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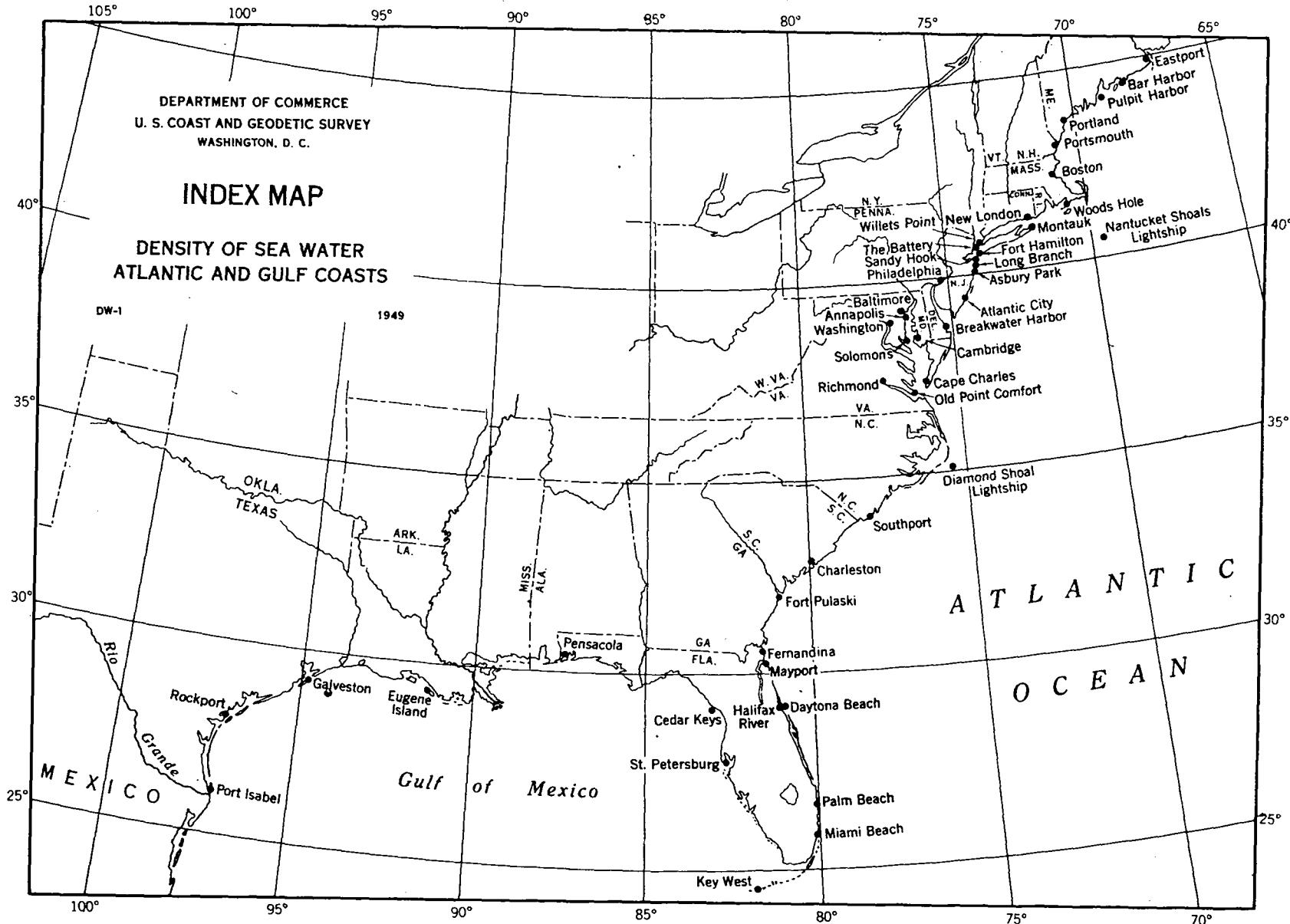
DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON, D. C.

## INDEX MAP

### DENSITY OF SEA WATER ATLANTIC AND GULF COASTS

DW-1

1949



## LIST OF STATIONS

STATION	LAT. °   ° North	LONG. °   ° West	PAGE
Eastport, Me.	44 54	66 59	5
Bar Harbor, Me.	44 23	68 12	5
Pulpit Harbor, Penobscot Bay, Me.	44 09	68 53	6
Portland, Me.	43 40	70 15	6
Portsmouth, N.H.	43 05	70 45	7
Boston, Mass.	42 21	71 03	7
Woods Hole, Mass.	41 31	70 40	8
Nantucket Shoals Lightship	40 37	69 37	9
New London, Conn.	41 22	72 06	9
Montauk, Fort Pond Bay, L.I., N.Y.	41 03	71 58	9
Willets Point, East River, N.Y.	40 48	73 47	9
New York (The Battery), N.Y.	40 42	74 01	10
New York (Fort Hamilton), N.Y.	40 37	74 02	11
Sandy Hook, N.J.	40 28	74 01	11
Long Branch, N.J.	40 18	73 59	12
Asbury Park, N.J.	40 13	74 00	12
Atlantic City, N.J.	39 21	74 25	12
Breakwater Harbor, Del.	38 47	75 06	13
Philadelphia, Pa.	39 57	75 08	14
Old Point Comfort, Va.	37 00	76 18	15
Richmond, Va.	37 32	77 25	15
Cape Charles (town), Va.	37 16	76 01	15
Washington, D.C.	38 52	77 01	15
Solomons, Md.	38 19	76 27	16
Cambridge, Md.	38 34	76 04	16
Annapolis, Md.	38 59	76 29	16
Baltimore, Md.	39 16	76 35	17
Diamond Shoal Lightship	35 05	75 20	18
Southport, N.C.	33 55	78 01	18
Charleston, S.C.	32 47	79 55	19, 20
Fort Pulaski, Savannah River, Ga.	32 02	80 54	20
Fernandina, Fla.	30 41	81 28	20
Mayport, Fla.	30 24	81 26	21
Daytona Beach (ocean), Fla.	29 14	81 00	21
Daytona Beach (Halifax River), Fla.	29 13	81 01	22
Palm Beach, Fla.	26 43	80 02	22
Miami Beach, Fla.	25 46	80 08	23
Key West, Fla.	24 33	81 48	23
St. Petersburg, Fla.	27 46	82 38	24
Cedar Keys, Fla.	29 08	83 02	24
Pensacola, Fla.	30 24	87 13	25
Eugene Island, La.	29 22	91 23	26
Galveston, Tex.	29 19	94 48	26
Rockport, Tex.	28 01	97 03	27
Port Isabel, Tex.	26 04	97 13	27
Coatzacoalcos (Puerto Mexico), Mexico	18 09	94 25	27
Progreso, Mexico	21 17	89 40	28
Habana, Cuba	23 09	82 20	28
Guantanamo Bay, Cuba	19 54	75 09	28
Ivigtut, Greenland	61 12	48 11	28

## INTRODUCTION

The monthly mean and yearly mean and extreme densities of sea water given on the following pages are based on observations made principally at tide stations maintained by the U. S. Coast and Geodetic Survey along the Atlantic and Gulf coasts of the United States and at tide stations maintained cooperatively in other countries. They include observations made through the year 1948.

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, there is a distinct change of density with the stage of the tide or with the direction of the tidal current.

The densities are given with respect to the density of pure water at a temperature of  $4^{\circ}\text{C}$  ( $39.2^{\circ}\text{F}$ ) as unity. The actual density of the water may vary from a little less than unity for fresh water at a temperature other than  $4^{\circ}\text{C}$  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  $15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ ). The density of pure water free from air at a temperature of  $15^{\circ}\text{C}$  is 0.9991.

The salinity of sea water 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. The table on the inside back cover gives the salinity corresponding to different values of density at the standard temperature of  $15^{\circ}\text{C}$  to which all densities in this publication are referred.

The following table contains monthly mean densities and means for each year for which there are twelve monthly means. 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 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. Below each series that covers two or more years, mean and extreme densities for the series are given on the line labeled "Mean Density". The next line gives the corresponding salinities.

Following the table are graphs showing the seasonal variation in salinity at stations for which the observations covered five years or more.

The following publications complete this series:

Special Pub. 278. Surface Water Temperatures, Atlantic Coast, North and South America.

Special Pub. 280. Surface Water Temperatures, Pacific Ocean.

Special Pub. 281. Density of Sea Water, Pacific Ocean.

## Density of Sea Water

Means and extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
EASTPORT, ME.															
1930	1.0236	1.0235	1.0230	1.0230	1.0230	1.0232	1.0236	1.0240	1.0239	1.0239	1.0236	1.0237	1.0235	1.0244	1.0215
1931	237	236	233	227	225	227	230	233	235	236	238	240	233	244	220
1932	239	236	235	---	---	234	236	237	239	237	234	236	---	245*	229*
1933	236	236	235	229	228	230	234	235	---	237	236	236	---	241*	219*
1934	236	234	234	228	228	230	234	236	237	237	238	237	234	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	233	244	213
1937	234	233	234	232	228	229	234	235	237	239	239	237	234	243	222
1938	236	234	233	228	227	230	232	234	233	236	235	234	233	240	216
1939	235	235	233	231	228	230	232	235	236	237	238	236	234	241	223
1940	236	236	234	224	227	228	230	234	233	237	238	237	233	242	218
1941	235	235	235	230	228	231	233	238	237	239	238	240	235	244	223
1942	238	236	234	230	230	230	232	237	239	240	239	239	235	244	222
1943	242	239	242	239	237	239	242	241	242	240	234	238	240	246	226
1944	240	240	239	236	237	239	243	246	247	247	243	238	241	251	230
1945	237	240	239	238	234	239	245	246	249	248	241	237	241	255	228
1946	238	236	234	233	233	236	240	245	249	251	249	245	241	253	227
1947	243	239	238	236	233	232	240	241	244	247	247	244	240	249	214
1948	242	241	240	234	231	231	234	237	240	239	237	236	237	245	226
Mean Density	1.0237	1.0236	1.0235	1.0231	1.0230	1.0232	1.0235	1.0238	1.0240	1.0240	1.0239	1.0238	1.0236	1.0255	1.0213
Salinity	32.0	31.9	31.8	31.2	31.1	31.4	31.8	32.1	32.4	32.4	32.3	32.1	31.9	34.4	28.9
BAR HARBOR, ME.															
1947	---	---	---	---	---	---	---	---	1.0239	1.0242	---	1.0243	---	1.0246*	1.0236*
1948	1.0242	1.0241	1.0238	1.0234	1.0229	1.0228	1.0230	1.0232	237	238	1.0238	238	1.0235	245	220

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

Density of Sea Water - *Continued*  
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
PULPIT HARBOR, PENOBCOT BAY, ME.															
1945	---	---	---	---	---	---	---	---	---	---	---	---	---	1.0234* 1.0218*	
1946	1.0223	1.0216	---	---	1.0208	1.0203	1.0218	1.0225	231	232	232	233	232	240*	189*
PORTLAND, ME.															
1922	1.0236	1.0230	1.0212	1.0212	1.0206	---	1.0204	1.0219	1.0220	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	214	215	218	221	221	218	219	216	209	216	232	192
1928	210	209	212	207	---	---	---	---	---	---	---	213	---	230*	197*
1929	211	214	230	224	---	---	234	236	237	226	215	217	---	253*	181*
1930	215	---	213	219	222	230	234	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	236	240	235	232	222	221	218	227	250	178
1933	222	224	224	222	231	241	233	229	216	224	223	226	226	248	146
1934	---	---	217	190	219	212	231	222	232	---	---	---	---	237*	116*
1935	---	---	204	208	---	---	227	218	226	232	223	213	---	252*	169*
1936	219	216	163	175	228	227	223	224	224	226	222	216	---	238*	100*
1937	219	213	220	198	166	195	222	226	230	228	220	213	213	238	104
1938	225	214	215	204	208	215	219	222	223	222	225	215	217	236	167
1939	225	225	216	188	194	218	219	218	226	228	228	229	218	241	126
1940	229	227	221	186	196	200	222	227	228	228	224	224	218	242	127
1941	224	220	223	220	223	231	235	235	235	238	237	234	230	245	189
1942	232	231	211	213	212	210	221	223	223	227	223	227	221	242	126
1943	226	227	215	220	201	217	223	224	222	218	211	224	219	235	171
1944	225	223	214	203	208	222	225	230	224	227	218	216	220	238	158

1945	221	220	194	207	182	188	216	222	221	222	210	215	210	239	129
Mean Density	1.0223	1.0221	1.0214	1.0207	1.0209	1.0218	1.0226	1.0226	1.0226	1.0226	1.0220	1.0220	1.0254	1.0100	
Salinity	30.2	29.9	29.0	28.1	28.4	29.5	30.6	30.6	30.6	30.6	30.2	29.8	29.8	34.2	14.1
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	229	---	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	98
Mean Density	1.0226	1.0224	1.0192	1.0191	1.0191	1.0200	1.0215	1.0223	1.0226	1.0229	1.0227	1.0217	1.0213	1.0253	1.0098
Salinity	30.6	30.3	26.1	26.0	26.0	27.2	29.1	30.2	30.6	31.0	30.7	29.4	28.9	34.1	13.9
BOSTON, MASS.															
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	228	231	227	217	222	237	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	223	218	223	228	229	228	233	230	226	227	226	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	215	233	159

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

Density of Sea Water - Continued  
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
BOSTON, MASS. - Continued															
1935	1.0209	1.0216	1.0201	1.0182	1.0209	1.0206	1.0220	1.0227	1.0224	1.0231	1.0225	1.0224	1.0215	1.0234	1.0131
1936	220	221	171	185	215	224	226	228	219	223	228	200	213	233	129
1937	205	215	215	201	199	205	218	226	221	227	219	203	213	233	152
1938	212	201	213	208	205	210	192	189	203	198	214	196	203	233	132
1939	215	210	192	166	192	219	229	230	229	222	228	213	235	102	
1940	223	228	199	169	191	202	220	228	229	224	221	214	238	101	
1941	215	216	225	213	219	223	232	231	234	234	233	231	226	243	175
1942	224	219	172	200	214	216	222	222	229	227	223	216	215	235	098
1943	203	216	191	217	192	216	229	230	230	226	226	229	217	257	118
1944	229	228	217	197	206	225	---	232	222	224	219	210	---	237*	160*
1945	220	217	176	213	192	198	210	219	226	230	215	177	208	237	112
1946	188	206	181	211	204	192	226	199	205	224	229	228	208	233	123
1947	212	224	212	211	196	217	220	219	218	233	219	228	217	238	149
1948	229	223	171	187	191	175	202	221	227	219	217	221	207	239	117
Mean Density	1.0216	1.0219	1.0200	1.0200	1.0206	1.0213	1.0221	1.0223	1.0222	1.0225	1.0223	1.0218	1.0216	1.0257	1.0098
Salinity	29.3	29.7	27.2	27.2	28.0	28.9	29.9	30.2	30.0	30.4	30.2	29.5	29.3	34.6	13.9
WOODS HOLE, MASS.															
1944	---	---	1.0237	1.0236	1.0238	1.0240	1.0240	1.0240	1.0241	1.0240	1.0238	1.0237	---	1.0254*	1.0223*
1945	1.0237	1.0240	237	239	238	241	239	237	240	239	238	233	1.0238	282	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	234	237	238	240	238	237	237	237	235	234	232	236	249	125
Mean Density	1.0237	1.0236	1.0237	1.0237	1.0238	1.0239	1.0240	1.0238	1.0240	1.0240	1.0238	1.0237	1.0238	1.0282	1.0125
Salinity	32.0	31.9	32.0	32.0	32.1	32.3	32.4	32.1	32.4	32.4	32.1	32.0	32.1	37.9	17.4
NANTUCKET SHOALS LIGHTSHIP															
1923	---	---	---	---	---	---	---	---	---	1.0242	1.0240	---	---	1.0245*	1.0237*
1924	1.0240	1.0243	1.0244	1.0245	1.0247	1.0242	1.0242	1.0251	1.0252	1.0244	237	241	1.0244	269	232
1925	241	243	244	244	247	245	243	---	---	---	---	---	---	252*	238*
NEW LONDON, CONN.															
1947	---	---	---	---	---	---	---	1.0193	1.0189	1.0211	1.0149	1.0164	---	1.0224*	1.0078*
1948	1.0170	1.0099	1.0071	1.0075	1.0073	1.0075	1.0118	174	208	210	176	177	1.0136	238	002
MONTAUK, FORT POND BAY, L.I., N.Y.															
1947	---	---	---	---	---	---	---	1.0231	1.0233	1.0230	1.0228	---	---	1.0238*	1.0224*
1948	1.0240	1.0229	1.0223	1.0219	1.0223	1.0220	1.0222	---	231	233	233	228	---	245*	203*
WILLETS POINT, EAST RIVER, N.Y.															
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	1.0215	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	163	171	183	190	191	191	189	191	177	200	148
1940	194	195	186	170	171	167	178	184	184	185	186	187	182	204	158
1941	184	183	188	184	186	190	191	201	201	203	200	203	193	209	162
1942	200	200	191	185	188	186	186	184	187	182	181	179	187	208	153
1943	179	181	171	173	166	171	183	190	190	191	188	193	181	200	156
1944	194	195	186	177	179	185	187	194	---	197	189	---	---	210*	165*
1945	192	192	179	182	163	177	178	176	183	182	182	176	180	200	158
1946	174	178	172	173	179	170	184	185	184	186	197	184	180	200	160
1947	183	183	181	175	175	176	184	187	188	191	189	---	---	200*	162*
1948	---	192	181	173	172	171	180	188	193	193	195	190	---	198*	159*
Mean Density	1.0186	1.0185	1.0181	1.0176	1.0176	1.0180	1.0185	1.0190	1.0190	1.0188	1.0188	1.0186	1.0184	1.0215	1.0148
Salinity	25.4	25.2	24.7	24.0	24.0	24.6	25.2	25.9	25.9	25.6	25.6	25.4	25.1	29.1	20.4

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

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.															
1927	1.0160	1.0143	1.0106	1.0137	1.0132	---	---	1.0171	1.0168	1.0153	1.0113	1.0113	---	1.0195*	1.0056*
1928	139	142	140	128	143	1.0145	1.0153	144	154	179	181	175	1.0150	196	103
1929	163	167	127	108	124	161	170	182	186	178	172	166	159	196	076
1930	148	159	128	142	165	162	180	185	186	187	181	182	167	198	103
1931	179	181	167	151	140	151	158	171	177	175	168	156	163	195	102
1932	139	144	158	122	145	172	177	179	184	162	133	153	156	201	056
1933	160	150	140	105	146	171	175	175	158	172	171	169	158	201	065
1934	158	173	149	120	162	170	183	191	181	175	175	157	165	203	074
1935	159	165	142	155	159	181	159	177	186	191	171	156	167	203	101
1936	159	180	106	110	154	176	188	199	191	186	160	160	163	204	024
1937	133	142	153	134	138	162	167	176	169	173	152	153	154	192	080
1938	156	128	141	131	157	165	152	155	138	144	152	113	144	182	035
1939	148	138	112	088	134	163	179	181	182	180	165	169	153	197	063
1940	174	180	162	084	123	130	157	171	166	174	155	144	152	196	052
1941	144	141	148	122	160	177	183	190	194	192	177	170	166	220	094
1942	158	164	128	124	154	151	153	163	166	146	132	141	148	193	062
1943	141	141	098	120	086	130	165	170	177	179	147	154	142	206	046
1944	173	173	137	101	125	152	166	180	178	177	171	153	157	206	063
1945	158	164	098	122	090	126	135	134	148	126	126	123	129	187	043
1946	126	150	111	141	138	121	169	169	170	166	167	168	150	199	068
1947	161	143	136	109	099	115	152	164	175	182	159	165	147	193	035
1948	179	176	112	116	126	139	156	168	177	183	179	165	156	199	052
Mean Density	1.0155	1.0157	1.0132	1.0120	1.0136	1.0153	1.0165	1.0172	1.0173	1.0172	1.0159	1.0155	1.0154	1.0220	1.0024
Salinity	21.3	21.6	18.3	16.7	18.8	21.0	22.6	23.5	23.7	23.5	21.8	21.3	21.2	29.8	4.2

	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	177	175	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	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	1.0242	1.0008
Salinity	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	32.7	2.1
	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*
--															
1944	---	---	---	---	---	---	192	204	197	199	190	176	---	244*	147*
1945	173	182	133	162	141	163	164	157	172	161	165	151	160	209	093
1946	148	180	144	172	178	146	177	181	187	184	190	202	174	230	112
1947	196	169	167	149	142	149	174	182	187	---	159	184	---	210*	111*
1948	184	184	149	150	154	151	169	182	191	198	197	181	174	205	112
Mean Density	1.0164	1.0171	1.0153	1.0150	1.0159	1.0169	1.0183	1.0185	1.0186	1.0186	1.0179	1.0175	1.0172	1.0244	1.0072
Salinity	22.5	23.4	21.0	20.6	21.8	23.1	25.0	25.2	25.4	25.4	24.4	23.9	23.5	32.9	10.5

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

Density of Sea Water - *Continued*  
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
LONG BRANCH, N.J.															
1948	---	---	---	---	---	1.0206	1.0198	1.0213	1.0217	1.0223	1.0224	---	---	---	1.0236*1.0150*
ASBURY PARK, N.J.															
1945	---	---	---	---	---	---	---	---	---	---	---	1.0214	---	1.0228*1.0194*	
1946	1.0220	---	---	---	---	1.0216	1.0219	1.0215	1.0220	1.0224	1.0230	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	1.0239	1.0238	1.0237	1.0237	1.0237	1.0236	1.0247	1.0211	
1913	232	238	238	231	225	231	242	238	239	235	233	236	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	244	212
1916	232	232	230	---	232	229	230	230	233	236	233	229	---	239* 219*	
1917	231	231	228	224	225	231	231	230	230	231	228	229	229	239	212
1918	---	233	226	224	230	229	231	231	233	231	233	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	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	227	238	199
1925	234	233	230	224	235	243	241	236	239	236	232	234	235	247	205
1926	237	237	237	236	236	242	240	237	236	241	242	235	238	247	217
1927	237	237	232	231	242	239	238	238	231	229	226	222	234	250	209
1928	227	229	231	236	227	238	241	233	226	237	244	251	235	251	208
1929	238	238	238	230	236	240	242	242	241	238	236	235	238	250	210

1930	232	233	233	237	243	243	245	242	244	244	241	240	240	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	235	236	223	231	228	234	231	243	206
1936	231	230	230	228	239	237	234	235	234	233	235	227	233	249	205
1937	223	222	229	227	235	235	228	233	231	232	232	230	230	247	207
1938	230	231	234	235	237	235	235	236	232	222	234	228	232	244	204
1939	230	229	230	231	224	237	239	229	230	237	240	233	246	246	204
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	246	238	228	237	237	243	239	238	232	229	228	237	256	207
1945	229	236	228	236	239	237	232	224	230	230	230	220	231	242	206
1946	221	224	220	227	233	229	228	231	231	231	238	237	229	245	205
1947	235	235	237	235	236	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
Mean Density	1.0232	1.0233	1.0232	1.0231	1.0233	1.0235	1.0236	1.0234	1.0234	1.0235	1.0235	1.0233	1.0234	1.0260	1.0197
Salinity	31.4	31.5	31.4	31.2	31.5	31.8	31.9	31.6	31.6	31.8	31.8	31.5	31.6	35.0	26.8
BREAKWATER HARBOR, DEL.															
1921	---	---	---	---	---	---	1.0222	1.0225	1.0228	1.0231	1.0225	1.0214	---	1.0235*1.0203*	
1922	1.0203	1.0209	---	1.0205	1.0209	1.0208	214	220	216	219	220	214	---	241* 187*	
1923	216	209	1.0206	198	---	---	---	---	---	---	---	---	---	226* 166*	
---	---	---	---	---	208	215	219	219	219	220	217	215	---	239* 168*	
1947	---	---	---	---	208	215	219	219	219	220	217	215	---	239* 168*	
1948	207	218	211	200	202	200	211	212	214	206	219	211	209	233	154
Mean Density	1.0209	1.0212	1.0208	1.0201	1.0206	1.0208	1.0216	1.0219	1.0220	1.0219	1.0220	1.0214	1.0213	1.0241	1.0154
Salinity	28.4	28.8	28.2	27.3	28.0	28.2	29.3	29.7	29.8	29.7	29.6	29.0	28.9	32.5	21.2

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

Density of Sea Water - *Continued*  
Mears and Extremes

1

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	1.0000	0.9999	0.9997	0.9995	0.9995	0.9997	1.0012	0.9990
1924	0.9996	0.9996	0.9994	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	0.9996	0.9997	0.9996	0.9994	0.9992	0.9991	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	0.9997	0.9999	0.9996	0.9997	0.9995	0.9992	0.9992	0.9994	1.0004	0.9990
1928	0.9993	0.9994	0.9992	0.9996	0.9999	1.0000	0.9999	1.0001	0.9999	0.9999	0.9997	0.9996	0.9997	1.0009	0.9989
1929	0.9995	0.9996	0.9998	0.9997	0.9998	0.9999	1.0000	1.0001	1.0000	1.0001	1.0000	0.9997	0.9999	1.0007	0.9991
1930	0.9997	0.9996	0.9998	0.9999	1.0002	1.0003	0.9999	0.9999	0.9998	0.9997	0.9998	0.9997	0.9999	1.0009	0.9992
1931	0.9996	0.9997	0.9996	0.9999	1.0001	1.0002	1.0002	1.0003	1.0001	1.0000	0.9999	1.0000	1.0011	0.9993	
1932	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	0.9999	1.0001	1.0002	1.0000	0.9997	0.9999	1.0007	0.9992	
1933	0.9998	0.9998	0.9999	0.9996	1.0000	1.0000	1.0003	1.0002	1.0003	1.0001	1.0001	0.9999	1.0000	1.0008	0.9991
1934	0.9999	0.9996	0.9998	1.0000	1.0001	1.0002	1.0001	1.0001	1.0000	1.0000	0.9998	0.9997	0.9999	1.0007	0.9985
1935	0.9998	0.9996	0.9999	1.0000	1.0002	1.0003	1.0001	1.0000	1.0000	1.0002	0.9998	0.9995	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	0.9997	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	0.9995	0.9995	0.9996	1.0006	0.9989
1938	0.9996	0.9995	0.9996	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	0.9994	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	0.9994	0.9993	0.9996	0.9993	0.9994	1.0005	0.9987
1941	0.9993	0.9993	0.9993	0.9994	0.9996	0.9996	0.9996	0.9998	0.9998	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	0.9996	1.0007	0.9989
1943	0.9994	0.9994	0.9995	0.9995	0.9998	0.9999	0.9999	0.9998	0.9998	0.9996	0.9994	0.9994	0.9996	1.0005	0.9991
1944	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	1.0007	0.9991
Mean Density	0.9994	0.9994	0.9995	0.9996	0.9998	0.9999	0.9999	0.9998	0.9998	0.9997	0.9996	0.9995	0.9997	1.0012	0.9985
Salinity	0.3	0.3	0.4	0.5	0.8	0.9	0.9	0.8	0.8	0.7	0.5	0.4	0.7	2.6	0.0

<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	153	167	157	1.0153	192	068	
1945	144	148	134	150	144	144	138	130	141	136	153	---	---	169*	106*	
--	---	---	121	119	107	120	129	155	149	154	147	146	102	---	174*	029*
Mean Density	1.0151	1.0142	1.0123	1.0127	1.0136	1.0139	1.0152	1.0154	1.0155	1.0151	1.0158	1.0143	1.0144	1.0192	1.0029	
Salinity	20.8	19.6	17.1	17.6	18.8	19.2	20.9	21.2	21.3	20.8	21.7	19.7	19.9	26.1	4.8	
<b>RICHMOND, VA.</b>																
1947	---	---	0.9990	0.9991	0.9993	0.9994	0.9992	0.9994	0.9994	0.9990	0.9992	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	0.9992	1.0001	0.9986	
<b>CAPE CHARLES (town), VA.</b>																
1947	---	---	---	---	---	---	1.0171	1.0175	1.0178	1.0179	1.0177	1.0171	---	1.0208*	1.0154*	
1948	1.0166	1.0169	1.0167	1.0158	1.0145	1.0150	168	167	174	167	177	159	1.0164	196	115	
<b>WASHINGTON, D.C.</b>																
1944	0.9994	0.9994	0.9994	0.9993	0.9997	0.9996	0.9997	0.9997	0.9996	0.9995	0.9995	0.9995	0.9995	1.0007	0.9988	
1945	0.9993	0.9994	0.9994	0.9996	0.9994	0.9995	0.9993	0.9994	0.9994	0.9992	0.9991	0.9989	0.9993	1.0006	0.9986	
1946	0.9987	0.9988	0.9988	0.9989	0.9991	0.9994	0.9994	0.9994	0.9993	0.9992	0.9991	0.9990	0.9991	1.0000	0.9985	
1947	0.9988	0.9987	0.9988	0.9992	0.9995	0.9996	0.9996	0.9997	0.9995	0.9994	0.9992	0.9990	0.9992	1.0005	0.9985	
1948	0.9990	0.9990	0.9994	---	---	---	0.9998	0.9997	0.9997	0.9993	0.9992	0.9992	---	1.0007*	0.9988*	
Mean Density	0.9990	0.9991	0.9992	0.9992	0.9994	0.9995	0.9996	0.9996	0.9995	0.9993	0.9992	0.9991	0.9993	1.0007	0.9985	
Salinity	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.5	0.4	0.1	0.0	0.0	0.1	2.0	0.0	

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

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Density of Sea Water - *Continued*  
Means and extremes

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Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SOLOMONS ISLAND, MD.															
1938	1.0093	1.0094	1.0084	1.0074	1.0082	1.0089	1.0099	1.0097	1.0103	1.0108	1.0122	1.0108	1.0096	1.0127	1.0064
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	136	140	113	148	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
Mean Density	1.0107	1.0108	1.0092	1.0077	1.0075	1.0074	1.0086	1.0092	1.0103	1.0113	1.0119	1.0111	1.0096	1.0148	1.0033
Salinity	15.0	15.2	13.1	11.1	10.8	10.7	12.3	13.1	14.5	15.8	16.6	15.6	13.6	20.4	5.4
CAMBRIDGE, MD.															
1945	---	---	---	---	---	---	---	1.0039	1.0054	1.0058	1.0057	1.0043	---	1.0066*	1.0025*
1946	1.0039	1.0048	1.0052	1.0053	1.0054	1.0053	1.0041	048	067	079	085	086	1.0059	092	029
1947	082	078	076	075	067	060	057	057	066	080	094	093	074	102	041
1948	060	063	076	062	050	046	051	045	065	082	082	063	062	095	006
Mean Density	1.0060	1.0063	1.0068	1.0063	1.9057	1.0053	1.0050	1.0047	1.0063	1.0075	1.0080	1.0071	1.0062	1.0102	1.0006
Salinity	8.9	9.3	9.9	9.3	8.5	8.0	7.6	7.2	9.3	10.8	11.5	10.3	9.2	14.4	1.8
ANNAPOLIS, MD.															
1946	---	---	---	---	---	---	---	---	---	1.0086	1.0089	---	1.0095*	1.0072*	
1947	1.0079	1.0064	1.0080	1.0037	1.0037	1.0025	1.0040	1.0043	1.0057	1.0076	092	093	1.0060	101	011
1948	094	092	055	029	035	044	053	054	066	092	098	081	066	106	010

Mean Density	1.0086	1.0078	1.0068	1.0033	1.0036	1.0034	1.0046	1.0048	1.0062	1.0084	1.0092	1.0068	1.0063	1.0106	1.0010
Salinity	12.3	11.2	9.9	5.4	5.8	5.5	7.1	7.3	9.2	12.0	13.1	12.6	9.3	14.9	2.4
BALTIMORE, MD.															
1914	1.0076	1.0053	1.0062	1.0024	1.0026	1.0042	1.0051	1.0058	1.0066	1.0089	1.0099	1.0100	1.0062	1.0109	1.0013
1915	065	050	074	074	061	052	047	041	048	058	067	076	060	108	021
1916	050	050	059	031	026	025	019	023	051	057	066	071	044	077	014
1917	062	061	047	031	045	039	024	032	047	070	063	077	050	083	020
1918	059	056	026	032	030	023	038	047	059	062	062	067	047	079	012
1919	062	080	060	046	031	018	028	035	049	055	058	047	047	090	013
1920	063	067	041	014	022	036	045	036	059	064	063	053	047	079	011
1921	050	058	035	026	031	040	047	049	063	073	073	064	051	080	017
1922	061	069	046	030	028	025	021	042	050	060	072	082	049	087	019
1923	080	074	050	028	036	033	053	057	057	079	087	074	059	089	019
1924	042	048	---	015	014	009	010	026	043	040	062	062	---	067*	007*
1925	069	043	031	050	056	050	051	058	071	077	072	081	059	096	014
1926	083	068	053	045	048	059	064	065	061	060	043	035	057	094	026
1927	063	044	042	034	036	027	043	047	071	064	045	034	046	081	016
1928	043	043	050	032	024	027	014	020	038	049	059	065	039	071	009
1929	070	080	044	023	012	022	037	050	062	065	063	061	049	088	008
1930	050	062	046	039	049	066	058	065	083	106	125	124	073	132	028
1931	123	122	125	067	051	041	054	062	083	086	094	091	083	132	022
1932	078	061	075	043	037	036	056	065	076	081	068	070	062	090	025
1933	070	070	060	030	023	042	051	053	047	059	071	068	053	080	015
1934	063	078	062	040	039	044	048	053	058	070	069	065	057	084	026
1935	062	064	043	042	045	049	042	044	061	070	072	073	056	089	024
1936	066	051	023	013	017	035	051	063	068	077	082	079	052	089	006
1937	050	058	063	053	026	028	048	049	064	079	057	059	053	091	016
1938	059	052	050	042	048	050	052	055	070	083	084	073	060	093	028
1939	077	053	033	030	035	042	052	062	081	083	089	100	061	105	016
1940	102	100	092	031	029	037	053	064	079	081	080	067	068	115	015
1941	078	085	080	045	070	069	059	081	085	093	100	106	079	111	028
1942	096	102	073	051	049	040	058</								

Density of Sea Water - *Continued*  
Means and Extremes

18

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
BALTIMORE, MD. - Continued															
1945	1.0078	1.0095	1.0033	1.0023	1.0031	1.0028	1.0029	1.0030	1.0046	1.0040	1.0044	1.0043	1.0043	1.0105	1.0014
1946	040	049	029	041	047	025	028	039	048	072	078	074	048	093	018
1947	068	053	072	042	038	023	028	027	040	068	073	081	051	093	011
1948	085	081	061	022	032	037	045	046	072	086	081	070	060	095	014
Mean Density	1.0068	1.0066	1.0054	1.0037	1.0035	1.0037	1.0042	1.0049	1.0062	1.0072	1.0073	1.0072	1.0056	1.0132	1.0006
Salinity	9.9	9.7	8.1	5.9	5.6	5.9	6.6	7.5	9.2	10.5	10.6	10.5	8.4	18.3	1.8
DIAMOND SHOAL LIGHTSHIP															
1923	---	---	---	---	1.0272	1.0274	1.0261	1.0247	1.0239	---	---	1.0255	---	1.0285*	1.0221*
1924	---	---	1.0236	1.0242	239	244	256	267	260	1.0249	1.0247	267	---	293*	199*
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	1.0294	1.0199
Salinity	35.3	35.3	34.5	34.7	35.5	35.6	35.5	35.6	34.6	35.0	34.7	34.9	35.1	39.4	27.1
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	098	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
Mean Density	1.0122	1.0116	1.0119	1.0121	1.0154	1.0170	1.0153	1.0165	1.0169	1.0162	1.0146	1.0139	1.0145	1.0260	1.0000
Salinity	17.0	16.2	16.6	16.9	21.2	23.3	21.0	22.6	23.1	22.2	20.1	19.2	20.0	35.0	1.1

	CHARLESTON, S.C. <sup>†</sup>														
1922	1.0239	1.0227	1.0203	1.0208	1.0219	1.0211	---	---	1.0217	1.0222	1.0224	1.0220	---	1.0244*	1.0185*
1923	203	203	207	197	209	206	1.0219	1.0214	200	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	243	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	240	249	248	239	198	217	234	240	244	236	257	181
1928	240	232	182	198	197	222	214	210	169	162	215	227	205	248	070
1929	219	191	170	196	210	210	215	224	222	211	217	211	208	240	143
1930	202	199	209	195	213	229	230	245	246	244	241	238	225	262	166
1931	227	228	226	213	228	242	241	249	247	248	253	254	238	269	196
1932	250	243	240	246	243	222	221	240	229	217	206	219	231	255	130
1933	216	188	191	216	229	240	233	233	187	222	227	236	218	248	122
1934	240	235	239	242	243	241	251	253	248	237	241	236	242	259	220
1935	235	234	239	245	245	246	225	214	175	211	228	235	228	254	137
1936	223	201	191	184	195	229	237	238	239	225	217	223	217	251	161
1937	213	187	192	199	200	220	223	226	211	224	230	230	214	243	162
1938	222	230	234	238	239	236	241	240	244	238	239	243	237	257	215
1939	243	237	185	214	228	222	226	228	235	244	245	245	229	253	154
1940	244	227	215	222	234	241	242	218	216	234	245	241	232	256	160
1941	238	242	236	224	243	240	168	194	214	235	240	225	225	255	088
1942	200	205	---	---	---	---	---	---	---	---	---	---	---	264*	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	1.0223	1.0223	1.0269	1.0023
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	36.2	4.1

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

<sup>†</sup>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.

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Density of Sea Water - Continued  
Means and Extremes

20

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
CHARLESTON, S.C.:†															
1942	---	---	1.0144	1.0139	1.0142	1.0108	1.0160	1.0175	1.0164	1.0166	1.0146	1.0135	---	1.0240	1.0035*
1943	1.0121	1.0109	101	098	099	117	112	121	137	154	138	155	1.0121	246	050
1944	147	117	084	085	086	110	114	116	135	132	153	132	118	216	034
1945	128	125	118	125	127	133	113	126	100	093	123	128	120	206	024
1946	107	094	112	089	074	103	137	112	133	131	115	130	111	227	030
1947	132	102	101	102	105	129	109	123	136	154	139	106	120	228	049
1948	092	086	061	070	089	103	114	125	144	137	127	091	103	228	025
Mean Density	1.0121	1.0106	1.0103	1.0101	1.0103	1.0115	1.0123	1.0128	1.0136	1.0138	1.0134	1.0125	1.0119	1.0246	1.0024
Salinity	16.9	14.9	14.5	14.2	14.5	16.1	17.1	17.8	18.3	19.1	18.6	17.4	16.6	33.2	4.2
FORT PULASKI, SAVANNAH RIVER, GA.															
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	156	101	094	113	097	154	159	132	116	123	134	107	124	227	0.9997
1946	046	067	062	054	066	098	126	139	135	114	114	140	097	224	1.0016
1947	094	082	063	052	106	110	124	145	157	130	072	074	101	221	009
1948	082	042	045	039	093	098	125	150	131	141	135	052	094	225	004
Mean Density	1.0096	1.0090	1.0069	1.0075	1.0103	1.0124	1.0132	1.0137	1.0136	1.0143	1.0137	1.0120	1.0114	1.0237	0.9997
Salinity	13.6	12.8	10.1	10.8	14.5	17.3	18.3	19.0	18.3	19.7	19.0	16.7	16.0	32.0	0.7
FERNANDINA, 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	134
1946	192	195	213	216	223	228	223	206	196	189	206	221	209	264	155
1947	226	215	194	185	214	227	222	---	218	148	146	153	---	261*	104*
1948	169	171	156	134	215	239	242	218	212	189	230	218	199	272	082
Mean Density	1.0198	1.0198	1.0197	1.0195	1.0224	1.0234	1.0221	1.0206	1.0200	1.0181	1.0197	1.0205	1.0205	1.0275	1.0082
Salinity	26.9	26.9	26.8	26.5	30.3	31.6	29.9	26.0	27.2	24.7	26.8	27.8	27.8	37.0	11.8
MAYPORT, FLA.															
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	092	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*
Mean Density	1.0154	1.0150	1.0152	1.0182	1.0188	1.0202	1.0146	1.0122	1.0123	1.0117	1.0130	1.0145	1.0151	1.0284	0.9998
Salinity	21.2	20.6	20.9	24.8	25.6	27.4	20.1	17.0	17.1	16.3	18.0	20.0	20.8	38.1	0.8
DAYTONA BEACH (ocean), FLA.															
1925	---	---	---	---	1.0257	1.0262	1.0270	---	1.0267	1.0269	---	---	---	1.0274	*1.0250*
1926	---	1.0271	1.0278	1.0257	272	275	---	---	---	---	---	---	---	288*	252*
1927	---	---	---	---	---	---	271	1.0267	---	262	1.0258	1.0265	---	276*	250*
1928	1.0266	271	266	273	268	271	271	268	269	226	230	247	---	278*	184*
1929	---	---	---	---	---	266	265	---	---	241	251	247	---	279*	191*
1930	236	231	---	256	268	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*
1939	---	---	---	---	---	---	---	272	267	254	255	258	---	278*	240*

†See footnote (†) on page 19.

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

Density of Sea Water - *Continued*  
Means and extremes

22

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
<b>DAYTONA BEACH (ocean), FLA. - Continued</b>															
1940	1.0257	1.0267	1.0269	1.0270	1.0271	1.0270	1.0269	1.0269	1.0265	1.0255	1.0259	1.0252	1.0264	1.0277	1.0244
1941	252	252	253	263	270	270	267	266	258	262	257	251	260	275	236
1942	248	259	260	257	271	272	271	269	269	265	266	265	264	276	235
1943	270	269	263	271	276	274	275	269	266	260	266	262	268	293	240
1944	257	264	267	262	268	266	263	279	269	258	256	252	263	278	222
1945	256	263	270	270	272	273	269	270	264	246	247	248	262	281	226
1946	251	246	---	263	270	274	272	270	260	249	246	244	---	283*	228*
1947	254	251	258	263	266	267	267	267	261	244	---	225	---	278*	212*
1948	240	226	241	256	267	272	272	265	261	242	261	261	255	280	213
Mean Density	1.0254	1.0256	1.0263	1.0264	1.0268	1.0270	1.0269	1.0269	1.0265	1.0253	1.0255	1.0254	1.0262	1.0293	1.0184
Salinity	34.2	34.5	35.4	35.5	36.0	36.3	36.2	36.2	35.6	34.1	34.4	34.2	35.3	39.3	25.1
<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	---	1.0213*	1.0015*
1947	1.0179	1.0178	104	041	082	101	015	---	094	069	085	136	---	186*	0.9999*
1948	153	---	---	---	---	---	---	---	---	---	---	---	---	172*	1.0097*
<b>PALM BEACH, FLA.</b>															
1946	---	---	1.0274	1.0274	1.0275	1.0272	1.0273	1.0273	1.0269	1.0269	1.0271	1.0271	---	1.0286*	1.0258*

	<b>MIAMI BEACH, FLA.</b>														
1940	1.0267	1.0269	1.0268	1.0270	1.0270	1.0267	1.0269	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	269	271	279	274	276	278	---	---	287*	255*
1943	270	268	271	272	272	271	272	265	256	257	260	275	267	280	252
1944	261	263	---	270	267	272	271	266	266	259	259	264	---	278*	250*
1945	266	267	270	274	276	274	268	265	257	257	256	262	266	283	244
1946	262	266	270	274	277	278	269	274	266	260	263	259	268	303	252
1947	262	265	264	262	262	256	256	255	241	259	257	257	259	273	221
1948	262	261	265	265	266	268	272	271	---	---	249	261	---	275*	217*
Mean Density	1.0264	1.0266	1.0269	1.0269	1.0269	1.0270	1.0268	1.0268	1.0261	1.0258	1.0261	1.0263	1.0266	1.0303	1.0217
Salinity	35.5	35.8	36.2	36.2	36.2	36.3	36.0	36.0	35.1	34.7	35.1	35.4	35.8	40.6	29.4
<b>KEY WEST, FLA.</b>															
1926	1.0272	1.0270	1.0274	1.0275	1.0272	1.0268	1.0268	1.0261	1.0264	1.0264	1.0261	1.0261	1.0268	1.0279	1.0233
1927	270	271	274	276	278	276	275	273	265	260	270	275	272	284	235
1928	275	273	268	272	271	275	266	261	256	255	265	264	267	280	237
1929	261	268	271	274	277	272	269	274	270	258	265	258	268	283	242
1930	258	257	266	266	271	253	262	265	266	267	270	264	264	279	238
1931	257	259	259	264	264	269	267	269	263	260	264	266	263	274	246
1932	248	266	271	274	274	269	275	272	270	266	272	270	269	282	206
1933	270	271	273	272	273	271	277	275	275	254	255	255	268	285	214
1934	262	268	269	273	272	272	273	272	269	268	272	272	270	282	256
1935	270	271	275	274	282	284	277	278	264	263	266	266	272	289	253
1936	265	261	258	268	275	264	268	267	268	270	275	268	267	279	246
1937	271	270	270	272	269	278	274	272	269	267	278	274	272	289	247
1938	270	276	275	277	277	274	274	276	273	278	275	274	275	285	263
1939	272	274	277	274	278	272	277	274	269	261	275	273	273	289	242

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

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Density of Sea Water - *Continued*  
Means and Extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
KEY WEST, FLA. - Continued															
1940	1.0267	1.0268	1.0270	1.0269	1.0278	1.0280	1.0280	1.0276	1.0264	1.0270	---	---	---	1.0286*	1.0253*
--	---	---	275	277	275	269	270	274	272	272	273	276	---	286*	233*
1946	277	272	274	278	277	274	269	271	274	261	270	270	272	287	254
1947	268	261	268	270	272	280	278	279	269	263	270	269	271	286	255
Mean Density	1.0267	1.0268	1.0270	1.0272	1.0274	1.0272	1.0272	1.0272	1.0268	1.0264	1.0269	1.0268	1.0270	1.0289	1.0206
Salinity	35.9	36.0	36.3	36.6	36.8	36.6	36.6	36.6	36.0	35.5	36.2	36.0	36.3	38.8	28.0
ST. PETERSBURG, FLA.															
1947	1.0218	1.0216	1.0209	1.0197	1.0204	1.0208	1.0187	1.0155	1.0141	---	---	---	---	1.0227*	1.0129*
1948	176	158	172	179	194	207	205	177	167	1.0165	1.0184	1.0187	1.C181	214	145
CEDAR KEYS, FLA.															
1922	1.0204	1.0214	1.0208	1.0213	1.0211	1.0206	1.0198	1.0192	1.0191	1.0206	1.0201	1.0207	1.0203	1.0234	1.0155
1923	208	203	208	212	186	212	192	175	195	184	200	218	199	233	137
1924	207	188	160	160	171	172	177	189	205	196	206	215	187	231	102
1925	214	184	166	179	196	211	202	193	219	211	207	198	198	231	097
1926	201	160	152	151	166	188	---	---	---	---	---	---	---	217*	095*
--	---	---	---	---	212	204	200	209	213	180	193	181	---	233*	109*
1944	194	192	207	224	200	197	214	199	181	190	205	186	199	237	138
1945	181	184	177	153	189	201	198	178	198	196	220	215	191	230	106
1946	223	186	180	184	180	209	199	193	186	181	181	175	190	235	119
1947	162	188	134	150	158	171	199	170	184	192	200	204	176	220	092
Mean Density	1.0199	1.0189	1.0177	1.0181	1.0167	1.0197	1.0198	1.0189	1.0197	1.0193	1.0201	1.0200	1.0192	1.0237	1.0092
Salinity	27.1	25.8	24.2	24.7	25.5	26.8	26.9	25.8	26.8	26.3	27.3	27.2	26.1	32.0	13.1

PENSACOLA, FLA.															
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	112	079	103	112	150	176	181	161	163	153	117	127	136	215	017
1931	117	131	127	107	135	166	164	141	166	186	198	170	151	228	018
1932	111	131	137	145	142	141	154	149	159	167	171	146	146	216	027
1933	107	103	083	029	057	151	111	091	153	191	201	188	122	229	011
1934	194	189	130	140	150	140	155	121	152	096	151	153	148	237	029
1935	155	154	075	013	070	109	131	102	124	176	191	174	128	229	007
1936	047	065	090	083	107	132	124	072	126	135	127	115	102	215	004
1937	109	108	090	050	035	067	105	102	092	120	107	099	090	158	013
1938	104	105	086	045	087	112	110	075	138	105	142	182	108	239	014
1939	---	---	060	095	---	082	095	066	068	108	175	175	---	212*	018*
1940	182	113	070	102	109	106	039	093	154	176	176	157	123	220	009
1941	121	154	125	085	174	181	119	111	159	174	188	156	146	217	019
1942	106	132	061	055	093	109	070	062	123	145	181	172	111	217	003
1943	150	150	072	059	118	123	118	124	160	191	163	179	134	216	002
1944	131	119	073	014	032	102	144	092	059	134	176	128	099	230	0.9997
1945	134	108	105	108	088	122	144	105	147	171	175	172	132	211	1.0047
1946	080	090	070	042	057	054	066	031	104	127	160	156	086	196	0.9997
1947	096	123	063	022	062	056	114	150	140	171	150	102	104	217	0.9997
1948	132	099	038	049	125	138	142	116	148	171	144	048	112	206	0.9996
Mean Density	1.0120	1.0113	1.0086	1.0076	1.0102	1.0118	1.0119	1.0109	1.0136	1.0150	1.0162	1.0147	1.0120	1.0239	0.9996
Salinity	16.7	15.8	12.3	11.0	14.4	16.5	16.6	15.3	18.8	20.6	22.2	20.3	16.7	32.3	0.5

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

Density of Sea Water - *Continued*  
Means and extremes

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
EUGENE ISLAND, LA.															
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	1.0007	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
Mean Density	1.0015	1.0006	1.0009	1.0014	1.0002	1.0005	1.0006	1.0034	1.0061	1.0055	1.0061	1.0024	1.0024	1.0221	0.9986
Salinity	3.0	1.8	2.2	2.9	1.3	1.7	1.8	5.6	9.0	8.2	9.0	4.2	4.2	29.9	0.0
GALVESTON, TEX.															
1922	1.0196	1.0171	1.0171	---	---	1.0074	1.0177	1.0226	1.0204	1.0192	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	018
1924	090	146	110	121	126	095	186	229	221	192	185	193	158	250	022
1925	200	218	204	199	203	191	228	256	244	---	130	169	---	270*	059*
1926	148	151	123	064	066	137	172	209	---	182	169	161	---	231*	020*
1927	162	117	---	193	115	---	158	201	195	147	178	153	---	245*	041*
1928	155	151	156	159	171	182	192	208	171	168	178	163	171	250	097
1929	141	125	129	110	118	085	121	191	170	---	---	---	---	239*	036*
1930	---	---	162	202	154	130	230	243	234	187	---	155	---	256*	040*
1931	141	136	174	180	188	227	230	235	237	213	211	193	197	282	051
1932	125	065	099	171	149	175	222	234	212	197	206	213	172	299	011
1933	181	167	143	165	153	156	196	176	188	177	194	210	176	242	061
1934	177	127	132	096	163	208	226	241	222	218	212	187	184	263	028
1935	179	148	---	184	084	079	140	206	189	166	164	131	---	248*	022*
1936	171	175	185	200	168	152	179	229	202	191	184	201	186	278	087
1937	163	149	135	151	193	205	230	244	221	208	209	193	192	256	011
1938	151	152	150	134	104	167	220	225	185	212	210	209	177	251	031
1939	196	186	202	182	176	179	189	234	248	228	216	216	204	256	069
1940	200	217	219	210	202	187	190	219	205	208	178	048	190	246	015
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
Mean Density	1.0158	1.0152	1.0152	1.0152	1.0143	1.0148	1.0184	1.0220	1.0200	1.0185	1.0181	1.0170	1.0170	1.0299	1.0011
Salinity	21.7	20.9	20.9	20.9	19.7	20.4	25.1	29.8	27.2	26.2	24.7	23.3	23.3	40.1	2.5
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*
PORT ISABEL, TEX.															
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	284	274	216	267	273	1.0256	300	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	---	---	272	274	283	273	---	---	---	---	301*	195*
Mean Density	1.0243	1.0235	1.0237	1.0251	1.0245	1.0257	1.0279	1.0273	1.0240	1.0225	1.0256	1.0251	1.0249	1.0301	1.0040
Salinity	32.8	31.8	32.0	33.8	33.0	34.6	37.5	36.7	32.4	30.4	34.5	33.8	33.6	40.3	6.3
COATZACOALCOS (Puerto Mexico), MEXICO															
1946	---	---	---	---	---	---	---	1.0017	1.0011	1.0008	1.0007	1.0004	---	1.0033*	0.9995*
1947	1.0009	1.0018	1.0039	1.0070	1.0065	1.0070	1.0018	006	0.9996	0.9998	012	011	1.0026	252	0

Density of Sea Water - *Continued*  
Means and Extremes

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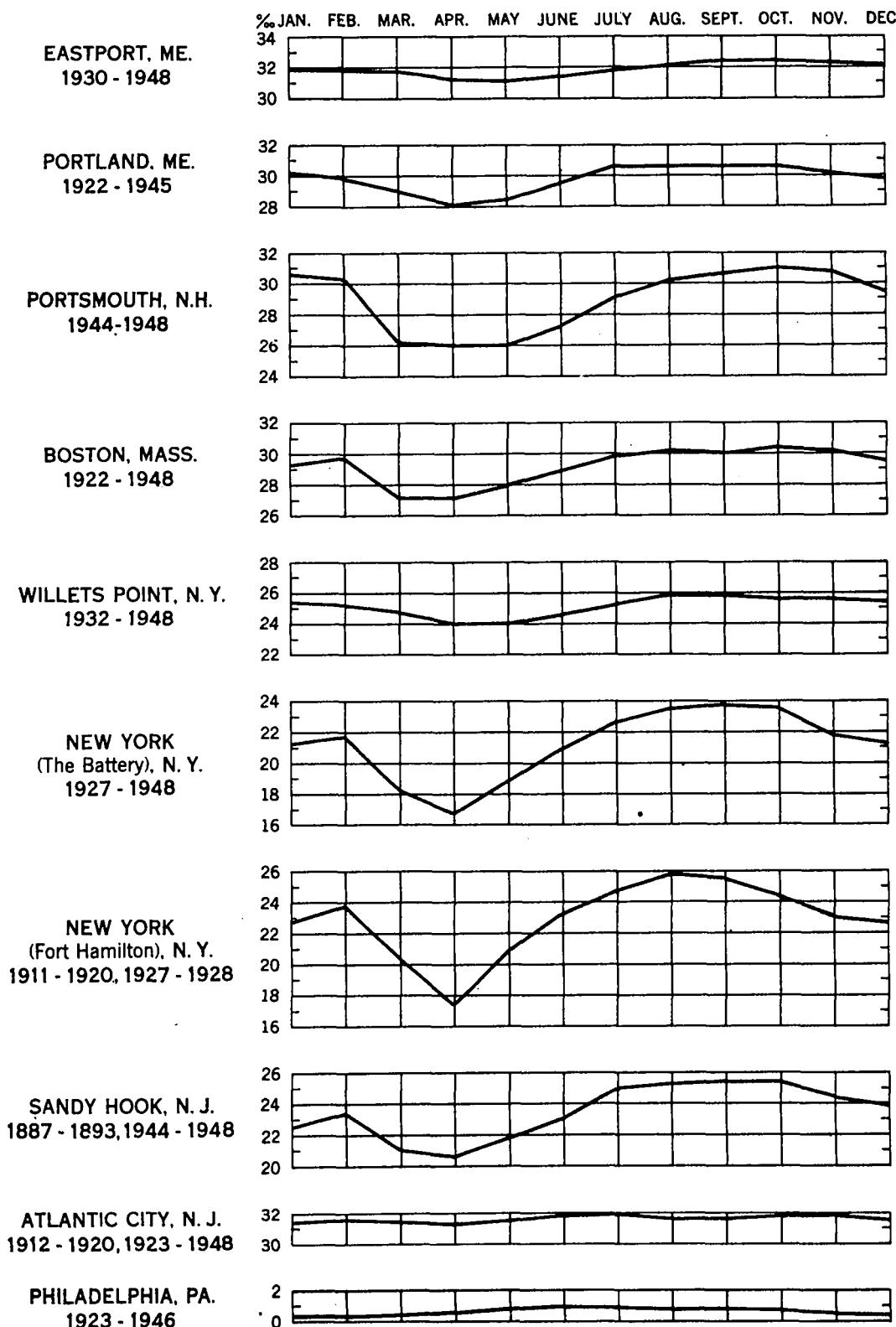
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
<b>PROGRESO, MEXICO</b>															
1946	---	---	---	---	---	---	---	1.0280	1.0277	1.0277	1.0276	1.0271	---	1.0288*	1.0268*
1947	1.0272	1.0275	1.0283	1.0289	1.0286	1.0285	1.0283	275	273	270	274	272	1.0278	294	260
1948	270	275	279	282	282	276	274	273	274	274	270	270	275	288	264
Mean Density	1.0271	1.0275	1.0281	1.0286	1.0284	1.0280	1.0278	1.0276	1.0275	1.0274	1.0273	1.0271	1.0277	1.0294	1.0260
Salinity	36.4	37.0	37.7	38.4	38.1	37.6	37.3	37.1	37.0	36.8	36.7	36.4	37.2	39.4	35.0
<b>HABANA, CUBA</b>															
1947	---	---	1.0254	1.0255	1.0257	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
<b>GUANTANAMO 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
<b>IVIGTUT, GREENLAND</b>															
1945	---	---	---	---	---	---	1.0160	1.0137	1.0178	1.0200	1.0240	1.0242	---	1.0247*	1.0076*
1946	1.0245	1.0247	1.0248	1.0250	1.0223	1.0211	181	170	204	231	240	247	1.0225	258	157
1947	256	258	249	251	242	224	204	174	208	226	241	246	232	274	131
1948	249	250	248	246	237	204	178	145	197	227	241	249	223	262	127
Mean Density	1.0250	1.0252	1.0248	1.0249	1.0234	1.0213	1.0181	1.0156	1.0197	1.0221	1.0240	1.0246	1.0224	1.0274	1.0076
Salinity	33.7	34.0	33.4	33.6	31.6	28.9	24.7	21.4	26.8	29.9	32.4	33.2	30.3	36.8	11.0

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

## Salinity of Sea Water

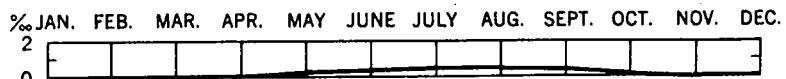
#### Monthly means in parts per thousand

The seasonal variation of salinity is shown graphically for those stations at which the observations cover five years or more.

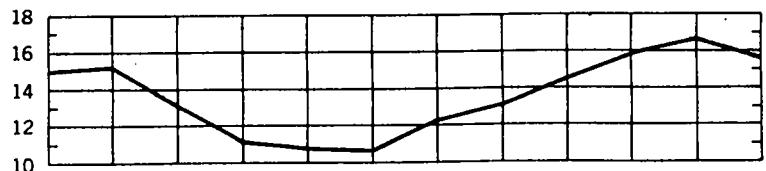


Salinity of Sea Water - *Continued*

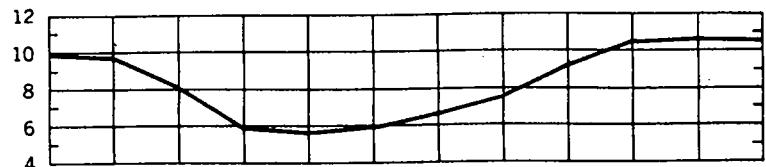
**WASHINGTON, D.C.**  
1944-1948



**SOLOMONS, MD.**  
1938 - 1948



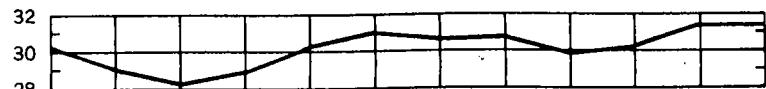
**BALTIMORE, MD.**  
1914 - 1948



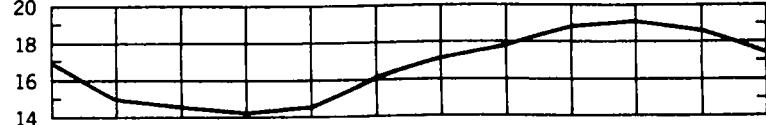
**DIAMOND SHOAL LIGHTSHIP**  
1923-1928



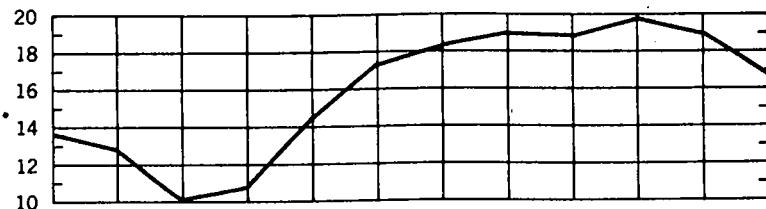
**CHARLESTON, S. C.‡**  
1922- 1942



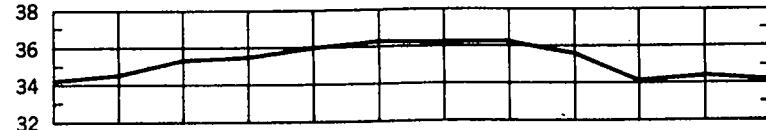
**CHARLESTON, S. C.‡**  
1942 - 1948



**FORT PULASKI, GA.**  
1940 - 1948



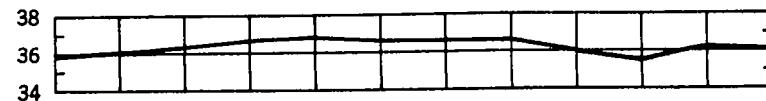
**DAYTONA BEACH, FLA.**  
1925-1932, 1939 - 1948



**MIAMI BEACH, FLA.**  
1940 - 1948



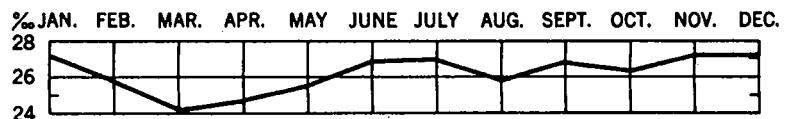
**KEY WEST, FLA.**  
1926 - 1940, 1946 - 1948



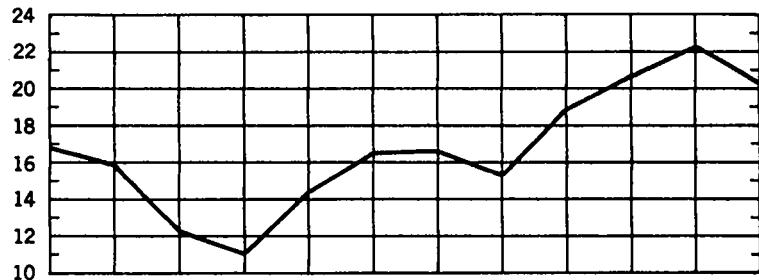
‡ See footnote (†) on page 19.

Salinity of Sea Water - *Continued*

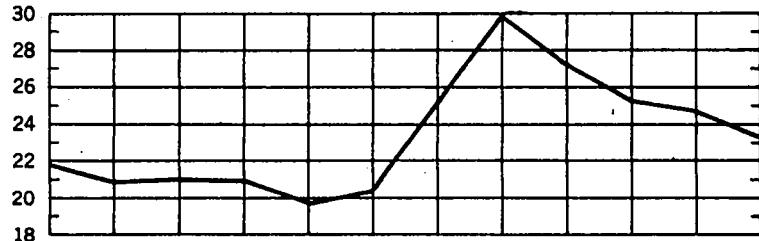
CEDAR KEYS, FLA.  
1922 - 1926, 1944 - 1948



PENSACOLA, FLA.  
1924 - 1948



GALVESTON, TEX.  
1922 - 1948



# CORRESPONDING DENSITIES AND SALINITIES

[Density at 15° C.—Salinity in parts per 1,000]

Density	Salinity										
0.9991	0.0	1.0046	7.1	1.0101	14.2	1.0156	21.4	1.0211	28.6	1.0268	35.8
.9992	.0	1.0047	7.2	1.0102	14.4	1.0157	21.6	1.0212	28.8	1.0267	35.9
.9993	.1	1.0048	7.3	1.0103	14.5	1.0158	21.7	1.0213	28.9	1.0268	36.0
.9994	.3	1.0049	7.5	1.0104	14.6	1.0159	21.8	1.0214	29.0	1.0269	36.2
.9995	.4	1.0050	7.6	1.0105	14.8	1.0160	22.0	1.0215	29.1	1.0270	36.3
.9996	.5	1.0051	7.7	1.0106	14.9	1.0161	22.1	1.0216	29.3	1.0271	36.4
.9997	.7	1.0052	7.9	1.0107	15.0	1.0162	22.2	1.0217	29.4	1.0272	36.6
.9998	.8	1.0053	8.0	1.0108	15.2	1.0163	22.4	1.0218	29.5	1.0273	36.7
.9999	.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	30.0	1.0277	37.2
1.0003	1.4	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	1.8	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	24.0	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	17.6	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	33.0	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	33.4	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	19.4	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	27.4	1.0257	34.6	1.0312	41.8
1.0038	6.0	1.0093	13.2	1.0148	20.4	1.0203	27.6	1.0258	34.7	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	7.0	1.0100	14.1	1.0155	21.3	1.0210	28.5	1.0265	35.6	1.0320	42.8