.0283 | ---    | 1.0272 | 1.0273 | 1.0259 | 1.0268 | 1.0280 | 1.0286 | ---    | 1.0290*1.0242* |      |
| 1950                        | 1.0284 | 1.0284 | 1.0285 | 1.0285 | 291    | 1.0293 | 290    | 291    | ---    | 263    | 279    | ---    | 301*   | 243*           |      |
| 1951                        | 282    | 285    | 286    | 287    | 288    | 290    | 284    | 287    | 282    | 216    | ---    | ---    | 299*   | 107*           |      |
| 1952                        | ---    | ---    | ---    | ---    | 281    | 278    | 268    | 266    | 265    | 259    | 265    | 279    | ---    | 287*           |      |
| 1953                        | 281    | 277    | 282    | 285    | 288    | 210    | 233    | 257    | 261    | 229    | 262    | 272    | 1.0261 | 295            | 107  |
| 1954                        | 277    | 276    | 279    | 286    | 284    | 260    | 271    | 276    | 267    | 258    | 269    | 276    | 273    | 294            | 251  |
| 1955                        | 278    | 276    | 279    | 284    | 281    | 257    | 255    | 252    | 249    | 254    | 263    | 270    | 266    | 292            | 219  |
| 1956                        | 273    | 276    | 279    | 281    | 282    | 276    | 279    | 278    | 280    | 280    | 280    | 278    | 278    | 290            | 266  |

|                              |        |        |        |        |        |        |        |        |        |        |        |        |                |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|
| Mean Density                 | 1.0279 | 1.0279 | 1.0282 | 1.0285 | 1.0285 | 1.0266 | 1.0269 | 1.0272 | 1.0266 | 1.0252 | 1.0269 | 1.0277 | 1.0273         |
| Mean Salinity                | 37.5   | 37.5   | 37.9   | 38.2   | 38.2   | 35.8   | 36.2   | 36.6   | 35.8   | 34.0   | 36.2   | 37.2   | 36.7           |
| Max.                         | 1.0288 | 1.0299 | 1.0292 | 1.0294 | 1.0298 | 1.0301 | 1.0296 | 1.0295 | 1.0290 | 1.0295 | 1.0290 | 1.0289 | 1.0301         |
| Mean Max.                    | 1.0283 | 1.0284 | 1.0286 | 1.0289 | 1.0291 | 1.0291 | 1.0278 | 1.0278 | 1.0280 | 1.0275 | 1.0275 | 1.0277 | 1.0283         |
| Mean Min.                    | 1.0273 | 1.0273 | 1.0277 | 1.0278 | 1.0278 | 1.0242 | 1.0258 | 1.0260 | 1.0252 | 1.0202 | 1.0259 | 1.0270 | -              |
| Min.                         | 1.0264 | 1.0264 | 1.0269 | 1.0274 | 1.0269 | 1.0125 | 1.0191 | 1.0224 | 1.0230 | 1.0107 | 1.0243 | 1.0259 | -              |
| COLONBO, ISLA DE PINOS, CUBA |        |        |        |        |        |        |        |        |        |        |        |        |                |
| 1953                         | ---    | ---    | ---    | ---    | ---    | 1.0268 | 1.0239 | ---    | ---    | 1.0234 | 1.0255 | 1.0266 | ---            |
| 1954                         | 1.0276 | ---    | ---    | ---    | ---    | 1.0268 | 1.0239 | ---    | ---    | 1.0256 | ---    | ---    | 1.0283*1.0229* |
| 1955                         | ---    | ---    | ---    | ---    | ---    | ---    | 1.0273 | 1.0269 | 265    | 262    | 267    | ---    | 287* 223*      |
| 1956                         | 283    | 1.0285 | ---    | 1.0291 | 290    | 274    | 273    | 286    | 283    | 272    | 283    | 289    | ---            |
| PORT ROYAL, JAMAICA          |        |        |        |        |        |        |        |        |        |        |        |        |                |
| 1954                         | 1.0265 | 1.0258 | 1.0266 | 1.0264 | 1.0243 | 1.0262 | 1.0261 | 1.0251 | 1.0238 | 1.0240 | 1.0263 | 1.0260 | 1.0273*1.0138* |
| 1955                         | 264    | 263    | 264    | 267    | 268    | 255    | 257    | 264    | 256    | 240    | 261    | 259    | 271 154        |
| 1956                         | 35.5   | 35.0   | 35.7   | 34.9   | 34.8   | 35.1   | 35.1   | 34.5   | 34.5   | 32.4   | 33.7   | 34.9   | 272 204        |
| Mean Density                 | 1.0264 | 1.0260 | 1.0265 | 1.0265 | 1.0259 | 1.0258 | 1.0261 | 1.0261 | 1.0256 | 1.0240 | 1.0250 | 1.0259 | 1.0258         |
| Mean Salinity                | 35.5   | 35.0   | 35.7   | 34.9   | 34.8   | 35.1   | 35.1   | 34.5   | 34.5   | 32.4   | 33.7   | 34.9   | 34.8           |
| Max.                         | 1.0268 | 1.0267 | 1.0268 | 1.0270 | 1.0271 | 1.0273 | 1.0271 | 1.0271 | 1.0269 | 1.0266 | 1.0267 | 1.0273 | -              |
| Mean Max.                    | 1.0268 | 1.0267 | 1.0268 | 1.0269 | 1.0270 | 1.0270 | 1.0271 | 1.0271 | 1.0268 | 1.0266 | 1.0262 | 1.0265 | -              |
| Mean Min.                    | 1.0256 | 1.0238 | 1.0260 | 1.0255 | 1.0218 | 1.0200 | 1.0228 | 1.0239 | 1.0234 | 1.0202 | 1.0230 | 1.0241 | -              |
| Min.                         | 1.0256 | 1.0216 | 1.0257 | 1.0244 | 1.0138 | 1.0154 | 1.0213 | 1.0228 | 1.0225 | 1.0198 | 1.0219 | 1.0230 | 1.0138         |
| PORT-AU-PRINCE, HAITI        |        |        |        |        |        |        |        |        |        |        |        |        |                |
| 1949                         | ---    | ---    | ---    | ---    | 1.0270 | 1.0271 | 1.0270 | ---    | 1.0269 | 1.0268 | 1.0264 | 1.0264 | ---            |
| 1950                         | 1.0266 | 1.0268 | 1.0269 | ---    | 271    | 272    | 271    | 1.0270 | 270    | 270    | 265    | 265    | 275* 257*      |
| 1951                         | 267    | 269    | 269    | 1.0269 | 268    | 270    | 271    | 268    | 269    | 268    | 268    | 268    | 275 262        |
| 1952                         | 269    | 271    | 270    | 269    | 268    | 271    | 271    | 270    | 268    | 270    | 269    | 270    | 276 237        |
| 1953                         | 269    | 271    | 271    | 270    | 271    | 269    | 270    | 270    | 269    | 270    | 268    | 269    | 275 261        |
| 1954                         | 267    | 267    | 270    | 270    | 271    | 270    | 268    | 269    | 268    | 267    | 268    | 266    | 275 260        |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                       | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.   |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>PORT-AU-PRINCE, HAITI -Continued</b>    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1955                                       | 1.0268 | 1.0269 | 1.0269 | 1.0268 | 1.0267 | 1.0265 | 1.0266 | 1.0266 | 1.0267 | 1.0267 | 1.0266 | 1.0267 | 1.0265 | 1.0274 | 1.0262 |
| 1956                                       | 267    | 267    | 268    | 266    | 263    | 266    | 271    | 271    | 277    | 270    | 270    | 271    | 272    | 269    | 283    |
| Mean<br>Density<br>Salinity                | 1.0268 | 1.0269 | 1.0269 | 1.0269 | 1.0269 | 1.0269 | 1.0270 | 1.0269 | 1.0270 | 1.0269 | 1.0269 | 1.0267 | 1.0267 | 1.0267 | 1.0262 |
| Max.<br>Mean Max.<br>Mean Min.             | 1.0272 | 1.0275 | 1.0276 | 1.0275 | 1.0275 | 1.0275 | 1.0277 | 1.0275 | 1.0277 | 1.0274 | 1.0283 | 1.0274 | 1.0276 | 1.0283 |        |
| Min.                                       | 1.0262 | 1.0260 | 1.0261 | 1.0252 | 1.0253 | 1.0255 | 1.0263 | 1.0253 | 1.0237 | 1.0259 | 1.0257 | 1.0257 | 1.0262 | 1.0237 |        |
| <b>BARAHONA, DOMINICAN REPUBLIC</b>        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1955                                       | 1.0250 | 1.0250 | 1.0251 | 1.0254 | 1.0255 | 1.0256 | 1.0257 | 1.0254 | 1.0244 | 1.0234 | 1.0244 | 1.0244 | 1.0250 | 1.0250 | 1.0220 |
| 1956                                       | 256    | 254    | 256    | 258    | 258    | 256    | 258    | 255    | 255    | 258    | 254    | 249    | 246    | 254    | 247    |
| Mean<br>Density<br>Salinity                | 1.0253 | 1.0252 | 1.0254 | 1.0254 | 1.0256 | 1.0256 | 1.0256 | 1.0256 | 1.0256 | 1.0249 | 1.0242 | 1.0245 | 1.0252 | 1.0252 |        |
| Max.<br>Mean Max.<br>Mean Min.             | 1.0269 | 1.0261 | 1.0262 | 1.0262 | 1.0266 | 1.0266 | 1.0267 | 1.0275 | 1.0263 | 1.0259 | 1.0262 | 1.0259 | 1.0260 | 1.0275 |        |
| Min.                                       | 1.0264 | 1.0260 | 1.0261 | 1.0262 | 1.0264 | 1.0264 | 1.0270 | 1.0264 | 1.0263 | 1.0258 | 1.0258 | 1.0258 | 1.0260 |        |        |
| 1.0243                                     | 1.0240 | 1.0240 | 1.0242 | 1.0242 | 1.0241 | 1.0242 | 1.0247 | 1.0244 | 1.0244 | 1.0236 | 1.0236 | 1.0206 | 1.0236 |        |        |
| 1.0237                                     | 1.0236 | 1.0236 | 1.0233 | 1.0234 | 1.0240 | 1.0245 | 1.0238 | 1.0224 | 1.0224 | 1.0147 | 1.0186 | 1.0233 | 1.0147 |        |        |
| <b>CIUDAD TRUJILLO, DOMINICAN REPUBLIC</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 1949                                       | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      |
| 1950                                       | 1.0256 | 1.0246 | 1.0253 | 247    | 239    | 242    | 247    | 243    | 237    | 227    | 245    | 252    | 1.0244 | 273    | 125    |
| 1951                                       | 256    | 220    | 209    | 197    | 090    | 099    | 087    | 126    | 118    | 140    | 149    | 135    | 152    | 266    | 021    |
| 1952                                       | 201    | 208    | 215    | 151    | 135    | 142    | 086    | 143    | 119    | 118    | 176    | 210    | 159    | 247    | 020    |
| 1953                                       | 198    | 184    | 245    | 234    | —      | 066    | 060    | —      | —      | —      | —      | —      | —      | 264*   | 032*   |

|   |        |        |        |        |        |        |        |        |        |        |        |                |                |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|----------------|
| Mean Density                            | 1.0228 | 1.0214 | 1.0230 | 1.0217 | 1.0176 | 1.0160 | 1.0144 | 1.0186 | 1.0169 | 1.0174 | 1.0202 | 1.0212         | 1.0193         |
| Salinity                                | 30.8   | 29.0   | 31.1   | 29.4   | 24.1   | 22.0   | 19.9   | 25.4   | 23.1   | 23.8   | 27.5   | 28.8           | 26.5           |
| Max.                                    | 1.0266 | 1.0264 | 1.0266 | 1.0266 | 1.0268 | 1.0266 | 1.0269 | 1.0273 | 1.0257 | 1.0257 | 1.0270 | 1.0262         | 1.0273         |
| Mean Max.                               | 1.0252 | 1.0256 | 1.0257 | 1.0254 | 1.0248 | 1.0214 | 1.0214 | 1.0202 | 1.0244 | 1.0225 | 1.0229 | 1.0249         | 1.0245         |
| Mean Min.                               | 1.0179 | 1.0127 | 1.0185 | 1.0157 | 1.0109 | 1.0097 | 1.0087 | 1.0102 | 1.0087 | 1.0077 | 1.0111 | 1.0153         | 1.0020         |
| Min.                                    | 1.0080 | 1.0046 | 1.0038 | 1.0161 | 1.0038 | 1.0031 | 1.0030 | 1.0025 | 1.0035 | 1.0020 | 1.0054 | 1.0034         |                |
| <b>PUERTO PLATA, DOMINICAN REPUBLIC</b> |        |        |        |        |        |        |        |        |        |        |        |                |                |
| 1949                                    | ---    | ---    | ---    | ---    | 1.0271 | 1.0272 | 1.0273 | 1.0270 | 1.0270 | 1.0270 | 1.0266 | 1.0280*1.0252* |                |
| 1950                                    | 1.0260 | 1.0250 | 1.0261 | 1.0266 | 267    | 267    | 268    | 269    | 269    | 269    | 266    | 253            | 1.0264         |
| 1951                                    | 260    | 263    | 268    | 266    | 260    | 266    | 268    | 269    | 270    | 271    | 265    | 260            | 274            |
| 1952                                    | 262    | ---    | ---    | ---    | 268    | 268    | 269    | 270    | 269    | 270    | 267    | 262            | 274            |
| 1953                                    | 255    | 265    | 269    | 268    | 269    | 268    | 269    | 269    | 271    | 271    | 261    | 256            | 266            |
| 1954                                    | 263    | 257    | 263    | 267    | 266    | 266    | 270    | 269    | 270    | 271    | 271    | 262            | 275            |
| 1955                                    | 263    | 257    | 268    | 265    | 265    | 262    | 268    | 269    | 264    | 265    | 267    | 261            | 276            |
| 1956                                    | 257    | 254    | 246    | 257    | 267    | 267    | 269    | 270    | 270    | 271    | 269    | 264            | 275            |
| Mean Density                            | 1.0260 | 1.0258 | 1.0262 | 1.0265 | 1.0266 | 1.0267 | 1.0269 | 1.0270 | 1.0269 | 1.0270 | 1.0267 | 1.0260         | 1.0265         |
| Salinity                                | 35.0   | 34.8   | 35.3   | 35.7   | 35.8   | 35.9   | 36.2   | 36.3   | 36.2   | 36.3   | 35.9   | 35.0           | 35.7           |
| Max.                                    | 1.0271 | 1.0274 | 1.0273 | 1.0276 | 1.0280 | 1.0276 | 1.0276 | 1.0280 | 1.0275 | 1.0275 | 1.0274 | 1.0275         | 1.0280         |
| Mean Max.                               | 1.0269 | 1.0268 | 1.0270 | 1.0271 | 1.0272 | 1.0272 | 1.0273 | 1.0273 | 1.0274 | 1.0273 | 1.0272 | 1.0270         |                |
| Mean Min.                               | 1.0234 | 1.0234 | 1.0238 | 1.0249 | 1.0251 | 1.0249 | 1.0251 | 1.0264 | 1.0265 | 1.0264 | 1.0264 | 1.0248         | 1.0224         |
| Min.                                    | 1.0205 | 1.0209 | 1.0137 | 1.0215 | 1.0233 | 1.0181 | 1.0258 | 1.0259 | 1.0245 | 1.0245 | 1.0213 | 1.0172         | 1.0137         |
| <b>ST. LUCIA (Castries), B.W.I.</b>     |        |        |        |        |        |        |        |        |        |        |        |                |                |
| 1955                                    | ---    | ---    | 1.0262 | 1.0264 | 1.0262 | 1.0253 | 1.0246 | 1.0253 | 1.0255 | 1.0252 | 1.0262 | 1.0262         | 1.0268*1.0213* |
| 1956                                    | 1.0264 | 1.0267 | 1.0264 | 259    | 264    | 263    | 257    | 257    | 258    | 260    | 266    | 266            | 275            |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                                   | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.    | Min.    |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| <b>ST. LUCIA (Vieux Fort), B.W.I.</b>  |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|  |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
| 1950                                   | 1.0265 | 1.0264 | 1.0261 | 1.0264 | 1.0265 | 1.0259 | 1.0251 | 1.0247 | 1.0247 | 1.0258 | 1.0260 | 1.0262 | 1.0259 | 1.0270  | 1.0231  |
| 1951                                   | 267    | 268    | 266    | 269    | 271    | 266    | 268    | 261    | 259    | 265    | 267    | 267    | 266    | 281     | 245     |
| 1952                                   | 275    | 269    | 269    | 273    | 266    | 263    | 256    | 261    | 249    | 256    | 262    | 264    | 264    | 288     | 173     |
| 1953                                   | 263    | 268    | 266    | 257    | 260    | 263    | 264    | 262    | 257    | 262    | 263    | 263    | 262    | 276     | 239     |
| 1954                                   | 267    | 270    | 267    | 267    | 256    | 260    | 256    | 259    | 261    | 261    | 261    | 263    | 263    | 276*    | 244*    |
| Mean<br>Density                        | 1.0267 | 1.0268 | 1.0266 | 1.0266 | 1.0264 | 1.0262 | 1.0259 | 1.0259 | 1.0255 | 1.0260 | 1.0263 | 1.0264 | 1.0263 |         |         |
| Salinity                               | 35.9   | 36.0   | 35.8   | 35.8   | 35.5   | 35.5   | 35.3   | 34.9   | 34.9   | 34.8   | 34.4   | 35.0   | 35.4   | 35.5    | 35.4    |
| Max.                                   | 1.0288 | 1.0279 | 1.0281 | 1.0279 | 1.0277 | 1.0275 | 1.0281 | 1.0272 | 1.0265 | 1.0274 | 1.0272 | 1.0278 |        |         |         |
| Mean Max.                              | 1.0273 | 1.0273 | 1.0272 | 1.0271 | 1.0270 | 1.0272 | 1.0267 | 1.0266 | 1.0262 | 1.0268 | 1.0268 | 1.0273 |        |         |         |
| Mean Min.                              | 1.0262 | 1.0262 | 1.0258 | 1.0258 | 1.0257 | 1.0253 | 1.0250 | 1.0247 | 1.0234 | 1.0243 | 1.0254 | 1.0254 |        |         |         |
| Min.                                   | 1.0257 | 1.0260 | 1.0252 | 1.0241 | 1.0251 | 1.0246 | 1.0241 | 1.0231 | 1.0173 | 1.0207 | 1.0241 | 1.0239 |        |         |         |
|  |        |        |        |        |        |        |        |        |        |        |        |        | 1.0173 |         |         |
| <b>TRINIDAD (Carenage Bay), B.W.I.</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
|  |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |
| 1949                                   | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | —      | 1.0231* | —       |
| 1950                                   | 1.0217 | 1.0204 | 1.0232 | 1.0253 | 1.0254 | 1.0208 | 166    | 131    | 161    | 168    | 203    | —      | —      | 278*    | —       |
| 1951                                   | 233    | 219    | 230    | —      | —      | 210    | 169    | 146    | 130    | 161    | 183    | 206    | —      | 247*    | —       |
| 1952                                   | 223    | 240    | 250    | 257    | 252    | 224    | 197    | 153    | 164    | 190    | —      | —      | —      | 262*    | 1.0089* |
| 1953                                   | —      | —      | 237    | —      | 231    | 209    | —      | —      | —      | —      | —      | —      | —      | 244*    | 190*    |
| 1954                                   | 209    | 227    | —      | —      | —      | 207    | 174    | 135    | 142    | 150    | 164    | 161    | —      | 241*    | 091*    |
| 1955                                   | 188    | —      | 248    | 235    | 242    | 212    | 171    | 161    | 156    | 182    | —      | —      | —      | 256*    | 073*    |
| Mean<br>Density                        | 1.0214 | 1.0222 | 1.0239 | 1.0248 | 1.0245 | 1.0212 | 1.0177 | 1.0144 | 1.0152 | 1.0170 | 1.0184 | 1.0185 | 1.0199 |         |         |
| Salinity                               | 29.0   | 30.1   | 32.3   | 33.5   | 33.1   | 28.8   | 24.2   | 19.9   | 20.9   | 23.3   | 25.1   | 25.2   | 27.1   |         |         |
| Max.                                   | 1.0247 | 1.0248 | 1.0256 | 1.0278 | 1.0264 | 1.0246 | 1.0217 | 1.0185 | 1.0200 | 1.0226 | 1.0220 | 1.0231 |        |         |         |
| Mean Max.                              | 1.0228 | 1.0236 | 1.0246 | 1.0261 | 1.0255 | 1.0233 | 1.0198 | 1.0173 | 1.0183 | 1.0201 | 1.0206 | 1.0209 |        |         |         |
| Mean Min.                              | 1.0198 | 1.0212 | 1.0227 | 1.0240 | 1.0229 | 1.0189 | 1.0155 | 1.0108 | 1.0106 | 1.0142 | 1.0164 | 1.0167 |        |         |         |
| Min.                                   | 1.0175 | 1.0196 | 1.0213 | 1.0230 | 1.0214 | 1.0180 | 1.0126 | 1.0089 | 1.0073 | 1.0132 | 1.0143 | 1.0148 |        |         |         |

## CARTAGENA, COLOMBIA

|           | CARTAGENA, COLOMBIA |      |      |      |      |      |      |      |      |      |         |      |
|-----------|---------------------|------|------|------|------|------|------|------|------|------|---------|------|
|           | 1948-1956           |      |      |      |      |      |      |      |      |      |         |      |
|           | 1948                | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | Mean | Density |      |
| Salinity  | 264                 | 270  | 265  | 266  | 266  | 266  | 266  | 259  | 250  | 34.6 | 35.1    | 35.8 |
| Max.      | 264                 | 270  | 265  | 270  | 249  | 218  | 218  | 263  | 261  | 35.1 | 35.8    | 35.8 |
| Mean Max. | 256                 | 263  | 266  | 270  | 249  | 236  | 236  | 262  | 261  | 35.1 | 35.8    | 35.8 |
| Mean Min. | 253                 | 259  | 266  | 266  | 242  | 234  | 237  | 256  | 237  | 34.6 | 35.1    | 35.8 |
| Min.      | 255                 | 255  | 266  | 269  | 266  | 232  | 220  | 262  | 222  | 34.6 | 35.1    | 35.8 |

|           | RÍO HACHA, COLOMBIA |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------------------|------|------|------|------|------|------|------|------|------|------|------|
|           | 1953-1956           |      |      |      |      |      |      |      |      |      |      |      |
|           | 1953                | 1954 | 1955 | 1956 | 1953 | 1954 | 1955 | 1956 | 1953 | 1954 | 1955 | 1956 |
| Max.      | 281                 | 281  | 251  | 242  | 280  | 282  | 273  | 274  | 273  | 274  | 273  | 274  |
| Mean Max. | 268                 | 268  | 242  | 232  | 269  | 269  | 268  | 268  | 269  | 269  | 268  | 268  |
| Mean Min. | 265                 | 270  | 273  | 272  | 268  | 268  | 270  | 268  | 269  | 269  | 268  | 268  |
| Min.      | 265                 | 270  | 273  | 272  | 265  | 268  | 271  | 272  | 269  | 269  | 268  | 268  |

|           | AMUAY, VENEZUELA |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------|------|------|------|------|------|------|------|------|------|------|------|
|           | 1953-1956        |      |      |      |      |      |      |      |      |      |      |      |
|           | 1953             | 1954 | 1955 | 1956 | 1953 | 1954 | 1955 | 1956 | 1953 | 1954 | 1955 | 1956 |
| Max.      | 268              | 268  | 251  | 242  | 280  | 282  | 273  | 274  | 273  | 274  | 273  | 274  |
| Mean Max. | 268              | 269  | 273  | 272  | 269  | 269  | 268  | 268  | 269  | 269  | 268  | 268  |
| Mean Min. | 265              | 270  | 273  | 272  | 265  | 268  | 270  | 268  | 269  | 269  | 268  | 268  |
| Min.      | 265              | 270  | 273  | 272  | 265  | 268  | 271  | 272  | 269  | 269  | 268  | 268  |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                               | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.    |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| <b>AMUAY, VENEZUELA -Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Mean Density Salinity              |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Mean                               | 1.0268 | 1.0270 | 1.0267 | 1.0270 | 1.0270 | 1.0271 | 1.0271 | 1.0269 | 1.0262 | 1.0266 | 1.0270 | 1.0270 | 1.0269 | 1.0269 | 1.0262  |
| Max.                               | 1.0276 | 1.0279 | 1.0273 | 1.0273 | 1.0276 | 1.0277 | 1.0277 | 1.0278 | 1.0273 | 1.0280 | 1.0277 | 1.0277 | 1.0277 | 1.0277 | 1.0280  |
| Mean Max.                          | 1.0272 | 1.0276 | 1.0273 | 1.0271 | 1.0274 | 1.0274 | 1.0275 | 1.0275 | 1.0276 | 1.0272 | 1.0274 | 1.0274 | 1.0274 | 1.0274 | 1.0280  |
| Mean Min.                          | 1.0259 | 1.0268 | 1.0266 | 1.0254 | 1.0268 | 1.0265 | 1.0267 | 1.0266 | 1.0259 | 1.0242 | 1.0256 | 1.0264 | 1.0264 | 1.0264 | 1.0223  |
| Min.                               | 1.0237 | 1.0264 | 1.0264 | 1.0230 | 1.0265 | 1.0255 | 1.0264 | 1.0261 | 1.0251 | 1.0240 | 1.0261 | 1.0261 | 1.0261 | 1.0261 | 1.0223  |
| <b>LA GUAIRA, VENEZUELA</b>        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| 1949                               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Mean                               | 1.0274 | 1.0276 | 1.0277 | 1.0278 | 1.0273 | 1.0272 | 1.0275 | 1.0275 | 1.0273 | 1.0272 | 1.0274 | 1.0274 | 1.0274 | 1.0274 | 1.0262* |
| Max.                               | 1.0273 | 1.0273 | 1.0270 | 1.0272 | 1.0272 | 1.0272 | 1.0273 | 1.0270 | 1.0270 | 1.0272 | 1.0272 | 1.0272 | 1.0272 | 1.0272 | 1.0262* |
| Mean Max.                          | 1.0275 | 1.0271 | 1.0272 | 1.0273 | 1.0273 | 1.0274 | 1.0274 | 1.0270 | 1.0269 | 1.0268 | 1.0273 | 1.0273 | 1.0273 | 1.0273 | 1.0262* |
| Mean Min.                          | 1.0274 | 1.0270 | 1.0268 | 1.0270 | 1.0269 | 1.0270 | 1.0269 | 1.0271 | 1.0269 | 1.0272 | 1.0270 | 1.0270 | 1.0270 | 1.0270 | 1.0262* |
| Min.                               | 1.0271 | 1.0270 | 1.0271 | 1.0272 | 1.0272 | 1.0271 | 1.0268 | 1.0268 | 1.0265 | 1.0265 | 1.0267 | 1.0268 | 1.0268 | 1.0268 | 1.0262* |
| <b>CARENERO, VENEZUELA</b>         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| 1949                               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Mean                               | 1.0272 | 1.0273 | 1.0273 | 1.0274 | 1.0273 | 1.0271 | 1.0272 | 1.0271 | 1.0271 | 1.0269 | 1.0268 | 1.0270 | 1.0271 | 1.0271 | 1.0262* |
| Max.                               | 1.0281 | 1.0293 | 1.0284 | 1.0289 | 1.0287 | 1.0280 | 1.0281 | 1.0284 | 1.0285 | 1.0287 | 1.0281 | 1.0278 | 1.0278 | 1.0278 | 1.0262* |
| Mean Max.                          | 1.0278 | 1.0280 | 1.0278 | 1.0271 | 1.0281 | 1.0277 | 1.0277 | 1.0277 | 1.0278 | 1.0276 | 1.0277 | 1.0277 | 1.0277 | 1.0277 | 1.0276  |
| Mean Min.                          | 1.0264 | 1.0260 | 1.0266 | 1.0266 | 1.0263 | 1.0263 | 1.0265 | 1.0265 | 1.0264 | 1.0264 | 1.0260 | 1.0257 | 1.0263 | 1.0263 | 1.0225  |
| Min.                               | 1.0247 | 1.0225 | 1.0256 | 1.0261 | 1.0259 | 1.0256 | 1.0260 | 1.0260 | 1.0257 | 1.0250 | 1.0229 | 1.0256 | 1.0256 | 1.0256 | 1.0225  |

|                          |        |        |        |        |        |        |        |        |        |        |        |        |        |      |                |      |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|----------------|------|
| 1950                     | 1.0200 | 1.0210 | 1.0187 | 1.0248 | 1.0255 | 1.0222 | 1.0214 | 1.0248 | 1.0257 | 262    | 264    | 217    | 1.0232 | 284  | 139            |      |
| 1951                     | —      | 196    | 223    | 266    | 268    | 260    | 254    | 262    | 263    | 264    | 261    | 260    | —      | 280* | 148*           |      |
| 1952                     | 259    | 258    | 266    | 279    | 260    | 271    | 270    | 268    | 271    | 268    | 264    | 262    | 266    | 287  | 249            |      |
| 1953                     | 267    | 256    | 263    | 270    | 265    | 265    | 268    | 269    | 270    | 265    | 269    | 268    | 266    | 280  | 246            |      |
| 1954                     | —      | 265    | 268    | 269    | 270    | 274    | 269    | 274    | 269    | 269    | 266    | 262    | —      | 283* | 259*           |      |
| 1955                     | 262    | 270    | —      | 265    | 265    | 259    | —      | —      | —      | —      | —      | —      | —      | 281* | 247*           |      |
| 1956                     | —      | —      | 253    | 254    | 255    | 262    | —      | —      | —      | 224    | 262    | —      | —      | —    | 270*           | 178* |
| Mean Density             | 1.0247 | 1.0242 | 1.0243 | 1.0264 | 1.0263 | 1.0259 | 1.0255 | 1.0258 | 1.0265 | 1.0266 | 1.0264 | 1.0247 | 1.0256 |      |                |      |
| Mean Salinity            | 33.3   | 32.7   | 32.8   | 35.5   | 35.4   | 34.9   | 34.4   | 34.0   | 36.0   | 35.7   | 35.8   | 35.5   | 33.3   | 34.5 |                |      |
| Max.                     | 1.0274 | 1.0275 | 1.0281 | 1.0287 | 1.0278 | 1.0280 | 1.0278 | 1.0283 | 1.0281 | 1.0284 | 1.0284 | 1.0276 | 1.0278 |      |                |      |
| Mean Max.                | 1.0267 | 1.0270 | 1.0269 | 1.0276 | 1.0272 | 1.0276 | 1.0272 | 1.0274 | 1.0274 | 1.0272 | 1.0275 | 1.0272 | 1.0267 |      |                |      |
| Mean Min.                | 1.0230 | 1.0222 | 1.0220 | 1.0248 | 1.0252 | 1.0241 | 1.0231 | 1.0240 | 1.0240 | 1.0257 | 1.0253 | 1.0252 | 1.0224 |      |                |      |
| Min.                     | 1.0148 | 1.0148 | 1.0144 | 1.0219 | 1.0232 | 1.0161 | 1.0139 | 1.0178 | 1.0235 | 1.0233 | 1.0225 | 1.0123 | 1.0123 |      |                |      |
| <b>CUMANA, VENEZUELA</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |      |                |      |
| 1949                     | —      | —      | —      | —      | —      | —      | —      | —      | —      | 1.0259 | 1.0261 | 1.0271 | 1.0273 | —    | 1.0285*1.0188* |      |
| 1950                     | 1.0275 | 1.0279 | 1.0275 | 1.0273 | 1.0269 | 1.0269 | 1.0281 | 1.0257 | 269    | 267    | 266    | 275    | 1.0271 | 289  | 169            |      |
| 1951                     | 272    | 262    | 274    | 264    | 275    | 268    | 262    | 248    | 253    | 264    | 267    | 264    | 264    | 295  | 152            |      |
| 1952                     | 274    | 273    | 271    | 266    | 264    | 272    | 259    | 254    | 249    | 258    | 269    | 274    | 265    | 282  | 176            |      |
| 1953                     | 274    | 272    | 272    | 270    | 271    | 269    | 266    | 264    | 267    | 268    | 267    | 272    | 269    | 289  | 161            |      |
| 1954                     | 274    | 273    | 273    | 272    | 272    | 270    | 261    | 249    | 261    | 265    | 270    | 271    | 268    | 279  | 162            |      |
| 1955                     | 267    | 270    | 273    | 269    | 267    | 265    | 265    | 257    | 254    | 262    | 267    | 265    | 287    | 160  |                |      |
| 1956                     | 266    | 272    | 270    | 271    | 274    | 274    | 273    | —      | 264    | 269    | —      | 272    | —      | 286* | 228*           |      |
| Mean Density             | 1.0272 | 1.0272 | 1.0273 | 1.0269 | 1.0271 | 1.0270 | 1.0267 | 1.0256 | 1.0260 | 1.0263 | 1.0267 | 1.0271 | 1.0268 |      |                |      |
| Mean Salinity            | 36.6   | 36.6   | 36.7   | 36.2   | 36.4   | 36.3   | 35.9   | 34.5   | 35.0   | 35.4   | 35.9   | 36.4   | 36.0   |      |                |      |
| Max.                     | 1.0288 | 1.0289 | 1.0287 | 1.0295 | 1.0284 | 1.0283 | 1.0287 | 1.0291 | 1.0279 | 1.0286 | 1.0284 | 1.0287 |        |      |                |      |
| Mean Max.                | 1.0280 | 1.0281 | 1.0281 | 1.0280 | 1.0279 | 1.0277 | 1.0278 | 1.0282 | 1.0276 | 1.0278 | 1.0277 | 1.0280 |        |      |                |      |
| Mean Min.                | 1.0244 | 1.0247 | 1.0251 | 1.0246 | 1.0253 | 1.0237 | 1.0208 | 1.0180 | 1.0204 | 1.0216 | 1.0230 | 1.0249 |        |      |                |      |
| Min.                     | 1.0160 | 1.0182 | 1.0210 | 1.0174 | 1.0226 | 1.0163 | 1.0161 | 1.0152 | 1.0162 | 1.0176 | 1.0201 | 1.0217 | 1.0152 |      |                |      |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                       | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.           |                |        |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|----------------|--------|
| <b>CARUPANO, VENEZUELA</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |                |        |
| 1949                       | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0271 | 1.0272 | 1.0265 | ---    | 1.0275*1.0230* |                |        |
| 1950                       | 1.0273 | 1.0273 | 1.0272 | 1.0272 | 1.0270 | 1.0268 | 1.0268 | 1.0267 | 1.0268 | 267    | 266    | 267    | 1.0269 | 277    | 255            |                |        |
| 1951                       | 269    | 270    | 269    | 268    | 266    | 265    | 267    | 267    | 269    | 271    | 273    | 273    | 269    | 278    | 237            |                |        |
| 1952                       | 272    | 274    | 276    | 273    | 276    | 273    | 275    | 268    | 272    | 270    | 272    | 274    | 273    | 281    | 260            |                |        |
| 1953                       | 275    | 274    | 272    | 272    | 272    | 272    | 272    | 272    | 271    | 269    | 273    | 272    | 272    | 277    | 261            |                |        |
| 1954                       | 275    | 275    | 273    | 274    | 274    | 273    | 274    | 272    | 273    | 272    | 273    | 272    | 273    | 279    | 264            |                |        |
| 1955                       | 274    | 274    | 274    | 272    | 272    | 274    | 274    | 275    | 275    | ---    | ---    | ---    | ---    | 279*   | 266*           |                |        |
| Mean<br>Density            | 1.0273 | 1.0273 | 1.0273 | 1.0272 | 1.0272 | 1.0271 | 1.0272 | 1.0269 | 1.0269 | 1.0270 | 1.0270 | 1.0271 | 1.0270 | 1.0271 | 1.0271         |                |        |
| Salinity                   | 36.7   | 36.7   | 36.6   | 36.6   | 36.6   | 36.4   | 36.6   | 36.2   | 36.2   | 36.3   | 36.3   | 36.4   | 36.4   | 36.3   | 36.4           |                |        |
| Max.                       | 1.0278 | 1.0277 | 1.0279 | 1.0279 | 1.0281 | 1.0280 | 1.0278 | 1.0276 | 1.0277 | 1.0278 | 1.0278 | 1.0279 | 1.0279 | 1.0281 | 1.0281         |                |        |
| Mean Max.                  | 1.0276 | 1.0276 | 1.0276 | 1.0275 | 1.0276 | 1.0275 | 1.0276 | 1.0273 | 1.0273 | 1.0274 | 1.0274 | 1.0275 | 1.0275 | 1.0276 | 1.0276         |                |        |
| Mean Min.                  | 1.0265 | 1.0270 | 1.0270 | 1.0268 | 1.0265 | 1.0262 | 1.0268 | 1.0265 | 1.0265 | 1.0266 | 1.0266 | 1.0267 | 1.0267 | 1.0261 | 1.0261         |                |        |
| Min.                       | 1.0255 | 1.0266 | 1.0265 | 1.0264 | 1.0259 | 1.0237 | 1.0264 | 1.0264 | 1.0264 | 1.0264 | 1.0264 | 1.0264 | 1.0264 | 1.0230 | 1.0230         |                |        |
| <b>BELÉM, BRAZIL</b>       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |                |        |
| 1950                       | 1.0002 | 1.0001 | 1.0001 | ---    | 0.9998 | 0.9999 | 1.0000 | ---    | 1.0002 | 1.0001 | 1.0001 | 1.0001 | 1.0001 | ---    | 1.0006*0.9995* |                |        |
| 1951                       | 1.0001 | 1.0000 | 0.9999 | 0.9999 | 1.0001 | 1.0003 | 1.0002 | 1.0005 | 1.0004 | 1.0004 | 1.0004 | 1.0004 | 1.0004 | 1.0002 | 1.0015         | 0.9996         |        |
| 1952                       | 1.0000 | 0.9999 | 0.9999 | ---    | 1.0000 | 1.0001 | ---    | 1.0000 | ---    | ---    | ---    | ---    | ---    | ---    | 1.0004*0.9994* | 1.0004*0.9986* |        |
| 1953                       | ---    | 0.9998 | 0.9994 | 0.9994 | 0.9995 | 0.9995 | 0.9997 | 0.9996 | 0.9992 | 0.9992 | 0.9993 | 0.9993 | 0.9993 | ---    | 1.0007*0.9986* | 1.0007*0.9988  |        |
| 1954                       | 0.9992 | 0.9991 | 0.9992 | 0.9994 | 0.9994 | 0.9992 | 0.9991 | 0.9997 | 0.9999 | 0.9999 | 0.9999 | 0.9999 | 0.9999 | 0.9994 | 1.0001         | 0.9988         |        |
| 1955                       | 0.9993 | 0.9991 | 0.9993 | 0.9995 | 0.9996 | 0.9997 | 0.9998 | 0.9997 | 0.9997 | 1.0000 | 1.0001 | 0.9998 | 0.9998 | 1.0006 | 0.9990         | 1.0006         | 0.9990 |
| 1956                       | 0.9997 | 0.9997 | 0.9995 | 0.9996 | 0.9996 | 0.9997 | 0.9997 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 1.0005 | 0.9991         | 1.0005         | 0.9991 |

| Mean Density Salinity        | 0.9998 0.9997 0.9996 0.9997 0.9997 0.9998 0.9998 0.9997 0.9999 1.0000 0.9998 0.9998 0.9998 0.9998 0.9998 0.9998 | 0.8 0.7 0.6 0.7 0.8 0.7 0.8 0.7 0.9 1.1 0.8 0.8 0.8 0.8 0.8 0.8       |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
|------------------------------|---|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| Max.                         | 1.0005 1.0007 1.0004 1.0001 1.0003 1.0004 1.0004 1.0007 1.0007 1.0015 1.0010                                    | 1.0015  |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Mean Max.                    | 1.0000 1.0000 1.0000 0.9999 1.0000 1.0000 1.0000 1.0000 1.0002 1.0004 1.0002                                    |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Mean Min.                    | 0.9995 0.9993 0.9992 0.9992 0.9994 0.9994 0.9995 0.9994 0.9993 0.9996 0.9997 0.9996                             |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Min.                         | 0.9989 0.9986 0.9986 0.9988 0.9991 0.9990 0.9991 0.9991 0.9990 0.9990 0.9990 0.9992                             | 0.9986  |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
|                              |   |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| SALINOPOLIS, BRAZIL          |   |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| 1951                         | ---   | 1.0270  | 1.0210 | ---    | ---    | 1.0207 | ---    | 1.0264 | 1.0275 | 1.0282 | 1.0289 | 1.0286 | ---    | 1.0294* | 1.0145* |         |
| 1952                         | ---   | ---   | ---    | ---    | ---    | ---    | ---    | 230    | 253    | 266    | 273    | 279    | ---    | 292*    | 207*    |         |
| 1953                         | 1.0215  | 232   | ---    | ---    | 1.0185 | 210    | 1.0219 | 245    | 262    | 273    | 280    | 283    | ---    | 289*    | 137*    |         |
| 1954                         | 246   | ---   | ---    | ---    | ---    | ---    | ---    | 252    | 268    | 278    | 283    | 284    | ---    | 294*    | 184*    |         |
| 1955                         | ---   | ---   | ---    | ---    | ---    | ---    | ---    | 243    | 261    | 270    | 267    | 279    | ---    | 279*    | ---     |         |
|                              |   |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| FORTALEZA (Mucuripe), BRAZIL |   |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| 1951                         | ---   | ---   | ---    | 1.0280 | 1.0280 | 1.0278 | 1.0278 | 1.0277 | 1.0277 | 1.0275 | 1.0279 | 1.0278 | 1.0280 | ---     | 1.0289* | 1.0260* |
| 1952                         | 1.0280  | 1.0282  | 1.0280 | 1.0280 | 1.0280 | 1.0278 | 1.0278 | 1.0277 | 1.0277 | 278    | 278    | 279    | 281    | 1.0279  | 290     | 262     |
| 1953                         | 281   | 281   | 281    | 282    | 282    | 281    | 282    | 283    | 282    | 281    | 284    | 286    | 284    | 282     | 292     | 270     |
| 1954                         | 287   | 285   | 285    | 283    | 283    | 282    | 282    | 280    | 279    | 279    | 282    | 284    | 285    | 283     | 293     | 270     |
| 1955                         | 287   | 282   | 286    | 283    | 285    | 284    | 283    | 283    | 282    | 281    | 283    | 282    | 282    | 283     | 292     | 272     |
| 1956                         | 282   | 282   | 281    | 279    | 273    | 277    | 277    | 277    | 278    | 278    | 282    | 280    | 279    | 279     | 288     | 259     |
| Mean Density Salinity        | 1.0283 1.0282 1.0283 1.0281 1.0280 1.0281 1.0280 1.0280 1.0280 1.0279 1.0281 1.0282 1.0282 1.0281 37.9          | 38.0 37.9 38.0 37.7 37.6 37.7 37.6 37.6 37.5 37.7 37.9 37.9 37.9 37.7 |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Max.                         | 1.0293 1.0292 1.0292 1.0289 1.0289 1.0289 1.0289 1.0289 1.0289 1.0288 1.0288 1.0289 1.0292 1.0292               |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Mean Max.                    | 1.0289 1.0289 1.0287 1.0288 1.0286 1.0286 1.0286 1.0286 1.0286 1.0285 1.0285 1.0285 1.0286 1.0286               |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Mean Min.                    | 1.0278 1.0277 1.0276 1.0270 1.0270 1.0271 1.0271 1.0271 1.0270 1.0269 1.0269 1.0272 1.0276 1.0274               |   |        |        |        |        |        |        |        |        |        |        |        |         |         |         |
| Min.                         | 1.0275 1.0275 1.0273 1.0266 1.0262 1.0262 1.0259 1.0259 1.0260 1.0260 1.0259 1.0273 1.0273 1.0273               | 1.0259  |        |        |        |        |        |        |        |        |        |        |        |         |         |         |

\* Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year                    | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.   | Min.    |          |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
| <b>RECIFE, BRAZIL</b>   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |          |
| 1949                    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0258 | 1.0264 | 1.0242  |          |
| 1950                    | 1.0266 | 1.0272 | 1.0260 | ---    | ---    | ---    | 1.0228 | 1.0220 | 1.0220 | 255    | 266    | 265    | ---    | 1.0284 | 1.0134* |          |
| 1951                    | 269    | 260    | 276    | 1.0269 | 1.0229 | ---    | 197    | 230    | 248    | 256    | 260    | 253    | ---    | 280*   | 144*    |          |
| 1952                    | 264    | 268    | 238    | 252    | 225    | 1.0244 | 234    | 235    | 252    | 262    | 271    | 273    | 1.0252 | 284    | 132     |          |
| 1953                    | 276    | 278    | 273    | 247    | 231    | 207    | 225    | 236    | 256    | 269    | 268    | 264    | 252    | 286    | 120     |          |
| 1954                    | 275    | 278    | 274    | 228    | ---    | ---    | 219    | 245    | 260    | 269    | 270    | 272    | ---    | 286    | ---     |          |
| 1955                    | 274    | 262    | ---    | ---    | ---    | ---    | 197    | 206    | 249    | 256    | 264    | 258    | ---    | 282    | ---     |          |
| 1956                    | 270    | 261    | 233    | 206    | 252    | 216    | 208    | 222    | 239    | 257    | 264    | 269    | 241    | 280    | 050     |          |
| Mean<br>Salinity        | 36.4   | 36.0   | 34.9   | 32.4   | 31.6   | 30.1   | 29.1   | 30.8   | 33.2   | 35.0   | 35.8   | 35.3   | 33.5   |        |         |          |
| Max.                    | 1.0271 | 1.0268 | 1.0259 | 1.0240 | 1.0234 | 1.0222 | 1.0215 | 1.0228 | 1.0246 | 1.0260 | 1.0266 | 1.0262 | 1.0248 |        |         |          |
| Mean Max.               |        |        |        |        |        |        |        |        |        |        |        |        |        | 1.0292 |         |          |
| Mean Min.               |        |        |        |        |        |        |        |        |        |        |        |        |        | 1.0278 |         |          |
| Min.                    | 1.0240 | 1.0171 | 1.0050 | 1.0092 | 1.0151 | 1.0104 | 1.0111 | 1.0109 | 1.0144 | 1.0210 | 1.0181 | 1.0134 | 1.0214 |        |         |          |
|                         |        |        |        |        |        |        |        |        |        |        |        |        | 1.0050 |        |         |          |
| <b>SALVADOR, BRAZIL</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |          |
| 1949                    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0265 | 1.0267 | 1.0260 | ---    | 1.0270  | *1.0249* |
| 1950                    | 1.0269 | 1.0270 | 1.0269 | 1.0268 | 1.0257 | 1.0257 | 1.0256 | 1.0260 | 1.0263 | 267    | 268    | 267    | ---    | 274*   | 248*    |          |
| 1951                    | ---    | 277    | 280    | 273    | 264    | 260    | 266    | 270    | 274    | 276    | 276    | 273    | ---    | 288*   | 246*    |          |
| 1952                    | 279    | 280    | 278    | ---    | 261    | 266    | 267    | 270    | 278    | 278    | 271    | 271    | ---    | 286*   | 252*    |          |
| 1953                    | 269    | 277    | 279    | ---    | 270    | 269    | 267    | 268    | 269    | 276    | 276    | 276    | ---    | 283*   | 260*    |          |
| 1954                    | 270    | 273    | 270    | 266    | 264    | 268    | 269    | 270    | 278    | 280    | 269    | 269    | 1.0270 | 285    | 252     |          |
| 1955                    | 272    | 273    | 276    | 273    | 274    | 275    | 270    | 274    | 275    | 278    | 271    | 271    | 274    | 283    | 263     |          |
| 1956                    | 277    | 279    | 275    | 270    | 268    | 266    | 264    | 266    | 272    | 261    | 261    | 269    | 261    | 286    | 240     |          |

|   |               |               |               |               |               |               |               |               |               |                |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Mean Density Salinity                                   | 1.0273 36.7   | 1.0275 37.0   | 1.0273 36.7   | 1.0265 35.7   | 1.0266 35.8   | 1.0269 36.2   | 1.0272 36.6   | 1.0273 36.7   | 1.0268 36.0   | 1.0270 36.3    |
| Max.  | 1.0286 1.0091 | 1.0286 1.149  | 1.0288 0.083  | 1.0284 0.080  | 1.0279 0.087  | 1.0281 0.065  | 1.0277 1.047  | 1.0282 1.140  | 1.0284 1.148  | 1.0285 0.038   |
| Mean Max.   | 1.0280 0.058  | 1.0282 1.123  | 1.0281 0.029  | 1.0280 0.074  | 1.0275 0.077  | 1.0271 0.111  | 1.0271 0.025  | 1.0275 1.101  | 1.0276 1.143  | 1.0279 0.009   |
| Mean Min.   | 1.0266 0.051  | 1.0270 0.071  | 1.0271 0.038  | 1.0264 0.069  | 1.0258 0.089  | 1.0260 0.105  | 1.0258 0.095  | 1.0262 1.000  | 1.0268 1.132  | 1.0266 0.002   |
| Min.  | 1.0260 0.051  | 1.0266 1.0252 | 1.0264 1.0249 | 1.0252 1.0248 | 1.0246 1.0255 | 1.0246 1.0254 | 1.0246 1.0259 | 1.0260 1.0260 | 1.0247 1.0247 | 1.0246 1.0246  |
| <b>CANAVIEIRAS, BRAZIL</b>                              |               |               |               |               |               |               |               |               |               |                |
| Mean Density Salinity                                   | 1.0068 9.9    | 1.0111 15.6   | 1.0082 11.8   | 1.0072 10.5   | 1.0090 12.8   | 1.0101 14.2   | 1.0098 13.9   | 1.0081 11.6   | 1.0118 16.5   | 1.0096 18.7    |
| Max.  | 1.0250 1.0213 | 1.0268 1.0227 | 1.0255 1.0216 | 1.0266 1.0200 | 1.0264 1.0237 | 1.0264 1.0254 | 1.0264 1.0224 | 1.0264 1.0225 | 1.0268 1.0253 | 1.0267 1.0253  |
| Mean Max.   | 0.9994 0.9989 | 1.0036 0.9992 | 1.0011 0.9994 | 1.0004 0.9994 | 1.0014 0.9981 | 1.0012 0.9995 | 1.0006 0.9988 | 1.0001 0.9988 | 1.0028 0.9994 | 1.0160 1.0105  |
| Mean Min.   | 0.9994 0.9989 | 1.0036 0.9992 | 1.0011 0.9994 | 1.0004 0.9994 | 1.0004 0.9981 | 1.0004 0.9995 | 1.0004 0.9995 | 1.0001 0.9988 | 1.0002 0.9987 | 1.0017 0.9989  |
| Min.  | 0.9994 0.9989 | 1.0036 0.9992 | 1.0011 0.9994 | 1.0004 0.9994 | 1.0004 0.9981 | 1.0004 0.9995 | 1.0004 0.9995 | 1.0001 0.9988 | 1.0002 0.9987 | 1.0017 1.0017  |
| <b>RIO DE JANEIRO (Fortaleza de Santa Cruz), BRAZIL</b> |               |               |               |               |               |               |               |               |               |                |
| 1949  | —             | —             | —             | —             | —             | —             | —             | —             | 1.0264 1.0249 | 1.0243 1.0228* |
| 1950  | 1.0227 230    | 1.0181 235    | 1.0222 222    | 1.0195 212    | 1.0226 218    | 1.0250 250    | 1.0254 261    | 1.0262 260    | 253 261       | 234 259        |
| 1951  | 250           | 229           | 206           | 237           | 245           | 255           | 255           | 254           | 252 239       | 244 233        |
| 1952  | —             | 242           | 244           | 239           | 251           | 251           | 259           | 260           | 259 253       | 243 240        |
| 1953  | 242           | 257           | 258           | 251           | 248           | 250           | 257           | 259           | 258 252       | 244 255        |
| 1954  | 242           | 248           | 255           | 245           | 252           | 257           | 257           | 258           | 252 255       | 254 254        |
| 1955  | 241           | 248           | 255           | 245           | 245           | 252           | 257           | 258           | 246 250       | 250 250        |
| 1956  | 238           | 249           | 247           | 242           | 244           | 247           | 247           | 249           | 255 255       | 246 246        |

\*Observations for the year are incomplete; extremes are for the months shown.

Table 1. Density of Sea Water - *Continued*  
Means and Extremes

| Year  | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Means  | Max.           | Min. |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|------|
| <b>RIO DE JANEIRO (Fortaleza de Santa Cruz), BRAZIL-Continued</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |                |      |
| <b>IMBITUBA, BRAZIL</b>   |        |        |        |        |        |        |        |        |        |        |        |        |        |                |      |
| Mean Density Salinity   | 1.0238 | 1.0234 | 1.0236 | 1.0232 | 1.0237 | 1.0251 | 1.0256 | 1.0257 | 1.0258 | 1.0258 | 1.0250 | 1.0241 | 1.0246 | 33.2           |      |
| Max.  | 32.1   | 31.6   | 31.9   | 31.4   | 32.0   | 33.8   | 34.5   | 34.6   | 34.8   | 34.8   | 33.7   | 32.5   |        |                |      |
| Mean Max.   | 1.0265 | 1.0265 | 1.0263 | 1.0260 | 1.0258 | 1.0270 | 1.0270 | 1.0268 | 1.0269 | 1.0270 | 1.0265 | 1.0265 |        |                |      |
| Mean Min.   | 1.0258 | 1.0254 | 1.0255 | 1.0252 | 1.0253 | 1.0260 | 1.0261 | 1.0263 | 1.0263 | 1.0264 | 1.0260 | 1.0255 |        |                |      |
| Min.  | 1.0200 | 1.0212 | 1.0217 | 1.0215 | 1.0221 | 1.0240 | 1.0247 | 1.0250 | 1.0252 | 1.0250 | 1.0241 | 1.0222 |        |                |      |
| Mean Density Salinity   | 1.0122 | 1.0145 | 1.0175 | 1.0168 | 1.0178 | 1.0228 | 1.0240 | 1.0239 | 1.0247 | 1.0241 | 1.0228 | 1.0191 | 1.0122 |                |      |
| 1949  | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0265 | 1.0266 | ---    | 1.0270*1.0259* |      |
| 1950  | 1.0262 | 1.0265 | 1.0262 | 1.0267 | 1.0265 | 1.0264 | 1.0260 | 1.0243 | 1.0255 | 259    | 266    | 264    | 1.0261 | 273            | 222  |
| 1951  | 262    | 263    | 268    | 251    | 257    | 264    | 258    | 265    | 262    | 248    | 260    | 264    | 260    | 271            | 243  |
| 1952  | 263    | 266    | 266    | 266    | 255    | 252    | 244    | 253    | 243    | 243    | 255    | 262    | 256    | 271            | 232  |
| 1953  | 262    | 262    | 267    | 264    | 265    | 263    | 256    | 265    | 265    | 262    | 259    | 263    | 263    | 272            | 240  |
| 1954  | 265    | 265    | 264    | 261    | 260    | 254    | 244    | 238    | 252    | 256    | 249    | 260    | 256    | 270            | 225  |
| 1955  | 260    | ---    | 263    | 261    | 253    | 239    | 228    | 242    | 253    | 255    | 253    | 259    | ---    | 270*           | 210* |
| 1956  | 255    | 256    | 260    | 262    | 257    | 232    | 240    | 248    | 261    | 262    | 262    | 264    | 255    | 269            | 217  |
| Mean Density Salinity   | 1.0261 | 1.0263 | 1.0264 | 1.0262 | 1.0259 | 1.0253 | 1.0247 | 1.0251 | 1.0256 | 1.0256 | 1.0259 | 1.0263 | 1.0258 | 34.8           |      |
| Max.  | 35.1   | 35.4   | 35.5   | 35.3   | 34.9   | 34.1   | 33.3   | 33.8   | 34.5   | 34.5   | 34.9   | 35.4   |        |                |      |
| Mean Max.   | 1.0270 | 1.0270 | 1.0270 | 1.0273 | 1.0271 | 1.0268 | 1.0272 | 1.0270 | 1.0270 | 1.0269 | 1.0269 | 1.0269 |        |                |      |
| Mean Min.   | 1.0266 | 1.0268 | 1.0269 | 1.0267 | 1.0268 | 1.0261 | 1.0260 | 1.0266 | 1.0266 | 1.0266 | 1.0266 | 1.0266 |        |                |      |
| Min.  | 1.0254 | 1.0256 | 1.0255 | 1.0255 | 1.0248 | 1.0244 | 1.0236 | 1.0237 | 1.0246 | 1.0245 | 1.0251 | 1.0255 |        |                |      |
| 1940  | 1.0240 | 1.0246 | 1.0245 | 1.0247 | 1.0230 | 1.0210 | 1.0222 | 1.0236 | 1.0237 | 1.0237 | 1.0240 | 1.0240 |        |                |      |

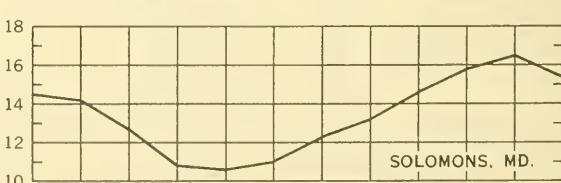
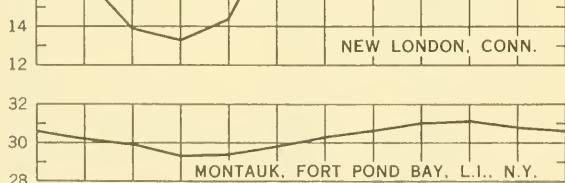
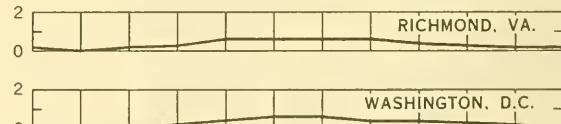
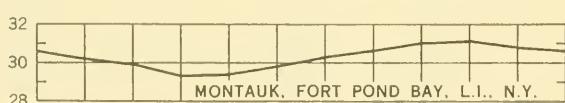
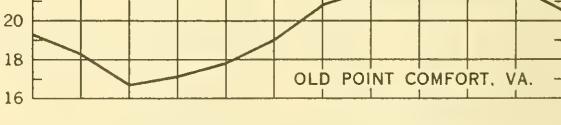
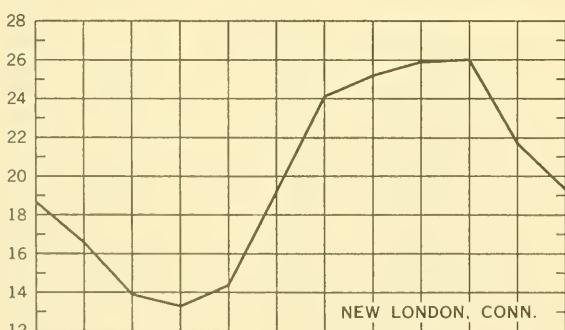
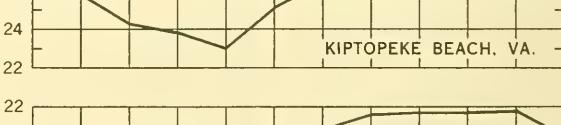
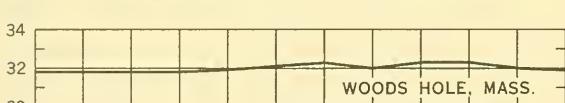
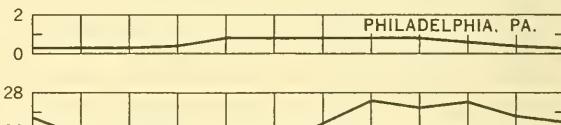
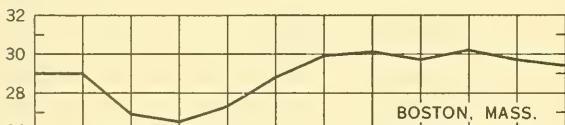
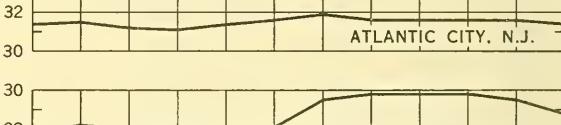
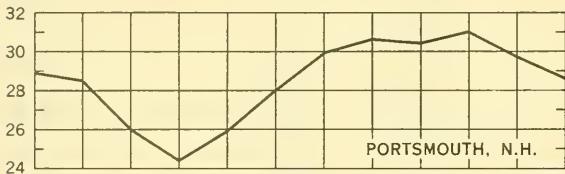
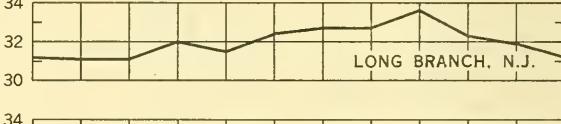
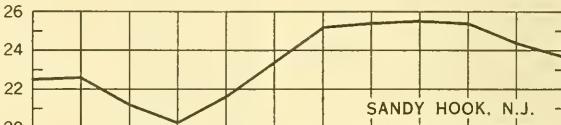
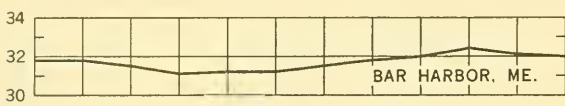
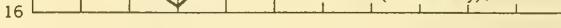
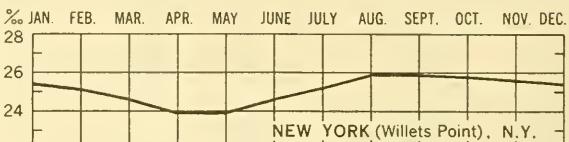
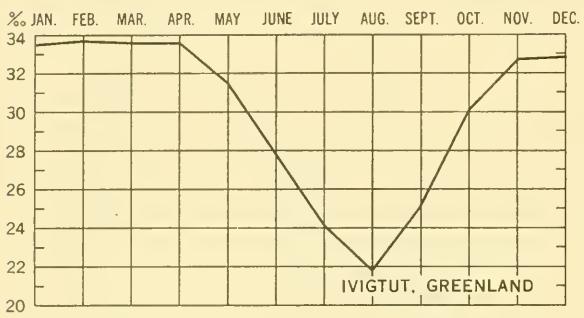
### MONROVIA, LIBERIA

|                       |        |        |        |        |        |        |        |        |        |        |        |        |                |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|
| 1953                  | ---    | ---    | ---    | ---    | ---    | ---    | ---    | 1.0089 | 1.0097 | 1.0186 | 1.0222 | ---    | 1.0244*1.0032* |
| 1954                  | 1.0233 | 1.0233 | 1.0238 | 1.0241 | 1.0237 | 1.0213 | 1.0213 | 1.0150 | 077    | 112    | 170    | 194    | 1.0193         |
| 1955                  | 226    | 238    | 224    | 230    | 231    | 169    | 133    | 124    | 087    | 112    | 189    | 189    | 256<br>249     |
| Mean Density Salinity | 31.0   | 31.9   | 31.2   | 31.9   | 31.6   | 31.6   | 26.0   | 23.7   | 19.0   | 12.0   | 15.0   | 24.8   | 1.0187<br>25.5 |
| Max.                  | 1.0247 | 1.0249 | 1.0252 | 1.0256 | 1.0256 | 1.0243 | 1.0243 | 1.0248 | 1.0227 | 1.0179 | 1.0172 | 1.0233 | 1.0244         |
| Mean Max.             | 1.0243 | 1.0249 | 1.0250 | 1.0250 | 1.0252 | 1.0252 | 1.0233 | 1.0218 | 1.0204 | 1.0149 | 1.0171 | 1.0224 | 1.0230         |
| Mean Min.             | 1.0207 | 1.0204 | 1.0180 | 1.0208 | 1.0188 | 1.0188 | 1.0105 | 1.0094 | 1.0078 | 1.0047 | 1.0060 | 1.0114 | 1.0144         |
| Min.                  | 1.0202 | 1.0197 | 1.0153 | 1.0197 | 1.0183 | 1.0100 | 1.0059 | 1.0057 | 1.0039 | 1.0032 | 1.0078 | 1.0128 | 1.0032         |

\*Observations for the year are incomplete; extremes are for the months shown.

## Mean Salinity Curves

Monthly mean salinities in parts per thousand are presented graphically to show the seasonal variation.



## Mean Salinity Curves-Continued

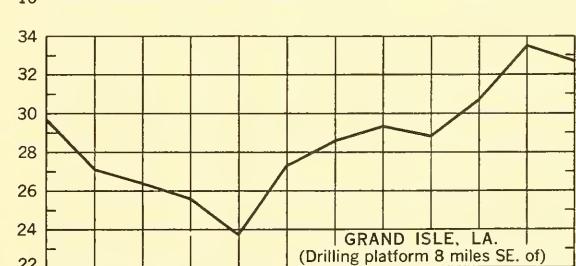
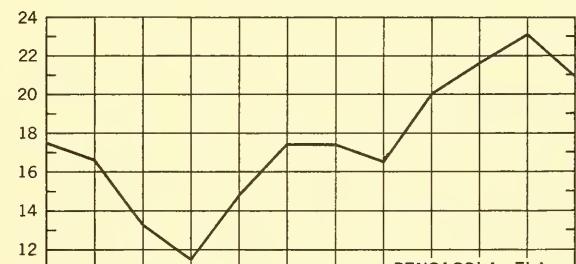
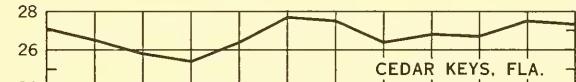
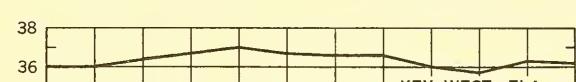
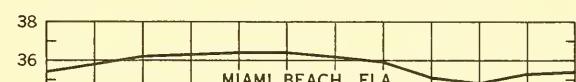
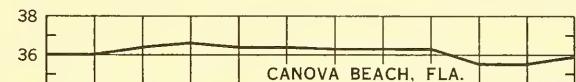
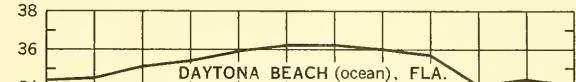
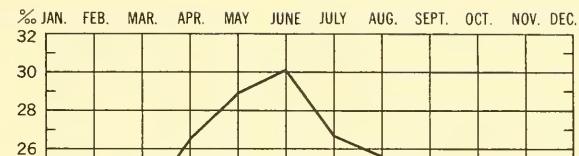
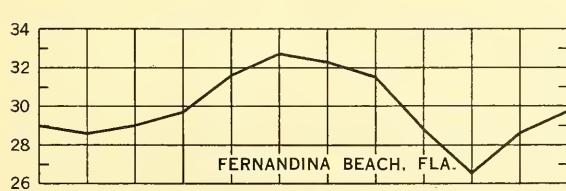
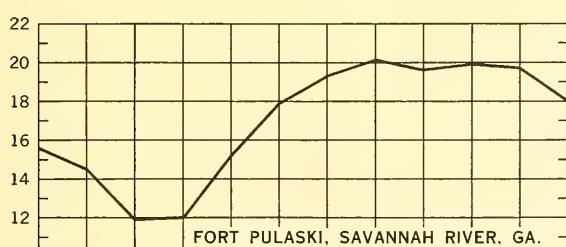
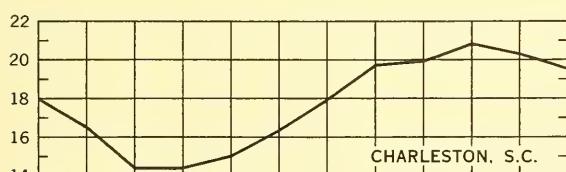
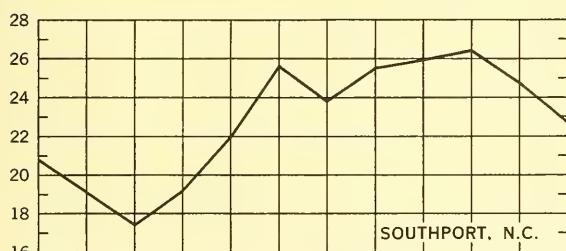
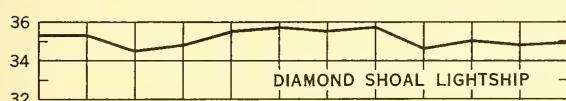
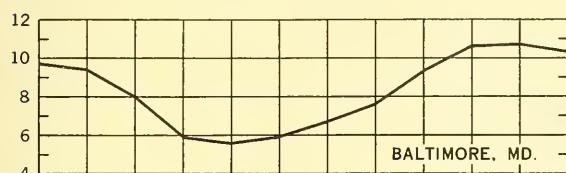
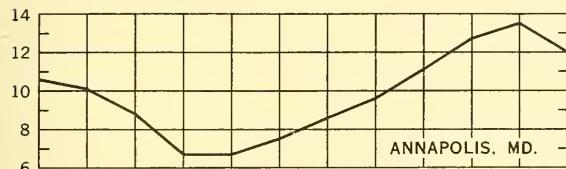
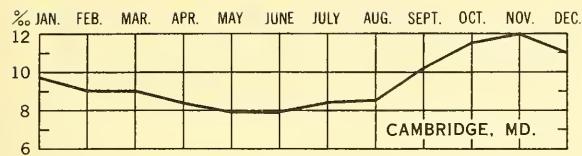




Table 2. Corresponding Densities and Salinities

(Density at 15°C. -- Salinity in parts per 1000)

| Dens-<br>ity | Sal-<br>inity |
|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|
| 0.9991       | 0.0           | 1.0046       | 7.1           | 1.0101       | 14.2          | 1.0156       | 21.4          | 1.0211       | 28.6          | 1.0266       | 35.8          |
| 0.9992       | 0.0           | 1.0047       | 7.2           | 1.0102       | 14.4          | 1.0157       | 21.6          | 1.0212       | 28.8          | 1.0267       | 35.9          |
| 0.9993       | 0.2           | 1.0048       | 7.3           | 1.0103       | 14.5          | 1.0158       | 21.7          | 1.0213       | 28.9          | 1.0268       | 36.0          |
| 0.9994       | 0.3           | 1.0049       | 7.5           | 1.0104       | 14.6          | 1.0159       | 21.8          | 1.0214       | 29.0          | 1.0269       | 36.2          |
| 0.9995       | 0.4           | 1.0050       | 7.6           | 1.0105       | 14.8          | 1.0160       | 22.0          | 1.0215       | 29.1          | 1.0270       | 36.3          |
| 0.9996       | 0.6           | 1.0051       | 7.7           | 1.0106       | 14.9          | 1.0161       | 22.1          | 1.0216       | 29.3          | 1.0271       | 36.4          |
| 0.9997       | 0.7           | 1.0052       | 7.9           | 1.0107       | 15.0          | 1.0162       | 22.2          | 1.0217       | 29.4          | 1.0272       | 36.6          |
| 0.9998       | 0.8           | 1.0053       | 8.0           | 1.0108       | 15.2          | 1.0163       | 22.4          | 1.0218       | 29.5          | 1.0273       | 36.7          |
| 0.9999       | 0.9           | 1.0054       | 8.1           | 1.0109       | 15.3          | 1.0164       | 22.5          | 1.0219       | 29.7          | 1.0274       | 36.8          |
| 1.0000       | 1.1           | 1.0055       | 8.2           | 1.0110       | 15.4          | 1.0165       | 22.6          | 1.0220       | 29.8          | 1.0275       | 37.0          |
| 1.0001       | 1.2           | 1.0056       | 8.4           | 1.0111       | 15.6          | 1.0166       | 22.7          | 1.0221       | 29.9          | 1.0276       | 37.1          |
| 1.0002       | 1.3           | 1.0057       | 8.5           | 1.0112       | 15.7          | 1.0167       | 22.9          | 1.0222       | 30.1          | 1.0277       | 37.2          |
| 1.0003       | 1.5           | 1.0058       | 8.6           | 1.0113       | 15.8          | 1.0168       | 23.0          | 1.0223       | 30.2          | 1.0278       | 37.3          |
| 1.0004       | 1.6           | 1.0059       | 8.8           | 1.0114       | 16.0          | 1.0169       | 23.1          | 1.0224       | 30.3          | 1.0279       | 37.5          |
| 1.0005       | 1.7           | 1.0060       | 8.9           | 1.0115       | 16.1          | 1.0170       | 23.3          | 1.0225       | 30.4          | 1.0280       | 37.6          |
| 1.0006       | 1.9           | 1.0061       | 9.0           | 1.0116       | 16.2          | 1.0171       | 23.4          | 1.0226       | 30.6          | 1.0281       | 37.7          |
| 1.0007       | 2.0           | 1.0062       | 9.2           | 1.0117       | 16.3          | 1.0172       | 23.5          | 1.0227       | 30.7          | 1.0282       | 37.9          |
| 1.0008       | 2.1           | 1.0063       | 9.3           | 1.0118       | 16.5          | 1.0173       | 23.7          | 1.0228       | 30.8          | 1.0283       | 38.0          |
| 1.0009       | 2.2           | 1.0064       | 9.4           | 1.0119       | 16.6          | 1.0174       | 23.8          | 1.0229       | 31.0          | 1.0284       | 38.1          |
| 1.0010       | 2.4           | 1.0065       | 9.6           | 1.0120       | 16.7          | 1.0175       | 23.9          | 1.0230       | 31.1          | 1.0285       | 38.2          |
| 1.0011       | 2.5           | 1.0066       | 9.7           | 1.0121       | 16.9          | 1.0176       | 24.1          | 1.0231       | 31.2          | 1.0286       | 38.4          |
| 1.0012       | 2.6           | 1.0067       | 9.8           | 1.0122       | 17.0          | 1.0177       | 24.2          | 1.0232       | 31.4          | 1.0287       | 38.5          |
| 1.0013       | 2.8           | 1.0068       | 9.9           | 1.0123       | 17.1          | 1.0178       | 24.3          | 1.0233       | 31.5          | 1.0288       | 38.6          |
| 1.0014       | 2.9           | 1.0069       | 10.1          | 1.0124       | 17.3          | 1.0179       | 24.4          | 1.0234       | 31.6          | 1.0289       | 38.8          |
| 1.0015       | 3.0           | 1.0070       | 10.2          | 1.0125       | 17.4          | 1.0180       | 24.6          | 1.0235       | 31.8          | 1.0290       | 38.9          |
| 1.0016       | 3.2           | 1.0071       | 10.3          | 1.0126       | 17.5          | 1.0181       | 24.7          | 1.0236       | 31.9          | 1.0291       | 39.0          |
| 1.0017       | 3.3           | 1.0072       | 10.5          | 1.0127       | 17.7          | 1.0182       | 24.8          | 1.0237       | 32.0          | 1.0292       | 39.2          |
| 1.0018       | 3.4           | 1.0073       | 10.6          | 1.0128       | 17.8          | 1.0183       | 25.0          | 1.0238       | 32.1          | 1.0293       | 39.3          |
| 1.0019       | 3.5           | 1.0074       | 10.7          | 1.0129       | 17.9          | 1.0184       | 25.1          | 1.0239       | 32.3          | 1.0294       | 39.4          |
| 1.0020       | 3.7           | 1.0075       | 10.8          | 1.0130       | 18.0          | 1.0185       | 25.2          | 1.0240       | 32.4          | 1.0295       | 39.6          |
| 1.0021       | 3.8           | 1.0076       | 11.0          | 1.0131       | 18.2          | 1.0186       | 25.4          | 1.0241       | 32.5          | 1.0296       | 39.7          |
| 1.0022       | 3.9           | 1.0077       | 11.1          | 1.0132       | 18.3          | 1.0187       | 25.5          | 1.0242       | 32.7          | 1.0297       | 39.8          |
| 1.0023       | 4.1           | 1.0078       | 11.2          | 1.0133       | 18.4          | 1.0188       | 25.6          | 1.0243       | 32.8          | 1.0298       | 39.9          |
| 1.0024       | 4.2           | 1.0079       | 11.4          | 1.0134       | 18.6          | 1.0189       | 25.8          | 1.0244       | 32.9          | 1.0299       | 40.1          |
| 1.0025       | 4.3           | 1.0080       | 11.5          | 1.0135       | 18.7          | 1.0190       | 25.9          | 1.0245       | 33.1          | 1.0300       | 40.2          |
| 1.0026       | 4.5           | 1.0081       | 11.6          | 1.0136       | 18.8          | 1.0191       | 26.0          | 1.0246       | 33.2          | 1.0301       | 40.3          |
| 1.0027       | 4.6           | 1.0082       | 11.8          | 1.0137       | 19.0          | 1.0192       | 26.1          | 1.0247       | 33.3          | 1.0302       | 40.4          |
| 1.0028       | 4.7           | 1.0083       | 11.9          | 1.0138       | 19.1          | 1.0193       | 26.3          | 1.0248       | 33.5          | 1.0303       | 40.6          |
| 1.0029       | 4.8           | 1.0084       | 12.0          | 1.0139       | 19.2          | 1.0194       | 26.4          | 1.0249       | 33.6          | 1.0304       | 40.7          |
| 1.0030       | 5.0           | 1.0085       | 12.2          | 1.0140       | 19.3          | 1.0195       | 26.5          | 1.0250       | 33.7          | 1.0305       | 40.8          |
| 1.0031       | 5.1           | 1.0086       | 12.3          | 1.0141       | 19.5          | 1.0196       | 26.7          | 1.0251       | 33.8          | 1.0306       | 41.0          |
| 1.0032       | 5.2           | 1.0087       | 12.4          | 1.0142       | 19.6          | 1.0197       | 26.8          | 1.0252       | 34.0          | 1.0307       | 41.1          |
| 1.0033       | 5.4           | 1.0088       | 12.6          | 1.0143       | 19.7          | 1.0198       | 26.9          | 1.0253       | 34.1          | 1.0308       | 41.2          |
| 1.0034       | 5.5           | 1.0089       | 12.7          | 1.0144       | 19.9          | 1.0199       | 27.1          | 1.0254       | 34.2          | 1.0309       | 41.4          |
| 1.0035       | 5.6           | 1.0090       | 12.8          | 1.0145       | 20.0          | 1.0200       | 27.2          | 1.0255       | 34.4          | 1.0310       | 41.5          |
| 1.0036       | 5.8           | 1.0091       | 12.9          | 1.0146       | 20.1          | 1.0201       | 27.3          | 1.0256       | 34.5          | 1.0311       | 41.6          |
| 1.0037       | 5.9           | 1.0092       | 13.1          | 1.0147       | 20.3          | 1.0202       | 27.5          | 1.0257       | 34.6          | 1.0312       | 41.7          |
| 1.0038       | 6.0           | 1.0093       | 13.2          | 1.0148       | 20.4          | 1.0203       | 27.6          | 1.0258       | 34.8          | 1.0313       | 41.9          |
| 1.0039       | 6.2           | 1.0094       | 13.3          | 1.0149       | 20.5          | 1.0204       | 27.7          | 1.0259       | 34.9          | 1.0314       | 42.0          |
| 1.0040       | 6.3           | 1.0095       | 13.5          | 1.0150       | 20.6          | 1.0205       | 27.8          | 1.0260       | 35.0          | 1.0315       | 42.1          |
| 1.0041       | 6.4           | 1.0096       | 13.6          | 1.0151       | 20.8          | 1.0206       | 28.0          | 1.0261       | 35.1          | 1.0316       | 42.3          |
| 1.0042       | 6.6           | 1.0097       | 13.7          | 1.0152       | 20.9          | 1.0207       | 28.1          | 1.0262       | 35.3          | 1.0317       | 42.4          |
| 1.0043       | 6.7           | 1.0098       | 13.9          | 1.0153       | 21.0          | 1.0208       | 28.2          | 1.0263       | 35.4          | 1.0318       | 42.5          |
| 1.0044       | 6.8           | 1.0099       | 14.0          | 1.0154       | 21.2          | 1.0209       | 28.4          | 1.0264       | 35.5          | 1.0319       | 42.7          |
| 1.0045       | 6.9           | 1.0100       | 14.1          | 1.0155       | 21.3          | 1.0210       | 28.5          | 1.0265       | 35.7          | 1.0320       | 42.8          |

## Sea Water Density at Various Temperatures

The purpose of this graph is to provide the density of sea water at any temperature apt to be encountered when the density at the standard temperature of 59°F. (15°C.) is known. It is intended primarily for use with this density publication which gives densities at 59°F. and with Coast and Geodetic Survey Special Publication No. 278 which gives sea water temperatures for the same stations.

To convert a density at 59°F. to density at another temperature, enter the graph horizontally from the left with the known density and downward from the top with the desired temperature; the position of the point of intersection with respect to the curves gives the density at the desired temperature. Interpolate between curves when necessary. For example, by this method, water having a density of 1.0162 at 59°F. is found to have a density of 1.0124 at 85°F.

The densities are referred to the density of fresh water at 4°C. (39.2°F.) as unity.

