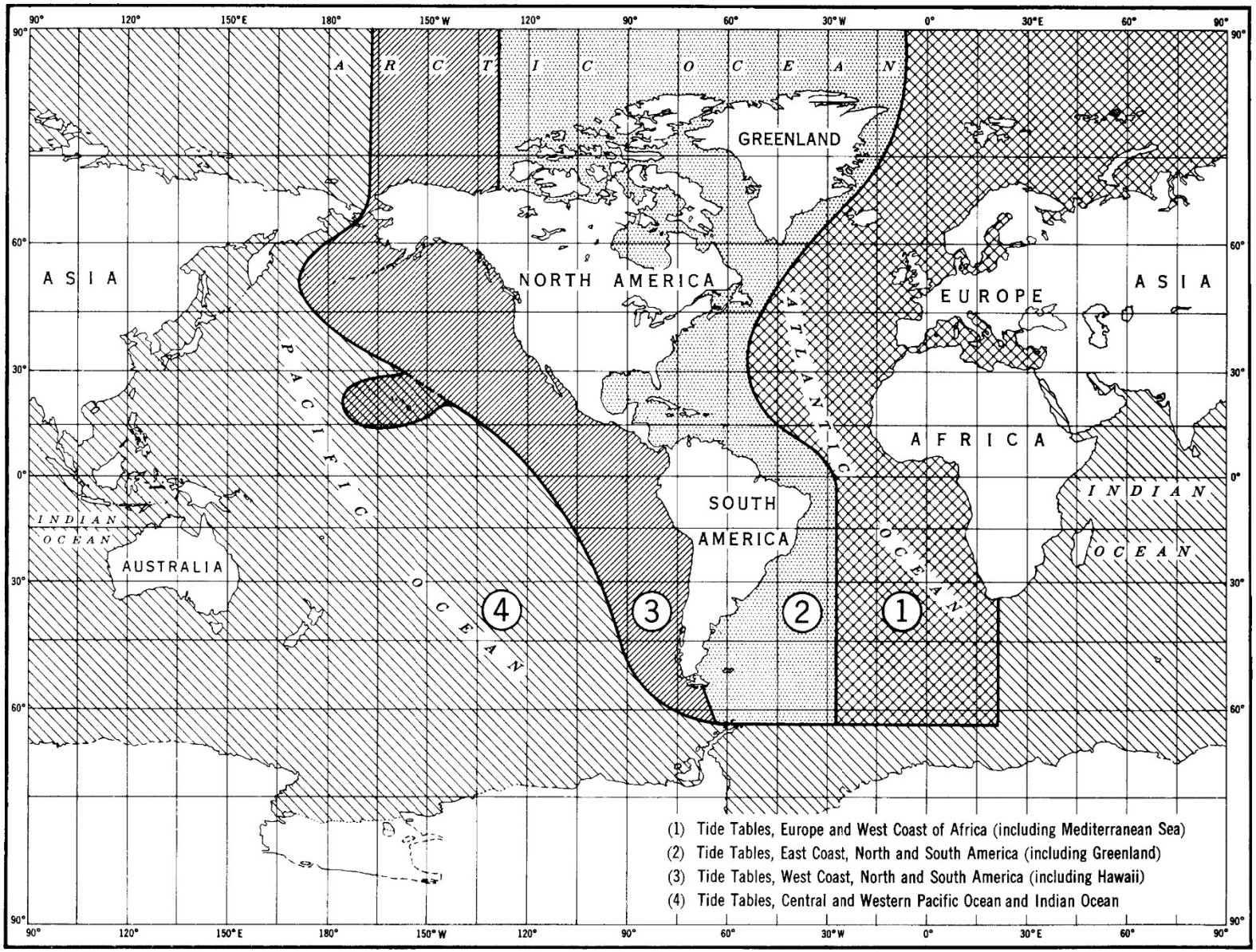
Tide Tables 2019 – Europe and West Coast of Africa including the Mediterranean Sea

Europe and West Coast of Africa

Including the Mediterranean Sea

INDEX OF TIDE TABLE COVERAGE



Europe and West Coast of Africa

Including the Mediterranean Sea

Issued 2018

SOURCES OF ADDITIONAL INFORMATION

THE NATIONAL OCEAN SERVICE IS NO LONGER PRINTING AND DISTRIBUTING THE TIDE AND TIDAL CURRENT TABLES

Tide and Tidal current data continue to be updated, generated and published by the NOAA/ National Ocean Service; however, the printing and distribution in book-form is now done by several private companies working from information provided by NOS.

NOS now offers two vehicles for obtaining predictions. First, the complete set of Tables as camera-ready page-images will be available on CD-ROM. The CD-ROM vehicle is primarily intended for use by federal or private printers who wish to print in book-form the full set of Tables for distribution to resellers and the general public. Second, for domestic tide stations, predictions are available on the NOS, Center for Operational Oceanographic Products and Services (CO-OPS), website, (http://tidesandcurrents.noaa.gov/).

In addition to predictions, the website provides updated information on the status of the Tables as they are finalized each year. Notices concerning the most recent Table updates and publication cut-off dates are included.

For the names of companies printing and distributing the Tables, please call or write to:

National Ocean Service
Oceanographic Division, N/OPS3
1305 East-West Highway
Silver Spring, MD 20910
(301) 713-2815, fax (301) 713-4500

A list of authorized sales agents is published in the Nautical Chart Catalogs or may be obtained on request from the National Ocean Service.

TECHNICAL ASSISTANCE:

Technical questions relating to ***tide and current predictions,*** as well as requests for ***special predictions***, should be addressed to:

National Ocean Service
Oceanographic Division, N/OPS3
1305 East-West Highway
Silver Spring, MD 20910
(301) 713-2815

Technical questions relating to ***actual tide observations, tidal datums, and other information necessary*** for ***engineering projects*** should be addressed to:

National Ocean Service
Oceanographic Division, N/OPS3
1305 East-West Highway
Silver Spring, MD 20910
(301) 713-2815

Technical questions relating to *other publications and nautical charts* should be addressed to:

National Ocean Service
Navigation Services Division
1315 East-West Highway
Silver Spring, MD 20910
(888) 990-NOAA (6622)

SOURCES OF ADDITIONAL INFORMATION

WEBSITES

Center for Operational Oceanographic Products and Services
(PORTS® * Predictions * Observations * Bench Marks * Tides Online * Great Lakes Online)
http://tidesandcurrents.noaa.gov

Marine Chart Division - http://www.nauticalcharts.noaa.gov

Office for Coastal Management - http://www.coast.noaa.gov

Ocean Predictions Center - http://www.opc.ncep.noaa.gov

National Center for Environmental Information - https://www.ncei.noaa.gov

National Centers for Environmental Predictions - http://www.ncep.noaa.gov

National Climatic Data Center - http://www.ncdc.noaa.gov

National Data Buoy Center - http://www.ndbc.noaa.gov

National Geodetic Survey - http://www.ngs.noaa.gov

National Geophysical Data Center - http://www.ngdc.noaa.gov

National Ocean Service - http://www.oceanservice.noaa.gov

National Oceanic and Atmospheric Administration - http://www.noaa.gov

National Oceanographic Data Center - http://www.nodc.noaa.gov

National Weather Service - http://www.weather.gov

U.S. Coast Guard - http://www.uscg.mil

U.S. Geological Survey - http://www.usgs.gov

U.S. Naval Observatory - http://www.usno.navy.mil

U.S. Naval Oceanographic Office - http://www.usno.navy.mil/NAVO

CORRECTIONS:

Corrections to this publication, after the date of printing, may appear in the Notice to Mariners. They may also appear in the Local Notice to Mariners, published weekly, by the various United States Coast Guard Districts.

CONTENTS

IMPORTANT NOTICES

Predicted heights for all reference stations in Table 1 are given in both feet and centimeters. Predicted values from the use of Table 2 and 3 will be in the English system, but can be converted to metric units by the use of Table 6.

INTRODUCTION

Tide tables for the use of mariners have been published by the National Ocean Service (formerly the Coast and Geodetic Survey) since 1853. For a number of years these tables appeared as appendixes to the annual reports of the Superintendent of the Survey, and consisted of detailed instructions enabling the mariner to make his own prediction of tides as the occasion arose.

The first tables to give predictions for each day were those for the year 1867. They gave the times and heights of high waters only and were published in two separate parts, one for the Atlantic coast and the other for the Pacific coast of the United States. Together they contained daily predictions for 19 stations and tidal differences for 124 stations. A few years later predictions for the low waters were also included, and for the year 1896 the tables were extended to include the entire maritime world, with full predictions for 70 ports and tidal differences for about 3,000 stations.

The tide tables are now issued in four volumes, as follows: Europe and West Coast of Africa (including the Mediterranean Sea); East Coast of North and South America (including Greenland); West Coast of North and South America (including the Hawaiian Islands); Central and Western Pacific Ocean and Indian Ocean. Together, they contain daily predictions for more than 250 reference ports and differences and other constants for about 6,500 stations.

This edition of the Tide Tables, Europe and West Coast of Africa, contains full daily predictions for 38 reference stations and differences and ranges for more than 1,100 stations. It also contains a table for obtaining the approximate height of the tide at any time, a table of local mean time of sunrise and sunset for every 5th day of the year for different latitudes, a table for the reduction of local mean time to standard time, a table for converting feet to centimeters, a table of the Greenwich mean time of the Moon's phases, apogee, perigee, greatest north and south and zero declination, and the time of the solar equinoxes and solstices, and a glossary of terms.

Up to and including the tide tables for the year 1884, all the tide predictions were computed by means of auxiliary tables and curves constructed from the results of tide observations at the different ports. From 1885 to 1911, inclusively, the predictions were generally made by means of the Ferrel tide-predicting machine. From 1912 to 1965, inclusively, they were made by means of the Coast and Geodetic Survey tide predicting machine No. 2. Since 1966, predictions have been made by electronic computer.

In the preparation of these tables all available observations were used. In some cases, however, the observations were insufficient for obtaining final results. As further information becomes available it will be included in subsequent editions. All persons using these tables are invited to send information or suggestions for increasing their usefulness to the National Ocean Service, Oceanographic Division, 1305 East-West Highway, N/OPS3, Silver Spring, Maryland 20910, U.S.A.

The information presented in Table 4 - Local mean time of sunrise and sunset and in Table 6 - Moonrise and moonset is computed by the National Ocean Service using the Interactive Computer Ephemeris Program provided by the United States Naval Observatory.

In accordance with cooperative arrangements between the National Ocean Service and the authorities listed below, predictions for the following stations appear in this issue:

Hydrographic Department, Admiralty, England.—Takoradi, Gibraltar, Leith, Immingham, Sheerness, London, Dover, Southampton, Liverpool, Greenock, Dublin, Ringaskiddy (Cobh), Ullapool, Reykjavik, Antwerp, and Kem.

Service Hydrographique, France.—Dakar, Casablanca, Sfax, Pointe de Grave, Brest, Cherbourg, and Le Havre.

Norges Sjokartverk, Norway.—Bergen and Narvik.

Rijkswaterstaat, Netherlands.—Vlissingen and Hoek van Holland.

Deutsches Hydrographisches Institut, Germany.—Cuxhaven, Bremerhaven, Hamburg, Helgoland, and Yekaterininskaya.

Maritime Headquarters, Republic of South Africa. —Cape Town.

Meteorologisk Institut, Denmark.—Esbjerg.

Instituto Hidrografico, Portugal.—Lisbon and Ponta Delgada.

LIST OF REFERENCE STATIONS

Station Name	Page	Datum below mean sea-level	Updated	Data Series
Antwerp (Prosperpolder), Belgium	106	8.60		
Bergen, Norway	138	2.60		
Bremerhaven, Germany	122	6.70		
Brest, France	44	14.60		
Cape Town, South Africa	8	3.10		
Casablanca, Morocco	20	7.00		
Cherbourg, France	48	12.40		
Cuxhaven, Germany	126	5.10		
Dakar, Senegal	16	3.30		
Dover, England	72	12.10		
Dublin (Baile Atha Cliath), Eire	94	7.20		
Esbjerg, Denmark	134	2.70		
Gibraltar	32	1.70		
Greenock, Scotland	86	5.90		
Hamburg, Germany	130	4.40		
Helgoland, Germany	118	4.40		
Hoek van Holland, Netherlands	114	3.00		
Immingham, England	60	13.50		
Kem, White Sea, Russia	150	3.60		
Le Havre, France	52	15.00		
Leith, Scotland	56	10.00		
Lisbon, Portugal	36	7.20		
Liverpool, England	82	15.20		
London (London Bridge), England	68	12.20		
Narvik, Norway	142	5.90		
Pointe de Grave, France	40	10.50		
Ponta Delgada, Azores	4	3.30		
Reykjavik, Iceland	102	6.80		
Ringaskiddy (Cobh), Eire	98	7.40		
Sfax, Tunisia	24	3.20		
Sheerness, England	64	10.30		
Southampton, England[1]	78	8.60		
Takoradi, Ghana	12	3.20		
Ullapool, Scotland	90	8.40		
Venezia (Venice), Italy	28	1.70		
Vlissingen, Netherlands	110	7.60		
Yekaterininskaya, Russia	146	7.00		

Each datum figure above represents the difference in elevation between the local mean sea (or river) level and the reference level from which the predicted heights in table 1 were calculated.

Local mean sea level datum should not be confused with the National Geodetic Vertical Datum which is the datum of the geodetic level net of the United States. Relationships between geodetic and local tidal datums are published in connection with the tidal benchmark data of the National Ocean Service.

1 Explanation precedes the prediction.

TABLE 1.— DAILY TIDE PREDICTIONS

EXPLANATION OF TABLE

This table contains the predicted times and heights of the high and low waters for each day of the year at a number of places which are designated as *reference stations*. By using tidal differences from Table 2, one can calculate the approximate times and heights of the tide at many other places which are called *subordinate stations*. Instructions on the use of the tidal differences are found in the explanation of Table 2.

High water is the maximum height reached by each rising tide, and low water is the minimum height reached by each falling tide. High and low waters can be selected from the predictions by the comparison of consecutive heights. Because of diurnal inequality at certain places, however, there may be a difference of only a few tenths of a foot between one high water and low water of a day, but a marked difference in height between the other high water and low water. Therefore, in using theTide Tables it is essential, to note carefully the heights as well as the times of the tides.

Time.— The kind of time used for the predictions at each reference station is indicated by the time meridian at the bottom of each page.

Datum.— The datum from which the predicted heights are reckoned is the same as that used for the charts of the locality. In this table a datum approximating to mean low water springs, Indian spring low water, or the lowest possible low water is generally use. The depression of the datum below mean sea level for each of the reference stations of this volume is given on the preceding page.

Depth of water.— The nautical charts published by the United States and other maritime nations show the depth of the water as referred to a low water datum corresponding to that from which the predicted tidal heights are reckoned. To find the actual depth of water at any time, the height of the tide should be added to the charted depth. If the height of the tide is negative—that is, if there is a minus sign (–) before the tabular height—the height should be subtracted from the charted depth. For any time between high and low water, the height of the tide may be estimated from the heights of the preceding and following tides, or Table 3 may be used. The reference stations in Table 1 contain the heights in centimeters as well as feet.

Variation in sea level.— Changes in winds and barometric conditions cause variations in sea level from day to day. In general, with onshore winds or a low barometer the heights of both the high and low waters will be higher than predicted, while with offshore winds or a high barometer they will be lower. There are also seasonal variations in sea level, but these variations have been included in the predictions for each station. At ocean stations the seasonal variation in sea level is usually less than half a foot.

At stations on tidal rivers the average seasonal variation in river level due to freshets and droughts may be considerably more than a foot. The predictions for these stations include an allowance for this seasonal variation representing average freshet and drought conditions. Unusual freshets or droughts, however, will cause the tides to be higher or lower, respectively, than predicted.

Number of tides.— There are usually two high and two low waters in a day. Tides follow the Moon more closely than they do the Sun, and the lunar or tidal day is about 50 minutes longer than the solar day. This causes the tide to occur later each day, and a tide that has occurred near the end of one calendar day will be followed by a corresponding tide that may skip the next day and occur in the early morning of the third day. Thus, on certain days of each month only a single high or a single low water occurs. At some stations, during portions of each month, the tide becomes diurnal—that is, only one high and one low water will occur during the period of a lunar day.

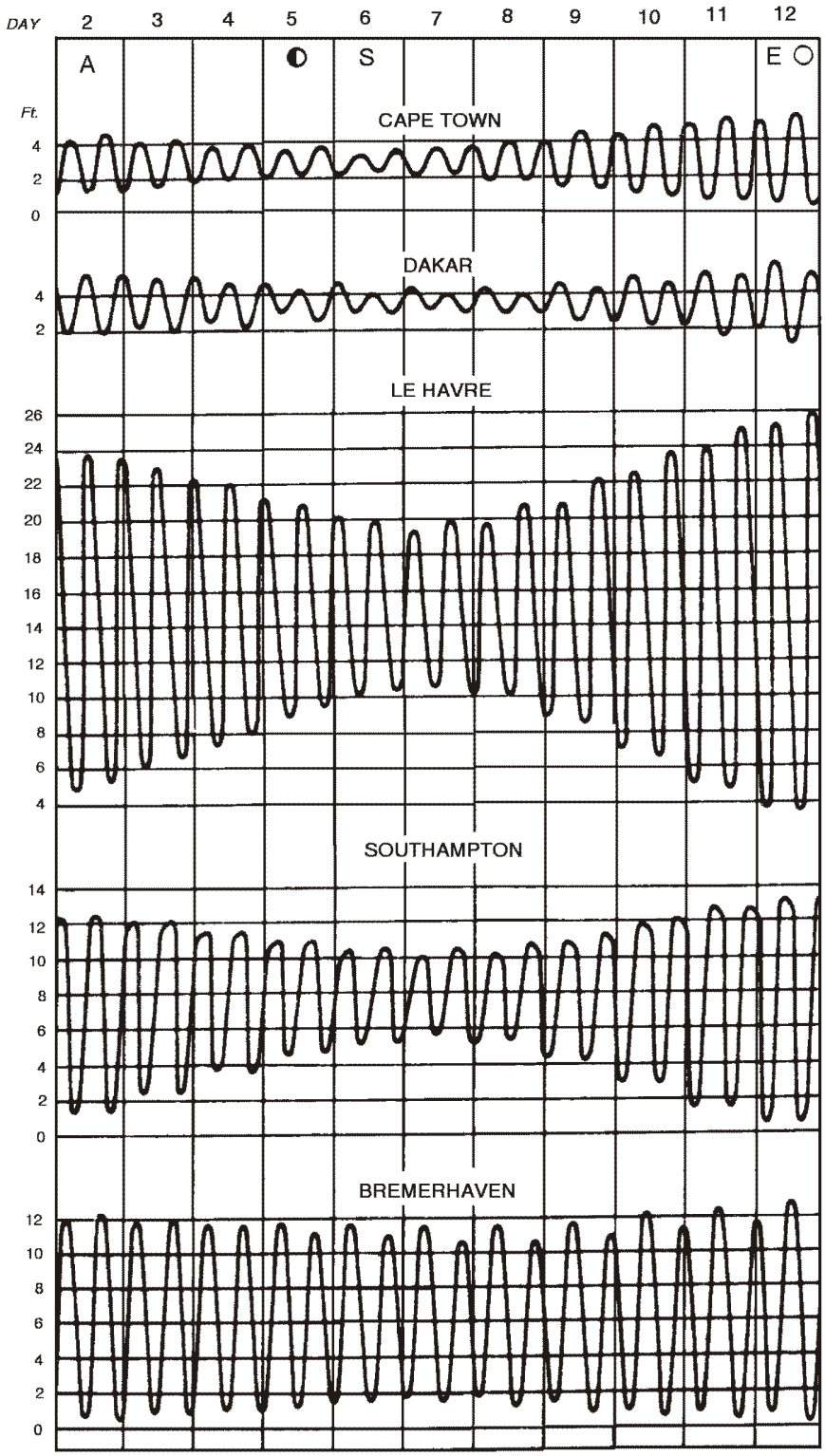
Relation of tide to current.— In using these tables of tide predictions bear in mind that they give the times and heights of high and low waters and not the times of turning of the current or slack water.

TABLE 1.— DAILY TIDE PREDICTIONS

For stations on the outer coast there is usually a small difference between the time of high or low waterand the beginning of ebb or flood current, but for places in narrow channels, landlocked harbors, or on tidal rivers, the time of slack water may differ by several hours from the time of high or low water stand.The relation of the times of high and low water to the turning of the current depends upon a number of factors, so no simple or general rule can be given.

Typical tide curves.— The principal variations in the tide for a number of places are illustrated on the opposite page by tide curves covering a period of 11 days. Note that the range of tide varies considerably but that the type is semidiurnal, with two high waters and two low waters each tidal day. The principal variations follow the changes in the Moon’s phase and distance. This type is representative of all areas in this publication with the exception of the upper part of the Adriatic Sea where the tide becomes diurnal. Here, however, the range is quite small. Shallow water effects are pronounced in many estuaries. At Southampton this results in a double high water. It is not depicted, however, because of the small scale of the curve. In other localities, shallow water effects may be pronounced in the high waters, in the low waters, or in both the high waters and the low waters.

TYPICAL TIDE CURVES



A discussion of these curves is given on the preceding page.

Lunar data:
A – Moon in apogee
◐ – first quarter
S – maximum south declination
E – Moon on Equator
○ – full moon

Ponta Delgada, Azores, 2019

Times and Heights of High and Low Waters

January

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Tu	0406	2.0	60	**16** W	0255	2.3	70	
	1012	4.6	140		0905	4.6	140	
	1633	1.6	50		1533	2.0	60	
	2248	4.9	150		2151	4.6	140	
2 W	0503	2.0	60	**17** Th	0402	2.0	60	
	1105	4.9	150		1009	4.6	140	
	1721	1.6	50		1631	1.6	50	
	2335	4.9	150		2248	4.9	150	
3 Th	0550	1.6	50	**18** F	0500	1.6	50	
	1151	4.9	150		1106	4.9	150	
	1802	1.6	50		1724	1.3	40	
					2339	5.2	160	
4 F	0016	5.2	160	**19** Sa	0553	1.3	40	
	0632	1.6	50		1159	5.2	160	
	1232	4.9	150		1813	1.0	30	
	1839	1.3	40					
5 Sa	0053	5.2	160	**20** Su	0027	5.6	170	
	0709	1.6	50		0643	1.0	30	
	1310	4.9	150		1249	5.6	170	
	1914	1.3	40		1900	1.0	30	
6 Su ●	0129	5.2	160	**21** M ○	0114	5.9	180	
	0745	1.3	40		0731	0.7	20	
	1345	4.9	150		1337	5.6	170	
	1948	1.3	40		1946	0.7	20	
7 M	0203	5.2	160	**22** Tu	0200	6.2	190	
	0819	1.3	40		0819	0.7	20	
	1420	4.9	150		1425	5.6	170	
	2021	1.3	40		2033	0.7	20	
8 Tu	0236	5.2	160	**23** W	0247	6.2	190	
	0853	1.3	40		0908	0.7	20	
	1454	4.9	150		1513	5.6	170	
	2054	1.3	40		2120	1.0	30	
9 W	0310	5.2	160	**24** Th	0335	6.2	190	
	0927	1.6	50		0956	0.7	20	
	1529	4.9	150		1602	5.6	170	
	2127	1.6	50		2208	1.0	30	
10 Th	0344	5.2	160	**25** F	0424	5.9	180	
	1003	1.6	50		1047	1.0	30	
	1605	4.6	140		1652	5.2	160	
	2203	1.6	50		2258	1.3	40	
11 F	0420	4.9	150	**26** Sa	0516	5.6	170	
	1042	2.0	60		1140	1.3	40	
	1644	4.6	140		1747	4.9	150	
	2243	2.0	60		2355	1.6	50	
12 Sa	0501	4.9	150	**27** Su ◑	0614	4.9	150	
	1126	2.0	60		1239	1.6	50	
	1730	4.3	130		1850	4.6	140	
	2330	2.3	70					
13 Su	0549	4.6	140	**28** M	0102	2.0	60	
	1217	2.3	70		0720	4.6	140	
	1826	4.3	130		1347	2.0	60	
					2003	4.3	130	
14 M ◐	0028	2.3	70	**29** Tu	0223	2.3	70	
	0647	4.6	140		0835	4.6	140	
	1319	2.3	70		1502	2.3	70	
	1934	4.3	130		2121	4.3	130	
15 Tu	0139	2.3	70	**30** W	0344	2.3	70	
	0755	4.3	130		0950	4.3	130	
	1428	2.3	70		1610	2.0	60	
	2046	4.3	130		2229	4.6	140	
				31 Th	0451	2.0	60	
					1052	4.6	140	
					1705	2.0	60	
					2321	4.6	140	

February

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 F	0542	2.0	60	**16** Sa	0445	2.0	60	
	1141	4.6	140		1052	4.9	150	
	1749	2.0	60		1708	1.6	50	
					2323	5.2	160	
2 Sa	0004	4.9	150	**17** Su	0542	1.3	40	
	0622	1.6	50		1149	5.2	160	
	1221	4.6	140		1801	1.3	40	
	1827	1.6	50					
3 Su	0040	5.2	160	**18** M	0013	5.6	170	
	0658	1.6	50		0632	1.0	30	
	1257	4.9	150		1239	5.6	170	
	1900	1.3	40		1848	1.0	30	
4 M ●	0114	5.2	160	**19** Tu ○	0100	5.9	180	
	0730	1.3	40		0719	0.7	20	
	1331	4.9	150		1325	5.9	180	
	1932	1.3	40		1933	0.7	20	
5 Tu	0146	5.2	160	**20** W	0145	6.2	190	
	0801	1.3	40		0804	0.3	10	
	1402	4.9	150		1410	5.9	180	
	2003	1.3	40		2017	0.7	20	
6 W	0216	5.6	170	**21** Th	0230	6.2	190	
	0832	1.3	40		0849	0.3	10	
	1433	4.9	150		1455	5.9	180	
	2033	1.3	40		2101	0.7	20	
7 Th	0247	5.2	160	**22** F	0314	6.2	190	
	0902	1.3	40		0933	0.7	20	
	1504	4.9	150		1539	5.6	170	
	2104	1.3	40		2145	1.0	30	
8 F	0317	5.2	160	**23** Sa	0400	5.9	180	
	0933	1.3	40		1017	1.0	30	
	1536	4.9	150		1623	5.2	160	
	2136	1.6	50		2231	1.3	40	
9 Sa	0350	5.2	160	**24** Su	0446	5.6	170	
	1006	1.6	50		1103	1.3	40	
	1609	4.9	150		1711	4.9	150	
	2210	1.6	50		2321	1.6	50	
10 Su	0425	4.9	150	**25** M	0538	4.9	150	
	1042	1.6	50		1154	2.0	60	
	1648	4.6	140		1806	4.6	140	
	2250	2.0	60					
11 M	0505	4.9	150	**26** Tu ◑	0022	2.0	60	
	1124	2.0	60		0639	4.6	140	
	1734	4.6	140		1256	2.3	70	
	2339	2.0	60		1917	4.3	130	
12 Tu ◐	0555	4.6	140	**27** W	0145	2.3	70	
	1217	2.0	60		0758	4.3	130	
	1835	4.3	130		1418	2.3	70	
					2045	4.3	130	
13 W	0044	2.3	70	**28** Th	0320	2.3	70	
	0701	4.3	130		0926	3.9	120	
	1328	2.3	70		1543	2.3	70	
	1953	4.3	130		2205	4.3	130	
14 Th	0210	2.3	70					
	0823	4.3	130					
	1452	2.3	70					
	2116	4.6	140					
15 F	0335	2.3	70					
	0945	4.6	140					
	1607	2.0	60					
	2226	4.9	150					

March

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 F	0435	2.3	70	**16** Sa	0320	2.0	60	
	1036	4.3	130		0932	4.3	130	
	1646	2.3	70		1550	2.0	60	
	2302	4.6	140		2207	4.9	150	
2 Sa	0526	2.0	60	**17** Su	0432	1.6	50	
	1126	4.6	140		1042	4.6	140	
	1732	2.0	60		1654	1.6	50	
	2345	4.9	150		2306	5.2	160	
3 Su	0605	2.0	60	**18** M	0528	1.3	40	
	1205	4.6	140		1137	5.2	160	
	1809	1.6	50		1746	1.3	40	
					2356	5.6	170	
4 M	0020	4.9	150	**19** Tu	0616	1.0	30	
	0638	1.6	50		1224	5.6	170	
	1239	4.9	150		1832	1.0	30	
	1841	1.6	50					
5 Tu	0052	5.2	160	**20** W	0042	5.9	180	
	0709	1.3	40		0701	0.7	20	
	1310	4.9	150		1308	5.9	180	
	1912	1.3	40		1916	0.7	20	
6 W ●	0122	5.2	160	**21** Th ○	0125	6.2	190	
	0738	1.3	40		0743	0.3	10	
	1340	5.2	160		1351	5.9	180	
	1941	1.3	40		1958	0.7	20	
7 Th	0151	5.6	170	**22** F	0208	6.2	190	
	0806	1.3	40		0825	0.3	10	
	1409	5.2	160		1432	5.9	180	
	2010	1.3	40		2040	0.7	20	
8 F	0220	5.6	170	**23** Sa	0251	6.2	190	
	0834	1.3	40		0905	0.7	20	
	1438	5.2	160		1513	5.9	180	
	2040	1.3	40		2122	1.0	30	
9 Sa	0250	5.6	170	**24** Su	0333	5.9	180	
	0903	1.3	40		0946	1.0	30	
	1508	5.2	160		1554	5.2	160	
	2111	1.3	40		2205	1.3	40	
10 Su	0321	5.2	160	**25** M	0417	5.2	160	
	0934	1.3	40		1027	1.3	40	
	1540	4.9	150		1638	4.9	150	
	2144	1.3	40		2252	1.6	50	
11 M	0355	5.2	160	**26** Tu	0505	4.9	150	
	1007	1.6	50		1112	2.0	60	
	1617	4.9	150		1728	4.6	140	
	2223	1.6	50		2349	2.0	60	
12 Tu	0434	4.9	150	**27** W	0602	4.3	130	
	1046	2.0	60		1207	2.3	70	
	1701	4.6	140		1832	4.3	130	
	2310	2.0	60					
13 W	0523	4.6	140	**28** Th ◑	0107	2.3	70	
	1137	2.0	60		0719	3.9	120	
	1758	4.6	140		1327	2.6	80	
					1959	4.3	130	
14 Th ◐	0014	2.3	70	**29** F	0244	2.6	80	
	0629	4.3	130		0853	3.9	120	
	1248	2.3	70		1501	2.6	80	
	1918	4.3	130		2126	4.3	130	
15 F	0145	2.3	70	**30** Sa	0403	2.3	70	
	0800	4.3	130		1009	3.9	120	
	1424	2.3	70		1613	2.3	70	
	2050	4.6	140		2229	4.6	140	
				31 Su	0456	2.0	60	
					1100	4.3	130	
					1703	2.0	60	
					2314	4.6	140	

Time meridian 15° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ponta Delgada, Azores, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 M	0536	2.0	60	**16** Tu	0509	1.3	40
	1140	4.6	140		1119	5.2	160
	1741	2.0	60		1728	1.3	40
	2350	4.9	150		2335	5.6	170
2 Tu	0609	1.6	50	**17** W	0556	1.0	30
	1213	4.9	150		1205	5.6	170
	1814	1.6	50		1813	1.0	30
3 W	0023	5.2	160	**18** Th	0020	5.9	180
	0639	1.3	40		0638	0.7	20
	1243	4.9	150		1247	5.9	180
	1845	1.3	40		1856	1.0	30
4 Th	0053	5.2	160	**19** F	0103	5.9	180
	0708	1.3	40		0719	0.7	20
	1312	5.2	160		1328	5.9	180
	1915	1.3	40	○	1937	0.7	20
5 F	0122	5.6	170	**20** Sa	0146	5.9	180
	0736	1.3	40		0759	0.7	20
	1341	5.2	160		1408	5.9	180
●	1944	1.3	40		2018	1.0	30
6 Sa	0152	5.6	170	**21** Su	0227	5.9	180
	0804	1.0	30		0838	1.0	30
	1411	5.2	160		1448	5.6	170
	2015	1.3	40		2100	1.0	30
7 Su	0223	5.6	170	**22** M	0309	5.6	170
	0834	1.0	30		0916	1.0	30
	1442	5.2	160		1528	5.2	160
	2048	1.3	40		2142	1.3	40
8 M	0256	5.2	160	**23** Tu	0351	4.9	150
	0906	1.3	40		0955	1.6	50
	1517	5.2	160		1610	4.9	150
	2124	1.3	40		2228	1.6	50
9 Tu	0333	5.2	160	**24** W	0436	4.6	140
	0942	1.3	40		1037	2.0	60
	1556	5.2	160		1656	4.9	150
	2206	1.6	50		2321	2.0	60
10 W	0415	4.9	150	**25** Th	0530	4.3	130
	1024	1.6	50		1128	2.3	70
	1642	4.9	150		1753	4.6	140
	2257	2.0	60				
11 Th	0508	4.6	140	**26** F	0029	2.3	70
	1117	2.0	60		0639	3.9	120
	1742	4.6	140		1237	2.6	80
				◑	1909	4.3	130
12 F	0006	2.0	60	**27** Sa	0154	2.3	70
	0619	4.3	130		0805	3.9	120
	1232	2.3	70		1405	2.6	80
◐	1902	4.6	140		2032	4.3	130
13 Sa	0137	2.3	70	**28** Su	0312	2.3	70
	0752	4.3	130		0923	3.9	120
	1409	2.3	70		1523	2.6	80
	2032	4.6	140		2140	4.3	130
14 Su	0307	2.0	60	**29** M	0410	2.0	60
	0920	4.3	130		1020	4.3	130
	1533	2.0	60		1619	2.3	70
	2146	4.9	150		2230	4.6	140
15 M	0415	1.6	50	**30** Tu	0454	2.0	60
	1027	4.9	150		1102	4.6	140
	1636	1.6	50		1703	2.0	60
	2245	5.2	160		2311	4.9	150

May

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 W	0530	1.6	50	**16** Th	0532	1.0	30
	1138	4.9	150		1143	5.2	160
	1739	1.6	50		1753	1.3	40
	2346	4.9	150		2359	5.6	170
2 Th	0603	1.3	40	**17** F	0615	1.0	30
	1210	4.9	150		1226	5.6	170
	1813	1.6	50		1837	1.0	30
3 F	0019	5.2	160	**18** Sa	0042	5.6	170
	0633	1.3	40		0656	1.0	30
	1241	5.2	160		1307	5.6	170
	1845	1.3	40	○	1919	1.0	30
4 Sa	0051	5.2	160	**19** Su	0125	5.6	170
	0704	1.3	40		0735	1.0	30
	1312	5.2	160		1347	5.6	170
●	1918	1.3	40		2000	1.0	30
5 Su	0124	5.2	160	**20** M	0206	5.2	160
	0735	1.0	30		0813	1.0	30
	1345	5.6	170		1426	5.6	170
	1953	1.0	30		2041	1.3	40
6 M	0159	5.2	160	**21** Tu	0247	5.2	160
	0809	1.0	30		0851	1.3	40
	1420	5.6	170		1505	5.2	160
	2030	1.3	40		2123	1.3	40
7 Tu	0237	5.2	160	**22** W	0329	4.9	150
	0846	1.3	40		0929	1.6	50
	1459	5.6	170		1546	5.2	160
	2112	1.3	40		2207	1.6	50
8 W	0319	5.2	160	**23** Th	0412	4.6	140
	0926	1.3	40		1010	2.0	60
	1543	5.2	160		1630	4.9	150
	2200	1.3	40		2255	2.0	60
9 Th	0407	4.9	150	**24** F	0500	4.3	130
	1014	1.6	50		1056	2.0	60
	1634	5.2	160		1719	4.6	140
	2257	1.6	50		2351	2.3	70
10 F	0505	4.6	140	**25** Sa	0558	4.3	130
	1112	2.0	60		1153	2.3	70
	1737	4.9	150		1819	4.6	140
11 Sa	0007	2.0	60	**26** Su	0058	2.3	70
	0618	4.3	130		0707	3.9	120
	1227	2.0	60		1303	2.6	80
	1852	4.9	150	◑	1929	4.3	130
12 Su	0129	2.0	60	**27** M	0208	2.3	70
	0742	4.3	130		0821	3.9	120
	1353	2.3	70		1419	2.6	80
◐	2012	4.9	150		2038	4.3	130
13 M	0247	1.6	50	**28** Tu	0311	2.3	70
	0901	4.6	140		0924	4.3	130
	1511	2.0	60		1523	2.3	70
	2122	4.9	150		2136	4.6	140
14 Tu	0352	1.6	50	**29** W	0402	2.0	60
	1005	4.9	150		1014	4.3	130
	1614	1.6	50		1615	2.3	70
	2221	5.2	160		2224	4.6	140
15 W	0446	1.3	40	**30** Th	0445	2.0	60
	1057	4.9	150		1056	4.6	140
	1706	1.3	40		1658	2.0	60
	2312	5.2	160		2305	4.9	150
				31 F	0522	1.6	50
					1133	4.9	150
					1737	1.6	50
					2343	4.9	150

June

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Sa	0558	1.3	40	**16** Su	0025	5.2	160
	1209	5.2	160		0636	1.3	40
	1815	1.3	40		1249	5.2	160
					1905	1.3	40
2 Su	0020	5.2	160	**17** M	0108	5.2	160
	0633	1.3	40		0715	1.3	40
	1245	5.2	160		1329	5.6	170
	1854	1.3	40	○	1946	1.3	40
3 M	0059	5.2	160	**18** Tu	0149	5.2	160
	0710	1.0	30		0753	1.3	40
	1323	5.6	170		1408	5.6	170
●	1934	1.0	30		2026	1.3	40
4 Tu	0140	5.2	160	**19** W	0229	4.9	150
	0750	1.0	30		0830	1.3	40
	1404	5.6	170		1446	5.2	160
	2018	1.0	30		2105	1.3	40
5 W	0224	5.2	160	**20** Th	0308	4.9	150
	0832	1.0	30		0907	1.6	50
	1448	5.6	170		1524	5.2	160
	2105	1.0	30		2145	1.6	50
6 Th	0311	5.2	160	**21** F	0348	4.6	140
	0918	1.3	40		0945	1.6	50
	1536	5.6	170		1603	4.9	150
	2157	1.3	40		2226	2.0	60
7 F	0403	4.9	150	**22** Sa	0430	4.6	140
	1009	1.3	40		1026	2.0	60
	1629	5.2	160		1646	4.9	150
	2255	1.3	40		2312	2.0	60
8 Sa	0502	4.9	150	**23** Su	0516	4.3	130
	1108	1.6	50		1112	2.0	60
	1729	5.2	160		1733	4.6	140
	2359	1.6	50				
9 Su	0609	4.6	140	**24** M	0003	2.0	60
	1216	2.0	60		0610	4.3	130
	1836	4.9	150		1207	2.3	70
					1828	4.6	140
10 M	0110	1.6	50	**25** Tu	0102	2.3	70
	0721	4.6	140		0712	4.3	130
	1330	2.0	60		1311	2.3	70
◐	1947	4.9	150	◑	1930	4.3	130
11 Tu	0220	1.6	50	**26** W	0204	2.3	70
	0834	4.6	140		0818	4.3	130
	1444	2.0	60		1419	2.3	70
	2055	4.9	150		2033	4.3	130
12 W	0324	1.6	50	**27** Th	0303	2.0	60
	0938	4.6	140		0918	4.3	130
	1549	2.0	60		1521	2.3	70
	2157	4.9	150		2131	4.6	140
13 Th	0420	1.6	50	**28** F	0355	2.0	60
	1034	4.9	150		1010	4.6	140
	1646	1.6	50		1615	2.0	60
	2251	4.9	150		2222	4.6	140
14 F	0510	1.3	40	**29** Sa	0442	2.0	60
	1123	5.2	160		1056	4.9	150
	1736	1.6	50		1704	2.0	60
	2340	5.2	160		2309	4.9	150
15 Sa	0554	1.3	40	**30** Su	0525	1.6	50
	1207	5.2	160		1139	4.9	150
	1822	1.3	40		1749	1.6	50
					2354	4.9	150

Time meridian 15° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ponta Delgada, Azores, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0608	1.3	40	**16** Tu ○	0055	4.9	150	**1** Th ●	0114	5.6	170	**16** F	0149	4.9	150	
	1222	5.2	160		0700	1.3	40		0722	1.0	30		0749	1.3	40	
	1834	1.3	40		1315	5.2	160		1336	5.9	180		1402	5.6	170	
					1933	1.3	40		1955	0.7	20		2019	1.3	40	
2 Tu ●	0040	5.2	160	**17** W	0134	4.9	150	**2** F	0201	5.6	170	**17** Sa	0221	4.9	150	
	0651	1.0	30		0736	1.3	40		0808	0.7	20		0820	1.3	40	
	1305	5.6	170		1351	5.2	160		1422	6.2	190		1433	5.2	160	
	1920	1.0	30		2009	1.3	40		2042	0.7	20		2049	1.3	40	
3 W	0126	5.2	160	**18** Th	0210	4.9	150	**3** Sa	0248	5.6	170	**18** Su	0252	4.9	150	
	0735	1.0	30		0811	1.3	40		0855	0.7	20		0851	1.3	40	
	1350	5.9	180		1426	5.2	160		1509	6.2	190		1504	5.2	160	
	2008	1.0	30		2044	1.3	40		2130	0.7	20		2120	1.3	40	
4 Th	0213	5.2	160	**19** F	0246	4.9	150	**4** Su	0336	5.6	170	**19** M	0323	4.9	150	
	0821	1.0	30		0845	1.3	40		0942	1.0	30		0922	1.6	50	
	1437	5.9	180		1500	5.2	160		1558	5.9	180		1536	5.2	160	
	2057	1.0	30		2119	1.6	50		2219	1.0	30		2152	1.6	50	
5 F	0303	5.2	160	**20** Sa	0321	4.9	150	**5** M	0426	5.2	160	**20** Tu	0356	4.9	150	
	0909	1.0	30		0919	1.6	50		1032	1.3	40		0956	1.6	50	
	1526	5.9	180		1535	5.2	160		1649	5.6	170		1610	4.9	150	
	2148	1.0	30		2154	1.6	50		2311	1.3	40		2227	1.6	50	
6 Sa	0354	5.2	160	**21** Su	0357	4.6	140	**6** Tu	0519	4.9	150	**21** W	0432	4.6	140	
	1000	1.3	40		0954	1.6	50		1127	1.6	50		1034	2.0	60	
	1617	5.6	170		1611	4.9	150		1744	5.2	160		1648	4.9	150	
	2242	1.0	30		2232	1.6	50						2306	2.0	60	
7 Su	0449	4.9	150	**22** M	0435	4.6	140	**7** W ◐	0007	1.6	50	**22** Th	0516	4.6	140	
	1054	1.3	40		1033	2.0	60		0617	4.6	140		1120	2.0	60	
	1713	5.6	170		1650	4.9	150		1230	2.0	60		1734	4.6	140	
	2339	1.3	40		2313	2.0	60		1847	4.9	150		2355	2.3	70	
8 M	0547	4.9	150	**23** Tu	0518	4.3	130	**8** Th	0111	2.0	60	**23** F ◑	0611	4.3	130	
	1154	1.6	50		1116	2.0	60		0727	4.6	140		1221	2.3	70	
	1813	5.2	160		1734	4.6	140		1346	2.0	60		1835	4.3	130	
									2000	4.6	140					
9 Tu ◐	0041	1.6	50	**24** W	0000	2.0	60	**9** F	0224	2.0	60	**24** Sa	0100	2.3	70	
	0652	4.6	140		0608	4.3	130		0844	4.6	140		0725	4.3	130	
	1302	2.0	60		1209	2.3	70		1510	2.3	70		1342	2.3	70	
	1918	4.9	150		1827	4.6	140		2117	4.3	130		1954	4.3	130	
10 W	0147	1.6	50	**25** Th ◑	0055	2.3	70	**10** Sa	0337	2.0	60	**25** Su	0222	2.3	70	
	0801	4.6	140		0709	4.3	130		0957	4.6	140		0848	4.3	130	
	1415	2.0	60		1314	2.3	70		1623	2.0	60		1508	2.3	70	
	2027	4.9	150		1929	4.3	130		2225	4.3	130		2116	4.3	130	
11 Th	0254	2.0	60	**26** F	0159	2.3	70	**11** Su	0439	2.0	60	**26** M	0339	2.0	60	
	0911	4.6	140		0818	4.3	130		1056	4.6	140		0959	4.6	140	
	1527	2.0	60		1427	2.3	70		1720	2.0	60		1619	2.0	60	
	2134	4.6	140		2038	4.3	130		2320	4.6	140		2226	4.6	140	
12 F	0357	2.0	60	**27** Sa	0305	2.3	70	**12** M	0528	2.0	60	**27** Tu	0441	1.6	50	
	1013	4.6	140		0925	4.3	130		1143	4.9	150		1056	4.9	150	
	1631	2.0	60		1536	2.3	70		1805	1.6	50		1716	1.6	50	
	2235	4.6	140		2144	4.6	140						2322	4.9	150	
13 Sa	0452	1.6	50	**28** Su	0406	2.0	60	**13** Tu	0004	4.6	140	**28** W	0534	1.3	40	
	1107	4.9	150		1024	4.6	140		0609	1.6	50		1147	5.6	170	
	1726	1.6	50		1637	2.0	60		1223	5.2	160		1806	1.0	30	
	2328	4.9	150		2242	4.6	140		1843	1.6	50					
14 Su	0540	1.6	50	**29** M	0459	1.6	50	**14** W	0042	4.9	150	**29** Th	0012	5.2	160	
	1154	4.9	150		1115	4.9	150		0644	1.6	50		0621	1.0	30	
	1813	1.6	50		1730	1.6	50		1258	5.2	160		1233	5.9	180	
					2335	4.9	150		1916	1.3	40		1852	0.7	20	
15 M	0014	4.9	150	**30** Tu	0549	1.3	40	**15** Th ○	0116	4.9	150	**30** F ●	0059	5.6	170	
	0622	1.6	50		1203	5.2	160		0717	1.3	40		0706	0.7	20	
	1236	5.2	160		1820	1.3	40		1331	5.2	160		1318	6.2	190	
	1855	1.6	50						1948	1.3	40		1937	0.7	20	
				31 W	0025	5.2	160					**31** Sa	0144	5.9	180	
					0636	1.0	30						0750	0.7	20	
					1250	5.9	180						1403	6.2	190	
					1908	1.0	30						2022	0.3	10	

September

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Su	0228	5.9	180	**16** M	0222	5.2	160	
	0835	0.7	20		0822	1.3	40	
	1448	6.2	190		1433	5.2	160	
	2106	0.7	20		2046	1.3	40	
2 M	0313	5.9	180	**17** Tu	0251	5.2	160	
	0919	0.7	20		0853	1.3	40	
	1533	5.9	180		1503	5.2	160	
	2151	0.7	20		2116	1.3	40	
3 Tu	0358	5.6	170	**18** W	0322	4.9	150	
	1006	1.0	30		0925	1.6	50	
	1621	5.6	170		1535	4.9	150	
	2238	1.3	40		2147	1.6	50	
4 W	0447	5.2	160	**19** Th	0356	4.9	150	
	1058	1.6	50		1001	1.6	50	
	1713	5.2	160		1612	4.9	150	
	2330	1.6	50		2224	2.0	60	
5 Th	0542	4.9	150	**20** F	0438	4.6	140	
	1159	2.0	60		1046	2.0	60	
	1815	4.6	140		1657	4.6	140	
					2311	2.0	60	
6 F ◐	0032	2.0	60	**21** Sa	0532	4.6	140	
	0651	4.6	140		1146	2.3	70	
	1320	2.3	70		1759	4.3	130	
	1933	4.3	130					
7 Sa	0151	2.3	70	**22** Su ◑	0017	2.3	70	
	0817	4.3	130		0648	4.3	130	
	1455	2.3	70		1314	2.3	70	
	2102	4.3	130		1927	4.3	130	
8 Su	0317	2.3	70	**23** M	0151	2.3	70	
	0940	4.3	130		0820	4.3	130	
	1614	2.3	70		1451	2.3	70	
	2216	4.3	130		2101	4.3	130	
9 M	0424	2.3	70	**24** Tu	0320	2.3	70	
	1041	4.6	140		0938	4.6	140	
	1708	2.0	60		1604	2.0	60	
	2308	4.6	140		2213	4.6	140	
10 Tu	0513	2.0	60	**25** W	0425	2.0	60	
	1126	4.9	150		1038	5.2	160	
	1749	1.6	50		1700	1.3	40	
	2348	4.6	140		2308	4.9	150	
11 W	0551	1.6	50	**26** Th	0517	1.3	40	
	1203	4.9	150		1128	5.6	170	
	1822	1.6	50		1748	1.0	30	
					2356	5.2	160	
12 Th	0023	4.9	150	**27** F	0603	1.0	30	
	0624	1.6	50		1213	5.9	180	
	1235	5.2	160		1832	0.7	20	
	1853	1.3	40					
13 F	0054	4.9	150	**28** Sa ●	0040	5.9	180	
	0655	1.3	40		0647	0.7	20	
	1306	5.2	160		1257	6.2	190	
	1921	1.3	40		1915	0.3	10	
14 Sa ○	0124	5.2	160	**29** Su	0123	5.9	180	
	0724	1.3	40		0730	0.7	20	
	1335	5.6	170		1341	6.2	190	
	1950	1.3	40		1957	0.3	10	
15 Su	0153	5.2	160	**30** M	0205	5.9	180	
	0753	1.3	40		0813	0.7	20	
	1404	5.6	170		1424	6.2	190	
	2018	1.3	40		2039	0.7	20	

Time meridian 15° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ponta Delgada, Azores, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 Tu	0247	5.9	180	**16** W	0223	5.2	160	**1** F	0350	5.2	160	**16** Sa	0317	5.2	160	**1** Su	0414	4.9	150	**16** M	0358	5.2	160
	0856	0.7	20		0827	1.3	40		1009	1.6	50		0932	1.6	50		1040	2.0	60		1021	1.3	40
	1508	5.9	180		1435	5.2	160		1618	4.9	150		1538	4.9	150		1644	4.3	130		1626	4.9	150
	2121	1.0	30		2045	1.3	40		2220	2.0	60		2144	1.6	50		2239	2.0	60		2231	1.6	50
2 W	0330	5.6	170	**17** Th	0255	5.2	160	**2** Sa	0439	4.9	150	**17** Su	0404	4.9	150	**2** M	0503	4.6	140	**17** Tu	0453	5.2	160
	0942	1.0	30		0902	1.3	40		1106	2.0	60		1024	1.6	50		1135	2.0	60		1120	1.6	50
	1554	5.2	160		1509	4.9	150		1714	4.3	130		1631	4.6	140		1740	4.3	130		1727	4.6	140
	2205	1.3	40		2118	1.6	50		2312	2.3	70		2237	2.0	60		2334	2.3	70		2332	2.0	60
3 Th	0416	5.2	160	**18** F	0331	4.9	150	**3** Su	0539	4.6	140	**18** M	0502	4.9	150	**3** Tu	0602	4.6	140	**18** W	0556	4.9	150
	1031	1.6	50		0941	1.6	50		1217	2.3	70		1130	2.0	60		1241	2.3	70		1227	1.6	50
	1644	4.9	150		1549	4.9	150		1825	3.9	120		1738	4.3	130		1848	3.9	120		1836	4.6	140
	2252	1.6	50		2157	1.6	50						2345	2.0	60								
4 F	0508	4.9	150	**19** Sa	0415	4.9	150	**4** M	0023	2.6	80	**19** Tu	0614	4.6	140	**4** W	0042	2.6	80	**19** Th	0044	2.0	60
	1131	2.0	60		1028	2.0	60		0655	4.3	130		1249	2.0	60		0711	4.3	130		0705	4.9	150
	1744	4.3	130		1637	4.6	140		1343	2.3	70		1900	4.3	130		1352	2.3	70		1338	1.6	50
	2351	2.3	70		2245	2.0	60	◐	1951	3.9	120	◑				◐	2003	3.9	120	◑	1950	4.6	140
5 Sa	0615	4.6	140	**20** Su	0511	4.6	140	**5** Tu	0151	2.6	80	**20** W	0111	2.3	70	**5** Th	0200	2.6	80	**20** F	0201	2.0	60
	1252	2.3	70		1133	2.3	70		0818	4.3	130		0734	4.6	140		0822	4.3	130		0816	4.9	150
	1903	3.9	120		1744	4.3	130		1501	2.3	70		1410	2.0	60		1458	2.3	70		1447	1.6	50
◐					2355	2.3	70		2110	3.9	120		2023	4.3	130		2110	4.3	130		2102	4.6	140
6 Su	0112	2.6	80	**21** M	0628	4.6	140	**6** W	0309	2.6	80	**21** Th	0234	2.0	60	**6** F	0308	2.3	70	**21** Sa	0313	2.0	60
	0742	4.3	130		1302	2.3	70		0927	4.6	140		0848	4.9	150		0923	4.6	140		0923	4.9	150
	1430	2.3	70		1915	4.3	130		1559	2.0	60		1519	1.6	50		1551	2.0	60		1549	1.6	50
	2037	3.9	120	◑					2206	4.3	130		2132	4.6	140		2203	4.3	130		2204	4.9	150
7 M	0245	2.6	80	**22** Tu	0131	2.3	70	**7** Th	0406	2.3	70	**22** F	0341	2.0	60	**7** Sa	0403	2.3	70	**22** Su	0416	1.6	50
	0910	4.3	130		0758	4.6	140		1017	4.6	140		0950	5.2	160		1012	4.6	140		1023	4.9	150
	1549	2.3	70		1435	2.0	60		1642	2.0	60		1615	1.3	40		1635	2.0	60		1644	1.3	40
	2153	4.3	130		2047	4.3	130		2249	4.6	140		2228	4.9	150		2246	4.6	140		2258	4.9	150
8 Tu	0357	2.3	70	**23** W	0300	2.3	70	**8** F	0449	2.0	60	**23** Sa	0436	1.6	50	**8** Su	0448	2.0	60	**23** M	0511	1.6	50
	1012	4.6	140		0916	4.9	150		1058	4.9	150		1043	5.2	160		1054	4.9	150		1116	5.2	160
	1642	2.0	60		1545	1.6	50		1717	1.6	50		1704	1.0	30		1713	1.6	50		1732	1.3	40
	2245	4.3	130		2156	4.6	140		2325	4.9	150		2316	5.2	160		2324	4.9	150		2346	5.2	160
9 W	0446	2.0	60	**24** Th	0406	2.0	60	**9** Sa	0525	2.0	60	**24** Su	0525	1.3	40	**9** M	0527	2.0	60	**24** Tu	0601	1.3	40
	1058	4.9	150		1016	5.2	160		1133	4.9	150		1131	5.6	170		1132	4.9	150		1205	5.2	160
	1721	1.6	50		1640	1.3	40		1749	1.6	50		1749	1.0	30		1747	1.6	50		1817	1.3	40
	2324	4.6	140		2250	4.9	150		2357	4.9	150						2358	4.9	150				
10 Th	0524	2.0	60	**25** F	0458	1.3	40	**10** Su	0558	1.6	50	**25** M	0000	5.6	170	**10** Tu	0604	1.6	50	**25** W	0030	5.6	170
	1134	4.9	150		1106	5.6	170		1205	5.2	160		0611	1.0	30		1208	4.9	150		0647	1.3	40
	1753	1.6	50		1727	1.0	30		1819	1.3	40		1217	5.6	170		1821	1.3	40		1250	5.2	160
	2357	4.9	150		2336	5.6	170						1831	1.0	30						1858	1.3	40
11 F	0558	1.6	50	**26** Sa	0544	1.0	30	**11** M	0027	5.2	160	**26** Tu	0043	5.6	170	**11** W	0032	5.2	160	**26** Th	0112	5.6	170
	1206	5.2	160		1152	5.9	180		0630	1.3	40		0655	1.0	30		0640	1.3	40		0730	1.3	40
	1823	1.3	40		1810	0.7	20		1236	5.2	160		1301	5.6	170		1244	5.2	160		1333	5.2	160
									1849	1.3	40	●	1912	1.0	30		1855	1.3	40	●	1938	1.3	40
12 Sa	0027	4.9	150	**27** Su	0019	5.9	180	**12** Tu	0057	5.2	160	**27** W	0124	5.9	180	**12** Th	0107	5.2	160	**27** F	0153	5.6	170
	0628	1.3	40		0628	1.0	30		0702	1.3	40		0738	1.0	30		0717	1.3	40		0811	1.3	40
	1236	5.2	160		1236	5.9	180		1307	5.2	160		1345	5.6	170		1321	5.2	160		1414	5.2	160
	1851	1.3	40		1852	0.7	20	○	1918	1.3	40		1953	1.0	30	○	1931	1.3	40		2016	1.3	40
13 Su	0056	5.2	160	**28** M	0101	5.9	180	**13** W	0128	5.2	160	**28** Th	0206	5.6	170	**13** F	0145	5.6	170	**28** Sa	0232	5.6	170
	0657	1.3	40		0710	0.7	20		0734	1.3	40		0822	1.0	30		0757	1.3	40		0851	1.3	40
	1306	5.2	160		1319	6.2	190		1340	5.2	160		1428	5.2	160		1402	5.2	160		1453	4.9	150
○	1919	1.3	40	●	1933	0.7	20		1950	1.3	40		2032	1.3	40		2010	1.3	40		2053	1.3	40
14 M	0124	5.2	160	**29** Tu	0142	5.9	180	**14** Th	0201	5.2	160	**29** F	0247	5.6	170	**14** Sa	0225	5.6	170	**29** Su	0310	5.2	160
	0727	1.3	40		0753	0.7	20		0809	1.3	40		0905	1.3	40		0841	1.3	40		0931	1.3	40
	1334	5.2	160		1402	5.9	180		1414	5.2	160		1511	4.9	150		1445	5.2	160		1533	4.9	150
	1947	1.3	40		2013	0.7	20		2023	1.3	40		2112	1.3	40		2052	1.3	40		2130	1.6	50
15 Tu	0153	5.2	160	**30** W	0224	5.9	180	**15** F	0237	5.2	160	**30** Sa	0329	5.2	160	**15** Su	0310	5.6	170	**30** M	0349	5.2	160
	0756	1.3	40		0836	1.0	30		0848	1.3	40		0951	1.6	50		0928	1.3	40		1011	1.6	50
	1404	5.2	160		1445	5.6	170		1453	4.9	150		1555	4.6	140		1533	4.9	150		1613	4.6	140
	2015	1.3	40		2054	1.0	30		2100	1.3	40		2154	1.6	50		2138	1.3	40		2209	2.0	60
				31 Th	0306	5.6	170													**31** Tu	0429	4.9	150
					0921	1.3	40														1053	2.0	60
					1530	5.2	160														1656	4.3	130
					2135	1.3	40														2251	2.0	60

Time meridian 15° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cape Town, South Africa, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0001	4.4	133	**16** W	0447	2.4	74
	0602	2.1	64		1110	4.7	143
	1213	4.9	150		1746	1.9	59
	1854	1.6	50		2358	4.3	132
2 W	0059	4.6	140	**17** Th	0601	2.2	67
	0659	2.0	60		1214	4.9	150
	1305	5.0	153		1845	1.6	48
	1939	1.5	45				
3 Th	0147	4.8	147	**18** F	0058	4.7	143
	0747	1.8	56		0702	1.9	57
	1350	5.1	156		1310	5.2	160
	2018	1.3	40		1936	1.2	36
4 F	0227	5.0	153	**19** Sa	0149	5.1	156
	0827	1.7	51		0754	1.5	45
	1429	5.2	158		1402	5.6	170
	2052	1.2	37		2024	0.8	25
5 Sa	0303	5.2	158	**20** Su	0236	5.5	168
	0902	1.6	48		0843	1.1	34
	1505	5.2	159		1451	5.8	178
	2123	1.1	35		2109	0.6	17
6 Su ●	0336	5.3	161	**21** M ○	0322	5.8	178
	0936	1.5	46		0931	0.9	26
	1539	5.2	159		1539	6.0	183
	2153	1.1	34		2153	0.4	12
7 M	0409	5.3	162	**22** Tu	0407	6.1	186
	1008	1.5	45		1018	0.7	22
	1611	5.2	158		1626	6.0	183
	2222	1.1	35		2237	0.4	12
8 Tu	0440	5.3	161	**23** W	0452	6.2	188
	1040	1.5	46		1106	0.7	22
	1643	5.1	156		1712	5.9	179
	2251	1.2	38		2321	0.6	17
9 W	0511	5.2	160	**24** Th	0537	6.1	186
	1113	1.6	49		1155	0.9	27
	1715	5.0	152		1758	5.6	170
	2321	1.4	42				
10 Th	0544	5.1	156	**25** F	0005	0.9	26
	1148	1.7	53		0623	5.9	179
	1748	4.8	146		1246	1.2	36
	2353	1.5	47		1846	5.2	158
11 F	0619	5.0	152	**26** Sa	0051	1.2	38
	1227	1.9	58		0712	5.5	169
	1824	4.6	140		1341	1.6	48
					1939	4.7	144
12 Sa	0029	1.8	54	**27** Su ◑	0141	1.7	52
	0659	4.8	147		0806	5.2	157
	1312	2.1	64		1443	1.9	58
	1907	4.4	133		2042	4.3	132
13 Su	0111	2.0	62	**28** M	0243	2.1	65
	0746	4.7	142		0910	4.8	145
	1408	2.2	68		1559	2.2	66
	2002	4.1	126		2202	4.1	125
14 M ◐	0205	2.3	69	**29** Tu	0406	2.4	74
	0846	4.6	139		1028	4.5	138
	1518	2.3	70		1724	2.2	67
	2116	4.0	122		2333	4.1	125
15 Tu	0320	2.4	74	**30** W	0537	2.5	76
	0958	4.5	138		1148	4.5	136
	1635	2.2	67		1836	2.1	63
	2242	4.1	124				
				31 Th	0046	4.3	132
					0650	2.3	71
					1253	4.6	139
					1929	1.8	56

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0137	4.6	140	**16** Sa	0038	4.6	140
	0741	2.1	64		0649	1.9	59
	1342	4.8	145		1257	5.1	154
	2008	1.6	50		1922	1.3	41
2 Sa	0217	4.9	149	**17** Su	0135	5.1	155
	0820	1.8	56		0746	1.4	44
	1422	4.9	150		1353	5.5	167
	2041	1.4	44		2012	0.9	28
3 Su	0252	5.1	156	**18** M	0224	5.6	171
	0853	1.6	50		0835	1.0	30
	1456	5.1	156		1443	5.8	178
	2111	1.3	39		2056	0.6	17
4 M ●	0323	5.3	161	**19** Tu ○	0309	6.0	184
	0923	1.5	45		0921	0.6	19
	1528	5.2	160		1529	6.1	185
	2138	1.1	35		2139	0.3	10
5 Tu	0352	5.4	165	**20** W	0352	6.4	194
	0953	1.4	42		1006	0.5	14
	1557	5.3	162		1613	6.2	188
	2205	1.1	33		2220	0.3	9
6 W	0421	5.5	168	**21** Th	0434	6.5	197
	1022	1.3	40		1050	0.5	14
	1626	5.3	162		1655	6.0	184
	2232	1.1	33		2300	0.4	13
7 Th	0450	5.5	168	**22** F	0515	6.4	194
	1052	1.3	41		1134	0.7	20
	1655	5.2	160		1737	5.7	175
	2259	1.2	36		2340	0.7	22
8 F	0519	5.5	167	**23** Sa	0556	6.1	185
	1124	1.4	43		1217	1.0	30
	1725	5.1	156		1819	5.3	163
	2328	1.3	40				
9 Sa	0549	5.4	164	**24** Su	0021	1.2	36
	1157	1.5	47		0638	5.6	172
	1757	5.0	151		1302	1.4	44
	2358	1.5	46		1904	4.9	148
10 Su	0622	5.2	159	**25** M	0104	1.7	51
	1234	1.7	53		0723	5.1	155
	1833	4.7	144		1352	1.9	58
					1956	4.4	133
11 M	0033	1.8	54	**26** Tu ◑	0156	2.2	67
	0700	5.0	152		0818	4.6	139
	1318	1.9	59		1459	2.3	70
	1917	4.4	135		2111	4.0	122
12 Tu	0116	2.1	63	**27** W	0317	2.6	79
	0748	4.7	144		0939	4.2	127
	1414	2.1	65		1637	2.5	76
	2016	4.2	127		2258	3.9	120
13 W ◐	0217	2.4	72	**28** Th	0514	2.7	82
	0855	4.5	138		1123	4.1	124
	1532	2.2	68		1813	2.4	73
	2143	4.0	123				
14 Th	0352	2.5	77				
	1023	4.5	137				
	1706	2.1	65				
	2322	4.2	128				
15 F	0535	2.4	72				
	1148	4.7	143				
	1823	1.8	55				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0027	4.1	126	**16** Sa	0524	2.3	71
	0639	2.5	75		1134	4.5	137
	1242	4.2	129		1805	1.9	58
	1912	2.1	64				
2 Sa	0121	4.5	136	**17** Su	0021	4.6	141
	0730	2.2	66		0640	1.8	56
	1332	4.5	137		1247	4.9	150
	1952	1.8	56		1907	1.4	43
3 Su	0159	4.8	146	**18** M	0119	5.2	158
	0805	1.9	57		0735	1.3	40
	1409	4.8	146		1342	5.4	164
	2023	1.5	47		1955	1.0	29
4 M	0232	5.1	155	**19** Tu	0207	5.7	174
	0835	1.6	49		0822	0.8	25
	1441	5.1	154		1430	5.8	176
	2050	1.3	40		2038	0.6	18
5 Tu	0301	5.3	162	**20** W	0250	6.2	188
	0904	1.4	42		0906	0.5	14
	1510	5.2	160		1513	6.0	184
	2116	1.1	35		2119	0.4	11
6 W ●	0329	5.5	168	**21** Th ○	0331	6.5	197
	0931	1.2	36		0948	0.3	9
	1538	5.4	164		1554	6.1	187
	2142	1.0	32		2158	0.3	10
7 Th	0356	5.7	173	**22** F	0411	6.5	198
	0959	1.1	33		1028	0.3	10
	1605	5.4	166		1634	6.0	183
	2208	1.0	30		2236	0.5	15
8 F	0423	5.7	174	**23** Sa	0449	6.3	193
	1028	1.0	32		1108	0.5	16
	1633	5.4	166		1713	5.7	175
	2234	1.0	32		2314	0.8	24
9 Sa	0451	5.7	174	**24** Su	0527	6.0	182
	1058	1.1	33		1146	0.9	28
	1702	5.3	163		1752	5.3	163
	2302	1.1	35		2352	1.2	37
10 Su	0520	5.6	171	**25** M	0605	5.5	167
	1129	1.2	37		1225	1.3	41
	1733	5.2	158		1832	4.9	149
	2332	1.3	41				
11 M	0551	5.4	165	**26** Tu	0032	1.7	52
	1203	1.4	43		0645	4.9	150
	1807	5.0	151		1306	1.8	56
					1918	4.4	135
12 Tu	0006	1.6	49	**27** W	0120	2.2	67
	0627	5.1	156		0732	4.4	133
	1243	1.6	50		1358	2.3	69
	1848	4.7	142		2023	4.0	123
13 W	0047	1.9	59	**28** Th ◑	0234	2.6	79
	0712	4.8	146		0846	3.9	119
	1334	1.9	59		1529	2.6	79
	1942	4.3	132		2209	3.9	118
14 Th ◐	0145	2.3	70	**29** F	0437	2.7	83
	0817	4.5	136		1046	3.8	115
	1449	2.2	67		1728	2.6	78
	2108	4.1	125		2350	4.0	123
15 F	0327	2.5	76	**30** Sa	0611	2.5	76
	0955	4.3	131		1216	4.0	122
	1635	2.2	67		1839	2.3	70
	2258	4.2	128				
				31 Su	0048	4.4	133
					0702	2.2	66
					1307	4.3	132
					1921	2.0	60

Time meridian 30° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cape Town, South Africa, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0128 4.7 143 0738 1.8 56 1344 4.7 142 1952 1.7 51		**16** Tu	0057 5.3 161 0719 1.1 35 1325 5.2 160 1933 1.0 32	
2 Tu	0200 5.0 153 0808 1.5 47 1415 5.0 151 2020 1.4 43		**17** W	0144 5.7 175 0805 0.7 22 1411 5.6 171 2015 0.8 23	
3 W	0230 5.3 162 0836 1.2 38 1444 5.2 158 2047 1.2 37		**18** Th	0226 6.1 186 0846 0.4 13 1453 5.8 177 2055 0.6 18	
4 Th	0258 5.5 169 0904 1.0 32 1512 5.4 164 2114 1.0 32		**19** F ○	0306 6.3 191 0926 0.3 10 1533 5.9 180 2134 0.6 17	
5 F ●	0325 5.7 174 0933 0.9 27 1541 5.5 167 2141 1.0 30		**20** Sa	0345 6.3 191 1004 0.4 12 1612 5.8 177 2212 0.7 22	
6 Sa	0353 5.8 176 1002 0.8 25 1610 5.5 168 2209 1.0 31		**21** Su	0423 6.0 184 1041 0.6 18 1650 5.6 170 2250 1.0 30	
7 Su	0422 5.8 176 1032 0.8 25 1640 5.4 166 2239 1.1 33		**22** M	0459 5.7 173 1117 0.9 28 1727 5.3 161 2328 1.3 41	
8 M	0453 5.6 172 1105 1.0 29 1712 5.3 162 2312 1.3 39		**23** Tu	0536 5.2 159 1152 1.3 40 1806 4.9 149	
9 Tu	0527 5.4 165 1140 1.1 35 1749 5.1 154 2349 1.5 47		**24** W	0008 1.7 53 0614 4.7 143 1229 1.7 53 1848 4.5 137	
10 W	0605 5.1 155 1221 1.4 44 1832 4.8 145		**25** Th	0054 2.1 65 0658 4.2 129 1313 2.1 65 1944 4.2 127	
11 Th	0035 1.9 57 0654 4.7 144 1314 1.8 55 1929 4.4 135		**26** F	0159 2.5 75 0801 3.8 117 1423 2.5 75 2111 3.9 120	
12 F ◐	0142 2.2 67 0804 4.3 132 1431 2.1 64 2056 4.2 128		**27** Sa ◑	0339 2.6 80 0945 3.7 112 1613 2.6 78 2249 4.0 122	
13 Sa	0328 2.4 72 0945 4.2 128 1616 2.1 65 2241 4.3 132		**28** Su	0515 2.5 75 1123 3.8 117 1740 2.4 73 2357 4.3 130	
14 Su	0515 2.1 64 1122 4.4 135 1743 1.9 57 2359 4.8 145		**29** M	0616 2.2 67 1224 4.1 126 1833 2.1 64	
15 M	0626 1.6 50 1232 4.8 147 1845 1.4 44		**30** Tu	0043 4.6 140 0657 1.9 57 1306 4.5 136 1911 1.8 56	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0120 4.9 149 0732 1.5 47 1341 4.8 145 1943 1.6 48		**16** Th	0118 5.6 170 0744 0.8 25 1351 5.3 161 1952 1.0 32	
2 Th	0152 5.2 158 0803 1.2 38 1412 5.0 153 2013 1.3 41		**17** F	0201 5.8 177 0826 0.6 19 1433 5.5 167 2034 0.9 28	
3 F	0222 5.4 166 0834 1.0 30 1443 5.2 159 2043 1.2 36		**18** Sa ○	0242 5.9 179 0905 0.6 17 1514 5.5 169 2113 0.9 28	
4 Sa	0253 5.6 171 0905 0.8 24 1514 5.4 164 2114 1.0 32		**19** Su	0322 5.8 177 0942 0.6 19 1552 5.5 168 2152 1.0 31	
5 Su ●	0324 5.7 174 0936 0.7 21 1546 5.5 167 2146 1.0 32		**20** M	0359 5.6 171 1018 0.8 24 1630 5.4 164 2230 1.2 36	
6 M	0357 5.7 174 1010 0.7 21 1621 5.4 166 2221 1.1 33		**21** Tu	0437 5.3 162 1052 1.0 31 1707 5.2 158 2308 1.4 44	
7 Tu	0433 5.6 170 1046 0.8 24 1657 5.3 163 2259 1.2 38		**22** W	0513 5.0 152 1126 1.3 40 1744 4.9 150 2348 1.7 52	
8 W	0512 5.3 163 1126 1.0 31 1739 5.1 156 2344 1.5 45		**23** Th	0551 4.6 141 1202 1.6 49 1825 4.6 141	
9 Th	0557 5.0 153 1212 1.3 40 1827 4.9 148		**24** F	0032 2.0 61 0632 4.3 130 1243 1.9 59 1913 4.4 133	
10 F	0039 1.8 54 0652 4.7 142 1309 1.6 50 1929 4.6 140		**25** Sa	0126 2.2 68 0724 4.0 121 1335 2.2 67 2016 4.2 127	
11 Sa	0153 2.0 61 0805 4.4 133 1424 1.9 58 2051 4.5 136		**26** Su ◑	0237 2.4 73 0836 3.8 115 1450 2.4 73 2135 4.1 125	
12 Su ◐	0328 2.1 63 0936 4.2 129 1554 2.0 60 2219 4.6 139		**27** M	0401 2.4 73 1005 3.8 115 1618 2.4 73 2249 4.2 129	
13 M	0457 1.9 57 1102 4.4 134 1715 1.8 55 2332 4.9 149		**28** Tu	0513 2.2 68 1121 3.9 120 1728 2.3 69 2346 4.5 136	
14 Tu	0605 1.5 46 1210 4.7 143 1817 1.5 47		**29** W	0607 1.9 59 1216 4.2 128 1819 2.0 62	
15 W	0029 5.2 160 0659 1.1 35 1304 5.0 153 1908 1.2 38		**30** Th	0031 4.7 144 0650 1.6 50 1259 4.5 137 1900 1.8 54	
			31 F	0110 5.0 153 0727 1.3 40 1338 4.8 146 1937 1.5 47	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0146 5.2 160 0802 1.0 32 1414 5.1 154 2013 1.3 41		**16** Su	0224 5.4 165 0848 0.9 27 1458 5.2 160 2059 1.2 38	
2 Su	0222 5.4 166 0838 0.8 25 1449 5.2 160 2050 1.2 36		**17** M ○	0304 5.4 164 0925 0.9 27 1537 5.3 161 2138 1.2 38	
3 M ●	0259 5.6 170 0915 0.7 20 1527 5.4 165 2129 1.1 33		**18** Tu	0343 5.2 160 0959 1.0 29 1613 5.2 160 2215 1.3 40	
4 Tu	0338 5.6 171 0954 0.6 19 1606 5.4 166 2210 1.0 32		**19** W	0419 5.1 156 1033 1.1 33 1649 5.2 157 2251 1.4 44	
5 W	0420 5.5 169 1035 0.7 21 1648 5.4 165 2255 1.1 35		**20** Th	0455 4.9 150 1105 1.2 38 1724 5.0 152 2328 1.6 49	
6 Th	0505 5.3 163 1119 0.9 26 1734 5.3 161 2346 1.3 40		**21** F	0530 4.7 143 1138 1.4 44 1801 4.8 147	
7 F	0555 5.1 155 1209 1.1 34 1826 5.1 156		**22** Sa	0007 1.8 54 0608 4.5 136 1214 1.7 51 1841 4.6 141	
8 Sa	0044 1.5 46 0652 4.8 146 1305 1.4 43 1926 4.9 150		**23** Su	0050 2.0 60 0649 4.2 129 1255 1.9 58 1928 4.5 136	
9 Su	0153 1.7 52 0758 4.5 137 1411 1.7 51 2035 4.8 146		**24** M	0143 2.1 65 0740 4.0 123 1346 2.1 65 2025 4.3 132	
10 M ◐	0312 1.8 55 0915 4.3 132 1526 1.8 56 2150 4.8 146		**25** Tu ◑	0247 2.3 69 0845 3.9 118 1452 2.3 70 2132 4.3 131	
11 Tu	0431 1.7 52 1034 4.3 132 1641 1.8 56 2300 4.9 150		**26** W	0359 2.2 68 1003 3.9 118 1609 2.3 71 2239 4.4 133	
12 W	0540 1.5 47 1144 4.5 137 1748 1.7 52		**27** Th	0507 2.1 63 1116 4.0 122 1719 2.2 68 2337 4.6 139	
13 Th	0001 5.1 155 0637 1.3 40 1243 4.7 144 1844 1.6 48		**28** F	0603 1.8 55 1215 4.3 130 1816 2.0 62	
14 F	0054 5.2 160 0726 1.1 34 1333 5.0 151 1934 1.4 43		**29** Sa	0027 4.8 146 0651 1.5 46 1303 4.6 139 1904 1.8 54	
15 Sa	0141 5.4 164 0809 1.0 29 1417 5.1 156 2018 1.3 40		**30** Su	0112 5.1 154 0735 1.2 36 1347 4.9 149 1949 1.5 45	

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Heights are referred to the chart datum of soundings.

Cape Town, South Africa, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0157	5.3 161	**16** Tu	0254	5.1 155
	0817	0.9 27		0912	1.1 33
	1429	5.2 157		1524	5.2 158
	2032	1.2 38	○	2126	1.3 41
2 Tu	0241	5.5 167	**17** W	0330	5.1 155
	0859	0.7 21		0944	1.0 32
	1511	5.4 165		1558	5.2 160
●	2117	1.0 31		2159	1.3 40
3 W	0326	5.6 171	**18** Th	0404	5.1 155
	0941	0.6 17		1014	1.0 32
	1555	5.6 170		1630	5.2 160
	2203	0.9 28		2232	1.3 41
4 Th	0412	5.6 172	**19** F	0436	5.0 153
	1026	0.5 16		1043	1.1 35
	1640	5.7 173		1702	5.2 158
	2251	0.9 27		2304	1.4 43
5 F	0459	5.5 169	**20** Sa	0508	4.9 150
	1111	0.6 19		1113	1.2 38
	1727	5.6 172		1734	5.1 155
	2342	1.0 30		2338	1.5 47
6 Sa	0549	5.3 162	**21** Su	0540	4.8 145
	1159	0.9 26		1144	1.4 43
	1816	5.5 168		1807	5.0 151
7 Su	0037	1.2 36	**22** M	0015	1.7 52
	0641	5.0 153		0615	4.6 139
	1250	1.1 35		1217	1.6 50
	1910	5.3 162		1844	4.8 146
8 M	0137	1.4 43	**23** Tu	0056	1.9 57
	0739	4.7 143		0654	4.3 132
	1346	1.5 45		1256	1.9 57
	2009	5.1 155		1927	4.6 140
9 Tu	0244	1.6 49	**24** W	0146	2.0 62
	0845	4.4 134		0742	4.1 125
	1451	1.8 54		1344	2.1 65
◐	2115	4.9 149		2020	4.4 135
10 W	0358	1.7 53	**25** Th	0247	2.2 66
	1001	4.3 130		0847	3.9 120
	1605	2.0 60		1450	2.3 71
	2226	4.8 146	◑	2126	4.3 132
11 Th	0512	1.7 53	**26** F	0401	2.2 66
	1118	4.3 130		1009	3.9 119
	1722	2.0 61		1616	2.4 73
	2335	4.8 145		2240	4.4 133
12 F	0618	1.6 49	**27** Sa	0516	2.0 61
	1226	4.4 135		1130	4.1 124
	1829	1.9 58		1736	2.2 68
				2348	4.6 139
13 Sa	0036	4.8 147	**28** Su	0620	1.7 52
	0713	1.4 44		1234	4.4 134
	1321	4.7 142		1840	1.9 59
	1924	1.7 53			
14 Su	0128	4.9 150	**29** M	0047	4.9 148
	0758	1.3 39		0713	1.3 41
	1407	4.9 149		1326	4.8 146
	2011	1.6 48		1932	1.6 48
15 M	0213	5.0 153	**30** Tu	0139	5.2 158
	0837	1.2 36		0800	1.0 30
	1447	5.1 154		1413	5.2 158
	2050	1.4 44		2020	1.2 36
			31 W	0228	5.5 167
				0845	0.7 20
				1458	5.6 170
				2107	0.9 26

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0316	5.7 175	**16** F	0345	5.2 158
	0929	0.4 13		0951	1.0 31
	1542	5.9 179		1606	5.4 165
●	2153	0.7 20		2209	1.2 36
2 F	0402	5.8 178	**17** Sa	0414	5.2 158
	1012	0.3 10		1018	1.0 31
	1627	6.0 184		1635	5.4 165
	2240	0.6 17		2238	1.2 36
3 Sa	0448	5.8 177	**18** Su	0443	5.1 156
	1055	0.4 12		1044	1.1 33
	1711	6.0 184		1703	5.4 164
	2328	0.7 20		2308	1.2 38
4 Su	0533	5.6 170	**19** M	0512	5.0 153
	1139	0.6 19		1112	1.2 37
	1756	5.9 180		1733	5.2 160
				2340	1.4 43
5 M	0017	0.9 27	**20** Tu	0542	4.8 147
	0621	5.2 160		1142	1.4 44
	1225	1.0 29		1804	5.1 154
	1844	5.6 171			
6 Tu	0110	1.2 37	**21** W	0015	1.6 48
	0711	4.9 148		0616	4.6 140
	1314	1.4 42		1214	1.7 52
	1936	5.2 159		1839	4.8 147
7 W	0209	1.6 48	**22** Th	0056	1.8 55
	0810	4.4 135		0656	4.3 132
	1413	1.8 56		1254	2.0 61
◐	2036	4.8 147		1923	4.6 139
8 Th	0320	1.9 57	**23** F	0147	2.0 61
	0925	4.1 126		0750	4.1 124
	1530	2.2 66		1350	2.3 70
	2151	4.5 137	◑	2024	4.3 132
9 F	0443	2.0 61	**24** Sa	0259	2.2 66
	1054	4.1 124		0910	3.9 119
	1703	2.3 70		1520	2.5 75
	2315	4.4 133		2151	4.2 128
10 Sa	0603	1.9 59	**25** Su	0433	2.1 65
	1215	4.2 129		1052	4.0 121
	1824	2.2 66		1708	2.4 72
				2321	4.4 133
11 Su	0028	4.4 135	**26** M	0555	1.9 57
	0704	1.7 53		1212	4.3 132
	1314	4.5 137		1825	2.0 61
	1922	1.9 59			
12 M	0123	4.6 140	**27** Tu	0031	4.7 144
	0749	1.5 47		0656	1.4 44
	1358	4.8 146		1310	4.8 147
	2005	1.7 51		1921	1.5 46
13 Tu	0207	4.8 146	**28** W	0127	5.2 157
	0825	1.3 41		0745	1.0 30
	1435	5.0 153		1358	5.3 163
	2040	1.5 45		2009	1.0 31
14 W	0243	5.0 151	**29** Th	0217	5.6 170
	0856	1.2 36		0829	0.6 18
	1507	5.2 159		1442	5.8 177
	2111	1.3 40		2054	0.6 19
15 Th	0315	5.1 155	**30** F	0302	5.9 179
	0924	1.0 32		0911	0.3 9
	1537	5.3 163		1525	6.2 188
○	2140	1.2 37	●	2138	0.4 11
			31 Sa	0346	6.0 184
				0953	0.2 6
				1607	6.4 194
				2222	0.3 8

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0429	6.0 182	**16** M	0416	5.3 162
	1033	0.3 8		1015	1.0 30
	1648	6.4 194		1632	5.6 170
	2306	0.4 12		2238	1.0 31
2 M	0512	5.8 176	**17** Tu	0444	5.2 159
	1114	0.5 16		1042	1.1 34
	1730	6.1 187		1659	5.4 166
	2351	0.7 21		2308	1.1 34
3 Tu	0555	5.4 165	**18** W	0514	5.1 154
	1157	0.9 28		1111	1.3 40
	1813	5.7 174		1729	5.2 160
				2341	1.3 40
4 W	0037	1.1 34	**19** Th	0546	4.8 147
	0641	4.9 150		1143	1.6 49
	1242	1.4 44		1802	5.0 151
	1859	5.2 157			
5 Th	0129	1.6 48	**20** F	0017	1.6 48
	0734	4.5 136		0624	4.5 138
	1337	2.0 60		1221	1.9 58
	1955	4.6 140		1843	4.6 141
6 F	0235	2.0 62	**21** Sa	0104	1.9 57
	0847	4.1 124		0714	4.2 129
	1458	2.4 72		1314	2.3 69
◐	2115	4.1 126		1942	4.3 130
7 Sa	0409	2.3 69	**22** Su	0214	2.1 65
	1030	3.9 120		0832	4.0 121
	1651	2.5 76		1450	2.5 76
	2259	4.0 122	◑	2118	4.1 124
8 Su	0546	2.2 67	**23** M	0359	2.2 68
	1203	4.1 126		1026	4.0 122
	1820	2.3 69		1654	2.4 72
				2304	4.2 129
9 M	0022	4.2 127	**24** Tu	0534	1.9 59
	0651	2.0 60		1153	4.4 135
	1301	4.5 136		1813	1.9 58
	1914	2.0 60			
10 Tu	0115	4.4 135	**25** W	0019	4.7 142
	0733	1.7 51		0638	1.5 45
	1341	4.8 145		1251	5.0 152
	1951	1.7 51		1908	1.3 41
11 W	0153	4.7 143	**26** Th	0114	5.2 157
	0806	1.4 44		0726	1.0 31
	1414	5.1 154		1338	5.5 169
	2021	1.4 44		1954	0.8 25
12 Th	0225	5.0 151	**27** F	0201	5.6 171
	0834	1.2 37		0809	0.6 18
	1443	5.3 161		1421	6.0 184
	2048	1.2 37		2038	0.4 12
13 F	0254	5.2 157	**28** Sa	0245	5.9 180
	0859	1.1 33		0850	0.3 10
	1511	5.4 166		1502	6.4 195
	2115	1.1 33	●	2119	0.2 5
14 Sa	0322	5.3 161	**29** Su	0327	6.1 185
	0924	1.0 30		0930	0.2 7
	1538	5.6 170		1543	6.5 199
○	2142	1.0 30		2201	0.1 4
15 Su	0349	5.3 162	**30** M	0408	6.0 184
	0950	1.0 29		1009	0.3 10
	1605	5.6 171		1623	6.4 196
	2210	1.0 29		2242	0.3 9

Time meridian 30° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cape Town, South Africa, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0449	5.8	177	**16** W	0420	5.3	163
	1049	0.6	19		1017	1.1	35
	1702	6.1	186		1631	5.5	169
	2322	0.6	19		2242	0.9	28
2 W	0530	5.4	166	**17** Th	0451	5.2	158
	1130	1.0	31		1048	1.3	40
	1743	5.6	170		1702	5.3	162
					2315	1.1	34
3 Th	0004	1.1	33	**18** F	0525	5.0	152
	0613	5.0	152		1123	1.6	48
	1214	1.5	47		1738	5.0	152
	1825	5.0	152		2353	1.4	43
4 F	0049	1.6	49	**19** Sa	0605	4.7	143
	0702	4.5	137		1205	1.9	57
	1307	2.1	63		1822	4.6	141
	1916	4.4	133				
5 Sa ◐	0146	2.1	64	**20** Su	0041	1.7	53
	0810	4.1	125		0657	4.4	134
	1427	2.5	75		1305	2.2	67
	2034	3.9	119		1925	4.3	130
6 Su	0318	2.4	74	**21** M ◑	0150	2.1	63
	0955	3.9	119		0817	4.1	126
	1628	2.6	78		1446	2.4	73
	2232	3.7	114		2103	4.1	124
7 M	0511	2.4	73	**22** Tu	0333	2.2	66
	1133	4.1	125		1004	4.2	128
	1759	2.3	71		1641	2.2	68
					2247	4.2	129
8 Tu	0002	4.0	121	**23** W	0508	2.0	60
	0621	2.2	66		1128	4.6	141
	1232	4.4	134		1757	1.8	54
	1850	2.0	62				
9 W	0053	4.3	130	**24** Th	0001	4.6	141
	0704	1.9	57		0613	1.5	47
	1311	4.7	144		1227	5.2	157
	1925	1.7	52		1851	1.2	38
10 Th	0129	4.6	140	**25** F	0056	5.1	155
	0736	1.6	49		0703	1.1	34
	1344	5.0	153		1314	5.7	173
	1954	1.4	43		1937	0.8	23
11 F	0159	4.9	149	**26** Sa	0143	5.5	168
	0804	1.3	41		0747	0.8	23
	1413	5.3	162		1357	6.1	186
	2021	1.2	36		2019	0.4	12
12 Sa	0228	5.1	156	**27** Su	0226	5.8	176
	0830	1.2	36		0828	0.6	17
	1440	5.5	168		1439	6.3	193
	2048	1.0	30		2059	0.2	6
13 Su ○	0256	5.3	161	**28** M ●	0308	5.9	180
	0856	1.0	32		0908	0.5	15
	1507	5.6	172		1519	6.4	194
	2115	0.9	26		2139	0.2	6
14 M	0323	5.4	164	**29** Tu	0348	5.9	180
	0922	1.0	31		0947	0.6	18
	1534	5.7	174		1558	6.2	189
	2143	0.8	24		2218	0.4	12
15 Tu	0351	5.4	164	**30** W	0428	5.7	174
	0949	1.0	31		1028	0.9	26
	1602	5.7	173		1638	5.8	178
	2212	0.8	25		2257	0.7	22
				31 Th	0508	5.4	165
					1109	1.2	37
					1717	5.4	164
					2335	1.1	34

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0549	5.0	153	**16** Sa	0514	5.2	157
	1152	1.6	50		1116	1.5	47
	1758	4.8	147		1727	5.1	154
					2342	1.3	39
2 Sa	0015	1.6	48	**17** Su	0558	4.9	150
	0635	4.6	141		1205	1.8	55
	1242	2.1	63		1817	4.7	144
	1845	4.3	131				
3 Su	0103	2.0	62	**18** M	0033	1.6	48
	0734	4.3	130		0654	4.7	142
	1352	2.4	74		1311	2.1	63
	1949	3.9	118		1922	4.4	134
4 M ◐	0213	2.4	72	**19** Tu ◑	0140	1.9	58
	0859	4.0	123		0808	4.5	137
	1533	2.6	79		1441	2.2	67
	2132	3.7	112		2048	4.2	128
5 Tu	0359	2.5	76	**20** W	0306	2.0	62
	1035	4.1	125		0937	4.6	139
	1708	2.4	74		1617	2.1	63
	2310	3.8	116		2221	4.3	130
6 W	0525	2.4	72	**21** Th	0434	1.9	59
	1143	4.3	132		1056	4.8	147
	1808	2.2	66		1733	1.7	52
					2336	4.6	139
7 Th	0012	4.1	124	**22** F	0542	1.7	52
	0619	2.1	65		1158	5.2	159
	1229	4.6	141		1830	1.3	39
	1848	1.8	56				
8 F	0054	4.4	134	**23** Sa	0035	4.9	150
	0657	1.9	57		0637	1.4	42
	1305	4.9	150		1249	5.6	171
	1921	1.5	47		1918	0.9	28
9 Sa	0128	4.7	143	**24** Su	0124	5.2	160
	0729	1.6	50		0725	1.1	34
	1337	5.2	159		1335	5.9	179
	1951	1.2	38		2002	0.6	19
10 Su	0159	5.0	151	**25** M	0209	5.5	168
	0758	1.4	43		0809	1.0	29
	1407	5.4	165		1418	6.0	184
	2020	1.0	31		2043	0.5	15
11 M	0229	5.2	157	**26** Tu ●	0252	5.6	172
	0827	1.3	39		0851	0.9	27
	1437	5.6	170		1459	6.0	183
	2049	0.9	26		2122	0.5	15
12 Tu ○	0259	5.3	162	**27** W	0332	5.7	173
	0856	1.2	36		0932	1.0	29
	1506	5.6	172		1540	5.8	178
	2119	0.8	23		2200	0.6	19
13 W	0329	5.4	164	**28** Th	0412	5.6	170
	0927	1.1	35		1013	1.1	34
	1537	5.6	172		1619	5.6	170
	2150	0.8	23		2237	0.9	26
14 Th	0401	5.4	164	**29** F	0452	5.4	165
	0959	1.2	36		1054	1.3	41
	1610	5.5	169		1658	5.2	159
	2224	0.8	25		2313	1.1	35
15 F	0436	5.3	162	**30** Sa	0531	5.2	157
	1035	1.3	40		1135	1.6	50
	1646	5.3	163		1737	4.8	147
	2300	1.0	31		2350	1.5	46

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0613	4.9	148	**16** M	0556	5.3	161
	1220	2.0	60		1209	1.5	47
	1819	4.4	135		1816	5.0	152
2 M	0029	1.8	56	**17** Tu	0028	1.3	41
	0659	4.6	139		0649	5.1	156
	1312	2.3	69		1310	1.8	54
	1908	4.1	125		1915	4.7	142
3 Tu	0117	2.2	66	**18** W	0126	1.6	49
	0759	4.3	132		0752	5.0	151
	1420	2.5	75		1424	1.9	58
	2013	3.8	117		2025	4.4	135
4 W ◐	0224	2.4	73	**19** Th ◑	0235	1.9	57
	0915	4.2	129		0904	4.9	149
	1544	2.5	76		1545	1.9	59
	2141	3.8	115		2146	4.3	132
5 Th	0352	2.5	76	**20** F	0353	2.0	60
	1031	4.3	131		1018	5.0	151
	1701	2.4	72		1702	1.8	54
	2305	3.9	119		2305	4.4	135
6 F	0509	2.4	73	**21** Sa	0508	1.9	59
	1131	4.5	137		1126	5.1	156
	1757	2.1	64		1808	1.5	46
7 Sa	0005	4.1	126	**22** Su	0013	4.7	142
	0605	2.2	67		0613	1.8	54
	1218	4.8	145		1225	5.3	162
	1841	1.8	55		1902	1.2	38
8 Su	0051	4.4	135	**23** M	0109	4.9	150
	0648	2.0	61		0709	1.6	48
	1258	5.0	152		1317	5.5	167
	1918	1.5	46		1949	1.0	32
9 M	0129	4.7	144	**24** Tu	0157	5.2	158
	0726	1.8	54		0758	1.4	43
	1334	5.2	159		1404	5.6	170
	1952	1.2	37		2032	0.9	27
10 Tu	0203	5.0	151	**25** W	0241	5.4	164
	0801	1.6	48		0843	1.3	39
	1408	5.4	165		1448	5.6	170
	2026	1.0	30		2111	0.8	25
11 W	0237	5.2	158	**26** Th ●	0322	5.5	167
	0836	1.4	42		0924	1.2	38
	1443	5.5	169		1529	5.5	169
	2059	0.8	25		2148	0.9	26
12 Th ○	0312	5.3	163	**27** F	0401	5.5	168
	0912	1.3	39		1003	1.3	39
	1520	5.6	171		1607	5.4	165
	2136	0.8	23		2222	1.0	29
13 F	0348	5.5	167	**28** Sa	0438	5.4	166
	0950	1.2	37		1041	1.4	42
	1559	5.6	170		1644	5.2	159
	2213	0.8	23		2255	1.1	35
14 Sa	0427	5.5	167	**29** Su	0514	5.3	162
	1031	1.2	38		1117	1.5	47
	1640	5.5	167		1719	5.0	152
	2254	0.9	26		2327	1.3	41
15 Su	0509	5.4	165	**30** M	0550	5.1	156
	1117	1.4	42		1154	1.8	54
	1725	5.2	160		1754	4.7	144
	2338	1.1	33				
				31 Tu	0000	1.6	48
					0627	4.9	150
					1234	2.0	61
					1831	4.5	136

Time meridian 30° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Takoradi, Ghana, 2019

Times and Heights of High and Low Waters

January

Day	Time (h m)	Height (ft)	Height (cm)
1 Tu	0046	4.3	130
	0652	1.3	40
	1318	3.6	110
	1901	1.6	50
2 W	0135	4.3	130
	0747	1.0	30
	1419	3.6	110
	1959	1.6	50
3 Th	0219	4.3	130
	0832	0.7	20
	1510	3.9	120
	2048	1.3	40
4 F	0258	4.3	130
	0911	0.7	20
	1554	3.9	120
	2133	1.3	40
5 Sa	0332	4.3	130
	0946	0.3	10
	1632	3.9	120
	2214	1.3	40
6 Su ●	0404	4.3	130
	1020	0.3	10
	1708	3.9	120
	2252	1.3	40
7 M	0437	4.3	130
	1054	0.0	0
	1742	4.3	130
	2326	1.3	40
8 Tu	0511	4.3	130
	1127	0.3	10
	1815	4.3	130
	2355	1.3	40
9 W	0548	4.3	130
	1158	0.3	10
	1843	4.3	130
10 Th	0025	1.3	40
	0627	4.3	130
	1225	0.7	20
	1909	4.3	130
11 F	0101	1.6	50
	0707	3.9	120
	1252	0.7	20
	1943	3.9	120
12 Sa	0143	1.6	50
	0750	3.6	110
	1325	1.0	30
	2025	3.9	120
13 Su	0233	1.6	50
	0840	3.6	110
	1408	1.3	40
	2113	3.9	120
14 M ◐	0335	1.6	50
	0941	3.3	100
	1502	1.6	50
	2206	3.9	120
15 Tu	0453	1.6	50
	1106	3.3	100
	1617	1.6	50
	2301	3.9	120
16 W	0610	1.3	40
	1228	3.3	100
	1809	1.6	50
	2356	3.9	120
17 Th	0712	1.0	30
	1331	3.3	100
	1907	1.3	40
18 F	0050	3.9	120
	0804	0.7	20
	1428	3.6	110
	1959	1.3	40
19 Sa	0142	4.3	130
	0851	0.3	10
	1526	3.9	120
	2051	1.0	30
20 Su	0235	4.3	130
	0935	0.0	0
	1629	3.9	120
	2145	1.0	30
21 M ○	0334	4.3	130
	1017	-0.3	-10
	1728	4.3	130
	2237	1.0	30
22 Tu	0438	4.3	130
	1055	-0.3	-10
	1822	4.3	130
	2328	0.7	20
23 W	0535	4.3	130
	1132	-0.3	-10
	1910	4.6	140
24 Th	0017	0.7	20
	0626	4.3	130
	1211	0.0	0
	1954	4.6	140
25 F	0104	1.0	30
	0713	4.3	130
	1252	0.3	10
	2034	4.3	130
26 Sa	0152	1.0	30
	0802	3.9	120
	1337	0.7	20
	2115	4.3	130
27 Su ◑	0242	1.3	40
	0859	3.6	110
	1429	1.0	30
	2201	3.9	120
28 M	0339	1.3	40
	1010	3.3	100
	1537	1.6	50
	2259	3.9	120
29 Tu	0457	1.3	40
	1133	3.3	100
	1706	1.6	50
30 W	0003	3.9	120
	0628	1.3	40
	1258	3.3	100
	1846	2.0	60
31 Th	0100	3.9	120
	0730	1.0	30
	1404	3.3	100
	1949	1.6	50

February

Day	Time (h m)	Height (ft)	Height (cm)
1 F	0148	3.9	120
	0816	1.0	30
	1453	3.6	110
	2039	1.6	50
2 Sa	0228	3.9	120
	0853	0.7	20
	1534	3.9	120
	2123	1.6	50
3 Su	0304	3.9	120
	0926	0.3	10
	1611	3.9	120
	2203	1.3	40
4 M ●	0339	4.3	130
	0957	0.3	10
	1647	3.9	120
	2238	1.3	40
5 Tu	0413	4.3	130
	1029	0.3	10
	1722	4.3	130
	2305	1.3	40
6 W	0448	4.3	130
	1059	0.3	10
	1753	4.3	130
	2324	1.0	30
7 Th	0525	4.3	130
	1128	0.3	10
	1811	4.3	130
	2354	1.0	30
8 F	0604	4.3	130
	1154	0.3	10
	1828	4.3	130
9 Sa	0029	1.0	30
	0644	3.9	120
	1221	0.7	20
	1901	4.3	130
10 Su	0108	1.3	40
	0726	3.9	120
	1252	1.0	30
	1943	3.9	120
11 M	0151	1.3	40
	0813	3.6	110
	1329	1.3	40
	2030	3.9	120
12 Tu ◐	0243	1.3	40
	0907	3.3	100
	1418	1.6	50
	2121	3.9	120
13 W	0352	1.3	40
	1015	3.3	100
	1524	1.6	50
	2219	3.9	120
14 Th	0534	1.3	40
	1149	3.3	100
	1742	1.6	50
	2324	3.9	120
15 F	0647	1.0	30
	1307	3.3	100
	1852	1.6	50
16 Sa	0041	3.9	120
	0742	0.7	20
	1413	3.6	110
	1951	1.3	40
17 Su	0156	3.9	120
	0831	0.3	10
	1517	3.9	120
	2046	1.0	30
18 M	0253	4.3	130
	0916	0.0	0
	1621	4.3	130
	2139	1.0	30
19 Tu ○	0351	4.3	130
	0958	0.0	0
	1719	4.3	130
	2229	0.7	20
20 W	0455	4.6	140
	1037	-0.3	-10
	1810	4.6	140
	2316	0.7	20
21 Th	0550	4.6	140
	1114	0.0	0
	1856	4.6	140
22 F	0001	0.7	20
	0634	4.3	130
	1151	0.0	0
	1935	4.6	140
23 Sa	0044	0.7	20
	0710	4.3	130
	1230	0.3	10
	2010	4.6	140
24 Su	0126	0.7	20
	0747	3.9	120
	1311	0.7	20
	2038	4.3	130
25 M	0210	1.0	30
	0831	3.6	110
	1400	1.3	40
	2110	3.9	120
26 Tu ◑	0259	1.3	40
	0929	3.3	100
	1505	1.6	50
	2200	3.6	110
27 W	0359	1.3	40
	1046	3.3	100
	1636	2.0	60
	2311	3.6	110
28 Th	0534	1.6	50
	1225	3.3	100
	1831	2.0	60

March

Day	Time (h m)	Height (ft)	Height (cm)
1 F	0022	3.6	110
	0700	1.3	40
	1342	3.3	100
	1936	2.0	60
2 Sa	0117	3.6	110
	0749	1.3	40
	1430	3.6	110
	2024	1.6	50
3 Su	0201	3.9	120
	0826	1.0	30
	1509	3.9	120
	2105	1.6	50
4 M	0238	3.9	120
	0858	0.7	20
	1547	3.9	120
	2143	1.3	40
5 Tu	0312	4.3	130
	0929	0.7	20
	1623	4.3	130
	2215	1.3	40
6 W ●	0347	4.3	130
	0959	0.3	10
	1658	4.3	130
	2236	1.0	30
7 Th	0422	4.3	130
	1028	0.3	10
	1719	4.3	130
	2254	1.0	30
8 F	0500	4.3	130
	1057	0.3	10
	1704	4.3	130
	2326	1.0	30
9 Sa	0541	4.3	130
	1125	0.7	20
	1736	4.3	130
10 Su	0002	1.0	30
	0623	4.3	130
	1154	0.7	20
	1819	4.3	130
11 M	0040	1.0	30
	0707	3.9	120
	1223	1.0	30
	1906	4.3	130
12 Tu	0120	1.0	30
	0754	3.9	120
	1257	1.3	40
	1955	3.9	120
13 W	0207	1.3	40
	0845	3.6	110
	1342	1.6	50
	2048	3.9	120
14 Th ◐	0308	1.3	40
	0947	3.3	100
	1455	2.0	60
	2147	3.6	110
15 F	0447	1.3	40
	1110	3.3	100
	1725	2.0	60
	2258	3.6	110
16 Sa	0617	1.3	40
	1240	3.6	110
	1838	1.6	50
17 Su	0041	3.9	120
	0715	1.0	30
	1351	3.9	120
	1938	1.3	40
18 M	0149	3.9	120
	0805	0.7	20
	1458	4.3	130
	2032	1.0	30
19 Tu	0247	4.3	130
	0850	0.3	10
	1603	4.3	130
	2123	0.7	20
20 W	0351	4.3	130
	0933	0.0	0
	1700	4.6	140
	2211	0.7	20
21 Th ○	0454	4.6	140
	1013	0.0	0
	1749	4.6	140
	2257	0.3	10
22 F	0546	4.6	140
	1053	0.0	0
	1832	4.6	140
	2339	0.3	10
23 Sa	0628	4.6	140
	1132	0.3	10
	1909	4.6	140
24 Su	0020	0.3	10
	0700	4.3	130
	1211	0.7	20
	1937	4.3	130
25 M	0100	0.7	20
	0728	4.3	130
	1252	1.0	30
	1956	4.3	130
26 Tu	0140	1.0	30
	0805	3.9	120
	1338	1.6	50
	2020	3.9	120
27 W	0225	1.0	30
	0854	3.6	110
	1447	2.0	60
	2103	3.6	110
28 Th ◑	0319	1.3	40
	1001	3.3	100
	1611	2.3	70
	2212	3.3	100
29 F	0429	1.6	50
	1127	3.3	100
	1800	2.3	70
	2339	3.3	100
30 Sa	0553	1.6	50
	1254	3.6	110
	1910	2.3	70
31 Su	0042	3.6	110
	0658	1.3	40
	1348	3.6	110
	1956	2.0	60

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Takoradi, Ghana, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0130	3.6	110	16 Tu	0132	3.9	120	
	0743	1.3	40		0734	0.7	20	
	1429	3.9	120		1430	4.3	130	
	2036	1.6	50		2013	1.0	30	
2 Tu	0208	3.9	120	17 W	0231	4.3	130	
	0820	1.0	30		0821	0.7	20	
	1507	4.3	130		1533	4.3	130	
	2112	1.3	40		2103	0.7	20	
3 W	0243	3.9	120	18 Th	0336	4.3	130	
	0854	0.7	20		0905	0.3	10	
	1541	4.3	130		1630	4.6	140	
	2142	1.0	30		2149	0.3	10	
4 Th	0317	4.3	130	19 F	0437	4.3	130	
	0924	0.7	20		0948	0.3	10	
	1540	4.3	130		1718	4.6	140	
	2159	1.0	30	○	2233	0.3	10	
5 F	0354	4.3	130	20 Sa	0527	4.3	130	
	0954	0.7	20		1031	0.7	20	
	1532	4.3	130		1759	4.6	140	
●	2225	0.7	20		2315	0.3	10	
6 Sa	0435	4.3	130	21 Su	0608	4.3	130	
	1026	0.7	20		1114	0.7	20	
	1604	4.3	130		1833	4.3	130	
	2300	0.7	20		2355	0.3	10	
7 Su	0519	4.3	130	22 M	0640	4.3	130	
	1058	0.7	20		1156	1.0	30	
	1646	4.3	130		1855	4.3	130	
	2337	0.7	20					
8 M	0605	4.3	130	23 Tu	0033	0.3	10	
	1131	1.0	30		0706	4.3	130	
	1736	4.3	130		1240	1.3	40	
					1904	3.9	120	
9 Tu	0017	0.7	20	24 W	0113	0.7	20	
	0650	4.3	130		0740	3.9	120	
	1205	1.3	40		1329	1.6	50	
	1831	4.3	130		1936	3.9	120	
10 W	0059	1.0	30	25 Th	0155	1.0	30	
	0738	3.9	120		0824	3.9	120	
	1243	1.6	50		1431	2.0	60	
	1927	3.9	120		2020	3.6	110	
11 Th	0146	1.0	30	26 F	0244	1.3	40	
	0828	3.9	120		0922	3.6	110	
	1338	2.0	60		1542	2.3	70	
	2023	3.9	120	◑	2118	3.3	100	
12 F	0243	1.3	40	27 Sa	0347	1.6	50	
	0927	3.6	110		1037	3.6	110	
	1531	2.0	60		1705	2.3	70	
◐	2125	3.6	110		2247	3.3	100	
13 Sa	0403	1.3	40	28 Su	0459	1.6	50	
	1041	3.6	110		1152	3.6	110	
	1707	2.0	60		1825	2.3	70	
	2241	3.6	110					
14 Su	0542	1.3	40	29 M	0003	3.3	100	
	1210	3.9	120		0603	1.6	50	
	1820	1.6	50		1251	3.9	120	
					1916	2.0	60	
15 M	0029	3.9	120	30 Tu	0055	3.6	110	
	0643	1.0	30		0655	1.3	40	
	1324	4.3	130		1336	3.9	120	
	1920	1.3	40		1957	1.6	50	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0136	3.6	110	16 Th	0214	3.9	120	
	0738	1.3	40		0751	0.7	20	
	1409	4.3	130		1453	4.3	130	
	2033	1.3	40		2042	0.7	20	
2 Th	0213	3.9	120	17 F	0316	3.9	120	
	0814	1.0	30		0838	0.7	20	
	1421	4.3	130		1548	4.3	130	
	2102	1.0	30		2127	0.3	10	
3 F	0250	3.9	120	18 Sa	0414	4.3	130	
	0847	0.7	20		0925	0.7	20	
	1422	4.3	130		1635	4.3	130	
	2126	0.7	20	○	2210	0.0	0	
4 Sa	0329	4.3	130	19 Su	0501	4.3	130	
	0920	0.7	20		1011	0.7	20	
	1449	4.3	130		1714	4.3	130	
●	2159	0.3	10		2250	0.0	0	
5 Su	0413	4.3	130	20 M	0541	4.3	130	
	0955	0.7	20		1057	1.0	30	
	1527	4.3	130		1742	4.3	130	
	2236	0.3	10		2329	0.0	0	
6 M	0501	4.3	130	21 Tu	0613	4.3	130	
	1033	1.0	30		1143	1.3	40	
	1612	4.3	130		1755	3.9	120	
	2316	0.3	10					
7 Tu	0549	4.3	130	22 W	0007	0.3	10	
	1114	1.0	30		0642	3.9	120	
	1704	4.3	130		1228	1.3	40	
	2358	0.3	10		1826	3.9	120	
8 W	0636	4.3	130	23 Th	0046	0.3	10	
	1159	1.3	40		0716	3.9	120	
	1806	4.3	130		1313	1.6	50	
					1905	3.9	120	
9 Th	0042	0.7	20	24 F	0125	0.7	20	
	0723	4.3	130		0757	3.9	120	
	1254	1.6	50		1403	2.0	60	
	1908	3.9	120		1949	3.6	110	
10 F	0130	0.7	20	25 Sa	0207	1.0	30	
	0814	3.9	120		0846	3.6	110	
	1404	1.6	50		1503	2.0	60	
	2006	3.9	120		2039	3.3	100	
11 Sa	0225	1.0	30	26 Su	0301	1.3	40	
	0911	3.9	120		0949	3.6	110	
	1525	2.0	60		1610	2.0	60	
	2110	3.6	110	◑	2147	3.3	100	
12 Su	0333	1.0	30	27 M	0413	1.3	40	
	1020	3.9	120		1059	3.6	110	
	1647	2.0	60		1722	2.0	60	
◐	2237	3.6	110		2315	3.3	100	
13 M	0500	1.0	30	28 Tu	0517	1.3	40	
	1139	3.9	120		1158	3.9	120	
	1801	1.6	50		1825	1.6	50	
14 Tu	0011	3.6	110	29 W	0018	3.3	100	
	0608	1.0	30		0610	1.3	40	
	1252	4.3	130		1245	3.9	120	
	1901	1.3	40		1912	1.3	40	
15 W	0114	3.9	120	30 Th	0107	3.6	110	
	0702	1.0	30		0656	1.3	40	
	1354	4.3	130		1317	3.9	120	
	1953	1.0	30		1952	1.0	30	
				31 F	0149	3.6	110	
					0735	1.0	30	
					1332	4.3	130	
					2027	0.7	20	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0230	3.6	110	16 Su	0350	3.9	120	
	0811	1.0	30		0909	1.0	30	
	1352	4.3	130		1545	3.9	120	
	2101	0.3	10		2149	0.0	0	
2 Su	0313	3.9	120	17 M	0434	3.9	120	
	0849	0.7	20		0958	1.0	30	
	1425	4.3	130		1622	3.9	120	
	2138	0.0	0	○	2228	0.0	0	
3 M	0359	3.9	120	18 Tu	0512	3.9	120	
	0930	0.7	20		1044	1.0	30	
	1506	4.3	130		1653	3.9	120	
●	2217	0.0	0		2305	0.0	0	
4 Tu	0447	3.9	120	19 W	0546	3.9	120	
	1014	0.7	20		1128	1.0	30	
	1553	4.3	130		1724	3.9	120	
	2258	0.0	0		2342	0.0	0	
5 W	0536	4.3	130	20 Th	0619	3.9	120	
	1103	1.0	30		1209	1.3	40	
	1651	4.3	130		1800	3.9	120	
	2341	0.0	0					
6 Th	0623	4.3	130	21 F	0018	0.0	0	
	1156	1.0	30		0653	3.9	120	
	1759	3.9	120		1244	1.3	40	
					1839	3.6	110	
7 F	0026	0.0	0	22 Sa	0053	0.3	10	
	0711	4.3	130		0730	3.9	120	
	1254	1.3	40		1313	1.6	50	
	1859	3.9	120		1921	3.6	110	
8 Sa	0113	0.3	10	23 Su	0125	0.7	20	
	0801	4.3	130		0811	3.9	120	
	1357	1.3	40		1355	1.6	50	
	1956	3.6	110		2007	3.3	100	
9 Su	0205	0.7	20	24 M	0201	1.0	30	
	0857	4.3	130		0856	3.6	110	
	1506	1.6	50		1456	1.6	50	
	2101	3.6	110		2102	3.0	90	
10 M	0305	0.7	20	25 Tu	0248	1.0	30	
	1000	3.9	120		0950	3.6	110	
	1622	1.3	40		1612	1.6	50	
◐	2229	3.3	100	◑	2216	3.0	90	
11 Tu	0417	1.0	30	26 W	0419	1.3	40	
	1110	3.9	120		1050	3.6	110	
	1739	1.3	40		1725	1.3	40	
	2351	3.6	110		2337	3.0	90	
12 W	0530	1.0	30	27 Th	0525	1.3	40	
	1219	4.3	130		1147	3.6	110	
	1842	1.0	30		1828	1.0	30	
13 Th	0056	3.6	110	28 F	0038	3.0	90	
	0631	1.0	30		0616	1.0	30	
	1320	4.3	130		1233	3.9	120	
	1936	0.7	20		1919	0.7	20	
14 F	0159	3.6	110	29 Sa	0131	3.3	100	
	0726	1.0	30		0702	1.0	30	
	1413	4.3	130		1310	3.9	120	
	2024	0.3	10		2003	0.3	10	
15 Sa	0258	3.6	110	30 Su	0218	3.3	100	
	0818	1.0	30		0745	1.0	30	
	1502	3.9	120		1346	3.9	120	
	2108	0.0	0		2044	0.0	0	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Takoradi, Ghana, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0305	3.6	110	**16** Tu	0412	3.6	110	**1** Th	0444	3.9	120	**16** F	0503	3.9	120	
	0828	0.7	20		0952	1.0	30		1003	0.7	20		1054	0.7	20	
	1424	3.9	120		1553	3.9	120		1620	3.9	120		1640	3.9	120	
	2124	0.0	0	○	2208	0.0	0	●	2229	- 0.7	- 20		2247	0.0	0	
2 Tu	0351	3.6	110	**17** W	0449	3.9	120	**2** F	0538	3.9	120	**17** Sa	0536	3.9	120	
	0915	0.7	20		1035	1.0	30		1054	0.3	10		1114	0.7	20	
	1509	3.9	120		1628	3.9	120		1711	4.3	130		1714	3.9	120	
●	2203	- 0.3	- 10		2241	- 0.3	- 10		2307	- 0.7	- 20		2318	0.0	0	
3 W	0439	3.9	120	**18** Th	0524	3.9	120	**3** Sa	0627	4.3	130	**18** Su	0604	3.9	120	
	1004	0.7	20		1113	1.0	30		1142	0.3	10		1135	0.7	20	
	1603	3.9	120		1702	3.9	120		1803	3.9	120		1750	3.9	120	
	2243	- 0.3	- 10		2315	- 0.3	- 10		2348	- 0.3	- 10		2348	0.0	0	
4 Th	0528	3.9	120	**19** F	0558	3.9	120	**4** Su	0709	4.3	130	**19** M	0626	3.9	120	
	1056	0.7	20		1144	1.0	30		1230	0.3	10		1206	0.7	20	
	1705	3.9	120		1737	3.9	120		1854	3.9	120		1830	3.9	120	
	2324	- 0.3	- 10		2348	0.0	0									
5 F	0617	4.3	130	**20** Sa	0631	3.9	120	**5** M	0031	- 0.3	- 10	**20** Tu	0017	0.3	10	
	1149	0.7	20		1206	1.0	30		0747	4.3	130		0652	3.9	120	
	1802	3.9	120		1815	3.9	120		1318	0.7	20		1242	0.7	20	
									1945	3.6	110		1912	3.6	110	
6 Sa	0007	- 0.3	- 10	**21** Su	0019	0.0	0	**6** Tu	0118	0.0	0	**21** W	0049	0.7	20	
	0704	4.3	130		0701	3.9	120		0827	4.3	130		0728	3.9	120	
	1244	1.0	30		1234	1.0	30		1408	0.7	20		1322	1.0	30	
	1855	3.9	120		1854	3.6	110		2040	3.6	110		1958	3.3	100	
7 Su	0053	0.0	0	**22** M	0048	0.3	10	**7** W	0211	0.3	10	**22** Th	0127	1.0	30	
	0753	4.3	130		0733	3.9	120		0912	3.9	120		0810	3.6	110	
	1340	1.0	30		1312	1.0	30		1504	1.0	30		1409	1.0	30	
	1950	3.6	110		1938	3.3	100	◐	2145	3.3	100		2052	3.0	90	
8 M	0142	0.3	10	**23** Tu	0121	0.7	20	**8** Th	0312	1.0	30	**23** F	0215	1.3	40	
	0843	4.3	130		0809	3.6	110		1007	3.6	110		0858	3.6	110	
	1439	1.0	30		1358	1.3	40		1615	1.0	30		1509	1.3	40	
	2052	3.6	110		2026	3.3	100		2303	3.0	90	◑	2203	3.0	90	
9 Tu	0237	0.3	10	**24** W	0201	1.0	30	**9** F	0423	1.3	40	**24** Sa	0323	1.3	40	
	0938	3.9	120		0852	3.6	110		1117	3.6	110		0956	3.3	100	
	1546	1.0	30		1455	1.3	40		1804	1.0	30		1648	1.3	40	
◐	2210	3.3	100		2126	3.0	90						2337	3.0	90	
10 W	0341	0.7	20	**25** Th	0253	1.0	30	**10** Sa	0027	3.0	90	**25** Su	0513	1.6	50	
	1040	3.9	120		0943	3.6	110		0547	1.3	40		1114	3.3	100	
	1712	1.0	30		1613	1.3	40		1229	3.6	110		1823	1.0	30	
	2328	3.3	100	◑	2248	2.6	80		1910	0.7	20					
11 Th	0452	1.0	30	**26** F	0411	1.3	40	**11** Su	0138	3.3	100	**26** M	0050	3.3	100	
	1148	3.9	120		1041	3.6	110		0711	1.3	40		0621	1.3	40	
	1825	1.0	30		1745	1.0	30		1326	3.6	110		1256	3.6	110	
									2002	0.7	20		1921	0.7	20	
12 F	0041	3.3	100	**27** Sa	0009	3.0	90	**12** M	0232	3.3	100	**27** Tu	0150	3.3	100	
	0603	1.0	30		0540	1.3	40		0811	1.3	40		0720	1.3	40	
	1253	3.9	120		1153	3.6	110		1413	3.6	110		1353	3.9	120	
	1922	0.7	20		1851	0.7	20		2044	0.3	10		2009	0.3	10	
13 Sa	0148	3.3	100	**28** Su	0112	3.0	90	**13** Tu	0315	3.6	110	**28** W	0245	3.6	110	
	0712	1.0	30		0638	1.0	30		0900	1.3	40		0815	1.0	30	
	1347	3.9	120		1306	3.6	110		1454	3.9	120		1442	3.9	120	
	2012	0.3	10		1943	0.3	10		2118	0.3	10		2052	0.0	0	
14 Su	0244	3.3	100	**29** M	0207	3.3	100	**14** W	0353	3.6	110	**29** Th	0342	3.9	120	
	0812	1.0	30		0730	1.0	30		0944	1.0	30		0908	0.7	20	
	1434	3.9	120		1359	3.9	120		1531	3.9	120		1531	4.3	130	
	2055	0.0	0		2029	0.0	0		2148	0.0	0		2132	- 0.3	- 10	
15 M	0331	3.6	110	**30** Tu	0257	3.6	110	**15** Th	0428	3.9	120	**30** F	0442	4.3	130	
	0905	1.0	30		0821	0.7	20		1022	1.0	30		0958	0.3	10	
	1515	3.9	120		1446	3.9	120		1606	3.9	120		1625	4.3	130	
	2133	0.0	0		2111	- 0.3	- 10	○	2217	0.0	0	●	2211	- 0.3	- 10	
				31 W	0349	3.6	110					**31** Sa	0536	4.3	130	
					0912	0.7	20						1045	0.3	10	
					1532	3.9	120						1723	4.3	130	
					2151	- 0.3	- 10						2249	- 0.3	- 10	

September

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Su	0623	4.3	130	**16** M	0519	4.3	130	
	1130	0.3	10		1108	0.7	20	
	1815	4.3	130		1725	4.3	130	
	2329	- 0.3	- 10		2318	0.3	10	
2 M	0703	4.3	130	**17** Tu	0531	4.3	130	
	1213	0.3	10		1141	0.7	20	
	1859	4.3	130		1806	3.9	120	
					2350	0.7	20	
3 Tu	0011	0.0	0	**18** W	0606	3.9	120	
	0736	4.3	130		1216	0.7	20	
	1255	0.3	10		1849	3.9	120	
	1939	3.9	120					
4 W	0058	0.3	10	**19** Th	0023	1.0	30	
	0806	4.3	130		0648	3.9	120	
	1339	0.7	20		1254	1.0	30	
	2024	3.6	110		1936	3.6	110	
5 Th	0151	0.7	20	**20** F	0101	1.3	40	
	0842	3.9	120		0733	3.9	120	
	1428	1.0	30		1337	1.0	30	
	2120	3.3	100		2028	3.3	100	
6 F	0252	1.3	40	**21** Sa	0151	1.6	50	
	0932	3.6	110		0822	3.6	110	
	1525	1.0	30		1431	1.3	40	
◐	2235	3.0	90		2132	3.3	100	
7 Sa	0403	1.6	50	**22** Su	0314	1.6	50	
	1042	3.3	100		0920	3.6	110	
	1710	1.3	40		1545	1.3	40	
				◑	2305	3.3	100	
8 Su	0011	3.0	90	**23** M	0452	2.0	60	
	0535	1.6	50		1041	3.6	110	
	1202	3.3	100		1748	1.3	40	
	1852	1.3	40					
9 M	0124	3.3	100	**24** Tu	0026	3.6	110	
	0704	1.6	50		0602	1.6	50	
	1304	3.6	110		1238	3.6	110	
	1947	1.0	30		1852	1.0	30	
10 Tu	0213	3.6	110	**25** W	0128	3.6	110	
	0801	1.6	50		0705	1.3	40	
	1352	3.6	110		1336	3.9	120	
	2025	0.7	20		1942	0.7	20	
11 W	0254	3.6	110	**26** Th	0225	3.9	120	
	0846	1.3	40		0801	1.0	30	
	1433	3.9	120		1429	4.3	130	
	2055	0.7	20		2026	0.3	10	
12 Th	0330	3.9	120	**27** F	0324	4.3	130	
	0925	1.0	30		0853	0.7	20	
	1509	3.9	120		1523	4.3	130	
	2122	0.3	10		2108	0.0	0	
13 F	0405	3.9	120	**28** Sa	0424	4.3	130	
	1000	1.0	30		0942	0.3	10	
	1542	3.9	120		1624	4.3	130	
	2148	0.3	10	●	2149	0.0	0	
14 Sa	0438	3.9	120	**29** Su	0518	4.6	140	
	1027	0.7	20		1028	0.3	10	
	1615	4.3	130		1722	4.6	140	
○	2217	0.3	10		2229	0.0	0	
15 Su	0507	4.3	130	**30** M	0603	4.6	140	
	1042	0.7	20		1112	0.0	0	
	1648	4.3	130		1810	4.3	130	
	2247	0.3	10		2312	0.3	10	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Takoradi, Ghana, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0642	4.6	140	**16** W	0435	4.3	130	**1** F	0036	1.3	40	**16** Sa	0545	4.3	130	**1** Su	0110	1.6	50	**16** M	0040	1.3	40
	1153	0.0	0		1119	0.7	20		0659	4.3	130		1219	0.7	20		0652	3.9	120		0627	4.3	130
	1852	4.3	130		1744	4.3	130		1250	0.7	20		1901	4.3	130		1305	0.7	20		1245	0.3	10
	2357	0.3	10		2327	1.0	30		1945	3.9	120						2005	3.9	120		1940	4.3	130
2 W	0713	4.3	130	**17** Th	0521	4.3	130	**2** Sa	0127	1.6	50	**17** Su	0051	1.6	50	**2** M	0157	2.0	60	**17** Tu	0136	1.6	50
	1232	0.3	10		1156	0.7	20		0727	3.9	120		0639	4.3	130		0732	3.9	120		0719	3.9	120
	1928	4.3	130		1830	3.9	120		1331	1.0	30		1303	0.7	20		1344	1.0	30		1331	0.7	20
									2030	3.9	120		1952	3.9	120		2057	3.9	120		2037	4.3	130
3 Th	0045	1.0	30	**18** F	0007	1.3	40	**3** Su	0221	2.0	60	**18** M	0151	1.6	50	**3** Tu	0247	2.0	60	**18** W	0234	1.6	50
	0738	4.3	130		0611	4.3	130		0808	3.6	110		0733	3.9	120		0819	3.6	110		0817	3.9	120
	1313	0.7	20		1235	0.7	20		1417	1.3	40		1351	1.0	30		1429	1.3	40		1422	1.0	30
	2006	3.9	120		1917	3.9	120		2133	3.6	110		2051	3.9	120		2201	3.9	120		2142	4.3	130
4 F	0139	1.3	40	**19** Sa	0054	1.6	50	**4** M	0319	2.3	70	**19** Tu	0256	2.0	60	**4** W	0342	2.3	70	**19** Th	0336	1.6	50
	0807	3.9	120		0701	3.9	120		0906	3.6	110		0833	3.9	120		0924	3.3	100		0930	3.6	110
	1358	1.0	30		1317	1.0	30		1515	1.6	50		1449	1.3	40		1535	1.6	50		1525	1.3	40
	2055	3.6	110		2008	3.9	120	◐	2252	3.6	110	◑	2208	3.9	120	◐	2305	3.9	120	◑	2251	4.3	130
5 Sa	0238	1.6	50	**20** Su	0155	1.6	50	**5** Tu	0427	2.3	70	**20** W	0405	2.0	60	**5** Th	0445	2.3	70	**20** F	0446	1.6	50
	0851	3.6	110		0754	3.9	120		1043	3.3	100		0951	3.6	110		1103	3.3	100		1112	3.6	110
	1449	1.3	40		1408	1.3	40		1631	1.6	50		1605	1.3	40		1650	1.6	50		1644	1.3	40
◐	2205	3.3	100		2109	3.6	110						2331	4.3	130						2356	4.3	130
6 Su	0344	2.0	60	**21** M	0313	2.0	60	**6** W	0004	3.9	120	**21** Th	0516	1.6	50	**6** F	0000	3.9	120	**21** Sa	0600	1.3	40
	1001	3.3	100		0854	3.6	110		0548	2.3	70		1146	3.6	110		0554	2.0	60		1226	3.6	110
	1555	1.6	50		1513	1.3	40		1159	3.3	100		1734	1.3	40		1212	3.3	100		1801	1.3	40
	2342	3.3	100	◑	2235	3.6	110		1746	1.6	50						1752	1.6	50				
7 M	0507	2.0	60	**22** Tu	0430	2.0	60	**7** Th	0054	3.9	120	**22** F	0032	4.3	130	**7** Sa	0046	3.9	120	**22** Su	0053	4.3	130
	1129	3.3	100		1014	3.6	110		0654	2.0	60		0622	1.3	40		0654	1.6	50		0705	1.0	30
	1750	1.6	50		1701	1.3	40		1255	3.6	110		1251	3.9	120		1305	3.6	110		1332	3.6	110
									1845	1.6	50		1837	1.3	40		1844	1.6	50		1906	1.3	40
8 Tu	0055	3.6	110	**23** W	0000	3.9	120	**8** F	0135	4.3	130	**23** Sa	0126	4.3	130	**8** Su	0124	4.3	130	**23** M	0148	4.3	130
	0640	2.0	60		0540	1.6	50		0741	1.6	50		0722	1.0	30		0741	1.3	40		0800	0.7	20
	1236	3.6	110		1215	3.6	110		1340	3.9	120		1350	3.9	120		1350	3.6	110		1435	3.9	120
	1906	1.6	50		1817	1.3	40		1929	1.3	40		1929	1.0	30		1927	1.3	40		2004	1.3	40
9 W	0142	3.9	120	**24** Th	0103	4.3	130	**9** Sa	0211	4.3	130	**24** Su	0220	4.6	140	**9** M	0151	4.3	130	**24** Tu	0240	4.3	130
	0736	2.0	60		0645	1.3	40		0820	1.3	40		0815	0.7	20		0821	1.0	30		0848	0.3	10
	1328	3.6	110		1315	3.9	120		1417	3.9	120		1450	4.3	130		1430	3.9	120		1533	3.9	120
	1945	1.3	40		1911	1.0	30		2006	1.3	40		2018	1.0	30		2005	1.3	40		2058	1.3	40
10 Th	0220	3.9	120	**25** F	0158	4.3	130	**10** Su	0237	4.3	130	**25** M	0316	4.6	140	**10** Tu	0205	4.3	130	**25** W	0328	4.3	130
	0819	1.6	50		0742	1.0	30		0854	1.0	30		0903	0.3	10		0857	0.7	20		0932	0.3	10
	1410	3.9	120		1410	4.3	130		1450	3.9	120		1550	4.3	130		1509	3.9	120		1624	3.9	120
	2017	1.0	30		1958	0.7	20		2038	1.0	30		2107	1.0	30		2043	1.3	40		2149	1.3	40
11 F	0256	4.3	130	**26** Sa	0256	4.6	140	**11** M	0243	4.3	130	**26** Tu	0408	4.6	140	**11** W	0225	4.3	130	**26** Th	0411	4.3	130
	0856	1.3	40		0834	0.7	20		0921	0.7	20		0949	0.3	10		0932	0.3	10		1013	0.0	0
	1445	3.9	120		1508	4.3	130		1524	4.3	130		1644	4.3	130		1549	3.9	120		1709	4.3	130
	2046	1.0	30		2042	0.7	20		2111	1.0	30	●	2156	1.0	30		2123	1.0	30	●	2237	1.3	40
12 Sa	0329	4.3	130	**27** Su	0355	4.6	140	**12** Tu	0247	4.3	130	**27** W	0452	4.3	130	**12** Th	0301	4.3	130	**27** F	0448	4.3	130
	0929	1.0	30		0922	0.3	10		0949	0.7	20		1031	0.0	0		1007	0.3	10		1051	0.0	0
	1516	4.3	130		1610	4.6	140		1601	4.3	130		1731	4.3	130		1631	4.3	130		1750	4.3	130
	2114	0.7	20		2126	0.7	20	○	2147	1.0	30		2246	1.0	30	○	2207	1.0	30		2323	1.3	40
13 Su	0355	4.3	130	**28** M	0448	4.6	140	**13** W	0319	4.3	130	**28** Th	0528	4.3	130	**13** F	0345	4.3	130	**28** Sa	0519	4.3	130
	0954	0.7	20		1008	0.3	10		1023	0.3	10		1111	0.0	0		1044	0.3	10		1127	0.0	0
	1548	4.3	130		1705	4.6	140		1643	4.3	130		1812	4.3	130		1716	4.3	130		1828	4.3	130
○	2144	0.7	20	●	2211	0.7	20		2226	1.0	30		2335	1.3	40		2255	1.3	40				
14 M	0347	4.3	130	**29** Tu	0532	4.6	140	**14** Th	0401	4.3	130	**29** F	0555	4.3	130	**14** Sa	0437	4.3	130	**29** Su	0006	1.3	40
	1013	0.7	20		1051	0.0	0		1100	0.3	10		1150	0.3	10		1123	0.3	10		0549	4.3	130
	1622	4.3	130		1753	4.6	140		1727	4.3	130		1849	4.3	130		1802	4.3	130		1203	0.3	10
	2216	0.7	20		2258	0.7	20		2309	1.3	40						2347	1.3	40		1902	4.3	130
15 Tu	0357	4.3	130	**30** W	0610	4.3	130	**15** F	0450	4.3	130	**30** Sa	0022	1.3	40	**15** Su	0533	4.3	130	**30** M	0047	1.6	50
	1044	0.7	20		1132	0.0	0		1139	0.3	10		0618	4.3	130		1203	0.3	10		0624	3.9	120
	1701	4.3	130		1834	4.3	130		1814	4.3	130		1228	0.3	10		1849	4.3	130		1237	0.7	20
	2251	0.7	20		2346	1.0	30		2357	1.3	40		1924	4.3	130						1938	3.9	120
				31 Th	0639	4.3	130													**31** Tu	0126	1.6	50
					1211	0.3	10														0702	3.9	120
					1911	4.3	130														1307	0.7	20
																					2015	3.9	120

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dakar, Senegal, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft cm		h m	ft cm		h m	ft cm		h m	ft cm
1 Tu	0515	4.9 149	**16** W	0412	4.5 138	**1** F	0048	2.2 66	**16** Sa	0602	4.4 134
	1132	2.2 66		1029	2.3 70		0658	4.3 131		1207	2.0 61
	1807	4.9 149		1705	4.5 137		1300	2.0 60		1840	4.9 150
				2306	2.6 79		1931	4.9 149			
2 W	0002	2.3 71	**17** Th	0518	4.6 139	**2** Sa	0140	2.0 60	**17** Su	0058	1.9 58
	0617	4.9 148		1133	2.1 65		0749	4.4 135		0709	4.7 143
	1229	2.0 62		1807	4.8 145		1347	1.8 55		1308	1.7 52
	1900	5.1 155					2014	5.1 155		1936	5.4 164
3 Th	0100	2.1 65	**18** F	0013	2.3 71	**3** Su	0222	1.8 54	**18** M	0153	1.5 46
	0712	4.9 148		0621	4.7 144		0832	4.6 140		0806	5.0 153
	1318	1.9 57		1232	1.9 58		1427	1.6 50		1401	1.4 42
	1946	5.3 161		1902	5.1 156		2051	5.3 161		2026	5.8 177
4 F	0149	1.9 59	**19** Sa	0110	2.0 61	**4** M	0300	1.6 50	**19** Tu	0242	1.1 34
	0801	4.9 148		0720	4.9 150		0909	4.7 144		0856	5.3 162
	1401	1.7 52		1325	1.6 50		1503	1.5 46		1449	1.1 33
	2027	5.4 166		1951	5.5 168	●	2125	5.4 165	○	2113	6.1 187
5 Sa	0233	1.8 55	**20** Su	0203	1.6 50	**5** Tu	0334	1.5 46	**20** W	0328	0.9 26
	0844	4.9 149		0815	5.2 157		0943	4.8 146		0944	5.5 168
	1440	1.6 49		1414	1.4 42		1536	1.5 45		1534	0.9 26
	2105	5.5 169		2039	5.8 178		2157	5.5 167		2159	6.3 192
6 Su	0313	1.7 52	**21** M	0252	1.3 40	**6** W	0407	1.5 45	**21** Th	0412	0.7 21
	0923	4.9 150		0908	5.3 162		1014	4.9 148		1030	5.6 170
	1517	1.6 48		1501	1.2 36		1608	1.4 44		1618	0.8 24
●	2140	5.6 170	○	2127	6.1 187		2228	5.5 167		2245	6.3 191
7 M	0351	1.7 51	**22** Tu	0341	1.1 33	**7** Th	0439	1.5 45	**22** F	0456	0.7 22
	0959	4.9 149		0958	5.4 166		1044	4.9 148		1114	5.5 167
	1552	1.6 49		1547	1.0 32		1639	1.5 46		1703	0.9 26
	2214	5.6 170		2214	6.3 191		2258	5.4 166		2330	6.0 184
8 Tu	0427	1.7 51	**23** W	0429	1.0 30	**8** F	0511	1.5 46	**23** Sa	0539	0.9 28
	1034	4.9 148		1047	5.4 166		1115	4.8 147		1158	5.3 162
	1625	1.7 51		1633	1.0 32		1710	1.6 48		1747	1.0 32
	2248	5.5 168		2302	6.3 191		2330	5.3 162			
9 W	0503	1.7 53	**24** Th	0517	1.0 30	**9** Sa	0543	1.6 49	**24** Su	0015	5.6 172
	1107	4.8 147		1135	5.4 164		1147	4.8 145		0622	1.2 37
	1658	1.8 55		1720	1.1 35		1742	1.7 52		1243	5.1 154
	2321	5.4 166		2351	6.1 186					1833	1.4 42
10 Th	0539	1.9 57	**25** F	0605	1.1 35	**10** Su	0003	5.2 157	**25** M	0102	5.2 157
	1140	4.7 144		1223	5.2 158		0617	1.7 52		0706	1.5 47
	1732	2.0 60		1807	1.3 41		1222	4.7 142		1332	4.7 144
	2357	5.3 161					1818	1.9 58		1924	1.8 54
11 F	0615	2.0 60	**26** Sa	0040	5.8 176	**11** M	0040	4.9 150	**26** Tu	0152	4.7 142
	1216	4.6 141		0653	1.4 42		0654	1.8 56		0755	1.9 57
	1807	2.1 65		1313	5.0 151		1303	4.5 138		1428	4.5 136
				1858	1.6 50		1858	2.1 64	◑	2024	2.1 65
12 Sa	0035	5.1 156	**27** Su	0132	5.4 164	**12** Tu	0123	4.7 143	**27** W	0252	4.2 129
	0654	2.1 65		0743	1.7 51		0736	2.0 61		0853	2.2 66
	1256	4.5 137		1408	4.7 143		1353	4.4 133		1537	4.3 130
	1847	2.3 71	◑	1954	2.0 60	◐	1949	2.3 71		2141	2.4 73
13 Su	0118	4.9 150	**28** M	0228	5.0 151	**13** W	0217	4.5 136	**28** Th	0408	3.9 120
	0737	2.2 68		0838	1.9 59		0829	2.1 65		1008	2.4 72
	1345	4.4 134		1510	4.5 137		1459	4.3 130		1700	4.2 129
	1936	2.5 77		2059	2.2 68		2059	2.5 76		2318	2.4 74
14 M	0208	4.8 145	**29** Tu	0331	4.6 140	**14** Th	0327	4.3 130			
	0826	2.3 71		0940	2.1 65		0937	2.2 68			
	1446	4.3 131		1622	4.4 134		1618	4.3 131			
◐	2037	2.7 82		2217	2.4 73		2227	2.5 76			
15 Tu	0307	4.6 140	**30** W	0442	4.3 132	**15** F	0446	4.2 129			
	0924	2.4 72		1052	2.2 67		1054	2.2 67			
	1556	4.3 132		1737	4.5 136		1734	4.5 138			
	2152	2.7 83		2341	2.4 72		2350	2.3 70			
			31 Th	0555	4.3 130						
				1203	2.1 65						
				1841	4.7 142						

February

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0534	3.9 119	**16** Sa	0429	4.1 126
	1134	2.3 71		1027	2.4 72
	1816	4.4 134		1707	4.6 140
				2337	2.3 69
2 Sa	0035	2.3 69	**17** Su	0553	4.3 132
	0644	4.0 123		1148	2.2 67
	1241	2.2 66		1820	5.0 151
	1911	4.7 142			
3 Su	0126	2.0 62	**18** M	0047	1.9 57
	0735	4.3 130		0659	4.7 144
	1330	2.0 60		1253	1.8 56
	1954	4.9 150		1919	5.4 166
4 M	0205	1.8 55	**19** Tu	0140	1.4 44
	0815	4.5 138		0753	5.1 155
	1410	1.7 53		1346	1.5 45
	2030	5.2 157		2009	5.8 178
5 Tu	0240	1.6 49	**20** W	0226	1.1 33
	0849	4.7 144		0840	5.4 165
	1444	1.6 48		1433	1.1 34
	2103	5.3 162		2056	6.1 187
6 W	0311	1.5 45	**21** Th	0308	0.8 25
	0921	4.9 149		0925	5.6 172
	1516	1.4 44		1517	0.9 27
●	2134	5.4 166	○	2140	6.3 191
7 Th	0341	1.4 42	**22** F	0349	0.7 21
	0950	5.0 152		1007	5.7 174
	1546	1.4 42		1600	0.8 24
	2203	5.5 167		2224	6.1 187
8 F	0411	1.3 40	**23** Sa	0429	0.8 23
	1018	5.1 154		1049	5.6 172
	1616	1.3 41		1643	0.9 26
	2232	5.4 166		2306	5.9 179
9 Sa	0440	1.3 40	**24** Su	0509	1.0 29
	1048	5.1 154		1131	5.5 167
	1647	1.4 42		1726	1.0 32
	2302	5.3 163		2348	5.4 166
10 Su	0510	1.3 41	**25** M	0548	1.2 38
	1119	5.0 153		1213	5.2 159
	1719	1.5 45		1810	1.4 42
	2335	5.2 158			
11 M	0542	1.5 45	**26** Tu	0031	5.0 151
	1153	4.9 150		0629	1.6 49
	1753	1.6 50		1258	4.9 149
				1858	1.8 54
12 Tu	0010	5.0 151	**27** W	0118	4.5 137
	0617	1.6 50		0714	2.0 61
	1232	4.8 145		1350	4.6 140
	1833	1.9 57		1954	2.2 66
13 W	0052	4.7 142	**28** Th	0215	4.1 125
	0658	1.9 57		0810	2.3 71
	1319	4.6 140		1454	4.4 133
	1921	2.1 65	◑	2106	2.5 75
14 Th	0144	4.4 134	**29** F	0332	3.8 117
	0749	2.1 64		0925	2.6 78
	1421	4.4 135		1613	4.3 130
◐	2029	2.4 73		2243	2.6 78
15 F	0258	4.2 127	**30** Sa	0506	3.8 117
	0859	2.3 71		1057	2.6 80
	1542	4.4 134		1736	4.4 133
	2202	2.5 75			
			31 Su	0008	2.4 74
				0621	4.1 124
				1213	2.5 75
				1838	4.6 140

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dakar, Senegal, 2019

Times and Heights of High and Low Waters

April

Day	Time (h m)	Height (ft)	Height (cm)	Day	Time (h m)	Height (ft)	Height (cm)
1 M	0100 0710 1304 1923	2.2 4.3 2.3 4.9	68 132 69 149	16 Tu	0029 0644 1234 1857	1.9 4.9 2.0 5.6	59 150 62 170
2 Tu	0138 0748 1343 2000	2.0 4.6 2.0 5.1	61 141 62 156	17 W	0120 0735 1327 1948	1.6 5.3 1.7 5.9	48 161 51 179
3 W	0211 0821 1418 2033	1.8 4.9 1.8 5.3	54 149 56 162	18 Th	0204 0820 1414 2035	1.2 5.6 1.4 6.1	38 170 42 185
4 Th	0241 0852 1450 2105	1.6 5.1 1.6 5.4	48 155 50 166	19 F ○	0245 0902 1458 2119	1.0 5.8 1.1 6.1	32 176 35 185
5 F ●	0310 0921 1520 2135	1.4 5.2 1.5 5.5	43 159 46 168	20 Sa	0324 0943 1541 2201	1.0 5.8 1.1 5.9	30 178 33 180
6 Sa	0339 0950 1552 2205	1.3 5.3 1.4 5.5	40 162 44 167	21 Su	0402 1024 1624 2243	1.0 5.8 1.1 5.6	32 176 35 172
7 Su	0408 1020 1624 2237	1.3 5.3 1.4 5.4	39 163 44 164	22 M	0440 1104 1706 2323	1.2 5.6 1.3 5.3	37 172 41 161
8 M	0439 1053 1658 2311	1.3 5.3 1.5 5.2	41 162 46 159	23 Tu	0517 1145 1750	1.5 5.4 1.6	46 165 49
9 Tu	0512 1129 1735 2349	1.4 5.2 1.6 5.0	44 160 50 152	24 W	0004 0556 1229 1836	4.9 1.8 5.2 2.0	149 56 157 60
10 W	0548 1211 1817	1.7 5.1 1.9	51 155 57	25 Th	0048 0639 1317 1928	4.5 2.2 4.9 2.3	138 67 148 70
11 Th	0033 0631 1300 1910	4.7 1.9 4.9 2.2	144 59 150 66	26 F ◑	0141 0731 1415 2032	4.2 2.5 4.7 2.6	128 77 142 79
12 F ◐	0129 0725 1403 2020	4.5 2.3 4.8 2.4	136 69 145 73	27 Sa	0251 0841 1525 2152	4.0 2.8 4.5 2.7	122 85 138 83
13 Sa	0247 0839 1522 2151	4.3 2.5 4.7 2.5	130 76 144 75	28 Su	0419 1006 1640 2317	4.0 2.9 4.5 2.7	122 88 138 82
14 Su	0419 1008 1645 2322	4.3 2.6 4.9 2.3	130 78 148 69	29 M	0539 1125 1747	4.2 2.8 4.7	128 86 143
15 M	0542 1130 1758	4.5 2.4 5.2	138 72 158	30 Tu	0017 0632 1223 1838	2.5 4.5 2.6 4.9	76 136 80 150

May

Day	Time (h m)	Height (ft)	Height (cm)	Day	Time (h m)	Height (ft)	Height (cm)
1 W	0059 0712 1306 1919	2.3 4.8 2.4 5.1	69 145 74 156	16 Th	0055 0713 1305 1925	1.8 5.4 2.0 5.8	55 165 60 176
2 Th	0134 0746 1343 1956	2.0 5.0 2.2 5.3	62 153 66 162	17 F	0140 0758 1354 2013	1.6 5.7 1.7 5.8	48 173 53 177
3 F	0205 0818 1417 2030	1.8 5.3 2.0 5.4	55 161 60 166	18 Sa ○	0221 0840 1439 2058	1.4 5.8 1.6 5.8	44 178 48 176
4 Sa ●	0236 0849 1451 2104	1.6 5.4 1.8 5.5	49 166 55 168	19 Su	0300 0921 1524 2141	1.4 5.9 1.5 5.6	42 180 46 171
5 Su	0307 0921 1526 2139	1.5 5.6 1.7 5.5	45 170 51 168	20 M	0337 1002 1607 2222	1.4 5.8 1.6 5.4	44 178 48 165
6 M	0338 0955 1602 2215	1.4 5.6 1.6 5.4	44 172 50 166	21 Tu	0414 1042 1649 2302	1.6 5.7 1.7 5.2	48 175 52 157
7 Tu	0412 1032 1640 2253	1.5 5.6 1.7 5.3	45 172 51 162	22 W	0452 1122 1732 2341	1.8 5.6 1.9 4.9	55 170 58 150
8 W	0448 1112 1723 2336	1.6 5.6 1.8 5.1	49 170 55 156	23 Th	0530 1204 1817	2.1 5.4 2.2	63 164 66
9 Th	0529 1158 1811	1.8 5.5 2.0	55 167 60	24 F	0022 0611 1249 1904	4.7 2.4 5.2 2.4	143 72 158 74
10 F	0026 0616 1252 1908	4.9 2.1 5.3 2.2	149 64 163 67	25 Sa	0109 0658 1340 1957	4.5 2.7 5.0 2.7	136 81 153 81
11 Sa	0126 0714 1355 2017	4.7 2.4 5.2 2.4	142 73 159 73	26 Su ◑	0207 0756 1438 2058	4.3 2.9 4.9 2.8	132 88 148 86
12 Su ◐	0241 0828 1508 2137	4.5 2.6 5.2 2.5	138 80 157 75	27 M	0318 0907 1541 2207	4.3 3.1 4.8 2.9	130 93 147 87
13 M	0405 0949 1623 2256	4.6 2.7 5.2 2.3	139 81 159 71	28 Tu	0434 1021 1643 2313	4.4 3.1 4.9 2.8	133 94 148 84
14 Tu	0521 1105 1732	4.8 2.5 5.4	146 77 165	29 W	0537 1126 1740	4.6 3.0 5.0	139 90 151
15 W	0003 0622 1210 1832	2.1 5.1 2.3 5.6	64 156 69 171	30 Th	0006 0625 1218 1829	2.6 4.8 2.8 5.1	79 147 84 156
				31 F	0048 0705 1302 1913	2.4 5.1 2.5 5.2	72 156 77 160

June

Day	Time (h m)	Height (ft)	Height (cm)	Day	Time (h m)	Height (ft)	Height (cm)
1 Sa	0126 0742 1343 1954	2.1 5.3 2.3 5.4	64 163 70 164	16 Su	0159 0822 1425 2042	1.9 5.8 2.0 5.4	57 176 61 166
2 Su	0201 0818 1422 2035	1.9 5.6 2.1 5.5	58 170 64 167	17 M ○	0239 0904 1510 2125	1.8 5.8 1.9 5.4	55 178 59 164
3 M ●	0237 0855 1502 2116	1.7 5.8 1.9 5.5	53 176 59 168	18 Tu	0318 0944 1553 2206	1.8 5.9 1.9 5.3	55 179 59 161
4 Tu	0313 0934 1544 2158	1.6 5.9 1.8 5.5	50 180 56 168	19 W	0355 1023 1635 2243	1.9 5.8 2.0 5.2	57 178 61 157
5 W	0351 1016 1628 2243	1.6 6.0 1.8 5.4	50 182 55 166	20 Th	0432 1101 1715 2320	2.0 5.7 2.1 5.1	61 175 65 154
6 Th	0433 1101 1716 2330	1.7 6.0 1.9 5.3	53 182 57 162	21 F	0509 1140 1756 2357	2.2 5.6 2.3 4.9	67 171 70 150
7 F	0518 1151 1808	1.9 5.9 2.0	58 180 61	22 Sa	0547 1221 1837	2.4 5.5 2.5	73 167 75
8 Sa	0022 0608 1246 1905	5.2 2.1 5.8 2.2	157 65 177 66	23 Su	0036 0627 1304 1920	4.8 2.6 5.3 2.6	146 80 162 80
9 Su	0121 0706 1346 2006	5.0 2.4 5.7 2.3	152 73 173 71	24 M	0122 0713 1352 2008	4.7 2.9 5.2 2.8	142 87 158 85
10 M ◐	0227 0813 1451 2113	4.9 2.6 5.5 2.4	148 79 169 73	25 Tu ◑	0217 0808 1444 2101	4.6 3.1 5.1 2.9	139 93 154 88
11 Tu	0340 0925 1558 2223	4.9 2.7 5.5 2.4	148 81 167 73	26 W	0322 0913 1541 2201	4.5 3.1 5.0 2.9	138 96 152 88
12 W	0452 1037 1704 2329	5.0 2.6 5.4 2.3	151 80 166 70	27 Th	0430 1021 1639 2301	4.6 3.1 5.0 2.8	141 96 151 85
13 Th	0556 1144 1806	5.2 2.5 5.5	158 76 167	28 F	0530 1125 1736 2356	4.8 3.0 5.0 2.6	147 92 153 79
14 F	0026 0650 1244 1903	2.1 5.4 2.3 5.5	65 165 70 167	29 Sa	0622 1220 1830	5.1 2.8 5.1	155 86 156
15 Sa	0115 0738 1337 1955	2.0 5.6 2.1 5.5	60 171 65 167	30 Su	0045 0707 1310 1921	2.4 5.3 2.6 5.2	72 163 78 160

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dakar, Senegal, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0129	2.2 66	16 Tu	0224	2.1 64
	0750	5.6 172		0850	5.8 177
	1358	2.3 71		1459	2.2 66
	2011	5.4 165	○	2112	5.2 160
2 Tu	0212	2.0 60	17 W	0303	2.0 62
	0833	5.9 180		0929	5.9 179
	1444	2.1 64		1540	2.1 65
●	2059	5.5 169		2150	5.3 161
3 W	0254	1.8 55	18 Th	0340	2.0 62
	0918	6.1 187		1005	5.9 180
	1531	1.9 58		1618	2.1 65
	2146	5.6 172		2225	5.3 161
4 Th	0337	1.7 53	19 F	0415	2.1 63
	1004	6.3 191		1040	5.9 180
	1619	1.8 55		1654	2.2 66
	2234	5.6 172		2258	5.2 160
5 F	0421	1.7 53	20 Sa	0448	2.2 66
	1052	6.3 193		1115	5.8 177
	1708	1.8 54		1730	2.3 69
	2323	5.6 171		2330	5.2 158
6 Sa	0508	1.8 56	21 Su	0522	2.3 71
	1142	6.3 192		1150	5.7 174
	1759	1.9 57		1805	2.4 72
7 Su	0013	5.5 167	22 M	0003	5.1 155
	0558	2.0 61		0557	2.5 76
	1234	6.2 189		1226	5.6 170
	1850	2.0 61		1841	2.5 77
8 M	0106	5.3 163	23 Tu	0040	5.0 152
	0651	2.2 68		0635	2.7 82
	1329	6.0 183		1306	5.4 164
	1944	2.2 67		1920	2.7 81
9 Tu	0204	5.2 157	24 W	0123	4.9 148
	0750	2.5 75		0718	2.9 88
	1427	5.7 175		1351	5.2 158
◐	2042	2.4 72		2004	2.8 84
10 W	0309	5.1 154	25 Th	0217	4.8 145
	0856	2.6 80		0812	3.1 93
	1529	5.5 167		1443	5.0 153
	2144	2.5 76	◑	2056	2.9 87
11 Th	0418	5.0 153	26 F	0324	4.7 144
	1007	2.7 83		0920	3.1 96
	1635	5.3 161		1544	4.9 150
	2252	2.5 77		2158	2.9 88
12 F	0528	5.1 156	27 Sa	0434	4.8 146
	1121	2.7 82		1034	3.1 96
	1742	5.2 157		1650	4.9 149
	2357	2.5 75		2305	2.8 85
13 Sa	0629	5.3 162	28 Su	0540	5.0 153
	1228	2.6 78		1144	3.0 91
	1845	5.1 156		1756	5.0 152
14 Su	0053	2.3 71	29 M	0008	2.6 80
	0722	5.5 168		0637	5.3 162
	1326	2.4 74		1246	2.7 83
	1941	5.2 157		1858	5.2 157
15 M	0142	2.2 67	30 Tu	0103	2.4 72
	0808	5.7 173		0728	5.7 173
	1415	2.3 69		1341	2.4 73
	2030	5.2 158		1954	5.4 165
			31 W	0152	2.1 65
				0816	6.0 184
				1431	2.1 64
				2045	5.6 172

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0239	1.9 57	16 F	0323	2.1 63
	0903	6.4 194		0944	6.0 183
	1519	1.8 55		1555	2.1 64
●	2134	5.8 178		2202	5.4 166
2 F	0324	1.7 52	17 Sa	0355	2.1 63
	0950	6.6 201		1016	6.0 183
	1606	1.6 50		1627	2.1 64
	2221	5.9 181		2232	5.5 167
3 Sa	0409	1.6 50	18 Su	0426	2.1 64
	1037	6.7 204		1046	6.0 182
	1653	1.6 48		1659	2.1 65
	2308	5.9 181		2301	5.4 166
4 Su	0454	1.6 50	19 M	0456	2.2 67
	1126	6.6 202		1117	5.8 178
	1740	1.6 50		1729	2.2 68
	2355	5.8 177		2330	5.4 164
5 M	0541	1.8 54	20 Tu	0528	2.3 71
	1215	6.4 196		1149	5.7 173
	1826	1.8 56		1801	2.3 71
6 Tu	0043	5.6 171	21 W	0003	5.2 160
	0631	2.0 62		0601	2.5 76
	1306	6.1 185		1224	5.5 167
	1914	2.1 63		1835	2.5 75
7 W	0135	5.4 164	22 Th	0041	5.1 156
	0725	2.3 71		0639	2.7 82
	1400	5.7 173		1304	5.2 160
◐	2006	2.4 72		1914	2.6 80
8 Th	0234	5.2 157	23 F	0127	5.0 152
	0826	2.6 79		0726	2.9 89
	1459	5.3 161		1353	5.0 153
	2104	2.6 80	◑	2001	2.8 85
9 F	0343	5.0 153	24 Sa	0228	4.9 148
	0939	2.8 86		0830	3.1 95
	1607	5.0 151		1457	4.8 147
	2214	2.8 84		2104	2.9 89
10 Sa	0459	5.0 153	25 Su	0345	4.9 148
	1102	2.9 88		0953	3.2 97
	1723	4.8 147		1615	4.8 145
	2330	2.8 84		2222	3.0 90
11 Su	0610	5.2 158	26 M	0504	5.0 153
	1219	2.8 84		1120	3.1 93
	1834	4.8 147		1734	4.9 148
				2339	2.8 86
12 M	0036	2.6 80	27 Tu	0612	5.3 163
	0708	5.4 164		1231	2.8 84
	1318	2.6 79		1843	5.2 157
	1932	5.0 151			
13 Tu	0128	2.4 74	28 W	0043	2.5 77
	0754	5.6 171		0708	5.8 177
	1405	2.4 73		1328	2.4 72
	2018	5.1 156		1941	5.5 167
14 W	0211	2.3 69	29 Th	0136	2.2 67
	0835	5.8 177		0758	6.2 190
	1446	2.3 69		1417	2.0 60
	2057	5.3 161		2031	5.8 177
15 Th	0248	2.1 65	30 F	0223	1.9 57
	0911	5.9 181		0846	6.6 201
	1522	2.2 66		1503	1.6 50
○	2131	5.4 164	●	2117	6.1 185
			31 Sa	0308	1.6 49
				0932	6.8 208
				1547	1.4 44
				2202	6.2 189

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0352	1.5 45	16 M	0400	2.0 62
	1018	6.9 210		1016	6.0 183
	1630	1.4 42		1625	2.0 61
	2247	6.2 189		2230	5.7 173
2 M	0436	1.5 45	17 Tu	0430	2.1 63
	1104	6.7 205		1045	5.9 180
	1713	1.5 45		1654	2.1 63
	2331	6.1 185		2259	5.6 171
3 Tu	0521	1.6 49	18 W	0501	2.2 66
	1150	6.4 195		1116	5.7 174
	1756	1.7 53		1723	2.2 66
				2331	5.5 168
4 W	0016	5.8 178	19 Th	0533	2.3 71
	0608	1.9 58		1150	5.5 167
	1238	5.9 181		1756	2.3 71
	1841	2.1 63			
5 Th	0105	5.5 169	20 F	0008	5.4 164
	0659	2.3 69		0611	2.6 78
	1330	5.4 166		1229	5.2 159
	1928	2.4 74		1833	2.5 77
6 F	0200	5.2 160	21 Sa	0052	5.2 159
	0758	2.6 80		0657	2.8 85
	1429	5.0 152		1318	5.0 151
◐	2025	2.8 84		1919	2.8 85
7 Sa	0308	5.0 153	22 Su	0150	5.1 154
	0913	2.9 89		0800	3.1 93
	1542	4.7 142		1426	4.8 145
	2137	3.0 90	◑	2024	3.0 92
8 Su	0429	5.0 151	23 M	0309	5.0 152
	1046	3.0 92		0929	3.1 96
	1708	4.6 139		1555	4.7 143
	2305	3.0 91		2153	3.1 94
9 M	0549	5.1 155	24 Tu	0435	5.1 156
	1210	2.9 88		1104	3.0 92
	1824	4.7 143		1722	4.9 148
				2318	3.0 90
10 Tu	0019	2.8 86	25 W	0549	5.5 167
	0648	5.3 162		1218	2.7 81
	1306	2.7 82		1831	5.2 159
	1918	4.9 150			
11 W	0111	2.6 80	26 Th	0025	2.6 80
	0734	5.6 170		0648	5.9 181
	1348	2.5 75		1312	2.2 68
	1959	5.2 158		1925	5.6 172
12 Th	0152	2.4 73	27 F	0118	2.2 68
	0812	5.8 177		0738	6.4 194
	1424	2.3 70		1358	1.8 56
	2034	5.4 165		2012	6.0 183
13 F	0228	2.2 68	28 Sa	0205	1.8 56
	0846	6.0 182		0825	6.7 204
	1456	2.1 65		1441	1.5 46
	2106	5.6 170	●	2056	6.3 191
14 Sa	0300	2.1 64	29 Su	0249	1.5 47
	0917	6.1 185		0911	6.9 209
	1527	2.0 62		1523	1.3 40
○	2135	5.7 173		2139	6.4 195
15 Su	0331	2.0 62	30 M	0333	1.4 43
	0947	6.1 185		0955	6.8 208
	1556	2.0 61		1604	1.3 40
	2203	5.7 174		2222	6.4 194

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dakar, Senegal, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0416	1.4	43	**16** W	0405	2.0	61
	1040	6.6	200		1017	5.8	177
	1644	1.5	45		1621	1.9	58
	2305	6.2	190		2232	5.8	177
2 W	0501	1.6	48	**17** Th	0437	2.1	63
	1125	6.2	188		1050	5.6	171
	1725	1.7	53		1652	2.0	62
	2348	6.0	182		2306	5.7	174
3 Th	0547	1.9	57	**18** F	0513	2.2	68
	1211	5.7	173		1126	5.4	165
	1807	2.1	64		1725	2.2	68
					2344	5.6	170
4 F	0035	5.6	172	**19** Sa	0553	2.4	74
	0636	2.3	69		1208	5.2	157
	1301	5.2	158		1804	2.5	75
	1852	2.5	76				
5 Sa	0128	5.3	162	**20** Su	0030	5.4	165
	0734	2.7	81		0642	2.7	82
	1359	4.8	145		1300	4.9	150
◐	1947	2.9	87		1854	2.8	84
6 Su	0233	5.1	154	**21** M	0130	5.2	159
	0847	3.0	90		0749	2.9	89
	1514	4.5	137		1413	4.7	144
	2101	3.1	95	◑	2002	3.0	92
7 M	0353	5.0	151	**22** Tu	0247	5.2	157
	1020	3.1	94		0916	3.0	92
	1646	4.5	136		1543	4.7	143
	2234	3.2	97		2132	3.1	95
8 Tu	0515	5.0	153	**23** W	0411	5.3	161
	1146	3.0	90		1045	2.9	87
	1803	4.7	142		1708	4.9	150
	2353	3.0	92		2257	3.0	90
9 W	0617	5.2	160	**24** Th	0524	5.6	170
	1240	2.8	84		1156	2.5	77
	1854	5.0	151		1814	5.3	161
10 Th	0046	2.8	85	**25** F	0004	2.6	80
	0704	5.5	167		0624	5.9	181
	1320	2.5	77		1250	2.1	65
	1932	5.2	159		1905	5.7	174
11 F	0126	2.6	78	**26** Sa	0057	2.2	68
	0741	5.7	174		0715	6.3	192
	1354	2.3	70		1335	1.7	53
	2006	5.5	167		1951	6.0	184
12 Sa	0201	2.4	72	**27** Su	0145	1.8	56
	0815	5.9	179		0803	6.5	198
	1425	2.1	65		1417	1.5	45
	2036	5.7	173		2034	6.3	192
13 Su	0233	2.2	66	**28** M	0230	1.6	48
	0847	6.0	182		0849	6.6	200
	1455	2.0	60		1458	1.3	41
○	2105	5.8	177	●	2116	6.4	195
14 M	0304	2.1	63	**29** Tu	0314	1.4	44
	0917	6.0	182		0934	6.4	196
	1523	1.9	58		1538	1.4	42
	2133	5.8	178		2158	6.4	194
15 Tu	0334	2.0	61	**30** W	0358	1.4	44
	0947	5.9	181		1018	6.1	187
	1552	1.9	57		1617	1.5	46
	2202	5.9	179		2240	6.2	189
				31 Th	0443	1.6	49
					1103	5.8	176
					1656	1.8	55
					2323	6.0	182

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0529	1.9	58	**16** Sa	0500	2.1	63
	1147	5.3	163		1113	5.3	161
	1737	2.1	65		1706	2.1	63
					2330	5.7	174
2 Sa	0008	5.7	173	**17** Su	0545	2.3	69
	0618	2.2	68		1159	5.1	155
	1235	5.0	151		1749	2.3	71
	1821	2.5	76				
3 Su	0059	5.4	164	**18** M	0020	5.6	170
	0713	2.6	79		0639	2.5	75
	1330	4.6	141		1255	4.9	149
	1914	2.8	86		1842	2.6	79
4 M	0159	5.1	156	**19** Tu	0119	5.4	165
	0818	2.9	87		0744	2.6	80
	1438	4.4	135		1405	4.7	144
◐	2022	3.1	95	◑	1949	2.8	86
5 Tu	0309	5.0	151	**20** W	0231	5.3	163
	0936	3.0	92		0900	2.7	82
	1603	4.4	134		1525	4.7	144
	2147	3.2	98		2110	2.9	89
6 W	0424	5.0	151	**21** Th	0346	5.4	164
	1057	3.0	90		1017	2.6	78
	1723	4.6	139		1644	4.9	150
	2309	3.1	96		2230	2.8	86
7 Th	0530	5.1	155	**22** F	0455	5.5	169
	1158	2.8	85		1126	2.3	71
	1817	4.8	147		1750	5.2	159
					2338	2.5	77
8 F	0008	3.0	90	**23** Sa	0557	5.7	175
	0621	5.2	160		1222	2.0	62
	1242	2.6	79		1843	5.5	169
	1858	5.1	156				
9 Sa	0052	2.7	82	**24** Su	0035	2.2	67
	0702	5.4	166		0652	5.9	180
	1318	2.4	72		1310	1.8	54
	1932	5.4	164		1930	5.8	178
10 Su	0129	2.5	75	**25** M	0126	1.9	58
	0739	5.6	170		0742	6.0	182
	1350	2.1	65		1354	1.5	47
	2004	5.6	170		2014	6.1	185
11 M	0203	2.3	69	**26** Tu	0213	1.6	50
	0813	5.7	173		0830	6.0	182
	1421	1.9	59		1435	1.4	44
	2035	5.7	175	●	2057	6.2	188
12 Tu	0236	2.1	64	**27** W	0259	1.5	47
	0847	5.7	174		0917	5.8	178
	1451	1.8	55		1516	1.4	44
○	2105	5.9	179		2139	6.2	188
13 W	0309	2.0	60	**28** Th	0344	1.5	47
	0920	5.7	173		1002	5.6	171
	1522	1.8	54		1555	1.6	48
	2137	5.9	180		2221	6.1	185
14 Th	0344	1.9	59	**29** F	0429	1.6	50
	0955	5.6	170		1045	5.3	163
	1554	1.8	54		1634	1.8	54
	2211	5.9	180		2303	5.9	179
15 F	0420	2.0	60	**30** Sa	0514	1.9	57
	1032	5.4	166		1128	5.1	155
	1628	1.9	58		1714	2.0	62
	2248	5.8	178		2346	5.6	172

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0601	2.1	64	**16** M	0542	1.9	57
	1211	4.8	147		1155	5.1	155
	1756	2.3	70		1741	2.0	61
2 M	0031	5.4	165	**17** Tu	0013	5.7	175
	0650	2.4	72		0635	2.0	61
	1259	4.6	140		1249	4.9	150
	1843	2.6	80		1833	2.2	67
3 Tu	0122	5.2	158	**18** W	0109	5.6	171
	0743	2.6	79		0732	2.1	65
	1355	4.4	135		1350	4.8	146
	1939	2.9	88		1934	2.4	74
4 W	0220	5.0	152	**19** Th	0211	5.4	166
	0843	2.8	85		0835	2.2	68
	1502	4.3	132		1459	4.7	144
◐	2048	3.1	93	◑	2043	2.6	78
5 Th	0324	4.9	148	**20** F	0317	5.3	163
	0948	2.8	86		0942	2.3	69
	1617	4.4	134		1612	4.8	146
	2204	3.1	95		2157	2.6	78
6 F	0427	4.9	148	**21** Sa	0425	5.3	161
	1054	2.8	84		1049	2.2	66
	1723	4.6	139		1720	5.0	151
	2313	3.0	91		2310	2.4	74
7 Sa	0524	4.9	150	**22** Su	0530	5.2	160
	1149	2.6	79		1151	2.0	62
	1814	4.8	146		1820	5.2	158
8 Su	0008	2.8	85	**23** M	0015	2.2	67
	0614	5.0	153		0631	5.3	161
	1233	2.4	72		1246	1.8	56
	1855	5.1	154		1913	5.4	166
9 M	0053	2.6	78	**24** Tu	0112	1.9	59
	0658	5.1	156		0726	5.3	161
	1311	2.1	65		1334	1.7	51
	1931	5.3	162		2000	5.6	172
10 Tu	0132	2.3	70	**25** W	0203	1.7	53
	0739	5.2	159		0818	5.2	160
	1347	1.9	59		1418	1.5	47
	2006	5.5	168		2044	5.8	177
11 W	0210	2.1	64	**26** Th	0250	1.6	49
	0819	5.3	161		0906	5.2	159
	1422	1.8	54		1500	1.5	46
	2041	5.7	174	●	2126	5.8	178
12 Th	0248	1.9	58	**27** F	0335	1.5	47
	0859	5.3	163		0950	5.2	157
	1457	1.6	50		1540	1.5	46
○	2118	5.8	177		2207	5.8	178
13 F	0327	1.8	55	**28** Sa	0418	1.6	48
	0939	5.3	163		1031	5.0	153
	1534	1.6	50		1619	1.6	49
	2156	5.9	180		2246	5.7	175
14 Sa	0409	1.8	54	**29** Su	0500	1.7	52
	1022	5.3	161		1109	4.9	149
	1613	1.7	51		1657	1.8	54
	2238	5.9	180		2325	5.6	171
15 Su	0453	1.8	55	**30** M	0541	1.8	56
	1107	5.2	159		1147	4.8	145
	1655	1.8	55		1735	2.0	61
	2323	5.9	179				
				31 Tu	0004	5.4	165
					0622	2.0	62
					1226	4.6	140
					1814	2.2	68

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Casablanca, Morocco, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0436	4.8 145	**16** W	0328	5.3 162
	1052	10.2 311		0945	9.6 293
	1708	4.4 135		1603	5.0 151
	2324	10.4 317		2226	9.8 299
2 W	0537	4.4 135	**17** Th	0437	4.8 147
	1150	10.3 315		1051	10.0 304
	1758	4.2 127		1704	4.4 135
				2324	10.4 318
3 Th	0014	10.8 328	**18** F	0537	4.1 126
	0627	4.0 123		1150	10.5 320
	1239	10.5 321		1758	3.8 116
	1842	3.9 118			
4 F	0058	11.1 338	**19** Sa	0017	11.2 340
	0711	3.7 114		0630	3.3 102
	1322	10.7 326		1244	11.2 340
	1921	3.7 112		1848	3.1 96
5 Sa	0138	11.4 346	**20** Su	0106	11.9 364
	0749	3.5 107		0720	2.6 79
	1400	10.8 330		1333	11.8 359
	1957	3.5 107		1935	2.6 78
6 Su	0215	11.5 351	**21** M	0153	12.6 385
	0825	3.4 103		0808	2.0 60
	1436	10.9 332		1421	12.3 374
●	2031	3.5 106	○	2021	2.1 65
7 M	0250	11.6 354	**22** Tu	0240	13.1 400
	0858	3.3 102		0855	1.6 49
	1511	10.9 333		1509	12.5 381
	2104	3.5 107		2107	2.0 61
8 Tu	0324	11.6 354	**23** W	0328	13.3 405
	0932	3.4 105		0941	1.6 49
	1546	10.9 331		1556	12.4 379
	2138	3.6 111		2152	2.1 65
9 W	0359	11.5 351	**24** Th	0415	13.1 399
	1006	3.6 110		1028	2.0 61
	1621	10.7 326		1643	12.0 367
	2213	3.9 119		2238	2.6 79
10 Th	0435	11.3 344	**25** F	0503	12.6 383
	1042	3.9 120		1115	2.6 80
	1657	10.4 317		1731	11.4 348
	2248	4.3 130		2326	3.2 99
11 F	0512	10.9 333	**26** Sa	0554	11.8 359
	1118	4.3 132		1205	3.4 104
	1735	10.0 306		1824	10.7 327
	2326	4.7 143			
12 Sa	0551	10.5 320	**27** Su	0019	4.0 121
	1157	4.7 144		0650	10.9 332
	1816	9.7 295		1303	4.2 128
			◑	1924	10.0 306
13 Su	0009	5.1 155	**28** M	0124	4.7 142
	0635	10.1 307		0755	10.1 307
	1243	5.1 155		1411	4.8 146
	1906	9.4 287		2035	9.6 293
14 M	0102	5.4 164	**29** Tu	0245	5.1 154
	0728	9.7 296		0911	9.5 290
	1342	5.3 161		1529	5.1 154
◐	2009	9.3 283		2152	9.5 290
15 Tu	0211	5.5 167	**30** W	0411	5.1 155
	0834	9.5 291		1029	9.4 286
	1453	5.2 160		1643	5.0 151
	2119	9.4 287		2301	9.7 297
			31 Th	0522	4.8 146
				1134	9.5 291
				1741	4.6 141
				2357	10.1 308

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0615	4.4 133	**16** Sa	0517	4.1 124
	1225	9.8 300		1131	10.2 311
	1827	4.2 129		1741	3.9 120
				2357	11.0 334
2 Sa	0042	10.5 321	**17** Su	0615	3.2 97
	0657	4.0 121		1229	11.0 335
	1307	10.2 311		1834	3.1 95
	1906	3.9 118			
3 Su	0121	10.9 333	**18** M	0049	11.9 362
	0733	3.6 110		0705	2.3 71
	1344	10.5 321		1319	11.8 359
	1940	3.5 108		1921	2.4 72
4 M	0156	11.3 344	**19** Tu	0137	12.7 387
	0806	3.3 101		0752	1.6 50
	1417	10.8 330		1406	12.4 378
●	2013	3.3 100	○	2006	1.8 55
5 Tu	0229	11.5 352	**20** W	0223	13.3 405
	0838	3.1 96		0837	1.2 38
	1450	11.0 336		1451	12.7 388
	2045	3.1 96		2050	1.5 47
6 W	0302	11.7 358	**21** Th	0309	13.5 410
	0909	3.1 93		0921	1.3 39
	1523	11.2 340		1536	12.7 387
	2117	3.1 96		2133	1.7 51
7 Th	0335	11.7 358	**22** F	0355	13.2 403
	0940	3.1 96		1004	1.7 52
	1556	11.1 338		1620	12.3 375
	2149	3.3 101		2216	2.1 65
8 F	0409	11.6 353	**23** Sa	0440	12.6 383
	1012	3.4 103		1048	2.4 74
	1629	10.9 332		1705	11.6 355
	2221	3.6 109		2301	2.8 86
9 Sa	0442	11.3 343	**24** Su	0527	11.7 356
	1044	3.7 114		1132	3.3 100
	1702	10.6 322		1752	10.9 331
	2254	4.0 121		2349	3.7 112
10 Su	0517	10.8 330	**25** M	0618	10.6 324
	1118	4.1 126		1222	4.2 127
	1737	10.2 310		1845	10.1 307
	2331	4.4 133			
11 M	0555	10.3 315	**26** Tu	0047	4.5 137
	1156	4.5 138		0718	9.7 295
	1818	9.8 298		1323	4.9 150
			◑	1951	9.4 287
12 Tu	0016	4.8 145	**27** W	0204	5.1 156
	0641	9.8 300		0834	9.0 274
	1245	4.9 149		1444	5.4 164
◐	1913	9.4 288		2111	9.1 278
13 W	0117	5.1 155	**28** Th	0339	5.3 161
	0743	9.4 288		1001	8.8 268
	1355	5.1 156		1610	5.4 164
	2026	9.3 283		2232	9.2 281
14 Th	0241	5.2 157			
	0903	9.3 283			
	1520	5.1 155			
	2146	9.5 290			
15 F	0406	4.8 146			
	1023	9.6 292			
	1638	4.6 141			
	2257	10.1 308			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0459	5.0 153	**16** Sa	0346	4.6 141
	1114	9.0 274		1003	9.4 288
	1717	5.0 153		1617	4.8 145
	2334	9.6 294		2234	10.1 307
2 Sa	0554	4.6 140	**17** Su	0500	3.9 119
	1206	9.4 287		1115	10.1 309
	1805	4.6 139		1723	4.0 122
				2338	11.0 334
3 Su	0020	10.1 309	**18** M	0558	3.1 93
	0634	4.1 126		1212	11.0 335
	1247	9.9 302		1816	3.1 96
	1844	4.1 124			
4 M	0058	10.7 325	**19** Tu	0030	11.9 362
	0709	3.7 112		0646	2.2 68
	1321	10.4 317		1301	11.8 359
	1918	3.6 110		1903	2.4 72
5 Tu	0131	11.1 339	**20** W	0118	12.7 386
	0740	3.3 100		0731	1.6 49
	1353	10.8 330		1346	12.4 378
	1950	3.2 99		1947	1.8 54
6 W	0203	11.5 351	**21** Th	0204	13.2 401
	0810	3.0 92		0814	1.3 40
	1424	11.2 341		1430	12.7 388
●	2021	3.0 91	○	2030	1.5 46
7 Th	0235	11.8 359	**22** F	0248	13.3 404
	0840	2.9 87		0856	1.4 43
	1456	11.4 348		1513	12.7 387
	2052	2.9 88		2112	1.6 50
8 F	0307	11.9 362	**23** Sa	0332	12.9 394
	0910	2.9 87		0938	1.9 57
	1527	11.5 349		1556	12.3 376
	2123	2.9 89		2154	2.1 63
9 Sa	0340	11.7 358	**24** Su	0416	12.2 373
	0941	3.0 92		1018	2.6 78
	1559	11.3 345		1639	11.7 358
	2154	3.1 95		2237	2.8 84
10 Su	0413	11.5 349	**25** M	0500	11.3 345
	1011	3.3 101		1100	3.4 103
	1631	11.0 336		1723	11.0 335
	2227	3.4 105		2323	3.6 109
11 M	0447	11.0 335	**26** Tu	0548	10.4 316
	1044	3.7 113		1145	4.2 129
	1706	10.7 325		1811	10.2 311
	2303	3.8 117			
12 Tu	0524	10.5 320	**27** W	0015	4.4 134
	1121	4.1 126		0643	9.4 288
	1746	10.2 311		1239	5.0 152
	2347	4.3 131		1909	9.5 290
13 W	0610	9.9 303	**28** Th	0124	5.1 155
	1209	4.6 141		0754	8.8 267
	1838	9.8 298		1355	5.5 169
			◑	2024	9.1 276
14 Th	0046	4.7 144	**29** F	0257	5.4 164
	0713	9.4 287		0922	8.5 260
	1317	5.0 153		1526	5.6 172
◐	1949	9.4 288		2149	9.1 276
15 F	0212	4.9 150	**30** Sa	0421	5.2 159
	0836	9.2 280		1041	8.8 267
	1450	5.2 157		1640	5.3 163
	2115	9.5 291		2258	9.4 286
			31 Su	0519	4.8 147
				1136	9.3 282
				1732	4.9 149
				2347	9.9 302

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Casablanca, Morocco, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0601	4.3	132	**16** Tu	0537	3.1	93	
	1217	9.8	299		1152	11.0	335	
	1813	4.4	133		1756	3.3	100	
2 Tu	0026	10.4	318	**17** W	0010	11.8	359	
	0635	3.8	117		0625	2.4	74	
	1251	10.4	316		1240	11.7	357	
	1848	3.8	117		1843	2.6	79	
3 W	0101	11.0	334	**18** Th	0058	12.4	377	
	0707	3.4	104		0709	2.0	60	
	1323	10.9	332		1325	12.2	373	
	1921	3.4	104		1927	2.1	63	
4 Th	0133	11.4	347	**19** F	0144	12.7	387	
	0738	3.1	93		0751	1.8	54	
	1354	11.3	344		1408	12.5	380	
	1953	3.1	93	○	2011	1.9	57	
5 F	0205	11.7	356	**20** Sa	0228	12.7	386	
	0808	2.9	87		0832	1.9	58	
	1426	11.6	353		1451	12.5	380	
●	2025	2.9	87		2053	2.0	61	
6 Sa	0238	11.8	360	**21** Su	0311	12.3	375	
	0839	2.8	85		0912	2.3	71	
	1458	11.7	357		1533	12.2	371	
	2057	2.8	85		2135	2.4	72	
7 Su	0311	11.7	358	**22** M	0354	11.7	356	
	0910	2.9	88		0951	2.9	89	
	1531	11.6	355		1614	11.7	356	
	2131	2.9	89		2217	3.0	90	
8 M	0346	11.5	350	**23** Tu	0437	11.0	334	
	0943	3.1	95		1031	3.6	110	
	1606	11.4	348		1657	11.1	337	
	2206	3.2	97		2300	3.6	110	
9 Tu	0423	11.1	338	**24** W	0522	10.2	310	
	1019	3.5	106		1114	4.3	131	
	1643	11.1	338		1742	10.4	317	
	2246	3.5	108		2349	4.3	132	
10 W	0504	10.6	323	**25** Th	0612	9.4	288	
	1100	4.0	121		1205	5.0	151	
	1727	10.6	324		1834	9.8	299	
	2334	4.0	122					
11 Th	0554	10.0	306	**26** F	0049	4.9	150	
	1151	4.5	137		0714	8.9	271	
	1821	10.2	310		1310	5.5	167	
				◑	1938	9.4	285	
12 F	0036	4.4	135	**27** Sa	0207	5.3	161	
	0659	9.5	291		0834	8.6	263	
	1301	5.0	151		1433	5.7	174	
◐	1931	9.8	300		2055	9.2	280	
13 Sa	0200	4.6	141	**28** Su	0328	5.3	161	
	0822	9.4	285		0952	8.8	268	
	1432	5.1	155		1549	5.5	169	
	2055	9.8	300		2206	9.4	285	
14 Su	0329	4.4	133	**29** M	0431	5.0	152	
	0947	9.6	293		1052	9.2	281	
	1557	4.7	144		1648	5.2	157	
	2213	10.3	314		2302	9.8	298	
15 M	0441	3.8	115	**30** Tu	0518	4.6	139	
	1056	10.3	313		1136	9.7	297	
	1703	4.0	123		1734	4.7	142	
	2317	11.0	336		2346	10.2	312	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0556	4.1	125	**16** Th	0604	2.9	87	
	1214	10.3	314		1219	11.5	349	
	1813	4.2	127		1825	3.0	91	
2 Th	0025	10.7	327	**17** F	0040	11.8	359	
	0630	3.6	111		0648	2.6	78	
	1248	10.8	330		1305	11.8	361	
	1849	3.7	112		1911	2.6	79	
3 F	0100	11.1	339	**18** Sa	0127	11.9	364	
	0703	3.3	100		0730	2.4	74	
	1321	11.3	343		1349	12.0	367	
	1923	3.3	100	○	1955	2.4	74	
4 Sa	0135	11.4	348	**19** Su	0211	11.9	362	
	0735	3.0	92		0811	2.6	78	
	1355	11.6	353		1432	12.0	367	
●	1958	3.0	91		2037	2.5	75	
5 Su	0210	11.6	354	**20** M	0254	11.6	353	
	0809	2.9	87		0850	2.8	86	
	1430	11.8	360		1513	11.8	361	
	2034	2.8	86		2118	2.7	83	
6 M	0246	11.6	354	**21** Tu	0335	11.2	340	
	0844	2.9	87		0929	3.2	99	
	1507	11.9	362		1553	11.5	351	
	2112	2.8	85		2159	3.1	95	
7 Tu	0325	11.5	350	**22** W	0416	10.7	325	
	0922	3.0	92		1008	3.7	113	
	1546	11.7	358		1634	11.1	339	
	2153	3.0	90		2240	3.6	110	
8 W	0407	11.2	341	**23** Th	0458	10.2	310	
	1003	3.3	102		1050	4.2	128	
	1629	11.5	350		1717	10.7	325	
	2238	3.2	99		2325	4.1	126	
9 Th	0454	10.8	328	**24** F	0544	9.7	295	
	1050	3.8	116		1136	4.7	144	
	1717	11.1	338		1803	10.2	311	
	2330	3.6	111					
10 F	0548	10.3	313	**25** Sa	0015	4.6	141	
	1145	4.3	132		0637	9.2	281	
	1813	10.7	326		1231	5.2	159	
					1857	9.7	297	
11 Sa	0032	4.0	123	**26** Su	0116	5.0	153	
	0653	9.9	301		0742	8.9	272	
	1254	4.7	144		1338	5.5	168	
	1920	10.4	316	◑	2001	9.5	289	
12 Su	0149	4.3	130	**27** M	0227	5.2	159	
	0810	9.7	296		0853	8.9	272	
	1416	4.9	148		1451	5.6	170	
◐	2037	10.3	313		2108	9.4	288	
13 M	0309	4.1	126	**28** Tu	0333	5.1	155	
	0927	9.9	301		0956	9.2	280	
	1535	4.6	141		1555	5.3	163	
	2151	10.5	321		2209	9.6	293	
14 Tu	0418	3.8	115	**29** W	0428	4.8	146	
	1034	10.3	315		1048	9.6	292	
	1640	4.1	125		1649	4.9	150	
	2255	11.0	334		2301	10.0	304	
15 W	0515	3.3	100	**30** Th	0513	4.4	134	
	1130	10.9	332		1132	10.1	307	
	1735	3.5	107		1734	4.5	136	
	2351	11.4	348		2346	10.3	315	
				31 F	0553	4.0	121	
					1211	10.6	323	
					1816	4.0	121	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0027	10.7	327	**16** Su	0113	11.1	338	
	0630	3.6	109		0715	3.1	93	
	1249	11.1	337		1333	11.5	352	
	1855	3.5	107		1944	2.9	88	
2 Su	0106	11.1	337	**17** M	0158	11.1	338	
	0707	3.2	98		0755	3.1	93	
	1327	11.5	350		1415	11.6	354	
	1935	3.1	94	○	2025	2.9	87	
3 M	0146	11.3	345	**18** Tu	0239	11.0	335	
	0745	3.0	90		0833	3.1	96	
	1406	11.8	360		1455	11.6	353	
●	2016	2.8	84		2104	3.0	90	
4 Tu	0227	11.5	351	**19** W	0318	10.8	330	
	0825	2.8	86		0910	3.3	102	
	1448	12.0	367		1533	11.4	348	
	2059	2.6	79		2141	3.1	96	
5 W	0311	11.5	351	**20** Th	0356	10.6	323	
	0908	2.9	87		0947	3.6	110	
	1532	12.1	368		1612	11.2	342	
	2144	2.6	78		2219	3.4	105	
6 Th	0357	11.4	347	**21** F	0435	10.3	315	
	0954	3.1	94		1026	3.9	120	
	1619	11.9	364		1651	10.9	333	
	2232	2.8	84		2258	3.8	116	
7 F	0447	11.1	339	**22** Sa	0516	10.0	305	
	1043	3.4	105		1107	4.3	132	
	1709	11.6	355		1733	10.6	322	
	2324	3.1	94		2341	4.2	129	
8 Sa	0541	10.7	327	**23** Su	0601	9.6	294	
	1138	3.9	118		1153	4.8	146	
	1804	11.3	343		1819	10.2	310	
9 Su	0022	3.5	107	**24** M	0029	4.7	142	
	0642	10.3	315		0652	9.3	284	
	1241	4.3	131		1246	5.2	157	
	1906	10.9	331		1910	9.8	298	
10 M	0130	3.9	118	**25** Tu	0125	5.0	152	
	0751	10.0	306		0751	9.1	277	
	1354	4.5	138		1348	5.4	164	
◐	2016	10.6	322	◑	2009	9.5	290	
11 Tu	0243	4.0	122	**26** W	0228	5.1	156	
	0903	10.0	306		0855	9.1	278	
	1509	4.5	137		1456	5.4	164	
	2127	10.5	320		2112	9.4	288	
12 W	0353	3.9	119	**27** Th	0331	5.0	152	
	1010	10.2	312		0955	9.4	285	
	1618	4.2	129		1559	5.1	156	
	2234	10.6	323		2212	9.6	292	
13 Th	0453	3.7	112	**28** F	0427	4.7	143	
	1109	10.6	323		1048	9.7	297	
	1718	3.8	116		1655	4.7	143	
	2333	10.8	329		2307	9.9	301	
14 F	0545	3.4	104	**29** Sa	0516	4.3	131	
	1201	11.0	336		1135	10.2	312	
	1812	3.4	104		1745	4.2	127	
					2356	10.2	312	
15 Sa	0026	11.0	335	**30** Su	0600	3.8	117	
	0632	3.2	97		1220	10.8	329	
	1249	11.4	346		1831	3.6	110	
	1900	3.1	94					

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Casablanca, Morocco, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0042 10.7 326 0644 3.4 103 1303 11.4 346 1916 3.0 92		**16** Tu ○	0146 10.6 323 0742 3.3 101 1400 11.3 345 2012 3.0 92	
2 Tu ●	0127 11.1 339 0727 3.0 90 1347 11.9 362 2001 2.5 77		**17** W	0224 10.7 326 0817 3.2 99 1436 11.4 348 2047 3.0 91	
3 W	0213 11.5 351 0811 2.7 81 1432 12.3 374 2046 2.1 65		**18** Th	0259 10.7 327 0851 3.3 100 1512 11.5 349 2120 3.1 93	
4 Th	0259 11.7 358 0856 2.5 76 1518 12.5 381 2132 2.0 61		**19** F	0333 10.7 326 0925 3.4 103 1547 11.4 347 2154 3.2 97	
5 F	0346 11.8 360 0942 2.6 78 1606 12.5 381 2220 2.1 65		**20** Sa	0408 10.6 323 1000 3.6 109 1623 11.2 342 2228 3.5 106	
6 Sa	0435 11.6 354 1030 2.9 87 1655 12.2 372 2309 2.5 76		**21** Su	0445 10.4 316 1036 3.9 119 1700 10.9 332 2305 3.8 117	
7 Su	0526 11.2 342 1122 3.3 101 1748 11.7 358		**22** M	0523 10.0 306 1115 4.3 132 1739 10.5 319 2343 4.3 131	
8 M	0002 3.1 93 0621 10.7 327 1219 3.8 116 1845 11.1 339		**23** Tu	0604 9.7 295 1157 4.8 145 1822 10.0 304	
9 Tu ◐	0103 3.6 110 0724 10.3 313 1326 4.3 130 1951 10.6 322		**24** W	0027 4.7 143 0652 9.4 285 1248 5.1 156 1912 9.5 291	
10 W	0212 4.1 124 0834 10.0 304 1442 4.5 137 2103 10.1 309		**25** Th ◑	0121 5.0 153 0750 9.1 278 1353 5.3 162 2014 9.3 282	
11 Th	0325 4.2 129 0945 10.0 304 1558 4.4 135 2215 10.0 304		**26** F	0228 5.2 157 0857 9.2 279 1508 5.2 160 2123 9.2 280	
12 F	0432 4.2 128 1050 10.2 310 1707 4.1 126 2320 10.0 306		**27** Sa	0339 5.0 152 1004 9.4 287 1618 4.9 149 2231 9.4 287	
13 Sa	0530 4.0 121 1147 10.5 321 1804 3.8 115		**28** Su	0442 4.6 140 1103 9.9 303 1719 4.3 131 2331 9.9 301	
14 Su	0016 10.2 312 0620 3.7 113 1236 10.9 331 1853 3.4 104		**29** M	0537 4.1 124 1156 10.6 323 1812 3.6 109	
15 M	0104 10.4 318 0703 3.5 106 1320 11.2 340 1935 3.1 96		**30** Tu	0023 10.5 320 0626 3.4 105 1244 11.4 346 1900 2.8 86	
			31 W	0112 11.2 340 0712 2.9 87 1330 12.1 368 1945 2.1 65	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0158 11.7 358 0756 2.4 72 1415 12.7 386 2030 1.6 50		**16** F	0236 10.9 331 0829 3.1 96 1447 11.6 353 2054 2.9 89	
2 F	0244 12.1 370 0841 2.0 62 1501 13.0 396 2115 1.5 45		**17** Sa	0308 11.0 335 0900 3.1 96 1519 11.6 354 2124 3.0 92	
3 Sa	0329 12.3 374 0926 2.0 62 1548 13.0 396 2200 1.6 50		**18** Su	0339 11.0 334 0932 3.3 100 1552 11.5 350 2155 3.2 98	
4 Su	0415 12.1 369 1011 2.3 70 1635 12.6 385 2246 2.1 65		**19** M	0412 10.8 329 1004 3.6 109 1626 11.2 340 2227 3.6 109	
5 M	0503 11.6 355 1059 2.8 86 1725 12.0 365 2335 2.9 87		**20** Tu	0446 10.5 320 1038 4.0 121 1701 10.7 326 2300 4.0 123	
6 Tu	0554 11.0 335 1152 3.5 107 1819 11.1 339		**21** W	0521 10.1 308 1114 4.4 134 1738 10.2 310 2336 4.5 137	
7 W ◐	0030 3.6 111 0652 10.3 315 1255 4.2 128 1922 10.2 312		**22** Th	0601 9.7 295 1157 4.9 148 1822 9.6 293	
8 Th	0136 4.3 132 0801 9.8 299 1414 4.7 142 2037 9.6 292		**23** F ◑	0022 4.9 150 0652 9.3 284 1256 5.2 159 1921 9.2 279	
9 F	0254 4.7 144 0919 9.6 293 1542 4.8 145 2158 9.3 284		**24** Sa	0126 5.2 160 0802 9.1 278 1419 5.3 163 2039 9.0 273	
10 Sa	0413 4.8 145 1033 9.8 298 1659 4.5 137 2311 9.4 288		**25** Su	0253 5.3 161 0923 9.3 283 1548 5.0 153 2201 9.2 280	
11 Su	0518 4.5 137 1135 10.1 309 1757 4.1 124		**26** M	0415 4.9 150 1035 9.8 299 1659 4.3 132 2310 9.8 298	
12 M	0008 9.7 297 0609 4.1 126 1224 10.5 321 1843 3.7 112		**27** Tu	0518 4.3 130 1135 10.6 323 1755 3.5 107	
13 Tu	0053 10.1 308 0650 3.8 115 1305 10.9 333 1920 3.3 102		**28** W	0007 10.6 322 0610 3.5 107 1225 11.5 351 1843 2.6 80	
14 W	0131 10.4 317 0726 3.5 106 1341 11.2 342 1953 3.1 95		**29** Th	0055 11.4 347 0656 2.8 84 1311 12.4 377 1927 1.9 57	
15 Th ○	0204 10.7 325 0758 3.3 100 1415 11.5 349 2024 3.0 91		**30** F ●	0140 12.1 368 0739 2.1 64 1356 13.0 397 2010 1.4 42	
			31 Sa	0224 12.6 383 0822 1.7 53 1441 13.4 407 2053 1.2 38	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0308 12.7 387 0905 1.7 52 1526 13.3 405 2136 1.5 46		**16** M	0309 11.4 346 0904 3.2 97 1521 11.6 355 2122 3.2 97	
2 M	0352 12.4 379 0949 2.0 62 1612 12.8 389 2220 2.1 65		**17** Tu	0340 11.2 342 0935 3.4 104 1553 11.3 345 2151 3.5 107	
3 Tu	0438 11.9 363 1034 2.7 81 1700 11.9 363 2305 3.0 91		**18** W	0411 10.9 333 1006 3.8 115 1626 10.9 331 2222 3.9 120	
4 W	0526 11.2 340 1124 3.5 106 1751 10.9 332 2355 3.9 119		**19** Th	0444 10.6 322 1041 4.2 128 1701 10.3 315 2256 4.4 134	
5 Th	0620 10.4 316 1224 4.3 132 1852 9.9 301		**20** F	0522 10.1 308 1121 4.7 142 1744 9.8 298 2339 4.9 149	
6 F ◐	0056 4.8 145 0726 9.7 296 1344 5.0 151 2010 9.1 278		**21** Sa	0611 9.7 295 1217 5.1 156 1843 9.3 282	
7 Sa	0220 5.3 161 0849 9.4 285 1523 5.2 157 2140 8.9 271		**22** Su ◑	0042 5.3 163 0720 9.4 285 1343 5.3 163 2006 9.0 274	
8 Su	0351 5.3 162 1013 9.5 289 1646 4.9 148 2258 9.1 278		**23** M	0217 5.5 169 0848 9.4 287 1524 5.1 155 2138 9.2 281	
9 M	0501 5.0 152 1118 9.9 301 1742 4.4 135 2353 9.5 291		**24** Tu	0352 5.2 158 1010 9.9 303 1639 4.4 133 2252 9.9 303	
10 Tu	0551 4.5 138 1206 10.4 316 1823 4.0 121		**25** W	0459 4.5 136 1114 10.8 329 1735 3.5 106 2348 10.8 329	
11 W	0034 10.0 306 0630 4.1 124 1245 10.8 330 1857 3.6 110		**26** Th	0551 3.6 110 1205 11.7 358 1822 2.6 80	
12 Th	0109 10.5 319 0703 3.7 112 1318 11.2 342 1927 3.3 100		**27** F	0035 11.6 355 0637 2.8 84 1252 12.6 384 1906 1.9 58	
13 F	0140 10.9 331 0734 3.4 103 1349 11.5 352 1956 3.1 93		**28** Sa ●	0119 12.4 377 0720 2.1 65 1336 13.2 402 1948 1.5 46	
14 Sa ○	0209 11.2 340 0804 3.2 97 1419 11.7 358 2024 3.0 90		**29** Su	0202 12.8 390 0802 1.7 53 1421 13.4 409 2030 1.5 45	
15 Su	0239 11.3 345 0834 3.1 95 1450 11.8 359 2052 3.0 91		**30** M	0245 12.9 392 0845 1.8 54 1505 13.2 402 2111 1.8 56	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Casablanca, Morocco, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0329	12.6	384	**16** W	0311	11.6	353	**1** F	0436	11.4	348	**16** Sa	0403	11.5	350	**1** Su	0501	11.1	337	**16** M	0440	11.8	361
	0928	2.1	65		0910	3.4	104		1042	3.8	115		1012	3.8	117		1110	4.3	132		1054	3.5	106
	1550	12.6	383		1525	11.4	348		1704	10.5	320		1627	10.8	329		1729	10.0	304		1710	10.9	333
	2153	2.5	76		2122	3.5	108		2255	4.5	136		2220	4.2	129		2317	4.9	149		2303	4.1	124
2 W	0413	12.0	367	**17** Th	0343	11.4	346	**2** Sa	0523	10.7	327	**17** Su	0447	11.2	340	**2** M	0547	10.5	321	**17** Tu	0530	11.5	351
	1013	2.8	85		0943	3.7	113		1132	4.5	138		1059	4.2	127		1159	4.9	149		1146	3.8	117
	1636	11.6	355		1600	11.0	335		1756	9.7	296		1716	10.4	316		1820	9.5	289		1804	10.6	322
	2235	3.3	102		2154	3.9	119		2345	5.2	158		2309	4.7	143						2359	4.5	137
3 Th	0459	11.3	345	**18** F	0418	11.0	336	**3** Su	0618	10.1	307	**18** M	0538	10.8	329	**3** Tu	0008	5.4	165	**18** W	0627	11.1	339
	1100	3.6	111		1020	4.1	124		1234	5.2	159		1156	4.6	139		0640	10.0	306		1247	4.2	128
	1725	10.6	324		1638	10.5	320		1900	9.1	277		1815	10.0	304		1258	5.3	163		1907	10.2	312
	2321	4.3	130		2230	4.4	133										1922	9.1	278				
4 F	0549	10.5	320	**19** Sa	0458	10.6	323	**4** M	0051	5.8	176	**19** Tu	0011	5.1	156	**4** W	0112	5.8	177	**19** Th	0105	4.8	147
	1156	4.5	137		1103	4.5	138		0725	9.6	293		0642	10.5	319		0743	9.7	296		0733	10.8	328
	1823	9.6	294		1724	10.0	305		1357	5.6	171		1308	4.8	146		1409	5.6	171		1359	4.4	135
					2316	4.9	149	◐	2022	8.8	269	◑	1929	9.7	297	◐	2035	9.0	275	◑	2018	10.1	307
5 Sa	0017	5.1	156	**20** Su	0548	10.2	310	**5** Tu	0219	6.0	183	**20** W	0131	5.4	164	**5** Th	0229	6.0	182	**20** F	0222	5.0	151
	0651	9.8	298		1201	5.0	151		0846	9.4	288		0758	10.3	315		0852	9.6	292		0846	10.6	322
	1311	5.2	159		1824	9.5	290		1523	5.6	170		1431	4.8	145		1520	5.5	169		1513	4.4	135
◐	1938	9.0	273						2143	9.0	274		2050	9.9	301		2142	9.2	281		2131	10.2	310
6 Su	0137	5.7	174	**21** M	0020	5.4	164	**6** W	0340	5.9	179	**21** Th	0257	5.2	159	**6** F	0340	5.8	177	**21** Sa	0338	4.8	145
	0811	9.4	285		0656	9.8	300		0959	9.6	293		0916	10.5	321		0956	9.7	296		0957	10.6	324
	1451	5.5	167		1324	5.2	159		1626	5.3	161		1546	4.4	134		1617	5.3	161		1621	4.2	128
	2111	8.7	266	◑	1946	9.3	283		2243	9.4	287		2202	10.3	314		2237	9.6	293		2237	10.5	321
7 M	0316	5.8	176	**22** Tu	0153	5.6	171	**7** Th	0439	5.5	167	**22** F	0408	4.7	143	**7** Sa	0436	5.4	166	**22** Su	0446	4.4	133
	0939	9.4	285		0821	9.8	299		1054	10.0	305		1024	11.0	335		1050	10.0	305		1103	10.8	330
	1617	5.3	161		1500	5.0	152		1712	4.9	148		1647	3.8	117		1704	4.9	149		1719	3.9	118
	2231	9.0	275		2116	9.5	291		2328	9.9	303		2301	10.9	333		2322	10.1	307		2334	11.0	335
8 Tu	0431	5.5	167	**23** W	0327	5.3	161	**8** F	0524	5.0	152	**23** Sa	0507	4.1	124	**8** Su	0524	5.0	151	**23** M	0546	3.8	117
	1048	9.7	297		0944	10.2	312		1137	10.5	319		1122	11.5	351		1135	10.3	315		1200	11.1	338
	1713	4.9	148		1615	4.4	133		1748	4.4	135		1739	3.3	101		1744	4.5	137		1810	3.5	107
	2326	9.5	290		2229	10.2	311						2353	11.5	351								
9 W	0522	5.0	152	**24** Th	0436	4.6	140	**9** Sa	0004	10.5	319	**24** Su	0558	3.4	104	**9** M	0002	10.6	322	**24** Tu	0026	11.5	349
	1137	10.2	312		1050	11.0	335		0602	4.5	137		1214	11.9	364		0606	4.5	137		0638	3.4	103
	1753	4.4	134		1713	3.6	109		1214	10.9	332		1825	2.9	88		1216	10.7	326		1252	11.3	345
					2326	11.0	335		1821	4.0	123						1821	4.1	125		1857	3.2	99
10 Th	0006	10.0	306	**25** F	0530	3.8	115	**10** Su	0037	11.0	334	**25** M	0040	12.0	367	**10** Tu	0039	11.0	336	**25** W	0113	11.8	360
	0601	4.5	137		1144	11.8	360		0637	4.1	124		0646	2.9	88		0645	4.1	124		0726	3.0	92
	1215	10.7	327		1800	2.9	87		1249	11.2	342		1302	12.2	373		1255	11.0	335		1340	11.5	349
	1826	4.0	121						1852	3.7	113		1909	2.7	81		1857	3.8	115		1940	3.1	95
11 F	0040	10.6	322	**26** Sa	0014	11.7	358	**11** M	0109	11.4	346	**26** Tu	0125	12.4	377	**11** W	0115	11.4	348	**26** Th	0158	12.0	367
	0635	4.0	123		0617	3.0	92		0710	3.7	114		0733	2.6	79		0723	3.7	112		0810	2.9	88
	1249	11.2	340		1232	12.5	381		1322	11.5	350		1349	12.3	374		1334	11.3	343		1424	11.4	348
	1856	3.6	110		1844	2.3	70		1923	3.5	106	●	1951	2.7	81		1933	3.5	107	●	2021	3.1	95
12 Sa	0110	11.0	336	**27** Su	0058	12.4	377	**12** Tu	0141	11.6	355	**27** W	0210	12.5	380	**12** Th	0153	11.8	359	**27** F	0240	12.0	367
	0707	3.7	112		0701	2.4	74		0744	3.5	106		0818	2.6	78		0801	3.3	102		0851	2.9	89
	1320	11.5	351		1317	12.9	394		1356	11.6	353		1434	12.0	367		1413	11.4	348		1505	11.3	344
	1924	3.3	101		1926	2.0	61	○	1955	3.4	103		2033	2.9	88	○	2010	3.3	102		2059	3.3	100
13 Su	0140	11.4	347	**28** M	0142	12.7	388	**13** W	0214	11.8	360	**28** Th	0253	12.3	376	**13** F	0231	12.0	366	**28** Sa	0320	11.9	364
	0737	3.4	104		0745	2.1	64		0818	3.4	103		0901	2.8	85		0841	3.1	96		0930	3.1	96
	1350	11.7	357		1403	13.0	396		1430	11.6	353		1518	11.6	355		1453	11.5	350		1544	11.0	336
○	1953	3.2	97	●	2008	2.0	62		2027	3.4	103		2113	3.3	100		2050	3.3	101		2136	3.5	108
14 M	0209	11.6	353	**29** Tu	0225	12.8	390	**14** Th	0248	11.8	361	**29** F	0336	12.0	366	**14** Sa	0312	12.1	369	**29** Su	0359	11.7	357
	0808	3.2	99		0828	2.1	65		0853	3.4	103		0944	3.2	98		0923	3.1	95		1007	3.5	106
	1421	11.8	359		1447	12.7	388		1506	11.4	348		1601	11.1	338		1536	11.5	349		1622	10.7	327
	2022	3.1	96		2049	2.4	72		2102	3.5	108		2153	3.8	115		2131	3.4	104		2212	3.9	118
15 Tu	0240	11.7	356	**30** W	0309	12.6	383	**15** F	0324	11.7	357	**30** Sa	0418	11.5	352	**15** Su	0354	12.0	367	**30** M	0437	11.4	347
	0838	3.2	99		0912	2.5	75		0931	3.5	108		1026	3.7	114		1007	3.2	98		1044	3.9	118
	1453	11.7	356		1532	12.1	369		1544	11.2	340		1644	10.5	321		1621	11.3	343		1701	10.4	316
	2051	3.3	100		2130	3.0	91		2139	3.8	117		2233	4.3	132		2215	3.7	112		2250	4.3	131
				31 Th	0352	12.1	368													**31** Tu	0516	11.0	335
					0956	3.1	93														1124	4.3	132
					1617	11.3	345														1742	10.0	304
					2211	3.7	113														2331	4.8	145

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sfax, Tunisia, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0011	4.4	133	**16** W	0533	2.4	74
	0658	2.3	71		1155	3.9	120
	1257	4.3	130		1812	2.5	75
	1921	2.3	70				
2 W	0114	4.6	139	**17** Th	0029	4.2	128
	0753	2.0	62		0713	2.1	65
	1351	4.5	138		1308	4.3	131
	2011	2.0	61		1935	2.1	63
3 Th	0203	4.8	145	**18** F	0134	4.6	139
	0834	1.7	53		0810	1.7	52
	1435	4.7	144		1404	4.7	142
	2051	1.7	53		2027	1.7	51
4 F	0245	4.9	150	**19** Sa	0227	4.9	149
	0909	1.5	47		0855	1.3	41
	1513	4.9	149		1453	5.0	153
	2127	1.6	48		2112	1.3	40
5 Sa	0323	5.0	153	**20** Su	0314	5.2	158
	0943	1.4	43		0936	1.0	32
	1549	5.0	152		1538	5.3	162
	2201	1.5	45		2153	1.0	32
6 Su ●	0358	5.1	154	**21** M ○	0358	5.4	165
	1014	1.3	41		1016	0.9	26
	1622	5.0	153		1621	5.5	169
	2233	1.4	43		2234	0.9	28
7 M	0432	5.1	154	**22** Tu	0439	5.5	169
	1045	1.3	40		1054	0.8	24
	1652	5.1	154		1701	5.6	172
	2304	1.4	43		2312	0.9	27
8 Tu	0503	5.0	153	**23** W	0518	5.5	169
	1113	1.3	41		1131	0.8	25
	1720	5.0	153		1739	5.6	172
	2333	1.4	44		2350	1.0	29
9 W	0532	5.0	151	**24** Th	0555	5.4	166
	1141	1.4	42		1207	1.0	29
	1747	5.0	152		1815	5.5	169
10 Th	0001	1.5	45	**25** F	0026	1.1	35
	0559	4.9	148		0630	5.2	159
	1207	1.5	45		1242	1.2	37
	1813	4.9	149		1851	5.3	161
11 F	0029	1.6	48	**26** Sa	0102	1.4	44
	0627	4.7	144		0705	4.9	149
	1235	1.6	49		1317	1.6	48
	1840	4.8	145		1928	5.0	151
12 Sa	0059	1.7	53	**27** Su ◑	0139	1.8	55
	0658	4.5	138		0743	4.5	136
	1306	1.8	54		1354	2.0	60
	1912	4.6	139		2012	4.5	138
13 Su	0134	1.9	59	**28** M	0223	2.2	68
	0736	4.3	131		0835	4.0	123
	1344	2.0	62		1441	2.4	74
	1956	4.3	131		2119	4.1	125
14 M ◐	0220	2.2	67	**29** Tu	0331	2.6	80
	0835	4.0	122		1020	3.7	112
	1436	2.3	70		1616	2.8	85
	2110	4.0	123		2313	3.9	119
15 Tu	0332	2.4	74	**30** W	0626	2.7	82
	1014	3.8	117		1234	3.8	115
	1602	2.5	77		1910	2.7	81
	2300	4.0	122				
				31 Th	0056	4.0	123
					0753	2.3	70
					1352	4.1	125
					2012	2.3	69

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0202	4.3	132	**16** Sa	0127	4.3	131
	0835	1.9	58		0806	1.9	57
	1439	4.4	135		1400	4.5	137
	2052	1.9	58		2025	1.8	54
2 Sa	0246	4.6	140	**17** Su	0222	4.8	146
	0908	1.6	49		0848	1.3	41
	1515	4.7	144		1448	5.0	153
	2125	1.6	48		2106	1.3	39
3 Su	0321	4.8	147	**18** M	0307	5.2	158
	0938	1.3	41		0926	1.0	29
	1546	5.0	151		1530	5.4	166
	2156	1.3	41		2144	0.9	28
4 M ●	0354	5.0	152	**19** Tu ○	0348	5.5	168
	1007	1.2	36		1003	0.7	20
	1616	5.1	155		1609	5.7	175
	2226	1.2	37		2221	0.7	21
5 Tu	0424	5.1	155	**20** W	0426	5.7	173
	1034	1.1	33		1038	0.5	16
	1642	5.2	158		1645	5.9	180
	2253	1.1	34		2257	0.6	19
6 W	0451	5.1	156	**21** Th	0501	5.7	174
	1100	1.0	32		1112	0.5	16
	1707	5.2	159		1720	5.9	180
	2319	1.1	34		2331	0.7	21
7 Th	0517	5.1	156	**22** F	0534	5.6	171
	1124	1.0	32		1145	0.7	21
	1730	5.2	159		1752	5.8	176
	2343	1.1	34				
8 F	0541	5.1	155	**23** Sa	0003	0.9	27
	1147	1.1	34		0605	5.4	164
	1752	5.2	158		1215	1.0	29
					1823	5.5	168
9 Sa	0007	1.2	37	**24** Su	0034	1.2	36
	0604	5.0	152		0634	5.1	154
	1210	1.2	37		1244	1.3	40
	1814	5.1	154		1852	5.1	156
10 Su	0031	1.3	41	**25** M	0104	1.6	48
	0628	4.8	147		0701	4.6	140
	1235	1.4	42		1312	1.8	54
	1839	4.9	149		1922	4.7	142
11 M	0058	1.5	47	**26** Tu ◑	0135	2.0	62
	0656	4.6	139		0731	4.1	125
	1303	1.6	50		1343	2.3	69
	1908	4.6	140		1959	4.1	126
12 Tu ◐	0131	1.9	57	**27** W	0216	2.5	77
	0731	4.2	128		0821	3.6	110
	1340	2.0	61		1428	2.8	85
	1950	4.2	128		2138	3.6	111
13 W	0218	2.2	68	**28** Th	0410	2.9	89
	0833	3.8	116		1223	3.4	105
	1437	2.4	74		1919	2.9	89
	2125	3.8	116				
14 Th	0355	2.6	79				
	1102	3.6	110				
	1659	2.7	83				
15 F	0000	3.9	118				
	0702	2.4	73				
	1256	4.0	121				
	1931	2.3	70				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0051	3.7	113	**16** Sa	0701	2.5	77
	0758	2.5	76		1253	3.9	119
	1359	3.9	118		1932	2.4	73
	2013	2.4	73				
2 Sa	0200	4.1	125	**17** Su	0123	4.2	129
	0830	2.0	61		0757	1.9	58
	1434	4.3	132		1352	4.5	138
	2045	1.9	58		2016	1.8	54
3 Su	0237	4.5	137	**18** M	0212	4.8	146
	0857	1.6	48		0834	1.3	40
	1503	4.7	144		1434	5.1	156
	2113	1.5	46		2053	1.2	38
4 M	0309	4.8	147	**19** Tu	0252	5.2	160
	0923	1.2	38		0909	0.9	27
	1530	5.0	153		1512	5.6	170
	2140	1.2	37		2127	0.9	26
5 Tu	0336	5.1	154	**20** W	0329	5.6	170
	0948	1.0	31		0943	0.6	18
	1555	5.2	159		1548	5.9	179
	2206	1.0	31		2201	0.6	19
6 W ●	0403	5.2	158	**21** Th ○	0404	5.7	175
	1013	0.9	27		1015	0.5	14
	1620	5.3	163		1622	6.0	183
	2232	0.9	28		2234	0.6	17
7 Th	0429	5.2	160	**22** F	0437	5.7	175
	1037	0.9	26		1047	0.5	15
	1643	5.4	165		1654	6.0	182
	2256	0.9	27		2306	0.6	19
8 F	0453	5.3	161	**23** Sa	0508	5.6	171
	1100	0.9	26		1118	0.7	20
	1705	5.4	165		1725	5.8	177
	2319	0.9	27		2336	0.8	25
9 Sa	0516	5.2	159	**24** Su	0537	5.4	164
	1122	0.9	28		1147	0.9	28
	1727	5.3	163		1753	5.5	169
	2341	1.0	30				
10 Su	0538	5.1	156	**25** M	0005	1.1	34
	1144	1.0	31		0603	5.1	154
	1748	5.2	160		1213	1.3	39
					1820	5.2	157
11 M	0004	1.1	35	**26** Tu	0032	1.5	46
	0601	5.0	151		0628	4.6	141
	1207	1.2	37		1239	1.7	52
	1810	5.1	154		1845	4.7	143
12 Tu	0028	1.4	42	**27** W	0100	1.9	59
	0626	4.7	143		0652	4.2	127
	1232	1.5	45		1304	2.2	67
	1836	4.7	144		1911	4.2	127
13 W	0057	1.7	53	**28** Th ◑	0133	2.4	73
	0654	4.3	132		0719	3.7	112
	1304	1.9	58		1336	2.7	82
	1908	4.3	131		1955	3.6	111
14 Th ◐	0137	2.2	66	**29** F	0239	2.9	87
	0737	3.8	117		1145	3.3	101
	1351	2.4	73		1911	3.0	92
	2008	3.8	115				
15 F	0259	2.7	81	**30** Sa	0024	3.5	107
	1025	3.5	106		0739	2.6	79
	1610	2.9	87		1337	3.8	115
	2350	3.7	113		1955	2.5	75
				31 Su	0135	4.0	121
					0805	2.1	63
					1407	4.3	130
					2022	1.9	59

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sfax, Tunisia, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 M	0210	4.4	134	**16** Tu	0150	4.8	145	**1** W	0157	4.6	141	**16** Th	0201	5.0	151	**1** Sa	0223	4.9	148	**16** Su	0256	4.9	149
	0830	1.6	49		0811	1.3	41		0817	1.4	42		0819	1.1	34		0840	1.1	34		0911	1.2	36
	1433	4.7	144		1411	5.2	157		1418	4.9	150		1421	5.4	164		1444	5.2	157		1514	5.2	160
	2047	1.5	46		2032	1.2	38		2038	1.3	39		2043	1.1	34		2107	1.0	32		2136	1.2	36
2 Tu	0239	4.8	145	**17** W	0228	5.2	158	**2** Th	0228	4.9	150	**17** F	0238	5.2	158	**2** Su	0259	5.0	152	**17** M	0333	4.9	149
	0854	1.2	38		0845	0.9	28		0844	1.1	33		0854	0.9	28		0913	1.0	30		0946	1.2	36
	1459	5.1	154		1447	5.6	170		1447	5.2	158		1457	5.6	170		1518	5.2	160		1550	5.2	159
	2113	1.2	36		2105	0.9	28		2106	1.0	31		2116	1.0	29		2141	1.0	30	○	2209	1.2	36
3 W	0306	5.1	154	**18** Th	0304	5.4	166	**3** F	0258	5.1	155	**18** Sa	0313	5.2	160	**3** M	0335	5.0	153	**18** Tu	0409	4.9	148
	0919	1.0	30		0918	0.7	20		0911	0.9	28		0927	0.9	26		0947	1.0	29		1020	1.2	38
	1524	5.3	161		1522	5.8	177		1515	5.3	163		1531	5.6	171		1554	5.3	161		1624	5.1	156
	2138	1.0	29		2138	0.7	22		2134	0.9	27	○	2149	0.9	28	●	2215	1.0	30		2242	1.2	38
4 Th	0333	5.2	159	**19** F	0338	5.6	170	**4** Sa	0328	5.2	158	**19** Su	0347	5.2	159	**4** Tu	0412	5.0	152	**19** W	0443	4.8	145
	0944	0.9	26		0950	0.6	18		0939	0.8	25		1000	0.9	27		1022	1.0	31		1053	1.3	41
	1549	5.4	165		1555	5.9	180		1544	5.4	165		1604	5.5	168		1629	5.2	159		1657	5.0	153
	2204	0.8	25	○	2210	0.7	20	●	2202	0.9	26		2221	1.0	30		2251	1.0	32		2314	1.3	41
5 F	0359	5.3	161	**20** Sa	0410	5.5	169	**5** Su	0357	5.2	158	**20** M	0420	5.1	155	**5** W	0449	4.9	150	**20** Th	0516	4.7	142
	1009	0.8	24		1022	0.6	19		1007	0.9	26		1032	1.0	32		1058	1.1	34		1126	1.5	45
	1614	5.5	167		1627	5.8	178		1612	5.4	164		1636	5.3	163		1706	5.1	156		1729	4.9	148
●	2229	0.8	24		2241	0.8	23		2231	0.9	27		2253	1.1	34		2327	1.2	36		2345	1.4	44
6 Sa	0425	5.3	161	**21** Su	0442	5.4	165	**6** M	0427	5.1	156	**21** Tu	0452	4.9	150	**6** Th	0528	4.8	147	**21** F	0547	4.5	138
	1033	0.8	24		1052	0.8	24		1035	0.9	28		1103	1.2	38		1135	1.3	40		1158	1.6	50
	1638	5.4	166		1658	5.6	172		1641	5.3	162		1707	5.2	157		1743	5.0	151		1800	4.7	143
	2253	0.9	26		2312	1.0	29		2300	1.0	31		2324	1.3	40								
7 Su	0450	5.2	159	**22** M	0511	5.2	158	**7** Tu	0457	5.0	152	**22** W	0523	4.7	143	**7** F	0006	1.4	42	**22** Sa	0017	1.6	48
	1056	0.9	26		1121	1.0	32		1104	1.1	33		1133	1.5	45		0608	4.6	141		0619	4.4	134
	1701	5.4	164		1727	5.4	164		1710	5.2	157		1738	4.9	149		1216	1.6	48		1231	1.8	56
	2318	1.0	29		2340	1.2	37		2330	1.2	37		2354	1.5	47		1824	4.7	143		1833	4.5	136
8 M	0515	5.1	156	**23** Tu	0539	4.9	149	**8** W	0528	4.8	147	**23** Th	0553	4.5	136	**8** Sa	0050	1.6	50	**23** Su	0051	1.8	54
	1120	1.0	31		1149	1.4	42		1135	1.3	40		1205	1.8	54		0655	4.4	134		0655	4.2	128
	1725	5.2	160		1754	5.0	153		1741	4.9	150		1808	4.6	140		1303	1.9	58		1308	2.0	62
	2342	1.1	35														1912	4.4	134		1911	4.2	129
9 Tu	0540	4.9	150	**24** W	0008	1.5	46	**9** Th	0003	1.5	45	**24** F	0027	1.8	54	**9** Su	0141	1.9	59	**24** M	0130	2.0	60
	1145	1.2	37		0605	4.5	138		0602	4.6	139		0626	4.2	128		0758	4.1	126		0741	4.0	122
	1750	5.0	153		1216	1.7	53		1210	1.6	50		1239	2.1	63		1403	2.3	69		1355	2.3	69
					1820	4.6	141		1815	4.6	141		1842	4.3	130		2023	4.1	124		2004	4.0	121
10 W	0009	1.4	43	**25** Th	0038	1.9	57	**10** F	0042	1.8	55	**25** Sa	0105	2.0	62	**10** M	0251	2.2	67	**25** Tu	0222	2.2	66
	0606	4.7	142		0632	4.2	127		0643	4.2	129		0708	3.9	119		0931	4.0	122		0856	3.8	116
	1213	1.5	47		1245	2.2	66		1252	2.0	62		1324	2.4	72		1531	2.5	76		1502	2.5	75
	1817	4.7	144		1849	4.2	128		1858	4.2	129		1931	3.9	119	◐	2211	3.9	120	◑	2130	3.8	115
11 Th	0040	1.8	54	**26** F	0114	2.3	69	**11** Sa	0135	2.2	66	**26** Su	0159	2.3	71	**11** Tu	0431	2.3	70	**26** W	0337	2.3	70
	0638	4.3	131		0707	3.7	114		0748	3.9	118		0828	3.6	110		1111	4.1	126		1037	3.8	116
	1247	2.0	60		1325	2.6	79		1357	2.5	75		1438	2.6	80		1734	2.4	74		1645	2.5	76
	1850	4.3	130	◑	1936	3.7	113		2025	3.8	116	◑	2113	3.6	111		2344	4.1	124		2305	3.8	116
12 F	0123	2.2	68	**27** Sa	0216	2.7	81	**12** Su	0308	2.5	76	**27** M	0330	2.5	76	**12** W	0609	2.1	63	**27** Th	0519	2.2	68
	0726	3.8	116		0940	3.3	102		1010	3.7	114		1048	3.6	111		1223	4.5	136		1156	4.0	123
	1340	2.5	76		1528	3.0	91		1611	2.7	83		1658	2.7	81		1855	2.1	64		1825	2.2	68
◐	1956	3.7	114		2251	3.5	106	◐	2305	3.8	116		2313	3.7	113								
13 Sa	0256	2.7	81	**28** Su	0615	2.7	82	**13** M	0540	2.4	73	**28** Tu	0541	2.4	72	**13** Th	0047	4.4	133	**28** F	0016	4.0	123
	1024	3.5	107		1231	3.7	112		1201	4.1	125		1209	4.0	121		0711	1.7	53		0640	2.0	60
	1622	2.9	88		1905	2.6	79		1834	2.4	72		1838	2.3	70		1315	4.8	146		1252	4.4	133
	2340	3.7	113														1945	1.7	53		1924	1.9	58
14 Su	0635	2.5	75	**29** M	0042	3.8	117	**14** Tu	0029	4.2	128	**29** W	0022	4.0	122	**14** F	0136	4.6	141	**29** Sa	0110	4.3	132
	1237	4.0	122		0717	2.2	68		0657	1.9	59		0650	2.0	61		0756	1.4	44		0733	1.6	50
	1913	2.4	72		1318	4.1	126		1300	4.6	140		1257	4.3	132		1358	5.1	154		1339	4.7	143
					1941	2.1	63		1928	1.9	57		1924	1.9	57		2025	1.4	44		2008	1.5	47
15 M	0103	4.2	129	**30** Tu	0126	4.2	129	**15** W	0120	4.6	141	**30** Th	0109	4.4	133	**15** Sa	0218	4.8	146	**30** Su	0156	4.6	140
	0733	1.9	57		0749	1.8	54		0742	1.5	45		0732	1.6	49		0835	1.2	38		0816	1.4	42
	1332	4.6	141		1350	4.6	140		1343	5.1	154		1335	4.7	143		1437	5.2	159		1421	5.0	151
	1957	1.8	54		2010	1.6	50		2007	1.4	43		2001	1.5	46		2101	1.3	39		2048	1.3	39
												31 F	0147	4.6	141								
													0807	1.3	40								
													1410	5.0	151								
													2034	1.2	38								

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sfax, Tunisia, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0239	4.8 146	**16** Tu	0329	4.8 146
	0856	1.2 36		0941	1.3 40
	1502	5.2 157		1544	5.1 156
	2127	1.1 34	○	2203	1.3 39
2 Tu	0321	5.0 151	**17** W	0404	4.9 148
	0936	1.0 32		1014	1.3 39
	1543	5.2 160		1617	5.1 156
●	2206	1.0 31		2234	1.2 38
3 W	0403	5.1 154	**18** Th	0437	4.9 148
	1015	1.0 31		1046	1.3 40
	1624	5.3 162		1649	5.1 155
	2245	1.0 30		2303	1.2 38
4 Th	0445	5.1 155	**19** F	0506	4.9 148
	1055	1.0 32		1115	1.3 41
	1704	5.3 161		1718	5.1 154
	2324	1.0 31		2332	1.3 39
5 F	0526	5.1 154	**20** Sa	0534	4.8 146
	1134	1.1 35		1144	1.4 44
	1743	5.2 158		1745	5.0 151
				2359	1.4 42
6 Sa	0003	1.1 35	**21** Su	0601	4.7 144
	0607	5.0 152		1211	1.5 47
	1215	1.3 41		1812	4.8 147
	1822	5.0 153			
7 Su	0043	1.3 41	**22** M	0026	1.5 45
	0650	4.8 146		0628	4.6 140
	1257	1.6 50		1240	1.7 52
	1904	4.7 144		1841	4.6 141
8 M	0126	1.6 50	**23** Tu	0056	1.6 50
	0739	4.5 138		0659	4.4 135
	1344	2.0 60		1312	1.9 59
	1954	4.4 134		1914	4.4 133
9 Tu	0216	1.9 59	**24** W	0131	1.9 57
	0842	4.3 130		0739	4.2 127
	1444	2.3 71		1353	2.2 67
◐	2106	4.1 124		2000	4.1 124
10 W	0324	2.2 68	**25** Th	0218	2.1 65
	1011	4.1 125		0846	3.9 119
	1616	2.6 78		1456	2.5 76
	2248	3.9 119	◑	2126	3.8 116
11 Th	0507	2.3 71	**26** F	0332	2.4 73
	1143	4.2 128		1040	3.8 117
	1821	2.5 75		1653	2.6 80
				2319	3.8 116
12 F	0017	4.0 123	**27** Sa	0536	2.4 72
	0645	2.2 66		1215	4.1 124
	1253	4.4 135		1855	2.3 71
	1933	2.1 65			
13 Sa	0121	4.3 130	**28** Su	0040	4.1 124
	0745	1.9 57		0710	2.0 62
	1346	4.7 143		1319	4.5 136
	2019	1.8 55		1954	1.9 58
14 Su	0210	4.5 137	**29** M	0139	4.4 135
	0828	1.6 49		0804	1.6 50
	1429	4.9 149		1409	4.9 148
	2056	1.5 47		2038	1.5 46
15 M	0252	4.7 142	**30** Tu	0228	4.8 146
	0906	1.4 44		0847	1.3 40
	1508	5.1 154		1454	5.2 158
	2130	1.4 42		2118	1.2 36
			31 W	0312	5.1 156
				0928	1.0 32
				1535	5.4 166
				2156	1.0 29

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0355	5.3 163	**16** F	0421	5.2 157
	1007	0.9 27		1031	1.2 36
	1615	5.6 171		1632	5.4 164
●	2234	0.8 25		2245	1.1 35
2 F	0435	5.5 167	**17** Sa	0447	5.2 158
	1045	0.9 26		1057	1.2 36
	1654	5.6 172		1658	5.3 163
	2311	0.8 25		2309	1.1 35
3 Sa	0514	5.5 168	**18** Su	0511	5.2 157
	1123	0.9 28		1121	1.2 38
	1730	5.6 170		1722	5.3 161
	2347	0.9 28		2333	1.2 37
4 Su	0552	5.4 166	**19** M	0534	5.1 155
	1159	1.1 34		1145	1.3 41
	1805	5.4 165		1745	5.2 157
				2356	1.3 40
5 M	0022	1.1 34	**20** Tu	0556	5.0 152
	0629	5.2 160		1208	1.5 46
	1235	1.4 43		1808	5.0 152
	1840	5.1 155			
6 Tu	0058	1.4 44	**21** W	0020	1.5 46
	0707	4.9 150		0620	4.8 146
	1313	1.8 55		1232	1.7 53
	1916	4.7 143		1833	4.8 145
7 W	0137	1.8 56	**22** Th	0047	1.7 53
	0751	4.5 138		0647	4.5 138
	1356	2.3 69		1302	2.1 63
◐	2001	4.2 129		1902	4.4 134
8 Th	0224	2.3 69	**23** F	0121	2.1 63
	0858	4.1 126		0725	4.2 127
	1458	2.7 82		1343	2.5 75
	2129	3.8 116	◑	1948	4.0 122
9 F	0347	2.7 81	**24** Sa	0215	2.5 75
	1057	3.9 120		0854	3.8 115
	1744	2.9 88		1509	2.9 87
	2354	3.8 115		2213	3.7 112
10 Sa	0636	2.6 80	**25** Su	0422	2.8 84
	1249	4.1 126		1152	3.9 118
	1938	2.5 76		1845	2.7 83
11 Su	0123	4.1 124	**26** M	0026	3.9 120
	0748	2.2 68		0705	2.4 73
	1348	4.5 137		1314	4.4 133
	2021	2.1 63		1949	2.2 66
12 M	0214	4.4 135	**27** Tu	0132	4.5 136
	0829	1.8 56		0759	1.9 57
	1431	4.8 147		1403	4.9 150
	2054	1.7 52		2029	1.6 50
13 Tu	0251	4.7 144	**28** W	0219	5.0 152
	0903	1.5 47		0839	1.4 42
	1504	5.1 154		1444	5.4 164
	2123	1.4 44		2105	1.2 37
14 W	0324	5.0 151	**29** Th	0300	5.4 165
	0934	1.3 41		0916	1.0 31
	1536	5.2 160		1522	5.7 175
	2152	1.3 39		2140	0.9 27
15 Th	0354	5.1 155	**30** F	0339	5.7 175
	1003	1.2 37		0952	0.8 24
	1605	5.3 163		1559	5.9 181
○	2219	1.2 36	●	2215	0.7 22
			31 Sa	0417	5.9 180
				1027	0.7 22
				1634	6.0 183
				2249	0.7 21

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0453	5.9 181	**16** M	0443	5.4 166
	1102	0.8 24		1055	1.1 35
	1708	5.9 180		1655	5.5 168
	2323	0.8 24		2305	1.2 36
2 M	0527	5.8 177	**17** Tu	0505	5.4 164
	1135	1.0 31		1117	1.3 39
	1740	5.7 174		1717	5.4 164
	2355	1.0 32		2326	1.3 40
3 Tu	0600	5.6 170	**18** W	0526	5.2 160
	1208	1.3 41		1138	1.4 44
	1810	5.3 163		1738	5.2 159
				2349	1.5 45
4 W	0027	1.4 43	**19** Th	0548	5.1 154
	0632	5.2 158		1200	1.7 52
	1239	1.8 54		1801	5.0 152
	1839	4.9 150			
5 Th	0058	1.8 56	**20** F	0013	1.7 53
	0705	4.7 144		0612	4.8 145
	1312	2.3 69		1226	2.0 62
	1909	4.4 135		1826	4.6 141
6 F	0133	2.4 72	**21** Sa	0043	2.1 64
	0748	4.2 128		0641	4.4 133
	1354	2.8 84		1300	2.5 75
◐	1951	3.9 118		1858	4.2 128
7 Sa	0230	2.9 87	**22** Su	0129	2.6 78
	0950	3.8 115		0732	3.9 119
	1554	3.2 98		1408	3.0 91
	2347	3.6 111	◑	2101	3.7 113
8 Su	0650	3.0 90	**23** M	0333	3.0 91
	1252	4.0 121		1144	3.8 117
	1946	2.8 84		1842	3.0 90
9 M	0130	4.1 124	**24** Tu	0020	4.0 122
	0750	2.5 75		0703	2.6 78
	1347	4.4 135		1307	4.4 135
	2016	2.3 69		1937	2.3 71
10 Tu	0209	4.5 137	**25** W	0122	4.6 141
	0823	2.0 60		0748	2.0 60
	1423	4.9 148		1350	5.0 153
	2041	1.8 56		2012	1.7 53
11 W	0239	4.9 149	**26** Th	0204	5.2 159
	0850	1.6 49		0824	1.4 43
	1451	5.2 158		1427	5.5 169
	2106	1.5 45		2045	1.2 38
12 Th	0306	5.2 158	**27** F	0241	5.7 173
	0917	1.3 40		0858	1.0 31
	1517	5.4 165		1502	5.9 180
	2131	1.2 38		2118	0.9 27
13 F	0331	5.4 164	**28** Sa	0317	6.0 183
	0942	1.1 35		0932	0.8 24
	1543	5.6 170		1536	6.1 186
	2155	1.1 34	●	2151	0.7 22
14 Sa	0356	5.5 167	**29** Su	0353	6.2 188
	1008	1.0 32		1005	0.7 22
	1608	5.6 171		1610	6.1 187
○	2219	1.1 33		2224	0.7 22
15 Su	0420	5.5 167	**30** M	0427	6.1 187
	1032	1.1 33		1038	0.8 25
	1632	5.6 171		1643	6.0 184
	2243	1.1 34		2256	0.9 26

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sfax, Tunisia, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0500	6.0	182	**16** W	0439	5.4	166	**1** F	0539	5.2	159	**16** Sa	0522	5.0	153	
	1110	1.0	32		1053	1.3	39		1150	1.8	55		1139	1.7	53	
	1714	5.8	176		1653	5.4	166		1752	5.0	152		1742	5.0	151	
	2328	1.1	35		2303	1.4	42						2355	1.9	57	
2 W	0531	5.7	173	**17** Th	0503	5.3	161	**2** Sa	0009	2.0	61	**17** Su	0556	4.8	145	
	1140	1.4	42		1116	1.5	45		0610	4.8	146		1215	2.0	62	
	1742	5.4	166		1717	5.2	160		1222	2.2	67		1819	4.7	143	
	2358	1.5	46		2327	1.6	48		1821	4.6	140					
3 Th	0601	5.3	161	**18** F	0527	5.1	155	**3** Su	0044	2.4	73	**18** M	0036	2.2	66	
	1210	1.8	55		1141	1.7	53		0644	4.4	133		0637	4.5	136	
	1809	5.0	153		1742	5.0	153		1258	2.6	79		1301	2.4	73	
					2354	1.8	56		1858	4.2	127		1910	4.4	133	
4 F	0027	1.9	59	**19** Sa	0553	4.8	147	**4** M	0133	2.8	86	**19** Tu	0134	2.5	76	
	0630	4.8	147		1209	2.1	64		0743	3.9	120		0746	4.1	125	
	1239	2.3	69		1811	4.7	143		1400	3.0	91		1413	2.7	83	
	1835	4.5	138					◐	2053	3.8	115	◑	2051	4.1	125	
5 Sa	0058	2.4	74	**20** Su	0028	2.2	67	**5** Tu	0333	3.1	95	**20** W	0310	2.8	85	
	0702	4.3	131		0625	4.4	135		1051	3.8	115		1013	4.0	121	
	1313	2.8	84		1247	2.5	77		1734	3.1	95		1622	2.8	86	
◐	1902	4.0	123		1849	4.3	130		2355	4.0	121		2302	4.2	129	
6 Su	0144	3.0	90	**21** M	0119	2.7	81	**6** W	0636	2.8	85	**21** Th	0533	2.6	80	
	0814	3.8	115		0721	4.0	121		1230	4.1	126		1156	4.3	132	
	1426	3.2	99		1402	3.0	91		1900	2.7	81		1817	2.5	76	
	2309	3.6	110	◑	2055	3.8	117									
7 M	0637	3.1	96	**22** Tu	0325	3.0	92	**7** Th	0051	4.4	133	**22** F	0018	4.6	141	
	1229	3.9	118		1116	3.9	118		0719	2.3	70		0651	2.2	67	
	1926	3.0	90		1752	3.0	91		1313	4.6	139		1253	4.8	145	
					2354	4.1	126		1934	2.2	68		1914	2.0	62	
8 Tu	0107	4.1	124	**23** W	0636	2.6	80	**8** F	0127	4.8	145	**23** Sa	0109	5.1	155	
	0731	2.6	80		1242	4.4	135		0750	1.9	57		0737	1.7	53	
	1324	4.4	133		1907	2.4	74		1344	4.9	150		1337	5.2	157	
	1952	2.4	74						2003	1.8	56		1956	1.6	50	
9 W	0142	4.5	138	**24** Th	0057	4.7	144	**9** Sa	0157	5.1	155	**24** Su	0152	5.4	166	
	0800	2.1	64		0725	2.0	62		0819	1.5	46		0816	1.4	43	
	1357	4.8	147		1326	5.0	153		1414	5.2	159		1416	5.4	165	
	2015	2.0	60		1947	1.8	56		2030	1.5	47		2033	1.3	41	
10 Th	0210	5.0	151	**25** F	0140	5.3	161	**10** Su	0226	5.3	162	**25** M	0231	5.6	172	
	0826	1.7	51		0802	1.5	47		0846	1.3	39		0852	1.2	36	
	1424	5.2	158		1403	5.5	167		1443	5.4	165		1454	5.6	170	
	2039	1.6	49		2021	1.4	42		2057	1.3	41		2110	1.2	37	
11 F	0235	5.3	161	**26** Sa	0217	5.7	174	**11** M	0255	5.4	166	**26** Tu	0308	5.7	175	
	0851	1.3	41		0837	1.1	35		0914	1.1	35		0927	1.1	34	
	1448	5.4	166		1439	5.8	177		1512	5.5	167		1530	5.6	170	
	2103	1.3	41		2055	1.0	32		2125	1.2	38	●	2145	1.2	36	
12 Sa	0301	5.5	167	**27** Su	0253	6.0	183	**12** Tu	0324	5.5	167	**27** W	0345	5.7	173	
	0916	1.1	35		0910	0.9	28		0942	1.1	35		1002	1.2	36	
	1514	5.6	171		1513	6.0	182		1541	5.5	167		1606	5.5	168	
	2127	1.2	36		2128	0.9	28	○	2153	1.2	38		2220	1.3	39	
13 Su	0326	5.6	170	**28** M	0328	6.1	186	**13** W	0353	5.4	166	**28** Th	0421	5.5	169	
	0941	1.0	32		0943	0.9	26		1010	1.2	37		1036	1.3	40	
	1540	5.7	173		1547	6.0	183		1610	5.4	165		1641	5.3	163	
○	2151	1.1	34	●	2201	0.9	28		2221	1.3	40		2255	1.4	44	
14 M	0351	5.6	171	**29** Tu	0403	6.0	184	**14** Th	0422	5.3	163	**29** F	0456	5.3	162	
	1005	1.0	32		1016	1.0	29		1039	1.3	41		1109	1.5	45	
	1605	5.6	172		1620	5.9	179		1639	5.3	162		1715	5.2	157	
	2215	1.1	35		2234	1.0	32		2250	1.4	44		2329	1.7	51	
15 Tu	0415	5.5	169	**30** W	0436	5.8	178	**15** F	0451	5.2	159	**30** Sa	0530	5.1	154	
	1029	1.1	35		1049	1.2	36		1108	1.5	46		1142	1.7	52	
	1629	5.6	170		1652	5.6	172		1710	5.2	157		1747	4.9	150	
	2239	1.2	38		2306	1.3	40		2321	1.6	49					
				31 Th	0508	5.6	170									
					1120	1.5	45									
					1723	5.3	162									
					2338	1.6	50									

December

	Time	Height			Time	Height	
	h m	ft	cm		h m	ft	cm
1 Su	0004	1.9	58	**16** M	0004	1.6	50
	0603	4.8	146		0608	4.9	149
	1216	2.0	60		1225	1.7	52
	1821	4.7	142		1832	4.9	149
2 M	0041	2.2	66	**17** Tu	0046	1.8	56
	0640	4.5	137		0650	4.7	142
	1252	2.2	68		1308	2.0	60
	1900	4.4	134		1920	4.7	142
3 Tu	0124	2.4	74	**18** W	0135	2.1	64
	0727	4.2	127		0744	4.4	133
	1339	2.5	77		1401	2.2	68
	1958	4.1	125		2024	4.4	135
4 W	0225	2.7	81	**19** Th	0239	2.4	72
	0849	3.9	119		0906	4.1	126
	1449	2.8	84		1514	2.5	76
◐	2145	4.0	121	◑	2156	4.3	131
5 Th	0406	2.8	84	**20** F	0410	2.5	77
	1043	3.9	119		1051	4.1	125
	1644	2.8	85		1659	2.6	78
	2326	4.1	125		2327	4.4	135
6 F	0600	2.6	78	**21** Sa	0601	2.4	73
	1202	4.1	126		1213	4.3	132
	1824	2.5	77		1834	2.3	71
7 Sa	0027	4.4	133	**22** Su	0036	4.7	142
	0701	2.2	67		0713	2.1	63
	1254	4.5	136		1313	4.6	141
	1917	2.2	66		1935	2.0	61
8 Su	0112	4.7	142	**23** M	0130	4.9	150
	0743	1.8	56		0802	1.7	53
	1335	4.8	145		1402	4.9	148
	1956	1.8	56		2021	1.7	52
9 M	0151	4.9	150	**24** Tu	0216	5.1	156
	0818	1.5	47		0844	1.5	46
	1413	5.0	152		1445	5.1	154
	2031	1.6	49		2102	1.5	46
10 Tu	0227	5.1	155	**25** W	0259	5.2	160
	0852	1.3	41		0922	1.3	41
	1448	5.1	156		1526	5.2	157
	2105	1.4	44		2140	1.4	43
11 W	0303	5.2	158	**26** Th	0339	5.2	160
	0926	1.2	38		0958	1.3	40
	1524	5.2	158		1604	5.2	158
	2139	1.3	41	●	2217	1.4	43
12 Th	0339	5.2	159	**27** F	0417	5.2	159
	1000	1.2	38		1032	1.3	40
	1600	5.2	159		1640	5.2	157
○	2214	1.3	41		2253	1.4	44
13 F	0416	5.2	158	**28** Sa	0453	5.2	157
	1035	1.3	39		1106	1.4	42
	1637	5.2	159		1714	5.1	155
	2249	1.4	42		2326	1.5	46
14 Sa	0452	5.2	157	**29** Su	0526	5.0	153
	1110	1.4	42		1137	1.5	45
	1714	5.2	157		1745	5.0	153
	2326	1.5	45		2359	1.6	49
15 Su	0529	5.1	154	**30** M	0558	4.9	149
	1146	1.5	46		1207	1.6	48
	1752	5.1	154		1815	4.9	149
				31 Tu	0031	1.7	53
					0629	4.7	144
					1238	1.7	53
					1845	4.7	144

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Venezia (Venice), Italy, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0029	1.4 43	**16** W	0615	2.6 79
	0728	2.8 85		1352	0.8 24
	1440	0.6 18		2044	1.9 58
	2118	2.0 61			
2 W	0138	1.5 46	**17** Th	0053	1.5 46
	0811	2.9 88		0720	2.8 85
	1519	0.4 12		1441	0.5 15
	2206	2.2 67		2135	2.2 67
3 Th	0234	1.5 46	**18** F	0210	1.5 46
	0847	2.9 88		0814	2.9 88
	1552	0.2 6		1523	0.1 3
	2243	2.3 70		2215	2.4 73
4 F	0320	1.5 46	**19** Sa	0310	1.4 43
	0920	3.0 91		0902	3.0 91
	1623	0.1 3		1603	- 0.1 - 3
	2315	2.4 73		2252	2.7 82
5 Sa	0359	1.5 46	**20** Su	0400	1.3 40
	0950	3.0 91		0946	3.1 94
	1651	0.0 0		1641	- 0.3 - 9
	2343	2.5 76		2327	2.8 85
6 Su ●	0436	1.5 46	**21** M ○	0446	1.2 37
	1018	2.9 88		1028	3.2 98
	1719	0.0 0		1719	- 0.4 - 12
7 M	0009	2.5 76	**22** Tu	0003	3.0 91
	0511	1.4 43		0530	1.1 34
	1045	2.9 88		1109	3.1 94
	1746	0.0 0		1755	- 0.3 - 9
8 Tu	0035	2.6 79	**23** W	0038	3.0 91
	0545	1.4 43		0614	1.1 34
	1112	2.8 85		1149	3.0 91
	1813	0.1 3		1832	- 0.2 - 6
9 W	0100	2.6 79	**24** Th	0114	3.0 91
	0621	1.4 43		0659	1.1 34
	1140	2.7 82		1229	2.8 85
	1841	0.2 6		1908	0.0 0
10 Th	0127	2.6 79	**25** F	0150	2.9 88
	0658	1.5 46		0747	1.1 34
	1210	2.6 79		1310	2.5 76
	1909	0.3 9		1944	0.4 12
11 F	0156	2.6 79	**26** Sa	0228	2.8 85
	0741	1.5 46		0842	1.2 37
	1242	2.4 73		1354	2.2 67
	1938	0.5 15		2019	0.7 21
12 Sa	0229	2.6 79	**27** Su ◑	0310	2.7 82
	0834	1.5 46		0952	1.2 37
	1320	2.2 67		1452	1.8 55
	2010	0.7 21		2057	1.1 34
13 Su	0309	2.6 79	**28** M	0402	2.6 79
	0943	1.5 46		1129	1.2 37
	1409	1.9 58		1726	1.6 49
	2048	0.9 27		2147	1.4 43
14 M ◐	0359	2.6 79	**29** Tu	0516	2.5 76
	1115	1.4 43		1319	1.0 30
	1533	1.7 52		2047	1.8 55
	2142	1.2 37		2333	1.7 52
15 Tu	0503	2.6 79	**30** W	0645	2.5 76
	1247	1.1 34		1428	0.8 24
	1852	1.6 49		2143	2.0 61
	2313	1.4 43			
			31 Th	0133	1.7 52
				0752	2.5 76
				1509	0.5 15
				2215	2.2 67

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0245	1.7 52	**16** Sa	0221	1.6 49
	0841	2.6 79		0806	2.7 82
	1542	0.3 9		1506	0.2 6
	2241	2.4 73		2203	2.6 79
2 Sa	0332	1.6 49	**17** Su	0317	1.4 43
	0919	2.7 82		0901	2.9 88
	1610	0.2 6		1546	- 0.1 - 3
	2304	2.5 76		2234	2.9 88
3 Su	0408	1.4 43	**18** M	0402	1.1 34
	0950	2.8 85		0947	3.0 91
	1636	0.1 3		1624	- 0.2 - 6
	2325	2.7 82		2304	3.1 94
4 M ●	0439	1.3 40	**19** Tu ○	0443	0.9 27
	1019	2.8 85		1029	3.1 94
	1700	0.1 3		1659	- 0.3 - 9
	2344	2.7 82		2335	3.2 98
5 Tu	0508	1.2 37	**20** W	0521	0.8 24
	1045	2.8 85		1108	3.1 94
	1725	0.1 3		1734	- 0.2 - 6
6 W	0003	2.8 85	**21** Th	0004	3.2 98
	0537	1.1 34		0600	0.7 21
	1111	2.8 85		1146	3.0 91
	1749	0.1 3		1807	0.0 0
7 Th	0022	2.8 85	**22** F	0034	3.2 98
	0606	1.1 34		0638	0.7 21
	1137	2.8 85		1224	2.8 85
	1813	0.2 6		1839	0.3 9
8 F	0042	2.8 85	**23** Sa	0103	3.1 94
	0636	1.1 34		0718	0.7 21
	1205	2.7 82		1301	2.5 76
	1837	0.3 9		1908	0.6 18
9 Sa	0104	2.8 85	**24** Su	0131	2.9 88
	0709	1.1 34		0801	0.8 24
	1235	2.5 76		1340	2.2 67
	1902	0.5 15		1936	0.9 27
10 Su	0129	2.8 85	**25** M	0159	2.7 82
	0748	1.1 34		0854	1.0 30
	1309	2.3 70		1427	1.9 58
	1927	0.7 21		1958	1.3 40
11 M	0158	2.7 82	**26** Tu ◑	0228	2.5 76
	0837	1.1 34		1010	1.1 34
	1351	2.1 64		1659	1.6 49
	1954	1.0 30		1945	1.5 46
12 Tu ◐	0235	2.6 79	**27** W	0307	2.3 70
	0949	1.2 37		1217	1.1 34
	1456	1.8 55			
	2025	1.3 40			
13 W	0327	2.5 76	**28** Th	0525	2.2 67
	1136	1.1 34		1357	0.9 27
	1923	1.7 52		2140	2.2 67
	2148	1.6 49			
14 Th	0455	2.4 73			
	1316	0.8 24			
	2059	2.0 61			
15 F	0049	1.7 52			
	0649	2.5 76			
	1419	0.5 15			
	2133	2.3 70			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0217	1.8 55	**16** Sa	0120	1.8 55
	0742	2.2 67		0634	2.2 67
	1444	0.7 21		1348	0.5 15
	2156	2.4 73		2107	2.6 79
2 Sa	0308	1.6 49	**17** Su	0231	1.5 46
	0838	2.4 73		0803	2.4 73
	1516	0.5 15		1439	0.3 9
	2214	2.6 79		2135	2.8 85
3 Su	0338	1.4 43	**18** M	0316	1.1 34
	0916	2.5 76		0858	2.7 82
	1543	0.4 12		1521	0.1 3
	2232	2.7 82		2203	3.1 94
4 M	0404	1.2 37	**19** Tu	0354	0.8 24
	0946	2.6 79		0944	2.8 85
	1608	0.3 9		1558	0.0 0
	2250	2.8 85		2231	3.2 98
5 Tu	0429	1.1 34	**20** W	0430	0.6 18
	1013	2.7 82		1024	2.9 88
	1632	0.2 6		1633	0.0 0
	2306	2.9 88		2259	3.3 101
6 W ●	0454	0.9 27	**21** Th ○	0505	0.4 12
	1038	2.7 82		1102	2.9 88
	1655	0.2 6		1706	0.2 6
	2322	3.0 91		2326	3.3 101
7 Th	0519	0.8 24	**22** F	0540	0.3 9
	1103	2.8 85		1139	2.9 88
	1719	0.3 9		1737	0.4 12
	2339	3.0 91		2352	3.3 101
8 F	0544	0.7 21	**23** Sa	0615	0.3 9
	1129	2.7 82		1215	2.7 82
	1742	0.4 12		1807	0.6 18
	2357	3.0 91			
9 Sa	0612	0.7 21	**24** Su	0016	3.1 94
	1156	2.7 82		0651	0.4 12
	1805	0.5 15		1252	2.5 76
				1834	0.9 27
10 Su	0017	3.0 91	**25** M	0039	3.0 91
	0642	0.6 18		0729	0.5 15
	1226	2.5 76		1331	2.2 67
	1828	0.7 21		1858	1.2 37
11 M	0040	3.0 91	**26** Tu	0101	2.8 85
	0716	0.7 21		0812	0.7 21
	1302	2.3 70		1422	1.9 58
	1852	1.0 30		1916	1.5 46
12 Tu	0106	2.9 88	**27** W	0120	2.5 76
	0759	0.8 24		0910	0.9 27
	1347	2.1 64			
	1917	1.2 37			
13 W	0138	2.7 82	**28** Th ◑	0135	2.3 70
	0900	0.9 27		1047	1.0 30
	1459	1.9 58		2101	2.1 64
	1942	1.6 49			
14 Th ◐	0220	2.5 76	**29** F	1245	1.0 30
	1038	0.9 27		2057	2.3 70
15 F	0341	2.3 70	**30** Sa	0300	1.8 55
	1233	0.8 24		0718	1.9 58
	2039	2.2 67		1350	0.8 24
				2112	2.5 76
			31 Su	0306	1.5 46
				0821	2.1 64
				1429	0.7 21
				2130	2.7 82

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Venezia (Venice), Italy, 2019

Times and Heights of High and Low Waters

April

Day	Time (h m)	Height (ft)	Height (cm)
1 M	0324	1.2	37
	0900	2.3	70
	1501	0.6	18
	2148	2.8	85
2 Tu	0346	1.0	30
	0931	2.4	73
	1529	0.5	15
	2205	3.0	91
3 W	0408	0.8	24
	0959	2.5	76
	1555	0.5	15
	2222	3.0	91
4 Th	0431	0.6	18
	1025	2.6	79
	1620	0.5	15
	2238	3.1	94
5 F ●	0456	0.5	15
	1051	2.6	79
	1645	0.6	18
	2256	3.1	94
6 Sa	0522	0.4	12
	1119	2.6	79
	1710	0.7	21
	2315	3.1	94
7 Su	0550	0.3	9
	1150	2.6	79
	1735	0.8	24
	2336	3.1	94
8 M	0621	0.3	9
	1225	2.5	76
	1802	1.0	30
9 Tu	0001	3.0	91
	0657	0.3	9
	1306	2.3	70
	1830	1.3	40
10 W	0028	2.9	88
	0740	0.4	12
	1402	2.1	64
	1904	1.5	46
11 Th	0100	2.7	82
	0838	0.6	18
	1547	2.0	61
	2002	1.8	55
12 F ◐	0140	2.4	73
	1004	0.7	21
	1858	2.2	67
	2317	2.0	61
13 Sa	0304	2.1	64
	1147	0.7	21
	1951	2.5	76
14 Su	0132	1.7	52
	0622	2.0	61
	1305	0.6	18
	2025	2.8	85
15 M	0224	1.3	40
	0753	2.2	67
	1402	0.5	15
	2056	3.0	91
16 Tu	0303	0.9	27
	0849	2.5	76
	1447	0.4	12
	2126	3.2	98
17 W	0339	0.6	18
	0936	2.6	79
	1526	0.4	12
	2154	3.3	101
18 Th	0413	0.3	9
	1017	2.7	82
	1602	0.5	15
	2221	3.4	104
19 F ○	0447	0.1	3
	1056	2.7	82
	1635	0.6	18
	2247	3.3	101
20 Sa	0521	0.1	3
	1133	2.7	82
	1706	0.8	24
	2311	3.3	101
21 Su	0554	0.1	3
	1211	2.5	76
	1736	1.0	30
	2334	3.1	94
22 M	0628	0.1	3
	1250	2.4	73
	1804	1.3	40
	2356	3.0	91
23 Tu	0704	0.3	9
	1334	2.2	67
	1833	1.5	46
24 W	0017	2.8	85
	0743	0.5	15
	1436	2.1	64
	1903	1.7	52
25 Th	0037	2.5	76
	0831	0.7	21
	1701	2.0	61
	2000	1.9	58
26 F ◑	0052	2.3	70
	0938	0.9	27
	1912	2.2	67
27 Sa	1108	1.0	30
	1947	2.4	73
28 Su	0248	1.6	49
	0556	1.7	52
	1228	0.9	27
	2012	2.6	79
29 M	0236	1.4	43
	0740	1.9	58
	1323	0.9	27
	2034	2.8	85
30 Tu	0254	1.1	34
	0829	2.0	61
	1405	0.8	24
	2055	2.9	88

May

Day	Time (h m)	Height (ft)	Height (cm)
1 W	0317	0.9	27
	0906	2.2	67
	1440	0.8	24
	2115	3.0	91
2 Th	0341	0.6	18
	0939	2.3	70
	1512	0.8	24
	2135	3.1	94
3 F	0406	0.4	12
	1010	2.4	73
	1542	0.8	24
	2155	3.2	98
4 Sa ●	0433	0.3	9
	1042	2.5	76
	1612	0.9	27
	2216	3.2	98
5 Su	0502	0.1	3
	1116	2.5	76
	1642	1.0	30
	2240	3.2	98
6 M	0534	0.0	0
	1153	2.5	76
	1714	1.2	37
	2306	3.2	98
7 Tu	0608	0.0	0
	1235	2.4	73
	1748	1.3	40
	2335	3.1	94
8 W	0648	0.1	3
	1326	2.4	73
	1829	1.5	46
9 Th	0007	2.9	88
	0733	0.2	6
	1434	2.3	70
	1926	1.8	55
10 F	0044	2.6	79
	0829	0.4	12
	1611	2.3	70
	2104	1.9	58
11 Sa	0134	2.3	70
	0939	0.5	15
	1751	2.5	76
	2328	1.8	55
12 Su ◐	0311	2.0	61
	1101	0.6	18
	1853	2.7	82
13 M	0108	1.5	46
	0558	1.9	58
	1216	0.7	21
	1937	2.9	88
14 Tu	0202	1.1	34
	0735	2.0	61
	1318	0.7	21
	2013	3.0	91
15 W	0243	0.7	21
	0838	2.2	67
	1408	0.8	24
	2046	3.2	98
16 Th	0321	0.4	12
	0929	2.4	73
	1452	0.8	24
	2117	3.3	101
17 F	0356	0.2	6
	1013	2.4	73
	1531	0.9	27
	2145	3.3	101
18 Sa ○	0431	0.0	0
	1055	2.5	76
	1606	1.1	34
	2212	3.3	101
19 Su	0504	0.0	0
	1135	2.5	76
	1640	1.2	37
	2237	3.2	98
20 M	0538	0.0	0
	1214	2.4	73
	1713	1.4	43
	2302	3.1	94
21 Tu	0611	0.0	0
	1255	2.3	70
	1748	1.5	46
	2327	2.9	88
22 W	0645	0.2	6
	1341	2.3	70
	1826	1.7	52
	2351	2.7	82
23 Th	0722	0.3	9
	1436	2.2	67
	1914	1.8	55
24 F	0017	2.5	76
	0802	0.5	15
	1547	2.3	70
	2029	1.9	58
25 Sa	0046	2.3	70
	0850	0.7	21
	1709	2.3	70
	2231	1.9	58
26 Su ◑	0123	2.0	61
	0949	0.8	24
	1811	2.5	76
27 M	0044	1.6	49
	0306	1.7	52
	1057	0.9	27
	1854	2.6	79
28 Tu	0138	1.4	43
	0619	1.7	52
	1202	1.0	30
	1927	2.7	82
29 W	0211	1.1	34
	0744	1.8	55
	1258	1.0	30
	1956	2.9	88
30 Th	0241	0.9	27
	0838	2.0	61
	1345	1.1	34
	2023	3.0	91
31 F	0311	0.6	18
	0921	2.1	64
	1428	1.1	34
	2049	3.1	94

June

Day	Time (h m)	Height (ft)	Height (cm)
1 Sa	0342	0.3	9
	1001	2.3	70
	1507	1.1	34
	2116	3.1	94
2 Su	0414	0.1	3
	1040	2.4	73
	1546	1.2	37
	2145	3.2	98
3 M ●	0447	0.0	0
	1120	2.5	76
	1626	1.3	40
	2216	3.2	98
4 Tu	0523	-0.1	-3
	1202	2.5	76
	1707	1.4	43
	2249	3.1	94
5 W	0601	-0.2	-6
	1248	2.5	76
	1752	1.5	46
	2325	3.0	91
6 Th	0642	-0.1	-3
	1339	2.5	76
	1845	1.6	49
7 F	0005	2.8	85
	0727	0.0	0
	1436	2.6	79
	1950	1.7	52
8 Sa	0050	2.6	79
	0816	0.2	6
	1541	2.6	79
	2113	1.7	52
9 Su	0147	2.3	70
	0912	0.4	12
	1648	2.7	82
	2253	1.6	49
10 M ◐	0313	2.0	61
	1015	0.7	21
	1751	2.8	85
11 Tu	0025	1.3	40
	0525	1.8	55
	1124	0.9	27
	1844	2.9	88
12 W	0133	1.0	30
	0718	1.9	58
	1230	1.0	30
	1929	3.0	91
13 Th	0223	0.7	21
	0834	2.0	61
	1329	1.1	34
	2009	3.0	91
14 F	0305	0.4	12
	0932	2.1	64
	1421	1.2	37
	2044	3.1	94
15 Sa	0343	0.2	6
	1020	2.3	70
	1507	1.3	40
	2117	3.1	94
16 Su	0419	0.1	3
	1103	2.3	70
	1548	1.4	43
	2147	3.1	94
17 M ○	0452	0.0	0
	1141	2.4	73
	1627	1.5	46
	2216	3.0	91
18 Tu	0525	0.0	0
	1217	2.4	73
	1705	1.5	46
	2244	3.0	91
19 W	0556	0.0	0
	1252	2.4	73
	1744	1.6	49
	2313	2.9	88
20 Th	0628	0.1	3
	1327	2.5	76
	1826	1.6	49
	2342	2.7	82
21 F	0700	0.2	6
	1404	2.5	76
	1913	1.7	52
22 Sa	0013	2.5	76
	0733	0.3	9
	1444	2.5	76
	2008	1.7	52
23 Su	0048	2.3	70
	0809	0.5	15
	1529	2.5	76
	2118	1.7	52
24 M	0129	2.1	64
	0849	0.7	21
	1619	2.5	76
	2243	1.6	49
25 Tu ◑	0228	1.9	58
	0936	0.9	27
	1712	2.6	79
26 W	0009	1.4	43
	0413	1.7	52
	1035	1.1	34
	1803	2.6	79
27 Th	0115	1.2	37
	0643	1.7	52
	1143	1.2	37
	1849	2.7	82
28 F	0203	0.9	27
	0816	1.8	55
	1251	1.3	40
	1931	2.8	85
29 Sa	0243	0.6	18
	0915	2.0	61
	1352	1.4	43
	2011	2.9	88
30 Su	0321	0.3	9
	1001	2.2	67
	1447	1.4	43
	2050	3.0	91

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Venezia (Venice), Italy, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0358	0.1	3	**16** Tu	0440	0.1	3	**1** Th	0457	- 0.3	- 9	**16** F	0510	0.1	3	
	1042	2.4	73		1135	2.5	76		1140	2.9	88		1147	2.8	85	
	1536	1.4	43		1628	1.5	46		1709	1.1	34		1725	1.1	34	
	2128	3.1	94	○	2210	2.9	88	●	2249	3.1	94		2303	2.8	85	
2 Tu	0435	- 0.1	- 3	**17** W	0509	0.0	0	**2** F	0534	- 0.3	- 9	**17** Sa	0534	0.2	6	
	1122	2.6	79		1202	2.6	79		1214	3.0	91		1206	2.8	85	
	1624	1.4	43		1705	1.4	43		1753	1.0	30		1754	1.0	30	
●	2207	3.1	94		2240	2.9	88		2331	3.0	91		2329	2.7	82	
3 W	0513	- 0.3	- 9	**18** Th	0537	0.0	0	**3** Sa	0611	- 0.2	- 6	**18** Su	0558	0.3	9	
	1201	2.7	82		1227	2.6	79		1249	3.0	91		1225	2.8	85	
	1711	1.4	43		1740	1.4	43		1837	1.0	30		1824	1.0	30	
	2247	3.1	94		2309	2.8	85						2356	2.6	79	
4 Th	0551	- 0.3	- 9	**19** F	0604	0.1	3	**4** Su	0012	2.9	88	**19** M	0622	0.4	12	
	1241	2.8	85		1252	2.6	79		0647	0.0	0		1246	2.8	85	
	1759	1.4	43		1815	1.4	43		1324	3.0	91		1855	1.0	30	
	2329	3.0	91		2338	2.7	82		1923	1.0	30					
5 F	0631	- 0.2	- 6	**20** Sa	0632	0.2	6	**5** M	0055	2.6	79	**20** Tu	0025	2.5	76	
	1323	2.8	85		1317	2.7	82		0723	0.3	9		0646	0.6	18	
	1849	1.4	43		1852	1.4	43		1401	2.9	88		1309	2.8	85	
									2014	1.0	30		1931	1.0	30	
6 Sa	0011	2.8	85	**21** Su	0008	2.6	79	**6** Tu	0141	2.3	70	**21** W	0057	2.3	70	
	0711	- 0.1	- 3		0659	0.3	9		0800	0.6	18		0710	0.8	24	
	1407	2.8	85		1343	2.7	82		1440	2.8	85		1336	2.7	82	
	1945	1.4	43		1932	1.4	43		2116	1.1	34		2015	1.1	34	
7 Su	0057	2.6	79	**22** M	0039	2.4	73	**7** W	0237	2.0	61	**22** Th	0137	2.1	64	
	0753	0.2	6		0727	0.5	15		0839	1.0	30		0735	1.0	30	
	1454	2.8	85		1413	2.6	79		1527	2.6	79		1408	2.6	79	
	2049	1.4	43		2019	1.4	43	◐	2238	1.1	34		2117	1.1	34	
8 M	0150	2.3	70	**23** Tu	0115	2.2	67	**8** Th	0423	1.7	52	**23** F	0234	1.8	55	
	0838	0.5	15		0757	0.7	21		0927	1.4	43		0802	1.3	40	
	1546	2.8	85		1447	2.6	79		1629	2.5	76		1452	2.5	76	
	2206	1.4	43		2117	1.4	43					◑	2251	1.1	34	
9 Tu	0258	2.0	61	**24** W	0159	2.0	61	**9** F	0021	1.0	30	**24** Sa	0528	1.7	52	
	0928	0.8	24		0830	0.9	27		0752	1.8	55		0854	1.6	49	
	1643	2.7	82		1528	2.6	79		1057	1.7	52		1606	2.4	73	
◐	2334	1.2	37		2233	1.3	40		1759	2.5	76					
10 W	0449	1.7	52	**25** Th	0304	1.8	55	**10** Sa	0148	0.8	24	**25** Su	0037	0.9	27	
	1028	1.1	34		0912	1.2	37		0914	2.0	61		0839	2.0	61	
	1745	2.7	82		1622	2.6	79		1303	1.8	55		1214	1.8	55	
				◑					1922	2.5	76		1806	2.4	73	
11 Th	0100	1.0	30	**26** F	0004	1.2	37	**11** Su	0242	0.6	18	**26** M	0148	0.6	18	
	0715	1.7	52		0534	1.6	49		0953	2.2	67		0910	2.3	70	
	1142	1.3	40		1024	1.4	43		1427	1.7	52		1356	1.6	49	
	1845	2.8	85		1731	2.6	79		2020	2.6	79		1936	2.5	76	
12 F	0205	0.7	21	**27** Sa	0121	0.9	27	**12** M	0320	0.4	12	**27** Tu	0238	0.3	9	
	0849	1.9	58		0821	1.8	55		1022	2.4	73		0939	2.6	79	
	1300	1.5	46		1211	1.6	49		1518	1.6	49		1454	1.4	43	
	1938	2.8	85		1844	2.6	79		2103	2.7	82		2035	2.7	82	
13 Sa	0254	0.5	15	**28** Su	0216	0.6	18	**13** Tu	0352	0.3	9	**28** W	0319	0.1	3	
	0947	2.1	64		0919	2.1	64		1047	2.6	79		1008	2.8	85	
	1408	1.5	46		1341	1.6	49		1555	1.4	43		1539	1.1	34	
	2024	2.8	85		1946	2.7	82		2138	2.7	82		2123	2.9	88	
14 Su	0334	0.3	9	**29** M	0301	0.3	9	**14** W	0419	0.2	6	**29** Th	0358	- 0.1	- 3	
	1031	2.3	70		0958	2.3	70		1109	2.7	82		1038	3.0	91	
	1503	1.6	49		1447	1.5	46		1627	1.3	40		1619	0.9	27	
	2103	2.9	88		2038	2.9	88		2209	2.8	85		2206	3.0	91	
15 M	0409	0.1	3	**30** Tu	0341	0.0	0	**15** Th	0445	0.1	3	**30** F	0434	- 0.2	- 6	
	1105	2.4	73		1033	2.6	79		1129	2.7	82		1108	3.2	98	
	1549	1.5	46		1539	1.4	43		1657	1.2	37		1658	0.7	21	
	2138	2.9	88		2124	3.0	91	○	2236	2.8	85	●	2247	3.1	94	
				31 W	0420	- 0.2	- 6					**31** Sa	0509	- 0.1	- 3	
					1107	2.8	85						1138	3.2	98	
					1626	1.2	37						1736	0.6	18	
					2208	3.1	94						2326	3.0	91	

September

	Time	Height			Time	Height	
	h m	ft	cm		h m	ft	cm
1 Su	0543	0.0	0	**16** M	0523	0.5	15
	1207	3.2	98		1136	3.0	91
	1815	0.5	15		1755	0.6	18
					2342	2.6	79
2 M	0005	2.8	85	**17** Tu	0545	0.6	18
	0617	0.3	9		1154	3.0	91
	1237	3.1	94		1824	0.6	18
	1856	0.6	18				
3 Tu	0045	2.6	79	**18** W	0011	2.5	76
	0649	0.6	18		0607	0.8	24
	1307	3.0	91		1216	2.9	88
	1939	0.7	21		1856	0.6	18
4 W	0128	2.3	70	**19** Th	0045	2.3	70
	0720	0.9	27		0630	1.0	30
	1336	2.8	85		1240	2.8	85
	2031	0.8	24		1935	0.7	21
5 Th	0222	2.0	61	**20** F	0127	2.1	64
	0749	1.3	40		0653	1.3	40
	1407	2.6	79		1308	2.7	82
	2141	1.0	30		2029	0.8	24
6 F	0435	1.7	52	**21** Sa	0234	1.9	58
	0818	1.6	49		0714	1.6	49
	1446	2.4	73		1345	2.5	76
◐	2329	1.0	30		2155	0.9	27
7 Sa	0842	2.0	61	**22** Su	1448	2.3	70
	1049	1.9	58		2350	0.9	27
	1638	2.1	64	◑			
8 Su	0117	0.9	27	**23** M	0814	2.2	67
	0908	2.2	67		1254	1.8	55
	1401	1.8	55		1743	2.1	64
	1916	2.2	67				
9 M	0215	0.7	21	**24** Tu	0112	0.6	18
	0930	2.4	73		0839	2.5	76
	1453	1.6	49		1408	1.5	46
	2019	2.3	70		1932	2.3	70
10 Tu	0252	0.5	15	**25** W	0207	0.4	12
	0952	2.6	79		0907	2.8	85
	1524	1.4	43		1452	1.2	37
	2100	2.5	76		2031	2.6	79
11 W	0322	0.4	12	**26** Th	0251	0.2	6
	1011	2.8	85		0934	3.1	94
	1550	1.2	37		1530	0.8	24
	2133	2.6	79		2118	2.8	85
12 Th	0348	0.3	9	**27** F	0330	0.1	3
	1029	2.9	88		1003	3.2	98
	1615	1.0	30		1606	0.5	15
	2201	2.6	79		2200	2.9	88
13 F	0413	0.3	9	**28** Sa	0406	0.1	3
	1046	2.9	88		1031	3.3	101
	1639	0.8	24		1641	0.3	9
	2226	2.7	82	●	2240	2.9	88
14 Sa	0437	0.3	9	**29** Su	0440	0.2	6
	1102	3.0	91		1059	3.4	104
	1704	0.7	21		1717	0.2	6
○	2251	2.7	82		2319	2.9	88
15 Su	0500	0.4	12	**30** M	0513	0.4	12
	1119	3.0	91		1126	3.3	101
	1729	0.7	21		1753	0.2	6
	2316	2.7	82		2357	2.7	82

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Venezia (Venice), Italy, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0545	0.6	18	**16** W	0513	0.9	27	**1** F	0125	2.3	70	**16** Sa	0100	2.4	73	
	1152	3.2	98		1113	3.1	94		0619	1.5	46		0602	1.5	46	
	1830	0.2	6		1801	0.3	9		1200	2.8	85		1141	2.9	88	
									1927	0.4	12		1905	0.1	3	
2 W	0037	2.5	76	**17** Th	0007	2.4	73	**2** Sa	0230	2.1	64	**17** Su	0159	2.3	70	
	0615	0.9	27		0537	1.1	34		0654	1.8	55		0651	1.7	52	
	1217	3.0	91		1135	3.0	91		1220	2.6	79		1215	2.7	82	
	1909	0.4	12		1834	0.3	9		2014	0.6	18		1954	0.3	9	
3 Th	0122	2.3	70	**18** F	0046	2.3	70	**3** Su	0441	2.1	64	**18** M	0321	2.3	70	
	0643	1.3	40		0604	1.3	40		0758	2.0	61		0812	1.9	58	
	1240	2.8	85		1200	2.9	88		1233	2.3	70		1258	2.4	73	
	1954	0.6	18		1914	0.4	12		2118	0.8	24		2057	0.5	15	
4 F	0222	2.0	61	**19** Sa	0138	2.1	64	**4** M	0644	2.3	70	**19** Tu	0503	2.4	73	
	0708	1.6	49		0634	1.6	49		2243	0.9	27		1029	1.9	58	
	1301	2.6	79		1229	2.7	82	◐					1407	2.1	64	
	2052	0.8	24		2005	0.6	18					◑	2214	0.6	18	
5 Sa	1316	2.3	70	**20** Su	0307	2.0	61	**5** Tu	0726	2.5	76	**20** W	0617	2.6	79	
	2222	0.9	27		0720	1.8	55		1505	1.6	49		1232	1.6	49	
◐					1304	2.5	76		1732	1.7	52		1649	1.9	58	
					2121	0.7	21						2335	0.7	21	
6 Su	0810	2.2	67	**21** M	0626	2.2	67	**6** W	0004	0.9	27	**21** Th	0706	2.8	85	
					1025	2.0	61		0753	2.6	79		1335	1.2	37	
					1403	2.2	67		1429	1.4	43		1859	1.9	58	
				◑	2302	0.7	21		1927	1.8	55					
7 M	0013	0.9	27	**22** Tu	0723	2.4	73	**7** Th	0102	0.9	27	**22** F	0043	0.8	24	
	0828	2.4	73		1306	1.7	52		0817	2.8	85		0745	3.0	91	
	1449	1.7	52		1723	2.0	61		1445	1.1	34		1420	0.8	24	
	1857	1.9	58						2019	2.0	61		2012	2.1	64	
8 Tu	0123	0.8	24	**23** W	0027	0.7	21	**8** F	0146	0.9	27	**23** Sa	0139	0.8	24	
	0849	2.6	79		0757	2.7	82		0839	2.9	88		0821	3.2	98	
	1453	1.5	46		1400	1.3	40		1506	0.9	27		1459	0.5	15	
	2004	2.1	64		1920	2.1	64		2057	2.1	64		2107	2.3	70	
9 W	0206	0.7	21	**24** Th	0128	0.5	15	**9** Sa	0222	0.8	24	**24** Su	0227	0.8	24	
	0908	2.8	85		0828	3.0	91		0859	3.0	91		0853	3.3	101	
	1511	1.2	37		1439	0.9	27		1529	0.6	18		1536	0.2	6	
	2045	2.2	67		2022	2.4	73		2130	2.3	70		2154	2.4	73	
10 Th	0240	0.6	18	**25** F	0216	0.5	15	**10** Su	0254	0.9	27	**25** M	0309	0.9	27	
	0927	2.9	88		0857	3.2	98		0919	3.1	94		0924	3.3	101	
	1531	1.0	30		1515	0.6	18		1554	0.4	12		1612	0.0	0	
	2118	2.4	73		2110	2.6	79		2200	2.4	73		2237	2.5	76	
11 F	0308	0.6	18	**26** Sa	0258	0.4	12	**11** M	0324	0.9	27	**26** Tu	0348	1.0	30	
	0945	3.0	91		0927	3.3	101		0938	3.2	98		0954	3.3	101	
	1554	0.7	21		1550	0.3	9		1620	0.2	6		1647	- 0.1	- 3	
	2146	2.5	76		2154	2.7	82		2231	2.4	73	●	2319	2.5	76	
12 Sa	0335	0.6	18	**27** Su	0336	0.5	15	**12** Tu	0353	1.0	30	**27** W	0424	1.2	37	
	1002	3.1	94		0955	3.4	104		0958	3.2	98		1022	3.3	101	
	1617	0.6	18		1625	0.1	3		1647	0.1	3		1721	- 0.2	- 6	
	2212	2.5	76		2235	2.7	82	○	2302	2.4	73					
13 Su	0400	0.6	18	**28** M	0411	0.6	18	**13** W	0422	1.1	34	**28** Th	0000	2.5	76	
	1018	3.1	94		1023	3.4	104		1020	3.2	98		0500	1.3	40	
	1640	0.4	12		1659	- 0.1	- 3		1716	0.0	0		1049	3.2	98	
○	2238	2.6	79	●	2315	2.7	82		2336	2.4	73		1756	- 0.1	- 3	
14 M	0424	0.7	21	**29** Tu	0445	0.8	24	**14** Th	0452	1.2	37	**29** F	0041	2.4	73	
	1035	3.1	94		1049	3.4	104		1044	3.2	98		0536	1.5	46	
	1705	0.3	9		1734	- 0.1	- 3		1748	0.0	0		1115	3.0	91	
	2305	2.6	79		2355	2.6	79						1830	0.0	0	
15 Tu	0449	0.8	24	**30** W	0517	1.0	30	**15** F	0015	2.4	73	**30** Sa	0126	2.4	73	
	1053	3.2	98		1114	3.2	98		0524	1.4	43		0614	1.6	49	
	1732	0.3	9		1810	0.0	0		1111	3.1	94		1140	2.8	85	
	2334	2.5	76						1824	0.0	0		1906	0.2	6	
				31 Th	0037	2.4	73									
					0548	1.3	40									
					1138	3.1	94									
					1847	0.2	6									

December

	Time	Height			Time	Height	
	h m	ft	cm		h m	ft	cm
1 Su	0216	2.3	70	**16** M	0156	2.6	79
	0700	1.8	55		0712	1.6	49
	1206	2.6	79		1223	2.7	82
	1944	0.4	12		1942	0.1	3
2 M	0319	2.3	70	**17** Tu	0251	2.6	79
	0806	1.9	58		0821	1.7	52
	1233	2.3	70		1311	2.4	73
	2027	0.6	18		2031	0.4	12
3 Tu	0436	2.3	70	**18** W	0354	2.6	79
	0954	1.9	58		0952	1.6	49
	1302	2.0	61		1415	2.1	64
	2120	0.8	24		2128	0.6	18
4 W	0545	2.4	73	**19** Th	0502	2.7	82
	2226	0.9	27		1134	1.4	43
◐					1607	1.8	55
				◑	2237	0.9	27
5 Th	0635	2.6	79	**20** F	0605	2.8	85
	1336	1.5	46		1300	1.1	34
	1757	1.6	49		1836	1.8	55
	2336	1.1	34		2351	1.1	34
6 F	0713	2.7	82	**21** Sa	0659	2.9	88
	1407	1.2	37		1400	0.8	24
	1940	1.7	52		2012	1.9	58
7 Sa	0038	1.1	34	**22** Su	0102	1.2	37
	0744	2.8	85		0746	3.0	91
	1436	0.9	27		1447	0.5	15
	2036	1.9	58		2116	2.1	64
8 Su	0129	1.1	34	**23** M	0202	1.3	40
	0812	2.9	88		0827	3.1	94
	1505	0.6	18		1527	0.2	6
	2119	2.1	64		2206	2.3	70
9 M	0214	1.2	37	**24** Tu	0253	1.3	40
	0838	3.0	91		0904	3.1	94
	1533	0.4	12		1604	0.0	0
	2157	2.2	67		2249	2.4	73
10 Tu	0254	1.2	37	**25** W	0339	1.4	43
	0905	3.1	94		0937	3.1	94
	1603	0.2	6		1639	- 0.1	- 3
	2232	2.3	70		2328	2.5	76
11 W	0333	1.3	40	**26** Th	0419	1.4	43
	0932	3.1	94		1009	3.1	94
	1634	0.0	0		1712	- 0.1	- 3
	2308	2.4	73	●			
12 Th	0410	1.3	40	**27** F	0003	2.5	76
	1001	3.2	98		0458	1.4	43
	1706	- 0.1	- 3		1039	3.0	91
○	2345	2.5	76		1743	- 0.1	- 3
13 F	0449	1.4	43	**28** Sa	0036	2.6	79
	1032	3.2	98		0536	1.5	46
	1741	- 0.2	- 6		1108	2.9	88
					1814	0.0	0
14 Sa	0025	2.6	79	**29** Su	0108	2.6	79
	0530	1.5	46		0614	1.5	46
	1105	3.1	94		1136	2.8	85
	1818	- 0.2	- 6		1844	0.1	3
15 Su	0108	2.6	79	**30** M	0140	2.5	76
	0617	1.5	46		0656	1.6	49
	1142	2.9	88		1205	2.6	79
	1858	- 0.1	- 3		1914	0.3	9
				31 Tu	0214	2.5	76
					0743	1.6	49
					1236	2.4	73
					1946	0.4	12

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Gibraltar, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 Tu	0519	1.0	30	**16** W	0423	1.0	30	**1** F	0106	2.3	70	**16** Sa	0015	2.3	70
	1152	2.6	80		1047	2.3	70		0650	0.7	20		0612	0.7	20
	1755	0.7	20		1701	0.7	20		1322	2.6	80		1234	2.6	80
					2332	2.3	70		1919	0.7	20		1846	0.3	10
2 W	0025	2.6	80	**17** Th	0531	0.7	20	**2** Sa	0154	2.6	80	**17** Su	0115	2.6	80
	0614	0.7	20		1153	2.6	80		0731	0.7	20		0703	0.3	10
	1245	3.0	90		1802	0.7	20		1407	2.6	80		1331	3.0	90
	1844	0.7	20						1958	0.3	10		1934	0.0	0
3 Th	0117	2.6	80	**18** F	0035	2.6	80	**3** Su	0235	2.6	80	**18** M	0207	3.0	90
	0659	0.7	20		0623	0.7	20		0807	0.3	10		0751	0.0	0
	1332	3.0	90		1250	2.6	80		1447	2.6	80		1423	3.0	90
	1927	0.3	10		1853	0.3	10		2034	0.3	10		2020	0.0	0
4 F	0202	2.6	80	**19** Sa	0129	2.6	80	**4** M	0310	2.6	80	**19** Tu	0255	3.0	90
	0739	0.7	20		0710	0.3	10		0843	0.3	10		0838	0.0	0
	1415	3.0	90		1342	3.0	90		1524	2.6	80		1513	3.3	100
	2006	0.3	10		1940	0.0	0	●	2108	0.3	10	○	2105	- 0.3	- 10
5 Sa	0243	3.0	90	**20** Su	0218	3.0	90	**5** Tu	0343	2.6	80	**20** W	0341	3.3	100
	0816	0.3	10		0757	0.3	10		0916	0.3	10		0924	- 0.3	- 10
	1456	3.0	90		1433	3.3	100		1558	3.0	90		1600	3.3	100
	2044	0.3	10		2026	0.0	0		2141	0.3	10		2148	- 0.3	- 10
6 Su	0321	3.0	90	**21** M	0307	3.3	100	**6** W	0413	3.0	90	**21** Th	0426	3.3	100
	0853	0.3	10		0843	0.0	0		0949	0.3	10		1008	- 0.3	- 10
	1535	3.0	90		1523	3.3	100		1630	3.0	90		1646	3.3	100
●	2120	0.3	10	○	2113	0.0	0		2211	0.3	10		2228	- 0.3	- 10
7 M	0356	3.0	90	**22** Tu	0354	3.3	100	**7** Th	0442	3.0	90	**22** F	0510	3.3	100
	0928	0.3	10		0931	0.0	0		1020	0.3	10		1051	0.0	0
	1611	3.0	90		1612	3.3	100		1701	2.6	80		1732	3.3	100
	2154	0.3	10		2158	0.0	0		2240	0.3	10		2308	0.0	0
8 Tu	0430	3.0	90	**23** W	0440	3.3	100	**8** F	0512	3.0	90	**23** Sa	0555	3.3	100
	1003	0.3	10		1018	0.0	0		1050	0.3	10		1134	0.0	0
	1646	2.6	80		1659	3.3	100		1732	2.6	80		1818	3.0	90
	2228	0.3	10		2242	0.0	0		2309	0.3	10		2348	0.0	0
9 W	0502	2.6	80	**24** Th	0526	3.3	100	**9** Sa	0543	2.6	80	**24** Su	0641	3.0	90
	1037	0.7	20		1105	0.0	0		1122	0.3	10		1218	0.3	10
	1721	2.6	80		1747	3.3	100		1805	2.6	80		1906	2.6	80
	2300	0.3	10		2326	0.0	0		2339	0.3	10				
10 Th	0535	2.6	80	**25** F	0615	3.3	100	**10** Su	0619	2.6	80	**25** M	0030	0.3	10
	1112	0.7	20		1154	0.3	10		1156	0.7	20		0731	2.6	80
	1755	2.6	80		1837	3.0	90		1843	2.6	80		1309	0.3	10
	2333	0.7	20										1957	2.6	80
11 F	0611	2.6	80	**26** Sa	0012	0.3	10	**11** M	0012	0.7	20	**26** Tu	0120	0.7	20
	1148	0.7	20		0706	3.0	90		0700	2.6	80		0827	2.6	80
	1832	2.6	80		1247	0.3	10		1238	0.7	20		1409	0.7	20
					1929	2.6	80		1927	2.3	70	◑	2055	2.3	70
12 Sa	0008	0.7	20	**27** Su	0103	0.3	10	**12** Tu	0055	0.7	20	**27** W	0226	1.0	30
	0652	2.6	80		0801	3.0	90		0750	2.3	70		0932	2.3	70
	1231	0.7	20		1347	0.7	20		1332	0.7	20		1535	1.0	30
	1915	2.3	70	◑	2026	2.6	80	◐	2023	2.3	70		2207	2.0	60
13 Su	0051	0.7	20	**28** M	0203	0.7	20	**13** W	0155	1.0	30	**28** Th	0411	1.0	30
	0739	2.3	70		0902	2.6	80		0851	2.3	70		1054	2.3	70
	1323	1.0	30		1455	0.7	20		1447	0.7	20		1718	1.0	30
	2005	2.3	70		2129	2.3	70		2131	2.0	60		2338	2.0	60
14 M	0148	1.0	30	**29** Tu	0318	1.0	30	**14** Th	0326	1.0	30				
	0834	2.3	70		1010	2.6	80		1005	2.3	70				
	1429	1.0	30		1619	0.7	20		1627	0.7	20				
◐	2104	2.3	70		2246	2.3	70		2256	2.0	60				
15 Tu	0301	1.0	30	**30** W	0448	1.0	30	**15** F	0505	0.7	20				
	0937	2.3	70		1124	2.3	70		1126	2.3	70				
	1545	1.0	30		1739	0.7	20		1749	0.7	20				
	2216	2.3	70												
				31 Th	0004	2.3	70								
					0600	1.0	30								
					1230	2.6	80								
					1835	0.7	20								

February

March

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 F	0548	1.0	30	**16** Sa	0450	1.0	30	**1** Sa	0050	2.3	70	**16** Su	0603	0.7	20
	1213	2.3	70		1106	2.3	70		0640	0.7	20		1222	2.6	80
	1822	0.7	20		1738	0.7	20		1310	2.3	70		1836	0.3	10
					2357	2.3	70		1905	0.7	20				
2 Sa	0050	2.3	70	**17** Su	0603	0.7	20	**2** Su	0139	2.3	70	**17** M	0100	2.6	80
	0640	0.7	20		1222	2.6	80		0718	0.7	20		0655	0.3	10
	1310	2.3	70		1836	0.3	10		1354	2.6	80		1320	2.6	80
	1905	0.7	20						1941	0.3	10		1923	0.0	0
3 Su	0139	2.3	70	**18** M	0100	2.6	80	**3** M	0217	2.6	80	**18** Tu	0152	3.0	90
	0718	0.7	20		0655	0.3	10		0753	0.3	10		0742	0.0	0
	1354	2.6	80		1320	2.6	80		1431	2.6	80		1411	3.0	90
	1941	0.3	10		1923	0.0	0		2015	0.3	10		2007	0.0	0
4 M	0217	2.6	80	**19** Tu	0152	3.0	90	**4** Tu	0250	2.6	80	**19** W	0238	3.3	100
	0753	0.3	10		0742	0.0	0		0825	0.3	10		0826	0.0	0
	1431	2.6	80		1411	3.0	90		1505	2.6	80		1458	3.3	100
	2015	0.3	10		2007	0.0	0		2048	0.3	10		2049	- 0.3	- 10
5 Tu	0250	2.6	80	**20** W	0238	3.3	100	**5** W	0320	3.0	90	**20** Th	0323	3.3	100
	0825	0.3	10		0826	0.0	0		0857	0.3	10		0910	- 0.3	- 10
	1505	2.6	80		1458	3.3	100		1537	3.0	90		1544	3.3	100
	2048	0.3	10		2049	- 0.3	- 10	●	2118	0.3	10	○	2129	- 0.3	- 10
6 W	0320	3.0	90	**21** Th	0323	3.3	100	**6** Th	0348	3.0	90	**21** F	0406	3.3	100
	0857	0.3	10		0910	- 0.3	- 10		0928	0.3	10		0951	- 0.3	- 10
	1537	3.0	90		1544	3.3	100		1608	3.0	90		1628	3.3	100
●	2118	0.3	10	○	2129	- 0.3	- 10		2148	0.3	10		2207	- 0.3	- 10
7 Th	0348	3.0	90	**22** F	0406	3.3	100	**7** F	0417	3.0	90	**22** Sa	0449	3.3	100
	0928	0.3	10		0951	- 0.3	- 10		0958	0.3	10		1031	- 0.3	- 10
	1608	3.0	90		1628	3.3	100		1638	3.0	90		1711	3.3	100
	2148	0.3	10		2207	- 0.3	- 10		2216	0.3	10		2244	0.0	0
8 F	0417	3.0	90	**23** Sa	0449	3.3	100	**8** Sa	0446	3.0	90	**24** Su	0531	3.3	100
	0958	0.3	10		1031	- 0.3	- 10		1027	0.3	10		1110	0.0	0
	1638	3.0	90		1711	3.3	100		1709	3.0	90		1755	3.0	90
	2216	0.3	10		2244	0.0	0		2244	0.3	10		2321	0.0	0
9 Sa	0446	3.0	90	**24** Su	0531	3.3	100	**9** Su	0518	3.0	90	**25** M	0615	3.0	90
	1027	0.3	10		1110	0.0	0		1057	0.3	10		1150	0.3	10
	1709	3.0	90		1755	3.0	90		1742	2.6	80		1841	2.6	80
	2244	0.3	10		2321	0.0	0		2313	0.3	10		2359	0.3	10
10 Su	0518	3.0	90	**25** M	0615	3.0	90	**10** M	0552	3.0	90	**26** Tu	0701	2.6	80
	1057	0.3	10		1150	0.3	10		1129	0.3	10		1233	0.7	20
	1742	2.6	80		1841	2.6	80		1819	2.6	80		1930	2.6	80
	2313	0.3	10		2359	0.3	10		2345	0.3	10				
11 M	0552	3.0	90	**26** Tu	0701	2.6	80	**11** Tu	0631	2.6	80	**27** W	0043	0.7	20
	1129	0.3	10		1233	0.7	20		1207	0.7	20		0753	2.3	70
	1819	2.6	80		1930	2.6	80		1903	2.6	80		1326	0.7	20
	2345	0.3	10										2024	2.3	70
12 Tu	0631	2.6	80	**27** W	0043	0.7	20	**12** W	0024	0.7	20	**28** Th	0142	1.0	30
	1207	0.7	20		0753	2.3	70		0719	2.6	80		0855	2.3	70
	1903	2.6	80		1326	0.7	20		1256	0.7	20		1446	1.0	30
					2024	2.3	70		1957	2.3	70	◑	2128	2.3	70
13 W	0024	0.7	20	**28** Th	0142	1.0	30	**13** Th	0120	1.0	30	**29** F	0321	1.0	30
	0719	2.6	80		0855	2.3	70		0820	2.3	70		1015	2.0	60
	1256	0.7	20		1446	1.0	30		1410	1.0	30		1637	1.0	30
	1957	2.3	70	◑	2128	2.3	70	◐	2105	2.3	70		2255	2.0	60
14 Th	0120	1.0	30	**29** F	0321	1.0	30	**15** F	0252	1.0	30	**30** Sa	0520	1.0	30
	0820	2.3	70		1015	2.0	60		0936	2.3	70		1144	2.3	70
	1410	1.0	30		1637	1.0	30		1605	1.0	30		1750	1.0	30
◐	2105	2.3	70		2255	2.0	60		2231	2.3	70				
15 F	0252	1.0	30	**30** Sa	0520	1.0	30					**31** Su	0015	2.3	70
	0936	2.3	70		1144	2.3	70						0616	1.0	30
	1605	1.0	30		1750	1.0	30						1245	2.3	70
	2231	2.3	70										1835	0.7	20

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Gibraltar, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 M	0106	2.3	70	**16** Tu 0039	2.6	80	**1** W 0057	2.6	80	**16** Th 0104	3.0	90
	0654	0.7	20	0639	0.3	10	0652	0.7	20	0703	0.3	10
	1328	2.6	80	1304	2.6	80	1327	2.6	80	1330	3.0	90
	1911	0.7	20	1902	0.3	10	1906	0.7	20	1917	0.3	10
2 Tu	0143	2.6	80	**17** W 0130	3.0	90	**2** Th 0133	2.6	80	**17** F 0150	3.0	90
	0727	0.7	20	0725	0.0	0	0725	0.7	20	0747	0.0	0
	1404	2.6	80	1353	3.0	90	1402	2.6	80	1416	3.0	90
	1945	0.3	10	1944	0.0	0	1939	0.7	20	1958	0.3	10
3 W	0216	2.6	80	**18** Th 0216	3.3	100	**3** F 0207	3.0	90	**18** Sa 0234	3.3	100
	0759	0.3	10	0808	0.0	0	0758	0.3	10	0828	0.0	0
	1437	3.0	90	1438	3.3	100	1436	3.0	90	1500	3.0	90
	2017	0.3	10	2025	0.0	0	2012	0.3	10	○ 2037	0.3	10
4 Th	0247	3.0	90	**19** F 0300	3.3	100	**4** Sa 0242	3.0	90	**19** Su 0317	3.3	100
	0830	0.3	10	0850	0.0	0	0831	0.3	10	0908	0.0	0
	1509	3.0	90	1523	3.3	100	1511	3.0	90	1544	3.0	90
	2048	0.3	10	○ 2104	0.0	0	● 2045	0.3	10	2116	0.3	10
5 F	0317	3.0	90	**20** Sa 0342	3.3	100	**5** Su 0318	3.3	100	**20** M 0359	3.0	90
	0901	0.3	10	0930	0.0	0	0905	0.3	10	0946	0.0	0
	1541	3.0	90	1606	3.3	100	1547	3.0	90	1626	3.0	90
●	2118	0.3	10	2142	0.0	0	2119	0.3	10	2154	0.3	10
6 Sa	0348	3.0	90	**21** Su 0424	3.3	100	**6** M 0354	3.3	100	**21** Tu 0441	3.0	90
	0932	0.3	10	1008	0.0	0	0939	0.3	10	1024	0.3	10
	1613	3.0	90	1649	3.0	90	1624	3.0	90	1708	3.0	90
	2148	0.3	10	2218	0.0	0	2154	0.3	10	2232	0.3	10
7 Su	0420	3.0	90	**22** M 0505	3.0	90	**7** Tu 0432	3.3	100	**22** W 0523	3.0	90
	1003	0.3	10	1046	0.0	0	1015	0.3	10	1100	0.3	10
	1646	3.0	90	1731	3.0	90	1703	3.0	90	1751	2.6	80
	2218	0.3	10	2255	0.3	10	2231	0.7	20	2310	0.7	20
8 M	0454	3.0	90	**23** Tu 0548	3.0	90	**8** W 0513	3.0	90	**23** Th 0606	2.6	80
	1034	0.3	10	1123	0.3	10	1053	0.3	10	1139	0.7	20
	1721	3.0	90	1815	2.6	80	1746	3.0	90	1835	2.6	80
	2250	0.3	10	2332	0.7	20	2311	0.7	20	2351	0.7	20
9 Tu	0530	3.0	90	**24** W 0632	2.6	80	**9** Th 0557	3.0	90	**24** F 0653	2.3	70
	1108	0.3	10	1203	0.7	20	1135	0.7	20	1224	0.7	20
	1800	3.0	90	1903	2.6	80	1835	3.0	90	1924	2.3	70
	2325	0.7	20				2359	0.7	20			
10 W	0611	2.6	80	**25** Th 0014	0.7	20	**10** F 0648	2.6	80	**25** Sa 0041	1.0	30
	1147	0.7	20	0722	2.3	70	1229	0.7	20	0745	2.3	70
	1846	2.6	80	1252	0.7	20	1932	2.6	80	1322	1.0	30
				1954	2.3	70				2015	2.3	70
11 Th	0007	0.7	20	**26** F 0109	1.0	30	**11** Sa 0102	1.0	30	**26** Su 0146	1.0	30
	0659	2.6	80	0820	2.3	70	0750	2.6	80	0843	2.3	70
	1237	0.7	20	1402	1.0	30	1346	1.0	30	1436	1.0	30
	1942	2.3	70	◑ 2053	2.3	70	2037	2.6	80	◑ 2111	2.3	70
12 F	0106	1.0	30	**27** Sa 0231	1.3	40	**12** Su 0231	1.0	30	**27** M 0304	1.0	30
	0801	2.3	70	0929	2.0	60	0903	2.3	70	0948	2.3	70
	1353	1.0	30	1536	1.0	30	1521	1.0	30	1550	1.0	30
◐	2050	2.3	70	2202	2.3	70	◐ 2153	2.6	80	2211	2.3	70
13 Sa	0241	1.0	30	**28** Su 0418	1.3	40	**13** M 0404	1.0	30	**28** Tu 0422	1.0	30
	0918	2.3	70	1052	2.0	60	1027	2.3	70	1058	2.3	70
	1548	1.0	30	1657	1.0	30	1643	0.7	20	1653	1.0	30
	2213	2.3	70	2318	2.3	70	2310	2.6	80	2311	2.3	70
14 Su	0432	1.0	30	**29** M 0531	1.0	30	**14** Tu 0520	0.7	20	**29** W 0523	1.0	30
	1049	2.3	70	1201	2.3	70	1143	2.6	80	1156	2.3	70
	1718	0.7	20	1750	1.0	30	1745	0.7	20	1742	1.0	30
	2337	2.6	80									
15 M	0547	0.7	20	**30** Tu 0015	2.3	70	**15** W 0012	3.0	90	**30** Th 0002	2.6	80
	1206	2.6	80	0615	1.0	30	0616	0.3	10	0608	0.7	20
	1816	0.3	10	1249	2.3	70	1241	2.6	80	1242	2.6	80
				1830	0.7	20	1834	0.3	10	1823	0.7	20
										31 F 0046	2.6	80
										0647	0.7	20
										1322	2.6	80
										1900	0.7	20

June

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 Sa	0126	3.0	90	**16** Su 0211	3.0	90	**1** Su 0207	3.0	90	**16** M 0255	3.0	90
	0723	0.3	10	0809	0.3	10	0800	0.3	10	0849	0.3	10
	1401	3.0	90	1441	3.0	90	1441	3.0	90	1525	3.0	90
	1936	0.7	20	2016	0.3	10	2013	0.7	20	○ 2056	0.3	10
2 Su	0207	3.0	90	**17** M 0255	3.0	90	**2** M 0248	3.3	100	**17** Tu 0339	3.0	90
	0800	0.3	10	0849	0.3	10	0839	0.3	10	0928	0.3	10
	1441	3.0	90	1525	3.0	90	1522	3.0	90	1607	3.0	90
	2013	0.7	20	○ 2056	0.3	10	● 2052	0.3	10	2135	0.3	10
3 M	0248	3.3	100	**18** Tu 0339	3.0	90	**3** Tu 0331	3.3	100	**18** W 0420	3.0	90
	0839	0.3	10	0928	0.3	10	0918	0.3	10	1005	0.3	10
	1522	3.0	90	1607	3.0	90	1604	3.3	100	1647	3.0	90
●	2052	0.3	10	2135	0.3	10	2133	0.3	10	2213	0.7	20
4 Tu	0331	3.3	100	**19** W 0420	3.0	90	**4** W 0414	3.3	100	**19** Th 0501	3.0	90
	0918	0.3	10	1005	0.3	10	0959	0.3	10	1041	0.3	10
	1604	3.3	100	1647	3.0	90	1648	3.3	100	1726	2.6	80
	2133	0.3	10	2213	0.7	20	2216	0.3	10	2251	0.7	20
5 W	0414	3.3	100	**20** Th 0501	3.0	90	**5** Th 0459	3.3	100	**20** F 0541	2.6	80
	0959	0.3	10	1041	0.3	10	1042	0.3	10	1117	0.7	20
	1648	3.3	100	1726	2.6	80	1733	3.0	90	1806	2.6	80
	2216	0.3	10	2251	0.7	20	2302	0.7	20	2329	0.7	20
6 Th	0459	3.3	100	**21** F 0541	2.6	80	**6** F 0547	3.0	90	**21** Sa 0622	2.6	80
	1042	0.3	10	1117	0.7	20	1128	0.3	10	1156	0.7	20
	1733	3.0	90	1806	2.6	80	1823	3.0	90	1847	2.6	80
	2302	0.7	20	2329	0.7	20	2354	0.7	20			
7 F	0547	3.0	90	**22** Sa 0622	2.6	80	**7** Sa 0639	3.0	90	**22** Su 0011	1.0	30
	1128	0.3	10	1156	0.7	20	1222	0.7	20	0706	2.3	70
	1823	3.0	90	1847	2.6	80	1919	3.0	90	1241	0.7	20
	2354	0.7	20							1931	2.6	80
8 Sa	0639	3.0	90	**23** Su 0011	1.0	30	**8** Su 0056	0.7	20	**23** M 0101	1.0	30
	1222	0.7	20	0706	2.3	70	0739	2.6	80	0755	2.3	70
	1919	3.0	90	1241	0.7	20	1329	0.7	20	1334	1.0	30
				1931	2.6	80	2021	3.0	90	2018	2.3	70
9 Su	0056	0.7	20	**24** M 0101	1.0	30	**9** M 0210	1.0	30	**24** Tu 0159	1.0	30
	0739	2.6	80	0755	2.3	70	0846	2.6	80	0848	2.3	70
	1329	0.7	20	1334	1.0	30	1446	0.7	20	1436	1.0	30
	2021	3.0	90	2018	2.3	70	◐ 2127	2.6	80	◑ 2108	2.3	70
10 M	0210	1.0	30	**25** Tu 0159	1.0	30	**10** Tu 0328	1.0	30	**25** W 0303	1.0	30
	0846	2.6	80	0848	2.3	70	0959	2.6	80	0947	2.3	70
	1446	0.7	20	1436	1.0	30	1601	0.7	20	1542	1.0	30
◐	2127	2.6	80	◑ 2108	2.3	70	2237	2.6	80	2205	2.3	70
11 Tu	0328	1.0	30	**26** W 0303	1.0	30	**11** W 0445	0.7	20	**26** Th 0412	1.0	30
	0959	2.6	80	0947	2.3	70	1113	2.6	80	1053	2.3	70
	1601	0.7	20	1542	1.0	30	1709	0.7	20	1645	1.0	30
	2237	2.6	80	2205	2.3	70	2342	3.0	90	2304	2.6	80
12 W	0445	0.7	20	**27** Th 0412	1.0	30	**12** Th 0550	0.7	20	**27** F 0517	1.0	30
	1113	2.6	80	1053	2.3	70	1215	2.6	80	1153	2.3	70
	1709	0.7	20	1645	1.0	30	1805	0.7	20	1739	1.0	30
	2342	3.0	90	2304	2.6	80				2359	2.6	80
13 Th	0550	0.7	20	**28** F 0517	1.0	30	**13** F 0036	3.0	90	**28** Sa 0609	0.7	20
	1215	2.6	80	1153	2.3	70	0641	0.3	10	1244	2.6	80
	1805	0.7	20	1739	1.0	30	1308	2.6	80	1825	0.7	20
				2359	2.6	80	1852	0.7	20			
14 F	0036	3.0	90	**29** Sa 0609	0.7	20	**14** Sa 0125	3.0	90	**29** Su 0049	3.0	90
	0641	0.3	10	1244	2.6	80	0727	0.3	10	0653	0.7	20
	1308	2.6	80	1825	0.7	20	1355	3.0	90	1330	2.6	80
	1852	0.7	20				1935	0.3	10	1907	0.7	20
15 Sa	0125	3.0	90	**30** Su 0049	3.0	90						
	0727	0.3	10	0653	0.7	20						
	1355	3.0	90	1330	2.6	80						
	1935	0.3	10	1907	0.7	20						

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Gibraltar, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0137	3.0	90	**16** Tu	0240	3.0	90	**1** Th	0257	3.3	100	**16** F	0340	3.0	90	
	0735	0.3	10		0834	0.3	10		0848	0.0	0		0921	0.3	10	
	1416	3.0	90		1510	3.0	90		1531	3.3	100		1558	3.0	90	
	1949	0.7	20	○	2040	0.7	20	●	2107	0.3	10		2132	0.3	10	
2 Tu	0224	3.0	90	**17** W	0322	3.0	90	**2** F	0346	3.3	100	**17** Sa	0413	3.0	90	
	0818	0.3	10		0910	0.3	10		0933	0.0	0		0952	0.3	10	
	1501	3.0	90		1549	3.0	90		1617	3.6	110		1628	3.0	90	
●	2034	0.3	10		2118	0.7	20		2154	0.3	10		2204	0.3	10	
3 W	0312	3.3	100	**18** Th	0402	3.0	90	**3** Sa	0433	3.6	110	**18** Su	0443	3.0	90	
	0902	0.3	10		0946	0.3	10		1016	0.0	0		1022	0.3	10	
	1547	3.3	100		1625	3.0	90		1702	3.6	110		1656	3.0	90	
	2119	0.3	10		2155	0.7	20		2241	0.3	10		2235	0.7	20	
4 Th	0400	3.3	100	**19** F	0438	3.0	90	**4** Su	0521	3.3	100	**19** M	0514	3.0	90	
	0946	0.3	10		1019	0.3	10		1100	0.3	10		1051	0.7	20	
	1633	3.3	100		1659	3.0	90		1749	3.6	110		1726	3.0	90	
	2206	0.3	10		2230	0.7	20		2327	0.3	10		2306	0.7	20	
5 F	0447	3.3	100	**20** Sa	0514	3.0	90	**5** M	0609	3.3	100	**20** Tu	0545	3.0	90	
	1031	0.3	10		1052	0.3	10		1144	0.3	10		1121	0.7	20	
	1720	3.3	100		1732	3.0	90		1837	3.3	100		1758	3.0	90	
	2254	0.3	10		2304	0.7	20						2338	0.7	20	
6 Sa	0536	3.3	100	**21** Su	0548	2.6	80	**6** Tu	0016	0.3	10	**21** W	0621	2.6	80	
	1117	0.3	10		1124	0.7	20		0701	3.0	90		1153	0.7	20	
	1808	3.3	100		1805	2.6	80		1233	0.7	20		1835	3.0	90	
	2344	0.3	10		2339	0.7	20		1929	3.3	100					
7 Su	0627	3.0	90	**22** M	0625	2.6	80	**7** W	0110	0.7	20	**22** Th	0014	0.7	20	
	1207	0.3	10		1159	0.7	20		0757	3.0	90		0703	2.6	80	
	1901	3.3	100		1842	2.6	80		1327	0.7	20		1231	1.0	30	
								◐	2025	3.0	90		1919	2.6	80	
8 M	0039	0.7	20	**23** Tu	0017	0.7	20	**8** Th	0212	1.0	30	**23** F	0100	1.0	30	
	0723	3.0	90		0704	2.6	80		0859	2.6	80		0757	2.3	70	
	1303	0.7	20		1238	1.0	30		1433	1.0	30		1324	1.0	30	
	1957	3.0	90		1922	2.6	80		2128	2.6	80	◑	2014	2.6	80	
9 Tu	0142	0.7	20	**24** W	0101	1.0	30	**9** F	0329	1.0	30	**24** Sa	0204	1.0	30	
	0823	2.6	80		0751	2.3	70		1010	2.6	80		0903	2.3	70	
	1407	0.7	20		1325	1.0	30		1557	1.0	30		1445	1.3	40	
◐	2058	3.0	90		2009	2.6	80		2241	2.6	80		2120	2.6	80	
10 W	0251	0.7	20	**25** Th	0155	1.0	30	**10** Sa	0503	1.0	30	**25** Su	0338	1.0	30	
	0929	2.6	80		0846	2.3	70		1130	2.6	80		1024	2.3	70	
	1517	1.0	30		1426	1.0	30		1724	1.0	30		1626	1.3	40	
	2203	2.6	80	◑	2104	2.6	80		2355	2.6	80		2240	2.6	80	
11 Th	0407	0.7	20	**26** F	0301	1.0	30	**11** Su	0613	1.0	30	**26** M	0515	1.0	30	
	1041	2.6	80		0951	2.3	70		1238	2.6	80		1145	2.6	80	
	1632	1.0	30		1541	1.0	30		1824	1.0	30		1740	1.0	30	
	2311	2.6	80		2207	2.6	80						2357	2.6	80	
12 F	0524	0.7	20	**27** Sa	0422	1.0	30	**12** M	0056	2.6	80	**27** Tu	0617	0.7	20	
	1151	2.6	80		1105	2.3	70		0700	0.7	20		1247	3.0	90	
	1741	1.0	30		1657	1.0	30		1332	2.6	80		1835	0.7	20	
					2316	2.6	80		1909	1.0	30					
13 Sa	0013	2.6	80	**28** Su	0536	0.7	20	**13** Tu	0145	3.0	90	**28** W	0059	3.0	90	
	0624	0.7	20		1211	2.6	80		0739	0.7	20		0704	0.3	10	
	1251	2.6	80		1758	1.0	30		1415	3.0	90		1339	3.3	100	
	1835	0.7	20						1947	0.7	20		1922	0.3	10	
14 Su	0107	3.0	90	**29** M	0019	2.6	80	**14** W	0228	3.0	90	**29** Th	0152	3.3	100	
	0713	0.7	20		0630	0.7	20		0815	0.7	20		0748	0.3	10	
	1342	2.6	80		1306	2.6	80		1453	3.0	90		1427	3.3	100	
	1920	0.7	20		1847	0.7	20		2023	0.7	20		2007	0.3	10	
15 M	0155	3.0	90	**30** Tu	0115	3.0	90	**15** Th	0306	3.0	90	**30** F	0242	3.3	100	
	0755	0.3	10		0717	0.3	10		0849	0.3	10		0832	0.0	0	
	1428	3.0	90		1356	3.0	90		1527	3.0	90		1513	3.6	110	
	2001	0.7	20		1934	0.7	20	○	2058	0.7	20	●	2053	0.0	0	
				31 W	0206	3.3	100					**31** Sa	0330	3.6	110	
					0803	0.3	10						0914	0.0	0	
					1444	3.3	100						1557	3.6	110	
					2020	0.3	10						2138	0.0	0	

August

September

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Su	0416	3.6	110	**16** M	0412	3.3	100	**1** Tu	0501	3.6	110	**16** W	0512	3.3	100	
	0956	0.0	0		0951	0.7	20		1037	0.3	10		1048	0.7	20	
	1641	3.6	110		1623	3.3	100		1725	3.6	110		1724	3.3	100	
	2222	0.0	0		2205	0.7	20		2304	0.3	10		2305	0.7	20	
2 M	0501	3.6	110	**17** Tu	0441	3.3	100	**2** W	0547	3.3	100	**17** Th	0547	3.0	90	
	1037	0.3	10		1019	0.7	20		1117	0.3	10		1119	1.0	30	
	1725	3.6	110		1652	3.3	100		1810	3.6	110		1800	3.0	90	
	2304	0.3	10		2235	0.7	20		2348	0.3	10		2339	0.7	20	
3 Tu	0547	3.3	100	**18** W	0512	3.3	100	**3** Th	0635	3.3	100	**18** F	0629	3.0	90	
	1117	0.3	10		1048	0.7	20		1200	0.7	20		1155	1.0	30	
	1810	3.6	110		1724	3.3	100		1858	3.3	100		1844	3.0	90	
	2348	0.3	10		2305	0.7	20									
4 W	0635	3.3	100	**19** Th	0547	3.0	90	**4** F	0035	0.7	20	**19** Sa	0021	1.0	30	
	1200	0.7	20		1119	1.0	30		0727	3.0	90		0723	2.6	80	
	1858	3.3	100		1800	3.0	90		1248	1.0	30		1245	1.3	40	
					2339	0.7	20		1951	3.0	90		1938	2.6	80	
5 Th	0035	0.7	20	**20** F	0629	3.0	90	**5** Sa	0131	1.0	30	**20** Su	0122	1.3	40	
	0727	3.0	90		1155	1.0	30		0827	2.6	80		0830	2.6	80	
	1248	1.0	30		1844	3.0	90		1350	1.3	40		1409	1.3	40	
	1951	3.0	90					◐	2053	2.6	80	◑	2048	2.6	80	
6 F	0131	1.0	30	**21** Sa	0021	1.0	30	**6** Su	0248	1.3	40	**21** M	0310	1.3	40	
	0827	2.6	80		0723	2.6	80		0938	2.6	80		0953	2.6	80	
	1350	1.3	40		1245	1.3	40		1520	1.3	40		1606	1.3	40	
◐	2053	2.6	80		1938	2.6	80		2211	2.6	80		2214	2.6	80	
7 Sa	0248	1.3	40	**22** Su	0122	1.3	40	**7** M	0439	1.3	40	**22** Tu	0501	1.0	30	
	0938	2.6	80		0830	2.6	80		1107	2.6	80		1123	2.6	80	
	1520	1.3	40		1409	1.3	40		1708	1.3	40		1726	1.0	30	
	2211	2.6	80	◑	2048	2.6	80		2340	2.6	80		2342	2.6	80	
8 Su	0439	1.3	40	**23** M	0310	1.3	40	**8** Tu	0556	1.0	30	**23** W	0602	0.7	20	
	1107	2.6	80		0953	2.6	80		1223	2.6	80		1229	3.0	90	
	1708	1.3	40		1606	1.3	40		1811	1.3	40		1820	0.7	20	
	2340	2.6	80		2214	2.6	80									
9 M	0556	1.0	30	**24** Tu	0501	1.0	30	**9** W	0045	2.6	80	**24** Th	0045	3.0	90	
	1223	2.6	80		1123	2.6	80		0641	1.0	30		0648	0.7	20	
	1811	1.3	40		1726	1.0	30		1315	3.0	90		1320	3.3	100	
					2342	2.6	80		1852	1.0	30		1906	0.3	10	
10 Tu	0045	2.6	80	**25** W	0602	0.7	20	**10** Th	0132	3.0	90	**25** F	0137	3.3	100	
	0641	1.0	30		1229	3.0	90		0717	0.7	20		0730	0.3	10	
	1315	3.0	90		1820	0.7	20		1354	3.0	90		1406	3.6	110	
	1852	1.0	30						1927	1.0	30		1950	0.3	10	
11 W	0132	3.0	90	**26** Th	0045	3.0	90	**11** F	0209	3.0	90	**26** Sa	0224	3.6	110	
	0717	0.7	20		0648	0.7	20		0821	0.7	20		0811	0.3	10	
	1354	3.0	90		1320	3.3	100		1458	3.3	100		1450	3.6	110	
	1927	1.0	30		1906	0.3	10		2032	0.7	20	●	2034	0.0	0	
12 Th	0209	3.0	90	**27** F	0137	3.3	100	**12** Sa	0313	3.3	100	**27** Su	0310	3.6	110	
	0750	0.7	20		0730	0.3	10		0852	0.7	20		0852	0.0	0	
	1427	3.0	90		1406	3.6	110		1526	3.3	100		1534	3.9	120	
	2000	0.7	20		1950	0.3	10	○	2104	0.7	20		2117	0.0	0	
13 F	0242	3.0	90	**28** Sa	0224	3.6	110	**13** Su	0343	3.3	100	**28** M	0354	3.6	110	
	0821	0.7	20		0811	0.3	10		0922	0.3	10		0932	0.0	0	
	1458	3.3	100		1450	3.6	110		1554	3.3	100		1617	3.9	120	
	2032	0.7	20	●	2034	0.0	0		2135	0.3	10		2158	0.0	0	
14 Sa	0313	3.3	100	**29** Su	0310	3.6	110									
	0852	0.7	20		0852	0.0	0									
	1526	3.3	100		1534	3.9	120									
○	2104	0.7	20		2117	0.0	0									
15 Su	0343	3.3	100	**30** M	0354	3.6	110									
	0922	0.3	10		0932	0.0	0									
	1554	3.3	100		1617	3.9	120									
	2135	0.3	10		2158	0.0	0									

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Gibraltar, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0438	3.6 110	**16** W	0414	3.3 100
	1011	0.3 10		0950	0.7 20
	1659	3.6 110		1625	3.3 100
	2238	0.3 10		2207	0.7 20
2 W	0521	3.6 110	**17** Th	0447	3.3 100
	1049	0.3 10		1021	0.7 20
	1742	3.6 110		1659	3.3 100
	2318	0.3 10		2239	0.7 20
3 Th	0607	3.3 100	**18** F	0523	3.3 100
	1128	0.7 20		1054	1.0 30
	1827	3.3 100		1736	3.3 100
				2314	0.7 20
4 F	0000	0.7 20	**19** Sa	0606	3.0 90
	0656	3.0 90		1133	1.0 30
	1213	1.0 30		1821	3.0 90
	1918	3.0 90		2356	1.0 30
5 Sa ◐	0051	1.0 30	**20** Su	0700	3.0 90
	0754	2.6 80		1224	1.3 40
	1310	1.3 40		1917	2.6 80
	2019	2.6 80			
6 Su	0204	1.3 40	**21** M ◑	0057	1.3 40
	0902	2.6 80		0808	2.6 80
	1442	1.6 50		1354	1.3 40
	2136	2.3 70		2027	2.6 80
7 M	0359	1.3 40	**22** Tu	0253	1.3 40
	1030	2.6 80		0929	2.6 80
	1637	1.6 50		1548	1.3 40
	2314	2.6 80		2154	2.6 80
8 Tu	0524	1.3 40	**23** W	0439	1.0 30
	1152	2.6 80		1058	2.6 80
	1743	1.3 40		1706	1.0 30
				2324	2.6 80
9 W	0023	2.6 80	**24** Th	0541	1.0 30
	0611	1.0 30		1206	3.0 90
	1244	3.0 90		1801	0.7 20
	1824	1.0 30			
10 Th	0107	3.0 90	**25** F	0028	3.0 90
	0646	1.0 30		0627	0.7 20
	1321	3.0 90		1257	3.3 100
	1858	1.0 30		1847	0.3 10
11 F	0142	3.0 90	**26** Sa	0119	3.3 100
	0719	0.7 20		0709	0.3 10
	1353	3.3 100		1342	3.6 110
	1930	0.7 20		1930	0.3 10
12 Sa	0213	3.3 100	**27** Su	0204	3.6 110
	0750	0.7 20		0748	0.3 10
	1422	3.3 100		1426	3.6 110
	2002	0.7 20		2012	0.0 0
13 Su ○	0243	3.3 100	**28** M ●	0248	3.6 110
	0820	0.7 20		0827	0.3 10
	1451	3.3 100		1509	3.6 110
	2034	0.7 20		2054	0.0 0
14 M	0312	3.3 100	**29** Tu	0331	3.6 110
	0850	0.7 20		0906	0.3 10
	1521	3.3 100		1551	3.6 110
	2105	0.7 20		2134	0.0 0
15 Tu	0342	3.3 100	**30** W	0414	3.6 110
	0920	0.7 20		0945	0.3 10
	1552	3.3 100		1634	3.6 110
	2136	0.7 20		2213	0.3 10
			31 Th	0456	3.3 100
				1023	0.7 20
				1716	3.3 100
				2252	0.7 20

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0540	3.3 100	**16** Sa	0508	3.3 100
	1102	0.7 20		1038	1.0 30
	1800	3.0 90		1723	3.3 100
	2332	0.7 20		2259	0.7 20
2 Sa	0627	3.0 90	**17** Su	0553	3.0 90
	1145	1.0 30		1122	1.0 30
	1849	2.6 80		1809	3.0 90
				2345	1.0 30
3 Su	0018	1.0 30	**18** M	0647	3.0 90
	0721	2.6 80		1219	1.0 30
	1240	1.3 40		1906	3.0 90
	1947	2.6 80			
4 M ◐	0124	1.3 40	**19** Tu ◑	0048	1.0 30
	0825	2.6 80		0751	2.6 80
	1403	1.3 40		1344	1.3 40
	2056	2.3 70		2013	2.6 80
5 Tu	0304	1.3 40	**20** W	0228	1.3 40
	0939	2.6 80		0907	2.6 80
	1544	1.3 40		1520	1.3 40
	2222	2.3 70		2133	2.6 80
6 W	0432	1.3 40	**21** Th	0403	1.0 30
	1059	2.6 80		1028	2.6 80
	1658	1.3 40		1637	1.0 30
	2340	2.6 80		2258	2.6 80
7 Th	0529	1.3 40	**22** F	0511	1.0 30
	1157	2.6 80		1137	3.0 90
	1746	1.0 30		1737	0.7 20
8 F	0030	2.6 80	**23** Sa	0005	3.0 90
	0610	1.0 30		0602	0.7 20
	1239	3.0 90		1232	3.3 100
	1824	1.0 30		1826	0.3 10
9 Sa	0108	3.0 90	**24** Su	0058	3.0 90
	0645	1.0 30		0646	0.3 10
	1313	3.0 90		1318	3.3 100
	1859	0.7 20		1911	0.3 10
10 Su	0140	3.0 90	**25** M	0144	3.3 100
	0718	0.7 20		0727	0.3 10
	1345	3.3 100		1403	3.3 100
	1932	0.7 20		1954	0.3 10
11 M	0212	3.3 100	**26** Tu ●	0228	3.3 100
	0749	0.7 20		0807	0.3 10
	1418	3.3 100		1446	3.3 100
	2004	0.7 20		2035	0.0 0
12 Tu ○	0244	3.3 100	**27** W	0311	3.3 100
	0820	0.7 20		0846	0.3 10
	1452	3.3 100		1530	3.3 100
	2037	0.3 10		2116	0.3 10
13 W	0317	3.3 100	**28** Th	0354	3.3 100
	0852	0.7 20		0926	0.3 10
	1527	3.3 100		1613	3.3 100
	2111	0.3 10		2155	0.3 10
14 Th	0352	3.3 100	**29** F	0436	3.3 100
	0926	0.7 20		1005	0.7 20
	1604	3.3 100		1656	3.0 90
	2145	0.7 20		2233	0.3 10
15 F	0428	3.3 100	**30** Sa	0518	3.0 90
	1001	0.7 20		1045	0.7 20
	1642	3.3 100		1739	3.0 90
	2221	0.7 20		2312	0.7 20

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0603	3.0 90	**16** M	0545	3.0 90
	1127	1.0 30		1119	0.7 20
	1825	2.6 80		1804	3.0 90
	2356	1.0 30		2342	0.7 20
2 M	0652	2.6 80	**17** Tu	0637	3.0 90
	1217	1.0 30		1216	1.0 30
	1917	2.6 80		1857	3.0 90
3 Tu	0050	1.0 30	**18** W	0040	0.7 20
	0746	2.6 80		0736	3.0 90
	1323	1.3 40		1328	1.0 30
	2014	2.3 70		1958	2.6 80
4 W ◐	0204	1.3 40	**19** Th ◑	0155	1.0 30
	0846	2.3 70		0842	2.6 80
	1443	1.3 40		1447	1.0 30
	2118	2.3 70		2108	2.6 80
5 Th	0325	1.3 40	**20** F	0317	1.0 30
	0951	2.3 70		0955	2.6 80
	1558	1.3 40		1603	0.7 20
	2232	2.3 70		2225	2.6 80
6 F	0435	1.0 30	**21** Sa	0433	1.0 30
	1055	2.6 80		1106	3.0 90
	1659	1.0 30		1712	0.7 20
	2338	2.3 70		2338	2.6 80
7 Sa	0528	1.0 30	**22** Su	0536	0.7 20
	1148	2.6 80		1206	3.0 90
	1747	1.0 30		1809	0.3 10
8 Su	0026	2.6 80	**23** M	0038	2.6 80
	0610	1.0 30		0627	0.7 20
	1231	3.0 90		1259	3.0 90
	1827	0.7 20		1858	0.3 10
9 M	0106	2.6 80	**24** Tu	0128	3.0 90
	0647	0.7 20		0712	0.3 10
	1310	3.0 90		1346	3.0 90
	1904	0.7 20		1943	0.3 10
10 Tu	0142	3.0 90	**25** W	0215	3.0 90
	0721	0.7 20		0754	0.3 10
	1348	3.0 90		1432	3.0 90
	1940	0.7 20		2025	0.3 10
11 W	0219	3.0 90	**26** Th ●	0300	3.0 90
	0755	0.7 20		0835	0.3 10
	1427	3.3 100		1516	3.0 90
	2016	0.3 10		2106	0.3 10
12 Th ○	0257	3.3 100	**27** F	0342	3.0 90
	0831	0.7 20		0915	0.3 10
	1507	3.3 100		1600	3.0 90
	2053	0.3 10		2145	0.3 10
13 F	0336	3.3 100	**28** Sa	0423	3.0 90
	0909	0.7 20		0954	0.3 10
	1549	3.3 100		1642	3.0 90
	2132	0.3 10		2222	0.3 10
14 Sa	0417	3.3 100	**29** Su	0503	3.0 90
	0949	0.7 20		1033	0.7 20
	1632	3.3 100		1723	2.6 80
	2212	0.3 10		2259	0.3 10
15 Su	0459	3.3 100	**30** M	0542	2.6 80
	1032	0.7 20		1112	0.7 20
	1716	3.3 100		1804	2.6 80
	2254	0.7 20		2337	0.7 20
			31 Tu	0623	2.6 80
				1154	0.7 20
				1846	2.6 80

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Lisbon, Portugal, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0517	3.9	120	**16** W	0413	4.6	140
	1150	10.5	320		1044	9.8	300
	1750	3.6	110		1647	3.9	120
					2326	10.2	310
2 W	0023	10.8	330	**17** Th	0523	4.3	130
	0618	3.6	110		1154	10.2	310
	1248	10.8	330		1751	3.6	110
	1843	3.3	100				
3 Th	0114	11.2	340	**18** F	0028	10.8	330
	0711	3.3	100		0626	3.3	100
	1338	10.8	330		1256	10.8	330
	1929	3.3	100		1849	3.0	90
4 F	0159	11.5	350	**19** Sa	0125	11.5	350
	0756	3.0	90		0723	2.6	80
	1422	11.2	340		1353	11.5	350
	2010	3.0	90		1942	2.3	70
5 Sa	0240	11.8	360	**20** Su	0217	12.1	370
	0837	3.0	90		0816	2.0	60
	1502	11.2	340		1446	11.8	360
	2047	3.0	90		2033	2.0	60
6 Su	0318	11.8	360	**21** M	0308	12.8	390
	0914	2.6	80		0905	1.3	40
	1539	11.2	340		1536	12.5	380
●	2123	3.0	90	○	2121	1.6	50
7 M	0353	11.8	360	**22** Tu	0356	13.1	400
	0950	2.6	80		0953	1.0	30
	1613	11.2	340		1623	12.5	380
	2156	3.0	90		2207	1.3	40
8 Tu	0426	11.8	360	**23** W	0443	13.5	410
	1023	2.6	80		1039	1.0	30
	1645	10.8	330		1710	12.5	380
	2229	3.0	90		2252	1.3	40
9 W	0459	11.5	350	**24** Th	0529	13.5	410
	1057	3.0	90		1125	1.0	30
	1717	10.8	330		1756	12.1	370
	2302	3.3	100		2338	1.6	50
10 Th	0531	11.5	350	**25** F	0616	12.8	390
	1130	3.0	90		1211	1.6	50
	1751	10.5	320		1843	11.5	350
	2336	3.6	110				
11 F	0605	11.2	340	**26** Sa	0026	2.3	70
	1205	3.3	100		0704	12.1	370
	1827	10.2	310		1300	2.3	70
					1934	10.8	330
12 Sa	0014	3.9	120	**27** Su	0117	3.0	90
	0643	10.5	320		0757	11.2	340
	1245	3.6	110		1354	3.3	100
	1909	9.8	300	◑	2031	10.5	320
13 Su	0057	4.3	130	**28** M	0217	3.6	110
	0728	10.2	310		0859	10.5	320
	1331	3.9	120		1457	3.9	120
	2001	9.5	290		2138	9.8	300
14 M	0151	4.6	140	**29** Tu	0329	4.3	130
	0823	9.8	300		1010	9.8	300
	1429	4.3	130		1610	4.3	130
◐	2105	9.5	290		2250	9.8	300
15 Tu	0259	4.9	150	**30** W	0448	4.3	130
	0930	9.8	300		1124	9.8	300
	1538	4.3	130		1722	4.3	130
	2217	9.5	290		2358	10.2	310
				31 Th	0601	4.3	130
					1229	9.8	300
					1824	3.9	120

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0055	10.5	320	**16** Sa	0003	10.5	320
	0659	3.6	110		0607	3.6	110
	1323	10.2	310		1240	10.5	320
	1914	3.6	110		1832	3.3	100
2 Sa	0143	10.8	330	**17** Su	0108	11.2	340
	0746	3.3	100		0710	2.6	80
	1408	10.5	320		1341	11.2	340
	1956	3.3	100		1929	2.6	80
3 Su	0225	11.5	350	**18** M	0203	12.1	370
	0825	3.0	90		0804	1.6	50
	1447	10.8	330		1434	12.1	370
	2033	3.0	90		2020	1.6	50
4 M	0302	11.5	350	**19** Tu	0254	13.1	400
	0900	2.6	80		0853	1.0	30
	1523	10.8	330		1522	12.5	380
●	2107	2.6	80	○	2108	1.3	40
5 Tu	0337	11.8	360	**20** W	0342	13.5	410
	0933	2.3	70		0938	0.7	20
	1555	11.2	340		1608	12.8	390
	2140	2.6	80		2152	1.0	30
6 W	0409	11.8	360	**21** Th	0427	13.8	420
	1004	2.3	70		1022	0.7	20
	1627	11.2	340		1652	12.8	390
	2211	2.6	80		2235	1.0	30
7 Th	0440	11.8	360	**22** F	0512	13.5	410
	1034	2.3	70		1104	1.0	30
	1657	11.2	340		1735	12.5	380
	2241	2.6	80		2318	1.3	40
8 F	0511	11.8	360	**23** Sa	0555	13.1	400
	1104	2.6	80		1146	1.6	50
	1728	10.8	330		1818	12.1	370
	2312	3.0	90				
9 Sa	0542	11.5	350	**24** Su	0001	2.0	60
	1136	2.6	80		0639	12.1	370
	1801	10.8	330		1229	2.3	70
	2345	3.3	100		1902	11.2	340
10 Su	0617	11.2	340	**25** M	0047	3.0	90
	1209	3.0	90		0726	11.2	340
	1837	10.5	320		1316	3.3	100
					1952	10.5	320
11 M	0022	3.6	110	**26** Tu	0141	3.6	110
	0655	10.5	320		0820	10.2	310
	1249	3.6	110		1413	4.3	130
	1920	9.8	300	◑	2053	9.8	300
12 Tu	0107	3.9	120	**27** W	0250	4.6	140
	0742	10.2	310		0931	9.2	280
	1338	3.9	120		1528	4.9	150
◐	2014	9.5	290		2211	9.5	290
13 W	0207	4.3	130	**28** Th	0417	4.9	150
	0844	9.5	290		1056	9.2	280
	1445	4.3	130		1653	4.9	150
	2126	9.5	290		2330	9.5	290
14 Th	0327	4.6	140				
	1004	9.5	290				
	1606	4.3	130				
	2248	9.8	300				
15 F	0452	4.3	130				
	1128	9.8	300				
	1724	3.9	120				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0541	4.6	140	**16** Sa	0432	4.3	130
	1210	9.2	280		1112	9.8	300
	1804	4.6	140		1705	4.3	130
					2344	10.5	320
2 Sa	0034	10.2	310	**17** Su	0552	3.6	110
	0644	4.3	130		1227	10.5	320
	1307	9.8	300		1817	3.6	110
	1857	4.3	130				
3 Su	0124	10.5	320	**18** M	0051	11.5	350
	0730	3.6	110		0656	2.6	80
	1351	10.2	310		1326	11.5	350
	1939	3.6	110		1914	2.6	80
4 M	0205	11.2	340	**19** Tu	0147	12.5	380
	0807	3.0	90		0748	1.6	50
	1428	10.8	330		1417	12.1	370
	2015	3.0	90		2004	2.0	60
5 Tu	0241	11.5	350	**20** W	0237	13.1	400
	0839	2.6	80		0835	1.0	30
	1502	11.2	340		1504	12.8	390
	2047	2.6	80		2050	1.3	40
6 W	0314	11.8	360	**21** Th	0323	13.8	420
	0910	2.3	70		0918	0.7	20
	1533	11.5	350		1548	13.1	400
●	2118	2.6	80	○	2133	1.0	30
7 Th	0346	12.1	370	**22** F	0407	13.8	420
	0939	2.3	70		1000	0.7	20
	1603	11.5	350		1630	13.1	400
	2148	2.3	70		2214	1.0	30
8 F	0417	12.1	370	**23** Sa	0450	13.5	410
	1008	2.0	60		1039	1.0	30
	1634	11.5	350		1710	12.8	390
	2218	2.3	70		2255	1.3	40
9 Sa	0448	12.1	370	**24** Su	0531	12.8	390
	1037	2.3	70		1119	1.6	50
	1704	11.5	350		1750	12.1	370
	2248	2.3	70		2336	2.0	60
10 Su	0520	11.8	360	**25** M	0611	12.1	370
	1107	2.3	70		1158	2.6	80
	1736	11.2	340		1830	11.5	350
	2320	2.6	80				
11 M	0553	11.5	350	**26** Tu	0018	3.0	90
	1140	2.6	80		0653	10.8	330
	1811	10.8	330		1240	3.6	110
	2356	3.0	90		1913	10.5	320
12 Tu	0630	10.8	330	**27** W	0107	3.9	120
	1217	3.3	100		0741	9.8	300
	1851	10.5	320		1330	4.6	140
					2007	9.8	300
13 W	0039	3.6	110	**28** Th	0211	4.6	140
	0715	10.2	310		0848	9.2	280
	1304	3.9	120		1442	5.2	160
	1941	9.8	300	◑	2124	9.2	280
14 Th	0136	4.3	130	**29** F	0339	4.9	150
	0815	9.8	300		1020	8.9	270
	1408	4.6	140		1614	5.2	160
◐	2051	9.8	300		2252	9.2	280
15 F	0257	4.6	140	**30** Sa	0509	4.9	150
	0939	9.5	290		1142	9.2	280
	1537	4.6	140		1733	4.9	150
	2220	9.8	300				
				31 Su	0003	9.8	300
					0614	4.6	140
					1240	9.5	290
					1829	4.6	140

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Lisbon, Portugal, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0054	10.5 320	**16** Tu	0030	11.5 350
	0700	3.9 120		0635	2.6 80
	1323	10.2 310		1306	11.5 350
	1911	3.9 120		1854	2.6 80
2 Tu	0135	10.8 330	**17** W	0126	12.5 380
	0737	3.3 100		0726	2.0 60
	1400	10.8 330		1356	12.5 380
	1947	3.3 100		1943	2.0 60
3 W	0211	11.5 350	**18** Th	0215	13.1 400
	0809	3.0 90		0812	1.3 40
	1433	11.2 340		1441	12.8 390
	2019	3.0 90		2028	1.3 40
4 Th	0245	11.8 360	**19** F	0301	13.5 410
	0839	2.6 80		0854	1.0 30
	1504	11.5 350		1524	13.1 400
	2050	2.6 80	○	2111	1.3 40
5 F	0318	12.1 370	**20** Sa	0345	13.5 410
	0909	2.3 70		0934	1.3 40
	1536	11.8 360		1605	13.1 400
●	2121	2.3 70		2152	1.3 40
6 Sa	0350	12.1 370	**21** Su	0426	13.1 400
	0939	2.0 60		1013	1.6 50
	1608	12.1 370		1645	12.8 390
	2153	2.3 70		2232	1.6 50
7 Su	0423	12.1 370	**22** M	0506	12.5 380
	1010	2.0 60		1051	2.3 70
	1640	12.1 370		1723	12.1 370
	2225	2.3 70		2311	2.3 70
8 M	0458	12.1 370	**23** Tu	0544	11.5 350
	1042	2.3 70		1128	3.0 90
	1715	11.8 360		1800	11.5 350
	2300	2.6 80		2352	3.0 90
9 Tu	0534	11.5 350	**24** W	0623	10.8 330
	1116	2.6 80		1207	3.6 110
	1751	11.5 350		1839	10.8 330
	2338	3.0 90			
10 W	0613	11.2 340	**25** Th	0038	3.9 120
	1155	3.3 100		0706	9.8 300
	1832	10.8 330		1253	4.6 140
				1926	10.2 310
11 Th	0023	3.3 100	**26** F	0136	4.6 140
	0700	10.5 320		0803	9.2 280
	1244	3.9 120		1357	5.2 160
	1923	10.5 320	◑	2031	9.5 290
12 F	0123	3.9 120	**27** Sa	0253	4.9 150
	0802	9.8 300		0928	8.9 270
	1350	4.6 140		1522	5.6 170
◐	2033	10.2 310		2156	9.2 280
13 Sa	0244	4.3 130	**28** Su	0417	4.9 150
	0927	9.5 290		1055	8.9 270
	1519	4.9 150		1643	5.2 160
	2201	10.2 310		2313	9.5 290
14 Su	0416	4.3 130	**29** M	0525	4.6 140
	1057	9.8 300		1158	9.5 290
	1646	4.3 130		1744	4.9 150
	2324	10.8 330			
15 M	0533	3.6 110	**30** Tu	0010	10.2 310
	1209	10.8 330		0616	4.3 130
	1757	3.6 110		1244	10.2 310
				1831	4.3 130

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0054	10.8 330	**16** Th	0101	12.1 370
	0655	3.6 110		0700	2.3 70
	1322	10.8 330		1331	12.1 370
	1909	3.6 110		1920	2.3 70
2 Th	0133	11.2 340	**17** F	0152	12.5 380
	0730	3.0 90		0747	2.0 60
	1357	11.2 340		1417	12.5 380
	1944	3.3 100		2006	2.0 60
3 F	0210	11.5 350	**18** Sa	0238	12.8 390
	0803	2.6 80		0829	1.6 50
	1431	11.8 360		1500	12.8 390
	2019	2.6 80	○	2049	1.6 50
4 Sa	0246	11.8 360	**19** Su	0322	12.5 380
	0836	2.3 70		0910	2.0 60
	1506	12.1 370		1542	12.8 390
●	2053	2.3 70		2131	2.0 60
5 Su	0323	12.1 370	**20** M	0403	12.1 370
	0910	2.3 70		0948	2.3 70
	1541	12.1 370		1621	12.5 380
	2129	2.3 70		2211	2.3 70
6 M	0400	12.1 370	**21** Tu	0442	11.8 360
	0945	2.3 70		1025	2.6 80
	1618	12.1 370		1658	12.1 370
	2206	2.3 70		2250	2.6 80
7 Tu	0439	12.1 370	**22** W	0519	11.2 340
	1021	2.3 70		1102	3.3 100
	1657	12.1 370		1734	11.5 350
	2245	2.3 70		2330	3.3 100
8 W	0519	11.5 350	**23** Th	0556	10.5 320
	1100	2.6 80		1140	3.6 110
	1737	11.8 360		1811	10.8 330
	2328	2.6 80			
9 Th	0603	11.2 340	**24** F	0013	3.6 110
	1144	3.3 100		0635	9.8 300
	1822	11.5 350		1223	4.3 130
				1853	10.5 320
10 F	0018	3.3 100	**25** Sa	0102	4.3 130
	0654	10.5 320		0723	9.5 290
	1236	3.9 120		1316	4.9 150
	1916	10.8 330		1944	9.8 300
11 Sa	0119	3.6 110	**26** Su	0203	4.6 140
	0757	10.2 310		0828	8.9 270
	1343	4.3 130		1424	5.2 160
	2024	10.5 320	◑	2051	9.5 290
12 Su	0235	3.9 120	**27** M	0313	4.9 150
	0916	9.8 300		0947	8.9 270
	1503	4.6 140		1539	5.2 160
◐	2144	10.5 320		2205	9.5 290
13 M	0356	3.9 120	**28** Tu	0421	4.6 140
	1036	10.2 310		1056	9.2 280
	1623	4.3 130		1645	4.9 150
	2300	10.8 330		2310	9.8 300
14 Tu	0508	3.3 100	**29** W	0518	4.3 130
	1144	10.8 330		1151	9.8 300
	1731	3.6 110		1739	4.6 140
15 W	0005	11.5 350	**30** Th	0003	10.2 310
	0609	2.6 80		0605	3.9 120
	1241	11.5 350		1235	10.5 320
	1829	3.0 90		1825	3.9 120
			31 F	0049	10.8 330
				0646	3.3 100
				1316	10.8 330
				1907	3.3 100

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0132	11.2 340	**16** Su	0218	11.8 360
	0725	3.0 90		0807	2.6 80
	1356	11.5 350		1439	12.1 370
	1947	3.0 90		2032	2.3 70
2 Su	0214	11.5 350	**17** M	0302	11.8 360
	0804	2.6 80		0848	2.6 80
	1437	11.8 360		1521	12.1 370
	2028	2.6 80	○	2114	2.3 70
3 M	0257	11.8 360	**18** Tu	0343	11.5 350
	0844	2.3 70		0927	2.6 80
	1518	12.1 370		1600	12.1 370
●	2109	2.3 70		2154	2.6 80
4 Tu	0340	12.1 370	**19** W	0422	11.2 340
	0924	2.3 70		1004	3.0 90
	1600	12.5 380		1637	11.8 360
	2152	2.0 60		2232	2.6 80
5 W	0424	11.8 360	**20** Th	0458	10.8 330
	1006	2.3 70		1041	3.0 90
	1643	12.5 380		1712	11.5 350
	2236	2.0 60		2310	3.0 90
6 Th	0509	11.8 360	**21** F	0533	10.5 320
	1050	2.6 80		1117	3.6 110
	1728	12.1 370		1747	11.2 340
	2323	2.3 70		2348	3.3 100
7 F	0557	11.5 350	**22** Sa	0609	10.2 310
	1138	3.0 90		1156	3.9 120
	1817	11.8 360		1824	10.8 330
8 Sa	0015	2.6 80	**23** Su	0029	3.9 120
	0649	10.8 330		0649	9.8 300
	1231	3.3 100		1239	4.3 130
	1911	11.5 350		1906	10.5 320
9 Su	0113	3.0 90	**24** M	0115	4.3 130
	0749	10.5 320		0737	9.5 290
	1332	3.9 120		1330	4.9 150
	2013	11.2 340		1956	9.8 300
10 M	0218	3.3 100	**25** Tu	0210	4.6 140
	0857	10.2 310		0836	9.2 280
	1442	3.9 120		1431	4.9 150
◐	2122	10.8 330	◑	2057	9.8 300
11 Tu	0329	3.6 110	**26** W	0311	4.6 140
	1008	10.5 320		0943	9.2 280
	1555	3.9 120		1538	4.9 150
	2233	10.8 330		2203	9.8 300
12 W	0438	3.3 100	**27** Th	0413	4.6 140
	1115	10.8 330		1048	9.5 290
	1703	3.6 110		1642	4.6 140
	2339	11.2 340		2307	9.8 300
13 Th	0541	3.0 90	**28** F	0511	4.3 130
	1214	11.2 340		1145	10.2 310
	1805	3.3 100		1739	4.3 130
14 F	0037	11.5 350	**29** Sa	0004	10.2 310
	0635	3.0 90		0603	3.6 110
	1307	11.5 350		1236	10.8 330
	1859	3.0 90		1831	3.6 110
15 Sa	0130	11.8 360	**30** Su	0057	10.8 330
	0723	2.6 80		0651	3.3 100
	1355	11.8 360		1324	11.2 340
	1947	2.6 80		1920	3.0 90

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Lisbon, Portugal, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0148	11.2 340	**16** Tu	0247	11.2 340
	0738	2.6 80		0833	3.0 90
	1412	11.8 360		1504	11.8 360
	2007	2.6 80	○	2101	2.6 80
2 Tu	0237	11.5 350	**17** W	0327	11.2 340
	0824	2.3 70		0911	3.0 90
	1459	12.1 370		1543	11.8 360
●	2054	2.0 60		2139	2.6 80
3 W	0325	11.8 360	**18** Th	0404	11.2 340
	0910	2.0 60		0947	3.0 90
	1546	12.5 380		1618	11.8 360
	2141	1.6 50		2214	2.6 80
4 Th	0412	12.1 370	**19** F	0438	11.2 340
	0956	2.0 60		1021	3.0 90
	1632	12.8 390		1652	11.8 360
	2228	1.6 50		2248	3.0 90
5 F	0500	12.1 370	**20** Sa	0511	10.8 330
	1042	2.0 60		1055	3.3 100
	1719	12.8 390		1724	11.5 350
	2315	1.6 50		2321	3.0 90
6 Sa	0548	11.8 360	**21** Su	0543	10.5 320
	1129	2.3 70		1128	3.3 100
	1807	12.5 380		1757	11.2 340
				2355	3.3 100
7 Su	0004	2.0 60	**22** M	0617	10.2 310
	0637	11.5 350		1204	3.9 120
	1219	2.6 80		1833	10.8 330
	1858	12.1 370			
8 M	0057	2.6 80	**23** Tu	0032	3.6 110
	0731	11.2 340		0656	9.8 300
	1314	3.3 100		1244	4.3 130
	1954	11.5 350		1913	10.5 320
9 Tu	0154	3.0 90	**24** W	0114	4.3 130
	0831	10.8 330		0741	9.8 300
	1416	3.6 110		1332	4.6 140
◐	2056	11.2 340		2003	9.8 300
10 W	0258	3.6 110	**25** Th	0206	4.6 140
	0937	10.5 320		0838	9.5 290
	1525	3.9 120		1434	4.9 150
	2204	10.8 330	◑	2104	9.8 300
11 Th	0407	3.6 110	**26** F	0310	4.6 140
	1045	10.5 320		0946	9.5 290
	1637	3.9 120		1546	4.9 150
	2313	10.5 320		2215	9.5 290
12 F	0514	3.6 110	**27** Sa	0419	4.6 140
	1149	10.8 330		1056	9.8 300
	1744	3.6 110		1657	4.6 140
				2326	9.8 300
13 Sa	0017	10.8 330	**28** Su	0525	4.3 130
	0614	3.6 110		1200	10.5 320
	1246	11.2 340		1802	3.9 120
	1844	3.3 100			
14 Su	0113	10.8 330	**29** M	0030	10.5 320
	0706	3.3 100		0624	3.6 110
	1337	11.5 350		1259	11.2 340
	1935	3.0 90		1859	3.3 100
15 M	0203	11.2 340	**30** Tu	0128	11.2 340
	0751	3.0 90		0718	3.0 90
	1423	11.8 360		1352	11.8 360
	2020	3.0 90		1952	2.6 80
			31 W	0222	11.5 350
				0809	2.3 70
				1443	12.5 380
				2042	2.0 60

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0312	12.1 370	**16** F	0344	11.5 350
	0857	2.0 60		0927	3.0 90
	1532	13.1 400		1557	12.1 370
●	2129	1.3 40		2152	2.6 80
2 F	0400	12.5 380	**17** Sa	0416	11.5 350
	0943	1.6 50		0959	3.0 90
	1619	13.5 410		1628	12.1 370
	2215	1.0 30		2222	2.6 80
3 Sa	0446	12.5 380	**18** Su	0446	11.5 350
	1029	1.6 50		1029	3.0 90
	1706	13.5 410		1659	11.8 360
	2300	1.3 40		2251	2.6 80
4 Su	0532	12.5 380	**19** M	0516	11.2 340
	1114	1.6 50		1100	3.0 90
	1752	13.1 400		1729	11.5 350
	2346	1.6 50		2321	3.0 90
5 M	0618	12.1 370	**20** Tu	0547	10.8 330
	1200	2.3 70		1131	3.3 100
	1839	12.5 380		1802	11.2 340
				2353	3.3 100
6 Tu	0033	2.3 70	**21** W	0621	10.5 320
	0707	11.5 350		1206	3.9 120
	1250	3.0 90		1838	10.8 330
	1930	11.8 360			
7 W	0124	3.0 90	**22** Th	0029	3.9 120
	0800	10.8 330		0700	10.2 310
	1346	3.6 110		1247	4.3 130
◐	2028	11.2 340		1921	10.2 310
8 Th	0224	3.9 120	**23** F	0114	4.3 130
	0903	10.5 320		0749	9.8 300
	1454	4.3 130		1342	4.9 150
	2136	10.5 320	◑	2018	9.8 300
9 F	0334	4.3 130	**24** Sa	0215	4.9 150
	1014	10.2 310		0855	9.5 290
	1613	4.6 140		1457	4.9 150
	2251	9.8 300		2133	9.5 290
10 Sa	0450	4.6 140	**25** Su	0335	4.9 150
	1126	10.2 310		1015	9.8 300
	1731	4.3 130		1624	4.9 150
				2257	9.8 300
11 Su	0002	10.2 310	**26** M	0456	4.6 140
	0558	4.3 130		1133	10.2 310
	1230	10.8 330		1740	4.3 130
	1836	3.9 120			
12 M	0102	10.5 320	**27** Tu	0012	10.5 320
	0654	3.9 120		0605	3.9 120
	1323	11.2 340		1239	11.2 340
	1927	3.6 110		1844	3.3 100
13 Tu	0151	10.8 330	**28** W	0114	11.2 340
	0739	3.6 110		0703	3.3 100
	1408	11.5 350		1336	12.1 370
	2009	3.3 100		1938	2.3 70
14 W	0232	10.8 330	**29** Th	0207	11.8 360
	0819	3.3 100		0754	2.3 70
	1448	11.8 360		1427	12.8 390
	2046	3.0 90		2027	1.6 50
15 Th	0310	11.2 340	**30** F	0256	12.5 380
	0854	3.0 90		0842	1.6 50
	1524	12.1 370		1515	13.5 410
○	2120	2.6 80	●	2113	1.0 30
			31 Sa	0342	13.1 400
				0927	1.3 40
				1602	14.1 430
				2156	1.0 30

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0427	13.1 400	**16** M	0418	11.8 360
	1010	1.3 40		1002	2.6 80
	1647	14.1 430		1631	12.1 370
	2239	1.0 30		2220	2.6 80
2 M	0510	13.1 400	**17** Tu	0447	11.8 360
	1054	1.3 40		1032	3.0 90
	1731	13.5 410		1702	12.1 370
	2322	1.6 50		2249	3.0 90
3 Tu	0554	12.5 380	**18** W	0518	11.5 350
	1137	2.0 60		1102	3.3 100
	1816	12.8 390		1734	11.5 350
				2320	3.3 100
4 W	0005	2.3 70	**19** Th	0551	11.2 340
	0639	11.8 360		1136	3.6 110
	1224	2.6 80		1810	11.2 340
	1903	11.8 360		2354	3.6 110
5 Th	0052	3.3 100	**20** F	0628	10.8 330
	0728	11.2 340		1215	4.3 130
	1316	3.6 110		1851	10.5 320
	1957	10.8 330			
6 F	0147	4.3 130	**21** Sa	0036	4.3 130
	0827	10.5 320		0715	10.2 310
	1423	4.6 140		1307	4.6 140
◐	2106	9.8 300		1946	9.8 300
7 Sa	0300	4.9 150	**22** Su	0135	4.9 150
	0942	9.8 300		0818	9.8 300
	1550	4.9 150		1424	4.9 150
	2230	9.5 290	◑	2105	9.5 290
8 Su	0427	5.2 160	**23** M	0301	5.2 160
	1104	9.8 300		0944	9.8 300
	1718	4.9 150		1600	4.9 150
	2348	9.8 300		2239	9.8 300
9 M	0543	4.9 150	**24** Tu	0434	4.9 150
	1212	10.5 320		1111	10.5 320
	1824	4.3 130		1723	4.3 130
				2357	10.5 320
10 Tu	0048	10.2 310	**25** W	0547	4.3 130
	0639	4.6 140		1220	11.5 350
	1305	10.8 330		1827	3.3 100
	1912	3.9 120			
11 W	0134	10.8 330	**26** Th	0057	11.5 350
	0723	3.9 120		0645	3.3 100
	1348	11.5 350		1317	12.5 380
	1951	3.3 100		1920	2.3 70
12 Th	0213	11.2 340	**27** F	0149	12.5 380
	0759	3.3 100		0736	2.3 70
	1426	11.8 360		1408	13.1 400
	2024	3.0 90		2007	1.6 50
13 F	0247	11.5 350	**28** Sa	0236	13.1 400
	0832	3.0 90		0822	1.6 50
	1459	12.1 370		1455	13.8 420
	2055	2.6 80	●	2051	1.0 30
14 Sa	0319	11.8 360	**29** Su	0321	13.5 410
	0903	3.0 90		0906	1.3 40
	1531	12.5 380		1541	14.1 430
○	2124	2.6 80		2133	1.0 30
15 Su	0349	11.8 360	**30** M	0404	13.8 420
	0933	2.6 80		0949	1.0 30
	1601	12.5 380		1625	14.1 430
	2152	2.6 80		2214	1.3 40

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Lisbon, Portugal, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0446	13.5 410	**16** W	0420	12.1 370
	1031	1.3 40		1006	3.0 90
	1707	13.5 410		1637	12.1 370
	2255	2.0 60		2221	3.0 90
2 W	0527	12.8 390	**17** Th	0453	12.1 370
	1113	2.0 60		1039	3.0 90
	1750	12.5 380		1712	11.8 360
	2336	2.6 80		2254	3.3 100
3 Th	0610	12.1 370	**18** F	0528	11.8 360
	1158	3.0 90		1115	3.3 100
	1835	11.5 350		1749	11.2 340
				2330	3.6 110
4 F	0019	3.6 110	**19** Sa	0607	11.2 340
	0655	11.2 340		1157	3.9 120
	1248	3.9 120		1833	10.5 320
	1925	10.5 320			
5 Sa ◐	0110	4.6 140	**20** Su	0014	4.3 130
	0750	10.5 320		0654	10.8 330
	1352	4.9 150		1251	4.6 140
	2032	9.5 290		1929	10.2 310
6 Su	0222	5.6 170	**21** M ◑	0114	4.9 150
	0905	9.8 300		0757	10.2 310
	1521	5.2 160		1407	4.9 150
	2201	9.2 280		2049	9.8 300
7 M	0355	5.6 170	**22** Tu	0240	5.2 160
	1032	9.8 300		0922	10.2 310
	1651	5.2 160		1539	4.6 140
	2324	9.5 290		2221	9.8 300
8 Tu	0515	5.2 160	**23** W	0411	4.9 150
	1144	10.2 310		1048	10.8 330
	1758	4.6 140		1700	3.9 120
				2336	10.8 330
9 W	0024	10.2 310	**24** Th	0524	4.3 130
	0613	4.9 150		1157	11.5 350
	1238	10.8 330		1803	3.3 100
	1845	4.3 130			
10 Th	0108	10.8 330	**25** F	0035	11.5 350
	0656	4.3 130		0623	3.3 100
	1320	11.5 350		1254	12.5 380
	1922	3.6 110		1856	2.3 70
11 F	0145	11.2 340	**26** Sa	0126	12.5 380
	0732	3.6 110		0714	2.3 70
	1356	11.8 360		1345	13.1 400
	1954	3.3 100		1943	1.6 50
12 Sa	0217	11.5 350	**27** Su	0213	13.1 400
	0804	3.3 100		0801	1.6 50
	1429	12.1 370		1433	13.8 420
	2023	3.0 90		2027	1.3 40
13 Su ○	0248	12.1 370	**28** M ●	0257	13.5 410
	0835	3.0 90		0845	1.3 40
	1501	12.5 380		1518	13.8 420
	2052	2.6 80		2109	1.3 40
14 M	0319	12.1 370	**29** Tu	0340	13.5 410
	0905	2.6 80		0928	1.3 40
	1532	12.5 380		1602	13.5 410
	2121	2.6 80		2150	1.6 50
15 Tu	0349	12.1 370	**30** W	0422	13.5 410
	0935	2.6 80		1010	1.6 50
	1604	12.5 380		1644	13.1 400
	2151	2.6 80		2229	2.3 70
			31 Th	0502	12.8 390
				1051	2.3 70
				1726	12.1 370
				2309	3.0 90

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0543	12.1 370	**16** Sa	0513	12.1 370
	1135	3.0 90		1104	3.0 90
	1808	11.2 340		1737	11.2 340
	2350	3.9 120		2317	3.6 110
2 Sa	0625	11.5 350	**17** Su	0555	11.5 350
	1222	3.9 120		1150	3.3 100
	1854	10.2 310		1824	10.8 330
3 Su	0037	4.6 140	**18** M	0004	3.9 120
	0713	10.5 320		0644	11.2 340
	1320	4.6 140		1245	3.9 120
	1953	9.5 290		1922	10.2 310
4 M ◐	0140	5.2 160	**19** Tu ◑	0104	4.6 140
	0819	9.8 300		0746	10.8 330
	1437	5.2 160		1355	4.3 130
	2115	9.2 280		2036	9.8 300
5 Tu	0304	5.9 180	**20** W	0221	4.9 150
	0942	9.8 300		0902	10.8 330
	1601	5.2 160		1515	4.3 130
	2240	9.2 280		2157	10.2 310
6 W	0427	5.6 170	**21** Th	0343	4.6 140
	1057	9.8 300		1021	10.8 330
	1710	4.9 150		1630	3.6 110
	2343	9.8 300		2309	10.8 330
7 Th	0530	5.2 160	**22** F	0456	3.9 120
	1155	10.5 320		1130	11.5 350
	1802	4.3 130		1735	3.3 100
8 F	0030	10.5 320	**23** Sa	0009	11.5 350
	0618	4.6 140		0557	3.3 100
	1240	10.8 330		1230	12.1 370
	1842	3.9 120		1830	2.6 80
9 Sa	0108	10.8 330	**24** Su	0102	12.1 370
	0657	3.9 120		0651	2.6 80
	1319	11.5 350		1323	12.5 380
	1916	3.3 100		1919	2.0 60
10 Su	0142	11.5 350	**25** M	0150	12.8 390
	0731	3.6 110		0740	2.0 60
	1354	11.8 360		1412	12.8 390
	1948	3.0 90		2004	2.0 60
11 M	0215	11.8 360	**26** Tu ●	0235	13.1 400
	0804	3.0 90		0826	2.0 60
	1429	12.1 370		1458	12.8 390
	2019	2.6 80		2047	2.0 60
12 Tu ○	0248	12.1 370	**27** W	0319	13.1 400
	0837	3.0 90		0910	2.0 60
	1504	12.1 370		1542	12.5 380
	2052	2.6 80		2128	2.0 60
13 W	0322	12.5 380	**28** Th	0401	12.8 390
	0911	2.6 80		0952	2.0 60
	1540	12.1 370		1624	12.1 370
	2125	2.6 80		2207	2.6 80
14 Th	0357	12.5 380	**29** F	0441	12.5 380
	0946	2.6 80		1034	2.3 70
	1617	12.1 370		1705	11.5 350
	2159	2.6 80		2246	3.0 90
15 F	0434	12.1 370	**30** Sa	0520	12.1 370
	1024	2.6 80		1116	3.0 90
	1656	11.8 360		1744	10.8 330
	2236	3.0 90		2326	3.6 110

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0559	11.5 350	**16** M	0549	12.1 370
	1200	3.6 110		1146	2.6 80
	1825	10.2 310		1819	11.2 340
				2359	3.3 100
2 M	0009	4.3 130	**17** Tu	0638	11.8 360
	0642	10.8 330		1238	3.0 90
	1248	4.3 130		1913	10.8 330
	1913	9.5 290			
3 Tu	0100	4.9 150	**18** W	0054	3.6 110
	0732	10.2 310		0734	11.5 350
	1346	4.6 140		1338	3.3 100
	2014	9.2 280		2016	10.5 320
4 W ◐	0204	5.2 160	**19** Th ◑	0159	3.9 120
	0835	9.8 300		0840	11.2 340
	1453	4.9 150		1446	3.6 110
	2130	9.2 280		2126	10.2 310
5 Th	0319	5.6 170	**20** F	0311	4.3 130
	0948	9.8 300		0951	10.8 330
	1603	4.9 150		1557	3.6 110
	2241	9.2 280		2237	10.5 320
6 F	0429	5.2 160	**21** Sa	0424	3.9 120
	1054	9.8 300		1101	11.2 340
	1703	4.6 140		1705	3.3 100
	2337	9.8 300		2341	10.8 330
7 Sa	0526	4.9 150	**22** Su	0532	3.6 110
	1149	10.2 310		1206	11.5 350
	1752	4.3 130		1805	3.0 90
8 Su	0023	10.5 320	**23** M	0038	11.5 350
	0614	4.3 130		0631	3.0 90
	1235	10.5 320		1303	11.5 350
	1833	3.6 110		1858	2.6 80
9 M	0103	10.8 330	**24** Tu	0130	11.8 360
	0655	3.9 120		0725	2.6 80
	1317	11.2 340		1355	11.8 360
	1911	3.3 100		1946	2.6 80
10 Tu	0141	11.5 350	**25** W	0218	12.1 370
	0734	3.3 100		0813	2.3 70
	1358	11.5 350		1443	11.8 360
	1949	3.0 90		2030	2.3 70
11 W	0220	11.8 360	**26** Th ●	0303	12.5 380
	0813	3.0 90		0858	2.3 70
	1439	11.5 350		1527	11.8 360
	2027	2.6 80		2112	2.6 80
12 Th ○	0259	12.1 370	**27** F	0345	12.5 380
	0852	2.6 80		0940	2.3 70
	1520	11.8 360		1608	11.5 350
	2105	2.6 80		2151	2.6 80
13 F	0339	12.5 380	**28** Sa	0424	12.1 370
	0933	2.3 70		1020	2.3 70
	1602	11.8 360		1647	11.2 340
	2145	2.6 80		2229	3.0 90
14 Sa	0421	12.5 380	**29** Su	0502	12.1 370
	1015	2.3 70		1059	2.6 80
	1646	11.8 360		1724	10.8 330
	2227	2.6 80		2306	3.3 100
15 Su	0503	12.5 380	**30** M	0537	11.5 350
	1059	2.3 70		1137	3.0 90
	1731	11.5 350		1759	10.5 320
	2311	3.0 90		2343	3.6 110
			31 Tu	0613	11.2 340
				1216	3.6 110
				1837	9.8 300

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Pointe de Grave, France, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0133	15.1 461	**16** W	0021	14.1 429
	0708	6.2 188		0610	7.2 218
	1403	15.4 468		1250	14.5 443
	1946	5.9 181		1843	6.8 207
2 W	0229	15.5 471	**17** Th	0129	14.6 446
	0812	5.9 179		0716	6.7 203
	1459	15.6 475		1359	15.1 460
	2043	5.6 170		1947	6.1 187
3 Th	0317	15.9 484	**18** F	0230	15.5 472
	0907	5.5 167		0818	5.8 178
	1545	15.8 482		1501	15.9 485
	2132	5.2 160		2045	5.3 163
4 F	0359	16.3 497	**19** Sa	0323	16.4 500
	0954	5.1 155		0917	4.9 149
	1625	16.0 489		1555	16.7 510
	2214	5.0 151		2140	4.5 137
5 Sa	0437	16.7 508	**20** Su	0414	17.3 527
	1036	4.8 147		1012	4.0 121
	1702	16.2 494		1645	17.5 532
	2253	4.8 146		2232	3.7 114
6 Su ●	0514	16.9 515	**21** M ○	0503	18.0 550
	1114	4.7 142		1104	3.1 96
	1737	16.3 496		1733	17.9 547
	2329	4.8 145		2322	3.2 97
7 M	0549	17.0 517	**22** Tu	0551	18.5 565
	1150	4.6 141		1153	2.6 80
	1811	16.2 494		1820	18.1 553
8 Tu	0004	4.8 147	**23** W	0010	2.9 89
	0623	16.9 515		0640	18.7 570
	1224	4.7 143		1241	2.5 76
	1843	16.0 488		1908	18.0 548
9 W	0038	5.0 152	**24** Th	0056	3.0 90
	0657	16.7 508		0729	18.5 563
	1259	4.9 149		1327	2.7 83
	1914	15.7 479		1956	17.5 532
10 Th	0113	5.3 161	**25** F	0142	3.3 101
	0731	16.3 498		0818	17.9 545
	1333	5.2 158		1413	3.3 101
	1947	15.3 467		2045	16.7 509
11 F	0148	5.7 173	**26** Sa	0228	3.9 119
	0807	15.9 486		0909	17.0 519
	1408	5.6 171		1500	4.2 127
	2024	14.9 454		2137	15.8 481
12 Sa	0225	6.1 186	**27** Su ◑	0318	4.7 144
	0847	15.5 471		1005	16.0 488
	1447	6.1 185		1551	5.2 157
	2108	14.4 440		2236	15.0 456
13 Su	0307	6.6 201	**28** M	0414	5.6 171
	0934	14.9 455		1109	15.1 459
	1532	6.6 200		1651	6.1 185
	2203	14.0 428		2345	14.4 439
14 M ◐	0357	7.1 215	**29** Tu	0520	6.4 194
	1031	14.5 443		1223	14.4 440
	1628	7.0 212		1801	6.7 204
	2310	13.9 423			
15 Tu	0500	7.3 222	**30** W	0100	14.3 435
	1138	14.3 437		0635	6.7 204
	1735	7.1 215		1339	14.3 435
				1916	6.8 206
			31 Th	0207	14.6 445
				0748	6.5 199
				1443	14.5 443
				2022	6.4 195

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0301	15.1 461	**16** Sa	0206	15.0 458
	0850	6.1 185		0754	6.1 185
	1534	15.0 456		1443	15.5 471
	2115	5.9 179		2023	5.7 175
2 Sa	0345	15.7 479	**17** Su	0307	16.1 491
	0939	5.5 169		0901	5.0 151
	1614	15.4 470		1540	16.5 503
	2200	5.4 164		2125	4.7 143
3 Su	0423	16.2 495	**18** M	0400	17.2 525
	1022	5.1 155		1000	3.8 116
	1650	15.8 482		1631	17.4 531
	2239	5.0 151		2220	3.7 112
4 M ●	0458	16.6 507	**19** Tu ○	0450	18.2 554
	1059	4.7 144		1052	2.8 86
	1723	16.1 491		1719	18.1 552
	2314	4.7 143		2310	2.9 88
5 Tu	0532	16.9 515	**20** W	0538	18.8 574
	1133	4.5 137		1140	2.2 67
	1753	16.3 496		1805	18.4 561
	2348	4.5 138		2357	2.4 74
6 W	0603	17.0 519	**21** Th	0625	19.1 581
	1206	4.4 134		1226	2.0 62
	1822	16.3 497		1850	18.3 558
7 Th	0020	4.5 137	**22** F	0041	2.4 72
	0635	17.0 518		0710	18.8 573
	1238	4.4 135		1309	2.3 71
	1851	16.2 494		1933	17.8 542
8 F	0052	4.6 141	**23** Sa	0123	2.7 83
	0706	16.8 513		0755	18.1 551
	1309	4.6 140		1350	3.0 92
	1921	16.0 487		2016	17.0 518
9 Sa	0123	4.9 148	**24** Su	0206	3.4 104
	0738	16.5 503		0839	17.0 519
	1341	4.9 149		1432	4.0 121
	1952	15.6 476		2059	16.0 487
10 Su	0155	5.2 159	**25** M	0250	4.4 133
	0813	16.0 489		0925	15.8 482
	1414	5.3 161		1517	5.1 156
	2028	15.2 463		2147	15.0 456
11 M	0231	5.6 172	**26** Tu ◑	0340	5.5 167
	0853	15.5 471		1020	14.6 445
	1452	5.8 177		1610	6.3 192
	2113	14.7 447		2251	14.1 429
12 Tu ◐	0313	6.2 189	**27** W	0441	6.5 199
	0944	14.8 452		1137	13.6 416
	1538	6.4 195		1720	7.2 220
	2211	14.2 432			
13 W	0407	6.8 206	**28** Th	0017	13.7 417
	1048	14.3 436		0600	7.2 219
	1640	6.9 211		1310	13.4 409
	2325	13.9 425		1844	7.5 228
14 Th	0519	7.1 216			
	1208	14.1 431			
	1757	7.1 215			
15 F	0050	14.2 433			
	0639	6.8 208			
	1332	14.6 444			
	1914	6.6 201			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0139	13.9 424	**16** Sa	0020	14.1 430
	0723	7.1 216		0613	6.8 208
	1425	13.8 420		1317	14.3 437
	1959	7.1 216		1849	6.9 209
2 Sa	0239	14.5 443	**17** Su	0146	14.9 455
	0829	6.5 199		0737	6.0 184
	1517	14.4 439		1427	15.4 468
	2056	6.4 194		2006	5.9 181
3 Su	0326	15.2 464	**18** M	0251	16.1 491
	0920	5.8 178		0847	4.9 148
	1558	15.1 459		1524	16.5 502
	2141	5.7 173		2110	4.8 145
4 M	0403	15.9 484	**19** Tu	0345	17.3 526
	1001	5.2 159		0945	3.6 111
	1631	15.6 477		1614	17.4 531
	2219	5.1 155		2204	3.6 111
5 Tu	0437	16.4 501	**20** W	0434	18.2 555
	1037	4.7 144		1035	2.7 82
	1701	16.1 491		1700	18.1 551
	2253	4.6 141		2253	2.8 85
6 W ●	0509	16.9 514	**21** Th ○	0520	18.8 573
	1111	4.4 133		1121	2.2 66
	1729	16.4 501		1744	18.4 561
	2326	4.3 132		2338	2.3 70
7 Th	0539	17.1 522	**22** F	0604	18.9 577
	1142	4.2 127		1204	2.1 64
	1757	16.6 506		1826	18.3 557
	2357	4.2 127			
8 F	0609	17.2 525	**23** Sa	0021	2.3 69
	1213	4.1 125		0647	18.6 567
	1825	16.6 507		1245	2.5 75
				1906	17.8 543
9 Sa	0028	4.1 126	**24** Su	0101	2.7 81
	0639	17.2 523		0727	17.8 543
	1243	4.2 127		1324	3.2 97
	1854	16.5 504		1944	17.1 520
10 Su	0058	4.3 131	**25** M	0140	3.3 102
	0710	16.9 514		0806	16.8 511
	1313	4.4 134		1402	4.2 127
	1923	16.2 495		2022	16.1 491
11 M	0129	4.6 139	**26** Tu	0221	4.3 132
	0744	16.4 500		0845	15.5 473
	1345	4.8 146		1443	5.3 161
	1957	15.8 482		2104	15.1 461
12 Tu	0202	5.0 152	**27** W	0306	5.5 167
	0823	15.8 481		0933	14.3 435
	1420	5.3 162		1531	6.5 198
	2039	15.2 464		2159	14.1 431
13 W	0242	5.6 170	**28** Th ◑	0402	6.6 202
	0911	15.0 458		1045	13.3 404
	1504	6.0 183		1636	7.5 229
	2133	14.6 444		2321	13.5 412
14 Th ◐	0333	6.3 191	**29** F	0519	7.4 226
	1015	14.3 436		1229	12.9 394
	1602	6.7 205		1804	7.9 242
	2246	14.1 429			
15 F	0444	6.9 209	**30** Sa	0054	13.5 412
	1140	13.9 425		0647	7.4 227
	1722	7.2 218		1353	13.3 406
				1926	7.6 231
			31 Su	0204	14.1 429
				0758	6.9 210
				1448	14.0 428
				2025	6.8 208

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Pointe de Grave, France, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0254 14.8 452 0849 6.1 187 1529 14.8 452 2111 6.0 184		16 Tu	0232 16.2 493 0828 4.7 144 1504 16.4 500 2050 4.8 146	
2 Tu	0334 15.6 474 0931 5.4 165 1602 15.5 472 2150 5.3 162		17 W	0326 17.2 523 0924 3.7 113 1553 17.2 525 2144 3.8 115	
3 W	0408 16.2 494 1007 4.8 147 1631 16.0 489 2225 4.8 145		18 Th	0414 17.9 546 1013 3.0 90 1637 17.8 542 2232 3.0 92	
4 Th	0440 16.7 510 1041 4.4 134 1700 16.5 503 2258 4.4 133		19 F ○	0459 18.3 558 1058 2.6 79 1720 18.0 549 2316 2.7 81	
5 F ●	0511 17.1 521 1113 4.1 125 1729 16.8 512 2330 4.1 124		20 Sa	0541 18.3 558 1139 2.6 80 1800 17.9 546 2357 2.7 81	
6 Sa	0542 17.3 526 1145 3.9 120 1758 16.9 516		21 Su	0621 17.9 547 1219 3.0 92 1838 17.6 535	
7 Su	0002 3.9 120 0614 17.2 525 1216 4.0 121 1828 16.9 515		22 M	0037 3.0 92 0659 17.2 525 1256 3.6 111 1915 16.9 516	
8 M	0033 4.0 121 0647 17.0 518 1247 4.1 126 1900 16.7 508		23 Tu	0115 3.6 111 0736 16.3 496 1333 4.5 137 1951 16.2 493	
9 Tu	0106 4.2 128 0722 16.5 504 1321 4.5 137 1935 16.2 495		24 W	0153 4.5 137 0813 15.2 464 1412 5.4 166 2031 15.3 467	
10 W	0142 4.6 140 0803 15.9 485 1358 5.1 154 2019 15.6 477		25 Th	0235 5.5 167 0856 14.2 433 1456 6.5 198 2121 14.4 440	
11 Th	0223 5.2 158 0854 15.1 461 1444 5.8 176 2115 15.0 456		26 F ◑	0326 6.5 198 0959 13.3 405 1554 7.4 227 2230 13.7 419	
12 F ◐	0315 5.9 180 1000 14.4 438 1543 6.6 201 2227 14.4 439		27 Sa	0432 7.3 222 1130 12.9 392 1714 8.0 243 2354 13.5 412	
13 Sa	0427 6.5 199 1127 14.0 427 1702 7.0 214		28 Su	0554 7.5 229 1258 13.1 399 1834 7.8 238	
14 Su	0002 14.4 439 0556 6.5 198 1301 14.5 441 1829 6.8 206		29 M	0108 13.8 421 0708 7.2 218 1401 13.7 418 1938 7.2 219	
15 M	0128 15.1 461 0720 5.8 176 1408 15.4 470 1947 5.9 179		30 Tu	0207 14.4 439 0804 6.5 197 1446 14.5 441 2028 6.4 196	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0252 15.1 461 0850 5.7 175 1522 15.2 463 2110 5.7 174		16 Th	0304 16.7 509 0859 4.1 124 1529 16.7 510 2119 4.1 126	
2 Th	0331 15.8 482 0929 5.1 156 1554 15.8 483 2148 5.1 155		17 F	0352 17.2 523 0948 3.6 109 1613 17.1 522 2208 3.6 109	
3 F	0407 16.4 499 1005 4.6 140 1626 16.4 499 2224 4.6 139		18 Sa ○	0437 17.4 530 1032 3.4 103 1655 17.3 528 2252 3.3 101	
4 Sa ●	0441 16.8 512 1040 4.2 128 1659 16.8 511 2300 4.1 126		19 Su	0518 17.3 528 1114 3.4 104 1735 17.3 528 2334 3.3 101	
5 Su	0516 17.1 520 1115 4.0 121 1732 17.0 518 2335 3.9 118		20 M	0558 17.0 519 1153 3.7 112 1813 17.1 521	
6 M	0552 17.1 521 1150 3.9 118 1806 17.0 519		21 Tu	0013 3.6 109 0636 16.5 503 1230 4.1 126 1851 16.7 509	
7 Tu	0011 3.8 116 0629 16.9 516 1225 4.0 122 1843 16.9 514		22 W	0051 4.0 122 0712 15.8 482 1307 4.7 144 1928 16.1 492	
8 W	0049 3.9 119 0709 16.5 504 1303 4.3 131 1924 16.5 503		23 Th	0129 4.6 141 0748 15.1 459 1345 5.4 166 2007 15.5 472	
9 Th	0129 4.3 130 0755 15.9 486 1345 4.8 147 2012 16.0 487		24 F	0209 5.3 162 0829 14.3 436 1427 6.2 189 2052 14.8 452	
10 F	0215 4.8 146 0848 15.3 465 1434 5.5 168 2109 15.4 469		25 Sa	0254 6.1 185 0921 13.6 415 1517 7.0 212 2148 14.2 433	
11 Sa	0310 5.4 165 0954 14.6 445 1534 6.2 188 2221 14.9 455		26 Su ◑	0348 6.8 206 1030 13.2 401 1621 7.5 228 2254 13.8 421	
12 Su ◐	0419 5.9 180 1118 14.4 438 1649 6.5 199 2348 14.9 454		27 M	0455 7.2 218 1145 13.1 399 1732 7.6 232	
13 M	0539 5.9 181 1240 14.7 449 1808 6.3 193		28 Tu	0002 13.8 420 0604 7.1 217 1253 13.5 410 1838 7.3 223	
14 Tu	0105 15.4 469 0656 5.5 167 1345 15.4 470 1922 5.7 173		29 W	0105 14.1 430 0706 6.7 204 1349 14.0 428 1934 6.7 205	
15 W	0209 16.1 490 0803 4.8 145 1441 16.1 491 2025 4.9 148		30 Th	0200 14.6 446 0759 6.1 186 1434 14.7 449 2023 6.1 185	
			31 F	0248 15.3 465 0845 5.5 167 1514 15.5 471 2107 5.4 165	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0331 15.8 483 0927 4.9 149 1552 16.0 489 2149 4.8 146		16 Su	0418 16.2 495 1010 4.2 128 1634 16.6 506 2231 4.0 123	
2 Su	0412 16.4 499 1007 4.4 134 1630 16.6 505 2230 4.3 130		17 M ○	0500 16.3 496 1052 4.1 126 1715 16.7 510 2314 4.0 121	
3 M ●	0453 16.7 509 1047 4.0 122 1709 16.9 515 2312 3.8 117		18 Tu	0540 16.2 493 1132 4.2 128 1753 16.7 509 2354 4.0 123	
4 Tu	0534 16.9 515 1127 3.8 116 1749 17.1 521 2354 3.6 110		19 W	0617 15.9 485 1209 4.4 135 1831 16.5 503	
5 W	0617 16.9 514 1209 3.8 115 1832 17.1 520		20 Th	0031 4.3 130 0653 15.6 474 1246 4.8 145 1907 16.2 493	
6 Th	0037 3.6 109 0702 16.6 507 1252 4.0 122 1919 16.9 514		21 F	0108 4.6 140 0727 15.1 460 1323 5.2 159 1944 15.7 480	
7 F	0122 3.8 115 0750 16.2 493 1338 4.4 134 2010 16.5 502		22 Sa	0146 5.0 153 0804 14.6 446 1402 5.7 174 2024 15.3 465	
8 Sa	0211 4.2 127 0844 15.6 476 1428 4.9 149 2107 16.0 487		23 Su	0225 5.5 169 0845 14.1 431 1444 6.2 190 2109 14.8 450	
9 Su	0305 4.7 142 0947 15.1 459 1526 5.4 165 2214 15.6 474		24 M	0309 6.1 185 0935 13.7 417 1532 6.8 206 2201 14.3 436	
10 M ◐	0407 5.1 156 1101 14.8 450 1632 5.8 176 2328 15.4 468		25 Tu ◑	0400 6.5 199 1036 13.4 408 1630 7.1 216 2300 14.0 427	
11 Tu	0515 5.4 164 1214 14.8 452 1743 5.8 177		26 W	0500 6.8 207 1141 13.4 408 1734 7.2 218	
12 W	0039 15.4 469 0626 5.3 163 1318 15.1 461 1853 5.6 170		27 Th	0002 14.0 426 0604 6.8 206 1245 13.7 417 1836 6.9 211	
13 Th	0143 15.6 476 0733 5.1 155 1415 15.6 474 1958 5.1 156		28 F	0104 14.2 434 0704 6.4 196 1343 14.3 435 1933 6.4 195	
14 F	0241 15.9 484 0832 4.7 144 1506 16.0 487 2055 4.7 142		29 Sa	0202 14.7 448 0759 5.9 180 1434 15.0 456 2026 5.7 175	
15 Sa	0332 16.1 491 0923 4.4 134 1552 16.3 498 2146 4.3 131		30 Su	0257 15.3 466 0850 5.3 161 1521 15.7 478 2117 5.1 154	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Pointe de Grave, France, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0346 15.9 484 0938 4.6 141 1606 16.3 498 2205 4.3 132		**16** Tu ○	0447 15.5 473 1037 4.7 142 1658 16.4 499 2259 4.4 134	
2 Tu ●	0433 16.4 501 1024 4.1 124 1651 16.9 515 2253 3.7 114		**17** W	0525 15.7 478 1116 4.5 137 1736 16.5 503 2338 4.3 131	
3 W	0520 16.8 513 1111 3.7 112 1737 17.3 527 2341 3.3 100		**18** Th	0600 15.7 478 1153 4.5 137 1811 16.5 503	
4 Th	0607 17.0 519 1157 3.4 105 1824 17.5 533		**19** F	0014 4.3 131 0633 15.6 475 1228 4.6 141 1845 16.4 499	
5 F	0028 3.1 93 0654 17.0 517 1243 3.4 105 1913 17.5 532		**20** Sa	0048 4.4 135 0704 15.4 469 1302 4.8 147 1918 16.1 491	
6 Sa	0115 3.1 94 0743 16.7 508 1330 3.7 112 2004 17.2 523		**21** Su	0122 4.7 143 0735 15.1 460 1336 5.2 157 1953 15.7 480	
7 Su	0203 3.4 103 0835 16.2 493 1419 4.1 124 2058 16.7 508		**22** M	0157 5.1 154 0809 14.7 449 1411 5.6 170 2031 15.3 467	
8 M	0253 3.9 118 0931 15.6 475 1511 4.6 140 2157 16.1 490		**23** Tu	0232 5.5 167 0848 14.3 436 1449 6.0 184 2113 14.8 451	
9 Tu ◐	0347 4.5 137 1033 15.0 458 1609 5.1 156 2302 15.5 472		**24** W	0312 5.9 181 0935 13.9 423 1534 6.5 199 2204 14.3 436	
10 W	0447 5.2 157 1142 14.7 447 1715 5.6 170		**25** Th ◑	0400 6.4 196 1033 13.6 414 1630 6.9 211 2304 14.0 426	
11 Th	0011 15.1 459 0554 5.6 170 1249 14.6 446 1824 5.7 175		**26** F	0500 6.8 206 1142 13.5 412 1738 7.1 215	
12 F	0118 14.9 453 0703 5.7 174 1352 14.9 453 1933 5.6 172		**27** Sa	0012 13.9 424 0609 6.8 206 1254 13.9 423 1847 6.8 206	
13 Sa	0222 14.9 454 0808 5.5 169 1448 15.2 464 2035 5.3 162		**28** Su	0123 14.2 433 0716 6.4 195 1359 14.5 443 1951 6.1 186	
14 Su	0317 15.1 460 0905 5.2 159 1536 15.6 477 2129 5.0 151		**29** M	0229 14.8 452 0817 5.7 174 1456 15.4 470 2051 5.2 160	
15 M	0405 15.3 467 0953 4.9 149 1619 16.1 490 2217 4.6 141		**30** Tu	0327 15.6 476 0914 4.9 150 1547 16.3 497 2147 4.4 133	
			31 W	0419 16.4 500 1007 4.1 126 1636 17.1 522 2240 3.5 106	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0507 17.0 519 1057 3.4 105 1725 17.8 542 2329 2.8 86		**16** F	0539 15.8 483 1135 4.4 135 1748 16.7 510 2354 4.2 129	
2 F	0554 17.4 531 1146 3.0 92 1813 18.1 553		**17** Sa	0608 15.9 485 1207 4.4 134 1819 16.7 510	
3 Sa	0017 2.5 75 0641 17.5 534 1232 2.8 86 1901 18.2 554		**18** Su	0025 4.3 131 0637 15.9 484 1238 4.5 138 1850 16.6 505	
4 Su	0103 2.5 75 0728 17.3 527 1317 3.0 90 1950 17.8 544		**19** M	0056 4.5 136 0705 15.7 478 1309 4.8 145 1921 16.3 496	
5 M	0148 2.8 85 0816 16.7 510 1403 3.4 103 2039 17.2 523		**20** Tu	0127 4.7 144 0734 15.4 470 1340 5.1 156 1954 15.8 482	
6 Tu	0233 3.5 106 0905 16.0 487 1450 4.1 124 2132 16.2 495		**21** W	0157 5.1 156 0807 15.0 457 1412 5.5 169 2031 15.3 465	
7 W ◐	0321 4.4 133 1000 15.2 462 1543 4.9 149 2231 15.3 465		**22** Th	0232 5.6 170 0846 14.5 442 1450 6.1 185 2117 14.6 445	
8 Th	0416 5.3 162 1105 14.4 440 1644 5.7 174 2341 14.4 440		**23** F ◑	0313 6.2 188 0938 14.0 426 1538 6.7 204 2216 14.0 427	
9 F	0521 6.1 187 1220 14.1 430 1757 6.3 191		**24** Sa	0406 6.8 206 1048 13.6 415 1645 7.2 218 2331 13.7 418	
10 Sa	0057 14.0 428 0636 6.5 199 1333 14.3 435 1914 6.3 192		**25** Su	0519 7.1 217 1211 13.7 418 1808 7.1 216	
11 Su	0210 14.1 430 0750 6.4 194 1434 14.7 449 2022 5.9 181		**26** M	0055 13.9 425 0639 6.9 210 1333 14.4 439 1925 6.4 196	
12 M	0309 14.4 440 0851 5.9 179 1524 15.3 467 2117 5.4 165		**27** Tu	0212 14.7 448 0752 6.2 188 1438 15.5 471 2033 5.4 164	
13 Tu	0355 14.9 454 0940 5.3 163 1605 15.8 483 2204 4.9 150		**28** W	0311 15.7 479 0856 5.2 158 1532 16.6 506 2132 4.2 129	
14 W	0434 15.3 467 1023 4.9 149 1642 16.3 497 2244 4.6 139		**29** Th	0403 16.7 509 0952 4.1 126 1622 17.6 537 2225 3.2 97	
15 Th ○	0508 15.6 477 1100 4.6 140 1716 16.6 506 2320 4.3 132		**30** F ●	0451 17.5 533 1043 3.2 99 1709 18.4 561 2314 2.4 74	
			31 Sa	0538 18.0 548 1131 2.6 80 1756 18.8 573	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0000 2.1 63 0622 18.1 551 1216 2.4 73 1842 18.8 572		**16** M	0607 16.4 501 1212 4.4 134 1821 17.0 518	
2 M	0044 2.2 67 0707 17.8 543 1259 2.6 79 1928 18.2 556		**17** Tu	0027 4.4 133 0635 16.3 497 1241 4.6 139 1851 16.7 509	
3 Tu	0127 2.7 82 0750 17.2 523 1342 3.1 95 2014 17.3 528		**18** W	0056 4.6 141 0703 16.1 490 1311 4.9 148 1922 16.2 494	
4 W	0208 3.5 108 0835 16.3 496 1426 4.0 121 2101 16.1 492		**19** Th	0126 5.0 152 0734 15.7 478 1342 5.3 161 1958 15.6 475	
5 Th	0253 4.6 141 0924 15.3 465 1514 5.1 154 2156 14.9 454		**20** F	0159 5.5 167 0811 15.1 461 1419 5.9 179 2043 14.9 453	
6 F ◐	0343 5.8 177 1026 14.3 437 1613 6.2 188 2310 13.9 423		**21** Sa	0239 6.1 187 0901 14.5 442 1505 6.6 200 2144 14.1 430	
7 Sa	0447 6.9 209 1149 13.8 421 1729 6.9 211		**22** Su ◑	0331 6.9 209 1011 13.9 425 1609 7.2 219 2305 13.7 418	
8 Su	0040 13.5 410 0610 7.3 224 1314 14.0 426 1855 7.0 213		**23** M	0444 7.4 226 1142 13.9 423 1740 7.3 222	
9 M	0159 13.7 417 0732 7.1 216 1419 14.5 443 2007 6.4 196		**24** Tu	0039 14.0 426 0613 7.3 222 1314 14.6 445 1907 6.6 200	
10 Tu	0257 14.3 435 0834 6.4 195 1508 15.2 464 2101 5.7 175		**25** W	0156 14.9 455 0732 6.5 197 1421 15.8 481 2017 5.4 164	
11 W	0340 14.9 454 0922 5.7 173 1547 15.9 484 2144 5.1 156		**26** Th	0254 16.1 490 0839 5.3 162 1516 17.0 519 2116 4.1 125	
12 Th	0415 15.5 471 1003 5.1 155 1620 16.4 500 2222 4.7 142		**27** F	0344 17.1 522 0935 4.1 126 1605 18.1 551 2207 3.1 93	
13 F	0445 15.9 485 1039 4.7 142 1652 16.8 512 2256 4.4 134		**28** Sa ●	0431 17.9 546 1025 3.2 97 1651 18.8 574 2254 2.4 73	
14 Sa ○	0513 16.2 494 1111 4.4 135 1722 17.0 519 2328 4.2 129		**29** Su	0516 18.4 560 1112 2.6 78 1736 19.1 582 2339 2.2 66	
15 Su	0540 16.4 500 1142 4.3 132 1751 17.1 521 2358 4.2 129		**30** M	0559 18.4 561 1156 2.4 73 1820 18.9 576	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Pointe de Grave, France, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0021	2.4 74	**16** W	0608	16.8 513
	0641	18.1 551		1215	4.5 137
	1238	2.7 81		1826	16.9 516
	1903	18.2 556			
2 W	0101	3.1 93	**17** Th	0029	4.6 140
	0723	17.4 531		0637	16.6 506
	1318	3.3 100		1247	4.8 145
	1946	17.2 524		1859	16.5 502
3 Th	0141	4.0 122	**18** F	0100	5.0 151
	0804	16.5 503		0711	16.2 494
	1400	4.2 129		1321	5.2 157
	2030	15.9 485		1937	15.8 482
4 F	0223	5.1 156	**19** Sa	0136	5.5 167
	0849	15.5 472		0751	15.6 477
	1446	5.4 164		1359	5.7 175
	2122	14.6 445		2025	15.1 459
5 Sa ◐	0311	6.3 193	**20** Su	0218	6.2 188
	0947	14.5 442		0843	15.0 457
	1542	6.6 200		1447	6.4 196
	2237	13.6 414		2129	14.3 437
6 Su	0413	7.4 226	**21** M ◑	0311	6.9 211
	1111	13.8 422		0953	14.4 440
	1658	7.4 225		1553	7.1 215
				2252	14.0 426
7 M	0015	13.2 403	**22** Tu	0425	7.4 227
	0539	7.9 242		1125	14.3 437
	1241	13.9 423		1722	7.1 217
	1828	7.5 228			
8 Tu	0136	13.6 414	**23** W	0028	14.3 437
	0704	7.6 233		0553	7.3 222
	1350	14.4 440		1256	15.1 459
	1941	6.9 210		1848	6.4 195
9 W	0232	14.3 435	**24** Th	0137	15.3 467
	0807	6.9 210		0711	6.5 197
	1441	15.1 461		1402	16.1 492
	2034	6.1 187		1956	5.3 161
10 Th	0313	15.0 457	**25** F	0234	16.4 499
	0854	6.1 186		0817	5.3 163
	1520	15.8 482		1456	17.3 526
	2116	5.5 167		2054	4.2 127
11 F	0346	15.6 476	**26** Sa	0323	17.3 528
	0934	5.4 166		0913	4.3 130
	1553	16.4 500		1545	18.1 553
	2152	5.0 151		2144	3.3 101
12 Sa	0415	16.1 492	**27** Su	0409	18.0 548
	1009	5.0 151		1003	3.4 104
	1624	16.9 515		1631	18.7 570
	2226	4.6 140		2230	2.8 85
13 Su ○	0443	16.5 504	**28** M ●	0453	18.4 560
	1042	4.6 141		1049	2.9 88
	1654	17.2 524		1715	18.8 574
	2257	4.4 133		2314	2.7 83
14 M	0511	16.8 512	**29** Tu	0536	18.4 560
	1114	4.4 135		1133	2.8 84
	1724	17.3 527		1758	18.5 565
	2328	4.3 131		2356	3.0 92
15 Tu	0539	16.9 515	**30** W	0617	18.1 551
	1144	4.4 134		1215	3.1 93
	1755	17.2 525		1839	17.8 544
	2358	4.4 134			
			31 Th	0036	3.6 111
				0657	17.5 533
				1255	3.7 112
				1921	16.8 513

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0115	4.5 137	**16** Sa	0043	4.9 148
	0738	16.7 508		0700	16.6 507
	1336	4.5 138		1308	4.9 150
	2003	15.7 479		1929	16.0 489
2 Sa	0156	5.5 167	**17** Su	0122	5.3 163
	0821	15.8 481		0745	16.1 492
	1420	5.5 169		1351	5.4 165
	2051	14.6 444		2020	15.4 469
3 Su	0242	6.5 199	**18** M	0208	6.0 182
	0914	14.9 453		0839	15.6 475
	1511	6.6 201		1442	6.0 183
	2158	13.6 416		2122	14.8 451
4 M ◐	0339	7.5 229	**19** Tu ◑	0303	6.6 201
	1024	14.2 432		0946	15.1 461
	1618	7.4 227		1546	6.5 198
	2327	13.3 404		2241	14.5 442
5 Tu	0456	8.1 246	**20** W	0413	7.0 213
	1147	13.9 425		1110	15.0 458
	1741	7.7 235		1704	6.6 200
6 W	0049	13.5 411	**21** Th	0006	14.8 451
	0617	8.0 243		0531	6.9 210
	1301	14.2 434		1232	15.5 472
	1855	7.3 224		1821	6.1 187
7 Th	0150	14.1 430	**22** F	0113	15.5 472
	0723	7.4 226		0645	6.3 192
	1358	14.8 452		1338	16.2 495
	1952	6.7 204		1929	5.3 163
8 F	0234	14.8 451	**23** Sa	0210	16.3 497
	0814	6.7 204		0751	5.4 166
	1442	15.5 472		1435	17.0 519
	2037	6.0 183		2028	4.6 139
9 Sa	0309	15.5 472	**24** Su	0301	17.0 519
	0857	6.0 183		0849	4.6 141
	1519	16.1 491		1525	17.6 537
	2116	5.4 165		2120	3.9 120
10 Su	0341	16.1 490	**25** M	0347	17.6 536
	0934	5.4 166		0940	3.9 120
	1553	16.6 507		1612	18.0 548
	2151	5.0 151		2207	3.6 109
11 M	0411	16.6 505	**26** Tu ●	0432	17.9 545
	1009	5.0 153		1028	3.5 107
	1627	17.0 518		1656	18.0 549
	2224	4.7 142		2251	3.5 106
12 Tu ○	0442	16.9 515	**27** W	0515	18.0 548
	1044	4.7 143		1112	3.4 104
	1700	17.2 524		1739	17.7 541
	2258	4.5 136		2333	3.7 113
13 W	0514	17.1 521	**28** Th	0556	17.8 543
	1118	4.5 137		1155	3.6 110
	1734	17.2 524		1821	17.2 525
	2332	4.4 135			
14 Th	0546	17.1 522	**29** F	0013	4.1 126
	1153	4.4 135		0637	17.4 531
	1809	17.0 518		1236	4.0 123
				1901	16.5 503
15 F	0006	4.6 139	**30** Sa	0053	4.8 145
	0621	17.0 517		0717	16.8 513
	1229	4.6 140		1316	4.7 143
	1846	16.6 506		1941	15.6 477

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0133	5.5 167	**16** M	0116	4.8 146
	0759	16.1 491		0743	16.8 513
	1358	5.4 166		1347	4.7 142
	2024	14.8 452		2016	16.0 488
2 M	0216	6.3 192	**17** Tu	0203	5.2 159
	0844	15.4 469		0837	16.4 500
	1443	6.3 191		1438	5.1 155
	2116	14.1 429		2114	15.5 472
3 Tu	0306	7.1 215	**18** W	0256	5.7 174
	0939	14.7 448		0938	16.0 487
	1537	7.0 213		1534	5.5 169
	2223	13.6 414		2222	15.1 461
4 W	0406	7.6 233	**19** Th ◑	0357	6.1 186
	1044	14.2 434		1049	15.7 478
	1642	7.5 228		1640	5.8 178
◐	2336	13.5 410		2336	15.1 459
5 Th	0515	7.9 241	**20** F	0505	6.3 191
	1153	14.1 431		1204	15.6 477
	1751	7.5 229		1750	5.9 180
6 F	0044	13.7 419	**21** Sa	0045	15.3 467
	0622	7.7 235		0616	6.1 187
	1258	14.4 439		1312	15.9 484
	1854	7.2 219		1859	5.7 173
7 Sa	0141	14.3 435	**22** Su	0146	15.8 481
	0720	7.3 221		0724	5.7 174
	1354	14.9 453		1414	16.2 495
	1948	6.7 203		2002	5.2 160
8 Su	0226	14.9 455	**23** M	0241	16.3 497
	0811	6.7 203		0826	5.2 158
	1441	15.5 471		1509	16.6 506
	2033	6.1 185		2058	4.8 147
9 M	0304	15.6 475	**24** Tu	0330	16.8 511
	0855	6.0 184		0921	4.7 142
	1522	16.0 488		1558	16.8 513
	2114	5.5 168		2148	4.5 136
10 Tu	0341	16.2 493	**25** W	0416	17.2 523
	0936	5.4 166		1011	4.3 130
	1601	16.5 503		1644	17.0 517
	2153	5.0 153		2234	4.3 130
11 W	0417	16.7 509	**26** Th ●	0459	17.4 530
	1016	5.0 151		1057	4.1 124
	1639	16.8 513		1726	16.9 516
	2231	4.7 142		2316	4.2 129
12 Th ○	0454	17.1 520	**27** F	0541	17.5 532
	1056	4.5 138		1140	4.0 123
	1718	17.0 519		1807	16.7 509
	2310	4.4 134		2357	4.4 134
13 F	0532	17.3 526	**28** Sa	0621	17.3 527
	1136	4.3 130		1220	4.2 129
	1758	17.1 520		1845	16.3 497
	2350	4.3 132			
14 Sa	0612	17.3 527	**29** Su	0036	4.7 143
	1218	4.2 128		0659	17.0 517
	1840	16.9 514		1259	4.6 140
				1921	15.8 482
15 Su	0032	4.5 136	**30** M	0114	5.1 156
	0656	17.2 523		0736	16.5 503
	1301	4.3 132		1337	5.1 154
	1926	16.5 503		1957	15.3 466
			31 Tu	0152	5.7 173
				0814	15.9 486
				1416	5.6 172
				2035	14.7 448

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Brest, France, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0102	19.2	586	**16** W	0616	9.3	282
	0722	7.8	239		1227	18.3	557
	1333	19.5	595		1852	8.6	262
	1958	7.4	225				
2 W	0205	19.8	603	**17** Th	0103	18.5	564
	0826	7.3	223		0728	8.5	259
	1433	20.0	609		1337	19.1	581
	2055	6.9	210		1958	7.6	233
3 Th	0259	20.5	625	**18** F	0208	19.7	599
	0921	6.6	202		0833	7.3	221
	1524	20.5	625		1440	20.3	618
	2145	6.4	194		2059	6.4	195
4 F	0346	21.2	647	**19** Sa	0306	21.1	642
	1008	6.0	184		0931	5.7	174
	1608	21.0	640		1537	21.6	659
	2228	6.0	182		2153	5.1	154
5 Sa	0428	21.8	664	**20** Su	0400	22.5	686
	1049	5.6	170		1024	4.2	129
	1647	21.3	650		1628	22.9	697
	2307	5.7	174		2244	3.9	118
6 Su ●	0506	22.1	675	**21** M ○	0450	23.8	724
	1127	5.3	162		1114	3.0	90
	1723	21.5	654		1718	23.8	725
	2343	5.6	171		2334	3.0	91
7 M	0541	22.3	679	**22** Tu	0539	24.6	751
	1202	5.2	159		1203	2.2	66
	1757	21.4	653		1805	24.2	739
8 Tu	0018	5.7	173	**23** W	0022	2.6	78
	0615	22.2	677		0626	25.0	762
	1237	5.3	163		1251	1.9	59
	1830	21.2	646		1852	24.2	737
9 W	0052	5.9	180	**24** Th	0109	2.7	81
	0648	21.9	668		0713	24.8	755
	1310	5.7	173		1338	2.4	72
	1903	20.8	634		1939	23.6	718
10 Th	0126	6.3	193	**25** F	0157	3.3	100
	0722	21.4	653		0759	24.0	730
	1344	6.2	189		1426	3.3	102
	1937	20.2	616		2026	22.5	685
11 F	0200	6.9	211	**26** Sa	0245	4.4	133
	0756	20.7	632		0847	22.7	691
	1419	6.9	209		1515	4.8	145
	2012	19.6	596		2115	21.2	645
12 Sa	0236	7.6	231	**27** Su ◑	0335	5.7	174
	0833	20.0	609		0937	21.1	644
	1458	7.6	231		1608	6.3	192
	2052	18.8	574		2208	19.8	604
13 Su	0317	8.3	253	**28** M	0430	7.1	216
	0916	19.2	585		1033	19.6	598
	1542	8.3	252		1706	7.7	234
	2141	18.2	555		2309	18.7	571
14 M ◐	0406	8.9	272	**29** Tu	0533	8.2	250
	1009	18.5	563		1141	18.5	563
	1636	8.8	269		1813	8.6	261
	2242	17.8	542				
15 Tu	0505	9.3	284	**30** W	0022	18.2	556
	1115	18.1	552		0645	8.7	266
	1741	9.0	274		1258	18.1	551
	2352	17.8	544		1926	8.7	266
				31 Th	0136	18.5	563
					0759	8.5	259
					1411	18.4	562
					2033	8.2	251

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0239	19.3	587	**16** Sa	0138	19.0	578
	0903	7.7	236		0806	7.7	235
	1509	19.2	585		1420	19.5	595
	2128	7.4	227		2037	7.0	213
2 Sa	0330	20.2	615	**17** Su	0248	20.5	625
	0953	6.9	209		0914	5.9	181
	1555	20.0	610		1524	21.2	646
	2213	6.7	203		2137	5.3	162
3 Su	0413	21.0	641	**18** M	0346	22.3	679
	1035	6.1	185		1010	4.1	124
	1634	20.7	631		1617	22.8	696
	2252	6.0	184		2231	3.7	113
4 M ●	0450	21.7	661	**19** Tu ○	0438	23.9	728
	1111	5.5	167		1101	2.5	76
	1708	21.2	646		1705	24.1	734
	2327	5.6	170		2320	2.5	75
5 Tu	0525	22.1	675	**20** W	0526	25.1	764
	1145	5.1	154		1149	1.5	45
	1740	21.5	656		1751	24.8	755
6 W	0000	5.3	161	**21** Th	0008	1.8	54
	0557	22.4	683		0612	25.6	780
	1217	4.8	147		1235	1.1	35
	1811	21.6	659		1835	24.8	757
7 Th	0032	5.2	158	**22** F	0053	1.7	53
	0628	22.4	683		0656	25.4	774
	1248	4.9	148		1320	1.6	49
	1842	21.5	656		1918	24.2	738
8 F	0103	5.3	162	**23** Sa	0137	2.4	73
	0700	22.2	676		0738	24.5	746
	1320	5.2	157		1403	2.8	85
	1912	21.2	646		2000	23.1	704
9 Sa	0135	5.7	173	**24** Su	0221	3.6	110
	0731	21.7	662		0820	23.0	701
	1352	5.7	173		1447	4.4	135
	1944	20.7	631		2042	21.6	658
10 Su	0208	6.3	191	**25** M	0306	5.2	159
	0803	21.0	641		0903	21.2	646
	1426	6.4	194		1533	6.3	192
	2018	20.0	610		2128	20.0	609
11 M	0244	7.0	213	**26** Tu ◑	0355	7.0	212
	0840	20.2	615		0951	19.3	589
	1505	7.2	220		1625	8.1	246
	2059	19.2	586		2224	18.5	564
12 Tu ◐	0327	7.8	239	**27** W	0452	8.5	259
	0925	19.2	585		1054	17.7	541
	1552	8.1	247		1729	9.4	286
	2151	18.4	561		2337	17.6	535
13 W	0419	8.6	263	**28** Th	0604	9.4	288
	1023	18.3	558		1219	17.0	517
	1651	8.8	268		1850	9.8	299
	2259	17.9	545				
14 Th	0526	9.1	278				
	1139	17.9	545				
	1805	9.0	274				
15 F	0018	18.0	549				
	0646	8.9	271				
	1303	18.3	557				
	1925	8.3	254				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0104	17.5	533	**16** Sa	0619	8.9	271
	0729	9.4	287		1241	17.9	545
	1349	17.3	527		1901	8.7	266
	2010	9.3	282				
2 Sa	0217	18.3	558	**17** Su	0117	18.7	570
	0842	8.5	260		0748	7.8	237
	1453	18.3	558		1409	19.3	587
	2109	8.2	249		2020	7.3	221
3 Su	0311	19.4	592	**18** M	0232	20.4	621
	0933	7.4	226		0858	5.9	179
	1539	19.4	592		1510	21.1	644
	2154	7.1	216		2122	5.3	163
4 M	0353	20.5	624	**19** Tu	0331	22.3	679
	1014	6.4	194		0955	3.9	119
	1616	20.4	621		1601	22.9	697
	2231	6.2	188		2215	3.6	109
5 Tu	0430	21.4	651	**20** W	0422	24.0	730
	1050	5.5	168		1045	2.3	71
	1648	21.2	645		1648	24.2	737
	2305	5.4	166		2303	2.3	70
6 W	0503	22.0	672	**21** Th ○	0508	25.1	764
	1122	4.9	148		1131	1.4	42
	1719	21.7	662		1732	24.9	758
●	2337	4.9	150		2349	1.6	49
7 Th	0534	22.5	687	**22** F	0552	25.5	777
	1153	4.5	136		1215	1.2	37
	1748	22.1	673		1813	24.9	759
8 F	0008	4.6	141	**23** Sa	0032	1.6	50
	0605	22.8	694		0634	25.2	767
	1224	4.3	131		1257	1.8	55
	1818	22.2	676		1853	24.3	741
9 Sa	0039	4.6	140	**24** Su	0114	2.4	72
	0635	22.7	692		0713	24.2	737
	1254	4.4	135		1337	3.0	92
	1847	22.0	672		1931	23.2	707
10 Su	0110	4.8	147	**25** M	0155	3.6	110
	0705	22.4	682		0751	22.7	692
	1325	4.9	148		1417	4.7	143
	1917	21.6	659		2010	21.7	662
11 M	0142	5.3	162	**26** Tu	0237	5.2	160
	0737	21.7	662		0830	20.9	637
	1358	5.6	170		1458	6.6	200
	1950	21.0	639		2051	20.1	612
12 Tu	0218	6.1	186	**27** W	0322	7.0	214
	0812	20.8	634		0913	19.0	580
	1436	6.5	199		1546	8.4	255
	2028	20.0	610		2142	18.5	563
13 W	0259	7.1	215	**28** Th ◑	0415	8.6	263
	0855	19.7	599		1010	17.4	530
	1521	7.6	233		1646	9.8	299
	2117	19.0	578		2253	17.3	527
14 Th ◐	0350	8.1	246	**29** F	0523	9.7	297
	0951	18.5	563		1135	16.4	500
	1618	8.7	264		1808	10.4	318
	2223	18.1	551				
15 F	0455	8.9	270	**30** Sa	0023	17.0	518
	1108	17.7	539		0649	9.9	302
	1733	9.2	281		1315	16.6	507
	2348	17.8	544		1937	9.9	303
				31 Su	0144	17.7	539
					0808	9.1	277
					1426	17.7	539
					2040	8.8	268

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Brest, France, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0241	18.8	573	**16** Tu	0214	20.5	624	**1** W	0242	19.3	588	**16** Th	0248	21.6	659	
	0903	7.9	241		0840	5.7	174		0902	7.3	222		0912	4.7	142	
	1511	18.9	577		1451	21.1	643		1508	19.5	595		1517	22.0	670	
	2125	7.5	230		2104	5.4	164		2124	7.0	213		2133	4.5	138	
2 Tu	0323	19.9	608	**17** W	0312	22.2	676	**2** Th	0322	20.3	620	**17** F	0338	22.5	687	
	0944	6.7	205		0935	4.0	123		0941	6.2	190		1001	3.9	118	
	1548	20.1	612		1541	22.7	691		1544	20.6	628		1603	22.8	696	
	2202	6.5	197		2156	3.8	116		2201	6.0	182		2221	3.8	115	
3 W	0400	21.0	639	**18** Th	0401	23.5	717	**3** F	0400	21.3	648	**18** Sa	0424	23.0	702	
	1020	5.7	175		1024	2.8	85		1018	5.3	163		1046	3.5	107	
	1620	21.0	641		1627	23.8	725		1618	21.5	655		1646	23.3	709	
	2236	5.5	169		2243	2.7	83		2237	5.2	157	○	2305	3.4	105	
4 Th	0434	21.8	665	**19** F	0447	24.4	743	**4** Sa	0435	22.0	670	**19** Su	0506	23.1	704	
	1053	4.9	150		1109	2.1	65		1053	4.7	143		1128	3.6	110	
	1651	21.8	664		1709	24.3	742		1651	22.2	676		1725	23.3	710	
	2309	4.9	148	○	2327	2.2	68	●	2312	4.6	140		2347	3.5	108	
5 F	0506	22.4	683	**20** Sa	0529	24.6	749	**5** Su	0509	22.5	685	**20** M	0546	22.8	694	
	1125	4.4	134		1152	2.2	66		1128	4.3	131		1208	4.1	124	
	1721	22.3	680		1749	24.3	742		1724	22.6	689		1803	23.0	700	
●	2341	4.4	135						2347	4.3	130					
6 Sa	0538	22.8	694	**21** Su	0010	2.4	72	**6** M	0544	22.6	690	**21** Tu	0027	4.0	123	
	1156	4.1	126		0609	24.2	737		1203	4.2	129		0623	22.1	674	
	1751	22.6	688		1232	2.8	85		1758	22.7	693		1246	4.8	147	
					1827	23.8	726						1840	22.3	680	
7 Su	0013	4.3	130	**22** M	0050	3.1	93	**7** Tu	0023	4.3	130	**22** W	0106	4.8	147	
	0609	22.8	696		0647	23.3	709		0620	22.5	686		0700	21.2	646	
	1228	4.2	127		1310	3.9	118		1239	4.5	136		1324	5.8	177	
	1821	22.6	688		1904	22.8	696		1834	22.5	686		1917	21.4	651	
8 M	0045	4.4	134	**23** Tu	0130	4.2	127	**8** W	0102	4.6	139	**23** Th	0146	5.8	178	
	0641	22.6	688		0724	22.0	670		0659	22.0	670		0738	20.1	613	
	1300	4.5	138		1349	5.3	161		1318	5.1	154		1402	7.0	212	
	1853	22.2	677		1941	21.6	658		1913	21.9	668		1956	20.3	618	
9 Tu	0119	4.8	147	**24** W	0210	5.6	170	**9** Th	0144	5.2	158	**24** F	0227	7.0	212	
	0715	22.0	670		0801	20.4	623		0742	21.1	644		0818	18.9	577	
	1335	5.2	159		1428	6.9	210		1402	5.9	181		1444	8.1	248	
	1928	21.6	657		2021	20.1	613		1958	21.0	640		2040	19.1	583	
10 W	0157	5.6	170	**25** Th	0253	7.1	216	**10** F	0232	6.1	185	**25** Sa	0311	8.0	245	
	0753	21.0	641		0843	18.9	575		0832	20.0	610		0904	17.8	544	
	1415	6.2	189		1512	8.4	257		1452	7.0	214		1531	9.2	279	
	2008	20.6	627		2108	18.7	569		2053	19.9	607		2133	18.1	551	
11 Th	0241	6.6	201	**26** F	0342	8.5	259	**11** Sa	0327	7.0	214	**26** Su	0402	8.9	272	
	0838	19.8	604		0935	17.4	531		0933	19.0	578		1002	17.0	518	
	1501	7.4	225		1607	9.7	297		1552	8.0	244		1630	9.9	302	
	2058	19.4	591	◑	2211	17.5	533		2201	19.1	581	◑	2237	17.4	531	
12 F	0334	7.6	233	**27** Sa	0443	9.5	291	**12** Su	0434	7.7	234	**27** M	0504	9.4	288	
	0936	18.6	566		1049	16.5	502		1047	18.3	559		1114	16.6	507	
	1600	8.5	259		1719	10.5	319		1705	8.5	259		1740	10.1	307	
◐	2206	18.4	561		2331	17.0	517	◐	2320	18.8	573		2347	17.3	528	
13 Sa	0440	8.5	258	**28** Su	0558	9.9	302	**13** M	0552	7.7	235	**28** Tu	0611	9.4	286	
	1055	17.8	542		1218	16.4	500		1210	18.5	565		1226	17.0	517	
	1716	9.1	277		1843	10.3	313		1827	8.1	247		1849	9.6	294	
	2332	18.1	552													
14 Su	0605	8.5	259	**29** M	0052	17.3	527	**14** Tu	0041	19.4	590	**29** W	0053	17.8	542	
	1227	18.0	549		0715	9.4	287		0710	7.0	212		0715	8.8	268	
	1845	8.6	263		1336	17.2	524		1326	19.5	595		1328	17.8	542	
					1953	9.4	285		1940	7.0	213		1948	8.8	267	
15 M	0102	18.9	577	**30** Tu	0154	18.2	555	**15** W	0150	20.5	624	**30** Th	0150	18.6	567	
	0731	7.4	226		0816	8.4	256		0816	5.8	176		0810	7.9	241	
	1351	19.4	590		1428	18.3	559		1426	20.8	634		1419	18.8	574	
	2003	7.2	218		2043	8.2	249		2041	5.7	173		2038	7.7	235	
												31 F	0238	19.6	596	
													0857	6.9	210	
													1502	19.9	608	
													2122	6.6	202	

May

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Sa	0321	20.5	625	**16** Su	0403	21.5	654	**1** M	0446	21.6	658	**16** Tu	0526	21.5	656	
	0940	6.0	182		1025	5.1	154		1107	5.0	152		1147	5.2	157	
	1543	21.0	639		1625	22.0	671		1706	22.2	677		1744	22.1	675	
	2203	5.7	173		2246	4.8	145	○	2328	4.7	143					
2 Su	0402	21.3	650	**17** M	0446	21.6	658	**2** Tu	0526	21.5	656	**17** W	0008	4.9	148	
	1021	5.2	159		1107	5.0	152		1147	5.2	157		0604	21.2	647	
	1621	21.8	664		1706	22.2	677		1744	22.1	675		1225	5.5	168	
	2244	4.9	150	○	2328	4.7	143						1821	21.9	666	
3 M	0443	21.9	669	**18** Tu	0526	21.5	656	**3** W	0008	4.9	148	**18** Th	0046	5.2	159	
	1101	4.7	142		1147	5.2	157		0604	21.2	647		0640	20.8	633	
	1700	22.4	683		1744	22.1	675		1225	5.5	168		1302	6.0	183	
●	2324	4.4	133						1821	21.9	666		1858	21.4	651	
4 Tu	0523	22.3	681	**19** W	0008	4.9	148	**4** Th	0046	5.2	159	**19** F	0123	5.8	176	
	1141	4.4	133		0604	21.2	647		0640	20.8	633		0716	20.1	613	
	1740	22.7	693		1225	5.5	168		1302	6.0	183		1339	6.7	203	
					1821	21.9	666		1858	21.4	651		1935	20.6	629	
5 W	0006	4.1	125	**20** Th	0046	5.2	159	**5** F	0123	5.8	176	**20** Sa	0201	6.5	198	
	0605	22.4	682		0640	20.8	633		0716	20.1	613		0753	19.4	590	
	1223	4.4	133		1302	6.0	183		1339	6.7	203		1417	7.4	227	
	1821	22.7	693		1858	21.4	651		1935	20.6	629		2013	19.8	604	
6 Th	0049	4.1	126	**21** F	0123	5.8	176	**6** Sa	0201	6.5	198	**21** Su	0240	7.3	222	
	0649	22.1	674		0716	20.1	613		0753	19.4	590		0833	18.6	566	
	1307	4.7	143		1339	6.7	203		1417	7.4	227		1457	8.2	251	
	1906	22.4	682		1935	20.6	629		2013	19.8	604		2055	19.0	578	
7 F	0136	4.5	137	**22** Sa	0201	6.5	198	**7** Su	0240	7.3	222	**22** M	0322	8.1	246	
	0737	21.5	655		0753	19.4	590		0833	18.6	566		0918	17.8	544	
	1354	5.3	162		1417	7.4	227		1457	8.2	251		1543	8.9	272	
	1955	21.7	662		2013	19.8	604		2055	19.0	578		2145	18.2	555	
8 Sa	0226	5.2	157	**23** Su	0240	7.3	222	**8** M	0322	8.1	246	**23** Tu	0411	8.7	265	
	0829	20.7	630		0833	18.6	566		0918	17.8	544		1012	17.3	528	
	1446	6.2	188		1457	8.2	251		1543	8.9	272		1638	9.4	287	
	2050	20.9	636		2055	19.0	578		2145	18.2	555	◑	2243	17.7	540	
9 Su	0322	5.9	181	**24** M	0322	8.1	246	**9** Tu	0411	8.7	265	**24** W	0508	9.0	275	
	0928	19.8	604		0918	17.8	544		1012	17.3	528		1117	17.2	523	
	1544	7.0	212		1543	8.9	272		1638	9.4	287		1741	9.5	291	
	2153	20.1	612		2145	18.2	555	◑	2243	17.7	540		2348	17.7	538	
10 M	0424	6.6	202	**25** Tu	0411	8.7	265	**10** W	0508	9.0	275	**25** Th	0611	9.0	273	
	1033	19.2	585		1012	17.3	528		1117	17.2	523		1222	17.5	532	
	1651	7.5	229		1638	9.4	287		1741	9.5	291		1846	9.2	280	
◐	2302	19.6	598	◑	2243	17.7	540		2348	17.7	538					
11 Tu	0533	7.0	212	**26** W	0508	9.0	275	**11** Th	0611	9.0	273	**26** F	0051	18.0	549	
	1144	19.0	580		1117	17.2	523		1222	17.5	532		0714	8.5	258	
	1802	7.5	230		1741	9.5	291		1846	9.2	280		1323	18.2	555	
					2348	17.7	538						1947	8.4	256	
12 W	0013	19.6	598	**27** Th	0611	9.0	273	**12** F	0051	18.0	549	**27** Sa	0150	18.8	572	
	0643	6.8	208		1222	17.5	532		0714	8.5	258		0811	7.6	233	
	1254	19.4	592		1846	9.2	280		1323	18.2	555		1418	19.2	585	
	1912	7.1	216						1947	8.4	256		2042	7.4	225	
13 Th	0121	20.0	610	**28** F	0051	18.0	549	**13** Sa	0150	18.8	572	**28** Su	0243	19.7	600	
	0748	6.4	194		0714	8.5	258		0811	7.6	233		0903	6.7	204	
	1357	20.1	613		1323	18.2	555		1418	19.2	585		1508	20.3	619	
	2015	6.4	194		1947	8.4	256		2042	7.4	225		2132	6.3	191	
14 F	0222	20.6	627	**29** Sa	0150	18.8	572	**14** Su	0243	19.7	600					
	0846	5.8	176		0811	7.6	233		0903	6.7	204					
	1451	20.9	637		1418	19.2	585		1508	20.3	619					
	2111	5.6	171		2042	7.4	225		2132	6.3	191					
15 Sa	0315	21.1	644	**30** Su	0243	19.7	600									
	0938	5.3	162		0903	6.7	204									
	1540	21.6	658		1508	20.3	619									
	2201	5.1	154		2132	6.3	191									

June

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Brest, France, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0333	20.7 630	**16** Tu	0432	20.6 627
	0951	5.7 175		1051	5.9 180
	1555	21.4 651		1650	21.5 656
	2219	5.2 159	○	2313	5.4 164
2 Tu	0420	21.6 657	**17** W	0511	20.8 635
	1038	4.9 149		1130	5.7 174
	1640	22.3 679		1729	21.8 664
●	2305	4.3 131		2350	5.2 159
3 W	0507	22.2 678	**18** Th	0547	20.9 637
	1124	4.3 130		1207	5.7 173
	1726	23.0 700		1804	21.8 665
	2352	3.6 111			
4 Th	0553	22.6 690	**19** F	0026	5.2 159
	1210	3.9 119		0621	20.8 635
	1812	23.3 711		1241	5.8 177
				1838	21.6 659
5 F	0039	3.3 101	**20** Sa	0100	5.4 166
	0641	22.7 692		0654	20.5 626
	1257	3.9 118		1315	6.1 186
	1900	23.3 710		1911	21.3 648
6 Sa	0127	3.4 104	**21** Su	0134	5.8 178
	0729	22.4 682		0727	20.1 613
	1345	4.2 129		1349	6.6 201
	1949	22.8 696		1945	20.7 630
7 Su	0217	3.9 119	**22** M	0208	6.4 196
	0819	21.7 662		0800	19.6 596
	1436	4.9 149		1424	7.2 220
	2040	22.1 673		2020	19.9 608
8 M	0309	4.7 144	**23** Tu	0244	7.1 217
	0912	20.8 635		0837	18.9 576
	1530	5.8 176		1501	7.9 241
	2135	21.1 643		2059	19.2 585
9 Tu	0405	5.7 174	**24** W	0324	7.8 239
	1009	19.9 608		0919	18.2 556
	1628	6.7 203		1545	8.6 262
◐	2235	20.1 614		2145	18.4 561
10 W	0506	6.6 202	**25** Th	0411	8.5 259
	1111	19.3 587		1013	17.7 540
	1733	7.3 223		1639	9.2 279
	2341	19.4 592	◑	2244	17.8 543
11 Th	0611	7.2 220	**26** F	0509	9.0 273
	1219	19.0 579		1118	17.5 533
	1841	7.5 230		1744	9.4 285
				2354	17.7 538
12 F	0050	19.1 583	**27** Sa	0617	9.0 273
	0718	7.4 225		1229	17.8 542
	1327	19.2 586		1856	9.0 274
	1949	7.3 224			
13 Sa	0157	19.3 587	**28** Su	0105	18.1 551
	0822	7.1 217		0727	8.4 256
	1429	19.8 603		1337	18.6 567
	2051	6.8 208		2004	8.1 246
14 Su	0257	19.7 600	**29** M	0211	19.0 579
	0918	6.7 204		0830	7.4 225
	1522	20.5 624		1439	19.8 604
	2145	6.2 190		2105	6.7 205
15 M	0347	20.2 615	**30** Tu	0310	20.2 616
	1008	6.2 190		0927	6.1 187
	1609	21.1 643		1534	21.2 646
	2231	5.7 174		2159	5.2 160
			31 W	0404	21.5 655
				1019	4.9 149
				1625	22.5 686
				2250	3.9 119

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0453	22.6 688	**16** F	0528	21.2 645
	1109	3.8 117		1146	5.5 167
	1714	23.6 719		1743	22.1 674
●	2339	2.9 87			
2 F	0541	23.4 712	**17** Sa	0004	5.0 151
	1157	3.1 94		0559	21.3 649
	1801	24.3 740		1218	5.3 163
				1814	22.1 675
3 Sa	0026	2.3 69	**18** Su	0035	5.0 152
	0628	23.7 722		0629	21.3 648
	1244	2.8 85		1250	5.5 167
	1848	24.4 745		1845	21.9 669
4 Su	0113	2.2 68	**19** M	0106	5.2 159
	0714	23.5 716		0658	21.0 641
	1331	3.0 92		1320	5.8 177
	1934	24.0 733		1915	21.5 656
5 M	0200	2.8 86	**20** Tu	0137	5.7 174
	0800	22.8 694		0728	20.6 627
	1419	3.8 115		1352	6.4 194
	2021	23.1 703		1946	20.9 636
6 Tu	0248	3.9 120	**21** W	0209	6.4 194
	0848	21.7 661		0800	20.0 609
	1508	5.0 151		1426	7.1 216
	2109	21.7 662		2020	20.0 611
7 W	0338	5.4 164	**22** Th	0244	7.2 219
	0938	20.4 622		0837	19.2 586
	1601	6.3 192		1504	7.9 241
◐	2202	20.2 616		2101	19.1 582
8 Th	0434	6.9 209	**23** F	0327	8.1 247
	1036	19.2 586		0923	18.4 561
	1700	7.5 230		1553	8.8 267
	2305	18.9 575	◑	2153	18.1 553
9 F	0537	8.0 245	**24** Sa	0420	8.9 272
	1144	18.4 562		1025	17.7 540
	1809	8.3 254		1655	9.4 286
				2305	17.5 533
10 Sa	0019	18.1 551	**25** Su	0530	9.4 285
	0648	8.6 262		1144	17.6 536
	1301	18.3 559		1813	9.4 287
	1925	8.4 257			
11 Su	0138	18.1 551	**26** M	0029	17.6 537
	0801	8.4 256		0650	9.0 275
	1411	18.9 577		1305	18.3 557
	2035	7.8 239		1935	8.5 259
12 M	0244	18.7 570	**27** Tu	0148	18.6 567
	0904	7.7 235		0806	7.9 241
	1508	19.8 604		1418	19.7 599
	2131	7.0 213		2045	6.9 210
13 Tu	0336	19.5 595	**28** W	0255	20.2 615
	0954	6.9 211		0909	6.3 192
	1555	20.7 631		1518	21.4 652
	2217	6.2 189		2143	5.0 153
14 W	0419	20.2 617	**29** Th	0350	21.9 666
	1036	6.2 190		1003	4.6 141
	1635	21.4 652		1610	23.1 704
	2257	5.6 170		2235	3.3 101
15 Th	0455	20.8 634	**30** F	0439	23.3 710
	1113	5.8 176		1053	3.2 98
	1710	21.9 666		1659	24.4 745
○	2331	5.2 158	●	2323	2.0 62
			31 Sa	0525	24.3 740
				1141	2.3 69
				1745	25.3 770

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0009	1.4 43	**16** M	0008	4.7 142
	0610	24.7 752		0602	22.0 671
	1227	1.9 59		1222	5.0 153
	1830	25.4 774		1817	22.5 687
2 M	0054	1.5 47	**17** Tu	0037	4.8 147
	0653	24.4 744		0630	21.9 667
	1312	2.3 69		1252	5.3 161
	1913	24.8 755		1847	22.2 676
3 Tu	0138	2.4 73	**18** W	0107	5.2 160
	0736	23.5 717		0658	21.5 655
	1356	3.2 99		1323	5.8 177
	1956	23.5 717		1917	21.5 656
4 W	0222	3.8 117	**19** Th	0138	5.9 181
	0819	22.2 677		0729	20.9 637
	1442	4.7 144		1356	6.6 200
	2040	21.8 665		1949	20.6 629
5 Th	0308	5.6 172	**20** F	0213	6.9 209
	0905	20.6 629		0804	20.0 611
	1531	6.5 197		1434	7.5 229
	2128	19.9 607		2029	19.6 596
6 F	0359	7.5 229	**21** Sa	0255	7.9 241
	0959	19.1 582		0848	19.0 580
	1628	8.1 246		1522	8.5 260
◐	2229	18.2 556		2120	18.4 560
7 Sa	0501	9.0 274	**22** Su	0347	9.0 273
	1109	18.0 548		0949	18.0 550
	1739	9.2 279		1624	9.4 285
	2350	17.2 524	◑	2234	17.5 533
8 Su	0620	9.7 296	**23** M	0457	9.6 294
	1236	17.7 540		1113	17.7 538
	1902	9.3 284		1745	9.5 290
9 M	0121	17.3 527	**24** Tu	0006	17.5 533
	0743	9.4 285		0624	9.4 288
	1353	18.4 562		1244	18.3 558
	2019	8.6 261		1915	8.6 261
10 Tu	0231	18.2 556	**25** W	0133	18.7 569
	0847	8.3 254		0747	8.1 247
	1451	19.6 596		1401	19.9 607
	2114	7.4 227		2028	6.7 205
11 W	0321	19.4 590	**26** Th	0241	20.5 625
	0936	7.3 221		0852	6.2 190
	1536	20.6 628		1501	21.9 666
	2158	6.4 196		2126	4.7 142
12 Th	0400	20.3 620	**27** F	0333	22.4 682
	1015	6.3 193		0946	4.3 132
	1613	21.5 654		1553	23.7 721
	2235	5.6 171		2216	2.9 89
13 F	0434	21.1 643	**28** Sa	0421	23.9 729
	1050	5.7 173		1035	2.8 86
	1647	22.1 673		1640	25.0 762
	2307	5.1 154	●	2303	1.7 53
14 Sa	0504	21.6 659	**29** Su	0505	24.9 758
	1122	5.2 159		1121	1.9 59
	1718	22.5 685		1725	25.7 782
○	2338	4.7 144		2348	1.3 40
15 Su	0533	21.9 668	**30** M	0548	25.2 767
	1152	5.0 152		1206	1.7 52
	1748	22.6 690		1807	25.6 780

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Brest, France, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0031	1.7	51	**16** W	0010	4.7	144
	0629	24.8	756		0603	22.5	686
	1249	2.2	68		1226	5.1	154
	1849	24.8	755		1821	22.5	685
2 W	0113	2.7	83	**17** Th	0041	5.1	156
	0709	23.8	726		0633	22.2	676
	1332	3.4	103		1259	5.5	168
	1929	23.3	711		1853	21.9	667
3 Th	0155	4.3	132	**18** F	0114	5.8	176
	0749	22.4	683		0705	21.6	657
	1416	5.0	152		1334	6.2	190
	2011	21.5	656		1928	21.0	639
4 F	0238	6.2	190	**19** Sa	0150	6.7	204
	0833	20.7	632		0742	20.7	630
	1503	6.8	208		1415	7.2	219
	2056	19.6	597		2009	19.8	604
5 Sa ◐	0327	8.1	247	**20** Su	0234	7.8	237
	0924	19.1	582		0827	19.6	596
	1557	8.5	259		1504	8.2	250
	2155	17.8	543		2104	18.6	567
6 Su	0427	9.7	295	**21** M ◑	0328	8.9	270
	1035	17.8	543		0931	18.5	565
	1707	9.7	295		1608	9.0	275
	2318	16.8	511		2220	17.7	541
7 M	0547	10.4	318	**22** Tu	0439	9.6	292
	1205	17.5	532		1056	18.1	551
	1832	9.9	301		1729	9.2	280
					2351	17.8	543
8 Tu	0055	16.9	516	**23** W	0606	9.4	285
	0716	10.0	306		1227	18.7	571
	1326	18.1	552		1858	8.2	250
	1951	9.1	277				
9 W	0207	18.0	548	**24** Th	0117	19.0	580
	0821	8.9	271		0729	8.0	244
	1424	19.3	587		1342	20.3	618
	2046	7.9	241		2008	6.5	197
10 Th	0255	19.2	585	**25** F	0220	20.8	635
	0908	7.7	234		0833	6.2	188
	1507	20.4	621		1441	22.1	674
	2129	6.8	207		2105	4.6	141
11 F	0332	20.3	619	**26** Sa	0312	22.6	688
	0947	6.6	202		0926	4.4	134
	1544	21.3	650		1532	23.7	722
	2205	5.9	179		2155	3.1	96
12 Sa	0405	21.2	646	**27** Su	0359	23.9	729
	1021	5.8	177		1015	3.1	93
	1618	22.1	673		1619	24.8	755
	2237	5.2	158		2242	2.3	69
13 Su ○	0436	21.9	667	**28** M ●	0443	24.7	754
	1053	5.2	160		1101	2.3	71
	1649	22.6	688		1703	25.2	768
	2309	4.8	145		2326	2.1	63
14 M	0505	22.3	681	**29** Tu	0525	24.9	760
	1124	4.9	150		1145	2.3	69
	1720	22.8	695		1745	24.9	760
	2339	4.6	141				
15 Tu	0534	22.5	687	**30** W	0008	2.6	78
	1155	4.9	148		0605	24.6	749
	1750	22.8	695		1227	2.8	86
					1825	24.0	733
				31 Th	0049	3.6	109
					0645	23.7	721
					1309	3.9	120
					1905	22.7	693

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0130	5.0	153	**16** Sa	0056	5.6	170
	0724	22.4	682		0651	22.1	673
	1352	5.4	164		1320	5.8	176
	1945	21.1	643		1917	21.2	647
2 Sa	0212	6.7	203	**17** Su	0137	6.4	194
	0806	20.9	636		0732	21.3	648
	1437	7.0	213		1405	6.6	201
	2029	19.4	592		2003	20.2	616
3 Su	0257	8.3	253	**18** M	0224	7.3	223
	0854	19.4	590		0822	20.3	618
	1528	8.5	259		1457	7.4	227
	2123	17.9	545		2100	19.2	585
4 M ◐	0352	9.7	296	**19** Tu ◑	0319	8.3	252
	0957	18.1	551		0924	19.4	590
	1630	9.6	294		1559	8.2	249
	2238	16.9	514		2211	18.5	563
5 Tu	0504	10.5	320	**20** W	0427	8.9	270
	1118	17.5	533		1041	18.9	577
	1747	10.0	305		1715	8.3	254
					2331	18.5	564
6 W	0006	16.8	512	**21** Th	0546	8.7	266
	0627	10.4	317		1203	19.3	589
	1239	17.8	542		1834	7.7	234
	1904	9.5	291				
7 Th	0121	17.6	535	**22** F	0050	19.4	590
	0737	9.5	291		0703	7.8	237
	1341	18.7	569		1316	20.4	622
	2003	8.6	261		1943	6.5	197
8 F	0214	18.7	569	**23** Sa	0154	20.7	631
	0829	8.4	256		0808	6.4	194
	1428	19.7	601		1417	21.7	662
	2049	7.5	228		2041	5.2	157
9 Sa	0255	19.8	603	**24** Su	0248	22.0	672
	0910	7.3	223		0904	5.0	153
	1509	20.7	631		1510	22.9	697
	2128	6.5	199		2132	4.1	125
10 Su	0330	20.8	635	**25** M	0337	23.2	706
	0947	6.4	194		0954	4.0	121
	1545	21.6	657		1558	23.6	720
	2204	5.7	174		2220	3.5	107
11 M	0404	21.7	660	**26** Tu ●	0422	23.9	727
	1022	5.6	172		1041	3.4	103
	1619	22.2	676		1643	23.9	728
	2238	5.2	157		2305	3.4	104
12 Tu ○	0436	22.3	679	**27** W	0504	24.1	734
	1057	5.2	157		1125	3.3	101
	1653	22.6	688		1725	23.7	722
	2311	4.9	148		2347	3.8	115
13 W	0508	22.6	690	**28** Th	0545	23.9	727
	1131	4.9	150		1208	3.7	113
	1726	22.7	691		1806	23.0	702
	2345	4.8	147				
14 Th	0541	22.8	694	**29** F	0028	4.5	137
	1205	4.9	150		0625	23.3	709
	1801	22.5	686		1250	4.5	136
					1845	22.1	673
15 F	0019	5.1	155	**30** Sa	0108	5.5	167
	0614	22.6	688		0704	22.3	680
	1241	5.2	159		1331	5.5	168
	1837	22.0	671		1925	20.9	637

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0149	6.7	203	**16** M	0130	5.5	167
	0745	21.2	646		0730	22.2	677
	1413	6.7	205		1359	5.4	164
	2006	19.6	598		2000	21.1	643
2 M	0232	7.9	241	**17** Tu	0218	6.2	188
	0828	19.9	608		0820	21.5	654
	1458	7.9	242		1450	6.1	185
	2053	18.4	562		2054	20.3	618
3 Tu	0319	9.0	275	**18** W	0311	6.9	211
	0919	18.8	573		0917	20.7	630
	1549	9.0	274		1548	6.8	207
	2149	17.5	532		2156	19.6	597
4 W ◐	0415	9.9	301	**19** Th ◑	0412	7.6	231
	1021	18.0	548		1021	20.0	610
	1650	9.6	294		1654	7.3	222
	2259	17.0	518		2304	19.2	586
5 Th	0522	10.3	313	**20** F	0520	7.9	240
	1131	17.7	538		1132	19.8	603
	1758	9.7	296		1804	7.3	223
6 F	0011	17.2	523	**21** Sa	0015	19.4	591
	0632	10.0	306		0632	7.7	234
	1240	17.9	547		1245	20.0	610
	1903	9.3	282		1913	6.9	211
7 Sa	0115	17.8	544	**22** Su	0123	20.0	611
	0734	9.3	283		0741	7.0	213
	1338	18.7	570		1351	20.6	629
	1958	8.4	257		2015	6.3	191
8 Su	0207	18.9	575	**23** M	0223	20.9	638
	0825	8.3	253		0842	6.1	186
	1427	19.6	598		1449	21.4	651
	2045	7.5	228		2111	5.6	170
9 M	0250	19.9	607	**24** Tu	0316	21.8	665
	0910	7.3	222		0936	5.3	161
	1510	20.5	626		1541	21.9	669
	2127	6.6	200		2202	5.1	154
10 Tu	0330	20.9	637	**25** W	0405	22.5	687
	0951	6.4	194		1026	4.7	143
	1550	21.4	651		1628	22.3	680
	2207	5.8	177		2248	4.8	146
11 W	0408	21.8	663	**26** Th ●	0449	22.9	699
	1030	5.6	171		1111	4.4	134
	1628	22.0	670		1711	22.4	682
	2246	5.3	161		2331	4.8	146
12 Th ○	0446	22.4	683	**27** F	0531	23.1	703
	1109	5.1	154		1153	4.4	134
	1707	22.3	681		1751	22.1	675
	2324	4.9	150				
13 F	0523	22.8	695	**28** Sa	0011	5.0	153
	1148	4.7	144		0610	22.9	697
	1746	22.5	685		1233	4.7	144
					1829	21.7	662
14 Sa	0004	4.9	148	**29** Su	0050	5.5	167
	0603	22.9	698		0648	22.4	683
	1229	4.6	141		1311	5.3	161
	1828	22.3	680		1906	21.0	641
15 Su	0045	5.0	153	**30** M	0128	6.1	187
	0644	22.7	692		0725	21.7	661
	1312	4.9	148		1349	6.1	185
	1912	21.8	665		1943	20.2	616
				31 Tu	0206	7.0	212
					0802	20.8	634
					1428	7.0	212
					2021	19.3	589

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cherbourg, France, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0458	17.8	542	**16** W	0340	16.6	506
	1149	7.7	235		1037	8.9	271
	1723	17.7	541		1613	16.6	507
					2310	8.2	249
2 W	0020	7.1	216	**17** Th	0457	17.2	523
	0600	18.3	558		1152	8.1	247
	1252	7.1	216		1732	17.3	528
	1825	18.2	554				
3 Th	0116	6.7	204	**18** F	0019	7.3	223
	0653	19.0	578		0605	18.2	555
	1345	6.4	195		1256	6.9	209
	1919	18.7	570		1838	18.4	562
4 F	0205	6.2	190	**19** Sa	0120	6.2	190
	0740	19.6	597		0702	19.4	592
	1431	5.8	176		1354	5.5	167
	2005	19.2	585		1934	19.6	598
5 Sa	0248	5.9	179	**20** Su	0216	5.1	155
	0821	20.0	611		0754	20.6	628
	1512	5.3	162		1449	4.2	127
	2045	19.5	595		2027	20.7	630
6 Su	0326	5.6	172	**21** M	0309	4.1	126
	0858	20.3	620		0844	21.6	658
	1549	5.0	152		1541	3.1	93
●	2121	19.7	600	○	2118	21.4	653
7 M	0403	5.6	170	**22** Tu	0400	3.4	105
	0932	20.5	624		0933	22.3	679
	1624	4.8	147		1631	2.3	71
	2156	19.7	601		2208	21.8	665
8 Tu	0437	5.6	172	**23** W	0449	3.1	95
	1006	20.4	623		1022	22.5	687
	1658	4.9	149		1719	2.1	63
	2229	19.6	597		2256	21.8	665
9 W	0511	5.9	179	**24** Th	0537	3.2	97
	1040	20.2	616		1109	22.4	682
	1731	5.2	158		1806	2.3	71
	2302	19.3	587		2342	21.4	651
10 Th	0544	6.3	192	**25** F	0623	3.7	113
	1113	19.8	602		1155	21.7	662
	1804	5.6	172		1851	3.1	96
	2335	18.8	573				
11 F	0617	6.8	208	**26** Sa	0027	20.5	625
	1146	19.2	584		0709	4.7	142
	1837	6.2	190		1240	20.6	629
					1937	4.4	133
12 Sa	0009	18.2	555	**27** Su	0112	19.4	591
	0652	7.4	227		0756	5.9	180
	1222	18.4	562		1327	19.3	588
	1914	6.9	210	◑	2025	5.8	178
13 Su	0048	17.6	537	**28** M	0200	18.2	556
	0733	8.1	247		0849	7.2	218
	1303	17.7	539		1420	17.9	547
	1957	7.6	231		2120	7.2	219
14 M	0133	17.0	519	**29** Tu	0300	17.3	526
	0822	8.7	265		0952	8.1	247
	1354	17.0	518		1527	16.9	514
◐	2049	8.2	249		2228	8.1	248
15 Tu	0231	16.6	507	**30** W	0413	16.8	512
	0923	9.1	276		1109	8.4	257
	1457	16.6	505		1647	16.4	501
	2155	8.4	257		2344	8.3	254
				31 Th	0528	17.0	518
					1222	8.0	245
					1804	16.8	511

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0051	7.9	242	**16** Sa	0539	17.4	529
	0632	17.7	539		1232	7.2	219
	1324	7.3	221		1821	17.8	542
	1906	17.5	533				
2 Sa	0147	7.2	220	**17** Su	0101	6.8	206
	0724	18.5	565		0644	18.8	572
	1415	6.4	194		1338	5.5	169
	1953	18.3	558		1922	19.3	587
3 Su	0233	6.5	198	**18** M	0203	5.3	162
	0806	19.3	588		0740	20.2	617
	1457	5.6	171		1437	3.9	119
	2033	19.0	578		2016	20.6	628
4 M	0313	5.9	180	**19** Tu	0259	4.0	121
	0843	19.9	606		0833	21.6	657
	1534	5.0	153		1530	2.5	77
●	2108	19.5	593	○	2108	21.6	659
5 Tu	0349	5.5	167	**20** W	0351	2.9	89
	0918	20.3	619		0923	22.5	685
	1608	4.6	140		1620	1.6	49
	2140	19.7	601		2156	22.2	677
6 W	0422	5.2	158	**21** Th	0438	2.3	70
	0951	20.5	625		1011	22.9	699
	1641	4.4	134		1706	1.3	39
	2212	19.8	605		2242	22.3	680
7 Th	0454	5.1	156	**22** F	0523	2.3	69
	1022	20.5	626		1056	22.8	695
	1712	4.4	135		1749	1.6	49
	2242	19.8	603		2324	21.9	667
8 F	0525	5.2	160	**23** Sa	0605	2.8	84
	1053	20.3	620		1137	22.1	673
	1742	4.7	142		1830	2.6	78
	2312	19.5	595				
9 Sa	0555	5.6	170	**24** Su	0003	21.0	639
	1125	19.9	607		0646	3.8	117
	1813	5.1	156		1217	20.9	636
	2344	19.1	582		1909	4.0	123
10 Su	0626	6.1	185	**25** M	0040	19.8	602
	1157	19.3	588		0726	5.2	160
	1845	5.7	175		1256	19.3	589
					1950	5.8	176
11 M	0016	18.5	564	**26** Tu	0120	18.4	560
	0701	6.7	205		0811	6.8	207
	1231	18.5	563		1340	17.7	539
	1921	6.6	200	◑	2036	7.5	228
12 Tu	0052	17.8	543	**27** W	0209	17.0	519
	0742	7.5	230		0906	8.2	249
	1311	17.6	536		1440	16.2	494
◐	2006	7.5	228		2138	8.9	270
13 W	0137	17.1	521	**28** Th	0321	16.0	489
	0835	8.3	253		1023	9.0	273
	1405	16.7	510		1609	15.4	470
	2105	8.3	252		2304	9.4	286
14 Th	0240	16.5	503				
	0946	8.7	266				
	1523	16.2	494				
	2224	8.6	261				
15 F	0408	16.5	502				
	1113	8.4	256				
	1704	16.6	505				
	2349	8.0	244				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0453	15.9	486	**16** Sa	0335	16.1	492
	1150	8.8	267		1046	8.4	255
	1747	15.8	481		1651	16.3	496
					2329	8.4	256
2 Sa	0027	8.9	271	**17** Su	0520	16.9	516
	0611	16.7	508		1214	7.2	218
	1301	7.9	240		1810	17.6	537
	1853	16.8	511				
3 Su	0129	7.9	240	**18** M	0047	7.0	213
	0705	17.7	539		0629	18.4	562
	1355	6.8	206		1324	5.4	165
	1938	17.8	543		1910	19.2	585
4 M	0217	6.9	209	**19** Tu	0151	5.3	162
	0747	18.7	570		0726	20.1	612
	1437	5.8	176		1423	3.7	112
	2014	18.7	571		2003	20.7	630
5 Tu	0256	5.9	181	**20** W	0246	3.8	116
	0824	19.6	596		0819	21.5	654
	1514	5.0	152		1515	2.3	71
	2048	19.4	592		2052	21.7	662
6 W	0330	5.3	161	**21** Th	0336	2.7	82
	0858	20.2	615		0907	22.4	683
	1547	4.4	134		1602	1.5	46
●	2120	19.9	606	○	2137	22.3	680
7 Th	0402	4.8	146	**22** F	0421	2.1	63
	0931	20.6	627		0953	22.8	695
	1618	4.0	123		1645	1.3	40
	2150	20.1	614		2219	22.4	682
8 F	0432	4.5	137	**23** Sa	0503	2.0	62
	1001	20.7	632		1035	22.6	689
	1648	3.9	119		1726	1.8	54
	2219	20.2	617		2258	21.9	668
9 Sa	0502	4.4	135	**24** Su	0542	2.6	79
	1031	20.7	631		1114	21.8	665
	1718	4.0	123		1803	2.9	87
	2248	20.1	614		2334	21.1	642
10 Su	0532	4.6	141	**25** M	0619	3.6	111
	1102	20.4	621		1150	20.6	627
	1748	4.4	135		1839	4.4	133
	2318	19.8	604				
11 M	0602	5.1	154	**26** Tu	0008	19.8	605
	1133	19.8	603		0656	5.1	155
	1818	5.1	155		1226	19.0	580
	2349	19.2	586		1915	6.1	186
12 Tu	0635	5.8	176	**27** W	0043	18.4	562
	1206	18.9	577		0736	6.7	203
	1852	6.0	184		1305	17.4	531
					1957	7.8	239
13 W	0022	18.4	562	**28** Th	0127	17.0	519
	0713	6.7	203		0825	8.1	247
	1243	17.9	545		1359	15.9	485
	1934	7.2	218	◑	2053	9.3	283
14 Th	0102	17.5	534	**29** F	0232	15.8	481
	0802	7.7	234		0935	9.1	278
	1333	16.8	513		1528	15.0	457
◐	2031	8.3	252		2222	10.0	305
15 F	0201	16.6	506	**30** Sa	0409	15.4	468
	0912	8.4	257		1109	9.2	280
	1454	16.0	487		1720	15.3	465
	2153	8.9	271		2355	9.5	291
				31 Su	0538	15.9	486
					1226	8.3	254
					1827	16.3	498

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cherbourg, France, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0100 8.4 256 0635 17.0 519 1323 7.2 219 1910 17.5 533		**16** Tu	0031 7.0 212 0611 18.5 563 1305 5.2 160 1851 19.3 588	
2 Tu	0149 7.2 219 0718 18.1 553 1406 6.1 186 1945 18.5 565		**17** W	0133 5.3 163 0707 19.9 607 1403 3.8 116 1942 20.6 627	
3 W	0228 6.2 188 0756 19.1 583 1444 5.2 159 2019 19.4 591		**18** Th	0227 4.0 122 0758 21.1 644 1453 2.7 83 2029 21.5 654	
4 Th	0303 5.3 162 0832 19.9 606 1517 4.5 138 2052 20.0 609		**19** F ○	0315 3.1 93 0846 21.9 666 1539 2.2 67 2113 21.9 668	
5 F ●	0335 4.7 143 0905 20.4 622 1549 4.1 124 2123 20.3 620		**20** Sa	0359 2.6 78 0930 22.1 673 1621 2.2 67 2152 21.9 668	
6 Sa	0406 4.3 130 0936 20.7 630 1620 3.8 117 2152 20.5 626		**21** Su	0439 2.6 79 1010 21.8 664 1659 2.8 84 2229 21.5 656	
7 Su	0437 4.1 124 1007 20.7 632 1652 3.9 118 2222 20.5 626		**22** M	0517 3.1 94 1048 21.1 643 1735 3.7 114 2304 20.8 634	
8 M	0509 4.2 127 1039 20.5 625 1723 4.2 129 2254 20.3 618		**23** Tu	0553 4.0 122 1123 20.0 610 1809 5.1 154 2338 19.8 602	
9 Tu	0541 4.5 138 1113 20.0 609 1755 4.9 150 2327 19.8 602		**24** W	0628 5.2 158 1159 18.7 570 1844 6.5 199	
10 W	0615 5.2 159 1149 19.1 583 1831 5.9 180		**25** Th	0013 18.5 565 0706 6.6 200 1238 17.3 528 1924 8.0 245	
11 Th	0003 18.9 577 0655 6.1 187 1230 18.0 550 1915 7.1 217		**26** F ◑	0054 17.2 525 0751 7.8 239 1327 16.0 489 2016 9.3 284	
12 F ◐	0046 17.9 546 0745 7.2 219 1324 16.9 516 2014 8.3 252		**27** Sa	0151 16.0 488 0851 8.9 270 1443 15.2 462 2133 10.1 307	
13 Sa	0146 16.9 514 0856 8.0 244 1449 16.1 492 2139 8.9 271		**28** Su	0315 15.4 468 1015 9.2 281 1623 15.2 462 2306 9.9 301	
14 Su	0321 16.3 498 1030 8.0 243 1640 16.5 503 2314 8.4 255		**29** M	0443 15.6 475 1136 8.7 265 1739 16.0 487	
15 M	0502 17.1 520 1157 6.8 208 1754 17.8 542		**30** Tu	0015 8.9 271 0549 16.4 501 1236 7.7 235 1827 17.1 521	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0107 7.7 236 0637 17.5 534 1324 6.7 204 1906 18.2 554		**16** Th	0109 5.7 173 0642 19.5 594 1337 4.5 136 1916 20.1 612	
2 Th	0149 6.7 204 0719 18.5 565 1404 5.8 176 1943 19.1 582		**17** F	0203 4.6 141 0734 20.3 620 1428 3.8 115 2003 20.8 633	
3 F	0226 5.7 175 0757 19.4 591 1440 5.0 153 2018 19.8 604		**18** Sa ○	0251 3.9 120 0822 20.8 634 1513 3.5 107 2046 21.1 643	
4 Sa ●	0301 5.0 152 0834 20.0 609 1515 4.5 136 2052 20.3 619		**19** Su	0335 3.6 109 0905 20.9 637 1554 3.6 110 2125 21.1 644	
5 Su	0336 4.4 135 0909 20.4 621 1550 4.1 126 2124 20.6 628		**20** M	0415 3.6 109 0945 20.7 630 1632 4.0 123 2201 20.9 637	
6 M	0411 4.1 125 0943 20.5 625 1626 4.1 125 2157 20.7 631		**21** Tu	0452 3.9 119 1023 20.2 615 1708 4.8 145 2237 20.4 622	
7 Tu	0447 4.0 123 1019 20.4 622 1701 4.4 134 2232 20.6 627		**22** W	0528 4.5 137 1100 19.5 593 1743 5.7 173 2313 19.7 599	
8 W	0524 4.3 131 1057 20.0 610 1738 5.0 152 2310 20.1 613		**23** Th	0604 5.3 163 1137 18.6 566 1819 6.8 206 2349 18.7 570	
9 Th	0603 4.9 148 1139 19.3 588 1819 5.9 179 2352 19.4 590		**24** F	0641 6.3 193 1215 17.6 535 1858 7.9 240	
10 F	0647 5.7 173 1225 18.3 559 1908 7.0 212		**25** Sa	0028 17.7 538 0722 7.4 225 1259 16.6 505 1944 8.9 271	
11 Sa	0040 18.4 561 0742 6.6 200 1324 17.4 529 2010 7.9 241		**26** Su ◑	0116 16.7 508 0811 8.3 252 1356 15.8 482 2044 9.6 293	
12 Su ◐	0142 17.5 533 0851 7.3 221 1446 16.8 511 2129 8.4 255		**27** M	0219 15.9 485 0914 8.8 268 1508 15.5 472 2200 9.8 298	
13 M	0309 17.0 519 1015 7.3 221 1618 17.0 519 2255 7.9 242		**28** Tu	0332 15.7 479 1029 8.8 268 1625 15.8 482 2314 9.3 283	
14 Tu	0437 17.5 532 1135 6.5 198 1728 18.0 548		**29** W	0443 16.1 491 1136 8.2 251 1728 16.6 506	
15 W	0008 6.9 209 0545 18.4 562 1241 5.4 165 1825 19.1 582		**30** Th	0012 8.4 256 0543 16.9 515 1231 7.4 226 1817 17.6 536	
			31 F	0101 7.4 225 0633 17.8 543 1317 6.5 199 1900 18.6 566	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0144 6.4 195 0718 18.7 570 1400 5.7 174 1941 19.4 591		**16** Su	0227 5.1 154 0800 19.6 596 1448 5.0 153 2021 20.2 615	
2 Su	0225 5.5 168 0801 19.4 592 1441 5.1 154 2019 20.0 611		**17** M ○	0312 4.7 143 0845 19.7 600 1530 5.0 152 2101 20.3 620	
3 M ●	0306 4.8 146 0841 19.9 608 1522 4.6 140 2057 20.5 626		**18** Tu	0353 4.5 138 0925 19.7 600 1609 5.2 157 2138 20.3 619	
4 Tu	0347 4.3 130 0922 20.3 618 1603 4.4 135 2136 20.8 634		**19** W	0431 4.6 140 1003 19.5 595 1646 5.5 167 2215 20.1 613	
5 W	0429 4.0 121 1003 20.4 621 1645 4.5 137 2216 20.8 635		**20** Th	0507 4.8 147 1040 19.2 585 1722 6.0 182 2251 19.7 601	
6 Th	0512 4.0 122 1047 20.2 615 1728 4.9 149 2300 20.6 627		**21** F	0542 5.3 162 1116 18.7 570 1757 6.6 201 2327 19.1 582	
7 F	0557 4.3 131 1133 19.7 601 1814 5.5 168 2346 20.0 610		**22** Sa	0618 5.9 181 1152 18.1 551 1833 7.3 224	
8 Sa	0645 4.9 149 1223 19.0 579 1906 6.3 192		**23** Su	0004 18.4 560 0654 6.7 203 1230 17.4 530 1913 8.1 246	
9 Su	0037 19.3 587 0740 5.6 171 1320 18.2 555 2006 7.1 215		**24** M	0043 17.6 535 0735 7.4 226 1312 16.8 511 1959 8.7 266	
10 M ◐	0137 18.4 562 0842 6.3 191 1430 17.6 537 2114 7.5 230		**25** Tu ◑	0129 16.9 514 0822 8.0 245 1403 16.3 496 2054 9.2 280	
11 Tu	0249 17.9 545 0952 6.6 201 1545 17.5 534 2228 7.5 229		**26** W	0225 16.3 498 0919 8.5 258 1504 16.1 491 2159 9.3 282	
12 W	0405 17.8 542 1105 6.5 198 1654 17.9 546 2339 7.0 214		**27** Th	0328 16.2 493 1025 8.5 259 1611 16.3 498 2308 8.9 270	
13 Th	0513 18.1 553 1211 6.1 185 1754 18.6 566		**28** F	0436 16.4 501 1131 8.1 246 1717 17.0 518	
14 F	0041 6.3 192 0614 18.7 569 1309 5.6 170 1848 19.3 587		**29** Sa	0009 8.1 246 0541 17.1 522 1230 7.3 224 1814 17.9 546	
15 Sa	0137 5.6 171 0710 19.2 585 1401 5.2 159 1937 19.8 604		**30** Su	0103 7.1 216 0639 18.0 548 1322 6.5 198 1904 18.9 575	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cherbourg, France, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0152 6.0 184 0730 18.9 575 1411 5.7 173 1950 19.8 602		**16** Tu ○	0253 5.5 168 0830 18.9 576 1512 5.9 181 2043 19.8 604	
2 Tu ●	0240 5.1 154 0819 19.7 599 1459 5.0 152 2035 20.5 625		**17** W	0335 5.1 156 0910 19.2 585 1551 5.8 176 2120 20.0 611	
3 W	0328 4.3 130 0906 20.2 617 1546 4.5 138 2120 21.0 641		**18** Th	0412 4.9 149 0946 19.3 589 1628 5.7 174 2156 20.1 614	
4 Th	0416 3.7 112 0953 20.6 628 1633 4.3 130 2206 21.3 650		**19** F	0448 4.9 148 1020 19.3 588 1702 5.8 178 2231 20.0 610	
5 F	0504 3.3 102 1040 20.7 631 1721 4.3 131 2252 21.3 649		**20** Sa	0521 5.0 153 1054 19.1 583 1736 6.1 186 2305 19.7 601	
6 Sa	0551 3.4 103 1128 20.5 624 1809 4.6 141 2341 21.0 639		**21** Su	0554 5.4 164 1127 18.8 573 1808 6.6 200 2338 19.2 585	
7 Su	0640 3.8 115 1217 19.9 608 1859 5.2 159		**22** M	0626 5.9 180 1159 18.3 559 1841 7.1 216	
8 M	0030 20.3 618 0730 4.5 137 1308 19.2 585 1952 6.0 183		**23** Tu	0012 18.6 566 0700 6.5 199 1234 17.8 542 1918 7.7 235	
9 Tu ◐	0122 19.4 591 0823 5.4 165 1403 18.4 561 2050 6.8 207		**24** W	0048 17.8 544 0738 7.3 221 1313 17.2 525 2001 8.4 255	
10 W	0221 18.5 563 0923 6.3 192 1506 17.8 542 2155 7.4 225		**25** Th ◑	0132 17.1 522 0823 7.9 242 1401 16.7 510 2055 8.9 270	
11 Th	0328 17.7 541 1029 7.0 212 1614 17.6 535 2306 7.5 229		**26** F	0226 16.5 504 0920 8.5 258 1501 16.4 501 2203 9.1 276	
12 F	0439 17.5 532 1138 7.2 218 1722 17.8 542		**27** Sa	0334 16.3 496 1032 8.6 263 1614 16.6 506 2319 8.7 264	
13 Sa	0013 7.2 219 0548 17.6 536 1242 7.0 212 1823 18.3 558		**28** Su	0453 16.6 505 1146 8.2 249 1731 17.3 528	
14 Su	0114 6.6 202 0650 18.0 549 1339 6.6 201 1916 18.9 576		**29** M	0027 7.7 234 0607 17.4 531 1251 7.3 221 1834 18.4 561	
15 M	0207 6.0 184 0744 18.5 564 1428 6.2 190 2002 19.4 592		**30** Tu	0126 6.4 195 0708 18.6 566 1349 6.2 188 1928 19.6 597	
			31 W	0221 5.1 156 0801 19.7 600 1442 5.1 156 2018 20.7 630	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0314 3.9 120 0853 20.6 628 1534 4.3 130 2107 21.5 656		**16** F	0353 4.9 149 0927 19.6 597 1609 5.5 169 2137 20.4 623	
2 F	0405 3.0 92 0943 21.2 647 1624 3.7 112 2156 22.1 673		**17** Sa	0427 4.7 142 0959 19.8 602 1641 5.4 165 2209 20.5 625	
3 Sa	0454 2.5 75 1031 21.5 656 1712 3.4 104 2244 22.2 678		**18** Su	0458 4.7 142 1029 19.8 602 1711 5.5 168 2240 20.4 621	
4 Su	0541 2.4 72 1118 21.4 653 1758 3.6 109 2330 21.9 669		**19** M	0528 4.9 148 1058 19.6 596 1741 5.8 176 2310 20.0 610	
5 M	0626 2.8 86 1202 20.9 637 1844 4.2 128		**20** Tu	0557 5.3 161 1128 19.2 586 1810 6.2 190 2341 19.4 592	
6 Tu	0015 21.2 645 0711 3.8 115 1246 20.0 610 1930 5.2 160		**21** W	0627 5.9 180 1159 18.7 571 1842 6.9 209	
7 W ◐	0100 20.0 610 0757 5.1 156 1331 18.9 577 2020 6.5 197		**22** Th	0013 18.7 569 0659 6.7 204 1232 18.1 551 1919 7.6 233	
8 Th	0149 18.7 569 0848 6.6 200 1424 17.8 544 2119 7.6 231		**23** F ◑	0050 17.8 542 0739 7.6 232 1312 17.4 529 2006 8.5 258	
9 F	0249 17.4 530 0950 7.8 238 1532 17.1 520 2231 8.2 251		**24** Sa	0138 16.9 515 0830 8.5 259 1407 16.7 509 2110 9.1 277	
10 Sa	0405 16.6 506 1106 8.4 256 1650 16.9 516 2348 8.1 248		**25** Su	0246 16.2 494 0943 9.1 278 1524 16.4 499 2236 9.1 276	
11 Su	0528 16.6 505 1220 8.3 252 1803 17.5 532		**26** M	0420 16.2 494 1113 8.9 271 1700 16.9 514	
12 M	0056 7.5 229 0639 17.2 524 1323 7.7 234 1901 18.3 557		**27** Tu	0001 8.1 246 0549 17.2 524 1230 7.8 238 1815 18.1 553	
13 Tu	0152 6.7 204 0734 18.0 549 1414 7.0 212 1948 19.1 581		**28** W	0108 6.5 199 0653 18.6 568 1333 6.4 194 1912 19.7 600	
14 W	0238 5.9 180 0818 18.7 571 1458 6.3 193 2028 19.7 601		**29** Th	0206 4.9 149 0747 20.0 611 1429 5.0 151 2004 21.1 643	
15 Th ○	0318 5.3 162 0854 19.3 587 1535 5.8 178 2103 20.2 615		**30** F ●	0300 3.4 105 0839 21.2 647 1521 3.8 115 2054 22.2 677	
			31 Sa	0350 2.3 71 0928 22.0 671 1610 3.0 90 2142 22.9 697	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0438 1.8 54 1014 22.3 681 1656 2.6 80 2229 23.0 702		**16** M	0430 4.4 135 1001 20.4 621 1645 5.0 153 2213 20.9 636	
2 M	0522 1.8 55 1058 22.2 676 1740 2.9 88 2312 22.6 688		**17** Tu	0459 4.6 140 1029 20.3 618 1714 5.2 159 2242 20.6 627	
3 Tu	0604 2.5 76 1139 21.6 657 1822 3.7 112 2353 21.6 658		**18** W	0528 5.0 152 1058 20.0 609 1742 5.6 172 2313 20.0 609	
4 W	0645 3.8 115 1218 20.5 624 1904 5.0 151		**19** Th	0556 5.6 171 1127 19.5 594 1813 6.3 192 2344 19.2 585	
5 Th	0034 20.1 614 0727 5.4 166 1257 19.2 584 1949 6.5 198		**20** F	0628 6.5 198 1159 18.8 572 1847 7.2 218	
6 F ◐	0117 18.5 564 0812 7.2 220 1344 17.8 543 2042 8.0 243		**21** Sa	0019 18.2 554 0705 7.5 230 1236 17.9 545 1932 8.1 247	
7 Sa	0212 16.9 516 0911 8.8 267 1450 16.7 508 2156 9.0 273		**22** Su ◑	0105 17.1 522 0756 8.7 265 1329 17.0 517 2034 9.0 274	
8 Su	0335 15.9 484 1035 9.6 292 1620 16.3 496 2324 9.0 273		**23** M	0217 16.2 494 0910 9.5 290 1452 16.3 498 2207 9.2 280	
9 M	0515 15.9 486 1202 9.3 283 1745 16.9 514		**24** Tu	0407 16.2 493 1051 9.4 285 1642 16.8 511 2341 8.1 248	
10 Tu	0038 8.1 248 0631 16.9 514 1308 8.3 254 1845 17.9 545		**25** W	0538 17.4 529 1215 8.0 245 1759 18.2 556	
11 W	0134 7.1 216 0720 17.9 547 1358 7.3 222 1930 18.9 577		**26** Th	0052 6.4 195 0638 19.0 579 1319 6.3 193 1856 19.9 608	
12 Th	0218 6.1 186 0758 18.9 576 1439 6.4 195 2007 19.8 603		**27** F	0150 4.6 140 0731 20.5 626 1414 4.7 143 1947 21.5 655	
13 F	0256 5.3 163 0831 19.6 598 1514 5.7 174 2042 20.4 622		**28** Sa ●	0242 3.1 94 0820 21.8 664 1504 3.4 104 2036 22.6 690	
14 Sa ○	0329 4.8 147 0903 20.1 612 1546 5.3 161 2114 20.8 634		**29** Su	0331 2.1 64 0907 22.5 687 1551 2.6 80 2123 23.2 708	
15 Su	0401 4.5 138 0933 20.3 619 1616 5.1 154 2144 20.9 638		**30** M	0416 1.7 52 0951 22.8 694 1635 2.4 74 2208 23.2 708	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cherbourg, France, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0459	2.0 61	**16** W	0431	4.6 140
	1033	22.5 686		1000	20.8 633
	1717	2.8 85		1648	4.9 150
	2249	22.6 689		2217	20.8 633
2 W	0538	2.9 88	**17** Th	0501	5.0 152
	1111	21.8 664		1030	20.5 626
	1757	3.7 113		1719	5.3 161
	2328	21.5 654		2249	20.2 617
3 Th	0617	4.3 132	**18** F	0531	5.6 171
	1148	20.6 629		1102	20.0 611
	1836	5.1 155		1751	5.9 180
				2324	19.5 593
4 F	0006	19.9 607	**19** Sa	0605	6.5 199
	0655	6.1 186		1136	19.3 588
	1225	19.3 587		1827	6.8 206
	1918	6.7 203			
5 Sa ◐	0048	18.2 556	**20** Su	0003	18.4 562
	0738	7.9 241		0645	7.6 232
	1309	17.8 542		1217	18.3 558
	2007	8.2 250		1913	7.8 237
6 Su	0141	16.7 508	**21** M ◑	0053	17.4 529
	0834	9.5 289		0738	8.8 267
	1412	16.5 503		1313	17.3 527
	2117	9.3 284		2018	8.6 263
7 M	0304	15.6 476	**22** Tu	0208	16.5 502
	1001	10.3 314		0855	9.5 291
	1545	15.9 486		1437	16.6 507
	2252	9.5 289		2149	8.8 269
8 Tu	0454	15.7 479	**23** W	0359	16.6 505
	1136	9.9 302		1034	9.3 283
	1717	16.4 501		1625	17.1 521
				2322	7.8 239
9 W	0009	8.7 264	**24** Th	0521	17.8 542
	0608	16.7 510		1157	7.9 242
	1242	8.8 268		1739	18.5 564
	1818	17.5 534			
10 Th	0104	7.5 229	**25** F	0032	6.2 189
	0652	17.9 546		0619	19.3 589
	1331	7.6 231		1300	6.2 190
	1902	18.7 569		1836	20.1 612
11 F	0148	6.5 197	**26** Sa	0129	4.6 139
	0728	19.0 578		0710	20.8 633
	1410	6.6 200		1354	4.7 144
	1939	19.7 599		1927	21.5 655
12 Sa	0225	5.6 171	**27** Su	0220	3.3 101
	0801	19.8 603		0757	21.9 666
	1445	5.8 177		1444	3.6 109
	2014	20.4 621		2015	22.4 683
13 Su ○	0259	5.0 153	**28** M ●	0308	2.6 78
	0833	20.3 620		0843	22.5 685
	1517	5.2 160		1530	2.9 89
	2047	20.8 635		2101	22.8 695
14 M	0330	4.6 141	**29** Tu	0352	2.4 74
	0904	20.7 630		0925	22.6 689
	1547	4.9 150		1613	2.8 86
	2118	21.0 641		2144	22.6 690
15 Tu	0401	4.5 137	**30** W	0433	2.9 87
	0932	20.8 634		1005	22.3 680
	1618	4.8 146		1654	3.2 98
	2147	21.0 641		2225	22.0 670
			31 Th	0512	3.8 115
				1043	21.6 659
				1732	4.0 123
				2304	20.9 638

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0550	5.1 155	**16** Sa	0514	5.6 171
	1120	20.6 628		1045	20.5 624
	1811	5.2 160		1738	5.5 168
	2343	19.6 597		2313	19.7 600
2 Sa	0627	6.6 202	**17** Su	0552	6.4 195
	1157	19.4 590		1125	19.8 604
	1851	6.7 203		1820	6.2 189
				2358	18.8 573
3 Su	0024	18.1 553	**18** M	0637	7.3 224
	0709	8.2 250		1211	18.9 576
	1240	18.0 548		1909	7.1 215
	1937	8.1 246			
4 M ◐	0115	16.8 511	**19** Tu ◑	0051	17.8 544
	0801	9.6 292		0733	8.3 254
	1338	16.7 510		1308	18.0 548
	2036	9.2 279		2013	7.8 237
5 Tu	0228	15.8 482	**20** W	0204	17.2 523
	0916	10.4 317		0846	8.9 272
	1459	16.0 488		1425	17.4 530
	2200	9.6 292		2133	7.9 242
6 W	0402	15.7 479	**21** Th	0337	17.2 524
	1050	10.3 313		1012	8.7 266
	1626	16.1 492		1559	17.6 537
	2321	9.1 277		2256	7.3 224
7 Th	0521	16.5 502	**22** F	0454	18.0 550
	1159	9.3 284		1131	7.7 236
	1734	17.0 517		1712	18.6 566
8 F	0021	8.1 248	**23** Sa	0006	6.2 189
	0610	17.5 534		0553	19.2 586
	1251	8.2 250		1236	6.4 196
	1822	18.0 549		1811	19.7 601
9 Sa	0108	7.1 217	**24** Su	0105	5.1 154
	0650	18.6 566		0645	20.4 621
	1334	7.1 217		1331	5.2 159
	1903	19.0 579		1905	20.7 632
10 Su	0148	6.2 190	**25** M	0157	4.2 127
	0726	19.5 595		0733	21.3 648
	1411	6.3 191		1422	4.3 131
	1941	19.8 604		1954	21.4 653
11 M	0224	5.5 169	**26** Tu ●	0245	3.7 112
	0800	20.2 616		0819	21.8 663
	1445	5.6 170		1509	3.7 114
	2017	20.4 622		2041	21.7 661
12 Tu ○	0258	5.1 154	**27** W	0329	3.6 111
	0833	20.7 630		0901	21.9 668
	1518	5.1 155		1552	3.6 109
	2051	20.7 632		2124	21.5 656
13 W	0331	4.8 147	**28** Th	0410	4.0 122
	0904	20.9 638		0941	21.8 663
	1552	4.8 147		1633	3.8 116
	2123	20.8 635		2205	21.1 642
14 Th	0405	4.8 147	**29** F	0449	4.7 142
	0935	21.0 640		1019	21.3 649
	1627	4.8 146		1712	4.4 134
	2157	20.7 631		2244	20.3 620
15 F	0439	5.1 155	**30** Sa	0527	5.6 171
	1008	20.9 636		1057	20.5 626
	1702	5.0 153		1750	5.2 160
	2233	20.3 620		2323	19.4 591

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0605	6.7 205	**16** M	0548	5.7 174
	1136	19.6 596		1119	20.5 625
	1828	6.3 192		1818	5.1 156
				2355	19.5 594
2 M	0004	18.3 559	**17** Tu	0635	6.4 195
	0645	7.9 240		1207	19.8 605
	1217	18.5 563		1908	5.7 174
	1910	7.4 225			
3 Tu	0049	17.3 526	**18** W	0048	18.8 572
	0730	9.0 273		0730	7.1 217
	1305	17.4 529		1302	19.0 580
	1958	8.4 255		2005	6.4 194
4 W ◐	0144	16.4 500	**19** Th ◑	0150	18.1 551
	0827	9.8 298		0832	7.7 236
	1405	16.5 503		1407	18.3 559
	2058	9.1 276		2111	6.9 209
5 Th	0252	16.0 487	**20** F	0304	17.7 541
	0939	10.1 308		0943	8.0 243
	1516	16.1 492		1524	18.0 549
	2211	9.2 280		2223	7.0 212
6 F	0407	16.1 491	**21** Sa	0418	17.9 547
	1056	9.8 298		1058	7.7 234
	1628	16.4 499		1639	18.2 555
	2321	8.8 267		2335	6.6 202
7 Sa	0513	16.8 512	**22** Su	0523	18.6 566
	1158	9.0 274		1208	7.0 212
	1730	17.1 520		1745	18.8 572
8 Su	0017	8.0 244	**23** M	0038	6.0 184
	0603	17.7 540		0620	19.4 590
	1249	8.0 245		1309	6.1 185
	1821	17.9 546		1843	19.4 591
9 M	0105	7.2 218	**24** Tu	0135	5.5 167
	0646	18.7 569		0712	20.1 612
	1332	7.1 215		1403	5.3 161
	1906	18.8 573		1937	19.9 608
10 Tu	0146	6.4 194	**25** W	0225	5.1 154
	0726	19.6 596		0800	20.6 629
	1412	6.2 188		1452	4.7 143
	1947	19.6 596		2026	20.3 618
11 W	0226	5.7 174	**26** Th ●	0311	4.9 149
	0804	20.2 616		0843	21.0 639
	1451	5.4 166		1536	4.4 133
	2026	20.1 612		2110	20.4 621
12 Th ○	0305	5.2 159	**27** F	0353	4.9 150
	0840	20.7 631		0923	21.1 642
	1530	4.9 149		1617	4.3 131
	2105	20.4 623		2150	20.2 617
13 F	0344	5.0 152	**28** Sa	0432	5.2 158
	0916	21.0 640		1001	20.9 638
	1610	4.6 139		1655	4.5 136
	2143	20.6 627		2228	19.9 608
14 Sa	0424	5.0 152	**29** Su	0510	5.6 171
	0954	21.1 643		1039	20.5 626
	1651	4.5 137		1732	4.9 149
	2224	20.5 624		2305	19.5 593
15 Su	0505	5.2 160	**30** M	0546	6.2 190
	1035	20.9 638		1117	19.9 608
	1733	4.7 142		1808	5.5 169
	2308	20.1 613		2343	18.8 573
			31 Tu	0623	7.0 213
				1154	19.2 584
				1844	6.4 194

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Le Havre, France, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0113 8.2 250 0656 23.3 709 1348 8.5 258 1925 22.9 699		**16** W	0544 21.9 669 1227 10.1 307 1819 21.8 663	
2 W	0219 8.0 245 0758 23.7 721 1455 7.8 239 2027 23.4 713		**17** Th	0100 9.5 289 0657 22.4 684 1349 9.3 282 1933 22.5 685	
3 Th	0321 7.6 231 0851 24.2 738 1553 7.1 216 2119 24.0 730		**18** F	0224 8.5 258 0803 23.4 714 1508 7.6 233 2038 23.7 722	
4 F	0414 7.0 214 0937 24.7 754 1641 6.4 195 2204 24.5 746		**19** Sa	0332 7.0 213 0901 24.6 751 1607 5.9 181 2134 25.0 761	
5 Sa	0458 6.6 200 1018 25.1 766 1722 5.8 178 2243 24.8 757		**20** Su	0430 5.6 170 0953 25.7 784 1702 4.5 136 2225 26.0 792	
6 Su ●	0537 6.2 189 1054 25.4 774 1800 5.5 167 2319 25.0 762		**21** M ○	0525 4.5 137 1042 26.6 810 1757 3.3 100 2313 26.7 815	
7 M	0615 6.0 184 1128 25.5 776 1836 5.3 161 2353 25.0 761		**22** Tu	0619 3.7 113 1130 27.1 827 1850 2.5 75	
8 Tu	0652 6.1 185 1201 25.4 773 1911 5.4 165		**23** W	0001 27.1 827 0711 3.2 99 1217 27.4 834 1940 2.1 65	
9 W	0026 24.7 754 0727 6.4 194 1234 25.1 766 1944 5.8 176		**24** Th	0048 27.2 828 0800 3.3 100 1304 27.2 829 2026 2.4 74	
10 Th	0100 24.4 744 0757 6.9 210 1307 24.8 755 2015 6.4 194		**25** F	0135 26.7 815 0844 3.8 117 1350 26.6 810 2110 3.3 102	
11 F	0132 24.0 730 0829 7.5 230 1341 24.2 737 2046 7.1 216		**26** Sa	0221 25.9 790 0927 5.0 151 1437 25.5 778 2151 4.8 147	
12 Sa	0207 23.4 714 0902 8.3 252 1417 23.4 714 2119 7.9 240		**27** Su ◑	0308 24.8 756 1009 6.4 194 1526 24.3 741 2233 6.5 198	
13 Su	0246 22.8 696 0939 9.0 275 1500 22.6 690 2159 8.7 265		**28** M	0400 23.6 720 1056 7.8 239 1622 23.0 702 2322 8.1 247	
14 M ◐	0332 22.3 679 1025 9.7 296 1553 21.9 669 2249 9.4 286		**29** Tu	0502 22.7 692 1153 9.0 275 1733 22.0 672	
15 Tu	0432 21.9 668 1121 10.1 309 1701 21.6 658 2349 9.7 296		**30** W	0025 9.3 282 0615 22.2 677 1303 9.6 292 1854 21.7 662	
			31 Th	0137 9.6 293 0730 22.3 681 1418 9.3 282 2010 22.1 674	

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0249 9.1 278 0834 22.9 699 1526 8.3 253 2108 22.9 698		**16** Sa	0150 9.3 282 0737 22.6 689 1441 8.1 248 2021 23.3 709	
2 Sa	0351 8.2 251 0924 23.7 722 1621 7.3 221 2153 23.7 723		**17** Su	0310 7.5 230 0844 24.0 733 1546 6.1 186 2121 24.8 755	
3 Su	0441 7.3 222 1004 24.4 744 1706 6.3 192 2231 24.4 744		**18** M	0413 5.8 176 0939 25.4 775 1649 4.3 132 2212 26.0 793	
4 M ●	0524 6.5 197 1039 25.0 761 1746 5.6 170 2304 24.8 756		**19** Tu ○	0515 4.3 130 1029 26.5 809 1749 2.8 85 2259 26.9 820	
5 Tu	0602 5.9 180 1112 25.3 771 1822 5.1 155 2336 25.0 762		**20** W	0613 3.1 93 1116 27.3 831 1843 1.7 51 2345 27.4 835	
6 W	0637 5.6 170 1144 25.4 775 1856 4.9 148		**21** Th	0703 2.3 70 1202 27.6 842 1929 1.2 37	
7 Th	0007 25.0 762 0712 5.5 168 1216 25.5 776 1927 4.9 149		**22** F	0030 27.5 839 0748 2.2 66 1246 27.6 840 2011 1.5 47	
8 F	0039 24.9 759 0742 5.7 174 1248 25.3 771 1957 5.2 158		**23** Sa	0114 27.1 827 0828 2.8 85 1330 26.9 821 2048 2.7 81	
9 Sa	0110 24.7 752 0810 6.1 185 1320 24.9 758 2026 5.7 174		**24** Su	0156 26.3 801 0905 4.0 123 1412 25.8 787 2125 4.4 134	
10 Su	0142 24.3 740 0841 6.7 204 1354 24.2 737 2057 6.5 198		**25** M	0237 25.0 762 0940 5.7 175 1454 24.4 743 2159 6.5 197	
11 M	0216 23.7 721 0913 7.5 228 1430 23.4 712 2130 7.5 228		**26** Tu ◑	0319 23.6 720 1017 7.6 232 1542 22.8 695 2239 8.5 258	
12 Tu ◐	0255 22.9 698 0950 8.4 257 1513 22.5 685 2211 8.5 260		**27** W	0412 22.3 679 1106 9.3 284 1649 21.4 652 2335 10.2 310	
13 W	0342 22.2 676 1038 9.3 284 1611 21.7 661 2304 9.5 289		**28** Th	0528 21.3 649 1215 10.4 317 1821 20.7 632	
14 Th	0447 21.7 661 1139 9.9 302 1732 21.3 650				
15 F	0014 9.9 302 0612 21.7 662 1304 9.7 296 1904 21.9 666				

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0054 10.9 333 0658 21.1 644 1338 10.4 316 1951 21.1 643		**16** Sa	0543 21.4 651 1235 9.8 298 1848 21.7 662	
2 Sa	0217 10.4 316 0815 21.8 663 1458 9.3 282 2054 22.1 675		**17** Su	0129 9.6 294 0718 22.2 677 1420 8.2 250 2007 23.2 707	
3 Su	0331 9.0 275 0907 22.8 694 1601 7.8 238 2137 23.3 709		**18** M	0252 7.7 236 0829 23.8 724 1529 6.1 185 2106 24.8 756	
4 M	0425 7.6 231 0947 23.8 725 1649 6.5 198 2212 24.1 736		**19** Tu	0359 5.7 175 0924 25.2 769 1636 4.2 127 2155 26.0 794	
5 Tu	0508 6.4 195 1020 24.6 749 1728 5.5 168 2243 24.7 754		**20** W	0504 4.0 123 1012 26.4 804 1736 2.6 79 2241 26.9 819	
6 W ●	0545 5.6 170 1051 25.1 766 1804 4.9 148 2313 25.1 765		**21** Th ○	0559 2.7 83 1058 27.1 826 1826 1.5 47 2325 27.3 832	
7 Th	0619 5.1 155 1122 25.4 775 1836 4.5 136 2343 25.2 769		**22** F	0646 2.0 61 1142 27.4 836 1909 1.2 38	
8 F	0650 4.8 147 1154 25.6 779 1906 4.3 132		**23** Sa	0007 27.4 834 0727 2.0 60 1225 27.3 832 1948 1.8 54	
9 Sa	0015 25.3 771 0721 4.8 147 1226 25.5 778 1935 4.4 135		**24** Su	0048 27.0 823 0804 2.7 81 1306 26.7 813 2021 3.0 91	
10 Su	0046 25.2 768 0749 5.0 152 1258 25.3 770 2004 4.9 148		**25** M	0127 26.1 797 0838 3.9 120 1345 25.6 779 2054 4.8 146	
11 M	0118 24.9 758 0820 5.5 168 1332 24.7 752 2035 5.7 173		**26** Tu	0205 24.9 760 0909 5.6 172 1424 24.1 735 2125 6.8 208	
12 Tu	0151 24.2 739 0851 6.4 195 1408 23.8 725 2107 6.8 208		**27** W	0242 23.6 719 0942 7.5 230 1507 22.5 687 2200 8.9 271	
13 W	0226 23.5 715 0926 7.5 228 1448 22.8 696 2144 8.1 247		**28** Th ◑	0328 22.1 673 1024 9.4 286 1608 21.0 640 2252 10.7 326	
14 Th ◐	0309 22.5 687 1008 8.7 264 1543 21.8 663 2233 9.4 285		**29** F	0440 20.7 632 1129 10.8 328 1742 20.2 617	
15 F	0412 21.6 659 1107 9.6 293 1706 21.2 646 2343 10.2 310		**30** Sa	0012 11.6 355 0615 20.4 621 1253 11.0 335 1917 20.5 626	
			31 Su	0140 11.1 339 0741 20.9 638 1419 9.9 303 2026 21.6 659	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
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There is a stand of about 2 hours around high water.

Le Havre, France, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0258 9.6 292 0839 22.0 671 1527 8.4 255 2110 22.9 697		**16** Tu	0234 7.6 231 0809 23.7 722 1510 6.0 182 2045 24.8 757	
2 Tu	0355 7.9 241 0918 23.2 707 1617 6.9 210 2143 23.9 729		**17** W	0341 5.7 175 0904 25.0 762 1616 4.3 132 2134 25.9 788	
3 W	0440 6.6 200 0951 24.1 736 1700 5.7 175 2213 24.6 751		**18** Th	0445 4.2 129 0952 26.0 791 1714 3.1 94 2218 26.5 807	
4 Th	0519 5.6 172 1023 24.8 757 1736 5.0 153 2244 25.1 765		**19** F ○	0538 3.1 96 1036 26.5 807 1802 2.4 73 2301 26.8 816	
5 F ●	0553 5.0 153 1056 25.3 770 1809 4.6 139 2316 25.4 773		**20** Sa	0623 2.7 81 1120 26.7 813 1843 2.4 72 2342 26.7 815	
6 Sa	0624 4.6 141 1129 25.5 777 1839 4.3 131 2348 25.5 777		**21** Su	0702 2.7 83 1201 26.5 808 1920 2.9 89	
7 Su	0656 4.4 135 1203 25.6 780 1909 4.3 130		**22** M	0021 26.4 805 0737 3.3 100 1241 26.0 792 1952 4.0 122	
8 M	0020 25.5 776 0726 4.5 136 1237 25.4 775 1941 4.6 141		**23** Tu	0059 25.7 784 0810 4.4 133 1320 25.0 763 2025 5.5 169	
9 Tu	0054 25.2 768 0759 4.9 149 1313 24.9 760 2014 5.4 165		**24** W	0135 24.7 754 0841 5.8 178 1358 23.8 726 2055 7.3 222	
10 W	0129 24.6 750 0832 5.7 174 1352 24.1 735 2047 6.6 200		**25** Th	0211 23.6 718 0911 7.5 229 1439 22.4 684 2129 9.1 278	
11 Th	0207 23.8 726 0907 6.9 209 1437 23.1 703 2125 7.9 242		**26** F ◑	0253 22.1 675 0950 9.2 280 1532 21.1 643 2218 10.7 327	
12 F ◐	0253 22.8 694 0950 8.1 247 1534 22.0 672 2214 9.3 282		**27** Sa	0354 20.7 632 1049 10.5 321 1657 20.3 619 2329 11.7 356	
13 Sa	0356 21.9 666 1048 9.2 279 1656 21.5 655 2327 10.1 308		**28** Su	0525 20.1 614 1205 11.0 335 1820 20.4 622	
14 Su	0527 21.5 655 1222 9.4 286 1834 22.0 672		**29** M	0052 11.4 348 0643 20.5 625 1324 10.4 316 1932 21.3 648	
15 M	0116 9.5 289 0700 22.3 679 1400 7.8 239 1949 23.4 714		**30** Tu	0208 10.1 309 0748 21.4 653 1435 9.0 275 2024 22.4 683	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0309 8.6 262 0836 22.6 688 1531 7.6 233 2102 23.5 716		**16** Th	0315 6.1 185 0840 24.6 749 1548 5.1 154 2109 25.4 773	
2 Th	0358 7.3 221 0915 23.6 719 1618 6.5 198 2137 24.3 742		**17** F	0417 5.0 153 0929 25.2 768 1645 4.3 132 2154 25.8 786	
3 F	0441 6.2 190 0951 24.3 742 1659 5.7 173 2211 24.9 759		**18** Sa ○	0511 4.3 130 1014 25.6 779 1733 4.0 122 2237 26.0 792	
4 Sa ●	0518 5.5 167 1027 24.9 758 1735 5.1 156 2246 25.3 770		**19** Su	0555 3.9 120 1058 25.7 782 1814 4.0 123 2317 26.0 791	
5 Su	0554 4.9 149 1103 25.2 769 1809 4.7 143 2320 25.5 777		**20** M	0634 3.9 120 1139 25.6 779 1850 4.5 136 2356 25.7 784	
6 M	0630 4.5 137 1139 25.4 775 1844 4.5 138 2355 25.6 779		**21** Tu	0709 4.3 130 1219 25.2 768 1924 5.2 158	
7 Tu	0704 4.3 132 1218 25.4 774 1919 4.8 145		**22** W	0032 25.3 770 0743 5.0 152 1257 24.6 749 1958 6.2 190	
8 W	0033 25.4 774 0740 4.6 140 1258 25.1 764 1955 5.4 165		**23** Th	0109 24.6 749 0815 6.0 184 1335 23.7 722 2030 7.5 229	
9 Th	0113 24.9 760 0817 5.3 161 1342 24.4 745 2032 6.4 196		**24** F	0145 23.7 721 0847 7.3 223 1415 22.7 692 2105 8.9 271	
10 F	0156 24.2 738 0855 6.3 192 1431 23.6 719 2113 7.6 233		**25** Sa	0224 22.6 688 0923 8.6 263 1459 21.7 660 2148 10.1 309	
11 Sa	0246 23.4 712 0940 7.4 226 1529 22.7 692 2205 8.8 268		**26** Su ◑	0312 21.4 653 1012 9.8 298 1602 20.9 636 2247 11.0 336	
12 Su ◐	0349 22.5 686 1041 8.4 256 1647 22.2 677 2322 9.4 288		**27** M	0424 20.6 627 1114 10.4 318 1719 20.7 630 2353 11.2 341	
13 M	0512 22.1 673 1218 8.5 259 1813 22.6 690		**28** Tu	0541 20.5 625 1221 10.4 316 1825 21.1 643	
14 Tu	0058 8.8 269 0636 22.6 690 1337 7.4 226 1922 23.6 720		**29** W	0104 10.6 322 0645 21.1 642 1328 9.6 294 1923 21.9 668	
15 W	0210 7.4 226 0743 23.6 720 1444 6.1 187 2020 24.6 751		**30** Th	0208 9.4 288 0741 21.9 669 1431 8.6 262 2012 22.9 698	
			31 F	0305 8.2 251 0831 22.9 698 1526 7.5 229 2056 23.8 725	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0354 7.1 216 0915 23.7 723 1614 6.6 200 2136 24.5 747		**16** Su	0440 5.6 172 0955 24.6 749 1702 5.7 175 2215 25.2 768	
2 Su	0440 6.1 186 0957 24.4 743 1658 5.8 177 2215 25.0 763		**17** M ○	0526 5.3 161 1040 24.7 754 1744 5.7 173 2255 25.3 771	
3 M ●	0523 5.3 162 1038 24.9 759 1740 5.2 160 2254 25.4 774		**18** Tu	0607 5.1 156 1121 24.8 755 1823 5.7 175 2333 25.2 769	
4 Tu	0605 4.7 143 1119 25.3 770 1821 4.9 149 2335 25.6 781		**19** W	0644 5.2 157 1200 24.6 751 1859 6.0 183	
5 W	0646 4.3 132 1202 25.5 776 1902 4.9 149		**20** Th	0010 25.0 763 0720 5.4 165 1237 24.3 742 1936 6.5 199	
6 Th	0017 25.7 782 0726 4.3 132 1247 25.4 773 1943 5.3 161		**21** F	0046 24.6 751 0754 6.0 183 1314 23.9 727 2010 7.3 222	
7 F	0102 25.4 775 0808 4.8 145 1335 25.0 761 2025 6.0 183		**22** Sa	0122 24.0 733 0827 6.8 208 1350 23.2 708 2044 8.2 250	
8 Sa	0149 24.9 759 0851 5.5 168 1425 24.3 741 2110 6.9 211		**23** Su	0158 23.3 711 0900 7.8 237 1427 22.6 688 2120 9.1 277	
9 Su	0240 24.2 738 0940 6.4 196 1522 23.6 719 2205 7.8 238		**24** M	0236 22.5 687 0937 8.7 264 1509 21.9 669 2202 9.9 301	
10 M ◐	0340 23.5 715 1042 7.3 221 1629 23.1 704 2317 8.3 254		**25** Tu ◑	0322 21.8 664 1022 9.4 287 1603 21.5 654 2254 10.4 317	
11 Tu	0450 22.9 697 1159 7.6 231 1742 23.1 704		**26** W	0423 21.2 646 1117 9.9 301 1711 21.3 650 2352 10.5 319	
12 W	0032 8.2 250 0605 22.9 698 1307 7.3 223 1850 23.5 717		**27** Th	0535 21.1 643 1217 9.9 302 1816 21.6 659	
13 Th	0140 7.6 231 0713 23.3 710 1412 6.8 208 1951 24.1 734		**28** F	0055 10.1 307 0640 21.5 655 1322 9.4 287 1916 22.3 680	
14 F	0244 6.9 209 0814 23.8 726 1514 6.3 193 2044 24.6 749		**29** Sa	0203 9.2 280 0741 22.2 677 1431 8.5 260 2010 23.2 706	
15 Sa	0345 6.2 188 0907 24.2 739 1612 6.0 182 2131 25.0 761		**30** Su	0310 7.9 242 0837 23.1 703 1532 7.5 228 2101 24.0 732	

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There is a stand of about 2 hours around high water.

Le Havre, France, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0404	6.7	205	**16** Tu ○	0502	6.3	193	**1** Th ●	0528	4.4	134	**16** F	0607	5.6	170	**1** Su	0702	1.9	59	**16** M
	0929	24.0	730		1027	24.2	737		1050	25.8	786		1122	24.8	755		1205	27.4	835	
	1625	6.5	197		1721	6.8	206		1751	4.7	144		1824	6.0	184		1922	2.7	83	
	2148	24.8	756		2239	24.9	760		2305	26.4	806		2329	25.5	776					
2 Tu ●	0455	5.6	171	**17** W	0545	5.9	179	**2** F	0623	3.4	104	**17** Sa	0641	5.2	160	**2** M	0021	27.6	842	**17** Tu
	1017	24.7	754		1107	24.4	745		1137	26.4	805		1153	24.8	757		0745	1.9	58	
	1714	5.6	172		1802	6.4	196		1845	4.0	122		1857	5.9	179		1249	27.3	832	
	2233	25.4	775		2315	25.1	766		2353	26.8	818						2004	2.9	89	
3 W	0544	4.7	144	**18** Th	0623	5.6	170	**3** Sa	0715	2.8	84	**18** Su	0001	25.5	776	**3** Tu	0105	27.3	831	**18** W
	1103	25.4	773		1143	24.5	748		1224	26.7	814		0714	5.2	159		0825	2.6	80	
	1803	5.0	153		1840	6.3	192		1935	3.6	111		1224	24.8	755		1332	26.7	814	
	2319	25.9	790		2350	25.1	766						1930	6.0	183		2043	3.9	118	
4 Th	0633	4.1	124	**19** F	0700	5.5	168	**4** Su	0039	27.0	822	**19** M	0033	25.3	772	**4** W	0148	26.4	804	**19** Th
	1150	25.8	786		1217	24.4	745		0802	2.6	79		0743	5.4	166		0903	4.1	125	
	1851	4.7	143		1917	6.4	194		1310	26.6	812		1255	24.6	751		1413	25.7	782	
									2021	3.8	115		1956	6.3	193		2120	5.3	163	
5 F	0005	26.1	797	**20** Sa	0024	25.0	761	**5** M	0125	26.7	813	**20** Tu	0104	25.0	762	**5** Th	0230	25.1	764	**20** F
	0721	3.7	114		0735	5.7	173		0847	3.1	94		0810	5.9	181		0938	6.0	183	
	1237	25.9	790		1250	24.2	739		1356	26.2	798		1325	24.3	742		1455	24.4	743	
	1939	4.7	143		1951	6.7	205		2104	4.5	136		2024	6.8	208		2157	7.2	218	
6 Sa	0052	26.1	796	**21** Su	0058	24.7	752	**6** Tu	0211	26.0	791	**21** W	0135	24.4	744	**6** F ◐	0316	23.6	719	**21** Sa
	0809	3.8	116		0806	6.1	187		0928	4.2	128		0838	6.6	202		1016	8.1	246	
	1326	25.8	785		1324	23.9	729		1441	25.3	771		1357	23.9	727		1544	23.0	702	
	2026	5.0	153		2021	7.3	221		2145	5.6	171		2054	7.5	230		2243	8.9	272	
7 Su	0140	25.8	786	**22** M	0131	24.2	739	**7** W ◐	0257	24.9	760	**22** Th	0209	23.6	719	**7** Sa	0416	22.0	671	**22** Su ◑
	0856	4.3	131		0836	6.8	206		1008	5.7	174		0907	7.5	230		1109	9.9	303	
	1415	25.3	770		1356	23.5	717		1529	24.2	738		1432	23.2	707		1654	21.8	664	
	2114	5.7	173		2052	7.9	240		2229	7.0	214		2127	8.4	257		2350	10.2	311	
8 M	0230	25.2	767	**23** Tu	0204	23.7	721	**8** Th	0348	23.7	723	**23** F ◑	0249	22.7	692	**8** Su	0545	21.0	641	**23** M
	0943	5.2	157		0905	7.5	229		1054	7.4	225		0943	8.6	263		1229	11.0	335	
	1506	24.5	748		1430	23.1	703		1624	23.2	706		1514	22.5	685		1825	21.4	652	
	2203	6.5	199		2124	8.6	262		2322	8.4	255		2209	9.4	286					
9 Tu ◐	0322	24.4	743	**24** W	0241	22.9	699	**9** F	0451	22.5	685	**24** Sa	0340	21.8	665	**9** M	0112	10.4	317	**24** Tu
	1033	6.2	188		0939	8.3	253		1151	8.8	269		1030	9.7	295		0719	21.2	646	
	1601	23.8	726		1509	22.5	687		1733	22.4	682		1611	21.8	665		1351	10.7	325	
	2258	7.4	225		2203	9.3	284						2305	10.2	310		1947	21.9	667	
10 W	0420	23.5	716	**25** Th ◑	0327	22.2	676	**10** Sa	0029	9.2	281	**25** Su	0452	21.2	647	**10** Tu	0230	9.5	289	**25** W
	1129	7.1	217		1021	9.1	278		0612	21.8	663		1134	10.4	318		0831	22.1	675	
	1704	23.3	709		1559	22.0	671		1303	9.6	292		1731	21.6	657		1506	9.5	289	
					2252	9.9	303		1852	22.2	678						2047	22.9	698	
11 Th	0000	8.0	245	**26** F	0424	21.6	658	**11** Su	0142	9.3	282	**26** M	0020	10.3	315	**11** W	0337	8.2	249	**26** Th
	0529	22.8	695		1116	9.8	298		0734	21.9	666		0621	21.3	650		0919	23.3	709	
	1233	7.8	238		1704	21.8	663		1414	9.4	288		1303	10.3	314		1605	8.1	247	
	1813	23.1	703		2353	10.2	311		2004	22.7	691		1857	22.0	672		2129	24.0	730	
12 F	0106	8.2	251	**27** Sa	0538	21.3	650	**12** M	0251	8.6	262	**27** Tu	0201	9.3	282	**12** Th	0428	6.9	211	**27** F
	0642	22.6	689		1221	10.0	304		0842	22.5	686		0746	22.4	684		0956	24.2	737	
	1337	8.1	246		1817	21.9	667		1520	8.8	267		1437	8.8	269		1650	7.0	212	
	1921	23.2	708						2101	23.4	714		2012	23.3	711		2204	24.8	757	
13 Sa	0212	8.0	243	**28** Su	0106	9.9	301	**13** Tu	0353	7.7	235	**28** W	0315	7.3	221	**13** F	0509	6.0	183	**28** Sa
	0751	22.8	695		0654	21.7	660		0933	23.3	711		0852	24.0	732		1027	24.8	757	
	1442	7.9	241		1341	9.5	289		1619	7.9	241		1542	7.0	213		1728	6.1	187	
	2021	23.6	720		1928	22.5	686		2146	24.2	737		2112	24.8	757		2235	25.4	775	
14 Su	0315	7.4	227	**29** M	0231	8.7	266	**14** W	0446	6.8	208	**29** Th	0414	5.4	164	**14** Sa ○	0545	5.3	163	**29** Su
	0851	23.3	709		0806	22.6	688		1015	24.0	733		0945	25.4	774		1057	25.2	767	
	1542	7.5	230		1459	8.3	252		1707	7.1	216		1642	5.4	164		1802	5.6	172	
	2113	24.1	735		2032	23.6	718		2224	24.8	757		2202	26.1	795		2305	25.7	784	
15 M	0412	6.9	209	**30** Tu	0336	7.1	217	**15** Th ○	0529	6.1	186	**30** F ●	0515	3.9	118	**15** Su	0618	5.0	153	**30** M
	0942	23.8	724		0908	23.8	726		1051	24.5	747		1033	26.4	805		1126	25.3	771	
	1635	7.1	217		1600	6.9	210		1747	6.5	197		1741	4.1	125		1833	5.4	166	
	2159	24.6	749		2127	24.7	753		2257	25.3	770		2250	27.0	823		2336	25.8	787	
				31 W	0433	5.6	172					**31** Sa	0612	2.7	81					
					1001	24.9	760						1119	27.1	825					
					1656	5.7	173						1835	3.1	96					
					2217	25.7	782						2336	27.5	839					

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
There is a stand of about 2 hours around high water.

Le Havre, France, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft cm		h m	ft cm		h m	ft cm		h m	ft cm
1 Tu	0722	2.1 64	**16** W	0648	5.1 154	**1** F	0100	25.9 789	**16** Sa	0034	25.3 771
	1224	27.5 837		1158	25.6 781		0806	5.5 168		0731	6.0 184
	1941	2.9 87		1905	5.3 161		1317	25.5 778		1246	25.3 770
							2025	5.8 176		1954	5.9 179
2 W	0042	27.3 832	**17** Th	0014	25.6 779	**2** Sa	0141	24.7 752	**17** Su	0116	24.7 753
	0759	3.1 93		0718	5.4 164		0839	7.3 221		0808	7.0 212
	1305	26.8 816		1229	25.4 773		1356	24.3 741		1329	24.5 748
	2017	3.9 119		1936	5.6 172		2058	7.4 227		2031	6.8 207
3 Th	0123	26.3 801	**18** F	0048	25.1 764	**3** Su	0224	23.3 709	**18** M	0203	23.9 729
	0834	4.7 143		0750	6.1 186		0914	9.1 278		0847	8.1 246
	1344	25.7 782		1303	24.9 759		1439	22.9 699		1417	23.7 722
	2051	5.5 168		2009	6.4 194		2138	9.2 280		2113	7.8 239
4 F	0204	24.9 758	**19** Sa	0126	24.3 741	**4** M	0318	21.9 667	**19** Tu	0258	23.1 704
	0907	6.7 204		0823	7.2 219		1002	10.8 329		0934	9.2 280
	1424	24.3 742		1340	24.2 737		1541	21.5 656		1516	22.9 698
	2125	7.4 226		2043	7.4 227	◐	2235	10.6 323	◑	2206	8.8 268
5 Sa	0248	23.3 711	**20** Su	0209	23.3 711	**5** Tu	0439	21.0 639	**20** W	0407	22.5 686
	0941	8.8 268		0858	8.5 258		1113	11.9 362		1037	10.0 304
	1509	22.9 697		1423	23.1 705		1708	20.8 634		1631	22.4 682
◐	2207	9.3 283		2123	8.6 263		2350	11.2 341		2323	9.2 281
6 Su	0345	21.7 662	**21** M	0303	22.3 681	**6** W	0600	20.9 637	**21** Th	0532	22.6 690
	1032	10.7 327		0943	9.8 298		1237	11.7 357		1213	9.8 299
	1617	21.4 653		1523	22.1 675		1825	21.0 641		1757	22.7 691
	2311	10.8 328	◑	2215	9.7 296						
7 M	0517	20.7 632	**22** Tu	0416	21.7 661	**7** Th	0109	10.7 325	**22** F	0102	8.4 255
	1153	11.8 361		1046	10.7 327		0713	21.7 660		0647	23.6 718
	1752	20.9 636		1646	21.7 660		1352	10.5 321		1336	8.4 256
				2331	10.2 310		1933	21.9 667		1910	23.7 722
8 Tu	0036	11.1 339	**23** W	0552	21.9 667	**8** F	0219	9.4 285	**23** Sa	0210	6.9 209
	0650	20.9 637		1229	10.6 323		0809	22.8 694		0748	24.7 754
	1322	11.4 348		1822	22.1 675		1453	9.0 274		1442	6.8 207
	1917	21.3 650					2023	23.0 701		2010	24.9 758
9 W	0200	10.1 309	**24** Th	0128	9.0 274	**9** Sa	0313	8.0 243	**24** Su	0312	5.5 168
	0806	21.9 669		0714	23.2 707		0848	23.9 728		0841	25.8 785
	1439	9.9 303		1402	8.7 265		1541	7.6 232		1542	5.4 165
	2021	22.4 684		1937	23.6 720		2101	24.0 733		2102	25.8 785
10 Th	0306	8.6 263	**25** F	0236	6.8 208	**10** Su	0400	6.9 209	**25** M	0410	4.5 138
	0853	23.2 708		0815	24.8 757		0922	24.7 754		0928	26.4 805
	1536	8.3 253		1507	6.6 200		1624	6.6 201		1638	4.5 136
	2103	23.7 721		2034	25.2 768		2136	24.8 756		2149	26.3 802
11 F	0356	7.2 219	**26** Sa	0338	5.0 151	**11** M	0440	6.1 185	**26** Tu	0502	4.0 123
	0928	24.3 740		0905	26.1 796		0954	25.3 771		1012	26.7 815
	1620	7.0 212		1607	4.9 148		1702	5.9 181		1728	3.9 120
	2136	24.6 751		2124	26.4 805		2210	25.3 771	●	2235	26.5 809
12 Sa	0438	6.1 186	**27** Su	0436	3.6 110	**12** Tu	0516	5.6 171	**27** W	0548	4.0 121
	0957	25.0 762		0951	27.0 822		1027	25.6 781		1055	26.8 817
	1659	6.1 185		1703	3.7 112		1735	5.5 167		1811	3.8 116
	2207	25.3 772		2210	27.1 827	○	2245	25.6 780		2318	26.5 807
13 Su	0516	5.4 166	**28** M	0529	2.8 86	**13** W	0549	5.4 164	**28** Th	0628	4.3 132
	1026	25.4 775		1035	27.4 834		1100	25.8 785		1136	26.6 811
	1734	5.5 169		1753	3.0 92		1810	5.2 158		1850	4.1 124
○	2238	25.7 784	●	2254	27.4 836		2319	25.7 782			
14 M	0549	5.1 156	**29** Tu	0614	2.6 80	**14** Th	0622	5.3 161	**29** F	0000	26.1 796
	1057	25.6 781		1117	27.4 836		1133	25.8 787		0705	5.0 153
	1805	5.3 161		1836	2.9 89		1842	5.1 155		1216	26.1 797
	2310	25.9 788		2337	27.3 832		2355	25.6 780		1927	4.8 145
15 Tu	0619	5.0 152	**30** W	0655	3.1 93	**15** F	0656	5.5 167	**30** Sa	0041	25.5 777
	1127	25.7 783		1159	27.2 828		1208	25.7 782		0742	6.1 185
	1837	5.2 158		1915	3.3 102		1918	5.3 161		1254	25.4 775
	2342	25.8 786								2002	5.8 176
			31 Th	0019	26.8 817						
				0731	4.0 123						
				1239	26.5 808						
				1951	4.3 132						

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0122	24.6 750	**16** M	0110	25.3 771
	0818	7.3 224		0801	6.2 189
	1333	24.5 746		1323	25.3 771
	2037	7.1 216		2028	5.6 172
2 M	0203	23.5 717	**17** Tu	0158	24.7 754
	0854	8.7 266		0844	7.0 213
	1414	23.3 711		1412	24.7 752
	2115	8.5 258		2112	6.5 197
3 Tu	0249	22.4 684	**18** W	0251	24.1 734
	0937	10.0 306		0932	7.8 239
	1503	22.1 675		1507	24.0 730
	2201	9.7 296		2204	7.3 222
4 W	0350	21.6 658	**19** Th	0351	23.5 716
	1031	11.1 337		1032	8.6 261
	1612	21.2 647		1611	23.4 712
◐	2258	10.5 321	◑	2310	7.9 240
5 Th	0501	21.2 646	**20** F	0501	23.3 709
	1134	11.5 349		1146	8.8 268
	1725	21.0 640		1725	23.1 704
6 F	0002	10.7 326	**21** Sa	0028	7.9 241
	0607	21.4 652		0613	23.5 717
	1243	11.1 339		1303	8.4 255
	1830	21.3 650		1839	23.4 713
7 Sa	0110	10.2 311	**22** Su	0137	7.4 226
	0706	22.0 672		0719	24.1 735
	1354	10.1 309		1412	7.5 229
	1928	22.0 672		1944	24.0 730
8 Su	0217	9.3 282	**23** M	0242	6.7 205
	0757	23.0 700		0816	24.8 755
	1454	8.9 271		1515	6.5 199
	2018	23.0 700		2042	24.6 750
9 M	0313	8.1 248	**24** Tu	0343	6.1 185
	0841	23.9 728		0908	25.4 773
	1543	7.7 235		1614	5.7 174
	2102	23.9 727		2133	25.1 766
10 Tu	0400	7.2 219	**25** W	0437	5.6 171
	0921	24.6 751		0954	25.8 785
	1625	6.7 205		1705	5.1 156
	2143	24.6 749		2221	25.5 776
11 W	0441	6.4 196	**26** Th	0525	5.4 165
	0959	25.2 769		1038	26.0 791
	1706	5.9 180		1750	4.8 146
	2222	25.1 766	●	2305	25.6 781
12 Th	0521	5.8 178	**27** F	0607	5.4 165
	1036	25.6 780		1119	26.0 792
	1746	5.3 161		1831	4.7 144
○	2302	25.5 777		2346	25.5 778
13 F	0600	5.5 168	**28** Sa	0645	5.6 172
	1114	25.9 788		1158	25.9 788
	1826	4.9 149		1908	4.9 150
	2342	25.7 782			
14 Sa	0639	5.4 165	**29** Su	0025	25.2 769
	1154	26.0 791		0724	6.1 185
	1905	4.8 146		1235	25.5 776
				1944	5.4 166
15 Su	0025	25.6 780	**30** M	0103	24.7 754
	0720	5.6 172		0801	6.8 207
	1237	25.8 785		1312	24.8 757
	1946	5.1 154		2019	6.3 191
			31 Tu	0140	24.0 733
				0835	7.7 235
				1349	24.0 733
				2054	7.3 222

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
There is a stand of about 2 hours around high water.

Leith, Scotland, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0445	5.2 160	16 W	0312	6.6 200
	1058	15.7 480		1003	14.8 450
	1700	6.2 190		1603	7.2 220
	2327	16.4 500		2224	15.1 460
2 W	0547	5.2 160	17 Th	0436	6.2 190
	1158	16.1 490		1109	15.4 470
	1801	5.9 180		1712	6.2 190
				2332	15.7 480
3 Th	0026	16.4 500	18 F	0542	5.6 170
	0637	4.9 150		1211	16.1 490
	1252	16.7 510		1810	5.2 160
	1854	5.2 160			
4 F	0119	16.7 510	19 Sa	0033	16.7 510
	0717	4.6 140		0638	4.6 140
	1338	17.1 520		1305	17.1 520
	1940	4.6 140		1904	3.9 120
5 Sa	0204	17.1 520	20 Su	0127	17.7 540
	0753	4.6 140		0731	3.9 120
	1419	17.4 530		1353	18.0 550
	2020	3.9 120		1959	3.0 90
6 Su	0245	17.4 530	21 M	0216	18.7 570
	0825	4.3 130		0823	3.0 90
	1456	17.4 530		1438	18.7 570
●	2055	3.6 110	○	2053	1.6 50
7 M	0323	17.4 530	22 Tu	0303	19.4 590
	0855	4.3 130		0913	2.6 80
	1531	17.4 530		1523	19.4 590
	2126	3.6 110		2145	1.0 30
8 Tu	0358	17.1 520	23 W	0350	19.4 590
	0925	4.3 130		1001	2.3 70
	1604	17.4 530		1608	19.4 590
	2154	3.6 110		2234	0.7 20
9 W	0432	17.1 520	24 Th	0438	19.4 590
	0956	4.6 140		1046	2.6 80
	1638	17.1 520		1655	19.4 590
	2223	3.9 120		2320	1.0 30
10 Th	0508	16.7 510	25 F	0527	18.7 570
	1028	4.9 150		1129	3.3 100
	1712	16.7 510		1745	18.7 570
	2255	4.3 130			
11 F	0545	16.4 500	26 Sa	0005	2.0 60
	1100	5.2 160		0617	17.7 540
	1750	16.4 500		1210	4.3 130
	2329	4.6 140		1838	18.0 550
12 Sa	0625	15.7 480	27 Su	0050	3.3 100
	1135	5.9 180		0712	16.7 510
	1830	16.1 490		1251	5.2 160
			◑	1939	17.1 520
13 Su	0008	5.2 160	28 M	0138	4.6 140
	0709	15.4 470		0812	15.7 480
	1217	6.6 200		1345	6.2 190
	1914	15.4 470		2045	16.1 490
14 M	0054	5.9 180	29 Tu	0241	5.6 170
	0759	14.8 450		0916	15.1 460
	1316	7.2 220		1503	6.9 210
◐	2007	15.1 460		2151	15.4 470
15 Tu	0154	6.2 190	30 W	0401	6.2 190
	0858	14.8 450		1021	15.1 460
	1438	7.5 230		1629	6.9 210
	2112	15.1 460		2300	15.4 470
			31 Th	0517	6.6 200
				1129	15.1 460
				1747	6.6 200

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0009	15.4 470	16 Sa	0522	5.9 180
	0616	6.2 190		1143	15.4 470
	1234	15.7 480		1753	5.2 160
	1848	5.6 170			
2 Sa	0108	16.1 490	17 Su	0013	16.4 500
	0700	5.6 170		0626	4.9 150
	1326	16.4 500		1245	16.7 510
	1934	4.9 150		1855	3.9 120
3 Su	0155	16.4 500	18 M	0113	17.4 530
	0735	5.2 160		0721	3.9 120
	1408	16.7 510		1336	17.7 540
	2011	4.3 130		1952	2.3 70
4 M	0234	16.7 510	19 Tu	0202	18.7 570
	0806	4.6 140		0812	3.0 90
	1444	17.1 520		1422	18.7 570
●	2042	3.6 110	○	2044	1.0 30
5 Tu	0308	17.1 520	20 W	0248	19.4 590
	0838	4.3 130		0900	2.0 60
	1516	17.4 530		1506	19.7 600
	2111	3.3 100		2133	0.3 10
6 W	0339	17.1 520	21 Th	0333	19.7 600
	0910	3.9 120		0945	1.6 50
	1547	17.4 530		1551	20.0 610
	2139	3.3 100		2218	0.0 0
7 Th	0410	17.1 520	22 F	0419	19.4 590
	0942	3.9 120		1028	2.0 60
	1618	17.4 530		1637	19.7 600
	2209	3.3 100		2301	0.3 10
8 F	0443	17.1 520	23 Sa	0505	18.7 570
	1013	3.9 120		1107	2.3 70
	1650	17.4 530		1724	19.0 580
	2238	3.3 100		2340	1.6 50
9 Sa	0517	16.7 510	24 Su	0552	17.7 540
	1040	4.3 130		1141	3.3 100
	1723	17.1 520		1814	18.0 550
	2304	3.9 120			
10 Su	0553	16.4 500	25 M	0016	3.0 90
	1103	4.9 150		0640	16.7 510
	1758	16.7 510		1210	4.6 140
	2330	4.3 130		1908	17.1 520
11 M	0632	15.7 480	26 Tu	0049	4.6 140
	1130	5.6 170		0734	15.7 480
	1837	16.1 490		1252	5.9 180
			◑	2010	15.7 480
12 Tu	0001	4.9 150	27 W	0135	6.2 190
	0716	15.4 470		0835	14.8 450
	1210	6.2 190		1404	6.9 210
◐	1924	15.7 480		2116	14.8 450
13 W	0048	5.9 180	28 Th	0302	7.2 220
	0809	14.8 450		0940	14.1 430
	1314	6.9 210		1601	7.2 220
	2022	15.1 460		2228	14.4 440
14 Th	0159	6.6 200			
	0915	14.4 440			
	1458	7.2 220			
	2140	14.8 450			
15 F	0349	6.6 200			
	1031	14.8 450			
	1641	6.6 200			
	2302	15.4 470			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0444	7.5 230	16 Sa	0329	7.2 220
	1054	14.1 430		0959	14.4 440
	1737	6.6 200		1624	6.2 190
	2348	14.8 450		2240	15.1 460
2 Sa	0555	6.9 210	17 Su	0509	6.2 190
	1211	14.8 450		1120	15.1 460
	1841	5.9 180		1743	4.9 150
				2356	16.1 490
3 Su	0052	15.4 470	18 M	0613	5.2 160
	0641	6.2 190		1225	16.4 500
	1308	15.7 480		1846	3.3 100
	1923	4.9 150			
4 M	0139	16.1 490	19 Tu	0056	17.4 530
	0716	5.2 160		0706	3.9 120
	1350	16.4 500		1318	17.7 540
	1956	4.3 130		1940	2.0 60
5 Tu	0215	16.7 510	20 W	0145	18.4 560
	0747	4.6 140		0755	2.6 80
	1425	17.1 520		1403	18.7 570
	2024	3.6 110		2029	0.7 20
6 W	0247	17.1 520	21 Th	0229	19.0 580
	0819	3.9 120		0841	1.6 50
	1455	17.4 530		1446	19.7 600
●	2051	3.0 90	○	2114	0.0 0
7 Th	0316	17.4 530	22 F	0313	19.4 590
	0852	3.3 100		0924	1.3 40
	1525	17.7 540		1531	20.0 610
	2120	2.6 80		2157	0.0 0
8 F	0345	17.4 530	23 Sa	0356	19.4 590
	0925	3.3 100		1006	1.3 40
	1555	17.7 540		1616	19.7 600
	2150	2.6 80		2237	0.7 20
9 Sa	0416	17.4 530	24 Su	0440	18.7 570
	0955	3.3 100		1043	2.0 60
	1625	17.7 540		1702	19.0 580
	2217	3.0 90		2312	2.0 60
10 Su	0449	17.1 520	25 M	0524	17.7 540
	1019	3.6 110		1114	3.0 90
	1657	17.4 530		1750	18.0 550
	2238	3.3 100		2341	3.3 100
11 M	0523	16.7 510	26 Tu	0610	16.7 510
	1036	3.9 120		1137	4.3 130
	1732	17.1 520		1841	16.7 510
	2255	3.9 120			
12 Tu	0600	16.4 500	27 W	0005	4.9 150
	1059	4.6 140		0659	15.7 480
	1811	16.4 500		1214	5.6 170
	2322	4.6 140		1937	15.4 470
13 W	0642	15.7 480	28 Th	0046	6.6 200
	1136	5.2 160		0755	14.8 450
	1857	16.1 490		1316	6.6 200
			◑	2040	14.4 440
14 Th	0005	5.6 170	29 F	0159	7.5 230
	0731	15.1 460		0859	14.1 430
	1235	5.9 180		1528	7.2 220
◐	1955	15.1 460		2150	13.8 420
15 F	0115	6.6 200	30 Sa	0404	7.9 240
	0836	14.4 440		1010	13.8 420
	1419	6.6 200		1711	6.9 210
	2112	14.8 450		2312	14.1 430
			31 Su	0519	7.2 220
				1133	14.1 430
				1812	5.9 180

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Leith, Scotland, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0025	14.8	450	**16** Tu	0551	5.2	160	
	0609	6.6	200		1203	16.4	500	
	1237	15.1	460		1828	3.0	90	
	1853	4.9	150					
2 Tu	0112	15.7	480	**17** W	0036	17.4	530	
	0647	5.6	170		0643	3.9	120	
	1320	16.1	490		1255	17.7	540	
	1926	4.3	130		1920	2.0	60	
3 W	0147	16.4	500	**18** Th	0124	18.0	550	
	0721	4.6	140		0731	3.0	90	
	1355	16.7	510		1341	18.7	570	
	1954	3.6	110		2007	1.0	30	
4 Th	0218	16.7	510	**19** F	0208	18.7	570	
	0755	3.9	120		0817	2.0	60	
	1427	17.1	520		1425	19.4	590	
	2023	3.0	90	○	2051	0.7	20	
5 F	0247	17.4	530	**20** Sa	0250	19.0	580	
	0829	3.3	100		0901	1.6	50	
	1457	17.4	530		1510	19.4	590	
●	2054	2.6	80		2132	0.7	20	
6 Sa	0318	17.4	530	**21** Su	0333	18.7	570	
	0903	3.0	90		0943	1.6	50	
	1528	17.7	540		1555	19.0	580	
	2124	2.3	70		2210	1.3	40	
7 Su	0349	17.7	540	**22** M	0415	18.4	560	
	0934	3.0	90		1021	2.3	70	
	1600	17.7	540		1641	18.4	560	
	2152	2.6	80		2243	2.6	80	
8 M	0422	17.4	530	**23** Tu	0458	17.4	530	
	1001	3.0	90		1052	3.0	90	
	1634	17.7	540		1728	17.4	530	
	2213	3.0	90		2307	3.9	120	
9 Tu	0457	17.1	520	**24** W	0542	16.7	510	
	1019	3.6	110		1115	4.3	130	
	1711	17.4	530		1816	16.4	500	
	2230	3.6	110		2330	5.2	160	
10 W	0534	16.7	510	**25** Th	0627	15.7	480	
	1043	3.9	120		1148	5.2	160	
	1753	16.7	510		1908	15.4	470	
	2259	4.6	140					
11 Th	0617	16.1	490	**26** F	0010	6.6	200	
	1124	4.6	140		0718	14.8	450	
	1842	16.1	490		1242	6.2	190	
	2345	5.6	170	◑	2004	14.4	440	
12 F	0708	15.4	470	**27** Sa	0114	7.5	230	
	1230	5.6	170		0818	14.1	430	
	1941	15.4	470		1413	6.9	210	
◐					2106	13.8	420	
13 Sa	0109	6.9	210	**28** Su	0303	8.2	250	
	0812	14.8	450		0923	13.8	420	
	1423	5.9	180		1622	6.9	210	
	2059	15.1	460		2216	13.8	420	
14 Su	0323	7.2	220	**29** M	0431	7.5	230	
	0938	14.8	450		1035	14.1	430	
	1613	5.6	170		1722	5.9	180	
	2224	15.4	470		2332	14.4	440	
15 M	0450	6.2	190	**30** Tu	0525	6.9	210	
	1058	15.4	470		1144	14.8	450	
	1728	4.3	130		1807	5.2	160	
	2338	16.1	490					

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0027	15.1	460	**16** Th	0012	17.1	520	
	0608	5.9	180		0614	4.3	130	
	1236	15.4	470		1232	17.4	530	
	1843	4.6	140		1855	2.3	70	
2 Th	0107	16.1	490	**17** F	0101	17.7	540	
	0646	4.9	150		0704	3.3	100	
	1316	16.1	490		1320	18.0	550	
	1916	3.9	120		1942	2.0	60	
3 F	0142	16.7	510	**18** Sa	0146	18.0	550	
	0724	3.9	120		0752	2.6	80	
	1352	16.7	510		1406	18.4	560	
	1949	3.3	100	○	2025	1.6	50	
4 Sa	0215	17.1	520	**19** Su	0229	18.4	560	
	0800	3.3	100		0839	2.3	70	
	1426	17.4	530		1452	18.7	570	
●	2022	2.6	80		2106	2.0	60	
5 Su	0248	17.7	540	**20** M	0311	18.0	550	
	0836	3.0	90		0922	2.3	70	
	1501	17.7	540		1537	18.4	560	
	2056	2.6	80		2143	2.6	80	
6 M	0322	17.7	540	**21** Tu	0353	17.7	540	
	0912	2.6	80		1000	2.6	80	
	1536	17.7	540		1623	17.7	540	
	2128	2.6	80		2214	3.3	100	
7 Tu	0357	17.7	540	**22** W	0435	17.4	530	
	0947	2.6	80		1033	3.3	100	
	1614	17.7	540		1707	17.1	520	
	2159	3.3	100		2238	4.3	130	
8 W	0434	17.4	530	**23** Th	0516	16.7	510	
	1021	3.0	90		1058	3.9	120	
	1655	17.7	540		1752	16.4	500	
	2226	3.9	120		2304	5.2	160	
9 Th	0515	17.1	520	**24** F	0559	16.1	490	
	1058	3.6	110		1129	4.9	150	
	1741	17.1	520		1838	15.4	470	
	2302	4.6	140		2342	6.2	190	
10 F	0600	16.4	500	**25** Sa	0645	15.4	470	
	1149	4.3	130		1214	5.6	170	
	1832	16.4	500		1927	14.8	450	
11 Sa	0003	5.9	180	**26** Su	0036	7.2	220	
	0653	15.7	480		0737	14.8	450	
	1300	4.9	150		1315	6.2	190	
	1933	15.7	480	◑	2021	14.1	430	
12 Su	0133	6.6	200	**27** M	0151	7.5	230	
	0800	15.4	470		0836	14.4	440	
	1426	4.9	150		1448	6.6	200	
◐	2048	15.4	470		2119	14.1	430	
13 M	0306	6.6	200	**28** Tu	0325	7.5	230	
	0921	15.4	470		0937	14.1	430	
	1554	4.6	140		1616	6.2	190	
	2205	15.7	480		2220	14.1	430	
14 Tu	0422	6.2	190	**29** W	0432	6.9	210	
	1035	15.7	480		1040	14.4	440	
	1704	3.9	120		1709	5.6	170	
	2314	16.4	500		2322	14.8	450	
15 W	0522	5.2	160	**30** Th	0523	6.2	190	
	1138	16.7	510		1139	15.1	460	
	1803	3.0	90		1753	4.9	150	
				31 F	0015	15.7	480	
					0607	5.2	160	
					1230	15.7	480	
					1832	4.3	130	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0100	16.4	500	**16** Su	0127	17.4	530	
	0648	4.6	140		0732	3.3	100	
	1315	16.4	500		1352	17.7	540	
	1911	3.6	110		2000	3.0	90	
2 Su	0141	17.1	520	**17** M	0211	17.7	540	
	0729	3.6	110		0820	3.0	90	
	1356	17.1	520		1439	17.7	540	
	1949	3.3	100	○	2040	3.3	100	
3 M	0220	17.4	530	**18** Tu	0254	17.7	540	
	0810	3.0	90		0904	3.0	90	
	1436	17.7	540		1523	17.7	540	
●	2029	3.0	90		2116	3.6	110	
4 Tu	0258	17.7	540	**19** W	0335	17.4	530	
	0852	2.6	80		0942	3.0	90	
	1516	18.0	550		1606	17.4	530	
	2111	3.0	90		2146	3.9	120	
5 W	0336	18.0	550	**20** Th	0415	17.1	520	
	0937	2.3	70		1014	3.3	100	
	1558	18.0	550		1646	17.1	520	
	2154	3.3	100		2213	4.6	140	
6 Th	0417	18.0	550	**21** F	0453	16.7	510	
	1024	2.3	70		1041	3.9	120	
	1643	18.0	550		1726	16.4	500	
	2240	3.6	110		2243	4.9	150	
7 F	0501	17.7	540	**22** Sa	0532	16.4	500	
	1113	2.6	80		1111	4.3	130	
	1731	17.7	540		1807	15.7	480	
	2329	4.6	140		2319	5.6	170	
8 Sa	0549	17.1	520	**23** Su	0613	15.7	480	
	1205	3.3	100		1149	4.9	150	
	1824	17.1	520		1850	15.4	470	
9 Su	0023	5.2	160	**24** M	0003	6.2	190	
	0643	16.7	510		0657	15.4	470	
	1304	3.6	110		1236	5.6	170	
	1924	16.4	500		1936	14.8	450	
10 M	0126	5.9	180	**25** Tu	0058	6.9	210	
	0748	16.1	490		0748	15.1	460	
	1412	3.9	120		1332	5.9	180	
◐	2032	16.1	490	◑	2028	14.4	440	
11 Tu	0238	6.2	190	**26** W	0207	7.2	220	
	0901	16.1	490		0844	14.8	450	
	1526	4.3	130		1442	6.2	190	
	2142	16.1	490		2125	14.4	440	
12 W	0348	5.9	180	**27** Th	0325	7.2	220	
	1011	16.1	490		0944	14.8	450	
	1634	3.9	120		1558	5.9	180	
	2247	16.1	490		2224	14.8	450	
13 Th	0450	5.6	170	**28** F	0432	6.6	200	
	1113	16.4	500		1045	14.8	450	
	1735	3.6	110		1700	5.6	170	
	2346	16.4	500		2324	15.4	470	
14 F	0547	4.6	140	**29** Sa	0526	5.9	180	
	1211	17.1	520		1145	15.4	470	
	1829	3.3	100		1751	4.9	150	
15 Sa	0039	17.1	520	**30** Su	0020	16.1	490	
	0641	3.9	120		0614	5.2	160	
	1304	17.4	530		1240	16.1	490	
	1917	3.3	100		1837	4.3	130	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Leith, Scotland, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0110	16.7 510	16 Tu	0200	17.1 520
	0701	4.3 130		0809	3.6 110
	1329	17.1 520		1429	17.1 520
	1923	3.9 120	○	2016	4.3 130
2 Tu	0155	17.4 530	17 W	0241	17.4 530
	0749	3.3 100		0849	3.3 100
	1415	17.7 540		1510	17.1 520
●	2010	3.3 100		2050	3.9 120
3 W	0237	18.0 550	18 Th	0320	17.4 530
	0839	2.3 70		0924	3.3 100
	1459	18.4 560		1548	17.1 520
	2059	3.0 90		2121	3.9 120
4 Th	0319	18.4 560	19 F	0356	17.4 530
	0930	2.0 60		0954	3.3 100
	1544	18.7 570		1624	17.1 520
	2148	3.0 90		2151	4.3 130
5 F	0402	18.4 560	20 Sa	0430	17.1 520
	1020	1.6 50		1021	3.3 100
	1631	18.7 570		1659	16.7 510
	2237	3.3 100		2222	4.3 130
6 Sa	0448	18.4 560	21 Su	0505	17.1 520
	1110	1.6 50		1050	3.6 110
	1719	18.4 560		1735	16.4 500
	2324	3.6 110		2255	4.9 150
7 Su	0537	18.0 550	22 M	0541	16.7 510
	1159	2.0 60		1122	4.3 130
	1811	17.7 540		1814	16.1 490
				2329	5.2 160
8 M	0012	4.3 130	23 Tu	0620	16.1 490
	0629	17.7 540		1158	4.6 140
	1251	2.6 80		1856	15.4 470
	1907	17.1 520			
9 Tu	0103	4.9 150	24 W	0009	6.2 190
	0729	17.1 520		0702	15.7 480
	1346	3.6 110		1241	5.2 160
◐	2009	16.4 500		1942	15.1 460
10 W	0202	5.6 170	25 Th	0101	6.9 210
	0837	16.7 510		0751	15.1 460
	1450	4.3 130		1334	5.9 180
	2114	16.1 490	◑	2035	14.8 450
11 Th	0310	5.9 180	26 F	0211	7.2 220
	0945	16.4 500		0850	14.8 450
	1600	4.6 140		1442	6.2 190
	2218	15.7 480		2136	14.8 450
12 F	0420	5.9 180	27 Sa	0334	7.2 220
	1050	16.1 490		0957	14.8 450
	1707	4.9 150		1605	6.2 190
	2321	15.7 480		2241	15.1 460
13 Sa	0526	5.6 170	28 Su	0448	6.6 200
	1153	16.4 500		1105	15.1 460
	1806	4.9 150		1717	5.9 180
				2344	15.7 480
14 Su	0020	16.4 500	29 M	0548	5.6 170
	0627	4.9 150		1210	16.1 490
	1252	16.4 500		1815	4.9 150
	1856	4.6 140			
15 M	0114	16.7 510	30 Tu	0042	16.4 500
	0722	4.3 130		0642	4.3 130
	1344	16.7 510		1308	17.1 520
	1939	4.3 130		1907	4.3 130
			31 W	0133	17.4 530
				0735	3.3 100
				1358	18.0 550
				1958	3.6 110

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0219	18.4 560	16 F	0302	17.4 530
	0829	2.0 60		0904	3.0 90
	1444	18.7 570		1527	17.4 530
●	2048	2.6 80		2058	3.9 120
2 F	0302	19.0 580	17 Sa	0334	17.7 540
	0921	1.0 30		0931	3.0 90
	1529	19.4 590		1559	17.4 530
	2137	2.3 70		2130	3.6 110
3 Sa	0346	19.4 590	18 Su	0405	17.7 540
	1010	0.7 20		0959	3.0 90
	1615	19.4 590		1631	17.1 520
	2224	2.3 70		2201	3.9 120
4 Su	0432	19.4 590	19 M	0437	17.4 530
	1057	0.7 20		1027	3.3 100
	1702	19.0 580		1704	16.7 510
	2308	2.6 80		2230	4.3 130
5 M	0519	19.0 580	20 Tu	0511	17.1 520
	1142	1.0 30		1054	3.6 110
	1751	18.4 560		1740	16.4 500
	2350	3.6 110		2255	4.6 140
6 Tu	0610	18.4 560	21 W	0546	16.7 510
	1227	2.3 70		1119	4.3 130
	1843	17.4 530		1818	16.1 490
				2321	5.2 160
7 W	0033	4.3 130	22 Th	0624	16.1 490
	0706	17.7 540		1148	4.9 150
	1313	3.6 110		1900	15.4 470
◐	1940	16.4 500		2355	6.2 190
8 Th	0121	5.2 160	23 F	0709	15.7 480
	0810	16.7 510		1228	5.9 180
	1407	4.9 150		1949	15.1 460
	2042	15.7 480	◑		
9 F	0229	6.2 190	24 Sa	0052	6.9 210
	0918	15.7 480		0803	15.1 460
	1521	5.9 180		1333	6.6 200
	2147	15.4 470		2049	14.8 450
10 Sa	0355	6.6 200	25 Su	0233	7.2 220
	1027	15.4 470		0914	14.8 450
	1642	6.2 190		1516	6.9 210
	2255	15.1 460		2202	14.8 450
11 Su	0517	6.2 190	26 M	0416	6.9 210
	1138	15.4 470		1033	15.1 460
	1751	6.2 190		1656	6.6 200
				2314	15.4 470
12 M	0004	15.7 480	27 Tu	0531	5.6 170
	0627	5.6 170		1147	15.7 480
	1244	16.1 490		1801	5.6 170
	1842	5.6 170			
13 Tu	0103	16.1 490	28 W	0019	16.4 500
	0720	4.6 140		0630	4.3 130
	1336	16.4 500		1250	17.1 520
	1922	5.2 160		1855	4.6 140
14 W	0149	16.7 510	29 Th	0113	17.4 530
	0801	3.9 120		0725	3.0 90
	1418	16.7 510		1341	18.4 560
	1955	4.6 140		1945	3.3 100
15 Th	0228	17.4 530	30 F	0159	18.7 570
	0835	3.6 110		0818	1.3 40
	1455	17.1 520		1426	19.0 580
○	2027	4.3 130	●	2033	2.3 70
			31 Sa	0242	19.4 590
				0907	0.3 10
				1510	19.7 600
				2119	2.0 60

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0326	20.0 610	16 M	0338	17.7 540
	0953	0.0 0		0932	2.6 80
	1555	19.7 600		1601	17.4 530
	2204	1.6 50		2138	3.3 100
2 M	0411	20.0 610	17 Tu	0409	17.7 540
	1037	0.0 0		0959	3.0 90
	1640	19.4 590		1633	17.4 530
	2246	2.0 60		2204	3.9 120
3 Tu	0457	19.7 600	18 W	0441	17.4 530
	1119	1.0 30		1021	3.3 100
	1726	18.7 570		1707	17.1 520
	2325	3.0 90		2223	4.3 130
4 W	0546	18.7 570	19 Th	0516	17.1 520
	1158	2.3 70		1039	3.9 120
	1815	17.4 530		1743	16.4 500
				2244	4.9 150
5 Th	0000	4.3 130	20 F	0554	16.4 500
	0640	17.7 540		1102	4.9 150
	1235	3.9 120		1823	16.1 490
	1908	16.4 500		2316	5.6 170
6 F	0041	5.2 160	21 Sa	0639	16.1 490
	0742	16.4 500		1139	5.9 180
	1319	5.6 170		1910	15.4 470
◐	2009	15.4 470			
7 Sa	0147	6.6 200	22 Su	0007	6.6 200
	0851	15.4 470		0733	15.4 470
	1436	7.2 220		1239	6.9 210
	2115	14.8 450	◑	2010	14.8 450
8 Su	0338	6.9 210	23 M	0151	7.2 220
	1003	14.8 450		0844	14.8 450
	1620	7.5 230		1449	7.5 230
	2227	14.8 450		2128	14.8 450
9 M	0517	6.6 200	24 Tu	0356	6.9 210
	1121	15.1 460		1009	15.1 460
	1736	7.2 220		1641	6.9 210
	2344	15.1 460		2249	15.4 470
10 Tu	0624	5.6 170	25 W	0518	5.6 170
	1231	15.7 480		1127	16.1 490
	1828	6.6 200		1746	5.9 180
				2357	16.4 500
11 W	0045	16.1 490	26 Th	0618	3.9 120
	0710	4.9 150		1230	17.4 530
	1322	16.4 500		1838	4.6 140
	1903	5.6 170			
12 Th	0131	16.7 510	27 F	0051	17.7 540
	0744	4.3 130		0711	2.3 70
	1400	16.7 510		1321	18.4 560
	1933	4.9 150		1925	3.3 100
13 F	0207	17.1 520	28 Sa	0137	19.0 580
	0812	3.6 110		0800	1.0 30
	1433	17.4 530		1405	19.4 590
	2003	4.3 130	●	2011	2.3 70
14 Sa	0239	17.7 540	29 Su	0220	19.7 600
	0838	3.0 90		0846	0.3 10
	1502	17.4 530		1448	19.7 600
○	2035	3.6 110		2057	1.6 50
15 Su	0309	17.7 540	30 M	0303	20.3 620
	0905	2.6 80		0931	0.0 0
	1531	17.7 540		1531	19.7 600
	2107	3.3 100		2140	1.6 50

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Leith, Scotland, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft cm		h m	ft cm		h m	ft cm		h m	ft cm
1 Tu	0348	20.3 620	**16** W	0342	18.0 550	**1** F	0504	18.0 550	**16** Sa	0434	17.7 540
	1013	0.3 10		0929	3.0 90		1054	3.9 120		0956	4.3 130
	1615	19.4 590		1604	17.7 540		1720	17.4 530		1652	17.4 530
	2222	2.0 60		2141	3.6 110		2308	4.3 130		2230	4.3 130
2 W	0435	19.7 600	**17** Th	0416	17.7 540	**2** Sa	0555	17.1 520	**17** Su	0517	17.4 530
	1052	1.6 50		0950	3.6 110		1116	5.6 170		1028	5.2 160
	1700	18.4 560		1638	17.4 530		1808	16.4 500		1734	16.7 510
	2259	3.0 90		2201	3.9 120		2339	5.2 160		2315	4.6 140
3 Th	0524	18.7 570	**18** F	0452	17.4 530	**3** Su	0650	15.7 480	**18** M	0606	16.7 510
	1126	3.3 100		1008	4.3 130		1151	6.9 210		1113	6.2 190
	1747	17.4 530		1714	17.1 520		1902	15.4 470		1824	16.1 490
	2330	4.3 130		2224	4.6 140						
4 F	0616	17.4 530	**19** Sa	0532	16.7 510	**4** M	0030	6.6 200	**19** Tu	0022	5.2 160
	1154	4.9 150		1034	4.9 150		0749	15.1 460		0702	16.1 490
	1837	16.4 500		1755	16.4 500		1252	8.2 250		1239	7.2 220
				2259	5.2 160	◐	2004	14.8 450	◑	1923	15.7 480
5 Sa	0005	5.6 170	**20** Su	0619	16.4 500	**5** Tu	0220	7.2 220	**20** W	0144	5.6 170
	0716	16.1 490		1112	5.9 180		0853	14.4 440		0811	15.7 480
	1231	6.6 200		1842	15.7 480		1443	8.5 260		1421	7.5 230
◐	1935	15.4 470		2356	5.9 180		2111	14.4 440		2040	15.4 470
6 Su	0107	6.6 200	**21** M	0715	15.7 480	**6** W	0414	6.9 210	**21** Th	0315	5.6 170
	0822	15.1 460		1217	7.2 220		1004	14.4 440		0928	15.7 480
	1342	7.9 240		1942	15.1 460		1615	8.2 250		1546	6.9 210
	2041	14.8 450	◑				2221	14.8 450		2158	16.1 490
7 M	0321	7.2 220	**22** Tu	0146	6.6 200	**7** Th	0513	6.2 190	**22** F	0431	4.6 140
	0932	14.4 440		0826	15.1 460		1118	14.8 450		1040	16.4 500
	1549	8.2 250		1439	7.9 240		1710	7.5 230		1651	6.2 190
	2153	14.4 440		2102	15.1 460		2328	15.1 460		2305	16.7 510
8 Tu	0459	6.9 210	**23** W	0340	6.2 190	**8** F	0557	5.6 170	**23** Sa	0531	3.6 110
	1052	14.4 440		0950	15.4 470		1214	15.4 470		1141	17.1 520
	1706	7.9 240		1619	7.2 220		1752	6.6 200		1745	5.2 160
	2311	14.8 450		2224	15.4 470						
9 W	0600	5.9 180	**24** Th	0459	4.9 150	**9** Sa	0020	15.7 480	**24** Su	0001	17.7 540
	1206	15.4 470		1106	16.4 500		0631	4.9 150		0624	3.0 90
	1756	6.9 210		1723	5.9 180		1254	16.4 500		1234	18.0 550
				2332	16.7 510		1830	5.6 170		1835	3.9 120
10 Th	0016	15.7 480	**25** F	0558	3.6 110	**10** Su	0100	16.7 510	**25** M	0052	18.4 560
	0642	5.2 160		1208	17.4 530		0701	4.3 130		0713	2.3 70
	1256	16.1 490		1814	4.6 140		1328	17.1 520		1320	18.4 560
	1832	5.9 180					1906	4.6 140		1924	3.3 100
11 F	0102	16.4 500	**26** Sa	0026	18.0 550	**11** M	0136	17.1 520	**26** Tu	0139	19.0 580
	0713	4.3 130		0650	2.3 70		0731	3.6 110		0759	2.0 60
	1333	16.7 510		1258	18.4 560		1400	17.4 530		1403	18.7 570
	1904	5.2 160		1901	3.6 110		1942	3.9 120	●	2012	2.6 80
12 Sa	0138	17.1 520	**27** Su	0113	19.0 580	**12** Tu	0210	17.4 530	**27** W	0225	19.0 580
	0740	3.6 110		0737	1.3 40		0802	3.3 100		0842	2.3 70
	1404	17.4 530		1342	19.0 580		1432	17.7 540		1447	18.7 570
	1936	4.3 130		1947	2.6 80	○	2017	3.6 110		2059	2.6 80
13 Su	0210	17.4 530	**28** M	0157	19.7 600	**13** W	0244	17.7 540	**28** Th	0312	19.0 580
	0806	3.3 100		0822	1.0 30		0833	3.3 100		0922	2.6 80
	1432	17.7 540		1424	19.7 600		1505	18.0 550		1530	18.7 570
○	2010	3.6 110	●	2033	2.0 60		2051	3.3 100		2142	2.6 80
14 M	0240	17.7 540	**29** Tu	0242	20.0 610	**14** Th	0318	18.0 550	**29** F	0359	18.4 560
	0834	3.0 90		0906	1.0 30		0903	3.3 100		0958	3.6 110
	1501	17.7 540		1507	19.4 590		1539	18.0 550		1614	18.0 550
	2043	3.3 100		2118	2.0 60		2124	3.6 110		2221	3.3 100
15 Tu	0310	18.0 550	**30** W	0328	19.7 600	**15** F	0355	17.7 540	**30** Sa	0446	17.7 540
	0903	3.0 90		0947	1.3 40		0930	3.6 110		1026	4.6 140
	1532	17.7 540		1550	19.0 580		1614	17.7 540		1657	17.4 530
	2114	3.3 100		2200	2.3 70		2156	3.6 110		2252	4.3 130
			31 Th	0415	19.0 580						
				1024	2.6 80						
				1635	18.4 560						
				2237	3.3 100						

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0533	16.7 510	**16** M	0506	17.7 540
	1049	5.6 170		1051	4.9 150
	1742	16.7 510		1721	17.4 530
	2319	4.9 150		2333	3.6 110
2 M	0621	16.1 490	**17** Tu	0555	17.4 530
	1122	6.6 200		1141	5.6 170
	1829	15.7 480		1810	17.1 520
	2359	5.9 180			
3 Tu	0712	15.1 460	**18** W	0027	3.9 120
	1211	7.5 230		0649	16.7 510
	1922	15.1 460		1241	6.2 190
				1907	16.7 510
4 W	0055	6.6 200	**19** Th	0130	4.6 140
	0806	14.8 450		0752	16.1 490
	1320	8.2 250		1350	6.6 200
◐	2021	14.8 450	◑	2015	16.4 500
5 Th	0227	6.9 210	**20** F	0241	4.9 150
	0905	14.4 440		0902	16.1 490
	1456	8.2 250		1505	6.6 200
	2122	14.8 450		2130	16.4 500
6 F	0402	6.9 210	**21** Sa	0355	4.6 140
	1006	14.4 440		1010	16.1 490
	1612	7.9 240		1614	6.2 190
	2224	14.8 450		2237	16.4 500
7 Sa	0457	6.2 190	**22** Su	0501	4.3 130
	1107	14.8 450		1113	16.4 500
	1707	7.2 220		1716	5.6 170
	2323	15.1 460		2339	17.1 520
8 Su	0541	5.6 170	**23** M	0559	3.9 120
	1201	15.7 480		1210	17.1 520
	1753	6.2 190		1814	4.9 150
9 M	0014	15.7 480	**24** Tu	0035	17.4 530
	0619	5.2 160		0651	3.6 110
	1246	16.4 500		1302	17.4 530
	1834	5.2 160		1908	3.9 120
10 Tu	0100	16.4 500	**25** W	0127	17.7 540
	0656	4.6 140		0739	3.6 110
	1327	17.1 520		1348	18.0 550
	1913	4.6 140		2000	3.6 110
11 W	0141	17.1 520	**26** Th	0216	18.0 550
	0731	3.9 120		0822	3.6 110
	1405	17.7 540		1433	18.0 550
	1952	3.9 120	●	2047	3.0 90
12 Th	0220	17.4 530	**27** F	0302	18.0 550
	0808	3.9 120		0901	3.6 110
	1441	18.0 550		1516	18.0 550
○	2032	3.6 110		2130	3.0 90
13 F	0259	18.0 550	**28** Sa	0347	17.7 540
	0845	3.6 110		0935	3.9 120
	1518	18.0 550		1558	17.7 540
	2113	3.3 100		2207	3.3 100
14 Sa	0338	18.0 550	**29** Su	0429	17.4 530
	0925	3.9 120		1003	4.6 140
	1556	18.0 550		1638	17.4 530
	2157	3.0 90		2236	3.9 120
15 Su	0420	18.0 550	**30** M	0510	17.1 520
	1007	4.3 130		1029	5.2 160
	1636	17.7 540		1717	17.1 520
	2244	3.3 100		2300	4.3 130
			31 Tu	0551	16.4 500
				1100	5.6 170
				1757	16.4 500
				2332	4.9 150

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Immingham, England, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0137	20.7 630	**16** W	0021	19.7 600
	0812	6.2 190		0700	7.5 230
	1427	20.3 620		1331	19.0 580
	2035	7.9 240		1928	8.5 260
2 W	0242	20.7 630	**17** Th	0140	19.7 600
	0911	6.2 190		0809	7.2 220
	1524	20.7 630		1438	19.7 600
	2137	7.2 220		2040	7.9 240
3 Th	0342	21.3 650	**18** F	0252	20.7 630
	1004	5.9 180		0915	6.2 190
	1613	21.3 650		1537	20.7 630
	2231	6.2 190		2146	6.6 200
4 F	0435	21.7 660	**19** Sa	0354	21.7 660
	1051	5.6 170		1015	5.2 160
	1656	22.0 670		1629	22.0 670
	2318	5.6 170		2247	4.9 150
5 Sa	0522	22.0 670	**20** Su	0451	22.6 690
	1134	5.2 160		1111	4.6 140
	1736	22.6 690		1718	23.3 710
				2344	3.6 110
6 Su ●	0002	4.9 150	**21** M ○	0544	23.6 720
	0604	22.0 670		1203	3.6 110
	1214	5.2 160		1804	24.0 730
	1813	23.0 700			
7 M	0043	4.6 140	**22** Tu	0037	2.6 80
	0642	22.0 670		0635	24.3 740
	1251	5.2 160		1252	3.3 100
	1848	23.3 710		1849	24.6 750
8 Tu	0119	4.6 140	**23** W	0127	1.6 50
	0717	22.0 670		0724	24.6 750
	1325	5.2 160		1339	3.0 90
	1921	23.0 700		1933	24.9 760
9 W	0152	4.9 150	**24** Th	0215	1.3 40
	0750	21.7 660		0811	24.3 740
	1356	5.6 170		1423	3.3 100
	1953	23.0 700		2016	24.9 760
10 Th	0223	5.2 160	**25** F	0301	1.6 50
	0822	21.3 650		0857	23.6 720
	1425	5.9 180		1506	3.9 120
	2024	22.3 680		2101	24.3 740
11 F	0253	5.6 170	**26** Sa	0347	2.6 80
	0856	20.7 630		0945	22.6 690
	1457	6.6 200		1549	4.9 150
	2057	21.7 660		2149	23.3 710
12 Sa	0326	6.2 190	**27** Su ◑	0433	3.9 120
	0932	20.3 620		1037	21.3 650
	1532	7.2 220		1634	6.2 190
	2133	21.0 640		2243	22.0 670
13 Su	0405	6.6 200	**28** M	0524	5.6 170
	1015	19.7 600		1135	20.3 620
	1614	7.9 240		1726	7.5 230
	2216	20.3 620		2347	20.7 630
14 M ◐	0453	7.2 220	**29** Tu	0623	6.9 210
	1107	19.0 580		1238	19.4 590
	1709	8.5 260		1831	8.5 260
	2312	19.7 600			
15 Tu	0553	7.5 230	**30** W	0100	19.7 600
	1214	18.7 570		0731	7.5 230
	1816	8.9 270		1343	19.0 580
				1957	8.9 270
			31 Th	0214	19.4 590
				0840	7.9 240
				1447	19.4 590
				2114	8.2 250

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0324	19.7 600	**16** Sa	0228	19.7 600
	0939	7.2 220		0848	7.2 220
	1545	20.3 620		1512	20.0 610
	2213	6.9 210		2125	6.6 200
2 Sa	0424	20.3 620	**17** Su	0343	21.0 640
	1030	6.6 200		0957	5.9 180
	1634	21.3 650		1611	21.7 660
	2303	5.9 180		2233	4.9 150
3 Su	0512	21.0 640	**18** M	0444	22.3 680
	1115	5.9 180		1056	4.9 150
	1716	22.0 670		1703	23.0 700
	2347	5.2 160		2333	3.3 100
4 M ●	0552	21.7 660	**19** Tu ○	0539	23.6 720
	1156	5.6 170		1150	3.6 110
	1754	22.6 690		1751	24.3 740
5 Tu	0027	4.6 140	**20** W	0026	2.0 60
	0627	21.7 660		0628	24.3 740
	1235	4.9 150		1240	3.0 90
	1829	23.0 700		1835	25.3 770
6 W	0105	4.3 130	**21** Th	0115	1.0 30
	0659	22.0 670		0713	24.6 750
	1309	4.9 150		1325	2.3 70
	1902	23.3 710		1919	25.6 780
7 Th	0138	4.3 130	**22** F	0200	0.7 20
	0729	22.0 670		0756	24.6 750
	1340	4.9 150		1408	2.6 80
	1934	23.0 700		2001	25.6 780
8 F	0208	4.6 140	**23** Sa	0242	1.0 30
	0800	21.7 660		0836	24.0 730
	1408	5.2 160		1447	3.0 90
	2005	23.0 700		2043	24.9 760
9 Sa	0235	4.9 150	**24** Su	0322	2.3 70
	0830	21.7 660		0916	23.0 700
	1436	5.6 170		1525	3.9 120
	2034	22.3 680		2126	23.6 720
10 Su	0301	5.2 160	**25** M	0401	3.9 120
	0900	21.0 640		0959	21.7 660
	1506	5.9 180		1602	5.6 170
	2104	22.0 670		2212	22.0 670
11 M	0330	5.6 170	**26** Tu ◑	0441	5.6 170
	0934	20.7 630		1047	20.3 620
	1540	6.6 200		1644	6.9 210
	2141	21.3 650		2309	20.3 620
12 Tu ◐	0408	6.2 190	**27** W	0529	7.5 230
	1016	19.7 600		1147	19.0 580
	1625	7.2 220		1738	8.5 260
	2228	20.7 630			
13 W	0459	7.2 220	**28** Th	0024	19.0 580
	1110	19.0 580		0635	8.9 270
	1726	8.2 250		1300	18.4 560
	2329	19.7 600		1858	9.2 280
14 Th	0610	7.9 240			
	1224	18.7 570			
	1845	8.5 260			
15 F	0051	19.4 590			
	0730	7.9 240			
	1358	19.0 580			
	2007	7.9 240			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0148	18.4 560	**16** Sa	0027	19.0 580
	0804	9.2 280		0703	8.5 260
	1412	18.4 560		1324	18.7 570
	2053	8.9 270		1947	7.5 230
2 Sa	0306	18.7 570	**17** Su	0221	19.4 590
	0916	8.5 260		0830	7.9 240
	1517	19.4 590		1451	19.7 600
	2156	7.5 230		2112	6.2 190
3 Su	0409	19.7 600	**18** M	0337	21.0 640
	1010	7.5 230		0942	6.2 190
	1610	20.7 630		1553	21.3 650
	2244	6.2 190		2221	4.3 130
4 M	0457	20.7 630	**19** Tu	0436	22.3 680
	1055	6.2 190		1042	4.9 150
	1654	21.7 660		1645	23.0 700
	2326	5.2 160		2318	2.6 80
5 Tu	0534	21.3 650	**20** W	0527	23.6 720
	1136	5.6 170		1134	3.6 110
	1732	22.3 680		1732	24.3 740
6 W ●	0006	4.3 130	**21** Th ○	0009	1.3 40
	0606	21.7 660		0612	24.3 740
	1215	4.9 150		1222	2.6 80
	1806	23.0 700		1817	25.3 770
7 Th	0043	3.9 120	**22** F	0056	0.7 20
	0635	22.0 670		0654	24.6 750
	1250	4.6 140		1307	2.0 60
	1839	23.0 700		1900	25.6 780
8 F	0117	3.9 120	**23** Sa	0138	0.7 20
	0704	22.3 680		0733	24.6 750
	1321	4.6 140		1348	2.3 70
	1911	23.3 710		1941	25.6 780
9 Sa	0147	3.9 120	**24** Su	0218	1.3 40
	0734	22.3 680		0810	24.0 730
	1349	4.6 140		1425	2.6 80
	1942	23.0 700		2022	24.9 760
10 Su	0213	4.3 130	**25** M	0254	2.6 80
	0803	22.3 680		0845	23.0 700
	1416	4.6 140		1500	3.6 110
	2011	23.0 700		2102	23.6 720
11 M	0236	4.6 140	**26** Tu	0327	4.3 130
	0831	22.0 670		0921	22.0 670
	1444	4.9 150		1533	4.9 150
	2041	22.6 690		2144	21.7 660
12 Tu	0302	4.9 150	**27** W	0401	5.9 180
	0903	21.3 650		1000	20.3 620
	1516	5.6 170		1611	6.6 200
	2116	22.0 670		2235	20.0 610
13 W	0335	5.9 180	**28** Th ◑	0443	7.9 240
	0941	20.7 630		1053	19.0 580
	1557	6.6 200		1700	8.2 250
	2202	21.0 640		2350	18.4 560
14 Th ◐	0421	6.9 210	**29** F	0542	9.5 290
	1031	19.4 590		1212	18.0 550
	1655	7.5 230		1810	9.2 280
	2302	19.7 600			
15 F	0532	7.9 240	**30** Sa	0121	17.7 540
	1141	18.7 570		0710	9.8 300
	1818	8.2 250		1336	18.0 550
				2020	8.9 270
			31 Su	0239	18.0 550
				0846	9.2 280
				1445	18.7 570
				2128	7.5 230

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Immingham, England, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0343	19.4 590	**16** Tu	0324	21.0 640
	0943	7.9 240		0924	6.6 200
	1540	20.0 610		1531	21.7 660
	2215	6.2 190		2202	3.9 120
2 Tu	0430	20.3 620	**17** W	0420	22.3 680
	1028	6.6 200		1022	4.9 150
	1624	21.0 640		1623	23.0 700
	2257	5.2 160		2257	2.3 70
3 W	0506	21.3 650	**18** Th	0508	23.6 720
	1110	5.6 170		1113	3.6 110
	1702	22.0 670		1711	24.0 730
	2336	4.3 130		2346	1.6 50
4 Th	0538	21.7 660	**19** F ○	0551	24.3 740
	1148	4.9 150		1200	3.0 90
	1737	22.6 690		1756	24.6 750
5 F ●	0013	3.9 120	**20** Sa	0031	1.3 40
	0606	22.3 680		0630	24.3 740
	1224	4.6 140		1245	2.3 70
	1811	23.0 700		1839	24.9 760
6 Sa	0048	3.6 110	**21** Su	0113	1.3 40
	0636	22.6 690		0707	24.3 740
	1257	4.3 130		1326	2.3 70
	1845	23.3 710		1921	24.6 750
7 Su	0120	3.6 110	**22** M	0151	2.0 60
	0707	22.6 690		0742	24.0 730
	1327	4.3 130		1403	3.0 90
	1917	23.3 710		2001	24.0 730
8 M	0148	3.9 120	**23** Tu	0225	3.3 100
	0737	22.6 690		0816	23.0 700
	1357	4.3 130		1438	3.9 120
	1949	23.3 710		2041	23.0 700
9 Tu	0214	4.3 130	**24** W	0257	4.6 140
	0806	22.3 680		0849	22.0 670
	1427	4.3 130		1510	4.9 150
	2023	22.6 690		2121	21.3 650
10 W	0243	4.6 140	**25** Th	0329	6.2 190
	0839	22.0 670		0924	20.7 630
	1502	4.9 150		1546	6.2 190
	2101	22.0 670		2207	19.7 600
11 Th	0317	5.6 170	**26** F ◑	0408	7.9 240
	0919	21.0 640		1009	19.4 590
	1545	5.9 180		1634	7.5 230
	2149	21.0 640		2314	18.0 550
12 F ◐	0405	6.9 210	**27** Sa	0502	9.2 280
	1010	20.0 610		1119	18.4 560
	1646	6.9 210		1738	8.5 260
	2253	19.7 600			
13 Sa	0515	8.2 250	**28** Su	0044	17.4 530
	1120	19.0 580		0616	10.2 310
	1808	7.2 220		1251	18.0 550
				1904	8.5 260
14 Su	0028	18.7 570	**29** M	0200	17.7 540
	0646	8.5 260		0749	9.8 300
	1302	19.0 580		1403	18.7 570
	1936	6.9 210		2039	7.9 240
15 M	0214	19.7 600	**30** Tu	0302	18.7 570
	0813	7.9 240		0902	8.5 260
	1429	20.0 610		1500	19.7 600
	2057	5.6 170		2133	6.6 200

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0351	20.0 610	**16** Th	0357	22.3 680
	0952	7.2 220		0957	5.2 160
	1546	20.7 630		1559	22.6 690
	2217	5.6 170		2230	3.0 90
2 Th	0429	21.0 640	**17** F	0444	23.0 700
	1035	6.2 190		1049	4.3 130
	1625	21.3 650		1648	23.3 710
	2258	4.6 140		2319	2.6 80
3 F	0502	21.7 660	**18** Sa ○	0526	23.3 710
	1115	5.2 160		1137	3.6 110
	1703	22.0 670		1735	24.0 730
	2338	4.3 130			
4 Sa ●	0534	22.3 680	**19** Su	0005	2.3 70
	1153	4.6 140		0604	23.6 720
	1740	22.6 690		1223	3.0 90
				1820	24.0 730
5 Su	0015	3.9 120	**20** M	0047	2.6 80
	0607	22.6 690		0642	23.6 720
	1230	4.3 130		1306	3.0 90
	1818	23.0 700		1903	23.6 720
6 M	0051	3.6 110	**21** Tu	0125	3.3 100
	0641	23.0 700		0718	23.3 710
	1305	3.9 120		1344	3.6 110
	1855	23.3 710		1944	23.0 700
7 Tu	0123	3.6 110	**22** W	0200	4.3 130
	0714	23.0 700		0752	23.0 700
	1340	3.9 120		1420	4.3 130
	1933	23.3 710		2023	22.0 670
8 W	0156	3.9 120	**23** Th	0232	5.2 160
	0748	23.0 700		0825	22.0 670
	1417	3.9 120		1453	4.9 150
	2012	23.0 700		2102	21.0 640
9 Th	0231	4.6 140	**24** F	0305	6.2 190
	0825	22.3 680		0859	21.3 650
	1458	4.6 140		1529	5.9 180
	2056	22.0 670		2144	19.7 600
10 F	0311	5.6 170	**25** Sa	0342	7.5 230
	0907	21.7 660		0940	20.0 610
	1547	5.2 160		1613	6.9 210
	2148	21.0 640		2237	18.7 570
11 Sa	0401	6.9 210	**26** Su ◑	0429	8.5 260
	1001	20.7 630		1036	19.0 580
	1649	5.9 180		1709	7.9 240
	2256	19.7 600		2349	18.0 550
12 Su ◐	0509	7.9 240	**27** M	0530	9.5 290
	1112	19.7 600		1151	18.4 560
	1804	6.2 190		1815	7.9 240
13 M	0031	19.4 590	**28** Tu	0103	18.0 550
	0630	8.2 250		0642	9.5 290
	1243	19.7 600		1306	18.7 570
	1922	5.9 180		1925	7.9 240
14 Tu	0156	20.0 610	**29** W	0207	18.4 560
	0750	7.5 230		0755	8.9 270
	1402	20.7 630		1407	19.4 590
	2035	4.9 150		2031	6.9 210
15 W	0302	21.0 640	**30** Th	0300	19.4 590
	0859	6.6 200		0858	7.9 240
	1505	21.7 660		1459	20.0 610
	2136	3.9 120		2127	6.2 190
			31 F	0344	20.3 620
				0950	6.9 210
				1545	21.0 640
				2215	5.2 160

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0423	21.3 650	**16** Su	0501	22.6 690
	1036	5.9 180		1117	4.6 140
	1628	21.7 660		1719	22.6 690
	2259	4.6 140		2340	3.9 120
2 Su	0502	22.0 670	**17** M ○	0541	23.0 700
	1120	4.9 150		1204	3.9 120
	1711	22.3 680		1806	22.6 690
	2342	4.3 130			
3 M ●	0540	22.6 690	**18** Tu	0023	4.3 130
	1202	4.3 130		0620	23.0 700
	1755	23.0 700		1249	3.9 120
				1849	22.6 690
4 Tu	0023	3.9 120	**19** W	0103	4.3 130
	0618	23.0 700		0657	23.0 700
	1246	3.6 110		1329	3.9 120
	1838	23.3 710		1930	22.3 680
5 W	0103	3.6 110	**20** Th	0139	4.9 150
	0656	23.3 710		0733	22.6 690
	1328	3.3 100		1406	4.3 130
	1922	23.3 710		2008	21.7 660
6 Th	0143	3.9 120	**21** F	0212	5.6 170
	0735	23.3 710		0806	22.3 680
	1412	3.3 100		1440	4.9 150
	2007	23.0 700		2044	21.0 640
7 F	0224	4.3 130	**22** Sa	0245	6.2 190
	0817	23.0 700		0840	21.7 660
	1459	3.6 110		1515	5.6 170
	2055	22.3 680		2120	20.3 620
8 Sa	0308	5.2 160	**23** Su	0319	6.9 210
	0902	22.3 680		0917	21.0 640
	1550	3.9 120		1553	6.2 190
	2150	21.7 660		2202	19.4 590
9 Su	0359	6.2 190	**24** M	0358	7.5 230
	0956	21.7 660		1001	20.0 610
	1649	4.6 140		1637	6.9 210
	2257	20.7 630		2252	18.7 570
10 M ◐	0500	6.9 210	**25** Tu ◑	0447	8.5 260
	1102	21.0 640		1056	19.4 590
	1754	4.9 150		1730	7.2 220
				2353	18.4 560
11 Tu	0014	20.3 620	**26** W	0545	8.9 270
	0608	7.5 230		1201	19.0 580
	1219	20.7 630		1828	7.5 230
	1901	5.2 160			
12 W	0126	20.3 620	**27** Th	0058	18.4 560
	0721	7.5 230		0649	8.9 270
	1332	21.0 640		1307	19.0 580
	2007	4.9 150		1930	7.2 220
13 Th	0230	20.7 630	**28** F	0201	19.0 580
	0829	6.9 210		0756	8.5 260
	1436	21.3 650		1408	19.7 600
	2108	4.6 140		2032	6.9 210
14 F	0327	21.3 650	**29** Sa	0257	19.7 600
	0931	5.9 180		0859	7.5 230
	1535	22.0 670		1505	20.3 620
	2203	4.3 130		2130	6.2 190
15 Sa	0417	22.0 670	**30** Su	0347	20.7 630
	1026	5.2 160		0956	6.6 200
	1628	22.3 680		1558	21.3 650
	2254	3.9 120		2223	5.2 160

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Immingham, England, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0433 21.7 660 1049 5.6 170 1648 22.0 670 2313 4.6 140		**16** Tu ○	0520 22.3 680 1150 4.6 140 1756 22.0 670	
2 Tu ●	0517 22.6 690 1141 4.3 130 1738 23.0 700		**17** W	0003 5.2 160 0600 22.6 690 1235 4.3 130 1837 22.0 670	
3 W	0001 4.3 130 0600 23.3 710 1231 3.6 110 1827 23.3 710		**18** Th	0044 5.2 160 0638 23.0 700 1316 4.3 130 1915 22.0 670	
4 Th	0048 3.9 120 0643 23.6 720 1320 2.6 80 1915 23.6 720		**19** F	0121 5.2 160 0714 23.0 700 1353 4.3 130 1950 21.7 660	
5 F	0133 3.6 110 0726 24.0 730 1408 2.3 70 2003 23.6 720		**20** Sa	0155 5.2 160 0748 22.6 690 1426 4.6 140 2022 21.3 650	
6 Sa	0218 3.9 120 0810 24.0 730 1456 2.3 70 2052 23.3 710		**21** Su	0226 5.9 180 0820 22.3 680 1457 5.2 160 2053 21.0 640	
7 Su	0303 4.3 130 0856 23.6 720 1545 2.6 80 2144 22.6 690		**22** M	0256 6.2 190 0854 22.0 670 1528 5.6 170 2127 20.3 620	
8 M	0350 5.2 160 0947 23.0 700 1637 3.6 110 2242 21.7 660		**23** Tu	0328 6.9 210 0929 21.3 650 1602 6.2 190 2206 19.7 600	
9 Tu ◐	0442 6.2 190 1045 22.0 670 1733 4.3 130 2345 20.7 630		**24** W	0406 7.5 230 1010 20.3 620 1643 6.9 210 2253 19.4 590	
10 W	0540 6.9 210 1150 21.3 650 1833 5.2 160		**25** Th ◑	0453 8.2 250 1100 19.7 600 1734 7.2 220 2351 18.7 570	
11 Th	0049 20.3 620 0646 7.5 230 1300 20.7 630 1937 5.6 170		**26** F	0553 8.5 260 1203 19.4 590 1836 7.5 230	
12 F	0153 20.0 610 0759 7.5 230 1409 20.7 630 2040 5.9 180		**27** Sa	0103 18.7 570 0702 8.9 270 1318 19.4 590 1943 7.5 230	
13 Sa	0254 20.3 620 0908 6.9 210 1515 20.7 630 2139 5.9 180		**28** Su	0214 19.4 590 0814 8.2 250 1431 20.0 610 2051 6.9 210	
14 Su	0349 21.0 640 1008 6.2 190 1615 21.3 650 2232 5.6 170		**29** M	0315 20.0 610 0923 7.2 220 1535 20.7 630 2154 6.2 190	
15 M	0437 21.7 660 1101 5.2 160 1709 21.7 660 2319 5.2 160		**30** Tu	0410 21.3 650 1027 5.6 170 1634 22.0 670 2251 5.2 160	
			31 W	0459 22.6 690 1125 4.3 130 1728 23.0 700 2345 4.3 130	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0546 23.6 720 1219 3.0 90 1820 23.6 720		**16** F	0025 5.2 160 0617 23.0 700 1257 3.9 120 1855 22.0 670	
2 F	0034 3.6 110 0630 24.3 740 1310 2.0 60 1908 24.3 740		**17** Sa	0102 4.9 150 0652 23.3 710 1333 3.9 120 1926 22.0 670	
3 Sa	0122 3.3 100 0714 24.9 760 1358 1.3 40 1955 24.3 740		**18** Su	0136 5.2 160 0725 23.3 710 1405 4.3 130 1955 22.0 670	
4 Su	0206 3.3 100 0758 24.9 760 1444 1.3 40 2040 24.0 730		**19** M	0205 5.2 160 0757 23.0 700 1433 4.6 140 2024 21.7 660	
5 M	0250 3.6 110 0842 24.9 760 1529 2.0 60 2126 23.3 710		**20** Tu	0232 5.6 170 0827 22.6 690 1459 5.2 160 2053 21.3 650	
6 Tu	0332 4.3 130 0929 24.0 730 1615 3.0 90 2214 22.3 680		**21** W	0259 6.2 190 0858 22.0 670 1524 5.9 180 2125 20.7 630	
7 W ◐	0417 5.6 170 1020 23.0 700 1703 4.6 140 2308 21.0 640		**22** Th	0330 6.6 200 0931 21.3 650 1556 6.6 200 2202 20.0 610	
8 Th	0506 6.6 200 1120 21.3 650 1757 5.9 180		**23** F ◑	0410 7.5 230 1013 20.3 620 1640 7.2 220 2250 19.4 590	
9 F	0008 20.0 610 0606 7.9 240 1229 20.3 620 1902 7.2 220		**24** Sa	0505 8.2 250 1109 19.7 600 1743 8.2 250 2359 18.7 570	
10 Sa	0114 19.4 590 0726 8.5 260 1344 19.7 600 2013 7.9 240		**25** Su	0619 8.9 270 1229 19.0 580 1902 8.5 260	
11 Su	0220 19.4 590 0850 8.2 250 1500 19.7 600 2119 7.5 230		**26** M	0133 18.7 570 0740 8.5 260 1407 19.4 590 2022 7.9 240	
12 M	0323 20.0 610 0955 6.9 210 1608 20.3 620 2214 6.9 210		**27** Tu	0250 19.7 600 0900 7.2 220 1523 20.7 630 2134 6.9 210	
13 Tu	0416 21.0 640 1048 5.9 180 1702 21.0 640 2302 6.2 190		**28** W	0350 21.3 650 1012 5.6 170 1625 22.0 670 2235 5.6 170	
14 W	0500 22.0 670 1135 4.9 150 1745 21.7 660 2345 5.6 170		**29** Th	0441 22.6 690 1112 3.9 120 1719 23.3 710 2329 4.6 140	
15 Th ○	0540 22.6 690 1218 4.3 130 1822 22.0 670		**30** F ●	0528 24.0 730 1205 2.3 70 1808 24.3 740	
			31 Sa	0019 3.6 110 0613 24.9 760 1255 1.3 40 1854 24.9 760	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0105 3.0 90 0657 25.6 780 1341 0.7 20 1937 24.9 760		**16** M	0112 4.9 150 0658 23.6 720 1337 3.9 120 1924 22.6 690	
2 M	0149 2.6 80 0740 25.9 790 1424 1.0 30 2018 24.6 750		**17** Tu	0140 4.9 150 0730 23.3 710 1404 4.6 140 1952 22.3 680	
3 Tu	0230 3.0 90 0822 25.6 780 1505 1.6 50 2058 23.6 720		**18** W	0206 5.2 160 0800 23.0 700 1427 4.9 150 2020 22.0 670	
4 W	0309 3.9 120 0906 24.6 750 1545 3.3 100 2139 22.6 690		**19** Th	0232 5.6 170 0828 22.6 690 1450 5.6 170 2048 21.7 660	
5 Th	0348 5.2 160 0953 23.0 700 1625 5.2 160 2226 21.0 640		**20** F	0301 6.2 190 0900 21.7 660 1518 6.2 190 2122 20.7 630	
6 F ◐	0430 6.6 200 1048 21.0 640 1712 7.2 220 2324 19.7 600		**21** Sa	0337 6.9 210 0941 20.7 630 1558 7.2 220 2207 19.7 600	
7 Sa	0523 8.2 250 1200 19.4 590 1816 8.9 270		**22** Su ◑	0430 7.9 240 1037 19.7 600 1700 8.5 260 2310 18.7 570	
8 Su	0034 18.7 570 0647 9.2 280 1323 18.7 570 1944 9.5 290		**23** M	0549 8.9 270 1200 18.7 570 1829 9.2 280	
9 M	0148 18.7 570 0835 8.9 270 1446 19.0 580 2059 8.9 270		**24** Tu	0054 18.7 570 0717 8.5 260 1355 19.0 580 1959 8.9 270	
10 Tu	0256 19.7 600 0940 7.5 230 1556 20.0 610 2155 7.9 240		**25** W	0226 19.7 600 0844 7.2 220 1513 20.7 630 2116 7.5 230	
11 W	0352 20.7 630 1030 6.2 190 1646 21.0 640 2241 6.9 210		**26** Th	0328 21.3 650 0956 5.2 160 1612 22.3 680 2218 5.9 180	
12 Th	0437 22.0 670 1114 4.9 150 1725 21.7 660 2323 5.9 180		**27** F	0420 23.0 700 1054 3.3 100 1703 23.6 720 2310 4.6 140	
13 F	0517 22.6 690 1154 4.3 130 1758 22.0 670		**28** Sa ●	0507 24.3 740 1145 2.0 60 1750 24.6 750 2358 3.3 100	
14 Sa ○	0002 5.2 160 0552 23.3 710 1231 3.9 120 1828 22.3 680		**29** Su	0551 25.3 770 1232 1.0 30 1832 24.9 760	
15 Su	0039 4.9 150 0626 23.3 710 1306 3.9 120 1856 22.6 690		**30** M	0043 2.6 80 0635 25.9 790 1317 0.7 20 1912 25.3 770	

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Heights are referred to the chart datum of soundings.

Immingham, England, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0126 2.6 80 0717 25.9 790 1357 1.3 40 1950 24.6 750		**16** W	0113 4.9 150 0702 23.3 710 1333 4.3 130 1923 23.0 700	
2 W	0206 3.0 90 0759 25.6 780 1436 2.3 70 2027 24.0 730		**17** Th	0141 4.9 150 0734 23.3 710 1358 4.9 150 1951 22.6 690	
3 Th	0243 3.9 120 0842 24.3 740 1511 3.9 120 2104 22.6 690		**18** F	0209 5.2 160 0805 22.6 690 1423 5.2 160 2020 22.0 670	
4 F	0319 5.2 160 0927 22.6 690 1546 5.9 180 2145 21.3 650		**19** Sa	0241 5.9 180 0840 22.0 670 1454 6.2 190 2055 21.3 650	
5 Sa ◐	0356 6.6 200 1019 20.7 630 1626 7.9 240 2236 19.7 600		**20** Su	0319 6.6 200 0923 21.0 640 1535 7.5 230 2140 20.3 620	
6 Su	0445 8.2 250 1132 19.0 580 1724 9.5 290 2351 18.7 570		**21** M ◑	0414 7.5 230 1022 19.7 600 1636 8.9 270 2243 19.4 590	
7 M	0601 9.5 290 1300 18.0 550 1857 10.5 320		**22** Tu	0533 8.2 250 1152 18.7 570 1804 9.5 290	
8 Tu	0113 18.4 560 0810 9.2 280 1420 18.4 560 2030 9.8 300		**23** W	0020 19.0 580 0701 7.9 240 1342 19.4 590 1936 8.9 270	
9 W	0225 19.4 590 0915 7.9 240 1527 19.7 600 2128 8.5 260		**24** Th	0158 20.0 610 0825 6.6 200 1454 20.7 630 2053 7.5 230	
10 Th	0323 20.3 620 1002 6.2 190 1617 20.7 630 2214 7.2 220		**25** F	0302 21.7 660 0933 4.9 150 1552 22.3 680 2154 5.9 180	
11 F	0409 21.7 660 1043 5.2 160 1655 21.7 660 2255 5.9 180		**26** Sa	0354 23.0 700 1029 3.3 100 1641 23.6 720 2246 4.6 140	
12 Sa	0447 22.6 690 1122 4.6 140 1727 22.3 680 2334 5.2 160		**27** Su	0442 24.3 740 1119 2.3 70 1725 24.3 740 2334 3.6 110	
13 Su ○	0522 23.0 700 1158 3.9 120 1756 22.6 690		**28** M ●	0528 25.3 770 1205 1.6 50 1806 24.9 760	
14 M	0010 4.9 150 0555 23.3 710 1233 3.9 120 1824 23.0 700		**29** Tu	0020 3.0 90 0612 25.6 780 1249 1.6 50 1844 24.9 760	
15 Tu	0043 4.6 140 0629 23.6 720 1305 3.9 120 1853 23.0 700		**30** W	0103 2.6 80 0656 25.3 770 1329 2.3 70 1922 24.6 750	
			31 Th	0143 3.3 100 0739 24.9 760 1406 3.3 100 1958 24.0 730	

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0220 3.9 120 0821 23.6 720 1440 4.9 150 2033 23.0 700		**16** Sa	0154 4.9 150 0750 23.0 700 1406 5.2 160 2002 22.6 690	
2 Sa	0255 5.2 160 0904 22.0 670 1513 6.6 200 2110 21.7 660		**17** Su	0231 5.2 160 0830 22.3 680 1442 5.9 180 2040 22.0 670	
3 Su	0331 6.6 200 0954 20.3 620 1550 8.2 250 2154 20.3 620		**18** M	0314 5.9 180 0918 21.3 650 1526 7.2 220 2127 21.0 640	
4 M ◐	0417 7.9 240 1101 18.7 570 1641 9.5 290 2301 19.0 580		**19** Tu ◑	0411 6.6 200 1020 20.0 610 1626 8.2 250 2229 20.0 610	
5 Tu	0523 8.9 270 1225 18.0 550 1755 10.5 320		**20** W	0524 7.2 220 1146 19.4 590 1744 8.9 270 2354 19.7 600	
6 W	0030 18.7 570 0705 9.2 280 1340 18.4 560 1933 10.5 320		**21** Th	0643 6.9 210 1316 19.7 600 1907 8.9 270	
7 Th	0144 19.0 580 0830 8.2 250 1444 19.0 580 2047 9.2 280		**22** F	0122 20.3 620 0758 5.9 180 1426 21.0 640 2022 7.5 230	
8 F	0243 20.0 610 0921 6.9 210 1536 20.3 620 2137 7.9 240		**23** Sa	0230 21.7 660 0904 4.9 150 1524 22.0 670 2125 6.2 190	
9 Sa	0332 21.0 640 1003 5.9 180 1617 21.3 650 2220 6.6 200		**24** Su	0327 22.6 690 1000 3.6 110 1614 23.0 700 2220 5.2 160	
10 Su	0412 22.0 670 1043 5.2 160 1651 22.0 670 2259 5.9 180		**25** M	0418 23.6 720 1051 3.0 90 1659 23.6 720 2310 4.3 130	
11 M	0448 22.6 690 1121 4.6 140 1721 22.6 690 2337 5.2 160		**26** Tu ●	0506 24.3 740 1138 3.0 90 1740 24.0 730 2357 3.6 110	
12 Tu ○	0524 23.0 700 1157 4.3 130 1753 23.0 700		**27** W	0553 24.6 750 1222 3.0 90 1820 24.3 740	
13 W	0012 4.9 150 0600 23.3 710 1232 4.3 130 1825 23.3 710		**28** Th	0042 3.3 100 0639 24.3 740 1303 3.6 110 1858 24.0 730	
14 Th	0046 4.6 140 0637 23.3 710 1303 4.6 140 1857 23.3 710		**29** F	0124 3.6 110 0723 23.6 720 1341 4.3 130 1934 23.6 720	
15 F	0120 4.6 140 0713 23.3 710 1334 4.6 140 1929 23.0 700		**30** Sa	0202 4.3 130 0805 23.0 700 1415 5.2 160 2010 23.0 700	

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0238 4.9 150 0847 21.7 660 1448 6.6 200 2045 22.0 670		**16** M	0228 4.3 130 0827 22.6 690 1437 5.6 170 2033 23.0 700	
2 M	0314 5.9 180 0931 20.3 620 1523 7.5 230 2124 21.0 640		**17** Tu	0315 4.6 140 0916 22.0 670 1522 6.2 190 2120 22.3 680	
3 Tu	0355 7.2 220 1023 19.4 590 1607 8.9 270 2215 20.0 610		**18** W	0409 5.2 160 1014 21.0 640 1616 7.2 220 2217 21.3 650	
4 W ◐	0449 7.9 240 1132 18.4 560 1704 9.8 300 2327 19.0 580		**19** Th ◑	0511 5.6 170 1126 20.3 620 1720 7.9 240 2327 21.0 640	
5 Th	0554 8.5 260 1244 18.0 550 1815 10.2 310		**20** F	0618 5.9 180 1241 20.0 610 1833 8.2 250	
6 F	0043 19.0 580 0706 8.5 260 1348 18.7 570 1931 9.8 300		**21** Sa	0045 21.0 640 0727 5.9 180 1349 20.3 620 1946 7.9 240	
7 Sa	0148 19.4 590 0815 7.9 240 1444 19.4 590 2040 8.9 270		**22** Su	0156 21.3 650 0833 5.2 160 1451 21.0 640 2055 6.9 210	
8 Su	0243 20.0 610 0910 6.9 210 1530 20.3 620 2133 7.9 240		**23** M	0300 21.7 660 0932 4.9 150 1546 21.7 660 2156 5.9 180	
9 M	0329 21.0 640 0957 5.9 180 1610 21.3 650 2219 6.6 200		**24** Tu	0358 22.3 680 1026 4.6 140 1634 22.6 690 2250 5.2 160	
10 Tu	0412 21.7 660 1040 5.2 160 1647 22.0 670 2301 5.9 180		**25** W	0451 23.0 700 1115 4.3 130 1718 23.0 700 2340 4.6 140	
11 W	0454 22.3 680 1121 4.9 150 1724 22.6 690 2343 5.2 160		**26** Th ●	0541 23.0 700 1200 4.3 130 1800 23.3 710	
12 Th ○	0536 22.6 690 1201 4.6 140 1801 23.0 700		**27** F	0027 3.9 120 0628 23.0 700 1243 4.6 140 1839 23.6 720	
13 F	0023 4.6 140 0617 23.0 700 1239 4.6 140 1837 23.3 710		**28** Sa	0111 3.9 120 0711 23.0 700 1321 4.9 150 1917 23.6 720	
14 Sa	0104 4.3 130 0659 23.3 710 1317 4.6 140 1914 23.3 710		**29** Su	0150 4.3 130 0752 22.3 680 1356 5.2 160 1952 23.0 700	
15 Su	0145 3.9 120 0742 23.0 700 1356 4.9 150 1952 23.3 710		**30** M	0226 4.9 150 0829 21.7 660 1429 5.9 180 2026 22.6 690	
			31 Tu	0259 5.6 170 0905 20.7 630 1501 6.9 210 2101 21.7 660	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sheerness, England, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 Tu	0159	4.9	150	**16** W	0040	5.2	160	**1** F	0345	4.6	140	**16** Sa	0249	4.6	140
	0826	16.7	510		0712	15.7	480		1011	16.7	510		0909	16.4	500
	1454	3.3	100		1325	4.3	130		1619	4.3	130		1534	3.9	120
	2108	17.1	520		2005	16.1	490		2240	16.7	510		2152	16.7	510
2 W	0308	4.6	140	**17** Th	0203	5.2	160	**2** Sa	0454	3.9	120	**17** Su	0406	3.6	110
	0932	17.1	520		0828	16.1	490		1110	17.1	520		1022	17.4	530
	1556	3.3	100		1452	4.3	130		1713	3.9	120		1642	3.3	100
	2209	17.4	530		2115	16.7	510		2331	17.4	530		2257	17.7	540
3 Th	0413	4.3	130	**18** F	0322	4.6	140	**3** Su	0548	3.3	100	**18** M	0516	2.6	80
	1032	17.4	530		0939	16.7	510		1157	17.7	540		1125	18.7	570
	1651	3.3	100		1601	3.6	110		1756	3.6	110		1743	2.6	80
	2302	17.7	540		2219	17.4	530						2352	18.7	570
4 F	0511	3.6	110	**19** Sa	0428	3.6	110	**4** M	0013	17.7	540	**19** Tu	0620	1.6	50
	1124	17.7	540		1042	17.7	540		0630	3.0	90		1219	19.4	590
	1736	3.3	100		1702	3.0	90		1238	18.0	550		1838	2.3	70
	2348	18.0	550		2316	18.0	550	●	1832	3.3	100	○			
5 Sa	0600	3.3	100	**20** Su	0530	3.0	90	**5** Tu	0050	18.0	550	**20** W	0041	19.4	590
	1210	18.0	550		1138	18.7	570		0707	2.6	80		0714	1.0	30
	1815	3.3	100		1757	2.6	80		1314	18.4	560		1308	20.0	610
									1906	3.0	90		1927	2.0	60
6 Su	0029	18.0	550	**21** M	0007	18.7	570	**6** W	0123	18.0	550	**21** Th	0127	19.7	600
	0642	3.0	90		0628	2.0	60		0740	2.3	70		0803	0.3	10
	1251	18.4	560		1231	19.4	590		1347	18.4	560		1354	20.3	620
●	1850	3.0	90	○	1849	2.3	70		1937	3.0	90		2011	1.6	50
7 M	0106	18.0	550	**22** Tu	0056	19.0	580	**7** Th	0154	18.4	560	**22** F	0211	20.0	610
	0720	2.6	80		0723	1.3	40		0811	2.3	70		0848	0.0	0
	1329	18.4	560		1320	20.0	610		1418	18.4	560		1439	20.3	620
	1923	3.0	90		1938	2.0	60		2010	3.0	90		2052	2.0	60
8 Tu	0139	18.0	550	**23** W	0142	19.4	590	**8** F	0224	18.4	560	**23** Sa	0253	20.0	610
	0755	2.6	80		0814	1.0	30		0842	2.3	70		0929	0.3	10
	1404	18.4	560		1408	20.0	610		1449	18.4	560		1522	20.0	610
	1955	3.0	90		2025	2.0	60		2042	3.0	90		2130	2.3	70
9 W	0211	18.0	550	**24** Th	0227	19.7	600	**9** Sa	0254	18.0	550	**24** Su	0335	19.7	600
	0827	2.6	80		0902	0.7	20		0913	2.3	70		1006	1.0	30
	1438	18.0	550		1456	20.0	610		1521	18.0	550		1605	19.0	580
	2026	3.3	100		2108	2.3	70		2113	3.3	100		2205	2.6	80
10 Th	0242	18.0	550	**25** F	0312	19.4	590	**10** Su	0326	18.0	550	**25** M	0418	19.0	580
	0857	3.0	90		0948	0.7	20		0942	2.6	80		1041	2.0	60
	1511	17.7	540		1543	19.7	600		1554	17.7	540		1649	18.0	550
	2058	3.6	110		2149	2.6	80		2143	3.6	110		2240	3.3	100
11 F	0314	17.7	540	**26** Sa	0358	19.0	580	**11** M	0359	17.7	540	**26** Tu	0505	18.0	550
	0928	3.0	90		1031	1.3	40		1009	3.3	100		1117	3.0	90
	1546	17.4	530		1631	19.0	580		1631	17.1	520		1737	17.1	520
	2132	3.9	120		2229	3.3	100		2213	3.9	120	◑	2322	3.9	120
12 Sa	0349	17.4	530	**27** Su	0446	18.4	560	**12** Tu	0437	17.4	530	**27** W	0559	16.7	510
	1001	3.3	100		1114	2.0	60		1039	3.6	110		1203	3.9	120
	1623	17.1	520		1722	18.0	550		1713	16.7	510		1833	16.1	490
	2207	4.3	130	◑	2312	3.9	120	◐	2252	4.3	130				
13 Su	0426	17.1	520	**28** M	0538	17.7	540	**13** W	0524	16.7	510	**28** Th	0020	4.9	150
	1037	3.6	110		1200	2.6	80		1121	3.9	120		0707	15.7	480
	1704	16.4	500		1818	17.1	520		1807	16.1	490		1312	4.9	150
	2247	4.6	140						2347	4.6	140		1943	15.1	460
14 M	0510	16.4	500	**29** Tu	0003	4.3	130	**14** Th	0625	16.1	490				
◐	2337	4.9	150		0638	17.1	520		1224	4.3	130				
					1258	3.6	110		1917	15.7	480				
					1920	16.4	500								
15 Tu	0604	16.1	490	**30** W	0111	4.9	150	**15** F	0106	4.9	150				
	1212	4.3	130		0747	16.4	500		0745	16.1	490				
	1855	15.7	480		1406	4.3	130		1405	4.6	140				
					2029	16.1	490		2037	16.1	490				
				31 Th	0229	4.9	150								
					0902	16.1	490								
					1515	4.3	130								
					2139	16.1	490								

February

March

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 F	0148	5.2	160	**16** Sa	0035	4.6	140	**1** F	0319	4.9	150	**16** Su	0226	4.3	130
	0829	15.4	470		0717	16.1	490		0949	16.1	490		0848	16.4	500
	1436	5.2	160		1336	4.9	150		1549	4.9	150		1512	4.6	140
	2103	15.4	470		2006	15.7	480		2215	16.1	490		2130	16.4	500
2 Sa	0319	4.9	150	**17** Su	0226	4.3	130	**2** Sa	0435	4.3	130	**18** M	0351	3.3	100
	0949	16.1	490		0848	16.4	500		1051	16.7	510		1008	17.4	530
	1549	4.9	150		1512	4.6	140		1650	4.3	130		1625	3.6	110
	2215	16.1	490		2130	16.4	500		2309	16.7	510		2239	17.4	530
3 Su	0435	4.3	130	**18** M	0351	3.3	100	**3** Su	0531	3.3	100	**19** Tu	0505	2.3	70
	1051	16.7	510		1008	17.4	530		1139	17.7	540		1111	18.7	570
	1650	4.3	130		1625	3.6	110		1736	3.9	120		1729	3.0	90
	2309	16.7	510		2239	17.4	530		2352	17.4	530		2334	18.4	560
4 M	0531	3.3	100	**19** Tu	0505	2.3	70	**4** M	0612	3.0	90	**20** W	0608	1.3	40
	1139	17.7	540		1111	18.7	570		1218	18.0	550		1204	19.7	600
	1736	3.9	120		1729	3.0	90		1814	3.3	100		1823	2.3	70
	2352	17.4	530		2334	18.4	560								
5 Tu	0612	3.0	90	**20** W	0608	1.3	40	**5** Tu	0028	17.7	540	**21** Th	0022	19.4	590
	1218	18.0	550		1204	19.7	600		0646	2.6	80		0659	0.7	20
	1814	3.3	100		1823	2.3	70		1252	18.4	560		1251	20.3	620
								●	1846	3.0	90	○	1909	2.0	60
6 W	0028	17.7	540	**21** Th	0022	19.4	590	**6** W	0101	18.0	550	**22** F	0107	19.7	600
	0646	2.6	80		0659	0.7	20		0718	2.3	70		0744	0.3	10
	1252	18.4	560		1251	20.3	620		1323	18.4	560		1335	20.3	620
●	1846	3.0	90	○	1909	2.0	60		1918	2.6	80		1952	1.6	50
7 Th	0101	18.0	550	**22** F	0107	19.7	600	**7** Th	0131	18.4	560	**23** Sa	0149	20.0	610
	0718	2.3	70		0744	0.3	10		0749	2.0	60		0826	0.3	10
	1323	18.4	560		1335	20.3	620		1353	18.7	570		1417	20.3	620
	1918	2.6	80		1952	1.6	50		1951	2.6	80		2031	1.6	50
8 F	0131	18.4	560	**23** Sa	0149	20.0	610	**8** F	0201	18.7	570	**24** Su	0230	20.0	610
	0749	2.0	60		0826	0.3	10		0821	2.0	60		0903	0.7	20
	1353	18.7	570		1417	20.3	620		1424	18.7	570		1457	19.7	600
	1951	2.6	80		2031	1.6	50		2024	2.6	80		2107	2.0	60
9 Sa	0201	18.7	570	**24** Su	0230	20.0	610	**9** Sa	0231	18.7	570	**25** M	0310	19.7	600
	0821	2.0	60		0903	0.7	20		0852	2.0	60		0937	1.3	40
	1424	18.7	570		1457	19.7	600		1455	18.4	560		1536	19.0	580
	2024	2.6	80		2107	2.0	60		2055	2.6	80		2140	2.6	80
10 Su	0231	18.7	570	**25** M	0310	19.7	600	**10** Su	0302	18.4	560	**26** Tu	0351	19.0	580
	0852	2.0	60		0937	1.3	40		0921	2.6	80		1007	2.3	70
	1455	18.4	560		1536	19.0	580		1527	18.0	550		1615	18.0	550
	2055	2.6	80		2140	2.6	80		2122	3.3	100		2212	3.3	100
11 M	0302	18.4	560	**26** Tu	0351	19.0	580	**11** M	0335	18.0	550	**27** W	0434	18.0	550
	0921	2.6	80		1007	2.3	70		0944	3.0	90		1038	3.3	100
	1527	18.0	550		1615	18.0	550		1602	17.7	540		1657	17.1	520
	2122	3.3	100		2212	3.3	100		2148	3.3	100		2248	3.9	120
12 Tu	0335	18.0	550	**27** W	0434	18.0	550	**12** Tu	0412	17.7	540	**28** Th	0523	16.7	510
	0944	3.0	90		1038	3.3	100		1008	3.3	100		1118	4.3	130
	1602	17.7	540		1657	17.1	520		1642	17.1	520		1746	15.7	480
	2148	3.3	100		2248	3.9	120		2223	3.6	110	◑	2338	4.6	140
13 W	0412	17.7	540	**28** Th	0523	16.7	510	**14** Th	0457	17.1	520	**29** F	0628	15.4	470
	1008	3.3	100		1118	4.3	130		1048	3.9	120		1219	5.2	160
	1642	17.1	520		1746	15.7	480		1733	16.4	500		1854	14.8	450
	2223	3.6	110	◑	2338	4.6	140	◐	2317	4.3	130				
14 Th	0457	17.1	520	**29** F	0628	15.4	470	**15** F	0557	16.4	500	**30** Sa	0102	5.2	160
	1048	3.9	120		1219	5.2	160		1152	4.6	140		0751	15.1	460
	1733	16.4	500		1854	14.8	450		1841	15.7	480		1353	5.9	180
◐	2317	4.3	130										2019	14.8	450
15 F	0557	16.4	500	**30** Sa	0102	5.2	160					**31** Su	0248	4.9	150
	1152	4.6	140		0751	15.1	460						0917	15.4	470
	1841	15.7	480		1353	5.9	180						1515	5.2	160
					2019	14.8	450						2139	15.4	470
				31 Su	0248	4.9	150								
					0917	15.4	470								
					1515	5.2	160								
					2139	15.4	470								

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sheerness, England, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0403	4.3	130	**16** Tu	0337	3.0	90	
	1022	16.4	500		0952	17.7	540	
	1618	4.6	140		1604	3.6	110	
	2237	16.4	500		2217	17.4	530	
2 Tu	0459	3.3	100	**17** W	0449	2.0	60	
	1110	17.4	530		1053	18.7	570	
	1707	3.9	120		1708	3.0	90	
	2321	17.1	520		2313	18.4	560	
3 W	0541	3.0	90	**18** Th	0549	1.3	40	
	1149	18.0	550		1145	19.4	590	
	1746	3.3	100		1801	2.3	70	
	2358	17.7	540					
4 Th	0617	2.6	80	**19** F	0000	19.0	580	
	1223	18.4	560		0637	1.0	30	
	1821	3.0	90	○	1230	20.0	610	
					1846	2.0	60	
5 F	0031	18.0	550	**20** Sa	0044	19.7	600	
	0649	2.3	70		0720	0.7	20	
	1254	18.7	570		1312	20.0	610	
●	1854	2.6	80		1928	1.6	50	
6 Sa	0103	18.4	560	**21** Su	0126	20.0	610	
	0722	2.0	60		0759	0.7	20	
	1325	18.7	570		1352	20.0	610	
	1928	2.3	70		2008	1.6	50	
7 Su	0134	18.7	570	**22** M	0206	20.0	610	
	0755	2.0	60		0834	1.3	40	
	1357	19.0	580		1431	19.4	590	
	2003	2.3	70		2045	2.0	60	
8 M	0206	18.7	570	**23** Tu	0247	19.4	590	
	0828	2.0	60		0907	2.0	60	
	1429	18.7	570		1508	18.7	570	
	2037	2.6	80		2118	2.3	70	
9 Tu	0239	18.7	570	**24** W	0327	18.7	570	
	0858	2.6	80		0936	3.0	90	
	1502	18.4	560		1544	18.0	550	
	2107	3.0	90		2148	3.0	90	
10 W	0315	18.4	560	**25** Th	0408	17.7	540	
	0924	3.0	90		1005	3.6	110	
	1538	18.0	550		1622	17.1	520	
	2135	3.0	90		2221	3.6	110	
11 Th	0355	18.0	550	**26** F	0454	16.7	510	
	0952	3.3	100		1043	4.6	140	
	1620	17.4	530		1706	16.1	490	
	2213	3.3	100	◑	2305	4.3	130	
12 F	0443	17.4	530	**27** Sa	0552	15.4	470	
	1036	3.9	120		1136	5.6	170	
	1711	16.4	500		1806	15.1	460	
◐	2308	3.9	120					
13 Sa	0544	16.7	510	**28** Su	0013	4.9	150	
	1143	4.6	140		0706	15.1	460	
	1819	15.7	480		1259	6.2	190	
					1926	14.4	440	
14 Su	0030	4.3	130	**29** M	0203	4.9	150	
	0704	16.4	500		0827	15.1	460	
	1323	4.9	150		1430	5.9	180	
	1946	15.7	480		2047	15.1	460	
15 M	0215	3.9	120	**30** Tu	0317	4.3	130	
	0834	16.7	510		0936	16.1	490	
	1453	4.6	140		1534	4.9	150	
	2109	16.4	500		2151	15.7	480	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0413	3.6	110	**16** Th	0426	2.0	60	
	1028	17.1	520		1031	18.7	570	
	1626	4.3	130		1640	3.3	100	
	2240	16.7	510		2248	18.4	560	
2 Th	0459	3.0	90	**17** F	0524	1.6	50	
	1110	17.7	540		1122	19.0	580	
	1709	3.6	110		1734	2.6	80	
	2320	17.4	530		2337	18.7	570	
3 F	0539	2.6	80	**18** Sa	0611	1.6	50	
	1147	18.4	560		1207	19.4	590	
	1748	3.0	90	○	1822	2.3	70	
	2357	18.0	550					
4 Sa	0616	2.3	70	**19** Su	0021	19.0	580	
	1222	18.7	570		0652	1.6	50	
	1826	2.6	80		1249	19.4	590	
●					1905	2.0	60	
5 Su	0032	18.4	560	**20** M	0105	19.4	590	
	0651	2.3	70		0730	1.6	50	
	1256	19.0	580		1329	19.4	590	
	1904	2.3	70		1946	2.0	60	
6 M	0108	18.7	570	**21** Tu	0146	19.4	590	
	0728	2.3	70		0805	2.0	60	
	1331	19.0	580		1407	19.0	580	
	1943	2.3	70		2025	2.0	60	
7 Tu	0144	19.0	580	**22** W	0227	19.0	580	
	0805	2.3	70		0838	2.6	80	
	1406	19.0	580		1443	18.4	560	
	2021	2.3	70		2100	2.6	80	
8 W	0221	19.0	580	**23** Th	0307	18.4	560	
	0840	2.6	80		0909	3.3	100	
	1443	18.7	570		1518	17.7	540	
	2058	2.6	80		2131	3.0	90	
9 Th	0301	18.7	570	**24** F	0347	17.7	540	
	0913	3.0	90		0938	3.9	120	
	1522	18.0	550		1554	17.1	520	
	2135	2.6	80		2201	3.6	110	
10 F	0345	18.4	560	**25** Sa	0430	16.7	510	
	0949	3.6	110		1014	4.6	140	
	1607	17.4	530		1634	16.4	500	
	2219	3.0	90		2240	3.9	120	
11 Sa	0437	17.7	540	**26** Su	0519	16.1	490	
	1038	3.9	120		1100	5.2	160	
	1700	16.7	510		1725	15.4	470	
	2317	3.3	100	◑	2333	4.6	140	
12 Su	0541	17.1	520	**27** M	0618	15.4	470	
	1144	4.6	140		1201	5.9	180	
	1809	16.1	490		1830	15.1	460	
◐								
13 M	0036	3.6	110	**28** Tu	0049	4.9	150	
	0657	16.7	510		0726	15.1	460	
	1309	4.9	150		1322	5.9	180	
	1929	16.1	490		1944	15.1	460	
14 Tu	0204	3.3	100	**29** W	0216	4.6	140	
	0818	17.1	520		0834	15.7	480	
	1429	4.6	140		1438	5.2	160	
	2046	16.7	510		2051	15.7	480	
15 W	0319	2.6	80	**30** Th	0318	3.9	120	
	0930	18.0	550		0933	16.4	500	
	1538	3.9	120		1536	4.6	140	
	2152	17.7	540		2148	16.4	500	
				31 F	0410	3.3	100	
					1023	17.4	530	
					1626	3.9	120	
					2238	17.1	520	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0457	3.0	90	**16** Su	0543	2.3	70	
	1108	18.0	550		1146	18.4	560	
	1713	3.3	100		1800	3.0	90	
	2322	17.7	540					
2 Su	0540	2.6	80	**17** M	0004	18.4	560	
	1150	18.4	560		0625	2.6	80	
	1757	3.0	90	○	1230	18.7	570	
					1846	2.6	80	
3 M	0004	18.4	560	**18** Tu	0049	18.7	570	
	0622	2.6	80		0703	2.6	80	
	1230	18.7	570		1310	18.7	570	
●	1841	2.6	80		1929	2.3	70	
4 Tu	0045	18.7	570	**19** W	0132	18.7	570	
	0704	2.3	70		0740	2.6	80	
	1309	19.0	580		1348	18.4	560	
	1926	2.3	70		2009	2.3	70	
5 W	0126	19.0	580	**20** Th	0212	18.7	570	
	0745	2.3	70		0814	3.0	90	
	1349	19.0	580		1424	18.4	560	
	2010	2.0	60		2045	2.6	80	
6 Th	0208	19.0	580	**21** F	0251	18.0	550	
	0826	2.6	80		0845	3.6	110	
	1430	18.7	570		1458	17.7	540	
	2055	2.0	60		2116	3.0	90	
7 F	0253	19.0	580	**22** Sa	0328	17.7	540	
	0907	3.0	90		0916	3.9	120	
	1513	18.4	560		1532	17.4	530	
	2140	2.0	60		2146	3.3	100	
8 Sa	0341	18.7	570	**23** Su	0406	17.1	520	
	0950	3.3	100		0950	4.3	130	
	1601	17.7	540		1608	16.7	510	
	2229	2.3	70		2219	3.6	110	
9 Su	0435	18.4	560	**24** M	0447	16.4	500	
	1039	3.9	120		1029	4.6	140	
	1655	17.4	530		1650	16.4	500	
	2325	2.6	80		2301	3.9	120	
10 M	0536	17.7	540	**25** Tu	0534	16.1	490	
	1138	4.3	130		1116	5.2	160	
	1758	17.1	520		1740	15.7	480	
◐				◑	2352	4.3	130	
11 Tu	0032	2.6	80	**26** W	0628	15.7	480	
	0643	17.4	530		1214	5.6	170	
	1248	4.6	140		1840	15.4	470	
	1908	16.7	510					
12 W	0143	2.6	80	**27** Th	0056	4.6	140	
	0755	17.4	530		0730	15.7	480	
	1359	4.3	130		1324	5.6	170	
	2019	17.1	520		1948	15.7	480	
13 Th	0252	2.6	80	**28** F	0211	4.3	130	
	0903	17.7	540		0834	16.1	490	
	1506	4.3	130		1438	5.2	160	
	2125	17.4	530		2054	16.1	490	
14 F	0356	2.3	70	**29** Sa	0318	3.9	120	
	1004	18.0	550		0935	16.7	510	
	1610	3.6	110		1542	4.6	140	
	2224	17.7	540		2154	16.7	510	
15 Sa	0454	2.3	70	**30** Su	0415	3.6	110	
	1058	18.4	560		1030	17.7	540	
	1708	3.3	100		1638	3.9	120	
	2316	18.4	560		2249	17.4	530	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sheerness, England, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0507	3.0	90	**16** Tu ○	0603	3.3	100	**1** Th ●	0012	19.0	580	**16** F	0105	18.4	560	**1** Su	0133	20.7	630	**16** M	0142	18.7	570
	1120	18.4	560		1215	18.0	550		0629	2.6	80		0659	3.6	110		0750	2.3	70		0738	3.0	90
	1731	3.3	100		1834	3.0	90		1237	19.0	580		1315	18.4	560		1348	20.3	620		1348	18.7	570
	2339	18.0	550						1903	2.0	60		1936	2.6	80		2027	0.3	10		2008	2.3	70
2 Tu ●	0557	3.0	90	**17** W	0038	18.4	560	**2** F	0102	19.7	600	**17** Sa	0139	18.7	570	**2** M	0217	20.7	630	**17** Tu	0211	18.7	570
	1207	18.7	570		0642	3.3	100		0719	2.6	80		0731	3.3	100		0833	2.0	60		0810	3.0	90
	1823	2.6	80		1256	18.4	560		1323	19.4	590		1346	18.4	560		1431	20.3	620		1418	18.7	570
					1916	2.6	80		1955	1.3	40		2007	2.6	80		2110	0.3	10		2038	2.6	80
3 W	0026	18.7	570	**18** Th	0120	18.4	560	**3** Sa	0149	20.0	610	**18** Su	0210	18.7	570	**3** Tu	0301	20.3	620	**18** W	0241	18.7	570
	0644	2.6	80		0719	3.3	100		0806	2.3	70		0803	3.3	100		0913	2.3	70		0842	3.3	100
	1253	19.0	580		1333	18.4	560		1408	19.7	600		1416	18.4	560		1513	20.0	610		1448	18.7	570
	1913	2.3	70		1955	2.6	80		2044	0.7	20		2037	2.6	80		2149	1.0	30		2107	3.0	90
4 Th	0113	19.4	590	**19** F	0158	18.4	560	**4** Su	0236	20.3	620	**19** M	0241	18.4	560	**4** W	0344	19.7	600	**19** Th	0312	18.4	560
	0731	2.6	80		0753	3.3	100		0851	2.3	70		0834	3.3	100		0950	3.0	90		0910	3.6	110
	1336	19.0	580		1407	18.4	560		1452	19.7	600		1445	18.4	560		1556	19.4	590		1520	18.4	560
	2003	1.6	50		2029	2.6	80		2130	0.7	20		2106	2.6	80		2226	2.0	60		2132	3.6	110
5 F	0200	19.7	600	**20** Sa	0233	18.4	560	**5** M	0322	20.0	610	**20** Tu	0312	18.4	560	**5** Th	0427	18.7	570	**20** F	0345	17.7	540
	0817	2.3	70		0825	3.3	100		0934	2.6	80		0905	3.6	110		1026	3.6	110		0936	3.9	120
	1420	19.0	580		1439	18.0	550		1536	19.4	590		1516	18.0	550		1642	18.7	570		1554	17.7	540
	2052	1.3	40		2100	2.6	80		2214	1.0	30		2135	3.0	90		2301	3.0	90		2155	3.9	120
6 Sa	0247	19.7	600	**21** Su	0307	18.0	550	**6** Tu	0409	19.4	590	**21** W	0343	17.7	540	**6** F ◐	0514	17.7	540	**21** Sa	0422	17.4	530
	0902	2.6	80		0856	3.6	110		1014	3.0	90		0935	3.9	120		1106	4.3	130		1006	4.6	140
	1505	19.0	580		1510	18.0	550		1622	19.0	580		1548	17.7	540		1735	17.4	530		1636	17.4	530
	2141	1.3	40		2129	3.0	90		2256	1.6	50		2202	3.3	100		2344	3.9	120		2227	4.6	140
7 Su	0336	19.4	590	**22** M	0340	17.7	540	**7** W ◐	0458	18.7	570	**22** Th	0417	17.4	530	**7** Sa	0609	16.7	510	**22** Su ◑	0507	16.7	510
	0947	3.0	90		0928	3.9	120		1055	3.6	110		1005	4.3	130		1200	4.9	150		1052	4.9	150
	1553	18.7	570		1543	17.7	540		1711	18.4	560		1623	17.4	530		1841	16.4	500		1730	16.7	510
	2229	1.3	40		2159	3.3	100		2339	2.3	70		2231	3.9	120						2323	5.2	160
8 M	0427	19.0	580	**23** Tu	0415	17.1	520	**8** Th	0550	17.7	540	**23** F ◑	0456	16.7	510	**8** Su	0047	4.9	150	**23** M	0608	15.7	480
	1032	3.3	100		1001	4.3	130		1142	4.3	130		1039	4.6	140		0717	15.7	480		1204	5.2	160
	1643	18.4	560		1618	17.1	520		1808	17.7	540		1705	16.7	510		1324	5.6	170		1843	16.1	490
	2318	1.6	50		2232	3.6	110						2307	4.3	130		2001	16.1	490				
9 Tu ◐	0521	18.4	560	**24** W	0454	16.7	510	**9** F	0030	3.3	100	**24** Sa	0544	16.4	500	**9** M	0212	5.6	170	**24** Tu	0055	5.6	170
	1121	3.9	120		1039	4.6	140		0649	17.1	520		1127	5.2	160		0837	15.7	480		0730	15.7	480
	1738	17.7	540		1658	16.7	510		1242	4.6	140		1800	16.4	500		1500	5.2	160		1354	5.2	160
					2310	3.9	120		1914	16.7	510						2125	16.4	500		2014	16.1	490
10 W	0011	2.3	70	**25** Th ◑	0538	16.4	500	**10** Sa	0136	3.9	120	**25** Su	0002	4.9	150	**10** Tu	0330	5.2	160	**25** W	0242	5.2	160
	0621	17.7	540		1123	5.2	160		0757	16.4	500		0647	15.7	480		0953	16.4	500		0858	16.4	500
	1217	4.3	130		1745	16.4	500		1358	4.9	150		1239	5.6	170		1621	4.3	130		1523	4.3	130
	1840	17.4	530		2356	4.3	130		2029	16.4	500		1914	15.7	480		2232	17.4	530		2138	17.4	530
11 Th	0112	2.6	80	**26** F	0632	16.1	490	**11** Su	0247	4.3	130	**26** M	0133	5.2	160	**11** W	0436	4.6	140	**26** Th	0355	4.3	130
	0725	17.4	530		1219	5.6	170		0908	16.4	500		0806	15.7	480		1052	17.1	520		1010	17.4	530
	1323	4.6	140		1847	15.7	480		1519	4.9	150		1422	5.2	160		1720	3.6	110		1634	3.0	90
	1948	17.1	520						2144	16.7	510		2040	16.1	490		2324	18.0	550		2244	18.7	570
12 F	0217	3.0	90	**27** Sa	0100	4.6	140	**12** M	0357	4.3	130	**27** Tu	0308	4.9	150	**12** Th	0525	4.3	130	**27** F	0458	3.6	110
	0832	17.1	520		0738	16.1	490		1016	16.7	510		0925	16.7	510		1138	17.7	540		1108	18.7	570
	1432	4.6	140		1335	5.6	170		1636	4.3	130		1543	4.3	130		1803	3.0	90		1739	2.0	60
	2056	17.1	520		2001	15.7	480		2249	17.4	530		2157	17.1	520						2339	19.7	600
13 Sa	0322	3.3	100	**28** Su	0226	4.6	140	**13** Tu	0458	4.3	130	**28** W	0417	3.9	120	**13** F	0006	18.4	560	**28** Sa ●	0554	3.0	90
	0937	17.4	530		0849	16.4	500		1113	17.4	530		1033	17.7	540		0602	3.9	120		1157	19.4	590
	1542	4.3	130		1459	4.9	150		1737	3.6	110		1651	3.3	100		1217	18.4	560		1833	1.3	40
	2202	17.4	530		2114	16.4	500		2342	18.0	550		2302	18.4	560		1837	3.0	90				
14 Su	0424	3.3	100	**29** M	0339	4.3	130	**14** W	0546	3.9	120	**29** Th	0518	3.3	100	**14** Sa ○	0042	18.7	570	**29** Su	0027	20.3	620
	1037	17.7	540		0956	17.1	520		1200	18.0	550		1130	18.7	570		0635	3.6	110		0643	2.3	70
	1648	3.9	120		1608	4.3	130		1823	3.0	90		1755	2.3	70		1250	18.4	560		1242	20.0	610
	2301	17.7	540		2220	17.4	530						2357	19.4	590		1908	2.6	80		1920	0.7	20
15 M	0518	3.3	100	**30** Tu	0440	3.6	110	**15** Th ○	0026	18.4	560	**30** F ●	0614	3.0	90	**15** Su	0113	18.7	570	**30** M	0111	20.7	630
	1129	17.7	540		1055	18.0	550		0625	3.6	110		1219	19.4	590		0706	3.3	100		0728	2.0	60
	1746	3.3	100		1709	3.3	100		1240	18.0	550		1851	1.3	40		1320	18.7	570		1324	20.3	620
	2353	18.0	550		2319	18.0	550		1902	2.6	80						1938	2.3	70		2003	0.7	20
				31 W	0536	3.3	100					**31** Sa	0046	20.0	610								
					1148	18.7	570						0704	2.3	70								
					1808	2.6	80						1305	19.7	600								
													1941	0.7	20								

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Sheerness, England, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0154	20.7	630	**16** W	0141	19.0	580	**1** F	0248	19.0	580	**16** Sa	0222	18.7	570	**1** Su	0303	18.0	550	**16** M	0248	18.4	560
	0810	2.0	60		0745	3.0	90		0902	2.6	80		0834	3.0	90		0918	3.3	100		0912	2.3	70
	1406	20.3	620		1350	19.0	580		1507	19.0	580		1440	18.7	570		1532	18.0	550		1515	18.7	570
	2043	1.0	30		2009	2.6	80		2119	3.3	100		2047	3.3	100		2123	4.3	130		2118	3.3	100
2 W	0235	20.0	610	**17** Th	0212	19.0	580	**2** Sa	0327	18.4	560	**17** Su	0259	18.4	560	**2** M	0341	17.4	530	**17** Tu	0332	18.0	550
	0849	2.3	70		0818	3.0	90		0935	3.3	100		0910	3.3	100		0950	3.6	110		0958	2.6	80
	1448	20.0	610		1422	18.7	570		1551	18.0	550		1521	18.4	560		1616	17.1	520		1604	18.4	560
	2119	1.6	50		2039	3.0	90		2150	3.9	120		2120	3.9	120		2156	4.9	150		2203	3.9	120
3 Th	0315	19.4	590	**18** F	0244	18.7	570	**3** Su	0406	17.4	530	**18** M	0340	17.7	540	**3** Tu	0421	16.4	500	**18** W	0420	17.4	530
	0925	3.0	90		0849	3.3	100		1009	3.9	120		0950	3.6	110		1026	4.3	130		1048	3.0	90
	1530	19.4	590		1456	18.4	560		1639	17.1	520		1609	17.7	540		1705	16.1	490		1659	17.7	540
	2152	2.6	80		2105	3.6	110		2226	4.9	150		2203	4.6	140		2239	5.6	170		2255	4.3	130
4 F	0356	18.4	560	**19** Sa	0318	18.0	550	**4** M	0451	16.4	500	**19** Tu	0428	17.1	520	**4** W	0509	15.7	480	**19** Th	0516	17.1	520
	0958	3.6	110		0917	3.6	110		1052	4.9	150		1042	3.9	120		1114	4.9	150		1147	3.0	90
	1614	18.4	560		1534	18.0	550		1736	16.1	490		1706	17.1	520		1801	15.4	470		1801	17.4	530
	2223	3.6	110		2130	3.9	120	◐	2316	5.9	180	◑	2302	4.9	150	◐	2335	5.9	180	◑	2357	4.6	140
5 Sa	0438	17.4	530	**20** Su	0356	17.4	530	**5** Tu	0550	15.4	470	**20** W	0529	16.4	500	**5** Th	0609	15.1	460	**20** F	0622	16.7	510
	1035	4.3	130		0950	4.3	130		1158	5.2	160		1152	4.3	130		1224	5.2	160		1256	3.3	100
	1704	17.4	530		1618	17.4	530		1848	15.4	470		1816	16.7	510		1906	15.1	460		1911	17.1	520
◐	2302	4.6	140		2207	4.6	140																
6 Su	0528	16.4	500	**21** M	0442	16.7	510	**6** W	0032	6.6	200	**21** Th	0020	5.2	160	**6** F	0049	6.2	190	**21** Sa	0109	4.9	150
	1124	4.9	150		1039	4.6	140		0707	14.8	450		0644	16.1	490		0720	15.1	460		0733	16.7	510
	1808	16.1	490		1713	16.7	510		1347	5.6	170		1320	3.9	120		1354	4.9	150		1407	3.3	100
	2359	5.9	180	◑	2307	5.2	160		2007	15.4	470		1935	16.7	510		2012	15.4	470		2021	17.1	520
7 M	0634	15.4	470	**22** Tu	0543	16.1	490	**7** Th	0208	6.2	190	**22** F	0146	5.2	160	**7** Sa	0212	5.9	180	**22** Su	0221	4.6	140
	1245	5.6	170		1152	4.9	150		0827	15.1	460		0804	16.4	500		0829	15.4	470		0843	17.1	520
	1929	15.4	470		1826	16.4	500		1503	4.9	150		1439	3.3	100		1500	4.6	140		1515	3.0	90
									2119	16.1	490		2051	17.4	530		2114	16.1	490		2127	17.4	530
8 Tu	0130	6.2	190	**23** W	0036	5.9	180	**8** F	0316	5.6	170	**23** Sa	0258	4.6	140	**8** Su	0315	5.2	160	**23** M	0328	4.3	130
	0757	15.1	460		0704	15.7	480		0934	16.1	490		0914	17.4	530		0929	16.1	490		0947	17.7	540
	1433	5.2	160		1337	4.6	140		1600	3.9	120		1547	2.6	80		1553	3.9	120		1618	3.0	90
	2055	15.7	480		1955	16.4	500		2214	17.1	520		2156	18.4	560		2206	16.7	510		2226	18.0	550
9 W	0256	5.9	180	**24** Th	0216	5.2	160	**9** Sa	0409	4.9	150	**24** Su	0401	3.9	120	**9** M	0407	4.6	140	**24** Tu	0432	3.6	110
	0919	15.7	480		0832	16.4	500		1024	17.1	520		1014	18.0	550		1020	17.1	520		1045	18.0	550
	1550	4.6	140		1503	3.6	110		1645	3.6	110		1649	2.3	70		1639	3.6	110		1714	2.6	80
	2204	16.7	510		2117	17.4	530		2257	17.7	540		2251	19.0	580		2251	17.7	540		2318	18.4	560
10 Th	0402	5.2	160	**25** F	0330	4.6	140	**10** Su	0453	3.9	120	**25** M	0459	3.3	100	**10** Tu	0454	3.9	120	**25** W	0531	3.3	100
	1021	16.7	510		0944	17.4	530		1106	17.7	540		1106	18.7	570		1105	17.7	540		1138	18.4	560
	1647	3.6	110		1614	2.6	80		1724	3.0	90		1741	2.0	60		1721	3.3	100		1801	2.6	80
	2256	17.7	540		2222	18.7	570		2333	18.4	560		2339	19.4	590		2333	18.0	550				
11 F	0452	4.3	130	**26** Sa	0433	3.6	110	**11** M	0531	3.6	110	**26** Tu	0552	3.0	90	**11** W	0537	3.3	100	**26** Th	0006	18.4	560
	1107	17.4	530		1042	18.4	560		1142	18.0	550		1154	19.4	590		1147	18.0	550		0622	2.6	80
	1730	3.3	100		1717	2.0	60		1758	3.0	90		1826	2.0	60		1801	3.0	90		1227	18.7	570
	2336	18.4	560		2316	19.7	600					●								●	1843	2.6	80
12 Sa	0532	3.9	120	**27** Su	0529	3.0	90	**12** Tu	0007	18.7	570	**27** W	0024	19.4	590	**12** Th	0012	18.7	570	**27** F	0050	18.7	570
	1145	18.0	550		1131	19.4	590		0607	3.3	100		0639	2.3	70		0619	3.0	90		0709	2.3	70
	1804	3.0	90		1809	1.3	40		1217	18.4	560		1239	19.7	600		1227	18.4	560		1312	19.0	580
								○	1832	2.6	80		1907	2.0	60	○	1840	3.0	90		1921	3.0	90
13 Su	0011	18.7	570	**28** M	0003	20.0	610	**13** W	0040	19.0	580	**28** Th	0106	19.4	590	**13** F	0051	18.7	570	**28** Sa	0130	18.7	570
	0606	3.6	110		0618	2.6	80		0644	3.0	90		0723	2.3	70		0702	2.6	80		0752	2.3	70
	1218	18.4	560		1217	20.0	610		1251	18.7	570		1324	19.7	600		1307	18.7	570		1355	18.7	570
○	1835	2.6	80	●	1854	1.0	30		1906	2.6	80		1944	2.3	70		1919	3.0	90		1957	3.0	90
14 M	0042	18.7	570	**29** Tu	0047	20.3	620	**14** Th	0113	19.0	580	**29** F	0146	19.4	590	**14** Sa	0129	18.7	570	**29** Su	0209	18.4	560
	0638	3.3	100		0702	2.3	70		0721	3.0	90		0805	2.3	70		0744	2.6	80		0831	2.6	80
	1249	18.7	570		1300	20.3	620		1326	19.0	580		1407	19.4	590		1348	19.0	580		1436	18.4	560
	1905	2.6	80		1935	1.0	30		1941	2.6	80		2020	2.6	80		1958	3.0	90		2030	3.3	100
15 Tu	0111	19.0	580	**30** W	0128	20.0	610	**15** F	0147	19.0	580	**30** Sa	0225	18.7	570	**15** Su	0207	18.7	570	**30** M	0245	18.0	550
	0711	3.0	90		0745	2.0	60		0758	3.0	90		0844	2.6	80		0828	2.3	70		0905	3.0	90
	1319	19.0	580		1342	20.3	620		1402	19.0	580		1450	18.7	570		1430	19.0	580		1515	18.0	550
	1937	2.6	80		2013	1.6	50		2015	3.0	90		2052	3.3	100		2037	3.0	90		2101	3.9	120
				31 Th	0209	19.7	600													**31** Tu	0320	17.4	530
					0825	2.3	70														0934	3.3	100
					1425	20.0	610														1553	17.4	530
					2048	2.3	70														2132	4.3	130

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

London (London Bridge), England, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0331	4.6	140	**16** W	0154	5.2	160
	0943	21.0	640		0817	19.4	590
	1607	3.0	90		1425	3.9	120
	2219	21.0	640		2115	19.4	590
2 W	0442	4.3	130	**17** Th	0312	5.6	170
	1048	21.0	640		0947	20.0	610
	1713	3.0	90		1557	3.9	120
	2325	21.3	650		2229	20.3	620
3 Th	0553	3.9	120	**18** F	0451	4.6	140
	1150	21.7	660		1059	21.0	640
	1818	3.0	90		1718	3.3	100
					2335	21.3	650
4 F	0023	21.7	660	**19** Sa	0606	3.6	110
	0654	3.0	90		1202	22.3	680
	1244	22.0	670		1827	3.0	90
	1911	3.0	90				
5 Sa	0111	22.0	670	**20** Su	0035	22.3	680
	0745	2.6	80		0716	2.3	70
	1329	22.3	680		1259	23.3	710
	1955	3.0	90		1938	2.6	80
6 Su	0152	22.0	670	**21** M	0130	23.0	700
	0829	2.3	70		0821	1.6	50
	1410	22.6	690		1352	24.3	740
●	2033	3.0	90	○	2040	2.3	70
7 M	0228	22.3	680	**22** Tu	0221	23.3	710
	0907	2.3	70		0918	0.7	20
	1447	22.6	690		1443	24.6	750
	2107	3.0	90		2133	2.0	60
8 Tu	0301	22.3	680	**23** W	0309	23.6	720
	0941	2.3	70		1008	0.0	0
	1521	22.6	690		1531	24.9	760
	2137	3.3	100		2220	1.6	50
9 W	0333	22.3	680	**24** Th	0355	24.0	730
	1009	2.3	70		1053	- 0.3	- 10
	1554	22.3	680		1618	24.6	750
	2208	3.3	100		2302	1.6	50
10 Th	0404	22.0	670	**25** F	0439	23.6	720
	1038	2.3	70		1134	- 0.3	- 10
	1626	22.0	670		1705	24.3	740
	2240	3.3	100		2340	2.0	60
11 F	0436	21.7	660	**26** Sa	0524	23.3	710
	1107	2.6	80		1211	0.0	0
	1659	21.7	660		1753	23.3	710
	2313	3.6	110				
12 Sa	0509	21.3	650	**27** Su	0017	2.6	80
	1135	2.6	80		0610	22.6	690
	1734	21.0	640		1248	1.0	30
	2344	4.3	130	◑	1843	22.3	680
13 Su	0544	20.7	630	**28** M	0058	3.3	100
	1203	3.0	90		0700	22.0	670
	1813	20.3	620		1330	2.0	60
					1936	21.3	650
14 M	0016	4.6	140	**29** Tu	0145	4.3	130
	0624	20.3	620		0758	21.0	640
	1238	3.3	100		1421	3.0	90
◐	1857	20.0	610		2035	20.7	630
15 Tu	0059	4.9	150	**30** W	0246	4.6	140
	0713	19.7	600		0902	20.3	620
	1323	3.6	110		1522	3.6	110
	1955	19.4	590		2139	20.0	610
				31 Th	0357	4.9	150
					1012	20.3	620
					1627	3.9	120
					2252	20.0	610

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0512	4.6	140	**16** Sa	0415	4.9	150
	1123	20.7	630		1028	20.7	630
	1737	3.9	120		1650	3.9	120
					2310	20.7	630
2 Sa	0000	20.7	630	**17** Su	0541	3.6	110
	0626	3.6	110		1140	22.0	670
	1225	21.3	650		1809	3.3	100
	1842	3.6	110				
3 Su	0053	21.3	650	**18** M	0018	21.7	660
	0723	2.6	80		0703	2.3	70
	1315	22.0	670		1244	23.3	710
	1933	3.3	100		1930	2.6	80
4 M	0137	21.7	660	**19** Tu	0116	22.6	690
	0808	2.3	70		0811	1.0	30
	1357	22.3	680		1339	24.0	730
●	2015	3.0	90	○	2031	2.0	60
5 Tu	0215	22.0	670	**20** W	0207	23.6	720
	0848	2.0	60		0907	0.0	0
	1434	22.6	690		1429	24.6	750
	2053	3.0	90		2123	1.6	50
6 W	0248	22.3	680	**21** Th	0253	24.0	730
	0923	2.0	60		0955	- 1.0	- 30
	1506	22.6	690		1516	24.9	760
	2128	3.0	90		2209	1.3	40
7 Th	0318	22.3	680	**22** F	0337	24.6	750
	0955	2.0	60		1038	- 1.0	- 30
	1536	22.3	680		1601	24.9	760
	2200	3.0	90		2249	1.3	40
8 F	0347	22.6	690	**23** Sa	0419	24.6	750
	1025	1.6	50		1116	- 0.7	- 20
	1605	22.3	680		1644	24.3	740
	2231	3.0	90		2325	1.6	50
9 Sa	0417	22.3	680	**24** Su	0501	24.0	730
	1053	2.0	60		1148	0.0	0
	1635	22.0	670		1727	23.3	710
	2301	3.0	90		2357	2.3	70
10 Su	0449	22.0	670	**25** M	0542	23.3	710
	1117	2.3	70		1216	1.3	40
	1708	21.7	660		1811	22.0	670
	2329	3.6	110				
11 M	0521	21.7	660	**26** Tu	0028	3.0	90
	1140	2.6	80		0626	22.3	680
	1744	21.0	640		1247	2.3	70
	2356	3.9	120	◑	1855	21.0	640
12 Tu	0558	21.0	640	**27** W	0103	3.9	120
	1208	3.0	90		0716	21.0	640
	1824	20.3	620		1328	3.6	110
◐					1947	19.7	600
13 W	0030	4.3	130	**28** Th	0152	4.9	150
	0641	20.7	630		0818	20.0	610
	1247	3.3	100		1431	4.6	140
	1914	19.7	600		2051	19.0	580
14 Th	0117	4.6	140				
	0737	20.0	610				
	1340	3.9	120				
	2024	19.0	580				
15 F	0225	5.2	160				
	0859	19.7	600				
	1505	4.6	140				
	2154	19.4	590				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0310	5.2	160	**16** Sa	0157	4.9	150
	0932	19.4	590		0831	19.7	600
	1548	4.9	150		1434	5.2	160
	2210	18.7	570		2124	19.0	580
2 Sa	0431	4.9	150	**17** Su	0351	4.9	150
	1053	19.7	600		1005	20.3	620
	1703	4.6	140		1630	4.6	140
	2331	19.4	590		2248	20.0	610
3 Su	0551	3.9	120	**18** M	0521	3.6	110
	1202	20.7	630		1122	21.7	660
	1813	3.9	120		1756	3.6	110
4 M	0029	20.7	630	**19** Tu	0000	21.3	650
	0655	3.0	90		0651	2.0	60
	1254	21.7	660		1229	23.0	700
	1908	3.3	100		1916	2.6	80
5 Tu	0114	21.7	660	**20** W	0059	22.6	690
	0742	2.3	70		0756	0.7	20
	1336	22.3	680		1323	24.0	730
	1953	3.0	90		2015	2.0	60
6 W	0152	22.0	670	**21** Th	0148	23.6	720
	0822	2.0	60		0848	- 0.3	- 10
	1412	22.3	680		1411	24.3	740
●	2033	3.0	90	○	2105	1.3	40
7 Th	0226	22.3	680	**22** F	0232	24.3	740
	0859	2.0	60		0934	- 1.0	- 30
	1444	22.3	680		1456	24.6	750
	2109	3.0	90		2149	1.0	30
8 F	0256	22.6	690	**23** Sa	0314	24.6	750
	0932	1.6	50		1015	- 0.7	- 20
	1511	22.6	690		1538	24.6	750
	2143	2.6	80		2229	1.0	30
9 Sa	0325	23.0	700	**24** Su	0354	24.9	760
	1003	1.6	50		1050	0.0	0
	1540	22.6	690		1619	24.0	730
	2216	2.6	80		2303	1.6	50
10 Su	0354	23.0	700	**25** M	0434	24.3	740
	1031	1.6	50		1117	1.0	30
	1610	22.3	680		1658	23.0	700
	2246	2.6	80		2331	2.3	70
11 M	0425	22.6	690	**26** Tu	0514	23.3	710
	1054	2.0	60		1139	2.0	60
	1643	22.0	670		1736	21.7	660
	2312	3.3	100		2356	3.0	90
12 Tu	0458	22.3	680	**27** W	0555	22.3	680
	1116	2.3	70		1204	3.0	90
	1718	21.3	650		1815	20.3	620
	2337	3.6	110				
13 W	0535	21.7	660	**28** Th	0025	3.6	110
	1143	2.6	80		0639	20.7	630
	1757	20.7	630		1241	3.9	120
				◑	1900	19.4	590
14 Th	0009	3.9	120	**29** F	0107	4.6	140
	0617	21.3	650		0736	19.4	590
	1220	3.0	90		1335	5.2	160
◐	1844	19.7	600		2000	18.4	560
15 F	0053	4.3	130	**30** Sa	0213	5.2	160
	0712	20.3	620		0851	18.7	570
	1310	3.9	120		1504	5.9	180
	1950	19.0	580		2122	18.0	550
				31 Su	0350	5.2	160
					1014	18.7	570
					1628	5.6	170
					2248	18.7	570

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

London (London Bridge), England, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0506 4.3 130 1128 20.0 610 1737 4.6 140 2353 20.0 610		**16** Tu	0503 3.0 90 1103 21.7 660 1738 3.6 110 2339 21.3 650	
2 Tu	0612 3.3 100 1223 21.0 640 1834 3.6 110		**17** W	0630 1.6 50 1209 23.0 700 1853 2.6 80	
3 W	0041 21.0 640 0704 2.6 80 1306 21.7 660 1922 3.3 100		**18** Th	0037 22.6 690 0732 0.7 20 1303 23.6 720 1950 2.0 60	
4 Th	0121 22.0 670 0748 2.0 60 1342 22.0 670 2005 3.0 90		**19** F ○	0125 23.6 720 0822 0.0 0 1350 24.0 730 2040 1.6 50	
5 F ●	0156 22.3 680 0827 2.0 60 1413 22.3 680 2044 2.6 80		**20** Sa	0208 24.3 740 0907 0.0 0 1432 24.0 730 2124 1.3 40	
6 Sa	0227 22.6 690 0903 2.0 60 1442 22.6 690 2121 2.6 80		**21** Su	0248 24.6 750 0946 0.3 10 1512 24.0 730 2204 1.3 40	
7 Su	0258 23.0 700 0936 1.6 50 1513 22.6 690 2156 2.3 70		**22** M	0328 24.6 750 1018 1.0 30 1551 23.6 720 2238 1.6 50	
8 M	0329 23.3 710 1005 1.6 50 1546 22.6 690 2228 2.3 70		**23** Tu	0408 24.3 740 1042 1.6 50 1628 22.6 690 2304 2.3 70	
9 Tu	0403 23.0 700 1029 2.0 60 1620 22.0 670 2256 2.6 80		**24** W	0447 23.3 710 1102 2.3 70 1704 21.3 650 2326 2.6 80	
10 W	0438 22.6 690 1054 2.3 70 1656 21.3 650 2323 3.0 90		**25** Th	0527 22.0 670 1130 3.3 100 1740 20.3 620 2355 3.3 100	
11 Th	0517 22.3 680 1125 2.6 80 1736 20.7 630 2356 3.3 100		**26** F ◑	0608 20.7 630 1205 4.3 130 1820 19.4 590	
12 F ◐	0602 21.3 650 1204 3.3 100 1826 19.7 600		**27** Sa	0032 4.3 130 0658 19.4 590 1253 5.2 160 1911 18.4 560	
13 Sa	0040 3.6 110 0659 20.7 630 1257 4.6 140 1933 19.0 580		**28** Su	0127 4.9 150 0806 18.4 560 1406 6.2 190 2030 17.7 540	
14 Su	0147 4.3 130 0820 20.0 610 1429 5.2 160 2104 19.0 580		**29** M	0300 5.2 160 0926 18.4 560 1541 5.9 180 2155 18.0 550	
15 M	0336 4.3 130 0948 20.7 630 1612 4.9 150 2227 20.0 610		**30** Tu	0420 4.3 130 1037 19.4 590 1653 4.9 150 2303 19.4 590	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0521 3.6 110 1137 20.3 620 1751 3.9 120 2358 20.7 630		**16** Th	0557 1.6 50 1146 22.3 680 1823 3.0 90	
2 Th	0616 2.6 80 1224 21.3 650 1843 3.3 100		**17** F	0011 22.3 680 0701 1.0 30 1241 23.0 700 1922 2.3 70	
3 F	0042 21.7 660 0704 2.3 70 1304 22.0 670 1930 3.0 90		**18** Sa ○	0100 23.0 700 0752 1.0 30 1327 23.3 710 2013 1.6 50	
4 Sa ●	0121 22.3 680 0749 2.3 70 1339 22.3 680 2014 2.6 80		**19** Su	0144 23.6 720 0835 1.0 30 1409 23.3 710 2058 1.6 50	
5 Su	0156 23.0 700 0829 2.0 60 1413 22.6 690 2055 2.3 70		**20** M	0225 24.0 730 0914 1.3 40 1448 23.3 710 2138 1.6 50	
6 M	0231 23.3 710 0906 2.0 60 1449 22.6 690 2135 2.0 60		**21** Tu	0305 24.3 740 0945 2.0 60 1526 23.0 700 2213 1.6 50	
7 Tu	0307 23.6 720 0939 2.0 60 1526 22.6 690 2211 2.0 60		**22** W	0345 23.6 720 1008 2.3 70 1602 22.3 680 2240 2.3 70	
8 W	0344 23.3 710 1008 2.0 60 1603 22.0 670 2244 2.0 60		**23** Th	0424 23.0 700 1033 3.0 90 1638 21.3 650 2303 2.6 80	
9 Th	0424 23.0 700 1039 2.3 70 1643 21.3 650 2316 2.3 70		**24** F	0503 21.7 660 1104 3.3 100 1712 20.3 620 2332 3.3 100	
10 F	0507 22.6 690 1116 3.0 90 1726 20.7 630 2353 2.6 80		**25** Sa	0542 20.7 630 1140 4.3 130 1749 19.7 600	
11 Sa	0556 21.7 660 1200 3.6 110 1819 20.0 610		**26** Su ◑	0008 3.6 110 0624 19.7 600 1222 4.9 150 1832 19.0 580	
12 Su ◐	0041 3.0 90 0657 21.0 640 1259 4.6 140 1926 19.4 590		**27** M	0054 4.3 130 0718 18.7 570 1317 5.6 170 1932 18.4 560	
13 M	0154 3.3 100 0814 20.7 630 1426 4.9 150 2048 19.7 600		**28** Tu	0158 4.6 140 0831 18.7 570 1429 5.9 180 2059 18.4 560	
14 Tu	0322 3.0 90 0930 21.0 640 1551 4.6 140 2204 20.3 620		**29** W	0320 4.3 130 0941 19.0 580 1552 5.6 170 2209 19.0 580	
15 W	0439 2.3 70 1041 21.7 660 1710 3.6 110 2312 21.3 650		**30** Th	0428 3.6 110 1041 20.0 610 1700 4.6 140 2308 20.3 620	
			31 F	0524 3.0 90 1135 21.0 640 1757 3.9 120 2359 21.3 650	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0617 2.6 80 1223 21.7 660 1851 3.3 100		**16** Su	0037 22.6 690 0719 2.0 60 1307 22.3 680 1947 2.0 60	
2 Su	0044 22.3 680 0707 2.3 70 1307 22.3 680 1942 2.6 80		**17** M ○	0125 23.0 700 0805 2.0 60 1351 22.6 690 2034 1.6 50	
3 M ●	0126 23.0 700 0756 2.3 70 1349 22.6 690 2030 2.3 70		**18** Tu	0207 23.3 710 0845 2.3 70 1431 22.6 690 2117 1.6 50	
4 Tu	0208 23.3 710 0840 2.3 70 1431 22.6 690 2116 2.0 60		**19** W	0249 23.6 720 0920 2.6 80 1508 22.3 680 2154 2.0 60	
5 W	0250 23.6 720 0922 2.3 70 1513 22.6 690 2200 1.6 50		**20** Th	0328 23.3 710 0947 3.0 90 1544 22.0 670 2224 2.3 70	
6 Th	0332 23.6 720 1001 2.3 70 1555 22.3 680 2241 1.3 40		**21** F	0406 22.6 690 1015 3.0 90 1618 21.7 660 2249 2.6 80	
7 F	0417 23.6 720 1040 2.3 70 1638 21.7 660 2321 1.3 40		**22** Sa	0443 21.7 660 1048 3.3 100 1652 21.0 640 2318 2.6 80	
8 Sa	0503 23.0 700 1121 3.0 90 1725 21.3 650		**23** Su	0519 21.0 640 1123 3.6 110 1726 20.3 620 2351 3.0 90	
9 Su	0002 1.6 50 0555 22.3 680 1209 3.3 100 1816 20.7 630		**24** M	0556 20.3 620 1200 4.3 130 1804 20.0 610	
10 M ◐	0052 2.0 60 0654 21.7 660 1306 3.9 120 1919 20.7 630		**25** Tu ◑	0027 3.3 100 0637 19.7 600 1242 4.9 150 1848 19.4 590	
11 Tu	0154 2.3 70 0802 21.7 660 1414 4.3 130 2030 20.7 630		**26** W	0110 3.6 110 0728 19.0 580 1331 5.2 160 1946 19.0 580	
12 W	0302 2.0 60 0909 21.7 660 1526 4.3 130 2138 21.0 640		**27** Th	0203 3.9 120 0838 19.0 580 1433 5.6 170 2109 19.0 580	
13 Th	0408 2.0 60 1015 21.7 660 1638 3.6 110 2243 21.7 660		**28** F	0315 3.9 120 0947 19.4 590 1553 5.2 160 2217 20.0 610	
14 F	0517 2.0 60 1119 22.0 670 1751 3.3 100 2344 22.0 670		**29** Sa	0429 3.6 110 1048 20.3 620 1709 4.3 130 2316 21.0 640	
15 Sa	0625 2.0 60 1218 22.3 680 1854 2.6 80		**30** Su	0531 3.0 90 1146 21.3 650 1813 3.3 100	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

London (London Bridge), England, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0010 22.3 680 0629 2.6 80 1240 22.0 670 1912 2.6 80		**16** Tu ○	0111 22.6 690 0740 2.6 80 1338 22.0 670 2015 2.0 60	
2 Tu ●	0101 23.0 700 0728 2.6 80 1329 22.6 690 2010 2.0 60		**17** W	0156 23.0 700 0824 2.6 80 1419 22.3 680 2059 1.6 50	
3 W	0149 23.6 720 0824 2.3 70 1417 23.0 700 2104 1.3 40		**18** Th	0238 23.0 700 0903 3.0 90 1455 22.3 680 2138 1.6 50	
4 Th	0237 24.0 730 0916 2.3 70 1503 23.0 700 2154 0.7 20		**19** F	0316 23.0 700 0936 3.0 90 1529 22.3 680 2211 2.0 60	
5 F	0324 24.3 740 1004 2.3 70 1548 23.0 700 2241 0.3 10		**20** Sa	0351 22.6 690 1006 3.0 90 1601 22.0 670 2238 2.0 60	
6 Sa	0410 24.3 740 1048 2.0 60 1633 22.6 690 2325 0.0 0		**21** Su	0423 22.0 670 1037 3.0 90 1632 21.7 660 2305 2.0 60	
7 Su	0458 24.0 730 1130 2.3 70 1719 22.3 680		**22** M	0454 21.7 660 1109 3.3 100 1704 21.3 650 2333 2.3 70	
8 M	0006 0.3 10 0547 23.3 710 1213 2.6 80 1807 22.0 670		**23** Tu	0527 21.0 640 1142 3.6 110 1737 21.0 640	
9 Tu ◐	0050 0.7 20 0642 22.6 690 1259 3.0 90 1902 21.7 660		**24** W	0001 2.6 80 0601 20.3 620 1214 4.3 130 1813 20.3 620	
10 W	0138 1.3 40 0741 22.0 670 1353 3.6 110 2004 21.3 650		**25** Th ◑	0030 3.3 100 0642 19.7 600 1249 4.9 150 1858 19.7 600	
11 Th	0232 1.6 50 0842 21.3 650 1456 3.9 120 2108 21.3 650		**26** F	0108 3.6 110 0732 19.0 580 1336 5.2 160 1955 19.4 590	
12 F	0332 2.3 70 0945 21.3 650 1604 3.9 120 2213 21.3 650		**27** Sa	0200 3.9 120 0847 19.0 580 1443 5.2 160 2121 19.4 590	
13 Sa	0436 2.6 80 1051 21.0 640 1716 3.6 110 2318 21.7 660		**28** Su	0322 4.3 130 1006 19.7 600 1622 4.9 150 2237 20.3 620	
14 Su	0545 3.0 90 1156 21.3 650 1827 3.0 90		**29** M	0451 3.9 120 1114 20.7 630 1739 3.6 110 2341 21.7 660	
15 M	0019 22.0 670 0649 2.6 80 1251 21.7 660 1925 2.3 70		**30** Tu	0600 3.3 100 1216 21.7 660 1848 2.3 70	
			31 W	0039 23.0 700 0709 2.6 80 1312 22.6 690 1955 1.6 50	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0133 24.0 730 0816 2.3 70 1402 23.0 700 2055 0.7 20		**16** F	0223 23.0 700 0845 3.0 90 1439 22.3 680 2117 1.6 50	
2 F	0223 24.3 740 0912 2.0 60 1450 23.3 710 2147 0.0 0		**17** Sa	0258 22.6 690 0921 3.0 90 1510 22.6 690 2149 1.6 50	
3 Sa	0311 24.9 760 1001 1.6 50 1535 23.6 720 2234 - 0.7 - 20		**18** Su	0330 22.6 690 0953 3.0 90 1540 22.6 690 2218 1.6 50	
4 Su	0358 24.9 760 1045 1.6 50 1619 24.0 730 2316 - 1.0 - 30		**19** M	0358 22.3 680 1023 3.0 90 1608 22.3 680 2244 2.0 60	
5 M	0444 24.3 740 1125 1.6 50 1702 23.6 720 2355 - 0.3 - 10		**20** Tu	0426 22.0 670 1053 3.0 90 1638 22.0 670 2310 2.3 70	
6 Tu	0530 23.6 720 1202 2.0 60 1747 23.0 700		**21** W	0456 21.7 660 1121 3.6 110 1709 21.7 660 2332 2.6 80	
7 W ◐	0030 0.3 10 0619 22.6 690 1241 2.6 80 1835 22.3 680		**22** Th	0529 21.0 640 1147 4.3 130 1743 21.0 640 2355 3.3 100	
8 Th	0109 1.3 40 0711 21.7 660 1324 3.6 110 1930 21.7 660		**23** F ◑	0605 20.0 610 1215 4.6 140 1823 20.3 620	
9 F	0155 2.3 70 0808 20.7 630 1419 4.3 130 2033 21.0 640		**24** Sa	0026 3.6 110 0649 19.4 590 1255 4.9 150 1912 19.7 600	
10 Sa	0252 3.3 100 0911 20.3 620 1526 4.6 140 2141 20.7 630		**25** Su	0111 4.3 130 0749 18.7 570 1353 5.2 160 2024 19.4 590	
11 Su	0357 3.9 120 1021 20.0 610 1641 4.3 130 2253 20.7 630		**26** M	0219 4.9 150 0922 18.7 570 1539 5.2 160 2200 20.0 610	
12 M	0510 3.9 120 1134 20.3 620 1802 3.3 100		**27** Tu	0419 4.9 150 1044 19.7 600 1712 3.9 120 2315 21.3 650	
13 Tu	0002 21.3 650 0623 3.6 110 1234 21.3 650 1907 2.3 70		**28** W	0537 3.9 120 1154 21.3 650 1829 2.6 80	
14 W	0057 22.3 680 0719 3.3 100 1322 22.0 670 1957 2.0 60		**29** Th	0019 23.0 700 0657 3.0 90 1253 22.3 680 1943 1.3 40	
15 Th ○	0143 22.6 690 0805 3.0 90 1403 22.3 680 2039 1.6 50		**30** F ●	0116 24.0 730 0805 2.3 70 1344 23.3 710 2042 0.0 0	
			31 Sa	0206 24.6 750 0900 2.0 60 1431 24.0 730 2133 - 0.7 - 20	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0253 24.9 760 0947 1.3 40 1514 24.3 740 2217 - 1.0 - 30		**16** M	0302 22.6 690 0931 3.0 90 1513 23.0 700 2149 2.0 60	
2 M	0338 24.9 760 1030 1.3 40 1557 24.6 750 2257 - 1.0 - 30		**17** Tu	0328 22.6 690 1003 3.0 90 1540 23.0 700 2217 2.0 60	
3 Tu	0422 24.6 750 1108 1.6 50 1638 24.3 740 2332 0.0 0		**18** W	0355 22.3 680 1033 3.0 90 1610 22.6 690 2241 2.3 70	
4 W	0505 23.6 720 1143 2.0 60 1720 23.6 720		**19** Th	0426 22.0 670 1100 3.3 100 1642 22.0 670 2301 3.0 90	
5 Th	0002 1.0 30 0548 22.3 680 1215 3.0 90 1803 22.6 690		**20** F	0458 21.0 640 1123 3.9 120 1716 21.7 660 2323 3.3 100	
6 F ◐	0032 2.3 70 0634 21.0 640 1251 3.6 110 1853 21.7 660		**21** Sa	0533 20.3 620 1148 4.3 130 1755 21.0 640 2354 3.6 110	
7 Sa	0110 3.6 110 0726 20.0 610 1337 4.6 140 1954 20.3 620		**22** Su ◑	0616 19.7 600 1225 4.6 140 1845 20.3 620	
8 Su	0206 4.9 150 0829 19.0 580 1446 5.2 160 2107 19.7 600		**23** M	0037 4.3 130 0712 18.7 570 1320 4.9 150 1952 19.7 600	
9 M	0321 5.2 160 0947 18.7 570 1607 4.9 150 2227 19.7 600		**24** Tu	0142 5.6 170 0840 18.4 560 1503 5.6 170 2130 19.7 600	
10 Tu	0440 4.9 150 1108 19.4 590 1734 3.9 120 2341 21.0 640		**25** W	0353 5.6 170 1015 19.4 590 1648 3.9 120 2250 21.3 650	
11 W	0556 4.3 130 1211 20.7 630 1843 2.6 80		**26** Th	0518 4.3 130 1129 20.7 630 1812 2.3 70 2358 22.6 690	
12 Th	0037 22.0 670 0654 3.6 110 1259 21.7 660 1931 2.0 60		**27** F	0641 3.3 100 1230 22.3 680 1925 1.0 30	
13 F	0122 22.6 690 0740 3.0 90 1339 22.0 670 2012 1.6 50		**28** Sa ●	0055 24.0 730 0746 2.3 70 1321 23.3 710 2021 0.0 0	
14 Sa ○	0200 22.6 690 0821 3.0 90 1414 22.3 680 2047 1.6 50		**29** Su	0145 24.6 750 0839 2.0 60 1406 24.3 740 2110 - 0.7 - 20	
15 Su	0233 22.6 690 0858 3.0 90 1445 22.6 690 2120 2.0 60		**30** M	0230 24.6 750 0926 1.6 50 1449 24.6 750 2153 - 0.7 - 20	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

London (London Bridge), England, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0314	24.6 750	**16** W	0256	22.6 690
	1008	1.3 40		0938	2.6 80
	1530	24.9 760		1512	23.3 710
	2231	0.0 0		2145	2.3 70
2 W	0356	24.3 740	**17** Th	0326	22.6 690
	1046	1.6 50		1010	3.0 90
	1611	24.6 750		1544	23.0 700
	2302	1.0 30		2209	2.6 80
3 Th	0436	23.3 710	**18** F	0359	22.0 670
	1118	2.3 70		1038	3.3 100
	1652	24.0 730		1617	22.6 690
	2327	2.3 70		2232	3.0 90
4 F	0516	22.0 670	**19** Sa	0433	21.3 650
	1146	3.0 90		1103	3.6 110
	1734	22.6 690		1654	22.0 670
	2351	3.3 100		2300	3.3 100
5 Sa ◐	0556	20.7 630	**20** Su	0509	20.7 630
	1215	3.6 110		1131	3.6 110
	1820	21.3 650		1736	21.3 650
				2335	3.9 120
6 Su	0024	4.6 140	**21** M ◑	0552	19.7 600
	0640	19.4 590		1209	3.9 120
	1255	4.6 140		1828	20.7 630
	1915	19.7 600			
7 M	0115	5.6 170	**22** Tu	0020	4.6 140
	0738	18.4 560		0649	19.0 580
	1358	5.6 170		1303	4.6 140
	2030	19.0 580		1936	20.0 610
8 Tu	0239	6.6 200	**23** W	0127	5.9 180
	0902	17.7 540		0812	18.4 560
	1531	5.2 160		1447	4.9 150
	2152	19.0 580		2107	20.3 620
9 W	0406	6.2 190	**24** Th	0329	5.9 180
	1027	18.4 560		0947	19.4 590
	1650	4.3 130		1624	3.6 110
	2308	20.0 610		2226	21.3 650
10 Th	0520	4.9 150	**25** F	0454	4.6 140
	1135	19.7 600		1101	20.7 630
	1759	3.3 100		1746	2.3 70
				2333	22.6 690
11 F	0006	21.3 650	**26** Sa	0614	3.6 110
	0618	3.9 120		1203	22.3 680
	1226	21.0 640		1858	1.0 30
	1850	2.6 80			
12 Sa	0051	22.0 670	**27** Su	0031	23.6 720
	0707	3.3 100		0719	2.6 80
	1307	22.0 670		1255	23.3 710
	1933	2.3 70		1954	0.3 10
13 Su ○	0129	22.3 680	**28** M ●	0121	24.0 730
	0749	3.3 100		0813	2.0 60
	1342	22.3 680		1340	24.0 730
	2011	2.0 60		2041	0.3 10
14 M	0201	22.3 680	**29** Tu	0206	24.3 740
	0828	3.0 90		0900	1.6 50
	1413	22.6 690		1422	24.6 750
	2045	2.3 70		2123	0.7 20
15 Tu	0229	22.6 690	**30** W	0248	24.3 740
	0904	3.0 90		0943	1.6 50
	1442	23.0 700		1504	24.9 760
	2117	2.3 70		2200	1.3 40
			31 Th	0328	23.6 720
				1021	1.6 50
				1545	24.6 750
				2229	2.0 60

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0408	23.0 700	**16** Sa	0340	22.0 670
	1053	2.3 70		1023	2.6 80
	1626	23.6 720		1600	23.0 700
	2250	3.0 90		2213	3.0 90
2 Sa	0445	21.7 660	**17** Su	0417	21.7 660
	1118	3.0 90		1052	3.0 90
	1708	22.3 680		1641	22.6 690
	2315	3.9 120		2248	3.3 100
3 Su	0522	20.3 620	**18** M	0456	20.7 630
	1144	3.6 110		1125	3.0 90
	1751	21.0 640		1726	22.0 670
	2349	4.9 150		2329	3.9 120
4 M ◐	0601	19.4 590	**19** Tu ◑	0542	20.0 610
	1220	4.3 130		1206	3.3 100
	1840	19.7 600		1820	21.3 650
5 Tu	0034	5.9 180	**20** W	0018	4.9 150
	0649	18.4 560		0639	19.4 590
	1312	5.2 160		1304	3.9 120
	1946	18.7 570		1927	20.7 630
6 W	0142	6.9 210	**21** Th	0129	5.6 170
	0803	17.7 540		0755	19.4 590
	1441	5.6 170		1437	3.9 120
	2105	18.4 560		2048	20.7 630
7 Th	0318	6.9 210	**22** F	0306	5.6 170
	0932	17.7 540		0920	19.7 600
	1602	4.9 150		1558	3.3 100
	2216	19.4 590		2200	21.3 650
8 F	0434	5.9 180	**23** Sa	0426	4.9 150
	1043	19.0 580		1032	21.0 640
	1704	3.9 120		1712	2.3 70
	2319	20.3 620		2307	22.3 680
9 Sa	0534	4.6 140	**24** Su	0542	3.9 120
	1140	20.3 620		1135	22.0 670
	1758	3.0 90		1824	1.6 50
10 Su	0009	21.3 650	**25** M	0006	23.0 700
	0625	3.9 120		0649	3.0 90
	1227	21.3 650		1229	23.0 700
	1846	2.6 80		1922	1.3 40
11 M	0050	22.0 670	**26** Tu ●	0058	23.3 710
	0712	3.3 100		0745	2.3 70
	1305	22.0 670		1316	23.6 720
	1929	2.6 80		2011	1.3 40
12 Tu ○	0125	22.3 680	**27** W	0143	23.3 710
	0755	3.3 100		0834	2.0 60
	1340	22.6 690		1400	24.0 730
	2009	2.6 80		2053	1.6 50
13 W	0157	22.3 680	**28** Th	0225	23.3 710
	0835	3.0 90		0919	1.6 50
	1413	23.0 700		1443	24.3 740
	2044	2.6 80		2130	2.3 70
14 Th	0229	22.6 690	**29** F	0306	23.0 700
	0914	2.6 80		0959	2.0 60
	1447	23.3 710		1525	24.0 730
	2116	2.6 80		2200	3.0 90
15 F	0304	22.6 690	**30** Sa	0345	22.6 690
	0950	2.6 80		1032	2.3 70
	1522	23.3 710		1606	23.3 710
	2143	3.0 90		2222	3.6 110

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0422	21.7 660	**16** M	0412	22.0 670
	1057	3.0 90		1057	2.0 60
	1647	22.0 670		1635	23.3 710
	2251	3.9 120		2252	3.3 100
2 M	0457	20.7 630	**17** Tu	0454	21.3 650
	1122	3.6 110		1135	2.0 60
	1727	21.0 640		1723	22.6 690
	2325	4.6 140		2337	3.6 110
3 Tu	0533	19.7 600	**18** W	0540	21.0 640
	1156	3.9 120		1218	2.3 70
	1810	20.0 610		1815	22.0 670
4 W ◐	0005	5.2 160	**19** Th ◑	0027	4.3 130
	0612	19.0 580		0633	20.7 630
	1238	4.6 140		1313	2.6 80
	1859	19.0 580		1917	21.3 650
5 Th	0055	6.2 190	**20** F	0128	4.6 140
	0704	18.4 560		0738	20.3 620
	1336	4.9 150		1420	3.0 90
	2006	18.7 570		2026	21.3 650
6 F	0200	6.6 200	**21** Sa	0241	4.9 150
	0827	18.0 550		0853	20.3 620
	1458	4.9 150		1528	2.6 80
	2117	18.7 570		2134	21.3 650
7 Sa	0327	6.6 200	**22** Su	0355	4.9 150
	0945	18.4 560		1002	21.0 640
	1609	4.6 140		1635	2.6 80
	2219	19.4 590		2239	21.7 660
8 Su	0441	5.6 170	**23** M	0509	4.3 130
	1046	19.7 600		1107	21.7 660
	1707	3.9 120		1746	2.3 70
	2315	20.3 620		2343	22.0 670
9 M	0539	4.6 140	**24** Tu	0621	3.3 100
	1140	20.7 630		1206	22.3 680
	1759	3.3 100		1851	2.3 70
10 Tu	0005	21.3 650	**25** W	0039	22.3 680
	0631	3.9 120		0721	2.6 80
	1227	21.7 660		1259	22.6 690
	1848	3.0 90		1943	2.3 70
11 W	0050	22.0 670	**26** Th ●	0128	22.3 680
	0721	3.3 100		0813	2.0 60
	1308	22.3 680		1346	23.3 710
	1934	3.0 90		2028	2.6 80
12 Th ○	0130	22.3 680	**27** F	0212	22.6 690
	0808	3.0 90		0900	2.0 60
	1348	23.0 700		1430	23.3 710
	2017	3.0 90		2109	3.0 90
13 F	0210	22.3 680	**28** Sa	0252	22.6 690
	0853	2.3 70		0943	2.0 60
	1428	23.3 710		1512	23.3 710
	2056	3.0 90		2143	3.3 100
14 Sa	0251	22.3 680	**29** Su	0330	22.3 680
	0937	2.0 60		1019	2.3 70
	1509	23.6 720		1552	23.0 700
	2134	3.0 90		2210	3.6 110
15 Su	0331	22.3 680	**30** M	0405	21.7 660
	1018	2.0 60		1046	2.6 80
	1551	23.6 720		1630	22.0 670
	2212	3.0 90		2238	3.9 120
			31 Tu	0439	21.3 650
				1110	3.0 90
				1706	21.3 650
				2310	4.3 130

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dover, England, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0142	6.2	190	**16** W	0032	7.2	220
	0710	19.0	580		0558	18.4	560
	1419	5.6	170		1322	6.6	200
	1955	18.7	570		1851	17.7	540
2 W	0251	5.9	180	**17** Th	0154	6.9	210
	0815	19.4	590		0712	18.7	570
	1526	5.2	160		1433	5.9	180
	2052	19.4	590		1954	18.7	570
3 Th	0357	5.6	170	**18** F	0304	5.9	180
	0912	20.0	610		0813	19.7	600
	1629	4.6	140		1537	4.9	150
	2140	19.7	600		2048	19.7	600
4 F	0454	4.9	150	**19** Sa	0405	4.9	150
	1000	20.3	620		0908	20.7	630
	1719	4.3	130		1636	3.9	120
	2223	20.3	620		2139	20.7	630
5 Sa	0540	4.3	130	**20** Su	0502	3.9	120
	1042	20.7	630		0959	21.7	660
	1800	4.3	130		1734	3.3	100
	2301	21.0	640		2228	21.7	660
6 Su ●	0619	3.9	120	**21** M ○	0558	3.0	90
	1120	21.0	640		1049	22.3	680
	1835	4.3	130		1830	2.6	80
	2338	21.3	650		2316	22.6	690
7 M	0654	3.9	120	**22** Tu	0654	2.3	70
	1156	21.0	640		1137	22.6	690
	1906	4.3	130		1924	2.3	70
8 Tu	0014	21.3	650	**23** W	0002	23.0	700
	0725	3.9	120		0746	2.0	60
	1230	20.7	630		1224	22.6	690
	1934	4.3	130		2012	2.3	70
9 W	0048	21.3	650	**24** Th	0049	23.0	700
	0754	4.3	130		0835	1.6	50
	1302	20.3	620		1312	22.3	680
	2004	4.6	140		2056	2.3	70
10 Th	0118	21.0	640	**25** F	0136	23.0	700
	0826	4.6	140		0920	1.6	50
	1331	20.0	610		1400	22.0	670
	2036	4.6	140		2137	2.6	80
11 F	0144	20.7	630	**26** Sa	0225	22.3	680
	0859	4.6	140		1003	2.3	70
	1358	19.4	590		1451	21.0	640
	2111	4.9	150		2218	3.6	110
12 Sa	0213	20.0	610	**27** Su ◑	0315	21.7	660
	0936	5.2	160		1047	3.3	100
	1430	19.0	580		1545	20.0	610
	2148	5.6	170		2302	4.6	140
13 Su	0250	19.7	600	**28** M	0409	20.3	620
	1016	5.6	170		1135	4.6	140
	1512	18.4	560		1644	18.7	570
	2230	6.2	190		2355	5.9	180
14 M ◐	0337	19.0	580	**29** Tu	0510	19.0	580
	1103	6.2	190		1232	5.6	170
	1607	18.0	550		1754	17.7	540
	2321	6.9	210				
15 Tu	0439	18.4	560	**30** W	0057	6.6	200
	1204	6.6	200		0622	18.4	560
	1728	17.4	530		1336	6.2	190
					1911	17.7	540
				31 Th	0208	6.9	210
					0743	18.0	550
					1444	6.2	190
					2023	18.0	550

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0320	6.6	200	**16** Sa	0230	6.6	200
	0854	18.7	570		0757	19.0	580
	1554	5.9	180		1510	5.6	170
	2122	18.7	570		2035	19.0	580
2 Sa	0427	5.6	170	**17** Su	0341	5.2	160
	0949	19.4	590		0900	20.0	610
	1653	5.2	160		1618	4.6	140
	2208	19.7	600		2131	20.3	620
3 Su	0520	4.9	150	**18** M	0447	3.9	120
	1032	20.0	610		0955	21.3	650
	1739	4.6	140		1724	3.3	100
	2247	20.3	620		2221	21.7	660
4 M ●	0602	4.3	130	**19** Tu ○	0550	2.6	80
	1107	20.3	620		1045	22.0	670
	1816	4.3	130		1825	2.6	80
	2322	21.0	640		2308	22.6	690
5 Tu	0637	3.9	120	**20** W	0648	1.6	50
	1139	20.7	630		1131	22.6	690
	1848	3.9	120		1917	2.0	60
	2355	21.3	650		2353	23.3	710
6 W	0708	3.9	120	**21** Th	0739	1.0	30
	1210	20.7	630		1215	23.0	700
	1918	3.9	120		2003	1.3	40
7 Th	0026	21.3	650	**22** F	0036	23.6	720
	0738	3.6	110		0824	0.7	20
	1239	20.7	630		1258	22.6	690
	1948	3.9	120		2042	1.6	50
8 F	0053	21.3	650	**23** Sa	0119	23.3	710
	0809	3.6	110		0904	1.0	30
	1304	20.3	620		1341	22.3	680
	2019	3.9	120		2117	2.0	60
9 Sa	0116	21.0	640	**24** Su	0203	23.0	700
	0841	3.9	120		0941	1.6	50
	1328	20.3	620		1425	21.3	650
	2051	4.3	130		2153	3.0	90
10 Su	0142	21.0	640	**25** M	0248	22.0	670
	0913	4.3	130		1018	3.0	90
	1357	20.3	620		1512	20.3	620
	2123	4.6	140		2230	4.3	130
11 M	0216	20.7	630	**26** Tu ◑	0336	20.7	630
	0946	4.6	140		1059	4.6	140
	1433	20.0	610		1605	19.0	580
	2159	5.2	160		2314	5.6	170
12 Tu ◐	0257	20.3	620	**27** W	0431	19.0	580
	1024	5.2	160		1150	5.9	180
	1519	19.0	580		1708	17.7	540
	2241	5.9	180				
13 W	0348	19.4	590	**28** Th	0015	6.9	210
	1113	6.2	190		0538	17.7	540
	1618	18.0	550		1256	7.2	220
	2338	6.9	210		1823	17.1	520
14 Th	0456	18.4	560				
	1223	6.6	200				
	1752	17.4	530				
15 F	0102	7.2	220				
	0637	18.0	550				
	1354	6.6	200				
	1930	18.0	550				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0130	7.5	230	**16** Sa	0028	7.2	220
	0704	17.1	520		0620	17.7	540
	1408	7.2	220		1325	6.9	210
	1949	17.1	520		1913	17.7	540
2 Sa	0247	7.2	220	**17** Su	0205	6.6	200
	0839	17.7	540		0748	18.4	560
	1520	6.6	200		1450	5.9	180
	2100	18.0	550		2023	19.0	580
3 Su	0400	6.2	190	**18** M	0322	5.2	160
	0938	18.7	570		0853	19.7	600
	1625	5.9	180		1604	4.6	140
	2149	19.4	590		2120	20.3	620
4 M	0458	4.9	150	**19** Tu	0433	3.6	110
	1019	19.7	600		0948	21.0	640
	1716	4.9	150		1713	3.3	100
	2227	20.3	620		2210	21.7	660
5 Tu	0541	4.3	130	**20** W	0539	2.3	70
	1050	20.3	620		1037	22.0	670
	1755	4.3	130		1811	2.3	70
	2301	21.0	640		2256	22.6	690
6 W ●	0616	3.9	120	**21** Th ○	0635	1.3	40
	1117	20.7	630		1120	22.6	690
	1827	3.9	120		1900	1.6	50
	2331	21.3	650		2338	23.3	710
7 Th	0647	3.6	110	**22** F	0723	0.7	20
	1145	20.7	630		1201	23.0	700
	1857	3.6	110		1943	1.3	40
	2359	21.3	650				
8 F	0717	3.3	100	**23** Sa	0019	23.6	720
	1212	21.0	640		0804	0.7	20
	1928	3.6	110		1240	23.0	700
					2019	1.3	40
9 Sa	0024	21.3	650	**24** Su	0100	23.3	710
	0748	3.3	100		0841	1.0	30
	1237	21.0	640		1319	22.3	680
	1958	3.3	100		2053	2.0	60
10 Su	0049	21.3	650	**25** M	0140	22.6	690
	0819	3.3	100		0915	2.0	60
	1301	21.0	640		1400	21.7	660
	2029	3.6	110		2125	3.0	90
11 M	0115	21.7	660	**26** Tu	0221	21.7	660
	0849	3.6	110		0948	3.3	100
	1330	21.0	640		1443	20.7	630
	2100	3.9	120		2159	4.3	130
12 Tu	0148	21.3	650	**27** W	0306	20.3	620
	0920	3.9	120		1023	4.9	150
	1406	20.7	630		1533	19.4	590
	2133	4.6	140		2236	5.9	180
13 W	0228	21.0	640	**28** Th ◑	0359	18.7	570
	0955	4.9	150		1107	6.6	200
	1450	20.0	610		1632	17.7	540
	2214	5.2	160		2331	7.2	220
14 Th ◐	0316	19.7	600	**29** F	0503	17.4	530
	1041	5.9	180		1214	7.5	230
	1546	18.7	570		1742	17.1	520
	2308	6.6	200				
15 F	0421	18.4	560	**30** Sa	0054	7.9	240
	1146	6.9	210		0621	16.7	510
	1716	17.4	530		1334	7.9	240
					1905	16.7	510
				31 Su	0214	7.5	230
					0809	17.1	520
					1446	7.2	220
					2026	17.7	540

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dover, England, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 M	0325	6.6	200	**16** Tu	0305	4.9	150
	0912	18.0	550		0840	19.7	600
	1549	6.2	190		1546	4.6	140
	2119	19.0	580		2103	20.7	630
2 Tu	0423	5.2	160	**17** W	0417	3.6	110
	0952	19.4	590		0934	21.0	640
	1641	5.2	160		1653	3.6	110
	2158	20.0	610		2153	21.7	660
3 W	0508	4.3	130	**18** Th	0521	2.3	70
	1020	20.0	610		1021	22.0	670
	1723	4.3	130		1749	2.6	80
	2230	20.7	630		2237	22.6	690
4 Th	0545	3.9	120	**19** F	0615	1.6	50
	1047	20.7	630		1103	22.3	680
	1758	3.9	120		1836	2.0	60
	2300	21.0	640	○	2319	23.0	700
5 F	0618	3.3	100	**20** Sa	0701	1.0	30
	1114	21.0	640		1141	22.6	690
	1830	3.6	110		1917	1.6	50
●	2328	21.3	650		2359	23.3	710
6 Sa	0651	3.3	100	**21** Su	0741	1.3	40
	1142	21.0	640		1219	22.6	690
	1903	3.3	100		1954	2.0	60
	2354	21.7	660				
7 Su	0724	3.0	90	**22** M	0038	23.0	700
	1208	21.3	650		0816	1.6	50
	1936	3.3	100		1258	22.3	680
					2027	2.3	70
8 M	0021	21.7	660	**23** Tu	0118	22.3	680
	0756	3.0	90		0848	2.6	80
	1236	21.3	650		1337	21.7	660
	2008	3.3	100		2059	3.3	100
9 Tu	0051	21.7	660	**24** W	0158	21.3	650
	0827	3.3	100		0918	3.6	110
	1308	21.7	660		1419	20.7	630
	2040	3.6	110		2130	4.6	140
10 W	0126	21.7	660	**25** Th	0241	20.0	610
	0859	3.9	120		0948	5.2	160
	1346	21.0	640		1506	19.7	600
	2115	4.3	130		2203	5.6	170
11 Th	0207	21.0	640	**26** F	0331	18.7	570
	0936	4.6	140		1023	6.6	200
	1433	20.0	610		1601	18.4	560
	2157	5.2	160	◑	2249	6.9	210
12 F	0258	19.7	600	**27** Sa	0432	17.4	530
	1023	5.6	170		1122	7.5	230
	1533	18.7	570		1705	17.4	530
◐	2253	6.2	190				
13 Sa	0410	18.4	560	**28** Su	0011	7.9	240
	1128	6.9	210		0542	16.7	510
	1713	17.7	540		1252	8.2	250
					1817	17.1	520
14 Su	0014	6.9	210	**29** M	0133	7.5	230
	0613	17.7	540		0704	16.7	510
	1308	6.9	210		1405	7.5	230
	1854	18.0	550		1933	17.7	540
15 M	0148	6.2	190	**30** Tu	0240	6.6	200
	0736	18.4	560		0820	17.7	540
	1433	5.9	180		1506	6.6	200
	2005	19.0	580		2032	18.7	570

May

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 W	0335	5.6	170	**16** Th	0352	3.6	110
	0904	18.7	570		0914	20.7	630
	1557	5.6	170		1624	3.9	120
	2115	19.7	600		2130	21.3	650
2 Th	0422	4.6	140	**17** F	0456	2.6	80
	0937	19.7	600		1000	21.3	650
	1642	4.6	140		1721	3.0	90
	2149	20.3	620		2216	22.0	670
3 F	0504	3.9	120	**18** Sa	0550	2.3	70
	1008	20.3	620		1042	21.7	660
	1722	3.9	120		1809	2.6	80
	2221	21.0	640	○	2259	22.3	680
4 Sa	0544	3.6	110	**19** Su	0636	2.0	60
	1040	20.7	630		1121	22.0	670
	1800	3.6	110		1851	2.3	70
●	2253	21.3	650		2340	22.3	680
5 Su	0622	3.3	100	**20** M	0715	2.3	70
	1111	21.3	650		1159	22.0	670
	1837	3.3	100		1929	2.6	80
	2324	21.7	660				
6 M	0659	3.0	90	**21** Tu	0019	22.0	670
	1142	21.7	660		0750	2.6	80
	1914	3.0	90		1238	21.7	660
	2357	21.7	660		2004	3.0	90
7 Tu	0735	3.0	90	**22** W	0059	21.7	660
	1216	21.7	660		0823	3.3	100
	1950	3.0	90		1318	21.3	650
					2036	3.6	110
8 W	0032	21.7	660	**23** Th	0138	20.7	630
	0809	3.3	100		0852	4.3	130
	1254	21.7	660		1359	20.7	630
	2025	3.3	100		2106	4.6	140
9 Th	0112	21.7	660	**24** F	0220	19.7	600
	0845	3.6	110		0919	5.2	160
	1337	21.0	640		1442	20.0	610
	2105	3.9	120		2138	5.6	170
10 F	0159	20.7	630	**25** Sa	0306	18.7	570
	0926	4.6	140		0951	6.2	190
	1429	20.3	620		1531	19.0	580
	2151	4.6	140		2219	6.2	190
11 Sa	0256	19.7	600	**26** Su	0401	17.7	540
	1016	5.6	170		1037	6.9	210
	1536	19.0	580		1626	18.0	550
	2250	5.6	170	◑	2319	7.2	220
12 Su	0417	18.7	570	**27** M	0503	17.1	520
	1124	6.2	190		1147	7.5	230
	1701	18.4	560		1729	17.7	540
◐							
13 M	0009	5.9	180	**28** Tu	0037	7.2	220
	0556	18.4	560		0610	17.1	520
	1253	6.6	200		1309	7.5	230
	1827	18.7	570		1834	17.7	540
14 Tu	0132	5.6	170	**29** W	0146	6.9	210
	0716	18.7	570		0714	17.4	530
	1411	5.6	170		1414	6.9	210
	1940	19.4	590		1934	18.4	560
15 W	0243	4.6	140	**30** Th	0243	5.9	180
	0820	19.7	600		0807	18.4	560
	1520	4.6	140		1509	5.9	180
	2039	20.3	620		2022	19.0	580
				31 F	0334	4.9	150
					0850	19.0	580
					1558	5.2	160
					2103	20.0	610

June

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Sa	0423	4.3	130	**16** Su	0523	3.3	100
	0928	20.0	610		1022	20.7	630
	1645	4.3	130		1742	3.6	110
	2142	20.7	630		2242	21.3	650
2 Su	0510	3.6	110	**17** M	0611	3.3	100
	1006	20.7	630		1103	21.3	650
	1730	3.9	120		1827	3.3	100
	2220	21.3	650	○	2324	21.3	650
3 M	0554	3.3	100	**18** Tu	0651	3.3	100
	1043	21.3	650		1142	21.3	650
	1813	3.3	100		1907	3.3	100
●	2258	21.7	660				
4 Tu	0637	3.0	90	**19** W	0003	21.3	650
	1121	21.7	660		0727	3.6	110
	1855	3.0	90		1221	21.3	650
	2338	21.7	660		1943	3.6	110
5 W	0718	3.0	90	**20** Th	0042	21.0	640
	1202	21.7	660		0800	3.9	120
	1936	3.0	90		1300	21.3	650
					2016	3.9	120
6 Th	0020	21.7	660	**21** F	0120	20.3	620
	0759	3.3	100		0828	4.6	140
	1247	21.7	660		1339	21.0	640
	2019	3.0	90		2046	4.6	140
7 F	0107	21.3	650	**22** Sa	0158	19.7	600
	0840	3.6	110		0856	4.9	150
	1335	21.3	650		1417	20.3	620
	2104	3.6	110		2117	4.9	150
8 Sa	0158	21.0	640	**23** Su	0238	19.0	580
	0926	4.3	130		0928	5.6	170
	1430	21.0	640		1456	19.7	600
	2154	3.9	120		2154	5.6	170
9 Su	0259	20.0	610	**24** M	0322	18.4	560
	1018	4.9	150		1007	6.2	190
	1532	20.3	620		1539	19.0	580
	2252	4.6	140		2238	6.2	190
10 M	0410	19.4	590	**25** Tu	0415	17.7	540
	1121	5.2	160		1055	6.6	200
	1639	19.7	600		1631	18.4	560
◐	2359	4.9	150	◑	2335	6.6	200
11 Tu	0530	19.0	580	**26** W	0515	17.4	530
	1231	5.6	170		1157	7.2	220
	1753	19.4	590		1732	18.0	550
12 W	0107	4.9	150	**27** Th	0043	6.6	200
	0646	19.0	580		0618	17.4	530
	1340	5.6	170		1312	7.2	220
	1906	19.7	600		1834	18.0	550
13 Th	0214	4.6	140	**28** F	0150	6.2	190
	0752	19.4	590		0716	17.7	540
	1446	4.9	150		1419	6.6	200
	2011	20.0	610		1931	18.7	570
14 F	0320	4.3	130	**29** Sa	0250	5.6	170
	0848	19.7	600		0807	18.7	570
	1551	4.6	140		1517	5.9	180
	2106	20.7	630		2021	19.4	590
15 Sa	0426	3.6	110	**30** Su	0346	4.9	150
	0937	20.3	620		0853	19.4	590
	1651	3.9	120		1612	4.9	150
	2156	21.0	640		2108	20.3	620

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dover, England, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0439 4.3 130 0938 20.3 620 1703 3.9 120 2154 21.0 640		**16** Tu ○	0549 4.3 130 1048 20.7 630 1808 3.9 120 2312 20.7 630	
2 Tu ●	0530 3.6 110 1022 21.0 640 1752 3.6 110 2240 21.7 660		**17** W	0631 4.3 130 1127 21.0 640 1849 3.9 120 2349 20.7 630	
3 W	0619 3.3 100 1107 21.7 660 1840 3.0 90 2326 22.0 670		**18** Th	0707 4.3 130 1204 21.3 650 1925 3.9 120	
4 Th	0708 3.0 90 1153 22.0 670 1929 2.6 80		**19** F	0025 20.7 630 0738 4.3 130 1241 21.3 650 1956 3.9 120	
5 F	0013 22.0 670 0756 3.0 90 1240 22.3 680 2017 2.6 80		**20** Sa	0100 20.3 620 0806 4.6 140 1316 21.0 640 2026 4.3 130	
6 Sa	0102 21.7 660 0842 3.0 90 1329 22.3 680 2106 2.6 80		**21** Su	0133 20.0 610 0833 4.6 140 1348 20.7 630 2055 4.6 140	
7 Su	0153 21.3 650 0928 3.3 100 1421 22.0 670 2154 3.0 90		**22** M	0203 19.7 600 0904 4.9 150 1415 20.3 620 2128 4.9 150	
8 M	0248 20.7 630 1014 3.9 120 1515 21.3 650 2244 3.3 100		**23** Tu	0232 19.0 580 0938 5.2 160 1446 19.7 600 2204 5.2 160	
9 Tu ◐	0348 20.0 610 1105 4.6 140 1612 20.7 630 2338 3.9 120		**24** W	0306 18.7 570 1017 5.9 180 1526 19.4 590 2246 5.9 180	
10 W	0453 19.4 590 1201 5.2 160 1715 19.7 600		**25** Th ◑	0352 18.0 550 1102 6.6 200 1618 18.7 570 2339 6.6 200	
11 Th	0037 4.6 140 0605 18.7 570 1304 5.6 170 1826 19.4 590		**26** F	0501 17.4 530 1202 7.2 220 1728 18.0 550	
12 F	0140 4.9 150 0717 18.7 570 1410 5.9 180 1939 19.4 590		**27** Sa	0051 6.9 210 0625 17.4 530 1325 7.2 220 1844 18.4 560	
13 Sa	0246 5.2 160 0821 18.7 570 1518 5.6 170 2045 19.7 600		**28** Su	0208 6.2 190 0732 18.0 550 1439 6.6 200 1950 19.0 580	
14 Su	0355 4.9 150 0917 19.4 590 1624 4.9 150 2142 20.0 610		**29** M	0314 5.6 170 0829 19.0 580 1542 5.6 170 2047 20.0 610	
15 M	0458 4.6 140 1005 20.0 610 1721 4.3 130 2230 20.3 620		**30** Tu	0414 4.6 140 0920 20.0 610 1640 4.3 130 2140 20.7 630	
			31 W	0510 3.9 120 1009 21.3 650 1735 3.6 110 2229 21.7 660	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0606 3.3 100 1057 22.0 670 1830 2.6 80 2317 22.3 680		**16** F	0647 4.3 130 1145 21.3 650 1905 3.9 120	
2 F	0701 2.6 80 1143 22.6 690 1923 2.0 60		**17** Sa	0004 20.7 630 0715 4.3 130 1219 21.7 660 1933 3.9 120	
3 Sa	0004 22.3 680 0751 2.3 70 1229 23.0 700 2013 1.6 50		**18** Su	0035 20.7 630 0741 4.3 130 1249 21.3 650 2000 3.9 120	
4 Su	0051 22.3 680 0836 2.3 70 1315 23.0 700 2059 1.6 50		**19** M	0102 20.3 620 0808 4.3 130 1314 21.0 640 2029 3.9 120	
5 M	0139 22.0 670 0917 2.6 80 1403 22.6 690 2141 2.0 60		**20** Tu	0125 20.3 620 0838 4.3 130 1336 21.0 640 2100 4.3 130	
6 Tu	0228 21.7 660 0957 3.0 90 1452 22.3 680 2224 2.6 80		**21** W	0147 20.0 610 0910 4.6 140 1404 20.7 630 2131 4.9 150	
7 W ◐	0320 20.7 630 1039 3.9 120 1544 21.0 640 2309 3.9 120		**22** Th	0218 19.7 600 0943 5.2 160 1440 20.0 610 2206 5.6 170	
8 Th	0416 19.7 600 1127 5.2 160 1641 20.0 610		**23** F ◑	0258 19.0 580 1022 6.2 190 1525 19.4 590 2249 6.2 190	
9 F	0002 5.2 160 0521 18.4 560 1227 6.2 190 1747 18.7 570		**24** Sa	0351 18.0 550 1111 6.9 210 1627 18.4 560 2349 7.2 220	
10 Sa	0106 6.2 190 0637 18.0 550 1336 6.9 210 1907 18.4 560		**25** Su	0518 17.4 530 1226 7.5 230 1807 17.7 540	
11 Su	0215 6.6 200 0755 18.0 550 1450 6.6 200 2031 18.4 560		**26** M	0125 7.2 220 0707 17.7 540 1405 7.2 220 1932 18.4 560	
12 M	0329 6.2 190 0901 18.7 570 1605 5.9 180 2135 19.4 590		**27** Tu	0248 6.6 200 0812 18.7 570 1518 5.9 180 2036 19.7 600	
13 Tu	0439 5.6 170 0952 19.7 600 1705 4.9 150 2223 20.0 610		**28** W	0354 5.2 160 0908 20.0 610 1621 4.6 140 2131 21.0 640	
14 W	0531 4.9 150 1033 20.7 630 1753 4.3 130 2301 20.3 620		**29** Th	0455 3.9 120 0958 21.7 660 1720 3.3 100 2221 22.0 670	
15 Th ○	0613 4.6 140 1110 21.0 640 1833 3.9 120 2333 20.7 630		**30** F ●	0554 3.3 100 1044 22.6 690 1818 2.3 70 2307 22.6 690	
			31 Sa	0649 2.6 80 1129 23.3 710 1912 1.6 50 2351 23.0 700	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0737 2.0 60 1212 23.6 720 1959 1.3 40		**16** M	0004 21.0 640 0713 3.9 120 1217 21.7 660 1932 3.6 110	
2 M	0034 23.0 700 0818 2.0 60 1256 23.6 720 2041 1.3 40		**17** Tu	0028 21.0 640 0741 3.9 120 1239 21.3 650 2001 3.9 120	
3 Tu	0117 22.6 690 0855 2.3 70 1340 23.3 710 2119 1.6 50		**18** W	0049 21.0 640 0811 4.3 130 1302 21.3 650 2031 4.3 130	
4 W	0202 22.0 670 0931 3.0 90 1426 22.6 690 2157 3.0 90		**19** Th	0113 21.0 640 0842 4.6 140 1330 21.3 650 2101 4.6 140	
5 Th	0250 21.0 640 1009 3.9 120 1514 21.3 650 2237 4.3 130		**20** F	0144 20.7 630 0914 4.9 150 1405 20.7 630 2134 5.2 160	
6 F ◐	0343 19.7 600 1052 5.6 170 1609 19.7 600 2326 5.9 180		**21** Sa	0224 20.0 610 0951 5.9 180 1449 19.7 600 2215 6.2 190	
7 Sa	0444 18.4 560 1149 6.9 210 1713 18.4 560		**22** Su ◑	0315 18.7 570 1039 6.9 210 1548 18.4 560 2311 7.5 230	
8 Su	0030 7.2 220 0557 17.4 530 1306 7.9 240 1835 17.4 530		**23** M	0433 17.4 530 1148 7.9 240 1750 17.7 540	
9 M	0147 7.5 230 0725 17.4 530 1428 7.5 230 2021 17.7 540		**24** Tu	0044 7.9 240 0647 17.7 540 1336 7.5 230 1921 18.4 560	
10 Tu	0306 7.2 220 0842 18.4 560 1548 6.6 200 2125 18.7 570		**25** W	0226 6.9 210 0756 18.7 570 1457 6.2 190 2025 19.7 600	
11 W	0419 6.2 190 0934 19.7 600 1649 5.2 160 2209 19.7 600		**26** Th	0337 5.6 170 0853 20.3 620 1603 4.6 140 2120 21.0 640	
12 Th	0510 5.2 160 1013 20.7 630 1734 4.6 140 2243 20.7 630		**27** F	0439 4.3 130 0942 22.0 670 1704 3.3 100 2208 22.3 680	
13 F	0549 4.6 140 1048 21.3 650 1810 3.9 120 2311 21.0 640		**28** Sa ●	0537 3.0 90 1027 23.0 700 1801 2.0 60 2252 23.0 700	
14 Sa ○	0621 4.3 130 1120 21.7 660 1839 3.9 120 2337 21.0 640		**29** Su	0628 2.3 70 1110 23.6 720 1852 1.3 40 2333 23.3 710	
15 Su	0647 4.3 130 1150 21.7 660 1905 3.9 120		**30** M	0714 2.0 60 1152 24.0 730 1937 1.3 40	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dover, England, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0013 23.3 710 0753 2.0 60 1234 24.0 730 2016 1.3 40		**16** W	0716 3.9 120 1206 21.7 660 1935 3.9 120	
2 W	0053 23.0 700 0829 2.3 70 1316 23.3 710 2052 2.3 70		**17** Th	0019 21.3 650 0747 3.9 120 1233 21.7 660 2005 3.9 120	
3 Th	0136 22.3 680 0904 3.3 100 1359 22.3 680 2127 3.3 100		**18** F	0047 21.3 650 0819 4.3 130 1303 21.7 660 2036 4.6 140	
4 F	0221 21.0 640 0939 4.3 130 1446 21.0 640 2203 4.9 150		**19** Sa	0121 21.3 650 0852 4.9 150 1340 21.0 640 2110 5.2 160	
5 Sa ◐	0312 19.7 600 1019 5.9 180 1540 19.4 590 2247 6.6 200		**20** Su	0203 20.3 620 0931 5.6 170 1426 20.0 610 2153 6.2 190	
6 Su	0412 18.4 560 1113 7.5 230 1643 18.0 550 2353 8.2 250		**21** M ◑	0256 19.0 580 1020 6.6 200 1529 18.4 560 2249 7.5 230	
7 M	0521 17.4 530 1234 8.2 250 1801 17.1 520		**22** Tu	0424 17.7 540 1130 7.5 230 1741 17.7 540	
8 Tu	0116 8.5 260 0644 17.4 530 1402 7.9 240 1956 17.4 530		**23** W	0019 7.9 240 0623 18.0 550 1314 7.2 220 1905 18.4 560	
9 W	0237 7.9 240 0809 18.0 550 1520 6.9 210 2101 18.7 570		**24** Th	0203 7.2 220 0734 19.0 580 1435 5.9 180 2009 19.7 600	
10 Th	0345 6.6 200 0904 19.4 590 1618 5.6 170 2142 19.7 600		**25** F	0315 5.6 170 0832 20.7 630 1542 4.3 130 2103 21.0 640	
11 F	0436 5.6 170 0944 20.3 620 1701 4.6 140 2213 20.3 620		**26** Sa	0417 4.3 130 0921 22.0 670 1643 3.0 90 2150 22.0 670	
12 Sa	0515 4.9 150 1017 21.3 650 1735 4.3 130 2238 21.0 640		**27** Su	0513 3.3 100 1007 23.0 700 1739 2.3 70 2233 22.6 690	
13 Su ○	0547 4.3 130 1048 21.7 660 1804 3.9 120 2304 21.3 650		**28** M ●	0603 2.6 80 1049 23.6 720 1828 1.6 50 2312 23.0 700	
14 M	0615 4.3 130 1116 21.7 660 1833 3.6 110 2330 21.3 650		**29** Tu	0647 2.3 70 1131 23.6 720 1912 1.6 50 2351 23.0 700	
15 Tu	0644 3.9 120 1142 21.7 660 1903 3.6 110 2355 21.3 650		**30** W	0727 2.3 70 1211 23.6 720 1950 2.0 60	
			31 Th	0031 22.6 690 0803 2.6 80 1253 23.0 700 2025 3.0 90	

November

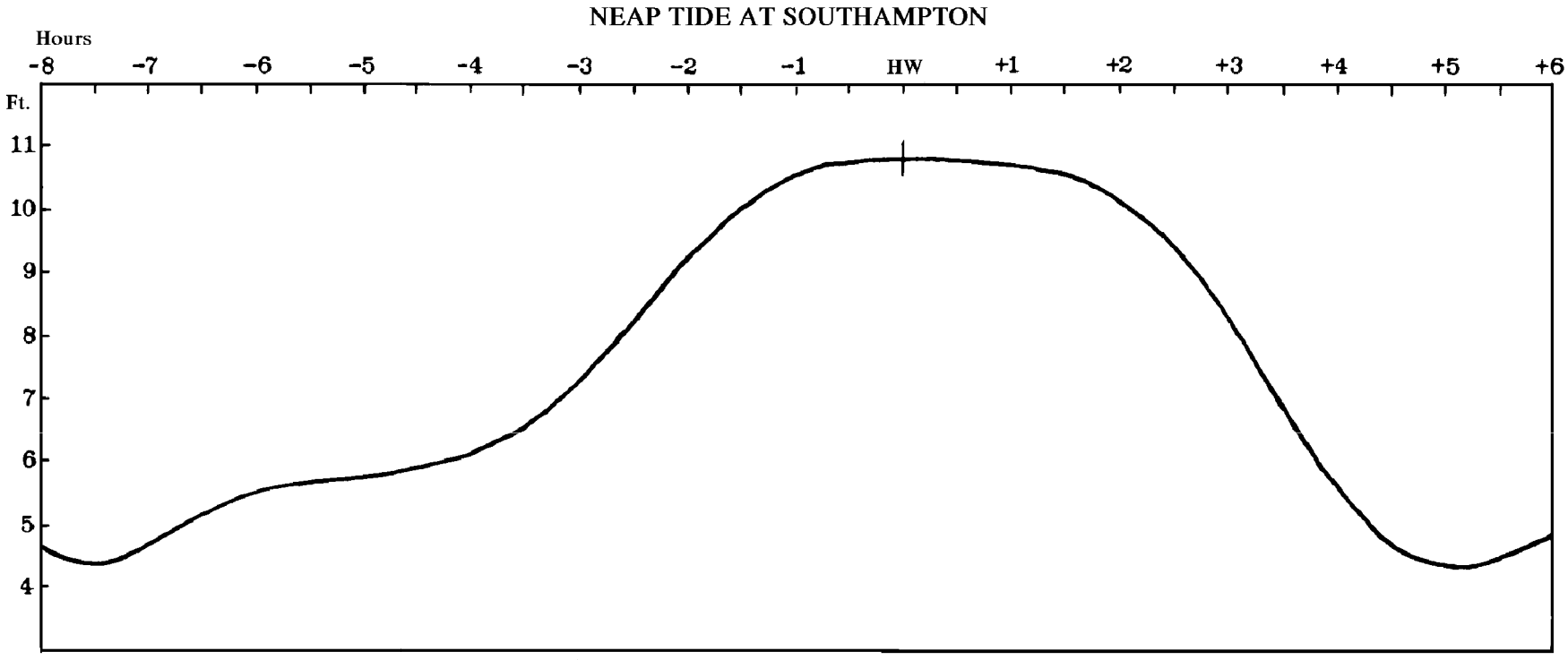
	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0113 22.3 680 0839 3.6 110 1335 22.0 670 2059 3.9 120		**16** Sa	0029 21.7 660 0802 4.3 130 1247 21.7 660 2019 4.6 140	
2 Sa	0157 21.3 650 0914 4.6 140 1421 20.7 630 2132 5.6 170		**17** Su	0109 21.3 650 0839 4.6 140 1328 21.0 640 2056 5.2 160	
3 Su	0246 20.0 610 0950 5.9 180 1514 19.4 590 2209 6.9 210		**18** M	0155 20.7 630 0921 5.2 160 1419 20.0 610 2142 5.9 180	
4 M ◐	0342 19.0 580 1038 7.2 220 1614 17.7 540 2304 8.2 250		**19** Tu ◑	0254 19.7 600 1013 5.9 180 1529 18.7 570 2239 6.9 210	
5 Tu	0446 18.0 550 1154 8.2 250 1724 17.1 520		**20** W	0417 18.7 570 1123 6.6 200 1717 18.4 560	
6 W	0033 8.9 270 0557 17.4 530 1320 8.2 250 1851 17.1 520		**21** Th	0002 7.2 220 0550 18.7 570 1251 6.6 200 1840 18.7 570	
7 Th	0153 8.2 250 0716 18.0 550 1431 7.2 220 2012 18.0 550		**22** F	0132 6.9 210 0704 19.4 590 1407 5.6 170 1945 19.7 600	
8 F	0258 7.2 220 0818 19.0 580 1528 6.2 190 2058 19.0 580		**23** Sa	0243 5.6 170 0805 20.3 620 1514 4.3 130 2040 20.7 630	
9 Sa	0350 6.2 190 0902 20.0 610 1613 5.2 160 2130 20.0 610		**24** Su	0347 4.6 140 0857 21.7 660 1617 3.3 100 2129 21.3 650	
10 Su	0432 5.2 160 0938 20.7 630 1651 4.6 140 2159 20.7 630		**25** M	0445 3.6 110 0945 22.3 680 1714 2.6 80 2213 22.0 670	
11 M	0508 4.6 140 1009 21.0 640 1726 3.9 120 2228 21.0 640		**26** Tu ●	0537 3.3 100 1029 22.6 690 1804 2.3 70 2254 22.3 680	
12 Tu ○	0543 4.3 130 1039 21.3 650 1802 3.9 120 2257 21.3 650		**27** W	0622 3.0 90 1112 23.0 700 1848 2.6 80 2334 22.3 680	
13 W	0617 3.9 120 1108 21.7 660 1837 3.6 110 2326 21.7 660		**28** Th	0704 3.0 90 1153 22.6 690 1927 3.0 90	
14 Th	0652 3.9 120 1138 21.7 660 1912 3.6 110 2356 21.7 660		**29** F	0014 22.3 680 0742 3.3 100 1235 22.0 670 2002 3.6 110	
15 F	0727 3.9 120 1210 21.7 660 1945 3.9 120		**30** Sa	0055 22.0 670 0819 3.9 120 1316 21.3 650 2035 4.6 140	

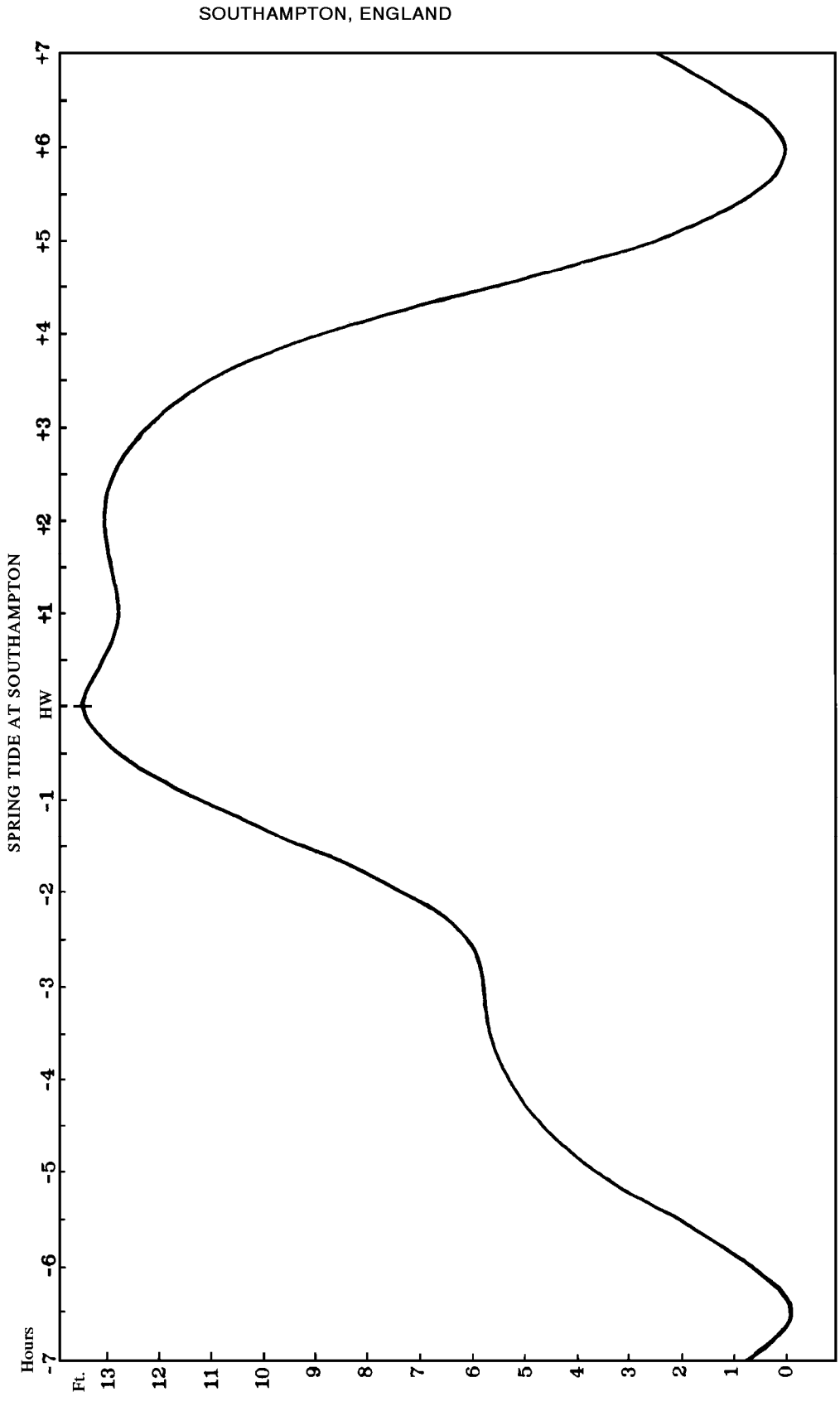
December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0137 21.3 650 0854 4.6 140 1400 20.3 620 2106 5.6 170		**16** M	0106 21.7 660 0836 3.9 120 1326 21.0 640 2053 4.6 140	
2 M	0222 20.3 620 0928 5.6 170 1448 19.4 590 2138 6.6 200		**17** Tu	0155 21.3 650 0922 4.3 130 1419 20.3 620 2140 4.9 150	
3 Tu	0311 19.4 590 1008 6.6 200 1542 18.0 550 2220 7.5 230		**18** W	0252 20.7 630 1014 4.9 150 1523 19.7 600 2235 5.6 170	
4 W ◐	0406 18.7 570 1102 7.2 220 1644 17.4 530 2320 8.2 250		**19** Th ◑	0357 20.0 610 1115 5.2 160 1640 19.0 580 2341 6.2 190	
5 Th	0508 18.0 550 1215 7.5 230 1751 17.1 520		**20** F	0510 19.4 590 1224 5.6 170 1803 18.7 570	
6 F	0044 8.2 250 0615 17.7 540 1327 7.5 230 1900 17.4 530		**21** Sa	0054 6.2 190 0625 19.4 590 1333 5.2 160 1913 19.0 580	
7 Sa	0155 7.9 240 0719 18.4 560 1426 6.6 200 1956 18.0 550		**22** Su	0204 5.9 180 0733 20.0 610 1439 4.9 150 2014 19.7 600	
8 Su	0254 6.9 210 0810 19.0 580 1519 5.9 180 2040 19.0 580		**23** M	0311 5.2 160 0833 20.3 620 1546 4.3 130 2107 20.3 620	
9 M	0344 5.9 180 0851 19.7 600 1606 4.9 150 2118 19.7 600		**24** Tu	0416 4.6 140 0926 21.0 640 1650 3.9 120 2156 20.7 630	
10 Tu	0430 5.2 160 0928 20.3 620 1651 4.3 130 2153 20.3 620		**25** W	0514 3.9 120 1015 21.3 650 1743 3.6 110 2240 21.3 650	
11 W	0512 4.6 140 1005 21.0 640 1733 3.9 120 2228 21.0 640		**26** Th ●	0603 3.6 110 1100 21.7 660 1829 3.3 100 2321 21.7 660	
12 Th ○	0553 3.9 120 1041 21.3 650 1814 3.6 110 2304 21.7 660		**27** F	0647 3.3 100 1141 21.7 660 1909 3.6 110	
13 F	0633 3.6 110 1119 21.7 660 1854 3.6 110 2341 21.7 660		**28** Sa	0001 21.7 660 0727 3.6 110 1221 21.3 650 1945 3.9 120	
14 Sa	0713 3.6 110 1157 21.7 660 1933 3.6 110		**29** Su	0041 21.7 660 0804 3.9 120 1301 21.0 640 2017 4.6 140	
15 Su	0021 22.0 670 0753 3.6 110 1240 21.7 660 2012 3.9 120		**30** M	0120 21.3 650 0838 4.3 130 1340 20.3 620 2046 4.9 150	
			31 Tu	0159 21.0 640 0909 4.9 150 1420 19.7 600 2114 5.6 170	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

A double high water occurs at Southampton. The tidal curves at both neaps and springs are represented by the diagram below and the one on page 77. The predictions for Southampton given on pages 78-81 contain only the first high water and the corresponding low water. The time and height of the other high water may be taken from the appropriate tidal diagram if required.




SOUTHAMPTON, ENGLAND
SPRING TIDE AT SOUTHAMPTON
Hours
-7
-6
-5
-4
-3
-2
-1
HW
+1
+2
+3
+4
+5
+6
+7
Ft.
13
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9
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1
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Southampton, England, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0012	5.2	160	**16** W	0608	12.8	390
	0630	13.5	410		1147	5.9	180
	1248	5.6	170		1745	11.8	360
	1854	12.5	380				
2 W	0114	5.2	160	**17** Th	0019	5.9	180
	0725	13.5	410		0627	12.8	390
	1346	4.9	150		1256	5.6	170
	2057	13.1	400		1903	12.5	380
3 Th	0208	4.9	150	**18** F	0126	5.2	160
	0919	14.1	430		0740	13.5	410
	1437	4.3	130		1400	4.6	140
	2149	13.5	410		2014	13.1	400
4 F	0257	4.3	130	**19** Sa	0226	4.3	130
	0959	14.1	430		0843	14.1	430
	1524	3.6	110		1457	3.3	100
	2240	13.8	420		2114	14.1	430
5 Sa	0344	3.9	120	**20** Su	0321	3.3	100
	0952	14.1	430		0935	14.8	450
	1609	3.3	100		1549	2.3	70
	2222	13.8	420		2204	14.8	450
6 Su ●	0429	3.6	110	**21** M ○	0411	2.3	70
	1035	14.1	430		1027	15.4	470
	1652	3.0	90		1637	1.3	40
	2304	13.8	420		2312	15.4	470
7 M	0511	3.6	110	**22** Tu	0459	1.6	50
	1117	14.1	430		1130	15.7	480
	1732	3.0	90		1724	0.7	20
	2342	13.8	420		2357	15.7	480
8 Tu	0551	3.9	120	**23** W	0545	1.3	40
	1151	14.1	430		1215	15.7	480
	1808	3.3	100		1809	0.7	20
9 W	0016	13.8	420	**24** Th	0044	15.4	470
	0625	4.3	130		0631	1.6	50
	1228	14.1	430		1301	15.4	470
	1838	3.6	110		1854	1.0	30
10 Th	0134	14.1	430	**25** F	0133	15.4	470
	0651	4.6	140		0716	2.0	60
	1300	13.8	420		1351	15.1	460
	1903	3.9	120		1939	1.6	50
11 F	0159	14.1	430	**26** Sa	0228	14.8	450
	0718	4.6	140		0802	3.0	90
	1333	13.5	410		1447	14.4	440
	1934	4.3	130		2026	2.6	80
12 Sa	0232	13.8	420	**27** Su ◑	0256	14.1	430
	0754	4.9	150		0853	3.9	120
	1412	13.1	400		1557	13.8	420
	2012	4.6	140		2119	3.9	120
13 Su	0313	13.8	420	**28** M	0353	13.5	410
	0837	5.2	160		0950	4.9	150
	1458	12.8	390		1614	12.8	390
	2059	4.9	150		2220	4.9	150
14 M ◐	0332	13.1	400	**29** Tu	0455	13.1	400
	0930	5.6	170		1057	5.6	170
	1545	12.5	380		1718	12.1	370
	2157	5.6	170		2332	5.9	180
15 Tu	0422	12.8	390	**30** W	0553	12.8	390
	1036	6.2	190		1213	5.9	180
	1645	12.1	370		1825	12.1	370
	2308	5.9	180				
				31 Th	0045	5.9	180
					0653	12.5	380
					1321	5.6	170
					1929	12.1	370

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0148	5.6	170	**16** Sa	0102	5.9	180
	0856	13.1	400		0708	12.5	380
	1419	5.2	160		1345	4.9	150
	2029	12.5	380		1957	12.8	390
2 Sa	0241	5.2	160	**17** Su	0216	4.9	150
	0944	13.5	410		0829	13.8	420
	1507	4.3	130		1448	3.6	110
	2121	12.8	390		2103	13.8	420
3 Su	0328	4.3	130	**18** M	0312	3.6	110
	0938	13.5	410		0923	14.4	440
	1552	3.6	110		1539	2.0	60
	2311	13.8	420		2153	14.8	450
4 M ●	0413	3.6	110	**19** Tu ○	0402	2.3	70
	1018	13.8	420		1012	15.4	470
	1634	3.0	90		1626	1.0	30
	2247	13.8	420		2258	15.4	470
5 Tu	0454	3.3	100	**20** W	0447	1.3	40
	1100	14.1	430		1113	15.7	480
	1713	2.6	80		1711	0.3	10
	2325	13.8	420		2340	15.7	480
6 W	0532	3.3	100	**21** Th	0531	0.7	20
	1135	14.1	430		1157	15.7	480
	1749	2.6	80		1753	0.0	0
	2359	14.1	430				
7 Th	0605	3.6	110	**22** F	0025	15.7	480
	1206	14.1	430		0614	0.7	20
	1819	3.0	90		1242	15.4	470
					1835	0.3	10
8 F	0102	14.1	430	**23** Sa	0112	15.4	470
	0630	3.6	110		0656	1.3	40
	1239	14.1	430		1329	15.1	460
	1842	3.3	100		1917	1.0	30
9 Sa	0126	14.1	430	**24** Su	0203	14.8	450
	0654	3.6	110		0738	2.0	60
	1334	14.1	430		1421	14.4	440
	1908	3.3	100		1959	2.3	70
10 Su	0157	14.1	430	**25** M	0226	14.1	430
	0726	3.6	110		0822	3.3	100
	1350	13.8	420		1443	13.5	410
	1944	3.3	100		2046	3.6	110
11 M	0236	14.1	430	**26** Tu ◑	0315	13.1	400
	0805	3.6	110		0913	4.6	140
	1428	13.5	410		1541	12.5	380
	2025	3.6	110		2141	5.2	160
12 Tu ◐	0321	13.8	420	**27** W	0415	12.5	380
	0851	4.3	130		1014	5.6	170
	1517	13.1	400		1642	11.8	360
	2113	4.6	140		2252	6.2	190
13 W	0349	13.1	400	**28** Th	0516	12.1	370
	0946	5.2	160		1133	6.2	190
	1609	12.5	380		1749	11.5	350
	2215	5.6	170				
14 Th	0444	12.5	380				
	1059	5.9	180				
	1748	12.1	370				
	2336	5.9	180				
15 F	0546	12.1	370				
	1224	5.9	180				
	1825	11.8	360				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0018	6.6	200	**16** Sa	0516	11.8	360
	0620	11.8	360		1206	5.9	180
	1255	6.2	190		1800	11.8	360
	1859	11.5	350				
2 Sa	0129	6.2	190	**17** Su	0100	6.2	190
	0816	12.1	370		0648	12.1	370
	1358	5.6	170		1340	4.9	150
	2003	12.1	370		1942	12.8	390
3 Su	0224	5.6	170	**18** M	0211	4.9	150
	0823	12.1	370		0814	13.5	410
	1447	4.6	140		1437	3.6	110
	2058	12.8	390		2047	14.1	430
4 M	0310	4.6	140	**19** Tu	0302	3.3	100
	0953	13.1	400		0908	14.4	440
	1530	3.6	110		1525	2.0	60
	2141	13.1	400		2134	14.8	450
5 Tu	0352	3.6	110	**20** W	0347	2.0	60
	0958	13.5	410		0955	15.1	460
	1611	3.0	90		1609	0.7	20
	2222	13.8	420		2241	15.4	470
6 W ●	0432	3.0	90	**21** Th ○	0430	1.0	30
	1039	13.8	420		1056	15.4	470
	1649	2.3	70		1652	0.0	0
	2259	14.1	430		2322	15.7	480
7 Th	0508	3.0	90	**22** F	0512	0.3	10
	1114	14.1	430		1138	15.4	470
	1724	2.3	70		1733	0.0	0
	2335	14.1	430				
8 F	0540	3.0	90	**23** Sa	0004	15.4	470
	1145	14.1	430		0553	0.3	10
	1753	2.6	80		1221	15.4	470
					1813	0.3	10
9 Sa	0001	14.1	430	**24** Su	0048	15.1	460
	0604	3.0	90		0633	1.0	30
	1237	14.4	440		1307	14.8	450
	1817	2.6	80		1852	1.3	40
10 Su	0056	14.4	440	**25** M	0136	14.8	450
	0629	2.6	80		0713	2.0	60
	1307	14.4	440		1357	14.4	440
	1844	2.6	80		1933	2.3	70
11 M	0128	14.4	440	**26** Tu	0236	14.1	430
	0701	2.6	80		0753	3.0	90
	1343	14.4	440		1414	13.5	410
	1918	2.6	80		2016	3.9	120
12 Tu	0206	14.4	440	**27** W	0234	13.1	400
	0738	2.6	80		0839	4.3	130
	1425	14.4	440		1459	12.5	380
	1957	3.0	90		2108	5.2	160
13 W	0230	13.8	420	**28** Th ◑	0323	12.1	370
	0821	3.3	100		0936	5.6	170
	1449	13.5	410		1603	11.8	360
	2043	3.9	120		2216	6.6	200
14 Th ◐	0317	13.1	400	**29** F	0429	11.5	350
	0911	4.6	140		1052	6.6	200
	1541	12.8	390		1714	11.5	350
	2139	5.2	160		2345	6.9	210
15 F	0409	12.5	380	**30** Sa	0539	11.2	340
	1020	5.6	170		1218	6.6	200
	1724	12.5	380		1915	11.8	360
	2305	6.2	190				
				31 Su	0101	6.9	210
					0728	11.5	350
					1325	5.9	180
					1925	11.8	360

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
NOTE – See explanation on page 76

Southampton, England, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0158	5.9 180	16 Tu	0154	4.9 150
	0746	11.8 360		0749	13.1 400
	1417	5.2 160		1416	3.6 110
	2026	12.5 380		2026	14.1 430
2 Tu	0244	4.9 150	17 W	0242	3.3 100
	0922	12.8 390		0844	14.1 430
	1501	3.9 120		1503	2.3 70
	2113	13.5 410		2112	14.8 450
3 W	0325	3.9 120	18 Th	0326	2.3 70
	0929	13.1 400		0931	14.8 450
	1542	3.3 100		1547	1.3 40
	2153	13.8 420		2223	15.4 470
4 Th	0403	3.3 100	19 F	0409	1.3 40
	1011	13.8 420		1036	15.1 460
	1619	2.6 80		1629	0.7 20
	2231	14.1 430	○	2302	15.4 470
5 F	0438	2.6 80	20 Sa	0450	0.7 20
	1046	14.1 430		1118	15.1 460
	1653	2.3 70		1709	0.7 20
●	2303	14.4 440		2344	15.4 470
6 Sa	0509	2.6 80	21 Su	0530	1.0 30
	1117	14.1 430		1201	14.8 450
	1723	2.3 70		1749	1.0 30
	2335	14.4 440			
7 Su	0537	2.3 70	22 M	0025	15.1 460
	1211	14.8 450		0610	1.3 40
	1751	2.3 70		1247	14.4 440
				1829	2.0 60
8 M	0028	14.8 450	23 Tu	0109	14.4 440
	0605	2.3 70		0649	2.0 60
	1243	14.8 450		1339	14.1 430
	1821	2.3 70		1909	3.0 90
9 Tu	0102	14.8 450	24 W	0158	14.1 430
	0638	2.0 60		0728	3.3 100
	1321	14.8 450		1344	13.5 410
	1856	2.6 80		1951	4.3 130
10 W	0141	14.8 450	25 Th	0202	13.1 400
	0716	2.3 70		0811	4.3 130
	1404	14.4 440		1431	12.8 390
	1936	3.0 90		2039	5.6 170
11 Th	0201	14.1 430	26 F	0243	12.1 370
	0759	3.3 100		0903	5.6 170
	1429	13.8 420		1523	12.1 370
	2022	4.3 130	◑	2143	6.6 200
12 F	0249	13.1 400	27 Sa	0336	11.5 350
	0849	4.3 130		1012	6.2 190
	1556	13.1 400		1633	11.8 360
◐	2119	5.6 170		2302	7.2 220
13 Sa	0343	12.1 370	28 Su	0450	11.2 340
	1002	5.6 170		1128	6.6 200
	1626	12.1 370		1740	11.8 360
	2300	6.6 200			
14 Su	0458	11.8 360	29 M	0018	6.9 210
	1158	5.9 180		0646	11.5 350
	1754	12.1 370		1239	6.2 190
				1845	11.8 360
15 M	0051	5.9 180	30 Tu	0121	6.2 190
	0636	12.1 370		0749	11.8 360
	1321	4.9 150		1337	5.6 170
	1924	13.1 400		1947	12.5 380

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0210	5.6 170	16 Th	0214	3.6 110
	0844	12.5 380		0819	13.8 420
	1424	4.6 140		1435	3.0 90
	2120	13.8 420		2048	14.4 440
2 Th	0251	4.6 140	17 F	0301	2.6 80
	0857	13.1 400		0908	14.1 430
	1505	3.9 120		1521	2.3 70
	2119	13.8 420		2204	15.1 460
3 F	0328	3.6 110	18 Sa	0345	2.0 60
	0936	13.5 410		1019	14.4 440
	1543	3.0 90		1604	1.6 50
	2158	14.4 440	○	2243	15.1 460
4 Sa	0403	3.0 90	19 Su	0427	1.6 50
	1016	14.1 430		1103	14.4 440
	1619	2.6 80		1646	1.6 50
●	2231	14.4 440		2324	14.8 450
5 Su	0436	2.3 70	20 M	0508	1.6 50
	1049	14.4 440		1148	14.4 440
	1652	2.3 70		1728	2.0 60
	2306	14.8 450			
6 M	0509	2.0 60	21 Tu	0005	14.8 450
	1147	14.8 450		0550	2.0 60
	1726	2.3 70		1239	14.1 430
				1809	2.6 80
7 Tu	0003	15.1 460	22 W	0047	14.4 440
	0543	2.0 60		0629	2.6 80
	1223	15.1 460		1237	13.8 420
	1801	2.3 70		1850	3.6 110
8 W	0040	15.1 460	23 Th	0130	13.8 420
	0621	2.0 60		0708	3.3 100
	1303	14.8 450		1321	13.5 410
	1840	2.6 80		1930	4.6 140
9 Th	0122	14.8 450	24 F	0133	13.1 400
	0701	2.6 80		0748	4.3 130
	1350	14.4 440		1406	12.8 390
	1923	3.3 100		2015	5.2 160
10 F	0145	14.1 430	25 Sa	0213	12.5 380
	0747	3.3 100		0834	5.2 160
	1445	14.1 430		1455	12.5 380
	2013	4.6 140		2107	6.2 190
11 Sa	0233	13.1 400	26 Su	0259	11.8 360
	0842	4.3 130		0930	5.9 180
	1555	13.5 410		1545	12.1 370
	2120	5.6 170	◑	2210	6.9 210
12 Su	0337	12.5 380	27 M	0355	11.2 340
	1001	5.2 160		1034	6.2 190
	1624	12.8 390		1645	12.1 370
◐	2251	5.9 180		2315	6.9 210
13 M	0452	12.1 370	28 Tu	0500	11.2 340
	1132	5.2 160		1137	6.2 190
	1744	12.8 390		1754	12.1 370
14 Tu	0015	5.6 170	29 W	0020	6.6 200
	0612	12.5 380		0614	11.5 350
	1246	4.6 140		1238	5.9 180
	1859	13.5 410		1900	12.5 380
15 W	0122	4.9 150	30 Th	0117	5.9 180
	0722	13.1 400		0723	12.1 370
	1346	3.9 120		1333	5.2 160
	2002	14.1 430		1955	13.1 400
			31 F	0204	4.9 150
				0817	12.8 390
				1420	4.6 140
				2041	13.8 420

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0245	4.3 130	16 Su	0322	3.0 90
	0903	13.5 410		1010	14.1 430
	1503	3.6 110		1542	3.0 90
	2122	14.1 430		2229	14.4 440
2 Su	0325	3.3 100	17 M	0407	2.6 80
	0944	14.1 430		1059	14.1 430
	1544	3.0 90		1627	3.0 90
	2201	14.4 440	○	2311	14.4 440
3 M	0405	2.6 80	18 Tu	0450	2.3 70
	1023	14.4 440		1101	13.8 420
	1625	2.6 80		1711	3.0 90
●	2240	14.8 450		2317	14.1 430
4 Tu	0446	2.0 60	19 W	0533	2.6 80
	1125	14.8 450		1144	13.8 420
	1705	2.3 70		1753	3.3 100
	2343	15.1 460		2355	13.8 420
5 W	0527	2.0 60	20 Th	0614	3.0 90
	1206	15.1 460		1224	13.8 420
	1748	2.3 70		1835	3.9 120
6 Th	0024	15.1 460	21 F	0033	13.5 410
	0609	2.0 60		0652	3.6 110
	1251	15.1 460		1303	13.5 410
	1831	2.6 80		1913	4.6 140
7 F	0109	15.1 460	22 Sa	0114	13.5 410
	0654	2.3 70		0728	3.9 120
	1341	14.8 450		1340	13.1 400
	1919	3.3 100		1949	4.9 150
8 Sa	0200	14.4 440	23 Su	0151	12.8 390
	0743	3.0 90		0804	4.6 140
	1438	14.4 440		1421	13.1 400
	2012	4.3 130		2028	5.6 170
9 Su	0258	13.8 420	24 M	0228	12.5 380
	0839	3.6 110		0845	5.2 160
	1547	14.1 430		1505	12.8 390
	2114	4.9 150		2114	5.9 180
10 M	0331	13.1 400	25 Tu	0316	12.1 370
	0946	4.3 130		0937	5.6 170
	1611	13.5 410		1551	12.5 380
◐	2225	5.2 160	◑	2209	6.2 190
11 Tu	0434	12.8 390	26 W	0407	11.5 350
	1057	4.6 140		1036	5.9 180
	1722	13.5 410		1643	12.1 370
	2336	5.2 160		2309	6.6 200
12 W	0542	12.5 380	27 Th	0502	11.5 350
	1206	4.6 140		1137	5.9 180
	1827	13.5 410		1740	12.1 370
13 Th	0043	4.9 150	28 F	0009	6.2 190
	0652	12.8 390		0606	11.5 350
	1310	4.3 130		1236	5.6 170
	1927	13.8 420		1847	12.5 380
14 F	0143	4.3 130	29 Sa	0108	5.6 170
	0751	13.1 400		0718	12.1 370
	1406	3.9 120		1333	5.2 160
	2019	14.1 430		1954	13.1 400
15 Sa	0235	3.6 110	30 Su	0202	4.6 140
	0925	13.8 420		0821	13.1 400
	1456	3.3 100		1426	4.3 130
	2148	14.4 440		2047	13.8 420

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
NOTE – See explanation on page 76

Southampton, England, 2019

Times and Heights of High and Low Waters

July

Day	Time (h m)	Height (ft)	Height (cm)
1 M	0253 0913 1516 2132	3.6 13.8 3.6 14.4	110 420 110 440
2 Tu ●	0341 0959 1604 2220	2.6 14.4 3.0 14.8	80 440 90 450
3 W	0428 1109 1651 2305	2.0 15.1 2.6 15.1	60 460 80 460
4 Th	0515 1153 1737	1.6 15.1 2.3	50 460 70
5 F	0009 0601 1238 1824	15.4 1.6 15.4 2.3	470 50 470 70
6 Sa	0056 0647 1328 1911	15.1 1.6 15.1 2.6	460 50 460 80
7 Su	0145 0735 1422 2001	14.8 2.3 14.8 3.3	450 70 450 100
8 M	0240 0826 1526 2055	14.4 3.0 14.4 3.9	440 90 440 120
9 Tu ◐	0343 0921 1553 2154	13.8 3.6 13.8 4.6	420 110 420 140
10 W	0412 1023 1655 2259	13.1 4.6 13.5 5.2	400 140 410 160
11 Th	0517 1129 1755	12.8 4.9 13.5	390 150 410
12 F	0007 0622 1236 1854	5.2 12.5 5.2 13.1	160 380 160 400
13 Sa	0114 0725 1339 1953	4.9 12.8 4.9 13.5	150 390 150 410
14 Su	0212 0824 1435 2044	4.6 12.8 4.6 13.5	140 390 140 410
15 M	0303 1009 1525 2216	3.9 13.5 4.3 14.1	120 410 130 430
16 Tu ○	0351 1057 1612 2216	3.3 13.8 3.6 13.8	100 420 110 420
17 W	0435 1147 1656 2259	3.0 14.1 3.6 13.8	90 430 110 420
18 Th	0518 1131 1739 2341	2.6 13.8 3.6 13.8	80 420 110 420
19 F	0558 1208 1819	3.0 13.8 3.6	90 420 110
20 Sa	0016 0635 1242 1853	13.8 3.3 13.8 4.3	420 100 420 130
21 Su	0051 0705 1316 1921	13.5 3.6 13.8 4.6	410 110 420 140
22 M	0125 0732 1429 1949	13.5 3.9 13.8 4.9	410 120 420 150
23 Tu	0201 0804 1429 2026	13.1 4.3 13.5 5.2	400 130 410 160
24 W	0242 0844 1511 2112	12.8 4.9 13.1 5.6	390 150 400 170
25 Th ◑	0326 0935 1601 2210	12.5 5.2 12.8 5.9	380 160 390 180
26 F	0420 1040 1654 2317	12.1 5.9 12.5 5.9	370 180 380 180
27 Sa	0604 1147 1752	12.1 5.9 12.5	370 180 380
28 Su	0024 0621 1254 1902	5.9 11.8 5.6 12.8	180 360 170 390
29 M	0129 0741 1358 2017	4.9 12.5 4.9 13.5	150 380 150 410
30 Tu	0231 0850 1457 2116	3.9 13.5 4.3 14.4	120 410 130 440
31 W	0326 0942 1550 2204	3.0 14.4 3.3 15.1	90 440 100 460

August

Day	Time (h m)	Height (ft)	Height (cm)
1 Th ●	0417 1031 1640 2250	2.0 15.1 2.3 15.4	60 460 70 470
2 F	0504 1138 1726 2353	1.3 15.4 1.6 15.7	40 470 50 480
3 Sa	0549 1222 1811	0.7 15.7 1.6	20 480 50
4 Su	0038 0634 1309 1856	15.7 1.0 15.4 2.0	480 30 470 60
5 M	0125 0718 1400 1941	15.1 1.3 15.1 2.3	460 40 460 70
6 Tu	0217 0803 1501 2029	14.8 2.3 14.8 3.3	450 70 450 100
7 W ◐	0318 0853 1525 2123	14.1 3.3 13.8 4.3	430 100 420 130
8 Th	0347 0950 1626 2225	13.1 4.6 13.5 5.2	400 140 410 160
9 F	0451 1056 1725 2336	12.5 5.6 13.1 5.9	380 170 400 180
10 Sa	0555 1209 1825	12.1 5.9 12.8	370 180 390
11 Su	0050 0700 1319 1926	5.9 12.1 5.9 12.8	180 370 180 390
12 M	0154 0803 1419 2026	5.6 12.5 5.6 12.8	170 380 170 390
13 Tu	0247 0902 1510 2200	4.6 12.8 4.9 13.8	140 390 150 420
14 W	0334 1050 1556 2201	3.9 13.8 3.9 13.8	120 420 120 420
15 Th ○	0418 1030 1639 2242	3.0 13.8 3.6 13.8	90 420 110 420
16 F	0459 1109 1720 2318	2.6 13.8 3.3 13.8	80 420 100 420
17 Sa	0537 1148 1757 2352	2.6 14.1 3.3 13.8	80 430 100 420
18 Su	0612 1256 1828	3.0 14.4 3.9	90 440 120
19 M	0027 0639 1319 1850	13.8 3.3 14.1 3.9	420 100 430 120
20 Tu	0056 0700 1346 1914	13.8 3.6 14.1 3.9	420 110 430 120
21 W	0154 0728 1420 1947	14.1 3.6 14.1 4.3	430 110 430 130
22 Th	0208 0805 1501 2029	13.5 3.9 14.1 4.6	410 120 430 140
23 F ◑	0254 0850 1520 2120	13.1 4.9 13.1 5.2	400 150 400 160
24 Sa	0343 0947 1611 2228	12.5 5.6 12.8 5.9	380 170 390 180
25 Su	0514 1103 1756 2350	12.5 6.6 12.8 6.2	380 200 390 190
26 M	0544 1228 1822	11.8 6.6 12.1	360 200 370
27 Tu	0111 0715 1345 1956	5.6 12.5 5.6 13.1	170 380 170 400
28 W	0221 0838 1448 2057	4.3 13.8 4.6 14.1	130 420 140 430
29 Th	0316 0930 1540 2147	3.0 14.8 3.3 15.1	90 450 100 460
30 F ●	0404 1015 1626 2232	1.6 15.4 2.0 15.7	50 470 60 480
31 Sa	0449 1120 1710 2334	0.7 16.1 1.3 16.1	20 490 40 490

September

Day	Time (h m)	Height (ft)	Height (cm)
1 Su	0532 1202 1753	0.3 16.1 1.0	10 490 30
2 M	0017 0614 1248 1835	15.7 0.3 15.7 1.3	480 10 480 40
3 Tu	0103 0656 1336 1918	15.4 1.0 15.4 2.0	470 30 470 60
4 W	0153 0738 1435 2002	14.8 2.3 14.8 3.3	450 70 450 100
5 Th	0254 0824 1449 2051	14.1 3.6 13.8 4.6	430 110 420 140
6 F ◐	0311 0918 1551 2152	13.1 4.9 13.1 5.6	400 150 400 170
7 Sa	0418 1026 1652 2308	12.5 6.2 12.5 6.6	380 190 380 200
8 Su	0527 1147 1757	11.8 6.9 12.1	360 210 370
9 M	0027 0634 1300 1953	6.6 11.8 6.9 12.5	200 360 210 380
10 Tu	0133 0737 1400 1958	6.2 12.1 6.2 12.5	190 370 190 380
11 W	0226 0839 1450 2052	5.2 12.8 5.2 13.1	160 390 160 400
12 Th	0312 0927 1534 2211	4.3 13.5 4.3 13.8	130 410 130 420
13 F	0354 1009 1616 2216	3.3 14.1 3.6 13.8	100 430 110 420
14 Sa ○	0434 1046 1655 2257	2.6 14.4 3.3 14.1	80 440 100 430
15 Su	0511 1118 1729 2330	2.6 14.4 3.3 14.1	80 440 100 430
16 M	0543 1152 1757 2358	3.0 14.4 3.6 14.1	90 440 110 430
17 Tu	0608 1244 1818	3.3 14.8 3.6	100 450 110
18 W	0051 0629 1312 1843	14.4 3.3 14.8 3.6	440 100 450 110
19 Th	0124 0658 1346 1917	14.4 3.3 14.8 3.6	440 100 450 110
20 F	0203 0734 1402 1957	14.4 3.6 14.1 4.3	440 110 430 130
21 Sa	0248 0816 1450 2043	14.1 4.6 13.5 4.9	430 140 410 150
22 Su ◑	0312 0908 1538 2145	13.1 5.9 12.8 6.2	400 180 390 190
23 M	0447 1027 1729 2330	12.5 6.9 12.5 6.6	380 210 380 200
24 Tu	0517 1221 1802	11.8 6.9 12.1	360 210 370
25 W	0107 0702 1341 1940	5.9 12.5 5.9 13.1	180 380 180 400
26 Th	0210 0823 1436 2040	4.6 14.1 4.6 14.4	140 430 140 440
27 F	0300 0914 1523 2129	3.0 15.1 3.0 15.1	90 460 90 460
28 Sa ●	0346 0957 1608 2232	1.6 15.7 2.0 15.7	50 480 60 480
29 Su	0429 1059 1650 2313	0.7 16.1 1.0 16.1	20 490 30 490
30 M	0510 1141 1732 2356	0.3 16.1 1.0 16.1	10 490 30 490

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
NOTE – See explanation on page 76

Southampton, England, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0551	0.7	20	**16** W	0536	3.3	100
	1224	15.7	480		1214	15.1	460
	1812	1.3	40		1748	3.3	100
2 W	0040	15.4	470	**17** Th	0025	14.8	450
	0631	1.3	40		0602	3.3	100
	1310	15.4	470		1243	15.1	460
	1852	2.3	70		1818	3.3	100
3 Th	0129	14.8	450	**18** F	0059	15.1	460
	0712	2.6	80		0634	3.3	100
	1405	14.8	450		1319	15.1	460
	1934	3.3	100		1852	3.3	100
4 F	0234	14.1	430	**19** Sa	0139	14.8	450
	0756	3.9	120		0711	3.9	120
	1415	13.8	420		1400	14.4	440
	2020	4.6	140		1932	3.9	120
5 Sa ◐	0236	12.8	390	**20** Su	0226	14.1	430
	0848	5.6	170		0754	4.9	150
	1505	12.8	390		1419	13.5	410
	2120	5.9	180		2018	4.9	150
6 Su	0346	12.5	380	**21** M ◑	0322	13.5	410
	0959	6.9	210		0845	5.9	180
	1612	12.1	370		1512	12.8	390
	2239	6.9	210		2120	6.2	190
7 M	0459	12.1	370	**22** Tu	0437	12.8	390
	1123	7.2	220		1014	7.2	220
	1718	11.8	360		1720	12.5	380
	2357	6.9	210		2323	6.6	200
8 Tu	0654	12.1	370	**23** W	0510	12.1	370
	1233	7.2	220		1215	6.9	210
	1905	12.1	370		1749	12.1	370
9 W	0101	6.6	200	**24** Th	0051	5.9	180
	0704	12.1	370		0646	13.1	400
	1332	6.6	200		1323	5.9	180
	1926	12.1	370		1915	13.1	400
10 Th	0156	5.6	170	**25** F	0149	4.6	140
	0803	12.8	390		0800	14.1	430
	1423	5.6	170		1415	4.3	130
	2022	12.8	390		2015	14.1	430
11 F	0242	4.6	140	**26** Sa	0237	3.3	100
	0852	13.5	410		0851	15.1	460
	1507	4.6	140		1501	3.0	90
	2143	13.8	420		2104	15.1	460
12 Sa	0324	3.6	110	**27** Su	0322	2.0	60
	0936	14.1	430		0932	15.7	480
	1547	3.6	110		1544	2.0	60
	2148	14.1	430		2212	15.7	480
13 Su ○	0403	3.3	100	**28** M ●	0405	1.3	40
	1013	14.4	440		1039	16.1	490
	1624	3.3	100		1626	1.3	40
	2229	14.4	440		2252	15.7	480
14 M	0439	3.0	90	**29** Tu	0446	1.3	40
	1050	14.8	450		1119	16.1	490
	1657	3.3	100		1708	1.3	40
	2302	14.4	440		2336	15.7	480
15 Tu	0510	3.0	90	**30** W	0527	1.3	40
	1119	14.8	450		1201	15.7	480
	1724	3.3	100		1749	1.6	50
	2331	14.4	440				
				31 Th	0020	15.4	470
					0608	2.3	70
					1245	15.4	470
					1829	2.3	70

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0109	14.8	450	**16** Sa	0041	15.1	460
	0649	3.3	100		0617	3.6	110
	1334	14.8	450		1259	15.1	460
	1910	3.6	110		1836	3.3	100
2 Sa	0124	13.8	420	**17** Su	0124	14.8	450
	0732	4.6	140		0657	3.9	120
	1339	13.5	410		1343	14.8	450
	1955	4.6	140		1918	3.9	120
3 Su	0209	13.1	400	**18** M	0213	14.4	440
	0823	5.9	180		0743	4.9	150
	1430	12.8	390		1406	13.8	420
	2049	5.9	180		2007	4.9	150
4 M ◐	0308	12.5	380	**19** Tu ◑	0314	13.8	420
	0929	6.9	210		0840	5.9	180
	1525	12.1	370		1500	13.1	400
	2202	6.6	200		2115	5.9	180
5 Tu	0420	12.1	370	**20** W	0433	13.5	410
	1048	7.2	220		1008	6.6	200
	1640	11.8	360		1703	12.8	390
	2317	6.9	210		2255	6.2	190
6 W	0523	12.1	370	**21** Th	0458	12.8	390
	1158	7.2	220		1141	6.6	200
	1822	11.8	360		1728	12.5	380
7 Th	0021	6.9	210	**22** F	0016	5.6	170
	0623	12.1	370		0616	13.5	410
	1257	6.9	210		1251	5.6	170
	1926	12.1	370		1845	13.1	400
8 F	0117	6.2	190	**23** Sa	0117	4.6	140
	0721	12.8	390		0727	14.1	430
	1349	5.9	180		1347	4.6	140
	2027	12.8	390		1949	13.8	420
9 Sa	0206	5.2	160	**24** Su	0209	3.6	110
	0817	13.5	410		0821	14.8	450
	1434	4.9	150		1435	3.6	110
	2111	13.5	410		2040	14.4	440
10 Su	0249	4.6	140	**25** M	0256	3.0	90
	0942	14.4	440		0908	15.4	470
	1513	4.3	130		1520	2.6	80
	2120	13.8	420		2155	15.1	460
11 M	0328	3.9	120	**26** Tu ●	0340	2.3	70
	0940	14.4	440		1021	15.7	480
	1549	3.6	110		1604	2.0	60
	2157	14.1	430		2237	15.1	460
12 Tu ○	0403	3.6	110	**27** W	0423	2.3	70
	1019	14.8	450		1102	15.7	480
	1622	3.3	100		1646	2.0	60
	2231	14.4	440		2322	15.1	460
13 W	0436	3.3	100	**28** Th	0506	2.3	70
	1049	14.8	450		1144	15.4	470
	1652	3.0	90		1728	2.3	70
	2332	15.1	460				
14 Th	0508	3.3	100	**29** F	0010	14.8	450
	1148	15.1	460		0548	3.0	90
	1724	3.0	90		1226	15.1	460
					1810	2.6	80
15 F	0004	15.1	460	**30** Sa	0021	14.1	430
	0541	3.3	100		0631	3.6	110
	1221	15.1	460		1311	14.4	440
	1758	3.0	90		1851	3.6	110

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0102	13.8	420	**16** M	0114	15.1	460
	0714	4.6	140		0652	3.6	110
	1320	13.8	420		1332	15.1	460
	1934	4.3	130		1914	3.3	100
2 M	0148	13.5	410	**17** Tu	0205	14.8	450
	0800	5.6	170		0740	4.3	130
	1400	13.1	400		1424	14.4	440
	2021	5.2	160		2005	3.9	120
3 Tu	0238	12.8	390	**18** W	0303	14.4	440
	0852	6.6	200		0836	4.9	150
	1452	12.5	380		1524	13.8	420
	2117	6.2	190		2105	4.6	140
4 W	0332	12.5	380	**19** Th ◐	0414	13.8	420
	0956	6.9	210		0943	5.6	170
	1546	11.8	360		1636	13.5	410
	2222	6.6	200		2217	5.2	160
5 Th	0434	12.5	380	**20** F	0438	13.5	410
	1106	7.2	220		1059	5.9	180
	1653	11.8	360		1703	12.8	390
	2328	6.9	210		2334	5.2	160
6 F	0535	12.5	380	**21** Sa	0547	13.5	410
	1212	6.9	210		1213	5.6	170
	1759	11.8	360		1814	12.8	390
7 Sa	0028	6.6	200	**22** Su	0042	4.9	150
	0726	13.1	400		0654	13.8	420
	1307	6.6	200		1317	4.9	150
	1946	12.5	380		1922	13.5	410
8 Su	0121	5.9	180	**23** M	0141	4.6	140
	0823	13.5	410		0754	14.1	430
	1353	5.6	170		1411	4.3	130
	2041	13.1	400		2017	13.8	420
9 M	0207	5.2	160	**24** Tu	0232	3.9	120
	0823	13.8	420		0843	14.4	440
	1433	4.9	150		1500	3.6	110
	2046	13.5	410		2148	14.1	430
10 Tu	0248	4.6	140	**25** W	0320	3.6	110
	0907	14.1	430		1009	15.1	460
	1511	3.9	120		1546	3.0	90
	2130	13.8	420		2234	14.4	440
11 W	0328	3.9	120	**26** Th ●	0406	3.3	100
	0948	14.4	440		1051	15.1	460
	1549	3.3	100		1631	2.6	80
	2204	14.1	430		2324	14.4	440
12 Th ○	0407	3.6	110	**27** F	0451	3.0	90
	1025	14.8	450		1133	14.8	450
	1627	3.0	90		1714	2.6	80
	2243	14.4	440		2326	14.1	430
13 F	0446	3.3	100	**28** Sa	0535	3.3	100
	1103	15.1	460		1212	14.8	450
	1707	2.6	80		1756	2.6	80
	2349	15.1	460				
14 Sa	0526	3.3	100	**29** Su	0008	14.1	430
	1145	15.1	460		0617	3.6	110
	1747	2.6	80		1222	14.1	430
					1837	3.3	100
15 Su	0029	15.1	460	**30** M	0050	13.8	420
	0608	3.3	100		0657	4.3	130
	1226	15.1	460		1257	13.8	420
	1830	2.6	80		1915	3.9	120
				31 Tu	0128	13.5	410
					0736	4.9	150
					1340	13.5	410
					1952	4.6	140

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
NOTE – See explanation on page 76

Liverpool, England, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0138	7.9 240	**16** W	0022	9.8 300
	0720	26.2 800		0607	24.3 740
	1400	8.9 270		1259	10.8 330
	1947	26.9 820		1839	25.3 770
2 W	0242	7.5 230	**17** Th	0139	9.2 280
	0822	26.9 820		0720	25.3 770
	1505	8.2 250		1414	9.5 290
	2046	27.2 830		1948	26.2 800
3 Th	0338	7.2 220	**18** F	0246	8.2 250
	0915	27.9 850		0824	26.9 820
	1601	7.5 230		1519	7.9 240
	2138	27.9 850		2049	27.9 850
4 F	0426	6.6 200	**19** Sa	0345	6.6 200
	1000	28.5 870		0920	28.5 870
	1649	6.9 210		1618	5.9 180
	2222	28.5 870		2145	29.2 890
5 Sa	0507	6.2 190	**20** Su	0440	5.2 160
	1040	29.2 890		1011	30.2 920
	1730	6.2 190		1712	4.3 130
	2302	28.9 880		2237	30.5 930
6 Su ●	0544	6.2 190	**21** M ○	0531	3.9 120
	1116	29.5 900		1100	31.5 960
	1808	5.9 180		1805	3.0 90
	2338	28.9 880		2326	31.5 960
7 M	0618	6.2 190	**22** Tu	0620	3.3 100
	1151	29.9 910		1148	32.2 980
	1842	5.9 180		1855	2.0 60
8 Tu	0012	28.9 880	**23** W	0015	32.2 980
	0649	6.2 190		0707	2.6 80
	1225	29.9 910		1236	32.5 990
	1914	6.2 190		1942	1.6 50
9 W	0045	28.5 870	**24** Th	0104	31.8 970
	0720	6.6 200		0753	3.0 90
	1259	29.5 900		1323	32.5 990
	1945	6.2 190		2028	2.0 60
10 Th	0118	27.9 850	**25** F	0151	31.2 950
	0752	7.2 220		0837	3.9 120
	1333	28.9 880		1411	31.5 960
	2018	6.9 210		2114	3.0 90
11 F	0152	27.2 830	**26** Sa	0239	29.9 910
	0826	7.9 240		0922	4.9 150
	1408	28.2 860		1500	30.5 930
	2053	7.5 230		2200	4.6 140
12 Sa	0228	26.6 810	**27** Su	0328	28.2 860
	0904	8.5 260		1009	6.6 200
	1446	27.2 830		1551	28.9 880
	2132	8.2 250	◑	2251	6.6 200
13 Su	0308	25.6 780	**28** M	0422	26.9 820
	0946	9.5 290		1102	8.2 250
	1529	26.2 800		1650	26.9 820
	2217	9.2 280		2349	8.2 250
14 M ◐	0356	24.9 760	**29** Tu	0526	25.6 780
	1037	10.5 320		1207	9.5 290
	1622	25.6 780		1759	25.6 780
	2312	9.8 300			
15 Tu	0456	24.3 740	**30** W	0057	9.2 280
	1141	11.2 340		0638	24.9 760
	1728	25.3 770		1323	10.2 310
				1915	25.3 770
			31 Th	0209	9.2 280
				0752	25.3 770
				1439	9.5 290
				2026	25.6 780

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0313	8.9 270	**16** Sa	0215	8.9 270
	0854	26.2 800		0757	25.9 790
	1543	8.5 260		1455	8.2 250
	2124	26.2 800		2031	26.9 820
2 Sa	0407	7.9 240	**17** Su	0323	7.2 220
	0944	27.6 840		0902	27.9 850
	1635	7.5 230		1601	5.9 180
	2211	27.2 830		2132	28.9 880
3 Su	0451	7.2 220	**18** M	0423	5.2 160
	1025	28.5 870		0957	29.9 910
	1718	6.6 200		1700	3.9 120
	2250	27.9 850		2226	30.5 930
4 M ●	0529	6.6 200	**19** Tu ○	0518	3.6 110
	1102	29.2 890		1047	31.5 960
	1754	5.9 180		1753	2.0 60
	2324	28.5 870		2315	31.8 970
5 Tu	0602	5.9 180	**20** W	0608	2.6 80
	1135	29.9 910		1135	32.8 1000
	1827	5.6 170		1842	0.7 20
	2356	28.9 880			
6 W	0633	5.6 170	**21** Th	0002	32.5 990
	1208	29.9 910		0654	1.6 50
	1857	5.2 160		1221	33.1 1010
				1926	0.3 10
7 Th	0027	28.9 880	**22** F	0047	32.5 990
	0703	5.6 170		0737	1.6 50
	1240	29.9 910		1305	33.1 1010
	1926	5.2 160		2009	1.0 30
8 F	0057	28.9 880	**23** Sa	0130	31.8 970
	0734	5.6 170		0818	2.6 80
	1311	29.5 900		1348	32.2 980
	1957	5.2 160		2050	2.3 70
9 Sa	0128	28.2 860	**24** Su	0212	30.5 930
	0807	6.2 190		0858	3.9 120
	1342	29.2 890		1431	30.5 930
	2029	5.9 180		2130	4.3 130
10 Su	0159	27.6 840	**25** M	0255	28.9 880
	0841	6.9 210		0939	5.9 180
	1414	28.2 860		1516	28.5 870
	2103	6.9 210		2212	6.6 200
11 M	0232	26.9 820	**26** Tu	0342	26.9 820
	0916	7.9 240		1025	7.9 240
	1451	27.6 840		1609	26.6 810
	2139	7.9 240	◑	2302	8.9 270
12 Tu	0312	26.2 800	**27** W	0439	25.3 770
	0957	9.2 280		1123	9.8 300
	1535	26.6 810		1716	24.6 750
◐	2224	8.9 270			
13 W	0403	25.3 770	**28** Th	0010	10.5 320
	1050	10.2 310		0552	24.0 730
	1635	25.6 780		1244	10.8 330
	2325	9.8 300		1840	23.6 720
14 Th	0513	24.6 750			
	1206	10.5 320			
	1753	24.9 760			
15 F	0050	9.8 300			
	0638	24.6 750			
	1338	9.8 300			
	1917	25.6 780			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0134	10.8 330	**16** Sa	0013	10.2 310
	0717	24.0 730		0610	24.3 740
	1412	10.5 320		1311	9.5 290
	2005	24.0 730		1857	24.9 760
2 Sa	0248	10.2 310	**17** Su	0149	9.5 290
	0830	24.9 760		0736	25.6 780
	1523	9.2 280		1436	7.9 240
	2108	25.3 770		2017	26.6 810
3 Su	0347	8.9 270	**18** M	0304	7.5 230
	0923	26.6 810		0845	27.6 840
	1617	7.9 240		1545	5.6 170
	2154	26.6 810		2120	28.5 870
4 M	0432	7.5 230	**19** Tu	0407	5.6 170
	1005	27.9 850		0942	29.9 910
	1658	6.6 200		1644	3.3 100
	2232	27.6 840		2212	30.5 930
5 Tu	0510	6.6 200	**20** W	0502	3.6 110
	1041	28.9 880		1031	31.5 960
	1733	5.6 170		1736	1.3 40
	2304	28.5 870		2259	31.8 970
6 W ●	0542	5.9 180	**21** Th ○	0551	2.3 70
	1114	29.5 900		1116	32.8 1000
	1804	4.9 150		1822	0.3 10
	2334	28.9 880		2342	32.5 990
7 Th	0613	4.9 150	**22** F	0635	1.3 40
	1145	29.9 910		1200	33.1 1010
	1834	4.6 140		1905	0.0 0
8 F	0003	29.2 890	**23** Sa	0024	32.5 990
	0643	4.6 140		0716	1.3 40
	1216	30.2 920		1242	32.8 1000
	1904	4.3 130		1944	1.0 30
9 Sa	0033	29.2 890	**24** Su	0104	31.8 970
	0714	4.6 140		0755	2.0 60
	1246	30.2 920		1323	31.8 970
	1934	4.3 130		2021	2.3 70
10 Su	0101	29.2 890	**25** M	0143	30.5 930
	0746	4.9 150		0832	3.6 110
	1316	29.5 900		1402	30.2 920
	2005	4.9 150		2057	4.6 140
11 M	0131	28.5 870	**26** Tu	0222	28.9 880
	0818	5.6 170		0910	5.6 170
	1347	28.9 880		1444	28.2 860
	2036	5.9 180		2134	6.9 210
12 Tu	0203	27.9 850	**27** W	0305	27.2 830
	0851	6.6 200		0951	7.5 230
	1422	28.2 860		1532	25.9 790
	2109	6.9 210		2217	9.2 280
13 W	0241	27.2 830	**28** Th ◑	0357	25.3 770
	0928	7.9 240		1044	9.8 300
	1506	26.9 820		1635	24.0 730
	2150	8.2 250		2319	11.2 340
14 Th ◐	0330	25.9 790	**29** F	0508	23.6 720
	1018	9.2 280		1202	11.2 340
	1604	25.6 780		1801	22.6 690
	2247	9.5 290			
15 F	0438	24.6 750	**30** Sa	0049	11.8 360
	1132	9.8 300		0634	23.3 710
	1726	24.6 750		1336	10.8 330
				1932	23.0 700
			31 Su	0214	11.2 340
				0753	24.3 740
				1450	9.5 290
				2040	24.6 750

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Liverpool, England, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0316	9.5 290	16 Tu	0243	7.5 230
	0851	25.9 790		0825	27.9 850
	1544	8.2 250		1525	4.9 150
	2127	25.9 790		2102	28.5 870
2 Tu	0402	8.2 250	17 W	0347	5.6 170
	0935	27.2 830		0921	29.5 900
	1626	6.6 200		1623	3.3 100
	2204	27.2 830		2152	30.2 920
3 W	0440	6.9 210	18 Th	0441	3.9 120
	1012	28.5 870		1010	31.2 950
	1702	5.6 170		1713	1.6 50
	2236	28.2 860		2237	31.2 950
4 Th	0514	5.6 170	19 F	0528	2.6 80
	1045	29.2 890		1054	32.2 980
	1734	4.6 140		1758	1.0 30
	2305	28.9 880	○	2319	31.8 970
5 F	0547	4.9 150	20 Sa	0612	2.0 60
	1116	29.9 910		1137	32.2 980
	1806	3.9 120		1839	1.0 30
●	2335	29.5 900		2359	31.8 970
6 Sa	0619	4.3 130	21 Su	0652	2.0 60
	1147	30.2 920		1218	31.8 970
	1838	3.6 110		1917	2.0 60
7 Su	0004	29.5 900	22 M	0037	31.2 950
	0652	3.9 120		0730	2.6 80
	1219	30.2 920		1258	30.8 940
	1910	3.9 120		1952	3.3 100
8 M	0035	29.5 900	23 Tu	0115	30.2 920
	0726	4.3 130		0807	3.9 120
	1251	29.9 910		1336	29.2 890
	1942	4.3 130		2027	5.2 160
9 Tu	0107	29.2 890	24 W	0153	28.9 880
	0759	4.9 150		0844	5.6 170
	1326	29.2 890		1416	27.6 840
	2014	5.2 160		2101	7.2 220
10 W	0141	28.5 870	25 Th	0234	27.2 830
	0833	5.9 180		0922	7.5 230
	1404	28.5 870		1501	25.6 780
	2048	6.6 200		2138	9.5 290
11 Th	0222	27.6 840	26 F	0323	25.6 780
	0912	7.2 220		1009	9.5 290
	1451	27.2 830		1558	24.0 730
	2130	7.9 240	◑	2230	11.2 340
12 F	0313	26.2 800	27 Sa	0428	24.3 740
	1004	8.2 250		1117	10.8 330
	1552	25.6 780		1715	22.6 690
◐	2229	9.5 290		2351	12.1 370
13 Sa	0425	24.9 760	28 Su	0547	23.3 710
	1119	9.2 280		1244	10.8 330
	1714	24.6 750		1842	22.6 690
	2353	10.2 310			
14 Su	0555	24.9 760	29 M	0121	11.8 360
	1254	8.9 270		0703	24.0 730
	1844	25.3 770		1400	9.8 300
				1954	24.0 730
15 M	0126	9.2 280	30 Tu	0228	10.5 320
	0717	25.9 790		0806	25.3 770
	1417	7.2 220		1456	8.5 260
	2000	26.6 810		2045	25.3 770

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0319	8.9 270	16 Th	0320	5.9 180
	0854	26.6 810		0857	29.2 890
	1542	7.2 220		1557	3.9 120
	2125	26.6 810		2129	29.5 900
2 Th	0401	7.5 230	17 F	0415	4.6 140
	0934	27.9 850		0947	30.2 920
	1622	5.9 180		1647	3.0 90
	2200	27.9 850		2214	30.2 920
3 F	0439	6.2 190	18 Sa	0504	3.6 110
	1010	28.9 880		1032	30.8 940
	1659	4.9 150		1732	2.6 80
	2232	28.5 870	○	2255	30.8 940
4 Sa	0516	4.9 150	19 Su	0548	3.3 100
	1044	29.5 900		1115	30.8 940
	1735	4.3 130		1812	3.0 90
●	2303	29.5 900		2335	30.8 940
5 Su	0553	4.3 130	20 M	0629	3.3 100
	1118	29.9 910		1156	30.5 930
	1811	3.9 120		1850	3.6 110
	2336	29.9 910			
6 M	0630	3.9 120	21 Tu	0014	30.5 930
	1153	30.2 920		0708	3.6 110
	1847	3.9 120		1236	29.5 900
				1925	4.6 140
7 Tu	0011	29.9 910	22 W	0051	29.9 910
	0707	3.9 120		0745	4.6 140
	1231	29.9 910		1314	28.5 870
	1921	4.3 130		1959	5.9 180
8 W	0048	29.9 910	23 Th	0129	28.9 880
	0744	4.6 140		0822	5.9 180
	1310	29.5 900		1353	27.2 830
	1957	4.9 150		2032	7.5 230
9 Th	0128	29.2 890	24 F	0209	27.6 840
	0823	5.2 160		0858	7.5 230
	1355	28.5 870		1435	25.9 790
	2036	6.2 190		2107	9.2 280
10 F	0213	28.2 860	25 Sa	0254	26.2 800
	0907	6.2 190		0939	8.9 270
	1446	27.6 840		1525	24.6 750
	2122	7.5 230		2151	10.5 320
11 Sa	0309	26.9 820	26 Su	0349	24.9 760
	1003	7.2 220		1032	9.8 300
	1550	26.2 800		1626	23.3 710
	2222	8.9 270	◑	2252	11.5 350
12 Su	0421	25.9 790	27 M	0456	24.3 740
	1116	7.9 240		1140	10.2 310
	1706	25.6 780		1739	23.0 700
◐	2340	9.2 280			
13 M	0540	25.9 790	28 Tu	0008	11.8 360
	1238	7.5 230		0605	24.0 730
	1826	25.9 790		1253	10.2 310
				1850	23.3 710
14 Tu	0103	8.9 270	29 W	0123	10.8 330
	0655	26.6 810		0709	24.6 750
	1354	6.6 200		1357	9.2 280
	1938	26.9 820		1950	24.6 750
15 W	0217	7.5 230	30 Th	0223	9.8 300
	0801	27.9 850		0804	25.9 790
	1500	4.9 150		1451	7.9 240
	2038	28.2 860		2037	25.9 790
			31 F	0314	8.2 250
				0850	26.9 820
				1538	6.6 200
				2118	27.2 830

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0401	6.9 210	16 Su	0441	5.2 160
	0932	27.9 850		1014	29.2 890
	1622	5.6 170		1707	4.6 140
	2156	28.2 860		2235	29.5 900
2 Su	0445	5.6 170	17 M	0528	4.9 150
	1011	28.9 880		1058	29.2 890
	1704	4.9 150		1748	4.6 140
	2233	29.2 890	○	2316	29.9 910
3 M	0527	4.6 140	18 Tu	0610	4.6 140
	1051	29.5 900		1139	29.2 890
	1745	4.3 130		1827	4.9 150
●	2311	29.9 910		2354	29.9 910
4 Tu	0610	3.9 120	19 W	0650	4.9 150
	1132	30.2 920		1218	28.9 880
	1826	3.9 120		1902	5.6 170
	2351	30.2 920			
5 W	0652	3.9 120	20 Th	0031	29.5 900
	1215	30.2 920		0727	5.2 160
	1906	4.3 130		1255	28.2 860
				1935	6.2 190
6 Th	0034	30.2 920	21 F	0108	28.9 880
	0735	3.9 120		0801	6.2 190
	1301	29.9 910		1332	27.2 830
	1947	4.6 140		2008	7.2 220
7 F	0120	29.9 910	22 Sa	0146	28.2 860
	0819	4.3 130		0835	6.9 210
	1349	29.2 890		1410	26.6 810
	2030	5.6 170		2042	8.2 250
8 Sa	0210	29.2 890	23 Su	0227	27.2 830
	0908	5.2 160		0911	7.9 240
	1443	28.2 860		1452	25.6 780
	2119	6.6 200		2120	9.2 280
9 Su	0307	28.2 860	24 M	0312	26.2 800
	1004	5.9 180		0953	8.5 260
	1543	27.2 830		1540	24.6 750
	2217	7.5 230		2207	10.2 310
10 M	0411	27.6 840	25 Tu	0404	25.3 770
	1107	6.6 200		1043	9.2 280
	1650	26.6 810		1635	24.0 730
◐	2324	8.2 250	◑	2304	10.8 330
11 Tu	0520	27.2 830	26 W	0504	24.6 750
	1216	6.6 200		1143	9.8 300
	1801	26.2 800		1739	23.6 720
12 W	0035	8.2 250	27 Th	0011	10.8 330
	0628	27.2 830		0606	24.6 750
	1326	6.2 190		1251	9.5 290
	1909	26.9 820		1844	24.0 730
13 Th	0146	7.5 230	28 F	0122	10.2 310
	0734	27.6 840		0708	25.3 770
	1431	5.9 180		1356	8.9 270
	2011	27.6 840		1943	24.9 760
14 F	0251	6.9 210	29 Sa	0226	9.2 280
	0833	28.2 860		0804	25.9 790
	1529	5.2 160		1455	7.5 230
	2105	28.2 860		2036	26.2 800
15 Sa	0350	5.9 180	30 Su	0323	7.9 240
	0926	28.9 880		0855	27.2 830
	1621	4.9 150		1547	6.6 200
	2152	29.2 890		2123	27.9 850

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Liverpool, England, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0415 6.2 190 0943 28.2 860 1636 5.6 170 2207 28.9 880		**16** Tu ○	0514 5.9 180 1046 28.2 860 1730 5.9 180 2301 29.2 890	
2 Tu ●	0505 5.2 160 1029 29.2 890 1723 4.6 140 2252 29.9 910		**17** W	0557 5.6 170 1126 28.5 870 1808 5.9 180 2338 29.5 900	
3 W	0554 3.9 120 1116 30.2 920 1810 3.9 120 2337 30.8 940		**18** Th	0635 5.6 170 1202 28.5 870 1843 5.9 180	
4 Th	0642 3.3 100 1203 30.5 930 1855 3.9 120		**19** F	0014 29.5 900 0709 5.6 170 1237 28.2 860 1914 6.2 190	
5 F	0023 31.2 950 0729 3.0 90 1252 30.5 930 1940 3.9 120		**20** Sa	0048 29.2 890 0741 5.9 180 1310 27.9 850 1945 6.6 200	
6 Sa	0112 30.8 940 0816 3.0 90 1342 30.2 920 2026 4.6 140		**21** Su	0123 28.9 880 0811 6.2 190 1344 27.2 830 2018 7.2 220	
7 Su	0202 30.5 930 0904 3.6 110 1433 29.5 900 2113 5.2 160		**22** M	0158 28.2 860 0843 6.6 200 1419 26.6 810 2053 7.9 240	
8 M	0255 29.9 910 0955 4.3 130 1527 28.2 860 2204 6.2 190		**23** Tu	0235 27.2 830 0919 7.5 230 1457 25.9 790 2132 8.9 270	
9 Tu ◐	0351 28.9 880 1049 5.6 170 1625 27.2 830 2301 7.2 220		**24** W	0316 26.6 810 0959 8.2 250 1539 24.9 760 2217 9.8 300	
10 W	0452 27.9 850 1148 6.6 200 1729 26.6 810		**25** Th ◑	0403 25.6 780 1047 9.2 280 1632 24.3 740 2314 10.5 320	
11 Th	0004 8.2 250 0557 26.9 820 1254 7.2 220 1837 26.2 800		**26** F	0502 24.9 760 1149 9.8 300 1738 24.0 730	
12 F	0114 8.5 260 0706 26.6 810 1401 7.2 220 1944 26.2 800		**27** Sa	0025 10.8 330 0611 24.6 750 1303 9.5 290 1851 24.6 750	
13 Sa	0225 8.2 250 0812 26.9 820 1504 7.2 220 2044 27.2 830		**28** Su	0142 9.8 300 0721 25.3 770 1415 8.9 270 1958 25.6 780	
14 Su	0330 7.5 230 0911 27.2 830 1600 6.9 210 2135 27.9 850		**29** M	0251 8.5 260 0825 26.6 810 1517 7.5 230 2056 27.2 830	
15 M	0426 6.6 200 1001 27.9 850 1648 6.2 190 2220 28.5 870		**30** Tu	0351 6.9 210 0922 27.9 850 1613 5.9 180 2148 28.9 880	
			31 W	0447 5.2 160 1014 29.5 900 1706 4.9 150 2236 30.5 930	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0541 3.6 110 1104 30.5 930 1756 3.6 110 2324 31.5 960		**16** F	0618 5.6 170 1144 28.5 870 1823 5.9 180 2353 29.9 910	
2 F	0631 2.3 70 1152 31.5 960 1844 3.0 90		**17** Sa	0648 5.2 160 1214 28.9 880 1853 5.9 180	
3 Sa	0011 32.2 980 0719 1.6 50 1240 31.5 960 1930 3.0 90		**18** Su	0025 29.9 910 0716 5.2 160 1245 28.5 870 1922 5.9 180	
4 Su	0058 32.2 980 0805 1.6 50 1327 31.2 950 2014 3.3 100		**19** M	0057 29.5 900 0745 5.2 160 1315 28.2 860 1953 6.2 190	
5 M	0146 31.8 970 0850 2.3 70 1414 30.5 930 2058 4.3 130		**20** Tu	0129 28.9 880 0815 5.9 180 1346 27.6 840 2026 6.9 210	
6 Tu	0233 30.8 940 0934 3.6 110 1502 29.2 890 2143 5.6 170		**21** W	0200 28.2 860 0848 6.6 200 1418 26.9 820 2101 7.9 240	
7 W ◐	0323 29.5 900 1021 5.2 160 1553 27.6 840 2233 7.2 220		**22** Th	0234 27.2 830 0922 7.9 240 1454 26.2 800 2140 9.2 280	
8 Th	0419 27.9 850 1115 6.9 210 1653 26.2 800 2332 8.5 260		**23** F ◑	0315 26.2 800 1003 8.9 270 1540 25.3 770 2228 10.2 310	
9 F	0524 26.2 800 1219 8.5 260 1802 25.3 770		**24** Sa	0408 25.3 770 1057 9.8 300 1643 24.3 740 2336 10.8 330	
10 Sa	0044 9.5 290 0639 25.3 770 1333 9.2 280 1918 25.3 770		**25** Su	0522 24.3 740 1214 10.5 320 1807 24.3 740	
11 Su	0204 9.5 290 0756 25.3 770 1443 8.9 270 2026 25.9 790		**26** M	0105 10.5 320 0647 24.6 750 1341 9.8 300 1928 25.3 770	
12 M	0317 8.5 260 0901 25.9 790 1544 8.2 250 2122 27.2 830		**27** Tu	0225 8.9 270 0804 25.9 790 1453 8.2 250 2035 27.2 830	
13 Tu	0416 7.5 230 0953 26.9 820 1634 7.5 230 2207 28.2 860		**28** W	0332 6.9 210 0907 27.9 850 1554 6.6 200 2131 29.2 890	
14 W	0504 6.6 200 1035 27.9 850 1716 6.9 210 2246 28.9 880		**29** Th	0432 4.6 140 1001 29.9 910 1650 4.6 140 2221 30.8 940	
15 Th ○	0543 5.9 180 1111 28.2 860 1751 6.2 190 2321 29.5 900		**30** F ●	0526 2.6 80 1050 31.2 950 1742 3.3 100 2308 32.5 990	
			31 Sa	0616 1.3 40 1136 32.2 980 1829 2.3 70 2353 33.1 1010	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0702 0.7 20 1221 32.5 990 1914 2.0 60		**16** M	0649 4.6 140 1217 29.2 890 1858 5.2 160	
2 M	0038 33.1 1010 0745 0.7 20 1305 32.2 980 1955 2.3 70		**17** Tu	0029 30.2 920 0717 4.9 150 1246 29.2 890 1929 5.6 170	
3 Tu	0123 32.5 990 0827 1.6 50 1348 30.8 940 2036 3.6 110		**18** W	0059 29.5 900 0748 5.2 160 1315 28.5 870 2001 6.2 190	
4 W	0207 31.2 950 0907 3.6 110 1432 29.5 900 2118 5.2 160		**19** Th	0129 28.9 880 0819 6.2 190 1345 27.9 850 2034 7.2 220	
5 Th	0252 29.5 900 0950 5.9 180 1519 27.9 850 2204 7.2 220		**20** F	0202 27.9 850 0851 7.5 230 1420 26.9 820 2110 8.5 260	
6 F ◐	0344 27.2 830 1038 8.2 250 1614 25.9 790 2300 9.2 280		**21** Sa	0242 26.9 820 0928 8.9 270 1504 25.9 790 2156 9.8 300	
7 Sa	0449 25.3 770 1142 10.2 310 1726 24.6 750		**22** Su ◑	0335 25.6 780 1020 10.2 310 1606 24.6 750 2304 10.8 330	
8 Su	0017 10.5 320 0613 24.0 730 1305 10.8 330 1850 24.3 740		**23** M	0451 24.3 740 1138 11.2 340 1736 24.3 740	
9 M	0147 10.5 320 0741 24.0 730 1424 10.5 320 2007 25.3 770		**24** Tu	0038 10.5 320 0625 24.3 740 1314 10.5 320 1906 25.3 770	
10 Tu	0303 9.2 280 0849 25.3 770 1528 9.2 280 2104 26.9 820		**25** W	0205 8.9 270 0748 25.9 790 1432 8.5 260 2017 27.2 830	
11 W	0401 7.9 240 0938 26.6 810 1617 7.9 240 2148 28.2 860		**26** Th	0314 6.6 200 0853 28.2 860 1536 6.6 200 2114 29.5 900	
12 Th	0445 6.6 200 1017 27.9 850 1656 6.9 210 2225 29.2 890		**27** F	0414 4.3 130 0946 30.2 920 1632 4.6 140 2203 31.5 960	
13 F	0521 5.9 180 1050 28.5 870 1729 6.2 190 2258 29.9 910		**28** Sa ●	0508 2.3 70 1032 31.8 970 1723 3.0 90 2248 32.8 1000	
14 Sa ○	0552 5.2 160 1120 29.2 890 1759 5.6 170 2329 30.2 920		**29** Su	0555 1.0 30 1116 32.5 990 1809 2.0 60 2332 33.5 1020	
15 Su	0621 4.9 150 1149 29.2 890 1828 5.2 160 2359 30.2 920		**30** M	0640 0.7 20 1158 32.8 1000 1852 2.0 60	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Liverpool, England, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0015	33.5 1020	**16** W	0001	30.2 920
	0720	1.0 30		0650	4.6 140
	1240	32.2 980		1218	29.5 900
	1932	2.3 70		1906	5.2 160
2 W	0058	32.5 990	**17** Th	0032	29.9 910
	0800	2.3 70		0722	5.2 160
	1320	31.2 950		1248	29.2 890
	2012	3.6 110		1940	5.9 180
3 Th	0139	30.8 940	**18** F	0105	29.2 890
	0838	4.3 130		0754	6.2 190
	1401	29.5 900		1320	28.5 870
	2052	5.6 170		2014	6.9 210
4 F	0223	28.9 880	**19** Sa	0141	28.2 860
	0917	6.9 210		0827	7.5 230
	1445	27.9 850		1357	27.9 850
	2136	7.5 230		2051	8.2 250
5 Sa ◐	0312	26.6 810	**20** Su	0224	27.2 830
	1001	9.2 280		0906	8.9 270
	1538	25.9 790		1444	26.6 810
	2231	9.8 300		2139	9.2 280
6 Su	0415	24.3 740	**21** M ◑	0320	25.6 780
	1102	11.2 340		0959	10.2 310
	1649	24.3 740		1549	25.3 770
	2349	11.2 340		2248	10.2 310
7 M	0541	23.0 700	**22** Tu	0437	24.6 750
	1231	12.1 370		1117	11.2 340
	1816	24.0 730		1718	24.9 760
8 Tu	0121	10.8 330	**23** W	0020	9.8 300
	0715	23.3 710		0608	24.9 760
	1357	11.5 350		1251	10.5 320
	1936	24.9 760		1844	25.9 790
9 W	0235	9.8 300	**24** Th	0144	8.2 250
	0825	24.9 760		0729	26.2 800
	1500	10.2 310		1409	8.9 270
	2035	26.2 800		1955	27.9 850
10 Th	0330	8.2 250	**25** F	0253	6.2 190
	0913	26.2 800		0833	28.5 870
	1548	8.5 260		1514	6.9 210
	2119	27.9 850		2052	29.9 910
11 F	0413	6.9 210	**26** Sa	0352	3.9 120
	0950	27.6 840		0925	30.2 920
	1626	7.5 230		1610	4.9 150
	2156	28.9 880		2141	31.5 960
12 Sa	0448	5.9 180	**27** Su	0444	2.6 80
	1022	28.5 870		1010	31.5 960
	1659	6.6 200		1700	3.6 110
	2229	29.5 900		2226	32.5 990
13 Su ○	0519	5.2 160	**28** M ●	0531	1.6 50
	1051	29.2 890		1053	32.5 990
	1730	5.6 170		1745	2.6 80
	2300	30.2 920		2310	32.8 1000
14 M	0549	4.9 150	**29** Tu	0614	1.6 50
	1120	29.5 900		1134	32.5 990
	1801	5.2 160		1828	2.6 80
	2331	30.5 930		2352	32.5 990
15 Tu	0619	4.6 140	**30** W	0654	2.3 70
	1148	29.9 910		1215	32.2 980
	1834	4.9 150		1910	3.0 90
			31 Th	0034	31.8 970
				0732	3.6 110
				1255	31.2 950
				1950	4.3 130

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0116	30.2 920	**16** Sa	0048	29.5 900
	0810	5.2 160		0735	5.9 180
	1334	29.5 900		1304	29.2 890
	2030	5.9 180		2001	6.6 200
2 Sa	0158	28.2 860	**17** Su	0129	28.5 870
	0847	7.5 230		0812	7.2 220
	1416	28.2 860		1346	28.5 870
	2112	7.9 240		2043	7.2 220
3 Su	0244	26.2 800	**18** M	0217	27.6 840
	0928	9.8 300		0855	8.2 250
	1506	26.2 800		1437	27.6 840
	2203	9.8 300		2134	8.2 250
4 M ◐	0342	24.3 740	**19** Tu ◑	0315	26.2 800
	1021	11.5 350		0950	9.5 290
	1610	24.9 760		1542	26.2 800
	2312	11.2 340		2241	8.9 270
5 Tu	0458	23.0 700	**20** W	0427	25.6 780
	1141	12.8 390		1102	10.2 310
	1729	24.0 730		1701	25.9 790
6 W	0036	11.2 340	**21** Th	0002	8.9 270
	0626	23.0 700		0547	25.6 780
	1309	12.5 380		1225	9.8 300
	1847	24.6 750		1819	26.6 810
7 Th	0149	10.5 320	**22** F	0119	7.5 230
	0741	24.0 730		0703	26.6 810
	1415	11.2 340		1340	8.9 270
	1951	25.6 780		1928	27.9 850
8 F	0245	9.2 280	**23** Sa	0226	6.2 190
	0833	25.6 780		0807	28.2 860
	1506	9.5 290		1446	7.2 220
	2040	26.9 820		2027	29.5 900
9 Sa	0329	7.9 240	**24** Su	0326	4.9 150
	0913	26.9 820		0901	29.5 900
	1547	8.2 250		1544	5.9 180
	2120	28.2 860		2119	30.5 930
10 Su	0408	6.6 200	**25** M	0418	3.9 120
	0948	28.2 860		0948	30.5 930
	1624	7.2 220		1636	4.6 140
	2156	29.2 890		2206	31.2 950
11 M	0443	5.9 180	**26** Tu ●	0506	3.3 100
	1019	28.9 880		1032	31.5 960
	1659	6.2 190		1723	3.9 120
	2230	29.5 900		2251	31.5 960
12 Tu ○	0517	5.2 160	**27** W	0549	3.3 100
	1050	29.5 900		1114	31.5 960
	1734	5.6 170		1808	3.6 110
	2302	30.2 920		2334	31.2 950
13 W	0551	4.9 150	**28** Th	0630	3.6 110
	1121	29.9 910		1154	31.5 960
	1810	5.2 160		1850	3.9 120
	2336	30.2 920			
14 Th	0626	4.9 150	**29** F	0016	30.5 930
	1153	30.2 920		0708	4.6 140
	1847	5.2 160		1234	30.8 940
				1931	4.9 150
15 F	0010	29.9 910	**30** Sa	0057	29.5 900
	0700	5.2 160		0746	6.2 190
	1227	29.9 910		1313	29.5 900
	1923	5.6 170		2011	6.2 190

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0138	27.9 850	**16** M	0123	29.5 900
	0822	7.9 240		0805	6.2 190
	1353	28.5 870		1342	29.5 900
	2051	7.9 240		2042	5.9 180
2 M	0220	26.6 810	**17** Tu	0213	28.5 870
	0859	9.5 290		0851	7.2 220
	1438	27.2 830		1433	28.9 880
	2134	9.2 280		2133	6.6 200
3 Tu	0309	24.9 760	**18** W	0308	27.6 840
	0942	10.8 330		0943	8.2 250
	1532	25.9 790		1532	27.9 850
	2226	10.2 310		2231	7.2 220
4 W ◐	0408	24.0 730	**19** Th ◑	0411	26.9 820
	1039	12.1 370		1044	8.9 270
	1636	24.9 760		1639	27.6 840
	2331	10.8 330		2338	7.5 230
5 Th	0519	23.3 710	**20** F	0519	26.2 800
	1154	12.5 380		1153	9.2 280
	1746	24.6 750		1748	27.2 830
6 F	0042	10.8 330	**21** Sa	0047	7.5 230
	0632	23.3 710		0630	26.6 810
	1309	12.1 370		1306	8.9 270
	1852	24.9 760		1857	27.6 840
7 Sa	0145	10.2 310	**22** Su	0156	6.9 210
	0736	24.3 740		0738	27.2 830
	1410	10.8 330		1416	7.9 240
	1950	25.9 790		2002	28.2 860
8 Su	0238	8.9 270	**23** M	0259	6.2 190
	0827	25.6 780		0837	28.2 860
	1501	9.5 290		1519	6.9 210
	2038	26.9 820		2059	28.9 880
9 M	0324	7.9 240	**24** Tu	0355	5.6 170
	0908	26.9 820		0929	29.2 890
	1546	8.2 250		1616	5.9 180
	2120	27.9 850		2151	29.5 900
10 Tu	0406	6.6 200	**25** W	0445	4.9 150
	0946	28.2 860		1016	29.9 910
	1628	6.9 210		1707	5.2 160
	2159	28.9 880		2238	29.9 910
11 W	0446	5.9 180	**26** Th ●	0530	4.9 150
	1021	29.2 890		1059	30.5 930
	1709	5.9 180		1754	4.9 150
	2237	29.5 900		2323	29.9 910
12 Th ○	0526	5.2 160	**27** F	0611	4.9 150
	1057	29.9 910		1140	30.5 930
	1751	5.2 160		1837	4.9 150
	2315	29.9 910			
13 F	0605	4.9 150	**28** Sa	0004	29.5 900
	1134	30.2 920		0650	5.6 170
	1832	4.9 150		1219	30.2 920
	2355	30.2 920		1917	5.2 160
14 Sa	0645	4.9 150	**29** Su	0043	28.9 880
	1213	30.5 930		0726	6.2 190
	1914	4.9 150		1256	29.9 910
				1955	5.9 180
15 Su	0038	29.9 910	**30** M	0120	28.2 860
	0724	5.6 170		0800	7.2 220
	1256	30.2 920		1333	29.2 890
	1956	5.2 160		2030	6.9 210
			31 Tu	0157	27.2 830
				0833	8.2 250
				1412	28.2 860
				2104	7.9 240

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Greenock, Scotland, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0146	2.3	70	**16** W	0049	3.0	90
	0849	10.2	310		0720	9.5	290
	1420	3.0	90		1305	3.9	120
	2044	10.5	320		1953	9.8	300
2 W	0247	2.3	70	**17** Th	0154	2.6	80
	0950	10.5	320		0834	9.8	300
	1519	2.3	70		1414	3.6	110
	2152	10.5	320		2108	9.8	300
3 Th	0340	2.3	70	**18** F	0255	2.3	70
	1041	10.8	330		0944	10.2	310
	1610	2.0	60		1518	2.6	80
	2248	10.8	330		2216	10.5	320
4 F	0427	2.0	60	**19** Sa	0350	2.0	60
	1127	11.2	340		1042	10.8	330
	1655	1.6	50		1613	2.0	60
	2338	10.8	330		2315	10.8	330
5 Sa	0509	2.0	60	**20** Su	0441	1.3	40
	1208	11.5	350		1132	11.5	350
	1736	1.6	50		1702	1.3	40
6 Su ●	0020	10.8	330	**21** M ○	0008	11.2	340
	0546	2.3	70		0528	1.0	30
	1245	11.8	360		1219	11.8	360
	1812	1.6	50		1749	0.7	20
7 M	0059	10.8	330	**22** Tu	0101	11.5	350
	0621	2.3	70		0616	0.7	20
	1319	11.8	360		1305	12.5	380
	1847	1.6	50		1836	0.3	10
8 Tu	0134	10.8	330	**23** W	0151	11.5	350
	0655	2.3	70		0704	0.7	20
	1352	12.1	370		1351	12.8	390
	1920	1.6	50		1924	0.0	0
9 W	0209	10.8	330	**24** Th	0239	11.5	350
	0729	2.3	70		0752	0.7	20
	1425	11.8	360		1436	12.8	390
	1956	1.6	50		2012	0.0	0
10 Th	0246	10.8	330	**25** F	0326	11.5	350
	0805	2.3	70		0841	1.0	30
	1459	11.8	360		1521	12.8	390
	2034	2.0	60		2102	0.3	10
11 F	0324	10.8	330	**26** Sa	0412	11.2	340
	0844	2.6	80		0932	1.3	40
	1535	11.5	350		1606	12.5	380
	2114	2.3	70		2155	1.0	30
12 Sa	0403	10.5	320	**27** Su ◑	0458	10.8	330
	0924	3.0	90		1026	1.6	50
	1613	11.2	340		1653	11.8	360
	2158	2.3	70		2252	1.6	50
13 Su	0444	10.2	310	**28** M	0547	10.2	310
	1009	3.3	100		1127	2.3	70
	1655	10.8	330		1742	11.2	340
	2248	2.6	80		2357	2.3	70
14 M ◐	0529	10.2	310	**29** Tu	0642	9.8	300
	1100	3.6	110		1236	2.6	80
	1744	10.2	310		1838	10.5	320
	2345	3.0	90				
15 Tu	0619	9.8	300	**30** W	0110	2.6	80
	1158	3.6	110		0752	9.5	290
	1843	9.8	300		1350	3.0	90
					1951	9.8	300
				31 Th	0220	3.0	90
					0914	9.5	290
					1456	2.6	80
					2127	9.5	290

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0319	2.6	80	**16** Sa	0224	2.6	80
	1018	10.2	310		0907	9.5	290
	1551	2.0	60		1451	2.6	80
	2237	9.8	300		2201	9.8	300
2 Sa	0410	2.6	80	**17** Su	0331	2.0	60
	1109	10.8	330		1021	10.2	310
	1639	1.6	50		1556	1.6	50
	2329	10.2	310		2306	10.5	320
3 Su	0455	2.3	70	**18** M	0427	1.3	40
	1152	11.2	340		1116	11.2	340
	1721	1.3	40		1648	0.7	20
4 M ●	0012	10.2	310	**19** Tu ○	0000	10.8	330
	0533	2.0	60		0515	0.7	20
	1231	11.5	350		1206	11.8	360
	1757	1.3	40		1735	0.0	0
5 Tu	0049	10.5	320	**20** W	0051	11.2	340
	0608	2.0	60		0602	0.3	10
	1305	11.8	360		1253	12.1	370
	1831	1.3	40		1821	- 0.3	- 10
6 W	0121	10.5	320	**21** Th	0139	11.5	350
	0639	2.0	60		0647	0.0	0
	1337	11.8	360		1338	12.5	380
	1902	1.3	40		1905	- 0.3	- 10
7 Th	0153	10.5	320	**22** F	0224	11.5	350
	0709	2.0	60		0732	0.0	0
	1407	11.8	360		1423	12.8	390
	1933	1.3	40		1950	- 0.3	- 10
8 F	0225	10.8	330	**23** Sa	0306	11.5	350
	0740	2.0	60		0818	0.3	10
	1438	11.5	350		1506	12.5	380
	2005	1.6	50		2036	0.0	0
9 Sa	0259	10.8	330	**24** Su	0346	11.2	340
	0814	2.0	60		0905	0.7	20
	1511	11.5	350		1548	12.1	370
	2040	1.6	50		2123	0.7	20
10 Su	0333	10.8	330	**25** M	0425	10.8	330
	0852	2.0	60		0953	1.0	30
	1547	11.2	340		1629	11.8	360
	2120	1.6	50		2213	1.3	40
11 M	0409	10.5	320	**26** Tu ◑	0505	10.2	310
	0934	2.0	60		1048	1.6	50
	1625	10.8	330		1712	10.8	330
	2205	2.0	60		2310	2.3	70
12 Tu ◐	0447	10.5	320	**27** W	0549	9.8	300
	1022	2.6	80		1156	2.3	70
	1707	10.5	320		1758	9.8	300
	2257	2.3	70				
13 W	0529	9.8	300	**28** Th	0027	3.3	100
	1116	3.0	90		0644	9.2	280
	1757	9.8	300		1320	2.6	80
	2358	2.6	80		1855	9.2	280
14 Th	0621	9.5	290				
	1220	3.3	100				
	1905	9.5	290				
15 F	0108	3.0	90				
	0732	9.2	280				
	1335	3.3	100				
	2034	9.5	290				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0151	3.6	110	**16** Sa	0038	3.0	90
	0820	8.9	270		0642	9.2	280
	1431	2.6	80		1308	2.6	80
	2058	8.5	260		2012	8.9	270
2 Sa	0258	3.3	100	**17** Su	0202	3.0	90
	0953	9.5	290		0833	9.2	280
	1530	2.0	60		1433	2.3	70
	2226	9.2	280		2155	9.5	290
3 Su	0351	3.0	90	**18** M	0317	2.3	70
	1047	10.2	310		1001	10.2	310
	1618	1.6	50		1540	1.3	40
	2315	9.5	290		2257	10.2	310
4 M	0436	2.3	70	**19** Tu	0413	1.3	40
	1131	10.8	330		1059	10.8	330
	1700	1.0	30		1633	0.3	10
	2355	10.2	310		2348	10.8	330
5 Tu	0515	2.0	60	**20** W	0501	0.7	20
	1210	11.2	340		1148	11.5	350
	1736	1.0	30		1719	- 0.3	- 10
6 W ●	0030	10.2	310	**21** Th ○	0035	11.2	340
	0547	1.6	50		0545	0.0	0
	1246	11.2	340		1236	12.1	370
	1808	1.0	30		1801	- 0.7	- 20
7 Th	0102	10.5	320	**22** F	0120	11.5	350
	0616	1.6	50		0628	0.0	0
	1317	11.2	340		1321	12.1	370
	1837	1.0	30		1843	- 0.7	- 20
8 F	0132	10.5	320	**23** Sa	0202	11.5	350
	0643	1.6	50		0710	- 0.3	- 10
	1345	11.2	340		1404	12.5	380
	1905	1.0	30		1925	- 0.3	- 10
9 Sa	0201	10.8	330	**24** Su	0240	11.5	350
	0711	1.3	40		0752	0.0	0
	1415	11.2	340		1446	12.1	370
	1934	1.0	30		2007	0.0	0
10 Su	0231	10.8	330	**25** M	0316	11.2	340
	0745	1.3	40		0835	0.3	10
	1447	11.5	350		1525	11.8	360
	2008	1.0	30		2050	0.7	20
11 M	0303	11.2	340	**26** Tu	0351	10.8	330
	0822	1.3	40		0920	0.7	20
	1522	11.2	340		1604	11.2	340
	2048	1.3	40		2136	1.6	50
12 Tu	0336	10.8	330	**27** W	0428	10.5	320
	0904	1.3	40		1010	1.3	40
	1559	10.8	330		1645	10.5	320
	2133	1.6	50		2227	2.6	80
13 W	0412	10.8	330	**28** Th ◑	0510	9.8	300
	0952	1.6	50		1114	2.3	70
	1639	10.5	320		1729	9.5	290
	2225	2.0	60		2334	3.3	100
14 Th ◐	0451	10.2	310	**29** F	0600	9.2	280
	1047	2.3	70		1243	2.6	80
	1726	9.8	300		1822	8.9	270
	2326	2.6	80				
15 F	0538	9.8	300	**30** Sa	0111	3.9	120
	1151	2.6	80		0712	8.9	270
	1829	9.2	280		1401	2.6	80
					1945	8.2	250
				31 Su	0227	3.6	110
					0915	9.2	280
					1500	2.0	60
					2200	8.9	270

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Greenock, Scotland, 2019

Times and Heights of High and Low Waters

April

Day	Time (h m)	Height (ft)	Height (cm)
1 M	0324	3.3	100
	1016	9.8	300
	1549	1.6	50
	2247	9.5	290
2 Tu	0409	2.6	80
	1101	10.5	320
	1630	1.0	30
	2326	9.8	300
3 W	0448	2.0	60
	1141	10.8	330
	1706	0.7	20
4 Th	0001	10.2	310
	0520	1.6	50
	1217	10.8	330
	1738	0.7	20
5 F	0034	10.5	320
	0548	1.6	50
	1249	10.8	330
●	1807	1.0	30
6 Sa	0105	10.5	320
	0614	1.3	40
	1318	10.8	330
	1835	1.0	30
7 Su	0133	10.8	330
	0643	1.0	30
	1349	11.2	340
	1905	1.0	30
8 M	0202	11.2	340
	0718	1.0	30
	1424	11.2	340
	1942	1.0	30
9 Tu	0234	11.2	340
	0757	1.0	30
	1501	11.2	340
	2024	1.0	30
10 W	0308	11.5	350
	0841	1.0	30
	1539	10.8	330
	2111	1.3	40
11 Th	0345	11.2	340
	0930	1.3	40
	1621	10.5	320
	2205	2.0	60
12 F	0425	10.5	320
	1027	2.0	60
	1710	9.8	300
◐	2308	2.6	80
13 Sa	0512	10.2	310
	1135	2.3	70
	1816	9.2	280
14 Su	0021	3.0	90
	0616	9.5	290
	1255	2.3	70
	2007	8.9	270
15 M	0146	3.0	90
	0810	9.5	290
	1417	1.6	50
	2143	9.5	290
16 Tu	0259	2.3	70
	0939	10.2	310
	1522	1.0	30
	2241	10.2	310
17 W	0355	1.3	40
	1037	10.8	330
	1613	0.0	0
	2329	10.8	330
18 Th	0443	0.7	20
	1127	11.5	350
	1658	- 0.3	- 10
19 F	0014	11.2	340
	0526	0.0	0
	1214	11.8	360
○	1739	- 0.3	- 10
20 Sa	0056	11.2	340
	0607	0.0	0
	1259	11.8	360
	1820	- 0.3	- 10
21 Su	0135	11.5	350
	0647	0.0	0
	1342	11.8	360
	1900	0.3	10
22 M	0211	11.5	350
	0727	0.0	0
	1423	11.8	360
	1940	0.7	20
23 Tu	0246	11.2	340
	0807	0.3	10
	1502	11.5	350
	2022	1.3	40
24 W	0321	11.2	340
	0850	0.7	20
	1540	10.8	330
	2106	2.0	60
25 Th	0358	10.8	330
	0939	1.3	40
	1621	10.2	310
	2155	2.6	80
26 F	0438	10.2	310
	1038	2.0	60
	1706	9.5	290
◑	2253	3.3	100
27 Sa	0526	9.5	290
	1157	2.6	80
	1759	8.9	270
28 Su	0012	3.9	120
	0629	8.9	270
	1318	2.6	80
	1909	8.5	260
29 M	0138	3.9	120
	0809	8.9	270
	1420	2.0	60
	2057	8.5	260
30 Tu	0243	3.6	110
	0931	9.5	290
	1511	1.6	50
	2201	9.2	280

May

Day	Time (h m)	Height (ft)	Height (cm)
1 W	0332	3.0	90
	1021	10.2	310
	1553	1.3	40
	2245	9.8	300
2 Th	0412	2.3	70
	1102	10.5	320
	1631	1.0	30
	2324	10.2	310
3 F	0446	2.0	60
	1139	10.5	320
	1705	0.7	20
4 Sa	0000	10.5	320
	0516	1.6	50
	1214	10.8	330
●	1735	1.0	30
5 Su	0032	10.8	330
	0546	1.3	40
	1248	10.8	330
	1806	1.0	30
6 M	0103	11.2	340
	0619	1.0	30
	1324	10.8	330
	1841	0.7	20
7 Tu	0135	11.5	350
	0657	0.7	20
	1403	10.8	330
	1922	1.0	30
8 W	0210	11.5	350
	0739	0.7	20
	1443	10.8	330
	2008	1.0	30
9 Th	0247	11.8	360
	0825	0.7	20
	1526	10.8	330
	2059	1.3	40
10 F	0326	11.5	350
	0918	1.0	30
	1612	10.5	320
	2155	2.0	60
11 Sa	0409	11.2	340
	1017	1.3	40
	1706	9.8	300
	2258	2.3	70
12 Su	0459	10.5	320
	1126	1.6	50
	1819	9.2	280
◐			
13 M	0009	2.6	80
	0606	9.8	300
	1244	1.6	50
	1957	9.2	280
14 Tu	0125	2.6	80
	0748	9.8	300
	1357	1.3	40
	2118	9.8	300
15 W	0235	2.3	70
	0912	10.2	310
	1459	0.7	20
	2215	10.2	310
16 Th	0333	1.3	40
	1012	10.8	330
	1551	0.3	10
	2304	10.8	330
17 F	0422	0.7	20
	1103	11.2	340
	1636	0.3	10
	2349	11.2	340
18 Sa	0507	0.3	10
	1151	11.5	350
	1718	0.3	10
○			
19 Su	0030	11.2	340
	0548	0.3	10
	1237	11.5	350
	1758	0.7	20
20 M	0109	11.2	340
	0627	0.3	10
	1320	11.2	340
	1837	1.0	30
21 Tu	0145	11.5	350
	0706	0.3	10
	1400	11.2	340
	1917	1.3	40
22 W	0219	11.5	350
	0744	0.7	20
	1439	10.8	330
	1958	1.6	50
23 Th	0255	11.2	340
	0826	1.0	30
	1518	10.5	320
	2042	2.0	60
24 F	0332	10.8	330
	0912	1.3	40
	1600	9.8	300
	2129	2.6	80
25 Sa	0411	10.5	320
	1006	2.0	60
	1645	9.5	290
	2221	3.0	90
26 Su	0456	9.8	300
	1111	2.3	70
	1736	9.2	280
◑	2320	3.6	110
27 M	0551	9.5	290
	1221	2.3	70
	1836	8.9	270
28 Tu	0029	3.9	120
	0700	9.2	280
	1327	2.3	70
	1946	8.9	270
29 W	0139	3.6	110
	0822	9.2	280
	1422	2.0	60
	2057	9.2	280
30 Th	0239	3.3	100
	0926	9.5	290
	1510	1.6	50
	2154	9.8	300
31 F	0327	2.6	80
	1015	10.2	310
	1551	1.3	40
	2241	10.2	310

June

Day	Time (h m)	Height (ft)	Height (cm)
1 Sa	0408	2.3	70
	1057	10.2	310
	1628	1.0	30
	2322	10.5	320
2 Su	0445	1.6	50
	1137	10.5	320
	1704	1.0	30
	2359	10.8	330
3 M	0521	1.3	40
	1218	10.8	330
	1742	1.0	30
●			
4 Tu	0035	11.2	340
	0559	1.0	30
	1301	10.8	330
	1822	1.0	30
5 W	0113	11.5	350
	0641	0.7	20
	1346	10.8	330
	1908	1.0	30
6 Th	0152	11.8	360
	0726	0.7	20
	1432	10.8	330
	1957	1.0	30
7 F	0232	11.8	360
	0815	0.7	20
	1519	10.8	330
	2050	1.3	40
8 Sa	0315	11.8	360
	0909	0.7	20
	1610	10.5	320
	2146	1.6	50
9 Su	0400	11.5	350
	1009	1.0	30
	1708	10.2	310
	2245	2.0	60
10 M	0452	10.8	330
	1115	1.3	40
	1815	9.8	300
◐	2350	2.3	70
11 Tu	0557	10.5	320
	1224	1.3	40
	1931	9.5	290
12 W	0058	2.3	70
	0720	10.2	310
	1332	1.3	40
	2043	9.8	300
13 Th	0206	2.3	70
	0840	10.2	310
	1433	1.0	30
	2144	10.2	310
14 F	0308	1.6	50
	0945	10.5	320
	1527	1.0	30
	2237	10.5	320
15 Sa	0402	1.3	40
	1040	10.8	330
	1616	1.0	30
	2324	10.8	330
16 Su	0449	0.7	20
	1130	10.8	330
	1700	1.0	30
17 M	0007	11.2	340
	0532	0.7	20
	1217	10.8	330
○	1741	1.3	40
18 Tu	0047	11.2	340
	0612	0.7	20
	1300	10.5	320
	1820	1.6	50
19 W	0123	11.2	340
	0649	0.7	20
	1340	10.5	320
	1859	1.6	50
20 Th	0158	11.5	350
	0727	0.7	20
	1418	10.2	310
	1939	2.0	60
21 F	0233	11.5	350
	0806	1.0	30
	1457	10.2	310
	2020	2.0	60
22 Sa	0309	11.2	340
	0848	1.3	40
	1538	9.8	300
	2103	2.3	70
23 Su	0346	10.8	330
	0935	1.6	50
	1621	9.8	300
	2148	2.6	80
24 M	0426	10.5	320
	1028	2.0	60
	1707	9.5	290
	2237	3.0	90
25 Tu	0512	9.8	300
	1126	2.3	70
	1757	9.5	290
◑	2330	3.3	100
26 W	0606	9.5	290
	1227	2.3	70
	1851	9.2	280
27 Th	0030	3.6	110
	0709	9.2	280
	1327	2.3	70
	1950	9.2	280
28 F	0134	3.3	100
	0818	9.5	290
	1421	2.0	60
	2054	9.5	290
29 Sa	0235	3.0	90
	0922	9.5	290
	1510	1.6	50
	2153	9.8	300
30 Su	0329	2.6	80
	1017	10.2	310
	1555	1.3	40
	2243	10.5	320

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Greenock, Scotland, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0416 2.0 60 1107 10.2 310 1638 1.0 30 2329 10.8 330		**16** Tu ○	0519 1.0 30 1205 10.2 310 1729 1.6 50	
2 Tu ●	0500 1.3 40 1156 10.5 320 1722 1.0 30		**17** W	0031 11.2 340 0559 0.7 20 1248 10.2 310 1807 2.0 60	
3 W	0012 11.2 340 0544 0.7 20 1245 10.8 330 1807 1.0 30		**18** Th	0108 11.2 340 0636 0.7 20 1325 10.2 310 1844 2.0 60	
4 Th	0055 11.8 360 0629 0.3 10 1334 10.8 330 1855 1.0 30		**19** F	0141 11.5 350 0710 1.0 30 1400 10.2 310 1919 2.0 60	
5 F	0138 12.1 370 0715 0.0 0 1424 10.8 330 1945 1.0 30		**20** Sa	0214 11.5 350 0745 1.0 30 1435 10.2 310 1956 2.0 60	
6 Sa	0222 12.1 370 0804 0.0 0 1514 10.8 330 2037 1.0 30		**21** Su	0247 11.5 350 0822 1.3 40 1513 10.2 310 2034 2.0 60	
7 Su	0306 12.1 370 0856 0.3 10 1606 10.5 320 2130 1.3 40		**22** M	0321 11.2 340 0901 1.3 40 1552 10.2 310 2113 2.3 70	
8 M	0353 11.8 360 0952 0.7 20 1659 10.2 310 2225 1.3 40		**23** Tu	0356 10.8 330 0944 1.6 50 1632 10.2 310 2156 2.3 70	
9 Tu ◐	0442 11.5 350 1052 1.0 30 1754 10.2 310 2325 1.6 50		**24** W	0436 10.5 320 1032 2.0 60 1714 9.8 300 2242 2.6 80	
10 W	0538 10.8 330 1157 1.3 40 1855 9.8 300		**25** Th ◑	0521 9.8 300 1126 2.3 70 1801 9.5 290 2334 3.3 100	
11 Th	0029 2.0 60 0644 10.5 320 1304 1.6 50 2001 9.5 290		**26** F	0616 9.5 290 1227 2.3 70 1853 9.5 290	
12 F	0138 2.3 70 0801 10.2 310 1408 1.6 50 2110 9.8 300		**27** Sa	0035 3.3 100 0722 9.2 280 1330 2.3 70 1955 9.5 290	
13 Sa	0244 2.0 60 0918 9.8 300 1506 1.6 50 2211 10.2 310		**28** Su	0144 3.3 100 0836 9.2 280 1430 2.3 70 2105 9.5 290	
14 Su	0343 1.6 50 1023 10.2 310 1559 1.6 50 2304 10.5 320		**29** M	0252 3.0 90 0947 9.8 300 1526 2.0 60 2210 10.2 310	
15 M	0434 1.3 40 1117 10.2 310 1646 1.6 50 2350 10.8 330		**30** Tu	0352 2.0 60 1048 10.2 310 1617 1.3 40 2305 10.8 330	
			31 W	0443 1.3 40 1142 10.5 320 1705 1.0 30 2353 11.5 350	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0530 0.3 10 1234 10.8 330 1753 0.7 20		**16** F	0052 11.5 350 0618 1.0 30 1310 10.2 310 1825 2.0 60	
2 F	0039 11.8 360 0615 0.0 0 1325 10.8 330 1840 0.7 20		**17** Sa	0124 11.5 350 0650 1.0 30 1339 10.2 310 1856 2.0 60	
3 Sa	0125 12.1 370 0701 - 0.3 - 10 1415 10.8 330 1928 0.7 20		**18** Su	0153 11.5 350 0720 1.0 30 1411 10.2 310 1927 2.0 60	
4 Su	0211 12.5 380 0747 - 0.3 - 10 1503 10.8 330 2017 0.7 20		**19** M	0223 11.5 350 0752 1.3 40 1443 10.5 320 2001 2.0 60	
5 M	0255 12.5 380 0836 0.0 0 1550 10.8 330 2107 0.7 20		**20** Tu	0254 11.5 350 0825 1.3 40 1518 10.5 320 2037 2.0 60	
6 Tu	0340 12.5 380 0927 0.3 10 1635 10.5 320 2159 1.0 30		**21** W	0328 11.2 340 0901 1.6 50 1553 10.5 320 2117 2.0 60	
7 W ◐	0425 11.8 360 1022 1.0 30 1721 10.2 310 2255 1.6 50		**22** Th	0405 10.8 330 0943 2.0 60 1631 10.5 320 2201 2.3 70	
8 Th	0513 11.2 340 1124 1.6 50 1810 9.8 300 2358 2.0 60		**23** F ◑	0445 10.5 320 1033 2.3 70 1714 10.2 310 2252 3.0 90	
9 F	0606 10.5 320 1234 2.3 70 1910 9.5 290		**24** Sa	0533 9.8 300 1133 2.6 80 1803 9.8 300 2352 3.3 100	
10 Sa	0111 2.6 80 0712 9.5 290 1346 2.6 80 2030 9.5 290		**25** Su	0637 9.2 280 1243 3.0 90 1905 9.5 290	
11 Su	0224 2.3 70 0853 9.2 280 1450 2.6 80 2148 9.8 300		**26** M	0103 3.3 100 0801 9.2 280 1358 3.0 90 2024 9.5 290	
12 M	0327 2.0 60 1017 9.5 290 1545 2.3 70 2246 10.2 310		**27** Tu	0223 3.0 90 0929 9.5 290 1505 2.3 70 2144 10.2 310	
13 Tu	0419 1.6 50 1112 9.8 300 1633 2.3 70 2334 10.8 330		**28** W	0333 2.0 60 1038 10.2 310 1601 1.6 50 2245 10.8 330	
14 W	0505 1.0 30 1158 9.8 300 1716 2.0 60		**29** Th	0427 1.0 30 1133 10.5 320 1650 1.0 30 2336 11.5 350	
15 Th ○	0015 11.2 340 0543 1.0 30 1237 10.2 310 1752 2.0 60		**30** F ●	0514 0.3 10 1223 10.8 330 1737 0.7 20	
			31 Sa	0024 12.1 370 0558 - 0.3 - 10 1311 11.2 340 1821 0.3 10	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0111 12.5 380 0641 - 0.7 - 20 1358 11.2 340 1907 0.3 10		**16** M	0129 11.5 350 0652 1.3 40 1342 10.8 330 1856 2.0 60	
2 M	0156 12.8 390 0725 - 0.3 - 10 1441 11.2 340 1953 0.3 10		**17** Tu	0157 11.5 350 0719 1.3 40 1412 10.8 330 1927 2.0 60	
3 Tu	0239 12.8 390 0810 0.0 0 1523 11.2 340 2040 0.7 20		**18** W	0228 11.5 350 0750 1.3 40 1444 11.2 340 2003 1.6 50	
4 W	0322 12.5 380 0856 0.7 20 1602 10.8 330 2129 1.0 30		**19** Th	0302 11.5 350 0826 1.6 50 1518 11.2 340 2043 2.0 60	
5 Th	0403 11.8 360 0947 1.3 40 1642 10.5 320 2222 1.6 50		**20** F	0338 11.2 340 0908 2.0 60 1554 10.8 330 2128 2.3 70	
6 F ◐	0446 11.2 340 1045 2.3 70 1725 10.2 310 2327 2.3 70		**21** Sa	0417 10.5 320 0957 2.6 80 1634 10.5 320 2220 2.6 80	
7 Sa	0532 10.2 310 1201 3.0 90 1817 9.5 290		**22** Su ◑	0501 9.8 300 1057 3.3 100 1720 10.2 310 2321 3.3 100	
8 Su	0048 2.6 80 0628 9.2 280 1324 3.6 110 1935 9.2 280		**23** M	0602 9.2 280 1210 3.6 110 1821 9.8 300	
9 M	0204 2.6 80 0834 8.5 260 1432 3.3 100 2124 9.5 290		**24** Tu	0035 3.3 100 0736 9.2 280 1334 3.6 110 1948 9.8 300	
10 Tu	0308 2.3 70 1010 9.2 280 1528 3.0 90 2225 10.2 310		**25** W	0203 3.0 90 0923 9.5 290 1449 3.0 90 2121 10.2 310	
11 W	0400 1.6 50 1100 9.8 300 1616 2.6 80 2312 10.8 330		**26** Th	0316 2.0 60 1030 10.5 320 1546 2.0 60 2226 11.2 340	
12 Th	0444 1.3 40 1140 10.2 310 1657 2.3 70 2353 11.5 350		**27** F	0409 1.0 30 1120 10.8 330 1634 1.3 40 2317 11.8 360	
13 F	0521 1.0 30 1215 10.2 310 1732 2.0 60		**28** Sa ●	0455 0.0 0 1206 11.5 350 1718 0.7 20	
14 Sa ○	0029 11.5 350 0554 1.0 30 1246 10.5 320 1802 2.0 60		**29** Su	0005 12.1 370 0537 - 0.3 - 10 1251 11.5 350 1801 0.3 10	
15 Su	0101 11.5 350 0624 1.0 30 1314 10.5 320 1829 2.0 60		**30** M	0052 12.5 380 0619 - 0.3 - 10 1333 11.5 350 1844 0.3 10	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Greenock, Scotland, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft cm		h m	ft cm		h m	ft cm		h m	ft cm
1 Tu	0136 12.8 390 0700 0.0 0 1414 11.5 350 1927 0.3 10		**16** W	0131 11.5 350 0649 1.6 50 1342 11.5 350 1859 2.0 60		**1** F	0239 12.1 370 0800 1.6 50 1500 11.8 360 2031 1.3 40		**16** Sa	0222 11.5 350 0743 2.0 60 1428 12.1 370 2001 2.0 60
2 W	0219 12.8 390 0743 0.3 10 1452 11.5 350 2011 0.7 20		**17** Th	0204 11.5 350 0721 1.6 50 1414 11.8 360 1936 2.0 60		**2** Sa	0319 11.5 350 0844 2.6 80 1538 11.5 350 2120 2.0 60		**17** Su	0303 11.2 340 0830 2.3 70 1506 12.1 370 2050 2.3 70
3 Th	0300 12.5 380 0826 1.0 30 1529 11.5 350 2058 1.3 40		**18** F	0240 11.5 350 0800 2.0 60 1449 11.8 360 2018 2.0 60		**3** Su	0401 10.8 330 0934 3.3 100 1620 10.8 330 2219 2.6 80		**18** M	0347 10.8 330 0922 3.0 90 1548 11.8 360 2145 2.6 80
4 F	0340 11.8 360 0912 2.0 60 1607 11.2 340 2149 2.0 60		**19** Sa	0318 11.2 340 0844 2.3 70 1526 11.5 350 2104 2.3 70		**4** M ◐	0446 10.2 310 1035 4.3 130 1708 10.5 320 2341 3.3 100		**19** Tu ◑	0436 10.5 320 1023 3.6 110 1636 11.5 350 2249 2.6 80
5 Sa ◐	0421 11.2 340 1005 3.0 90 1649 10.5 320 2253 2.6 80		**20** Su	0357 10.8 330 0935 3.0 90 1605 11.2 340 2158 2.6 80		**5** Tu	0541 9.2 280 1202 4.6 140 1810 9.8 300		**20** W	0540 9.8 300 1132 3.9 120 1735 10.8 330
6 Su	0506 10.2 310 1118 3.9 120 1738 9.8 300		**21** M ◑	0443 10.2 310 1035 3.6 110 1652 10.8 330 2302 3.3 100		**6** W	0102 3.3 100 0657 8.9 270 1326 4.6 140 1941 9.8 300		**21** Th	0003 3.0 90 0710 9.5 290 1250 3.9 120 1856 10.5 320
7 M	0022 3.0 90 0600 9.2 280 1256 4.3 130 1846 9.5 290		**22** Tu	0545 9.5 290 1149 3.9 120 1752 10.2 310		**7** Th	0205 3.0 90 0851 9.2 280 1428 4.3 130 2107 10.2 310		**22** F	0122 2.6 80 0842 10.2 310 1403 3.3 100 2027 10.8 330
8 Tu	0140 3.0 90 0738 8.5 260 1407 4.3 130 2046 9.5 290		**23** W	0018 3.3 100 0724 9.2 280 1315 3.9 120 1920 10.2 310		**8** F	0256 2.3 70 0948 9.8 300 1517 3.6 110 2201 10.8 330		**23** Sa	0229 2.0 60 0945 10.8 330 1503 2.6 80 2135 11.5 350
9 W	0241 2.6 80 0947 9.2 280 1504 3.6 110 2154 10.2 310		**24** Th	0145 3.0 90 0911 9.8 300 1430 3.3 100 2057 10.5 320		**9** Sa	0340 2.0 60 1030 10.5 320 1558 3.0 90 2244 11.2 340		**24** Su	0324 1.3 40 1035 11.2 340 1555 1.6 50 2231 11.8 360
10 Th	0332 2.0 60 1033 9.8 300 1551 3.0 90 2242 11.2 340		**25** F	0255 2.0 60 1012 10.5 320 1527 2.3 70 2202 11.5 350		**10** Su	0419 1.6 50 1107 10.8 330 1634 2.6 80 2322 11.5 350		**25** M	0412 1.0 30 1121 11.8 360 1641 1.3 40 2322 12.1 370
11 F	0415 1.3 40 1111 10.5 320 1631 2.6 80 2322 11.5 350		**26** Sa	0348 1.0 30 1100 11.2 340 1615 1.3 40 2255 12.1 370		**11** M	0454 1.6 50 1142 11.2 340 1705 2.3 70 2357 11.5 350		**26** Tu ●	0456 1.0 30 1203 11.8 360 1724 1.0 30
12 Sa	0453 1.3 40 1144 10.8 330 1705 2.3 70 2359 11.5 350		**27** Su	0434 0.3 10 1144 11.5 350 1659 1.0 30 2343 12.5 380		**12** Tu ○	0525 1.6 50 1214 11.5 350 1733 2.3 70		**27** W	0010 12.1 370 0537 1.0 30 1244 12.1 370 1805 1.0 30
13 Su ○	0526 1.0 30 1215 10.8 330 1735 2.3 70		**28** M ●	0516 0.0 0 1226 11.8 360 1741 0.7 20		**13** W	0031 11.5 350 0554 1.6 50 1245 11.8 360 1803 2.0 60		**28** Th	0056 12.1 370 0618 1.3 40 1323 12.1 370 1846 1.0 30
14 M	0031 11.5 350 0555 1.3 40 1245 11.2 340 1800 2.0 60		**29** Tu	0030 12.5 380 0556 0.3 10 1307 11.8 360 1822 0.7 20		**14** Th	0106 11.5 350 0625 1.6 50 1317 11.8 360 1837 2.0 60		**29** F	0139 11.8 360 0659 1.6 50 1400 12.1 370 1927 1.3 40
15 Tu	0101 11.5 350 0622 1.3 40 1313 11.2 340 1827 2.0 60		**30** W	0115 12.5 380 0637 0.7 20 1346 11.8 360 1904 0.7 20		**15** F	0143 11.5 350 0701 2.0 60 1351 12.1 370 1917 2.0 60		**30** Sa	0220 11.5 350 0740 2.3 70 1437 12.1 370 2010 1.6 50
			31 Th	0158 12.5 380 0718 1.0 30 1423 11.8 360 1946 1.0 30						

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0301 11.2 340 0823 2.6 80 1516 11.8 360 2056 2.0 60		**16** M	0255 11.2 340 0820 2.3 70 1454 12.5 380 2040 1.6 50
2 M	0343 10.5 320 0909 3.3 100 1557 11.5 350 2149 2.6 80		**17** Tu	0341 10.8 330 0912 2.6 80 1538 12.1 370 2134 2.0 60
3 Tu	0428 10.2 310 1001 3.9 120 1642 10.8 330 2251 3.0 90		**18** W	0432 10.5 320 1009 3.0 90 1626 11.8 360 2234 2.0 60
4 W ◐	0519 9.5 290 1101 4.3 130 1735 10.5 320		**19** Th ◑	0531 10.2 310 1111 3.3 100 1722 11.5 350 2341 2.3 70
5 Th	0002 3.3 100 0618 9.2 280 1214 4.6 140 1839 10.2 310		**20** F	0643 9.8 300 1220 3.3 100 1830 11.2 340
6 F	0112 3.0 90 0730 9.5 290 1328 4.6 140 1955 9.8 300		**21** Sa	0052 2.3 70 0802 10.2 310 1331 3.3 100 1950 10.8 330
7 Sa	0210 3.0 90 0842 9.8 300 1429 4.3 130 2104 10.2 310		**22** Su	0200 2.0 60 0911 10.5 320 1437 2.6 80 2106 11.2 340
8 Su	0259 2.3 70 0939 10.2 310 1518 3.6 110 2158 10.5 320		**23** M	0300 2.0 60 1009 10.8 330 1534 2.3 70 2209 11.2 340
9 M	0342 2.0 60 1027 10.8 330 1558 3.3 100 2243 10.8 330		**24** Tu	0353 1.6 50 1059 11.2 340 1625 1.6 50 2305 11.5 350
10 Tu	0421 2.0 60 1108 11.2 340 1634 2.6 80 2324 11.2 340		**25** W	0440 1.6 50 1144 11.5 350 1711 1.3 40 2355 11.5 350
11 W	0457 2.0 60 1146 11.5 350 1709 2.3 70		**26** Th ●	0524 1.6 50 1227 11.8 360 1754 1.0 30
12 Th ○	0004 11.2 340 0530 2.0 60 1221 11.8 360 1744 2.0 60		**27** F	0042 11.5 350 0605 2.0 60 1306 12.1 370 1833 1.0 30
13 F	0046 11.2 340 0607 2.0 60 1256 12.1 370 1822 2.0 60		**28** Sa	0126 11.2 340 0645 2.0 60 1344 12.1 370 1912 1.3 40
14 Sa	0127 11.5 350 0647 2.0 60 1334 12.5 380 1904 1.6 50		**29** Su	0206 11.2 340 0724 2.3 70 1421 12.1 370 1952 1.3 40
15 Su	0210 11.5 350 0732 2.0 60 1413 12.5 380 1950 1.6 50		**30** M	0245 10.8 330 0804 2.6 80 1458 11.8 360 2033 1.6 50
			31 Tu	0324 10.5 320 0845 2.6 80 1536 11.5 350 2118 2.0 60

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ullapool, Scotland, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0334	14.4	440	**16** W	0232	13.1	400
	0932	6.9	210		0838	7.5	230
	1559	14.8	450		1450	13.8	420
	2214	5.6	170		2108	6.6	200
2 W	0430	14.8	450	**17** Th	0335	13.8	420
	1036	6.2	190		0950	6.9	210
	1654	15.1	460		1553	14.4	440
	2308	5.2	160		2214	5.9	180
3 Th	0516	15.4	470	**18** F	0430	14.8	450
	1129	5.6	170		1050	5.9	180
	1739	15.4	470		1650	15.4	470
	2354	4.9	150		2310	4.9	150
4 F	0556	16.1	490	**19** Sa	0519	15.7	480
	1214	5.2	160		1143	4.6	140
	1819	15.7	480		1741	16.4	500
5 Sa	0034	4.6	140	**20** Su	0000	3.9	120
	0632	16.4	500		0603	17.1	520
	1255	4.6	140		1233	3.6	110
	1854	15.7	480		1829	17.1	520
6 Su ●	0111	4.3	130	**21** M ○	0048	3.3	100
	0705	16.7	510		0647	17.7	540
	1332	4.3	130		1320	2.6	80
	1928	15.7	480		1916	17.7	540
7 M	0146	4.3	130	**22** Tu	0134	2.6	80
	0737	16.7	510		0731	18.4	560
	1407	4.3	130		1407	1.6	50
	2000	15.7	480		2003	18.0	550
8 Tu	0220	4.6	140	**23** W	0219	2.3	70
	0809	16.7	510		0816	18.7	570
	1441	4.3	130		1453	1.6	50
	2032	15.4	470		2050	17.7	540
9 W	0253	4.6	140	**24** Th	0303	2.3	70
	0841	16.4	500		0902	18.4	560
	1515	4.3	130		1539	2.0	60
	2104	15.1	460		2139	17.1	520
10 Th	0326	4.9	150	**25** F	0348	3.0	90
	0914	16.1	490		0951	17.7	540
	1550	4.6	140		1626	2.6	80
	2138	14.8	450		2230	16.1	490
11 F	0400	5.6	170	**26** Sa	0435	3.9	120
	0951	15.4	470		1044	16.7	510
	1626	5.2	160		1715	3.6	110
	2217	14.1	430		2327	15.1	460
12 Sa	0437	6.2	190	**27** Su ◑	0525	4.9	150
	1034	15.1	460		1146	15.4	470
	1706	5.9	180		1808	4.9	150
	2304	13.8	420				
13 Su	0519	6.9	210	**28** M	0032	14.1	430
	1125	14.4	440		0621	6.2	190
	1752	6.2	190		1300	14.4	440
					1910	5.9	180
14 M ◐	0005	13.1	400	**29** Tu	0146	13.8	420
	0612	7.5	230		0731	6.9	210
	1231	13.8	420		1420	13.8	420
	1847	6.9	210		2025	6.9	210
15 Tu	0120	13.1	400	**30** W	0302	13.5	410
	0719	7.9	240		0856	7.2	220
	1343	13.8	420		1539	13.8	420
	1955	6.9	210		2146	6.9	210
				31 Th	0409	14.1	430
					1017	6.9	210
					1642	13.8	420
					2250	6.2	190

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0501	14.8	450	**16** Sa	0406	14.1	430
	1117	6.2	190		1031	6.2	190
	1731	14.4	440		1636	14.8	450
	2340	5.9	180		2253	5.6	170
2 Sa	0543	15.4	470	**17** Su	0503	15.4	470
	1204	5.6	170		1130	4.6	140
	1811	14.8	450		1732	15.7	480
					2348	4.3	130
3 Su	0021	5.2	160	**18** M	0551	16.7	510
	0619	15.7	480		1221	3.0	90
	1244	4.9	150		1820	17.1	520
	1844	15.4	470				
4 M ●	0058	4.6	140	**19** Tu ○	0036	3.0	90
	0651	16.4	500		0634	17.7	540
	1319	4.3	130		1309	2.0	60
	1915	15.7	480		1904	17.7	540
5 Tu	0131	4.3	130	**20** W	0121	2.0	60
	0721	16.7	510		0716	18.7	570
	1352	3.9	120		1353	1.0	30
	1943	15.7	480		1946	18.0	550
6 W	0203	3.9	120	**21** Th	0204	1.6	50
	0750	16.7	510		0758	19.0	580
	1423	3.6	110		1436	0.7	20
	2011	15.7	480		2029	18.0	550
7 Th	0234	3.9	120	**22** F	0246	1.6	50
	0819	16.7	510		0841	18.7	570
	1454	3.6	110		1518	1.0	30
	2038	15.7	480		2112	17.4	530
8 F	0304	3.9	120	**23** Sa	0328	2.0	60
	0849	16.4	500		0925	17.7	540
	1524	3.6	110		1600	2.0	60
	2108	15.4	470		2157	16.4	500
9 Sa	0335	4.3	130	**24** Su	0410	3.0	90
	0921	16.1	490		1012	16.4	500
	1556	3.9	120		1643	3.3	100
	2141	14.8	450		2247	15.1	460
10 Su	0408	4.9	150	**25** M	0455	4.3	130
	0957	15.4	470		1107	15.1	460
	1631	4.6	140		1729	4.6	140
	2219	14.4	440		2347	14.1	430
11 M	0444	5.6	170	**26** Tu ◑	0545	5.6	170
	1040	14.8	450		1219	13.8	420
	1710	5.2	160		1823	6.2	190
	2306	13.8	420				
12 Tu ◐	0528	6.2	190	**27** W	0101	13.1	400
	1134	14.1	430		0647	6.9	210
	1757	5.9	180		1346	12.8	390
					1936	7.2	220
13 W	0011	13.1	400	**28** Th	0224	12.8	390
	0624	7.2	220		0817	7.5	230
	1248	13.5	410		1517	12.8	390
	1858	6.6	200		2113	7.5	230
14 Th	0137	13.1	400				
	0742	7.5	230				
	1411	13.5	410				
	2019	6.9	210				
15 F	0257	13.5	410				
	0914	7.2	220				
	1529	13.8	420				
	2145	6.6	200				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0342	13.1	400	**16** Sa	0229	13.1	400
	0957	7.2	220		0851	6.9	210
	1627	13.1	400		1514	13.5	410
	2231	6.9	210		2126	6.6	200
2 Sa	0440	13.8	420	**17** Su	0346	13.8	420
	1102	6.6	200		1017	5.6	170
	1717	13.8	420		1625	14.4	440
	2322	6.2	190		2240	5.6	170
3 Su	0524	14.4	440	**18** M	0447	15.1	460
	1148	5.6	170		1117	4.3	130
	1755	14.4	440		1720	15.7	480
					2334	3.9	120
4 M	0003	5.2	160	**19** Tu	0535	16.4	500
	0559	15.4	470		1207	2.6	80
	1225	4.6	140		1805	16.7	510
	1826	15.1	460				
5 Tu	0039	4.6	140	**20** W	0020	2.6	80
	0630	16.1	490		0617	17.7	540
	1258	3.9	120		1252	1.3	40
	1854	15.4	470		1845	17.7	540
6 W ●	0111	3.9	120	**21** Th ○	0104	1.6	50
	0659	16.4	500		0657	18.4	560
	1329	3.3	100		1334	0.3	10
	1920	15.7	480		1925	18.0	550
7 Th	0142	3.6	110	**22** F	0145	1.0	30
	0726	16.7	510		0737	18.7	570
	1359	3.0	90		1414	0.3	10
	1945	16.1	490		2004	18.0	550
8 F	0211	3.3	100	**23** Sa	0225	1.0	30
	0753	16.7	510		0817	18.4	560
	1428	3.0	90		1453	0.7	20
	2011	16.1	490		2043	17.4	530
9 Sa	0240	3.3	100	**24** Su	0305	1.6	50
	0822	16.7	510		0858	17.4	530
	1457	3.0	90		1532	1.6	50
	2039	15.7	480		2124	16.4	500
10 Su	0309	3.6	110	**25** M	0345	2.6	80
	0853	16.4	500		0942	16.1	490
	1527	3.3	100		1612	3.3	100
	2109	15.4	470		2209	15.1	460
11 M	0341	3.9	120	**26** Tu	0427	3.9	120
	0928	15.7	480		1034	14.4	440
	1600	3.6	110		1654	4.6	140
	2144	14.8	450		2303	14.1	430
12 Tu	0416	4.6	140	**27** W	0514	5.2	160
	1009	15.1	460		1143	13.1	400
	1637	4.6	140		1742	6.2	190
	2227	14.1	430				
13 W	0457	5.2	160	**28** Th ◑	0016	13.1	400
	1101	14.1	430		0611	6.6	200
	1721	5.6	170		1311	12.1	370
	2326	13.5	410		1848	7.5	230
14 Th ◐	0550	6.2	190	**29** F	0140	12.5	380
	1217	13.5	410		0736	7.5	230
	1819	6.6	200		1444	12.1	370
					2031	7.9	240
15 F	0056	12.8	390	**30** Sa	0303	12.8	390
	0706	6.9	210		0925	7.2	220
	1350	13.1	400		1600	12.5	380
	1944	7.2	220		2202	7.5	230
				31 Su	0407	13.1	400
					1034	6.6	200
					1651	13.1	400
					2255	6.6	200

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ullapool, Scotland, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 M	0454	13.8	420	**16** Tu	0426	15.1	460
	1119	5.6	170		1058	3.6	110
	1729	13.8	420		1702	15.4	470
	2336	5.6	170		2314	3.9	120
2 Tu	0531	14.8	450	**17** W	0514	16.1	490
	1156	4.6	140		1146	2.3	70
	1800	14.4	440		1745	16.4	500
3 W	0011	4.6	140	**18** Th	0000	3.0	90
	0602	15.4	470		0556	17.1	520
	1229	3.6	110		1230	1.3	40
	1827	15.1	460		1824	17.4	530
4 Th	0044	3.9	120	**19** F	0043	2.0	60
	0631	16.1	490		0636	17.7	540
	1300	3.0	90		1311	0.7	20
	1852	15.7	480	○	1902	17.7	540
5 F	0115	3.3	100	**20** Sa	0124	1.3	40
	0658	16.4	500		0715	17.7	540
	1329	2.6	80		1350	0.7	20
●	1917	16.1	490		1939	17.4	530
6 Sa	0145	3.0	90	**21** Su	0204	1.3	40
	0726	16.7	510		0755	17.4	530
	1359	2.3	70		1428	1.3	40
	1943	16.1	490		2017	17.1	520
7 Su	0214	2.6	80	**22** M	0243	2.0	60
	0756	16.7	510		0836	16.4	500
	1428	2.3	70		1506	2.3	70
	2011	16.1	490		2056	16.1	490
8 M	0245	3.0	90	**23** Tu	0323	2.6	80
	0829	16.4	500		0919	15.4	470
	1500	2.6	80		1544	3.6	110
	2043	15.7	480		2139	15.1	460
9 Tu	0318	3.3	100	**24** W	0404	3.9	120
	0906	15.7	480		1009	14.1	430
	1534	3.3	100		1624	4.9	150
	2120	15.4	470		2228	14.1	430
10 W	0355	3.9	120	**25** Th	0449	5.2	160
	0951	14.8	450		1112	12.8	390
	1612	4.3	130		1710	6.2	190
	2205	14.4	440		2332	13.1	400
11 Th	0439	4.9	150	**26** F	0541	6.2	190
	1049	14.1	430		1230	12.1	370
	1658	5.2	160		1808	7.2	220
	2306	13.8	420	◑			
12 F	0534	5.6	170	**27** Sa	0050	12.5	380
	1211	13.1	400		0653	6.9	210
	1757	6.2	190		1355	11.8	360
◐					1936	7.9	240
13 Sa	0038	13.1	400	**28** Su	0210	12.5	380
	0653	6.6	200		0829	7.2	220
	1339	12.8	390		1514	12.1	370
	1925	6.9	210		2112	7.5	230
14 Su	0209	13.1	400	**29** M	0320	12.8	390
	0838	6.2	190		0947	6.6	200
	1501	13.5	410		1611	12.8	390
	2109	6.6	200		2215	6.9	210
15 M	0326	13.8	420	**30** Tu	0413	13.5	410
	1000	4.9	150		1038	5.6	170
	1609	14.4	440		1653	13.5	410
	2221	5.2	160		2259	5.9	180

May

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 W	0454	14.1	430	**16** Th	0453	15.7	480
	1118	4.9	150		1122	2.6	80
	1726	14.1	430		1724	16.1	490
	2337	4.9	150		2337	3.3	100
2 Th	0528	14.8	450	**17** F	0537	16.4	500
	1153	3.9	120		1207	2.3	70
	1754	14.8	450		1804	16.7	510
3 F	0011	4.3	130	**18** Sa	0022	2.6	80
	0558	15.4	470		0618	16.7	510
	1226	3.3	100		1249	2.0	60
	1820	15.4	470	○	1841	17.1	520
4 Sa	0044	3.3	100	**19** Su	0104	2.3	70
	0628	16.1	490		0658	16.7	510
	1257	2.6	80		1328	2.0	60
●	1848	16.1	490		1919	17.1	520
5 Su	0117	3.0	90	**20** M	0145	2.3	70
	0659	16.4	500		0738	16.4	500
	1329	2.3	70		1406	2.3	70
	1917	16.4	500		1956	16.7	510
6 M	0150	2.6	80	**21** Tu	0225	2.6	80
	0733	16.4	500		0819	15.7	480
	1402	2.3	70		1443	3.0	90
	1949	16.4	500		2035	16.1	490
7 Tu	0224	2.6	80	**22** W	0304	3.3	100
	0811	16.1	490		0902	14.8	450
	1437	2.6	80		1521	3.9	120
	2025	16.1	490		2115	15.4	470
8 W	0302	3.0	90	**23** Th	0345	3.9	120
	0854	15.7	480		0948	13.8	420
	1515	3.3	100		1601	4.9	150
	2107	15.4	470		2200	14.4	440
9 Th	0343	3.6	110	**24** F	0427	4.9	150
	0946	14.8	450		1041	13.1	400
	1557	3.9	120		1643	5.9	180
	2158	14.8	450		2253	13.8	420
10 F	0431	4.3	130	**25** Sa	0515	5.6	170
	1052	14.1	430		1143	12.5	380
	1646	4.9	150		1734	6.9	210
	2305	14.1	430		2358	13.1	400
11 Sa	0530	5.2	160	**26** Su	0612	6.2	190
	1209	13.5	410		1253	12.1	370
	1749	5.9	180		1840	7.5	230
				◑			
12 Su	0028	13.5	410	**27** M	0108	12.8	390
	0649	5.6	170		0723	6.6	200
	1326	13.1	400		1407	12.1	370
◐	1913	6.6	200		2003	7.5	230
13 M	0149	13.5	410	**28** Tu	0218	12.8	390
	0819	5.2	160		0839	6.6	200
	1441	13.5	410		1513	12.5	380
	2043	6.2	190		2117	7.2	220
14 Tu	0301	14.1	430	**29** W	0318	13.1	400
	0934	4.6	140		0942	5.9	180
	1546	14.1	430		1604	13.1	400
	2154	5.2	160		2211	6.2	190
15 W	0403	14.8	450	**30** Th	0407	13.8	420
	1033	3.6	110		1030	5.2	160
	1639	15.1	460		1644	13.8	420
	2249	4.3	130		2256	5.6	170
				31 F	0448	14.4	440
					1111	4.6	140
					1718	14.4	440
					2335	4.6	140

June

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Sa	0525	15.1	460	**16** Su	0005	3.6	110
	1149	3.9	120		0607	15.4	470
	1749	15.1	460		1230	3.3	100
					1826	16.1	490
2 Su	0012	3.9	120	**17** M	0050	3.3	100
	0600	15.4	470		0648	15.7	480
	1226	3.3	100		1310	3.3	100
	1821	15.7	480	○	1904	16.4	500
3 M	0050	3.3	100	**18** Tu	0131	3.3	100
	0637	16.1	490		0729	15.4	470
	1303	2.6	80		1349	3.3	100
●	1855	16.4	500		1941	16.4	500
4 Tu	0129	3.0	90	**19** W	0211	3.3	100
	0717	16.1	490		0808	15.1	460
	1341	2.6	80		1426	3.6	110
	1933	16.4	500		2017	16.1	490
5 W	0209	2.6	80	**20** Th	0249	3.6	110
	0801	16.1	490		0846	14.8	450
	1421	2.6	80		1503	4.3	130
	2015	16.4	500		2055	15.4	470
6 Th	0251	2.6	80	**21** F	0327	3.9	120
	0851	15.7	480		0926	14.1	430
	1503	3.0	90		1540	4.9	150
	2102	16.1	490		2134	15.1	460
7 F	0337	3.0	90	**22** Sa	0406	4.6	140
	0946	15.1	460		1007	13.5	410
	1549	3.9	120		1619	5.6	170
	2156	15.4	470		2216	14.4	440
8 Sa	0429	3.6	110	**23** Su	0447	4.9	150
	1049	14.8	450		1054	13.1	400
	1641	4.6	140		1701	6.2	190
	2300	14.8	450		2306	13.8	420
9 Su	0527	4.3	130	**24** M	0532	5.6	170
	1156	14.1	430		1150	12.5	380
	1742	5.6	170		1751	6.9	210
10 M	0012	14.4	440	**25** Tu	0006	13.1	400
	0635	4.6	140		0624	6.2	190
	1305	13.8	420		1255	12.5	380
◐	1853	5.9	180	◑	1851	7.2	220
11 Tu	0124	14.1	430	**26** W	0113	13.1	400
	0750	4.9	150		0725	6.2	190
	1414	13.8	420		1402	12.5	380
	2010	5.9	180		2003	7.2	220
12 W	0234	14.1	430	**27** Th	0217	13.1	400
	0901	4.6	140		0832	6.2	190
	1520	14.1	430		1504	12.8	390
	2122	5.6	170		2112	6.9	210
13 Th	0339	14.4	440	**28** F	0315	13.1	400
	1004	4.3	130		0934	5.9	180
	1616	14.8	450		1556	13.5	410
	2223	4.9	150		2209	6.2	190
14 F	0435	15.1	460	**29** Sa	0407	13.8	420
	1058	3.9	120		1027	5.2	160
	1704	15.4	470		1640	14.1	430
	2317	4.3	130		2259	5.6	170
15 Sa	0523	15.4	470	**30** Su	0453	14.4	440
	1146	3.3	100		1114	4.6	140
	1747	15.7	480		1720	14.8	450
					2344	4.6	140

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ullapool, Scotland, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0538 15.1 460 1159 3.9 120 1800 15.7 480		**16** Tu ○	0039 4.3 130 0642 15.1 460 1257 4.3 130 1851 16.1 490	
2 Tu ●	0028 3.6 110 0622 15.7 480 1243 3.3 100 1839 16.4 500		**17** W	0120 3.9 120 0719 15.1 460 1335 3.9 120 1926 16.1 490	
3 W	0113 3.0 90 0707 16.4 500 1326 2.6 80 1922 16.7 510		**18** Th	0158 3.6 110 0753 15.1 460 1410 3.9 120 1959 16.1 490	
4 Th	0158 2.3 70 0754 16.4 500 1410 2.6 80 2006 17.1 520		**19** F	0233 3.6 110 0825 15.1 460 1445 3.9 120 2032 16.1 490	
5 F	0244 2.0 60 0844 16.4 500 1455 2.6 80 2054 17.1 520		**20** Sa	0307 3.6 110 0858 14.8 450 1518 4.3 130 2105 15.7 480	
6 Sa	0331 2.3 70 0936 16.1 490 1541 3.3 100 2146 16.4 500		**21** Su	0341 3.9 120 0931 14.4 440 1553 4.9 150 2140 15.1 460	
7 Su	0420 2.6 80 1032 15.4 470 1631 3.9 120 2243 15.7 480		**22** M	0416 4.3 130 1008 13.8 420 1629 5.2 160 2220 14.4 440	
8 M	0513 3.3 100 1132 14.8 450 1725 4.6 140 2347 15.1 460		**23** Tu	0454 4.9 150 1050 13.5 410 1708 5.9 180 2308 14.1 430	
9 Tu ◐	0611 3.9 120 1236 14.1 430 1825 5.2 160		**24** W	0535 5.6 170 1145 12.8 390 1755 6.6 200	
10 W	0056 14.4 440 0714 4.6 140 1344 13.8 420 1934 5.9 180		**25** Th ◑	0007 13.5 410 0624 5.9 180 1254 12.5 380 1854 7.2 220	
11 Th	0208 14.1 430 0824 5.2 160 1452 13.8 420 2048 5.9 180		**26** F	0117 13.1 400 0724 6.6 200 1404 12.8 390 2007 7.2 220	
12 F	0319 14.1 430 0935 5.2 160 1555 14.1 430 2200 5.9 180		**27** Sa	0226 13.1 400 0835 6.6 200 1510 13.1 400 2123 6.9 210	
13 Sa	0423 14.1 430 1038 4.9 150 1649 14.8 450 2302 5.2 160		**28** Su	0331 13.5 410 0946 6.2 190 1607 13.8 420 2228 6.2 190	
14 Su	0517 14.4 440 1130 4.6 140 1735 15.1 460 2354 4.6 140		**29** M	0430 14.1 430 1047 5.2 160 1658 14.8 450 2323 4.9 150	
15 M	0603 14.8 450 1216 4.3 130 1815 15.7 480		**30** Tu	0522 15.1 460 1139 4.3 130 1743 15.7 480	
			31 W	0012 3.9 120 0610 16.1 490 1227 3.6 110 1826 16.7 510	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0100 2.6 80 0656 16.7 510 1313 2.6 80 1909 17.4 530		**16** F	0140 3.6 110 0732 15.4 470 1351 3.9 120 1936 16.4 500	
2 F	0146 1.6 50 0742 17.1 520 1358 2.3 70 1953 18.0 550		**17** Sa	0212 3.3 100 0759 15.4 470 1423 3.6 110 2005 16.4 500	
3 Sa	0232 1.3 40 0827 17.4 530 1442 2.0 60 2038 18.0 550		**18** Su	0242 3.3 100 0827 15.4 470 1453 3.9 120 2035 16.4 500	
4 Su	0317 1.3 40 0915 16.7 510 1526 2.3 70 2125 17.4 530		**19** M	0313 3.3 100 0855 15.1 460 1524 4.3 130 2106 15.7 480	
5 M	0402 1.6 50 1004 16.1 490 1612 3.0 90 2216 16.7 510		**20** Tu	0344 3.6 110 0926 14.8 450 1556 4.6 140 2141 15.4 470	
6 Tu	0449 2.6 80 1059 15.4 470 1700 3.9 120 2316 15.4 470		**21** W	0417 4.3 130 1002 14.1 430 1631 5.2 160 2221 14.4 440	
7 W ◐	0539 3.9 120 1202 14.4 440 1754 4.9 150		**22** Th	0453 4.9 150 1046 13.8 420 1711 6.2 190 2312 13.8 420	
8 Th	0026 14.4 440 0636 4.9 150 1311 13.8 420 1858 6.2 190		**23** F ◑	0536 5.9 180 1146 13.1 400 1802 6.9 210	
9 F	0144 13.8 420 0746 5.9 180 1425 13.5 410 2018 6.6 200		**24** Sa	0023 13.1 400 0630 6.6 200 1311 12.8 390 1912 7.5 230	
10 Sa	0305 13.5 410 0908 6.6 200 1537 13.8 420 2145 6.6 200		**25** Su	0148 12.8 390 0744 6.9 210 1431 12.8 390 2045 7.2 220	
11 Su	0417 13.5 410 1023 6.2 190 1637 14.1 430 2255 5.9 180		**26** M	0306 13.1 400 0914 6.9 210 1542 13.8 420 2207 6.6 200	
12 M	0513 13.8 420 1119 5.6 170 1724 14.8 450 2346 5.2 160		**27** Tu	0414 14.1 430 1028 5.9 180 1640 14.8 450 2308 4.9 150	
13 Tu	0556 14.4 440 1204 5.2 160 1802 15.4 470		**28** W	0511 15.1 460 1124 4.6 140 1728 16.1 490 2359 3.6 110	
14 W	0029 4.6 140 0631 14.8 450 1243 4.6 140 1836 16.1 490		**29** Th	0558 16.4 500 1213 3.6 110 1811 17.1 520	
15 Th ○	0106 3.9 120 0703 15.1 460 1319 4.3 130 1907 16.4 500		**30** F ●	0045 2.0 60 0641 17.4 530 1258 2.3 70 1852 18.0 550	
			31 Sa	0130 1.0 30 0723 18.0 550 1341 1.6 50 1933 18.7 570	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0213 0.7 20 0805 18.0 550 1423 1.3 40 2015 18.7 570		**16** M	0213 3.0 90 0756 16.1 490 1426 3.6 110 2005 16.7 510	
2 M	0255 0.7 20 0847 17.7 540 1505 1.6 50 2059 18.0 550		**17** Tu	0242 3.0 90 0822 15.7 480 1455 3.9 120 2035 16.4 500	
3 Tu	0337 1.3 40 0932 16.7 510 1548 2.6 80 2146 17.1 520		**18** W	0311 3.3 100 0851 15.4 470 1526 4.3 130 2108 15.7 480	
4 W	0420 2.6 80 1022 15.7 480 1633 3.6 110 2242 15.4 470		**19** Th	0343 3.9 120 0924 15.1 460 1559 4.9 150 2146 15.1 460	
5 Th	0506 3.9 120 1123 14.4 440 1723 5.2 160 2355 14.1 430		**20** F	0418 4.6 140 1003 14.4 440 1638 5.6 170 2235 14.1 430	
6 F ◐	0558 5.6 170 1237 13.8 420 1825 6.6 200		**21** Sa	0458 5.6 170 1057 13.5 410 1727 6.6 200 2348 13.1 400	
7 Sa	0122 13.1 400 0706 6.9 210 1359 13.1 400 1949 7.2 220		**22** Su ◑	0551 6.6 200 1226 13.1 400 1837 7.2 220	
8 Su	0253 12.8 390 0842 7.5 230 1518 13.5 410 2133 7.2 220		**23** M	0124 12.8 390 0707 7.5 230 1403 13.1 400 2020 7.5 230	
9 M	0407 13.1 400 1008 7.2 220 1620 14.1 430 2244 6.6 200		**24** Tu	0249 13.1 400 0852 7.2 220 1521 13.8 420 2151 6.2 190	
10 Tu	0501 13.8 420 1104 6.2 190 1706 14.8 450 2332 5.6 170		**25** W	0401 14.1 430 1012 6.2 190 1621 15.1 460 2252 4.9 150	
11 W	0541 14.4 440 1146 5.6 170 1743 15.4 470		**26** Th	0456 15.4 470 1108 4.9 150 1709 16.4 500 2341 3.3 100	
12 Th	0010 4.6 140 0612 15.1 460 1223 4.9 150 1814 16.1 490		**27** F	0541 16.7 510 1155 3.6 110 1751 17.7 540	
13 F	0044 3.9 120 0640 15.4 470 1256 4.3 130 1843 16.4 500		**28** Sa ●	0026 1.6 50 0621 17.7 540 1239 2.3 70 1831 18.7 570	
14 Sa ○	0115 3.3 100 0706 15.7 480 1327 3.6 110 1910 16.7 510		**29** Su	0109 1.0 30 0700 18.4 560 1320 1.6 50 1911 19.0 580	
15 Su	0144 3.0 90 0731 16.1 490 1357 3.6 110 1937 16.7 510		**30** M	0150 0.3 10 0739 18.4 560 1401 1.3 40 1951 18.7 570	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ullapool, Scotland, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0230 0.7 20 0819 18.0 550 1442 1.6 50 2033 18.0 550		**16** W	0211 3.0 90 0753 16.4 500 1428 3.6 110 2009 16.7 510	
2 W	0310 1.6 50 0901 17.1 520 1524 2.6 80 2119 16.7 510		**17** Th	0242 3.3 100 0823 16.1 490 1500 3.9 120 2043 16.1 490	
3 Th	0350 3.0 90 0947 16.1 490 1607 3.9 120 2212 15.1 460		**18** F	0314 3.9 120 0856 15.7 480 1535 4.6 140 2124 15.1 460	
4 F	0434 4.6 140 1043 14.8 450 1655 5.2 160 2325 13.8 420		**19** Sa	0350 4.9 150 0937 15.1 460 1616 5.6 170 2218 14.4 440	
5 Sa ◐	0523 6.2 190 1159 13.8 420 1754 6.6 200		**20** Su	0432 5.9 180 1032 14.1 430 1707 6.6 200 2337 13.5 410	
6 Su	0057 12.8 390 0628 7.5 230 1325 13.1 400 1919 7.5 230		**21** M ◑	0526 6.9 210 1202 13.5 410 1819 7.2 220	
7 M	0230 12.5 380 0808 8.2 250 1448 13.1 400 2108 7.5 230		**22** Tu	0110 13.1 400 0646 7.5 230 1339 13.5 410 2003 6.9 210	
8 Tu	0345 12.8 390 0942 7.9 240 1552 13.8 420 2220 6.9 210		**23** W	0232 13.5 410 0832 7.5 230 1457 14.1 430 2131 5.9 180	
9 W	0438 13.5 410 1038 6.9 210 1639 14.4 440 2305 5.9 180		**24** Th	0342 14.4 440 0951 6.2 190 1559 15.1 460 2231 4.6 140	
10 Th	0516 14.4 440 1120 5.9 180 1716 15.1 460 2341 4.9 150		**25** F	0436 15.7 480 1046 4.9 150 1648 16.4 500 2319 3.3 100	
11 F	0546 15.1 460 1155 5.2 160 1747 15.7 480		**26** Sa	0520 16.7 510 1133 3.6 110 1730 17.7 540	
12 Sa	0014 4.3 130 0613 15.7 480 1228 4.3 130 1815 16.4 500		**27** Su	0003 2.0 60 0600 17.7 540 1217 2.6 80 1810 18.4 560	
13 Su ○	0045 3.6 110 0637 16.1 490 1259 3.9 120 1842 16.7 510		**28** M ●	0046 1.3 40 0638 18.4 560 1259 2.0 60 1850 18.7 570	
14 M	0114 3.3 100 0702 16.4 500 1329 3.6 110 1909 17.1 520		**29** Tu	0126 1.3 40 0716 18.4 560 1340 2.0 60 1931 18.4 560	
15 Tu	0142 3.0 90 0726 16.4 500 1358 3.6 110 1938 17.1 520		**30** W	0205 1.6 50 0755 18.0 550 1421 2.3 70 2013 17.4 530	
			31 Th	0245 2.6 80 0835 17.4 530 1502 3.0 90 2058 16.4 500	

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0324 3.6 110 0919 16.1 490 1546 4.3 130 2149 15.1 460		**16** Sa	0253 3.9 120 0841 16.4 500 1521 4.6 140 2117 15.4 470	
2 Sa	0406 5.2 160 1009 15.1 460 1633 5.6 170 2255 13.8 420		**17** Su	0333 4.9 150 0927 15.7 480 1605 5.2 160 2216 14.8 450	
3 Su	0453 6.6 200 1116 14.1 430 1727 6.6 200		**18** M	0418 5.6 170 1025 14.8 450 1700 5.9 180 2330 14.1 430	
4 M ◐	0017 12.8 390 0551 7.9 240 1237 13.5 410 1839 7.5 230		**19** Tu ◑	0514 6.6 200 1146 14.4 440 1811 6.6 200	
5 Tu	0143 12.5 380 0717 8.5 260 1358 13.1 400 2014 7.5 230		**20** W	0050 13.8 420 0630 7.2 220 1312 14.1 430 1939 6.6 200	
6 W	0303 12.8 390 0852 8.2 250 1508 13.5 410 2133 7.2 220		**21** Th	0207 14.1 430 0802 7.2 220 1427 14.4 440 2100 5.6 170	
7 Th	0401 13.5 410 0958 7.5 230 1601 14.1 430 2224 6.2 190		**22** F	0315 14.8 450 0919 6.6 200 1531 15.4 470 2203 4.6 140	
8 F	0442 14.1 430 1044 6.6 200 1641 14.8 450 2304 5.6 170		**23** Sa	0412 15.4 470 1019 5.2 160 1625 16.4 500 2254 3.6 110	
9 Sa	0515 14.8 450 1122 5.9 180 1715 15.4 470 2339 4.6 140		**24** Su	0459 16.4 500 1109 4.3 130 1711 17.1 520 2341 3.0 90	
10 Su	0543 15.4 470 1156 4.9 150 1746 16.1 490		**25** M	0541 17.4 530 1156 3.6 110 1754 17.7 540	
11 M	0011 4.3 130 0609 16.1 490 1229 4.3 130 1815 16.4 500		**26** Tu ●	0024 2.6 80 0619 17.7 540 1240 3.0 90 1836 17.7 540	
12 Tu ○	0042 3.6 110 0634 16.4 500 1301 3.9 120 1845 16.7 510		**27** W	0106 2.6 80 0658 18.0 550 1323 3.0 90 1918 17.4 530	
13 W	0113 3.3 100 0701 16.7 510 1333 3.6 110 1916 16.7 510		**28** Th	0145 2.6 80 0737 17.7 540 1405 3.0 90 2000 16.7 510	
14 Th	0145 3.3 100 0731 16.7 510 1406 3.6 110 1951 16.7 510		**29** F	0225 3.3 100 0817 17.4 530 1447 3.6 110 2044 16.1 490	
15 F	0218 3.6 110 0804 16.7 510 1442 3.9 120 2030 16.1 490		**30** Sa	0304 4.3 130 0858 16.4 500 1529 4.3 130 2131 15.1 460	

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0345 5.2 160 0943 15.7 480 1613 5.2 160 2222 14.1 430		**16** M	0324 4.3 130 0924 16.4 500 1601 4.3 130 2210 15.4 470	
2 M	0428 6.2 190 1034 14.8 450 1701 6.2 190 2322 13.1 400		**17** Tu	0411 4.9 150 1019 15.7 480 1654 4.9 150 2314 14.8 450	
3 Tu	0517 7.2 220 1137 14.1 430 1756 6.9 210		**18** W	0505 5.9 180 1126 15.4 470 1756 5.2 160	
4 W ◐	0033 12.8 390 0619 8.2 250 1249 13.5 410 1904 7.5 230		**19** Th ◑	0023 14.4 440 0609 6.6 200 1240 15.1 460 1906 5.6 170	
5 Th	0150 12.8 390 0738 8.2 250 1401 13.5 410 2020 7.5 230		**20** F	0134 14.1 430 0724 6.9 210 1353 14.8 450 2021 5.6 170	
6 F	0302 12.8 390 0856 8.2 250 1505 13.8 420 2126 6.9 210		**21** Sa	0243 14.4 440 0841 6.6 200 1502 15.1 460 2130 5.2 160	
7 Sa	0356 13.5 410 0956 7.5 230 1557 14.1 430 2217 6.2 190		**22** Su	0346 15.1 460 0949 5.9 180 1605 15.4 470 2230 4.9 150	
8 Su	0437 14.1 430 1042 6.6 200 1639 14.8 450 2259 5.6 170		**23** M	0440 15.7 480 1048 5.2 160 1659 16.1 490 2322 4.3 130	
9 M	0511 15.1 460 1122 5.9 180 1715 15.4 470 2336 4.9 150		**24** Tu	0526 16.4 500 1141 4.6 140 1747 16.4 500	
10 Tu	0541 15.7 480 1159 5.2 160 1750 16.1 490		**25** W	0008 3.9 120 0608 17.1 520 1229 3.9 120 1831 16.7 510	
11 W	0012 4.3 130 0611 16.4 500 1236 4.6 140 1824 16.4 500		**26** Th ●	0052 3.6 110 0648 17.4 530 1313 3.6 110 1912 16.4 500	
12 Th ○	0048 3.9 120 0642 16.7 510 1313 3.9 120 1901 16.7 510		**27** F	0132 3.6 110 0726 17.4 530 1355 3.6 110 1953 16.4 500	
13 F	0124 3.6 110 0716 17.1 520 1351 3.6 110 1941 16.7 510		**28** Sa	0211 3.9 120 0804 17.1 520 1435 3.9 120 2032 15.7 480	
14 Sa	0202 3.6 110 0754 17.1 520 1431 3.6 110 2026 16.4 500		**29** Su	0248 4.3 130 0841 16.7 510 1514 4.3 130 2110 15.4 470	
15 Su	0241 3.9 120 0836 17.1 520 1514 3.9 120 2115 16.1 490		**30** M	0326 4.9 150 0918 16.1 490 1553 4.6 140 2148 14.8 450	
			31 Tu	0404 5.6 170 0958 15.4 470 1632 5.2 160 2230 14.1 430	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dublin (Baile Atha Cliath), Eire, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0114	3.6	110	**16** W	0012	4.3	130
	0804	12.1	370		0709	11.2	340
	1342	4.6	140		1248	4.9	150
	2025	12.5	380		1918	11.5	350
2 W	0218	3.6	110	**17** Th	0118	4.3	130
	0903	12.5	380		0810	11.5	350
	1445	4.3	130		1349	4.3	130
	2127	12.5	380		2023	11.8	360
3 Th	0314	3.6	110	**18** F	0217	3.6	110
	0956	12.8	390		0904	12.1	370
	1539	3.9	120		1445	3.6	110
	2220	12.5	380		2122	12.5	380
4 F	0400	3.3	100	**19** Sa	0310	3.0	90
	1041	12.8	390		0953	12.8	390
	1625	3.6	110		1536	2.6	80
	2305	12.5	380		2214	12.8	390
5 Sa	0441	3.3	100	**20** Su	0357	2.6	80
	1118	13.1	400		1039	13.5	410
	1705	3.3	100		1624	2.0	60
	2342	12.5	380		2303	13.5	410
6 Su ●	0518	3.3	100	**21** M ○	0442	2.0	60
	1150	13.1	400		1124	14.1	430
	1743	3.0	90		1711	1.3	40
					2351	13.8	420
7 M	0013	12.5	380	**22** Tu	0526	1.6	50
	0551	3.3	100		1209	14.4	440
	1221	13.1	400		1758	0.7	20
	1818	3.0	90				
8 Tu	0046	12.1	370	**23** W	0038	13.8	420
	0624	3.3	100		0611	1.6	50
	1254	13.1	400		1256	14.4	440
	1852	3.0	90		1846	0.7	20
9 W	0120	12.1	370	**24** Th	0127	13.5	410
	0657	3.3	100		0658	2.0	60
	1329	13.1	400		1345	14.4	440
	1927	3.0	90		1936	1.0	30
10 Th	0157	12.1	370	**25** F	0218	13.1	400
	0731	3.6	110		0748	2.3	70
	1407	12.8	390		1438	14.1	430
	2001	3.3	100		2029	1.3	40
11 F	0236	11.8	360	**26** Sa	0312	12.8	390
	0809	3.9	120		0842	3.0	90
	1447	12.5	380		1533	13.5	410
	2039	3.3	100		2125	2.0	60
12 Sa	0320	11.5	350	**27** Su ◑	0410	12.1	370
	0852	4.3	130		0941	3.6	110
	1531	12.1	370		1633	12.8	390
	2121	3.6	110		2223	3.0	90
13 Su	0407	11.2	340	**28** M	0513	11.8	360
	0940	4.6	140		1044	4.3	130
	1619	11.8	360		1739	12.5	380
	2209	3.9	120		2326	3.6	110
14 M ◐	0501	11.2	340	**29** Tu	0621	11.5	350
	1037	4.9	150		1154	4.6	140
	1712	11.5	350		1849	11.8	360
	2306	4.3	130				
15 Tu	0603	10.8	330	**30** W	0036	4.3	130
	1142	5.2	160		0727	11.5	350
	1812	11.5	350		1312	4.9	150
					1958	11.8	360
				31 Th	0151	4.3	130
					0832	11.8	360
					1426	4.6	140
					2106	11.8	360

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0256	4.3	130	**16** Sa	0150	4.3	130
	0931	12.1	370		0837	11.8	360
	1526	3.9	120		1424	3.6	110
	2205	11.8	360		2104	11.8	360
2 Sa	0346	3.9	120	**17** Su	0254	3.3	100
	1020	12.5	380		0934	12.5	380
	1613	3.6	110		1522	2.6	80
	2251	11.8	360		2201	12.5	380
3 Su	0426	3.6	110	**18** M	0346	2.6	80
	1100	12.8	390		1023	13.5	410
	1652	3.3	100		1613	1.3	40
	2328	12.1	370		2251	13.1	400
4 M ●	0501	3.3	100	**19** Tu ○	0432	2.0	60
	1132	12.8	390		1110	14.1	430
	1727	3.0	90		1659	0.7	20
	2357	12.1	370		2337	13.5	410
5 Tu	0533	3.0	90	**20** W	0514	1.3	40
	1202	13.1	400		1154	14.4	440
	1759	2.6	80		1744	0.3	10
6 W	0025	12.1	370	**21** Th	0021	13.8	420
	0603	3.0	90		0556	1.0	30
	1232	13.1	400		1239	14.4	440
	1828	2.6	80		1828	0.0	0
7 Th	0054	12.1	370	**22** F	0106	13.5	410
	0631	3.0	90		0639	1.3	40
	1303	13.1	400		1325	14.4	440
	1855	2.6	80		1914	0.3	10
8 F	0126	12.1	370	**23** Sa	0151	13.1	400
	0700	3.0	90		0725	1.6	50
	1338	12.8	390		1413	13.8	420
	1924	2.6	80		2003	1.0	30
9 Sa	0201	12.1	370	**24** Su	0239	12.8	390
	0734	3.0	90		0815	2.3	70
	1416	12.8	390		1504	13.5	410
	1958	2.6	80		2053	2.0	60
10 Su	0241	11.8	360	**25** M	0330	12.1	370
	0812	3.3	100		0909	3.0	90
	1458	12.5	380		1600	12.5	380
	2038	3.0	90		2147	3.0	90
11 M	0324	11.8	360	**26** Tu ◑	0428	11.5	350
	0856	3.6	110		1009	3.6	110
	1542	12.1	370		1704	11.8	360
	2122	3.3	100		2244	3.9	120
12 Tu ◐	0412	11.2	340	**27** W	0535	11.2	340
	0945	3.9	120		1115	4.3	130
	1632	11.8	360		1816	11.2	340
	2213	3.6	110		2351	4.6	140
13 W	0508	10.8	330	**28** Th	0647	10.8	330
	1044	4.3	130		1235	4.6	140
	1729	11.2	340		1930	10.8	330
	2316	4.3	130				
14 Th	0615	10.8	330				
	1159	4.6	140				
	1839	11.2	340				
15 F	0034	4.3	130				
	0730	11.2	340				
	1316	4.3	130				
	1956	11.5	350				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0115	4.9	150	**16** Sa	0004	4.6	140
	0756	11.2	340		0658	10.8	330
	1404	4.6	140		1254	3.9	120
	2043	10.8	330		1938	11.2	340
2 Sa	0234	4.9	150	**17** Su	0131	4.3	130
	0901	11.5	350		0814	11.5	350
	1508	3.9	120		1409	3.3	100
	2146	11.2	340		2050	11.8	360
3 Su	0327	4.3	130	**18** M	0240	3.6	110
	0954	11.8	360		0916	12.1	370
	1554	3.6	110		1509	2.0	60
	2232	11.5	350		2149	12.5	380
4 M	0407	3.6	110	**19** Tu	0334	2.6	80
	1036	12.5	380		1008	13.1	400
	1631	3.0	90		1600	1.0	30
	2306	11.8	360		2238	13.1	400
5 Tu	0441	3.3	100	**20** W	0419	1.6	50
	1110	12.5	380		1055	13.8	420
	1703	2.6	80		1645	0.3	10
	2335	11.8	360		2322	13.5	410
6 W ●	0511	2.6	80	**21** Th ○	0500	1.3	40
	1139	12.8	390		1138	14.1	430
	1732	2.3	70		1727	0.0	0
7 Th	0000	12.1	370	**22** F	0002	13.5	410
	0538	2.6	80		0539	1.0	30
	1207	12.8	390		1221	14.1	430
	1757	2.3	70		1808	0.0	0
8 F	0026	12.1	370	**23** Sa	0043	13.5	410
	0603	2.3	70		0620	1.0	30
	1236	12.8	390		1304	14.1	430
	1821	2.3	70		1851	0.3	10
9 Sa	0054	12.1	370	**24** Su	0123	13.1	400
	0630	2.3	70		0703	1.3	40
	1309	12.8	390		1349	13.5	410
	1849	2.0	60		1935	1.3	40
10 Su	0128	12.5	380	**25** M	0206	12.8	390
	0703	2.3	70		0751	1.6	50
	1347	12.8	390		1437	12.8	390
	1924	2.3	70		2022	2.0	60
11 M	0207	12.1	370	**26** Tu	0253	12.1	370
	0741	2.3	70		0843	2.6	80
	1429	12.5	380		1530	12.1	370
	2004	2.3	70		2113	3.0	90
12 Tu	0249	12.1	370	**27** W	0345	11.5	350
	0825	2.6	80		0940	3.3	100
	1513	12.1	370		1631	11.5	350
	2049	3.0	90		2208	3.9	120
13 W	0336	11.5	350	**28** Th ◑	0449	11.2	340
	0914	3.3	100		1043	3.9	120
	1603	11.8	360		1743	10.8	330
	2140	3.6	110		2310	4.9	150
14 Th ◐	0430	11.2	340	**29** F	0605	10.8	330
	1013	3.6	110		1157	4.6	140
	1701	11.2	340		1858	10.5	320
	2243	4.3	130				
15 F	0536	10.8	330	**30** Sa	0026	5.2	160
	1129	4.3	130		0718	10.8	330
	1814	10.8	330		1329	4.3	130
					2012	10.5	320
				31 Su	0159	5.2	160
					0825	11.2	340
					1438	3.9	120
					2116	10.8	330

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dublin (Baile Atha Cliath), Eire, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0258	4.6	140	16 Tu	0221	3.6	110	
	0921	11.5	350		0857	12.5	380	
	1525	3.3	100		1453	2.0	60	
	2202	11.5	350		2134	12.5	380	
2 Tu	0339	3.9	120	17 W	0316	2.6	80	
	1005	12.1	370		0951	13.1	400	
	1602	3.0	90		1543	1.0	30	
	2237	11.8	360		2223	12.8	390	
3 W	0413	3.3	100	18 Th	0402	2.0	60	
	1041	12.5	380		1039	13.5	410	
	1632	2.6	80		1628	0.7	20	
	2306	12.1	370		2306	13.1	400	
4 Th	0442	2.6	80	19 F	0443	1.3	40	
	1112	12.5	380		1123	13.8	420	
	1700	2.3	70		1709	0.3	10	
	2332	12.1	370	○	2344	13.1	400	
5 F	0509	2.3	70	20 Sa	0523	1.3	40	
	1139	12.8	390		1204	13.8	420	
	1724	2.0	60		1749	0.7	20	
●	2355	12.5	380					
6 Sa	0534	2.0	60	21 Su	0020	13.1	400	
	1207	12.8	390		0603	1.3	40	
	1749	2.0	60		1246	13.5	410	
					1829	1.0	30	
7 Su	0023	12.5	380	22 M	0059	13.1	400	
	0602	2.0	60		0645	1.3	40	
	1242	12.8	390		1329	13.1	400	
	1819	2.0	60		1911	1.6	50	
8 M	0058	12.5	380	23 Tu	0139	12.8	390	
	0636	2.0	60		0731	2.0	60	
	1321	12.8	390		1415	12.5	380	
	1856	2.0	60		1955	2.6	80	
9 Tu	0138	12.5	380	24 W	0224	12.5	380	
	0717	2.0	60		0822	2.3	70	
	1405	12.5	380		1505	11.8	360	
	1937	2.3	70		2043	3.3	100	
10 W	0222	12.5	380	25 Th	0312	11.8	360	
	0803	2.3	70		0917	3.0	90	
	1451	12.1	370		1602	11.2	340	
	2025	3.0	90		2137	4.3	130	
11 Th	0311	11.8	360	26 F	0410	11.2	340	
	0856	3.0	90		1016	3.6	110	
	1544	11.8	360		1709	10.5	320	
	2120	3.6	110	◑	2236	4.9	150	
12 F	0406	11.5	350	27 Sa	0522	10.8	330	
	1000	3.3	100		1122	4.3	130	
	1645	11.2	340		1821	10.2	310	
◐	2226	4.3	130		2344	5.2	160	
13 Sa	0514	11.2	340	28 Su	0637	10.8	330	
	1117	3.6	110		1237	4.3	130	
	1802	11.2	340		1931	10.5	320	
	2348	4.6	140					
14 Su	0635	11.2	340	29 M	0100	5.2	160	
	1239	3.3	100		0743	10.8	330	
	1925	11.2	340		1351	3.9	120	
					2032	10.8	330	
15 M	0112	4.3	130	30 Tu	0211	4.6	140	
	0752	11.8	360		0840	11.5	350	
	1352	2.6	80		1444	3.6	110	
	2036	11.8	360		2121	11.2	340	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0259	3.9	120	16 Th	0252	3.0	90	
	0927	11.8	360		0933	13.1	400	
	1523	3.0	90		1523	1.6	50	
	2200	11.8	360		2205	12.8	390	
2 Th	0336	3.3	100	17 F	0342	2.6	80	
	1007	12.1	370		1024	13.5	410	
	1555	2.6	80		1609	1.3	40	
	2232	12.1	370		2249	12.8	390	
3 F	0407	3.0	90	18 Sa	0427	2.0	60	
	1040	12.5	380		1110	13.5	410	
	1623	2.3	70		1652	1.3	40	
	2300	12.5	380	○	2327	13.1	400	
4 Sa	0436	2.6	80	19 Su	0509	2.0	60	
	1109	12.5	380		1151	13.5	410	
	1650	2.0	60		1732	1.3	40	
●	2325	12.5	380					
5 Su	0504	2.0	60	20 M	0002	13.1	400	
	1141	12.8	390		0549	2.0	60	
	1719	2.0	60		1231	13.1	400	
	2356	12.8	390		1810	2.0	60	
6 M	0537	2.0	60	21 Tu	0038	12.8	390	
	1218	12.8	390		0631	2.0	60	
	1754	2.0	60		1312	12.8	390	
					1850	2.3	70	
7 Tu	0033	12.8	390	22 W	0118	12.8	390	
	0615	2.0	60		0716	2.3	70	
	1301	12.8	390		1356	12.5	380	
	1833	2.0	60		1931	3.0	90	
8 W	0116	12.8	390	23 Th	0200	12.5	380	
	0659	2.0	60		0803	2.6	80	
	1347	12.8	390		1442	11.8	360	
	1918	2.3	70		2017	3.6	110	
9 Th	0203	12.8	390	24 F	0246	12.1	370	
	0750	2.3	70		0855	3.0	90	
	1437	12.5	380		1533	11.2	340	
	2009	3.0	90		2108	4.3	130	
10 F	0255	12.5	380	25 Sa	0337	11.8	360	
	0849	2.6	80		0949	3.6	110	
	1533	12.1	370		1632	10.8	330	
	2108	3.6	110		2203	4.6	140	
11 Sa	0353	12.1	370	26 Su	0438	11.5	350	
	0956	3.0	90		1048	3.9	120	
	1637	11.5	350		1737	10.5	320	
	2216	4.3	130	◑	2304	4.9	150	
12 Su	0500	11.8	360	27 M	0548	11.2	340	
	1108	3.0	90		1149	4.3	130	
	1751	11.5	350		1843	10.5	320	
◐	2331	4.3	130					
13 M	0617	11.8	360	28 Tu	0008	5.2	160	
	1222	3.0	90		0655	11.2	340	
	1908	11.5	350		1252	3.9	120	
					1943	10.8	330	
14 Tu	0048	4.3	130	29 W	0111	4.9	150	
	0730	12.1	370		0753	11.2	340	
	1331	2.6	80		1348	3.9	120	
	2016	11.8	360		2034	11.2	340	
15 W	0155	3.6	110	30 Th	0206	4.6	140	
	0835	12.5	380		0843	11.5	350	
	1430	2.0	60		1434	3.3	100	
	2115	12.5	380		2118	11.5	350	
				31 F	0250	3.9	120	
					0926	11.8	360	
					1512	3.0	90	
					2154	12.1	370	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0328	3.3	100	16 Su	0412	3.0	90	
	1004	12.1	370		1058	12.8	390	
	1546	2.6	80		1635	2.3	70	
	2226	12.5	380		2312	12.8	390	
2 Su	0402	3.0	90	17 M	0457	2.6	80	
	1040	12.5	380		1140	12.8	390	
	1619	2.3	70		1716	2.3	70	
	2258	12.8	390	○	2346	12.8	390	
3 M	0438	2.3	70	18 Tu	0539	2.6	80	
	1118	12.8	390		1218	12.5	380	
	1655	2.0	60		1754	2.6	80	
●	2333	13.1	400					
4 Tu	0516	2.0	60	19 W	0020	12.8	390	
	1159	13.1	400		0619	2.6	80	
	1734	2.0	60		1256	12.5	380	
					1830	3.0	90	
5 W	0014	13.1	400	20 Th	0057	12.8	390	
	0559	2.0	60		0701	2.6	80	
	1245	13.1	400		1334	12.1	370	
	1816	2.3	70		1909	3.3	100	
6 Th	0059	13.5	410	21 F	0137	12.8	390	
	0647	2.0	60		0744	3.0	90	
	1334	12.8	390		1416	11.8	360	
	1904	2.6	80		1950	3.6	110	
7 F	0148	13.1	400	22 Sa	0219	12.5	380	
	0741	2.0	60		0829	3.0	90	
	1427	12.8	390		1501	11.5	350	
	1957	3.0	90		2035	3.9	120	
8 Sa	0243	13.1	400	23 Su	0303	12.1	370	
	0842	2.3	70		0917	3.3	100	
	1524	12.5	380		1549	11.2	340	
	2056	3.6	110		2125	4.3	130	
9 Su	0341	12.8	390	24 M	0352	11.8	360	
	0946	2.3	70		1008	3.6	110	
	1627	12.1	370		1643	10.8	330	
	2201	3.9	120		2219	4.6	140	
10 M	0446	12.5	380	25 Tu	0447	11.5	350	
	1053	2.6	80		1101	3.9	120	
	1735	11.8	360		1743	10.5	320	
◐	2309	4.3	130	◑	2317	4.9	150	
11 Tu	0557	12.5	380	26 W	0549	11.2	340	
	1159	2.6	80		1156	4.3	130	
	1845	11.8	360		1845	10.8	330	
12 W	0019	4.3	130	27 Th	0016	4.9	150	
	0707	12.5	380		0653	11.2	340	
	1305	2.6	80		1251	4.3	130	
	1951	11.8	360		1942	10.8	330	
13 Th	0127	3.9	120	28 F	0112	4.9	150	
	0813	12.8	390		0752	11.5	350	
	1406	2.6	80		1343	3.9	120	
	2051	12.1	370		2031	11.5	350	
14 F	0228	3.6	110	29 Sa	0203	4.3	130	
	0914	12.8	390		0844	11.8	360	
	1501	2.3	70		1430	3.6	110	
	2145	12.5	380		2115	11.8	360	
15 Sa	0323	3.3	100	30 Su	0250	3.6	110	
	1009	12.8	390		0931	12.1	370	
	1551	2.3	70		1513	3.0	90	
	2232	12.8	390		2156	12.5	380	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dublin (Baile Atha Cliath), Eire, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0333	3.0	90	**16** Tu	0447	3.3	100	**1** Th	0447	1.6	50	**16** F	0545	2.6	80	**1** Su	0008	14.8	450	**16** M	0016	13.1	400
	1016	12.5	380		1129	12.5	380		1131	13.5	410		1215	12.1	370		0601	0.3	10		0610	2.3	70
	1554	2.6	80		1700	3.0	90		1704	2.0	60		1749	3.0	90		1242	13.8	420		1243	12.5	380
	2235	12.8	390	○	2331	12.8	390	●	2343	14.1	430						1812	1.3	40		1817	2.6	80
2 Tu	0416	2.3	70	**17** W	0528	3.0	90	**2** F	0533	1.0	30	**17** Sa	0012	13.1	400	**2** M	0052	14.4	440	**17** Tu	0048	13.1	400
	1100	12.8	390		1205	12.1	370		1217	13.5	410		0616	2.6	80		0647	0.3	10		0635	2.6	80
	1636	2.3	70		1737	3.0	90		1747	1.6	50		1244	12.1	370		1327	13.5	410		1315	12.5	380
●	2316	13.5	410										1818	3.0	90		1857	1.6	50		1848	2.6	80
3 W	0500	2.0	60	**18** Th	0002	12.8	390	**3** Sa	0027	14.4	440	**18** Su	0043	13.1	400	**3** Tu	0139	14.1	430	**18** W	0125	12.8	390
	1145	13.1	400		0605	2.6	80		0620	0.7	20		0645	2.6	80		0736	1.0	30		0707	2.6	80
	1718	2.0	60		1237	12.1	370		1304	13.5	410		1314	12.1	370		1414	13.1	400		1352	12.5	380
	2358	13.8	420		1810	3.0	90		1832	1.6	50		1848	3.0	90		1945	2.3	70		1923	3.0	90
4 Th	0547	1.6	50	**19** F	0036	13.1	400	**4** Su	0114	14.4	440	**19** M	0118	13.1	400	**4** W	0230	13.8	420	**19** Th	0205	12.8	390
	1231	13.1	400		0641	2.6	80		0710	1.0	30		0714	2.6	80		0828	2.0	60		0745	3.0	90
	1802	2.0	60		1310	12.1	370		1353	13.1	400		1348	12.1	370		1504	12.5	380		1433	12.1	370
					1845	3.3	100		1920	2.0	60		1920	3.0	90		2040	3.0	90		2004	3.3	100
5 F	0044	13.8	420	**20** Sa	0111	12.8	390	**5** M	0205	14.1	430	**20** Tu	0155	12.8	390	**5** Th	0327	12.8	390	**20** F	0249	12.1	370
	0636	1.3	40		0718	3.0	90		0803	1.3	40		0746	3.0	90		0923	2.6	80		0828	3.3	100
	1321	13.1	400		1346	11.8	360		1444	12.8	390		1426	11.8	360		1600	12.1	370		1518	11.8	360
	1849	2.3	70		1920	3.3	100		2012	2.6	80		1957	3.3	100		2139	3.6	110		2051	3.9	120
6 Sa	0134	13.8	420	**21** Su	0149	12.8	390	**6** Tu	0259	13.8	420	**21** W	0236	12.5	380	**6** F	0433	12.1	370	**21** Sa	0338	11.8	360
	0729	1.3	40		0755	3.0	90		0859	1.6	50		0824	3.3	100		1022	3.6	110		0918	3.9	120
	1413	13.1	400		1425	11.8	360		1538	12.5	380		1507	11.8	360		1705	11.5	350		1609	11.5	350
	1941	2.6	80		1958	3.6	110		2109	3.3	100		2038	3.6	110	◐	2246	4.3	130		2148	4.3	130
7 Su	0227	13.8	420	**22** M	0229	12.5	380	**7** W	0357	13.1	400	**22** Th	0321	12.1	370	**7** Sa	0550	11.5	350	**22** Su	0436	11.2	340
	0827	1.6	50		0834	3.3	100		0958	2.3	70		0907	3.6	110		1128	4.6	140		1020	4.6	140
	1508	12.8	390		1505	11.5	350		1637	12.1	370		1553	11.5	350		1817	11.5	350		1710	11.2	340
	2037	3.0	90		2039	3.9	120	◐	2210	3.6	110		2125	4.3	130					◑	2300	4.6	140
8 M	0324	13.5	410	**23** Tu	0312	12.1	370	**8** Th	0504	12.5	380	**23** F	0410	11.8	360	**8** Su	0002	4.9	150	**23** M	0550	10.8	330
	0927	2.0	60		0915	3.6	110		1058	3.3	100		0956	3.9	120		0707	11.2	340		1141	5.2	160
	1607	12.5	380		1549	11.2	340		1743	11.8	360		1645	11.2	340		1245	4.9	150		1828	11.2	340
	2138	3.6	110		2124	4.3	130		2316	4.3	130	◑	2220	4.6	140		1929	11.5	350				
9 Tu	0425	13.1	400	**24** W	0359	11.8	360	**9** F	0617	12.1	370	**24** Sa	0507	11.2	340	**9** M	0134	4.6	140	**24** Tu	0026	4.6	140
	1029	2.3	70		1001	3.9	120		1203	3.9	120		1057	4.6	140		0824	11.2	340		0717	11.2	340
	1710	12.1	370		1639	10.8	330		1852	11.5	350		1748	10.8	330		1404	4.9	150		1305	4.9	150
◐	2241	3.9	120		2215	4.6	140						2331	4.9	150		2036	11.8	360		1945	11.5	350
10 W	0532	12.8	390	**25** Th	0451	11.5	350	**10** Sa	0030	4.6	140	**25** Su	0618	10.8	330	**10** Tu	0246	4.3	130	**25** W	0142	3.9	120
	1131	2.6	80		1053	4.3	130		0729	11.8	360		1212	4.6	140		0930	11.5	350		0830	11.8	360
	1816	11.8	360		1736	10.8	330		1315	4.3	130		1903	10.8	330		1502	4.6	140		1413	4.3	130
	2348	4.3	130	◑	2314	4.9	150		1959	11.5	350						2134	12.1	370		2047	12.5	380
11 Th	0643	12.5	380	**26** F	0551	11.2	340	**11** Su	0149	4.6	140	**26** M	0049	4.6	140	**11** W	0336	3.6	110	**26** Th	0244	2.6	80
	1236	3.0	90		1153	4.3	130		0840	11.8	360		0738	11.2	340		1020	11.8	360		0927	12.5	380
	1923	11.8	360		1841	10.8	330		1423	4.3	130		1325	4.6	140		1546	3.9	120		1507	3.3	100
									2101	11.8	360		2012	11.5	350		2218	12.8	390		2139	13.5	410
12 F	0057	4.3	130	**27** Sa	0019	4.9	150	**12** M	0258	4.3	130	**27** Tu	0158	3.9	120	**12** Th	0416	3.0	90	**27** F	0334	1.6	50
	0751	12.5	380		0659	11.2	340		0943	11.8	360		0846	11.8	360		1057	12.1	370		1015	13.1	400
	1341	3.3	100		1255	4.3	130		1520	3.9	120		1429	3.9	120		1622	3.6	110		1552	2.3	70
	2026	11.8	360		1944	11.2	340		2156	12.5	380		2109	12.1	370		2252	12.8	390		2224	14.1	430
13 Sa	0206	4.3	130	**28** Su	0122	4.6	140	**13** Tu	0352	3.6	110	**28** W	0257	3.0	90	**13** F	0449	2.6	80	**28** Sa	0419	0.7	20
	0856	12.5	380		0806	11.5	350		1035	12.1	370		0942	12.5	380		1126	12.1	370		1058	13.8	420
	1441	3.3	100		1354	3.9	120		1605	3.6	110		1521	3.0	90		1654	3.0	90		1633	1.6	50
	2124	12.1	370		2041	11.8	360		2240	12.8	390		2158	13.1	400		2321	13.1	400	●	2307	14.4	440
14 Su	0308	3.9	120	**29** M	0220	3.9	120	**14** W	0435	3.3	100	**29** Th	0348	2.0	60	**14** Sa	0519	2.6	80	**29** Su	0501	0.0	0
	0955	12.5	380		0905	11.8	360		1116	12.1	370		1031	13.1	400		1151	12.1	370		1139	13.8	420
	1534	3.3	100		1447	3.6	110		1643	3.3	100		1607	2.3	70		1724	3.0	90		1713	1.3	40
	2214	12.5	380		2130	12.5	380		2314	12.8	390		2242	13.8	420	○	2348	13.1	400		2348	14.8	450
15 M	0401	3.6	110	**30** Tu	0312	3.3	100	**15** Th	0512	3.0	90	**30** F	0434	1.0	30	**15** Su	0546	2.3	70	**30** M	0542	0.0	0
	1046	12.5	380		0957	12.5	380		1148	12.1	370		1115	13.5	410		1216	12.5	380		1219	13.8	420
	1620	3.3	100		1536	3.0	90		1717	3.3	100		1649	1.6	50		1751	2.6	80		1753	1.3	40
	2257	12.8	390		2216	13.1	400	○	2343	13.1	400	●	2325	14.4	440								
				31 W	0401	2.3	70					**31** Sa	0518	0.3	10								
					1045	13.1	400						1159	13.8	420								
					1620	2.3	70						1730	1.3	40								
					2259	13.8	420																

August

September

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Dublin (Baile Atha Cliath), Eire, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0031	14.4	440	**16** W	0021	13.1	400
	0624	0.7	20		0603	2.3	70
	1301	13.5	410		1246	12.8	390
	1836	1.3	40		1820	2.6	80
2 W	0117	14.1	430	**17** Th	0058	13.1	400
	0709	1.3	40		0636	2.6	80
	1345	13.1	400		1323	12.8	390
	1923	2.0	60		1857	3.0	90
3 Th	0206	13.5	410	**18** F	0140	12.8	390
	0758	2.3	70		0714	3.0	90
	1432	12.8	390		1405	12.5	380
	2015	2.6	80		1940	3.3	100
4 F	0301	12.8	390	**19** Sa	0226	12.5	380
	0850	3.3	100		0759	3.6	110
	1525	12.1	370		1451	12.1	370
	2114	3.6	110		2030	3.6	110
5 Sa ◐	0405	11.8	360	**20** Su	0317	11.8	360
	0948	4.3	130		0852	4.3	130
	1627	11.8	360		1544	11.8	360
	2218	4.3	130		2130	3.9	120
6 Su	0521	11.2	340	**21** M ◑	0418	11.5	350
	1052	4.9	150		0958	4.9	150
	1741	11.5	350		1646	11.5	350
	2333	4.6	140		2245	4.3	130
7 M	0641	10.8	330	**22** Tu	0534	11.2	340
	1208	5.6	170		1120	5.2	160
	1855	11.5	350		1801	11.5	350
8 Tu	0106	4.6	140	**23** W	0008	4.3	130
	0759	11.2	340		0658	11.2	340
	1334	5.2	160		1243	4.9	150
	2004	11.8	360		1918	11.8	360
9 W	0220	4.3	130	**24** Th	0123	3.6	110
	0906	11.5	350		0810	11.8	360
	1435	4.9	150		1352	4.3	130
	2102	12.1	370		2023	12.5	380
10 Th	0310	3.6	110	**25** F	0225	2.6	80
	0953	11.8	360		0909	12.5	380
	1520	4.3	130		1447	3.3	100
	2148	12.5	380		2118	13.5	410
11 F	0349	3.0	90	**26** Sa	0316	1.6	50
	1028	12.1	370		0958	13.1	400
	1556	3.6	110		1534	2.6	80
	2225	12.8	390		2206	14.1	430
12 Sa	0421	2.6	80	**27** Su	0401	1.0	30
	1058	12.5	380		1041	13.8	420
	1628	3.3	100		1616	2.0	60
	2256	13.1	400		2250	14.4	440
13 Su ○	0449	2.6	80	**28** M ●	0443	0.7	20
	1124	12.5	380		1121	13.8	420
	1657	3.0	90		1657	1.6	50
	2323	13.1	400		2333	14.4	440
14 M	0514	2.3	70	**29** Tu	0524	0.7	20
	1149	12.8	390		1159	13.8	420
	1724	2.6	80		1738	1.6	50
	2350	13.1	400				
15 Tu	0537	2.3	70	**30** W	0015	14.1	430
	1214	12.8	390		0604	1.0	30
	1750	2.6	80		1240	13.8	420
					1820	1.6	50
				31 Th	0100	13.8	420
					0646	2.0	60
					1322	13.5	410
					1906	2.3	70

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0148	13.1	400	**16** Sa	0121	12.8	390
	0732	2.6	80		0653	3.3	100
	1407	13.1	400		1344	13.1	400
	1956	2.6	80		1925	3.0	90
2 Sa	0240	12.5	380	**17** Su	0210	12.5	380
	0822	3.6	110		0740	3.6	110
	1457	12.5	380		1433	12.8	390
	2052	3.3	100		2018	3.3	100
3 Su	0341	11.8	360	**18** M	0304	12.1	370
	0917	4.6	140		0836	4.3	130
	1554	12.1	370		1527	12.5	380
	2153	3.9	120		2120	3.6	110
4 M ◐	0451	11.2	340	**19** Tu ◑	0406	11.8	360
	1019	5.2	160		0943	4.9	150
	1702	11.5	350		1628	12.1	370
	2300	4.6	140		2231	3.6	110
5 Tu	0605	10.8	330	**20** W	0518	11.5	350
	1127	5.6	170		1058	4.9	150
	1815	11.5	350		1738	12.1	370
					2346	3.6	110
6 W	0019	4.6	140	**21** Th	0635	11.8	360
	0718	10.8	330		1216	4.9	150
	1245	5.6	170		1850	12.5	380
	1922	11.5	350				
7 Th	0137	4.3	130	**22** F	0057	3.3	100
	0823	11.2	340		0744	12.1	370
	1355	5.2	160		1324	4.6	140
	2021	11.8	360		1956	12.8	390
8 F	0232	3.9	120	**23** Sa	0200	2.6	80
	0912	11.8	360		0845	12.8	390
	1445	4.6	140		1423	3.6	110
	2111	12.1	370		2056	13.1	400
9 Sa	0314	3.3	100	**24** Su	0255	2.0	60
	0951	12.1	370		0937	13.1	400
	1525	3.9	120		1514	3.0	90
	2152	12.5	380		2150	13.8	420
10 Su	0347	3.0	90	**25** M	0343	1.6	50
	1025	12.5	380		1024	13.5	410
	1558	3.6	110		1601	2.6	80
	2227	12.8	390		2238	13.8	420
11 M	0416	3.0	90	**26** Tu ●	0427	1.6	50
	1055	12.8	390		1105	13.8	420
	1628	3.3	100		1645	2.3	70
	2257	12.8	390		2323	13.8	420
12 Tu ○	0442	2.6	80	**27** W	0509	1.6	50
	1121	12.8	390		1144	13.8	420
	1657	3.0	90		1727	2.0	60
	2326	13.1	400				
13 W	0507	2.6	80	**28** Th	0005	13.8	420
	1148	13.1	400		0548	2.0	60
	1726	2.6	80		1223	13.8	420
	2359	13.1	400		1809	2.3	70
14 Th	0537	2.6	80	**29** F	0049	13.5	410
	1220	13.1	400		0628	2.3	70
	1800	2.6	80		1303	13.5	410
					1854	2.3	70
15 F	0037	13.1	400	**30** Sa	0134	12.8	390
	0612	2.6	80		0711	3.0	90
	1300	13.1	400		1346	13.1	400
	1839	2.6	80		1941	2.6	80

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0222	12.5	380	**16** M	0158	12.8	390
	0757	3.6	110		0727	3.3	100
	1433	12.8	390		1418	13.5	410
	2032	3.3	100		2008	2.6	80
2 M	0315	11.8	360	**17** Tu	0252	12.5	380
	0848	4.3	130		0822	3.9	120
	1523	12.5	380		1512	13.1	400
	2126	3.6	110		2107	2.6	80
3 Tu	0414	11.2	340	**18** W	0352	12.1	370
	0944	4.9	150		0924	4.3	130
	1621	12.1	370		1610	13.1	400
	2224	4.3	130		2211	3.0	90
4 W ◐	0520	10.8	330	**19** Th ◑	0456	12.1	370
	1046	5.6	170		1031	4.6	140
	1726	11.5	350		1713	12.8	390
	2327	4.6	140		2318	3.0	90
5 Th	0627	10.8	330	**20** F	0606	12.1	370
	1151	5.6	170		1143	4.6	140
	1833	11.5	350		1821	12.8	390
6 F	0033	4.6	140	**21** Sa	0027	3.3	100
	0728	11.2	340		0714	12.1	370
	1258	5.6	170		1253	4.6	140
	1933	11.5	350		1929	12.8	390
7 Sa	0137	4.3	130	**22** Su	0133	3.0	90
	0822	11.5	350		0818	12.5	380
	1357	4.9	150		1358	4.3	130
	2026	11.8	360		2035	12.8	390
8 Su	0227	3.9	120	**23** M	0233	3.0	90
	0908	11.8	360		0916	12.8	390
	1444	4.6	140		1456	3.6	110
	2113	12.1	370		2136	13.1	400
9 M	0307	3.6	110	**24** Tu	0327	2.6	80
	0948	12.5	380		1007	13.1	400
	1524	3.9	120		1549	3.3	100
	2153	12.5	380		2230	13.1	400
10 Tu	0341	3.3	100	**25** W	0414	2.6	80
	1023	12.8	390		1053	13.5	410
	1558	3.6	110		1637	3.0	90
	2229	12.5	380		2317	13.1	400
11 W	0411	3.0	90	**26** Th ●	0457	2.6	80
	1054	13.1	400		1134	13.5	410
	1631	3.3	100		1720	2.6	80
	2304	12.8	390				
12 Th ○	0442	3.0	90	**27** F	0000	13.1	400
	1125	13.1	400		0536	2.6	80
	1706	3.0	90		1211	13.5	410
	2341	13.1	400		1802	2.6	80
13 F	0517	2.6	80	**28** Sa	0039	12.8	390
	1201	13.5	410		0614	3.0	90
	1744	2.6	80		1247	13.5	410
					1843	2.6	80
14 Sa	0022	13.1	400	**29** Su	0118	12.5	380
	0555	3.0	90		0652	3.3	100
	1242	13.5	410		1326	13.5	410
	1826	2.3	70		1924	2.6	80
15 Su	0108	13.1	400	**30** M	0159	12.1	370
	0638	3.0	90		0733	3.6	110
	1328	13.5	410		1407	13.1	400
	1915	2.3	70		2008	3.0	90
				31 Tu	0243	11.8	360
					0817	3.9	120
					1451	12.8	390
					2053	3.3	100

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ringaskiddy (Cobh), Eire, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0111	11.5 350	16 W	0006	11.5 350
	0755	3.3 100		0654	4.3 130
	1349	11.8 360		1244	11.5 350
	2028	3.3 100		1927	4.3 130
2 W	0217	11.8 360	17 Th	0115	11.5 350
	0859	3.3 100		0802	3.9 120
	1450	12.1 370		1351	11.8 360
	2127	3.0 90		2033	3.9 120
3 Th	0317	12.1 370	18 F	0223	12.1 370
	0956	3.0 90		0907	3.3 100
	1544	12.5 380		1456	12.1 370
	2219	2.6 80		2134	3.0 90
4 F	0409	12.8 390	19 Sa	0327	12.5 380
	1045	2.6 80		1008	2.6 80
	1631	12.8 390		1556	12.8 390
	2304	2.6 80		2231	2.3 70
5 Sa	0454	13.1 400	20 Su	0425	13.5 410
	1127	2.6 80		1102	2.0 60
	1713	12.8 390		1651	13.5 410
	2342	2.3 70		2322	1.6 50
6 Su ●	0534	13.5 410	21 M ○	0518	13.8 420
	1202	2.6 80		1152	1.3 40
	1750	13.1 400		1741	13.8 420
7 M	0016	2.3 70	22 Tu	0009	1.0 30
	0610	13.5 410		0606	14.1 430
	1234	2.6 80		1239	1.0 30
	1822	13.1 400		1827	14.1 430
8 Tu	0048	2.3 70	23 W	0056	0.7 20
	0644	13.5 410		0653	14.4 440
	1304	3.0 90		1325	0.7 20
	1854	12.8 390		1914	13.8 420
9 W	0119	2.6 80	24 Th	0142	0.7 20
	0717	13.1 400		0740	14.1 430
	1336	3.0 90		1411	1.0 30
	1926	12.8 390		2000	13.8 420
10 Th	0151	3.0 90	25 F	0229	1.0 30
	0751	12.8 390		0827	13.8 420
	1411	3.3 100		1458	1.3 40
	2000	12.5 380		2046	13.1 400
11 F	0227	3.3 100	26 Sa	0317	1.3 40
	0828	12.8 390		0914	13.1 400
	1449	3.6 110		1546	2.0 60
	2037	12.5 380		2134	12.8 390
12 Sa	0307	3.6 110	27 Su ◑	0406	2.0 60
	0907	12.5 380		1003	12.5 380
	1532	3.9 120		1636	2.6 80
	2119	12.1 370		2223	12.1 370
13 Su	0352	3.9 120	28 M	0500	2.6 80
	0951	12.1 370		1056	11.8 360
	1619	4.3 130		1732	3.3 100
	2207	11.8 360		2319	11.5 350
14 M ◐	0445	4.3 130	29 Tu	0601	3.3 100
	1041	11.8 360		1157	11.2 340
	1714	4.6 140		1837	3.9 120
	2302	11.5 350			
15 Tu	0546	4.6 140	30 W	0026	11.2 340
	1139	11.5 350		0710	3.6 110
	1819	4.6 140		1308	10.8 330
				1948	3.9 120
			31 Th	0140	11.2 340
				0824	3.9 120
				1418	11.2 340
				2057	3.6 110

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0249	11.5 350	16 Sa	0151	11.5 350
	0933	3.6 110		0840	3.6 110
	1520	11.5 350		1431	11.5 350
	2158	3.3 100		2110	3.3 100
2 Sa	0347	12.1 370	17 Su	0306	12.1 370
	1028	3.0 90		0949	2.6 80
	1612	12.1 370		1539	12.1 370
	2248	2.6 80		2213	2.3 70
3 Su	0436	12.5 380	18 M	0410	13.1 400
	1112	2.6 80		1047	1.6 50
	1656	12.5 380		1637	13.1 400
	2328	2.3 70		2307	1.3 40
4 M ●	0517	13.1 400	19 Tu ○	0504	13.8 420
	1148	2.3 70		1138	0.7 20
	1734	12.8 390		1727	13.8 420
				2355	0.7 20
5 Tu	0001	2.3 70	20 W	0552	14.1 430
	0554	13.5 410		1224	0.3 10
	1218	2.3 70		1813	14.1 430
	1808	13.1 400			
6 W	0031	2.0 60	21 Th	0040	0.0 0
	0627	13.5 410		0636	14.4 440
	1245	2.3 70		1309	0.0 0
	1838	13.1 400		1857	14.1 430
7 Th	0058	2.3 70	22 F	0124	0.0 0
	0659	13.1 400		0720	14.1 430
	1314	2.6 80		1352	0.3 10
	1908	12.8 390		1939	13.8 420
8 F	0128	2.3 70	23 Sa	0208	0.3 10
	0729	13.1 400		0804	13.8 420
	1347	2.6 80		1435	0.7 20
	1938	12.8 390		2022	13.5 410
9 Sa	0201	2.6 80	24 Su	0252	1.0 30
	0801	12.8 390		0846	13.1 400
	1421	3.0 90		1518	1.3 40
	2011	12.5 380		2104	12.8 390
10 Su	0237	3.0 90	25 M	0337	1.6 50
	0836	12.8 390		0930	12.5 380
	1458	3.3 100		1603	2.3 70
	2048	12.5 380		2148	12.1 370
11 M	0317	3.3 100	26 Tu ◑	0424	2.3 70
	0915	12.5 380		1016	11.8 360
	1538	3.6 110		1652	3.0 90
	2129	12.1 370		2237	11.5 350
12 Tu ◐	0402	3.6 110	27 W	0518	3.3 100
	0959	12.1 370		1110	10.8 330
	1624	3.9 120		1751	3.9 120
	2218	11.8 360		2339	10.5 320
13 W	0457	4.3 130	28 Th	0623	3.9 120
	1053	11.5 350		1222	10.2 310
	1724	4.3 130		1903	4.3 130
	2319	11.5 350			
14 Th	0606	4.3 130			
	1159	11.2 340			
	1841	4.6 140			
15 F	0032	11.2 340			
	0724	4.3 130			
	1315	11.2 340			
	1959	4.3 130			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0102	10.5 320	16 Sa	0001	10.8 330
	0742	4.3 130		0653	4.3 130
	1346	10.2 310		1248	10.8 330
	2023	4.3 130		1930	3.9 120
2 Sa	0222	10.8 330	17 Su	0128	11.2 340
	0905	3.9 120		0816	3.6 110
	1456	10.8 330		1411	11.2 340
	2135	3.6 110		2048	3.3 100
3 Su	0324	11.5 350	18 M	0249	11.8 360
	1007	3.3 100		0929	2.6 80
	1551	11.5 350		1523	12.1 370
	2228	3.0 90		2154	2.0 60
4 M	0414	12.1 370	19 Tu	0353	12.8 390
	1053	2.6 80		1029	1.3 40
	1636	12.1 370		1620	12.8 390
	2309	2.3 70		2249	1.0 30
5 Tu	0456	12.8 390	20 W	0446	13.5 410
	1128	2.3 70		1120	0.7 20
	1715	12.8 390		1710	13.8 420
	2342	2.0 60		2337	0.3 10
6 W ●	0533	13.1 400	21 Th ○	0533	14.1 430
	1157	2.0 60		1205	0.0 0
	1749	12.8 390		1754	14.1 430
7 Th	0009	1.6 50	22 F	0021	0.0 0
	0605	13.1 400		0616	14.4 440
	1223	2.0 60		1248	0.0 0
	1818	12.8 390		1836	14.1 430
8 F	0035	1.6 50	23 Sa	0104	0.0 0
	0635	13.1 400		0657	14.1 430
	1250	2.0 60		1329	0.0 0
	1846	12.8 390		1916	13.8 420
9 Sa	0103	2.0 60	24 Su	0145	0.0 0
	0703	13.1 400		0738	13.8 420
	1321	2.0 60		1410	0.7 20
	1914	12.8 390		1955	13.5 410
10 Su	0134	2.0 60	25 M	0226	0.7 20
	0732	13.1 400		0817	13.1 400
	1354	2.3 70		1450	1.3 40
	1944	12.8 390		2035	12.8 390
11 M	0210	2.3 70	26 Tu	0308	1.6 50
	0805	12.8 390		0857	12.5 380
	1429	2.6 80		1532	2.0 60
	2019	12.8 390		2115	12.1 370
12 Tu	0248	2.6 80	27 W	0352	2.3 70
	0843	12.5 380		0939	11.5 350
	1506	3.0 90		1618	3.0 90
	2058	12.5 380		2200	11.2 340
13 W	0331	3.3 100	28 Th ◑	0443	3.3 100
	0926	12.1 370		1028	10.5 320
	1550	3.6 110		1714	3.9 120
	2145	11.8 360		2258	10.5 320
14 Th ◐	0424	3.6 110	29 F	0544	3.9 120
	1019	11.5 350		1135	9.8 300
	1647	3.9 120		1824	4.3 130
	2245	11.5 350			
15 F	0532	4.3 130	30 Sa	0022	9.8 300
	1127	10.8 330		0700	4.3 130
	1804	4.3 130		1310	9.8 300
				1944	4.3 130
			31 Su	0151	10.2 310
				0824	3.9 120
				1427	10.2 310
				2100	3.6 110

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ringaskiddy (Cobh), Eire, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0255 11.2 340 0932 3.3 100 1523 11.2 340 2157 3.0 90		**16** Tu	0231 11.8 360 0908 2.3 70 1503 12.1 370 2133 2.0 60	
2 Tu	0345 11.8 360 1020 2.6 80 1609 11.8 360 2239 2.3 70		**17** W	0333 12.8 390 1007 1.3 40 1600 12.8 390 2229 1.0 30	
3 W	0427 12.5 380 1057 2.0 60 1648 12.5 380 2313 2.0 60		**18** Th	0425 13.5 410 1058 0.7 20 1649 13.5 410 2317 0.3 10	
4 Th	0504 12.8 390 1127 2.0 60 1722 12.8 390 2341 1.6 50		**19** F ○	0511 13.8 420 1143 0.0 0 1733 13.8 420	
5 F ●	0537 13.1 400 1154 1.6 50 1752 12.8 390		**20** Sa	0001 0.0 0 0554 14.1 430 1226 0.0 0 1814 13.8 420	
6 Sa	0007 1.6 50 0606 13.1 400 1223 1.6 50 1820 12.8 390		**21** Su	0042 0.0 0 0634 13.8 420 1306 0.3 10 1853 13.8 420	
7 Su	0037 1.6 50 0635 13.1 400 1255 1.6 50 1849 12.8 390		**22** M	0123 0.7 20 0712 13.5 410 1346 0.7 20 1930 13.5 410	
8 M	0110 1.6 50 0706 13.1 400 1329 2.0 60 1921 12.8 390		**23** Tu	0202 1.0 30 0750 12.8 390 1426 1.3 40 2008 12.8 390	
9 Tu	0146 2.0 60 0740 12.8 390 1405 2.3 70 1956 12.8 390		**24** W	0243 1.6 50 0828 12.1 370 1507 2.3 70 2048 12.1 370	
10 W	0227 2.3 70 0820 12.5 380 1445 2.6 80 2037 12.5 380		**25** Th	0325 2.6 80 0908 11.5 350 1551 3.0 90 2131 11.5 350	
11 Th	0312 3.0 90 0905 12.1 370 1532 3.3 100 2126 11.8 360		**26** F ◑	0413 3.3 100 0954 10.5 320 1643 3.6 110 2224 10.5 320	
12 F ◐	0406 3.3 100 1000 11.5 350 1631 3.6 110 2227 11.5 350		**27** Sa	0510 3.9 120 1052 9.8 300 1748 4.3 130 2337 10.2 310	
13 Sa	0514 3.6 110 1109 10.8 330 1745 3.9 120 2344 10.8 330		**28** Su	0620 4.3 130 1217 9.8 300 1901 4.3 130	
14 Su	0634 3.9 120 1230 10.5 320 1909 3.6 110		**29** M	0106 10.2 310 0732 4.3 130 1342 10.2 310 2011 3.9 120	
15 M	0111 11.2 340 0756 3.3 100 1353 11.2 340 2027 3.0 90		**30** Tu	0214 10.8 330 0838 3.6 110 1442 10.8 330 2108 3.3 100	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0306 11.5 350 0930 3.0 90 1530 11.5 350 2154 2.6 80		**16** Th	0309 12.5 380 0943 1.6 50 1535 12.8 390 2206 1.3 40	
2 Th	0350 12.1 370 1012 2.3 70 1610 12.1 370 2233 2.3 70		**17** F	0402 13.1 400 1034 1.0 30 1625 13.1 400 2256 1.0 30	
3 F	0428 12.5 380 1048 2.0 60 1647 12.5 380 2306 2.0 60		**18** Sa ○	0449 13.5 410 1121 0.7 20 1711 13.5 410 2340 0.7 20	
4 Sa ●	0503 12.8 390 1122 1.6 50 1720 12.8 390 2338 1.6 50		**19** Su	0533 13.5 410 1204 0.7 20 1753 13.5 410	
5 Su	0536 12.8 390 1156 1.6 50 1753 12.8 390		**20** M	0022 1.0 30 0612 13.1 400 1245 1.0 30 1831 13.5 410	
6 M	0013 1.6 50 0609 13.1 400 1233 1.6 50 1826 13.1 400		**21** Tu	0101 1.3 40 0650 13.1 400 1324 1.3 40 1909 13.1 400	
7 Tu	0050 1.6 50 0645 13.1 400 1311 1.6 50 1903 13.1 400		**22** W	0140 1.6 50 0727 12.5 380 1403 2.0 60 1946 12.8 390	
8 W	0130 1.6 50 0724 12.8 390 1351 2.0 60 1943 12.8 390		**23** Th	0218 2.3 70 0803 12.1 370 1443 2.3 70 2025 12.1 370	
9 Th	0214 2.0 60 0807 12.5 380 1436 2.3 70 2028 12.5 380		**24** F	0259 3.0 90 0842 11.5 350 1525 3.0 90 2107 11.5 350	
10 F	0303 2.3 70 0857 12.1 370 1526 2.6 80 2120 12.1 370		**25** Sa	0344 3.3 100 0926 11.2 340 1613 3.6 110 2155 11.2 340	
11 Sa	0359 3.0 90 0953 11.5 350 1625 3.3 100 2221 11.5 350		**26** Su ◑	0436 3.9 120 1017 10.5 320 1709 3.9 120 2253 10.5 320	
12 Su ◐	0504 3.3 100 1059 11.2 340 1735 3.3 100 2334 11.2 340		**27** M	0536 4.3 130 1119 10.2 310 1813 4.3 130	
13 M	0619 3.3 100 1214 10.8 330 1852 3.3 100		**28** Tu	0004 10.5 320 0640 4.3 130 1235 10.2 310 1916 3.9 120	
14 Tu	0055 11.5 350 0735 3.0 90 1331 11.5 350 2005 2.6 80		**29** W	0116 10.8 330 0741 3.9 120 1342 10.8 330 2013 3.6 110	
15 W	0208 11.8 360 0844 2.3 70 1438 12.1 370 2110 2.0 60		**30** Th	0214 11.2 340 0835 3.3 100 1437 11.2 340 2103 3.0 90	
			31 F	0302 11.8 360 0924 3.0 90 1524 11.8 360 2149 2.6 80	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0346 12.1 370 1009 2.3 70 1607 12.5 380 2231 2.0 60		**16** Su	0427 12.8 390 1100 1.6 50 1650 13.1 400 2322 1.6 50	
2 Su	0427 12.5 380 1052 2.0 60 1648 12.8 390 2313 1.6 50		**17** M ○	0513 12.8 390 1145 1.6 50 1734 13.1 400	
3 M ●	0508 12.8 390 1134 1.6 50 1729 13.1 400 2354 1.6 50		**18** Tu	0003 1.6 50 0553 12.8 390 1226 1.6 50 1813 13.1 400	
4 Tu	0548 13.1 400 1215 1.6 50 1809 13.1 400		**19** W	0042 2.0 60 0631 12.8 390 1304 2.0 60 1850 12.8 390	
5 W	0036 1.3 40 0630 13.1 400 1258 1.6 50 1851 13.1 400		**20** Th	0118 2.3 70 0706 12.5 380 1341 2.3 70 1927 12.8 390	
6 Th	0120 1.6 50 0714 12.8 390 1343 1.6 50 1936 13.1 400		**21** F	0153 2.6 80 0742 12.1 370 1418 2.6 80 2004 12.5 380	
7 F	0207 1.6 50 0801 12.8 390 1431 2.0 60 2024 12.8 390		**22** Sa	0231 3.0 90 0819 11.8 360 1456 3.0 90 2043 12.1 370	
8 Sa	0258 2.0 60 0853 12.5 380 1522 2.3 70 2117 12.5 380		**23** Su	0312 3.3 100 0859 11.5 350 1538 3.3 100 2126 11.5 350	
9 Su	0353 2.3 70 0948 11.8 360 1619 2.3 70 2216 12.1 370		**24** M	0357 3.6 110 0944 11.2 340 1624 3.6 110 2213 11.2 340	
10 M ◐	0454 2.6 80 1048 11.5 350 1722 2.6 80 2321 11.8 360		**25** Tu ◑	0448 3.9 120 1034 10.8 330 1718 3.9 120 2306 11.2 340	
11 Tu	0601 3.0 90 1154 11.5 350 1831 2.6 80		**26** W	0546 3.9 120 1131 10.8 330 1818 3.9 120	
12 W	0031 11.8 360 0711 2.6 80 1303 11.5 350 1940 2.6 80		**27** Th	0007 11.2 340 0646 3.9 120 1235 10.8 330 1918 3.9 120	
13 Th	0139 11.8 360 0817 2.3 70 1408 11.8 360 2045 2.3 70		**28** F	0110 11.2 340 0745 3.6 110 1338 11.2 340 2015 3.6 110	
14 F	0241 12.1 370 0917 2.0 60 1507 12.5 380 2143 2.0 60		**29** Sa	0208 11.5 350 0841 3.3 100 1436 11.5 350 2109 3.0 90	
15 Sa	0337 12.5 380 1011 1.6 50 1601 12.8 390 2235 1.6 50		**30** Su	0303 12.1 370 0935 3.0 90 1530 12.1 370 2202 2.6 80	

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Heights are referred to the chart datum of soundings.

Ringaskiddy (Cobh), Eire, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0355	12.5	380	**16** Tu	0455	12.5	380	**1** Th	0516	13.1	400	**16** F	0004	2.3	70	
	1026	2.3	70		1129	2.0	60		1146	1.0	30		0554	12.8	390	
	1621	12.8	390		1717	12.8	390		1741	13.8	420		1223	2.0	60	
	2251	2.0	60	○	2348	2.0	60	●					1813	13.1	400	
2 Tu	0444	12.8	390	**17** W	0536	12.5	380	**2** F	0011	1.0	30	**17** Sa	0032	2.3	70	
	1115	2.0	60		1208	2.0	60		0604	13.5	410		0627	12.8	390	
	1709	13.1	400		1757	12.8	390		1233	0.7	20		1251	2.0	60	
●	2339	1.6	50						1828	13.8	420		1845	13.1	400	
3 W	0532	13.1	400	**18** Th	0023	2.3	70	**3** Sa	0058	0.7	20	**18** Su	0059	2.3	70	
	1201	1.3	40		0613	12.5	380		0651	13.5	410		0657	12.5	380	
	1756	13.5	410		1244	2.0	60		1319	0.7	20		1318	2.3	70	
					1833	12.8	390		1914	13.8	420		1915	12.8	390	
4 Th	0025	1.3	40	**19** F	0055	2.3	70	**4** Su	0144	0.7	20	**19** M	0129	2.6	80	
	0618	13.1	400		0648	12.5	380		0738	13.5	410		0727	12.5	380	
	1247	1.3	40		1317	2.3	70		1405	0.7	20		1348	2.6	80	
	1841	13.5	410		1907	12.8	390		2001	13.8	420		1946	12.8	390	
5 F	0111	1.0	30	**20** Sa	0127	2.6	80	**5** M	0231	1.0	30	**20** Tu	0203	2.6	80	
	0705	13.1	400		0721	12.5	380		0825	13.1	400		0759	12.1	370	
	1334	1.0	30		1350	2.3	70		1452	1.0	30		1421	2.6	80	
	1928	13.5	410		1941	12.5	380		2048	13.1	400		2019	12.5	380	
6 Sa	0159	1.3	40	**21** Su	0201	2.6	80	**6** Tu	0319	1.3	40	**21** W	0240	3.0	90	
	0753	13.1	400		0755	12.1	370		0912	12.8	390		0835	12.1	370	
	1422	1.3	40		1423	2.6	80		1540	1.3	40		1458	3.0	90	
	2017	13.1	400		2016	12.5	380		2136	12.8	390		2055	12.5	380	
7 Su	0249	1.3	40	**22** M	0237	3.0	90	**7** W	0408	2.0	60	**22** Th	0319	3.3	100	
	0843	12.8	390		0831	11.8	360		1001	12.1	370		0914	11.8	360	
	1511	1.3	40		1459	3.0	90		1630	2.0	60		1540	3.6	110	
	2108	12.8	390		2054	12.1	370	◐	2226	12.1	370		2136	12.1	370	
8 M	0340	1.6	50	**23** Tu	0317	3.3	100	**8** Th	0502	2.6	80	**23** F	0402	3.9	120	
	0934	12.5	380		0910	11.8	360		1053	11.8	360		0959	11.5	350	
	1604	2.0	60		1539	3.3	100		1726	2.6	80		1629	3.9	120	
	2201	12.5	380		2134	11.8	360		2323	11.5	350	◑	2226	11.5	350	
9 Tu	0435	2.3	70	**24** W	0401	3.6	110	**9** F	0603	3.3	100	**24** Sa	0457	4.3	130	
	1028	12.1	370		0953	11.5	350		1154	11.2	340		1055	11.2	340	
	1700	2.3	70		1624	3.6	110		1832	3.3	100		1731	4.3	130	
◐	2257	12.1	370		2219	11.8	360						2327	11.2	340	
10 W	0535	2.6	80	**25** Th	0451	3.9	120	**10** Sa	0031	10.8	330	**25** Su	0608	4.3	130	
	1126	11.8	360		1042	11.2	340		0712	3.6	110		1203	10.8	330	
	1802	2.6	80		1718	3.9	120		1306	10.8	330		1849	4.3	130	
				◑	2311	11.5	350		1945	3.6	110					
11 Th	0000	11.8	360	**26** F	0550	4.3	130	**11** Su	0144	10.8	330	**26** M	0040	10.8	330	
	0639	3.0	90		1140	11.2	340		0825	3.6	110		0727	4.3	130	
	1230	11.5	350		1822	3.9	120		1419	11.2	340		1321	11.2	340	
	1908	3.0	90						2100	3.3	100		2006	3.9	120	
12 F	0107	11.5	350	**27** Sa	0013	11.2	340	**12** M	0252	11.2	340	**27** Tu	0157	11.2	340	
	0746	3.0	90		0656	4.3	130		0932	3.0	90		0839	3.6	110	
	1337	11.5	350		1246	11.2	340		1522	11.5	350		1436	11.8	360	
	2016	3.0	90		1930	3.9	120		2203	3.0	90		2115	3.0	90	
13 Sa	0212	11.5	350	**28** Su	0120	11.2	340	**13** Tu	0349	11.5	350	**28** W	0308	11.8	360	
	0850	3.0	90		0802	3.9	120		1029	2.6	80		0943	2.6	80	
	1441	11.8	360		1354	11.5	350		1615	12.1	370		1541	12.5	380	
	2120	2.6	80		2035	3.6	110		2253	2.6	80		2215	2.0	60	
14 Su	0312	11.8	360	**29** M	0226	11.5	350	**14** W	0437	12.1	370	**29** Th	0408	12.8	390	
	0950	2.6	80		0905	3.3	100		1114	2.3	70		1039	1.6	50	
	1540	12.1	370		1459	11.8	360		1700	12.8	390		1636	13.5	410	
	2218	2.3	70		2137	3.0	90		2332	2.3	70		2307	1.0	30	
15 M	0407	12.1	370	**30** Tu	0328	12.1	370	**15** Th	0519	12.5	380	**30** F	0459	13.5	410	
	1043	2.3	70		1004	2.6	80		1151	2.0	60		1128	0.7	20	
	1632	12.5	380		1558	12.5	380		1739	13.1	400		1724	14.1	430	
	2306	2.3	70		2233	2.0	60	○				●	2354	0.7	20	
				31 W	0425	12.8	390					**31** Sa	0547	13.8	420	
					1057	1.6	50						1214	0.3	10	
					1652	13.1	400						1810	14.1	430	
					2324	1.3	40									

September

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Su	0039	0.3	10	**16** M	0030	2.3	70	
	0631	14.1	430		0630	12.8	390	
	1259	0.0	0		1247	2.0	60	
	1853	14.1	430		1846	13.1	400	
2 M	0123	0.3	10	**17** Tu	0059	2.3	70	
	0716	13.8	420		0658	12.8	390	
	1343	0.3	10		1316	2.3	70	
	1937	13.8	420		1914	12.8	390	
3 Tu	0207	0.7	20	**18** W	0131	2.6	80	
	0800	13.5	410		0728	12.5	380	
	1427	0.7	20		1349	2.6	80	
	2021	13.5	410		1944	12.8	390	
4 W	0252	1.3	40	**19** Th	0206	3.0	90	
	0844	12.8	390		0801	12.5	380	
	1512	1.3	40		1425	3.0	90	
	2105	12.8	390		2019	12.5	380	
5 Th	0338	2.0	60	**20** F	0244	3.3	100	
	0929	12.1	370		0838	12.1	370	
	1559	2.3	70		1506	3.3	100	
	2151	11.8	360		2100	12.1	370	
6 F	0428	2.6	80	**21** Sa	0326	3.6	110	
	1019	11.5	350		0923	11.8	360	
	1651	3.0	90		1554	3.9	120	
◐	2244	11.2	340		2150	11.8	360	
7 Sa	0526	3.6	110	**22** Su	0421	4.3	130	
	1119	10.8	330		1020	11.2	340	
	1754	3.9	120		1657	4.3	130	
	2353	10.5	320	◑	2253	11.2	340	
8 Su	0638	3.9	120	**23** M	0534	4.6	140	
	1238	10.5	320		1132	10.8	330	
	1914	4.3	130		1818	4.6	140	
9 M	0118	10.2	310	**24** Tu	0011	10.8	330	
	0800	3.9	120		0658	4.3	130	
	1359	10.5	320		1257	11.2	340	
	2041	3.9	120		1941	3.9	120	
10 Tu	0233	10.8	330	**25** W	0136	11.2	340	
	0915	3.6	110		0816	3.6	110	
	1504	11.2	340		1418	11.8	360	
	2147	3.3	100		2055	3.0	90	
11 W	0330	11.5	350	**26** Th	0250	11.8	360	
	1011	2.6	80		0923	2.6	80	
	1555	12.1	370		1523	12.8	390	
	2235	2.6	80		2156	2.0	60	
12 Th	0417	12.1	370	**27** F	0349	12.8	390	
	1054	2.3	70		1019	1.3	40	
	1638	12.8	390		1617	13.5	410	
	2312	2.3	70		2247	1.0	30	
13 F	0457	12.5	380	**28** Sa	0440	13.8	420	
	1129	2.0	60		1108	0.7	20	
	1716	13.1	400		1704	14.1	430	
	2341	2.3	70	●	2334	0.3	10	
14 Sa	0532	12.8	390	**29** Su	0526	14.1	430	
	1157	2.0	60		1153	0.0	0	
	1749	13.1	400		1749	14.4	440	
○								
15 Su	0005	2.0	60	**30** M	0017	0.0	0	
	0602	12.8	390		0609	14.1	430	
	1222	2.0	60		1237	0.0	0	
	1818	13.1	400		1830	14.4	440	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Ringaskiddy (Cobh), Eire, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0100	0.3 10	16 W	0031	2.3 70
	0652	14.1 430		0631	13.1 400
	1320	0.3 10		1249	2.3 70
	1912	14.1 430		1845	13.1 400
2 W	0142	0.7 20	17 Th	0104	2.6 80
	0734	13.8 420		0701	12.8 390
	1402	1.0 30		1323	2.6 80
	1953	13.5 410		1917	13.1 400
3 Th	0225	1.3 40	18 F	0140	2.6 80
	0816	13.1 400		0735	12.8 390
	1445	1.6 50		1402	3.0 90
	2034	12.8 390		1953	12.8 390
4 F	0310	2.0 60	19 Sa	0220	3.3 100
	0859	12.5 380		0815	12.5 380
	1531	2.6 80		1445	3.3 100
	2118	11.8 360		2036	12.5 380
5 Sa ◐	0358	3.0 90	20 Su	0305	3.6 110
	0947	11.5 350		0902	12.1 370
	1621	3.6 110		1536	3.9 120
	2207	10.8 330		2128	11.8 360
6 Su	0455	3.9 120	21 M ◑	0402	4.3 130
	1045	10.8 330		1001	11.5 350
	1722	4.3 130		1640	4.3 130
	2313	10.2 310		2233	11.2 340
7 M	0606	4.3 130	22 Tu	0514	4.6 140
	1208	10.2 310		1114	11.2 340
	1841	4.6 140		1758	4.6 140
				2352	10.8 330
8 Tu	0048	9.8 300	23 W	0637	4.3 130
	0730	4.3 130		1239	11.2 340
	1335	10.5 320		1921	3.9 120
	2010	4.3 130			
9 W	0208	10.5 320	24 Th	0116	11.2 340
	0847	3.9 120		0755	3.6 110
	1439	11.2 340		1359	12.1 370
	2117	3.6 110		2034	3.0 90
10 Th	0305	11.2 340	25 F	0229	12.1 370
	0942	3.0 90		0901	2.6 80
	1528	12.1 370		1503	12.8 390
	2204	3.0 90		2134	2.0 60
11 F	0350	12.1 370	26 Sa	0328	13.1 400
	1025	2.6 80		0958	1.6 50
	1611	12.8 390		1556	13.8 420
	2241	2.6 80		2226	1.3 40
12 Sa	0429	12.5 380	27 Su	0419	13.8 420
	1059	2.3 70		1048	1.0 30
	1648	13.1 400		1643	14.1 430
	2310	2.3 70		2313	0.7 20
13 Su ○	0504	12.8 390	28 M ●	0505	14.1 430
	1127	2.0 60		1134	0.7 20
	1721	13.5 410		1727	14.4 440
	2334	2.3 70		2356	0.7 20
14 M	0535	13.1 400	29 Tu	0548	14.4 440
	1152	2.0 60		1217	0.7 20
	1750	13.5 410		1809	14.4 440
15 Tu	0001	2.3 70	30 W	0038	0.7 20
	0602	13.1 400		0630	14.1 430
	1219	2.3 70		1259	1.0 30
	1816	13.1 400		1849	13.8 420
			31 Th	0120	1.0 30
				0710	13.8 420
				1341	1.3 40
				1928	13.5 410

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0202	1.6 50	16 Sa	0125	2.6 80
	0751	13.1 400		0721	13.1 400
	1423	2.3 70		1349	3.0 90
	2007	12.5 380		1939	12.8 390
2 Sa	0245	2.6 80	17 Su	0208	3.0 90
	0833	12.5 380		0804	12.8 390
	1506	3.0 90		1436	3.3 100
	2048	11.8 360		2025	12.5 380
3 Su	0332	3.3 100	18 M	0257	3.3 100
	0919	11.8 360		0854	12.5 380
	1554	3.9 120		1528	3.6 110
	2134	11.2 340		2119	11.8 360
4 M	0426	3.9 120	19 Tu	0354	3.9 120
	1014	10.8 330		0953	11.8 360
	1652	4.6 140		1630	3.9 120
◐	2232	10.5 320	◑	2222	11.5 350
5 Tu	0532	4.6 140	20 W	0501	3.9 120
	1127	10.5 320		1102	11.8 360
	1802	4.9 150		1742	4.3 130
	2356	10.2 310		2335	11.2 340
6 W	0648	4.6 140	21 Th	0616	3.9 120
	1253	10.5 320		1219	11.8 360
	1921	4.6 140		1859	3.9 120
7 Th	0125	10.5 320	22 F	0052	11.5 350
	0800	4.3 130		0731	3.3 100
	1400	11.2 340		1334	12.1 370
	2027	4.3 130		2010	3.3 100
8 F	0226	11.2 340	23 Sa	0203	12.1 370
	0857	3.6 110		0838	2.6 80
	1451	11.8 360		1438	12.8 390
	2118	3.6 110		2111	2.3 70
9 Sa	0314	11.8 360	24 Su	0303	12.8 390
	0943	3.0 90		0937	2.0 60
	1535	12.5 380		1533	13.5 410
	2158	3.0 90		2204	1.6 50
10 Su	0354	12.5 380	25 M	0357	13.5 410
	1021	2.6 80		1029	1.6 50
	1614	12.8 390		1622	13.8 420
	2232	2.6 80		2253	1.3 40
11 M	0431	12.8 390	26 Tu ●	0445	14.1 430
	1053	2.3 70		1116	1.3 40
	1648	13.1 400		1708	14.1 430
	2304	2.3 70		2338	1.3 40
12 Tu ○	0504	13.1 400	27 W	0530	14.1 430
	1124	2.3 70		1200	1.3 40
	1720	13.5 410		1751	13.8 420
	2335	2.3 70			
13 W	0536	13.1 400	28 Th	0020	1.3 40
	1156	2.3 70		0612	14.1 430
	1751	13.5 410		1242	1.6 50
				1830	13.5 410
14 Th	0009	2.3 70	29 F	0101	1.6 50
	0608	13.5 410		0652	13.8 420
	1230	2.3 70		1323	2.0 60
	1823	13.5 410		1908	13.1 400
15 F	0046	2.3 70	30 Sa	0142	2.3 70
	0643	13.1 400		0732	13.1 400
	1308	2.6 80		1403	2.6 80
	1859	13.1 400		1945	12.5 380

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0223	2.6 80	16 M	0202	2.3 70
	0812	12.8 390		0800	13.1 400
	1444	3.3 100		1431	2.6 80
	2024	12.1 370		2020	12.8 390
2 M	0307	3.3 100	17 Tu	0251	2.6 80
	0856	12.1 370		0850	12.8 390
	1528	3.9 120		1522	3.0 90
	2106	11.5 350		2113	12.5 380
3 Tu	0355	3.9 120	18 W	0345	3.0 90
	0944	11.5 350		0945	12.5 380
	1618	4.6 140		1618	3.3 100
	2156	10.8 330		2210	12.1 370
4 W	0452	4.6 140	19 Th	0444	3.3 100
	1041	11.2 340		1046	12.1 370
	1717	4.9 150		1721	3.6 110
◐	2256	10.5 320	◑	2313	11.8 360
5 Th	0556	4.6 140	20 F	0551	3.6 110
	1149	10.8 330		1152	12.1 370
	1822	4.9 150		1831	3.6 110
6 F	0011	10.5 320	21 Sa	0021	11.8 360
	0701	4.6 140		0702	3.3 100
	1301	11.2 340		1302	12.1 370
	1926	4.6 140		1941	3.3 100
7 Sa	0124	10.8 330	22 Su	0131	12.1 370
	0800	4.3 130		0811	3.0 90
	1400	11.5 350		1408	12.5 380
	2022	4.3 130		2045	3.0 90
8 Su	0222	11.5 350	23 M	0236	12.5 380
	0852	3.6 110		0914	2.6 80
	1450	12.1 370		1509	12.8 390
	2111	3.6 110		2143	2.6 80
9 M	0310	12.1 370	24 Tu	0335	12.8 390
	0938	3.3 100		1012	2.3 70
	1534	12.5 380		1603	13.1 400
	2155	3.3 100		2236	2.3 70
10 Tu	0354	12.5 380	25 W	0428	13.5 410
	1020	3.0 90		1102	2.0 60
	1615	12.8 390		1652	13.1 400
	2236	2.6 80		2323	2.0 60
11 W	0435	13.1 400	26 Th ●	0516	13.8 420
	1100	2.6 80		1148	2.0 60
	1653	13.1 400		1736	13.5 410
	2315	2.3 70			
12 Th ○	0514	13.5 410	27 F	0005	2.0 60
	1139	2.3 70		0558	13.8 420
	1731	13.5 410		1229	2.0 60
	2354	2.3 70		1815	13.1 400
13 F	0553	13.5 410	28 Sa	0045	2.0 60
	1219	2.3 70		0638	13.5 410
	1809	13.5 410		1307	2.3 70
				1852	13.1 400
14 Sa	0034	2.3 70	29 Su	0123	2.3 70
	0632	13.5 410		0716	13.5 410
	1300	2.3 70		1343	2.6 80
	1849	13.5 410		1927	12.8 390
15 Su	0117	2.3 70	30 M	0201	2.6 80
	0714	13.5 410		0753	12.8 390
	1344	2.6 80		1420	3.3 100
	1933	13.1 400		2002	12.5 380
			31 Tu	0239	3.0 90
				0832	12.5 380
				1458	3.6 110
				2040	12.1 370

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Reykjavik, Iceland, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0249	10.9	331	**16** W	0144	10.1	308
	0905	3.8	116		0803	4.8	145
	1509	10.7	327		1411	9.9	303
	2129	3.4	105		2032	4.0	123
2 W	0351	11.3	345	**17** Th	0252	10.6	324
	1007	3.4	105		0915	4.2	129
	1608	10.9	333		1517	10.3	315
	2223	3.1	95		2136	3.5	106
3 Th	0444	11.9	362	**18** F	0353	11.5	349
	1058	3.0	91		1016	3.4	105
	1659	11.2	342		1618	11.0	335
	2310	2.7	83		2233	2.7	82
4 F	0528	12.4	378	**19** Sa	0447	12.4	378
	1142	2.6	79		1109	2.5	76
	1743	11.5	351		1712	11.7	358
	2350	2.4	73		2323	1.8	56
5 Sa	0607	12.8	390	**20** Su	0535	13.4	408
	1221	2.3	70		1157	1.6	48
	1821	11.8	359		1800	12.5	380
6 Su ●	0027	2.2	66	**21** M ○	0009	1.0	32
	0643	13.1	398		0621	14.2	432
	1258	2.1	65		1242	0.8	24
	1857	11.9	364		1846	13.0	397
7 M	0102	2.1	63	**22** Tu	0054	0.5	14
	0717	13.1	400		0706	14.7	447
	1332	2.1	64		1327	0.3	9
	1932	11.9	364		1932	13.3	406
8 Tu	0135	2.1	64	**23** W	0139	0.2	6
	0750	13.0	397		0752	14.8	450
	1406	2.2	66		1413	0.2	5
	2005	11.8	361		2019	13.3	406
9 W	0207	2.2	68	**24** Th	0225	0.3	9
	0823	12.8	390		0839	14.5	441
	1440	2.4	72		1459	0.4	13
	2039	11.6	354		2108	13.0	396
10 Th	0241	2.5	77	**25** F	0313	0.8	24
	0856	12.4	378		0928	13.8	421
	1515	2.7	81		1547	1.0	30
	2115	11.3	343		2159	12.4	379
11 F	0316	2.9	89	**26** Sa	0404	1.5	47
	0933	11.9	363		1020	12.9	392
	1553	3.0	92		1637	1.8	55
	2155	10.9	331		2252	11.7	357
12 Sa	0356	3.4	105	**27** Su ◑	0458	2.5	76
	1013	11.3	345		1114	11.8	360
	1634	3.4	105		1730	2.7	83
	2240	10.5	319		2350	11.0	335
13 Su	0442	4.0	122	**28** M	0600	3.4	105
	1100	10.7	326		1214	10.8	329
	1722	3.9	118		1830	3.6	109
	2333	10.1	308				
14 M ◐	0538	4.5	138	**29** Tu	0056	10.4	318
	1157	10.2	311		0712	4.2	127
	1819	4.2	128		1322	10.0	306
					1941	4.1	126
15 Tu	0036	9.9	303	**30** W	0211	10.2	312
	0647	4.8	147		0833	4.4	135
	1302	9.9	302		1437	9.7	296
	1924	4.3	131		2058	4.2	129
				31 Th	0327	10.5	319
					0949	4.2	127
					1550	9.9	301
					2206	3.9	119

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0430	11.1	337	**16** Sa	0327	10.9	333
	1047	3.7	112		0956	3.6	111
	1648	10.3	315		1601	10.4	318
	2258	3.4	103		2216	3.0	91
2 Sa	0517	11.7	356	**17** Su	0430	12.0	365
	1132	3.1	95		1056	2.5	76
	1733	10.9	332		1701	11.4	348
	2340	2.8	86		2311	1.9	58
3 Su	0556	12.2	373	**18** M	0522	13.1	399
	1210	2.6	79		1145	1.3	41
	1810	11.4	347		1750	12.4	378
					2359	0.8	25
4 M ●	0015	2.3	71	**19** Tu ○	0608	14.0	428
	0630	12.7	386		1230	0.4	11
	1244	2.2	66		1835	13.2	402
	1843	11.7	358				
5 Tu	0048	2.0	60	**20** W	0043	0.0	0
	0701	12.9	394		0652	14.7	447
	1315	1.8	56		1312	- 0.3	- 8
	1915	12.0	366		1918	13.7	417
6 W	0119	1.7	53	**21** Th	0126	- 0.4	- 12
	0731	13.0	397		0735	14.8	452
	1346	1.7	51		1354	- 0.5	- 14
	1945	12.1	369		2001	13.8	420
7 Th	0149	1.7	51	**22** F	0209	- 0.4	- 12
	0800	12.9	394		0819	14.5	443
	1416	1.7	51		1436	- 0.2	- 7
	2016	12.0	367		2046	13.5	412
8 F	0220	1.8	54	**23** Sa	0253	0.1	2
	0831	12.7	386		0905	13.8	420
	1447	1.8	55		1519	0.4	12
	2047	11.9	362		2131	12.9	393
9 Sa	0252	2.0	62	**24** Su	0339	0.9	28
	0902	12.3	374		0952	12.8	389
	1519	2.1	64		1603	1.4	42
	2121	11.6	353		2220	12.1	368
10 Su	0326	2.5	75	**25** M	0429	2.0	62
	0936	11.7	357		1041	11.5	352
	1554	2.5	77		1650	2.5	77
	2158	11.2	340		2312	11.1	338
11 M	0405	3.1	93	**26** Tu ◑	0524	3.2	99
	1016	11.1	337		1136	10.4	316
	1634	3.1	94		1745	3.6	111
	2243	10.7	326				
12 Tu ◐	0452	3.7	113	**27** W	0014	10.2	312
	1104	10.4	317		0631	4.3	130
	1724	3.7	112		1241	9.4	286
	2340	10.2	312		1853	4.5	138
13 W	0554	4.3	132	**28** Th	0130	9.7	295
	1207	9.8	299		0756	4.8	147
	1827	4.1	126		1402	8.9	272
					2023	4.9	148
14 Th	0051	10.0	305				
	0712	4.7	142				
	1324	9.5	290				
	1945	4.3	130				
15 F	0210	10.2	311				
	0838	4.5	136				
	1446	9.7	296				
	2106	3.9	118				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0259	9.8	298	**16** Sa	0141	10.0	306
	0929	4.6	141		0815	4.3	132
	1530	9.1	278		1427	9.4	286
	2149	4.5	136		2046	4.0	123
2 Sa	0412	10.4	316	**17** Su	0306	10.7	325
	1033	4.0	122		0941	3.5	106
	1635	9.8	298		1549	10.2	311
	2245	3.7	114		2202	3.0	92
3 Su	0501	11.1	338	**18** M	0414	11.7	357
	1117	3.2	99		1042	2.2	68
	1718	10.5	320		1648	11.3	345
	2325	3.0	92		2258	1.8	55
4 M	0538	11.7	358	**19** Tu	0506	12.9	392
	1152	2.6	78		1129	1.0	31
	1753	11.2	340		1735	12.4	379
	2359	2.3	71		2344	0.6	19
5 Tu	0610	12.3	374	**20** W	0551	13.8	420
	1223	2.0	60		1211	0.0	1
	1824	11.7	357		1818	13.3	406
6 W	0030	1.8	55	**21** Th ○	0027	- 0.2	- 6
	0639	12.7	386		0633	14.3	437
	1252	1.5	46		1251	- 0.6	- 17
●	1853	12.1	369		1858	13.9	423
7 Th	0059	1.4	43	**22** F	0108	- 0.7	- 20
	0707	12.9	392		0714	14.4	440
	1320	1.2	36		1330	- 0.7	- 21
	1921	12.4	377		1939	14.0	427
8 F	0128	1.2	36	**23** Sa	0149	- 0.6	- 19
	0735	12.9	392		0756	14.1	429
	1348	1.0	32		1409	- 0.4	- 12
	1950	12.5	380		2020	13.7	419
9 Sa	0157	1.1	35	**24** Su	0231	- 0.1	- 3
	0803	12.7	387		0839	13.3	406
	1417	1.1	34		1449	0.3	10
	2019	12.4	378		2103	13.1	399
10 Su	0227	1.3	41	**25** M	0315	0.8	24
	0833	12.4	377		0924	12.3	375
	1447	1.4	43		1530	1.3	41
	2050	12.2	371		2148	12.2	372
11 M	0300	1.7	53	**26** Tu	0401	1.9	59
	0905	11.8	361		1011	11.1	339
	1519	1.9	57		1613	2.5	77
	2124	11.8	359		2238	11.2	340
12 Tu	0336	2.4	72	**27** W	0453	3.1	96
	0942	11.2	341		1102	10.0	305
	1557	2.5	76		1703	3.7	113
	2206	11.2	342		2335	10.2	310
13 W	0421	3.1	95	**28** Th ◑	0555	4.3	130
	1028	10.4	318		1204	9.1	276
	1643	3.2	99		1807	4.7	142
	2301	10.6	322				
14 Th ◐	0521	3.9	119	**29** F	0047	9.5	289
	1132	9.7	295		0716	4.9	149
	1748	4.0	122		1324	8.5	260
					1939	5.2	157
15 F	0015	10.1	307	**30** Sa	0219	9.4	285
	0641	4.4	135		0855	4.8	146
	1255	9.2	281		1500	8.7	266
	1912	4.4	133		2120	4.8	146
				31 Su	0340	9.8	300
					1005	4.1	126
					1609	9.4	288
					2220	4.0	123

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Reykjavik, Iceland, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0431	10.6	322	**16** Tu	0353	11.6	353	
	1049	3.3	101		1020	2.0	60	
	1653	10.2	312		1630	11.4	348	
	2301	3.2	97		2240	1.7	53	
2 Tu	0510	11.3	343	**17** W	0444	12.5	381	
	1124	2.6	78		1106	0.9	28	
	1728	11.0	336		1716	12.5	380	
	2335	2.4	74		2326	0.7	21	
3 W	0542	11.8	360	**18** Th	0529	13.2	403	
	1154	1.9	57		1148	0.1	4	
	1758	11.7	356		1757	13.3	405	
4 Th	0005	1.8	55	**19** F ○	0008	0.0	0	
	0611	12.2	373		0611	13.6	415	
	1223	1.3	41		1227	- 0.3	- 9	
	1827	12.2	372		1837	13.8	420	
5 F ●	0034	1.3	40	**20** Sa	0048	- 0.4	- 11	
	0639	12.5	381		0652	13.6	416	
	1250	1.0	29		1305	- 0.3	- 10	
	1854	12.6	384		1916	13.9	423	
6 Sa	0103	1.0	30	**21** Su	0129	- 0.3	- 8	
	0707	12.6	384		0733	13.3	405	
	1318	0.8	23		1343	0.0	0	
	1922	12.8	390		1956	13.6	415	
7 Su	0133	0.9	27	**22** M	0210	0.2	7	
	0736	12.5	382		0815	12.6	385	
	1347	0.8	24		1421	0.7	21	
	1952	12.8	391		2038	13.0	397	
8 M	0204	1.0	31	**23** Tu	0252	1.1	33	
	0807	12.3	374		0858	11.7	358	
	1418	1.0	32		1501	1.6	49	
	2024	12.6	385		2121	12.2	372	
9 Tu	0238	1.4	42	**24** W	0337	2.1	64	
	0841	11.8	360		0944	10.8	329	
	1452	1.5	46		1542	2.6	80	
	2100	12.2	373		2208	11.3	343	
10 W	0317	2.0	61	**25** Th	0426	3.1	96	
	0921	11.2	340		1033	9.9	301	
	1532	2.2	68		1629	3.7	112	
	2145	11.6	354		2302	10.3	315	
11 Th	0405	2.8	84	**26** F ◑	0523	4.1	124	
	1012	10.4	316		1130	9.1	277	
	1622	3.1	93		1728	4.5	138	
	2243	10.9	331					
12 F ◐	0507	3.5	108	**27** Sa	0005	9.6	294	
	1120	9.6	293		0633	4.7	142	
	1729	3.8	117		1240	8.6	262	
	2358	10.3	314		1847	5.1	155	
13 Sa	0627	4.1	124	**28** Su	0125	9.3	284	
	1243	9.2	280		0800	4.7	144	
	1856	4.3	130		1408	8.7	264	
					2026	5.0	152	
14 Su	0123	10.2	310	**29** M	0247	9.5	291	
	0759	3.9	120		0916	4.2	128	
	1414	9.4	287		1524	9.3	282	
	2030	3.9	119		2138	4.3	132	
15 M	0246	10.7	326	**30** Tu	0346	10.1	308	
	0921	3.1	94		1007	3.5	106	
	1533	10.3	314		1615	10.0	305	
	2145	2.9	89		2225	3.5	108	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0430	10.7	326	**16** Th	0419	12.0	365	
	1045	2.8	84		1040	1.3	39	
	1653	10.8	329		1652	12.3	374	
	2302	2.8	85		2305	1.2	36	
2 Th	0505	11.3	343	**17** F	0506	12.4	379	
	1118	2.1	63		1123	0.8	23	
	1725	11.5	351		1735	13.0	395	
	2335	2.1	64		2348	0.6	19	
3 F	0538	11.7	357	**18** Sa ○	0550	12.7	386	
	1148	1.5	46		1203	0.5	14	
	1755	12.1	370		1816	13.4	407	
4 Sa ●	0006	1.5	47	**19** Su	0030	0.4	12	
	0608	12.0	367		0632	12.7	386	
	1218	1.1	33		1242	0.5	14	
	1825	12.7	386		1856	13.5	410	
5 Su	0037	1.1	35	**20** M	0111	0.5	16	
	0639	12.2	373		0713	12.4	379	
	1249	0.8	25		1320	0.7	22	
	1856	13.0	396		1936	13.3	405	
6 M	0110	1.0	29	**21** Tu	0152	0.9	28	
	0711	12.3	374		0755	12.0	365	
	1321	0.8	24		1359	1.2	38	
	1928	13.1	399		2017	12.8	391	
7 Tu	0144	1.0	30	**22** W	0233	1.5	47	
	0746	12.1	369		0837	11.4	347	
	1355	1.0	30		1437	1.9	58	
	2005	13.0	395		2059	12.2	372	
8 W	0223	1.3	39	**23** Th	0316	2.3	69	
	0826	11.7	357		0920	10.7	327	
	1434	1.4	43		1518	2.7	82	
	2047	12.6	383		2143	11.5	350	
9 Th	0307	1.8	55	**24** F	0402	3.0	92	
	0913	11.2	340		1006	10.1	307	
	1519	2.1	63		1602	3.4	105	
	2137	12.0	365		2231	10.7	327	
10 F	0400	2.5	75	**25** Sa	0452	3.7	113	
	1010	10.5	319		1057	9.5	289	
	1615	2.9	87		1653	4.2	127	
	2238	11.3	345		2325	10.1	307	
11 Sa	0504	3.1	94	**26** Su ◑	0548	4.2	128	
	1117	9.8	300		1156	9.1	276	
	1722	3.5	108		1756	4.7	143	
	2348	10.8	328					
12 Su ◐	0617	3.5	106	**27** M	0028	9.6	294	
	1234	9.6	292		0655	4.4	134	
	1843	3.9	118		1306	8.9	272	
					1915	4.9	149	
13 M	0106	10.6	322	**28** Tu	0139	9.5	291	
	0738	3.4	103		0807	4.2	129	
	1355	9.8	299		1420	9.2	281	
	2008	3.6	110		2034	4.6	140	
14 Tu	0222	10.8	330	**29** W	0245	9.8	298	
	0853	2.8	85		0908	3.8	115	
	1508	10.5	321		1520	9.8	299	
	2120	2.9	87		2135	4.0	122	
15 W	0326	11.4	347	**30** Th	0338	10.2	311	
	0952	2.0	62		0956	3.2	97	
	1605	11.4	348		1607	10.5	321	
	2217	2.0	60		2220	3.3	101	
				31 F	0422	10.7	325	
					1036	2.6	78	
					1646	11.3	344	
					2300	2.6	80	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0501	11.2	340	**16** Su	0533	11.7	357	
	1112	2.0	61		1144	1.5	45	
	1722	12.0	365		1800	12.8	390	
	2336	2.0	61					
2 Su	0537	11.6	353	**17** M ○	0015	1.4	43	
	1147	1.5	45		0616	11.8	361	
	1757	12.6	384		1224	1.4	42	
					1841	13.0	395	
3 M ●	0012	1.5	46	**18** Tu	0056	1.4	42	
	0614	11.9	363		0658	11.8	360	
	1223	1.1	34		1303	1.4	44	
	1833	13.1	399		1920	13.0	395	
4 Tu	0050	1.2	36	**19** W	0136	1.5	47	
	0652	12.1	369		0738	11.6	355	
	1300	0.9	28		1341	1.7	51	
	1911	13.3	406		1959	12.7	388	
5 W	0130	1.0	32	**20** Th	0216	1.9	57	
	0732	12.1	368		0817	11.4	346	
	1340	1.0	30		1418	2.0	62	
	1953	13.3	406		2038	12.3	376	
6 Th	0213	1.2	36	**21** F	0255	2.3	69	
	0818	11.9	362		0857	11.0	335	
	1424	1.2	38		1456	2.5	76	
	2039	13.1	398		2117	11.8	361	
7 F	0302	1.5	45	**22** Sa	0336	2.7	83	
	0909	11.5	349		0937	10.5	321	
	1514	1.7	53		1536	3.0	92	
	2132	12.6	383		2158	11.3	343	
8 Sa	0356	1.9	59	**23** Su	0418	3.2	97	
	1006	11.0	334		1021	10.1	308	
	1610	2.4	72		1619	3.6	109	
	2231	12.0	365		2244	10.7	326	
9 Su	0456	2.4	74	**24** M	0504	3.6	110	
	1109	10.5	320		1111	9.7	296	
	1713	3.0	90		1710	4.1	126	
	2335	11.4	348		2336	10.2	310	
10 M ◐	0600	2.8	85	**25** Tu ◑	0557	3.9	120	
	1217	10.2	312		1208	9.4	288	
	1824	3.3	102		1812	4.5	138	
11 Tu	0043	11.0	336	**26** W	0035	9.8	298	
	0710	2.9	89		0656	4.1	125	
	1328	10.3	313		1311	9.4	287	
	1940	3.3	102		1922	4.7	142	
12 W	0152	10.9	332	**27** Th	0138	9.6	294	
	0818	2.8	85		0759	4.0	122	
	1437	10.7	325		1416	9.7	296	
	2052	3.0	92		2032	4.4	135	
13 Th	0257	11.0	336	**28** F	0239	9.8	299	
	0920	2.5	75		0858	3.7	113	
	1537	11.2	342		1514	10.3	313	
	2152	2.5	77		2132	3.9	120	
14 F	0354	11.3	343	**29** Sa	0334	10.2	310	
	1013	2.1	63		0950	3.2	97	
	1630	11.8	361		1605	11.0	335	
	2245	2.0	61		2223	3.3	100	
15 Sa	0446	11.5	351	**30** Su	0424	10.7	325	
	1100	1.7	52		1037	2.6	79	
	1717	12.4	378		1650	11.8	359	
	2332	1.6	49		2309	2.6	79	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Reykjavik, Iceland, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0510 11.2 342 1121 2.0 60 1733 12.5 382 2352 1.9 58		**16** Tu ○	0005 2.2 68 0605 11.3 345 1212 2.1 63 1828 12.7 386	
2 Tu ●	0554 11.7 357 1203 1.4 43 1815 13.2 402		**17** W	0044 2.0 61 0644 11.5 352 1249 1.9 57 1905 12.8 391	
3 W	0035 1.3 41 0637 12.1 370 1246 1.0 30 1857 13.6 416		**18** Th	0121 1.9 57 0721 11.6 355 1325 1.8 56 1940 12.8 390	
4 Th	0118 1.0 29 0722 12.4 377 1329 0.8 23 1942 13.8 422		**19** F	0156 1.9 58 0756 11.6 354 1359 1.9 58 2014 12.6 384	
5 F	0204 0.8 24 0809 12.4 377 1415 0.8 25 2030 13.7 418		**20** Sa	0231 2.0 62 0831 11.5 349 1433 2.1 65 2048 12.3 374	
6 Sa	0252 0.9 27 0900 12.1 370 1505 1.1 34 2121 13.3 406		**21** Su	0306 2.3 69 0906 11.2 341 1508 2.5 76 2124 11.8 360	
7 Su	0343 1.2 37 0954 11.8 359 1557 1.6 50 2216 12.7 387		**22** M	0342 2.6 80 0944 10.9 331 1545 3.0 91 2203 11.3 343	
8 M	0437 1.7 52 1050 11.3 345 1655 2.3 70 2314 12.0 365		**23** Tu	0421 3.0 92 1026 10.5 319 1628 3.5 108 2246 10.7 325	
9 Tu ◐	0534 2.3 69 1151 10.9 332 1759 2.9 89		**24** W	0504 3.5 106 1114 10.1 307 1718 4.1 125 2337 10.1 308	
10 W	0015 11.3 343 0635 2.8 85 1256 10.6 323 1909 3.3 102		**25** Th ◑	0555 3.9 119 1211 9.8 299 1820 4.6 139	
11 Th	0120 10.7 327 0741 3.1 96 1405 10.6 323 2022 3.5 107		**26** F	0036 9.7 296 0655 4.2 127 1316 9.8 298 1931 4.7 144	
12 F	0228 10.5 319 0848 3.2 98 1512 10.9 331 2131 3.3 101		**27** Sa	0142 9.6 292 0801 4.2 127 1423 10.1 308 2045 4.5 136	
13 Sa	0333 10.5 319 0950 3.0 92 1613 11.3 345 2230 3.0 90		**28** Su	0250 9.8 298 0908 3.8 116 1528 10.7 327 2152 3.9 118	
14 Su	0431 10.7 326 1045 2.7 83 1704 11.8 361 2321 2.6 78		**29** M	0354 10.3 313 1009 3.2 97 1625 11.6 354 2248 3.0 92	
15 M	0521 11.0 336 1131 2.4 72 1749 12.3 376		**30** Tu	0450 11.0 335 1101 2.4 72 1714 12.6 383 2336 2.1 64	
			31 W	0539 11.7 358 1148 1.5 46 1800 13.5 410	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0022 1.2 37 0625 12.4 379 1233 0.8 24 1844 14.1 430		**16** F	0102 1.9 57 0701 11.9 364 1306 1.7 53 1918 13.0 395	
2 F	0105 0.6 17 0709 12.9 394 1317 0.3 9 1928 14.4 440		**17** Sa	0133 1.7 52 0732 12.1 368 1337 1.7 51 1948 12.9 393	
3 Sa	0149 0.2 6 0755 13.1 400 1402 0.2 5 2014 14.4 439		**18** Su	0203 1.7 51 0802 12.1 368 1407 1.8 54 2018 12.7 386	
4 Su	0235 0.2 6 0842 13.0 397 1448 0.4 12 2102 13.9 425		**19** M	0233 1.8 55 0833 11.9 363 1438 2.0 62 2049 12.3 374	
5 M	0321 0.6 17 0932 12.7 386 1538 1.0 30 2153 13.2 402		**20** Tu	0305 2.1 64 0906 11.6 354 1512 2.5 75 2122 11.7 357	
6 Tu	0410 1.2 37 1024 12.1 368 1630 1.8 56 2246 12.2 372		**21** W	0338 2.6 78 0942 11.2 342 1549 3.1 93 2159 11.1 338	
7 W ◐	0501 2.1 63 1120 11.4 347 1729 2.8 85 2344 11.2 341		**22** Th	0416 3.1 95 1024 10.7 327 1632 3.7 114 2244 10.4 317	
8 Th	0558 3.0 91 1222 10.8 328 1836 3.6 111		**23** F ◑	0501 3.7 114 1117 10.3 313 1729 4.4 135 2342 9.8 299	
9 F	0048 10.3 315 0704 3.7 114 1333 10.4 316 1953 4.2 127		**24** Sa	0600 4.3 131 1225 10.0 304 1842 4.9 149	
10 Sa	0200 9.8 299 0819 4.1 124 1451 10.4 318 2114 4.2 127		**25** Su	0055 9.4 287 0714 4.6 139 1342 10.0 306 2007 4.9 148	
11 Su	0317 9.8 298 0935 3.9 120 1602 10.9 332 2222 3.7 114		**26** M	0216 9.5 289 0835 4.3 132 1500 10.6 323 2129 4.2 128	
12 M	0423 10.2 310 1035 3.5 106 1656 11.5 351 2313 3.2 97		**27** Tu	0334 10.1 307 0949 3.6 109 1606 11.6 353 2232 3.1 96	
13 Tu	0513 10.7 326 1122 2.9 88 1738 12.1 369 2354 2.7 81		**28** W	0435 11.0 336 1047 2.5 76 1658 12.7 388 2322 2.0 60	
14 W	0553 11.2 342 1200 2.4 73 1814 12.6 383		**29** Th	0525 12.0 367 1135 1.4 43 1744 13.7 419	
15 Th ○	0029 2.2 67 0629 11.6 355 1234 2.0 61 1847 12.9 392		**30** F ●	0006 0.9 27 0610 13.0 395 1219 0.5 14 1827 14.5 443	
			31 Sa	0048 0.1 2 0652 13.6 415 1301 - 0.1 - 4 1909 14.9 454	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0129 - 0.3 - 10 0734 13.9 424 1343 - 0.3 - 10 1952 14.8 450		**16** M	0132 1.4 43 0733 12.7 386 1341 1.5 46 1947 12.9 392	
2 M	0210 - 0.3 - 8 0818 13.8 422 1427 0.0 - 1 2037 14.2 433		**17** Tu	0200 1.5 46 0801 12.6 384 1410 1.7 53 2015 12.5 381	
3 Tu	0253 0.2 7 0904 13.4 407 1513 0.7 21 2125 13.3 405		**18** W	0229 1.8 55 0831 12.3 376 1441 2.2 66 2045 12.0 366	
4 W	0338 1.1 34 0953 12.6 384 1603 1.7 53 2216 12.1 369		**19** Th	0300 2.3 69 0904 11.9 364 1516 2.8 84 2120 11.4 346	
5 Th	0426 2.2 68 1047 11.7 356 1659 3.0 90 2312 10.9 333		**20** F	0334 2.9 89 0943 11.4 347 1557 3.5 108 2202 10.6 324	
6 F ◐	0520 3.4 104 1149 10.8 329 1805 4.1 124		**21** Sa	0418 3.7 112 1035 10.8 328 1653 4.3 132 2303 9.9 301	
7 Sa	0017 9.9 301 0627 4.4 134 1302 10.1 309 1927 4.8 146		**22** Su ◑	0518 4.4 134 1147 10.2 312 1810 5.0 151	
8 Su	0134 9.3 283 0752 4.9 148 1430 10.1 308 2101 4.8 145		**23** M	0025 9.4 285 0640 4.9 148 1312 10.1 308 1943 5.0 151	
9 M	0303 9.4 285 0923 4.6 141 1549 10.6 324 2213 4.2 128		**24** Tu	0156 9.4 287 0814 4.7 142 1438 10.7 325 2112 4.2 128	
10 Tu	0414 9.9 303 1025 3.9 120 1642 11.3 345 2259 3.5 106		**25** W	0320 10.2 310 0934 3.7 114 1547 11.7 357 2215 3.0 91	
11 W	0500 10.7 325 1108 3.2 98 1721 12.0 365 2336 2.8 85		**26** Th	0421 11.3 344 1031 2.5 76 1639 12.9 392 2303 1.7 52	
12 Th	0537 11.4 346 1143 2.6 78 1754 12.5 381		**27** F	0509 12.5 380 1118 1.3 39 1724 13.9 423 2345 0.6 19	
13 F	0008 2.2 68 0608 11.9 363 1215 2.0 62 1824 12.9 392		**28** Sa ●	0551 13.5 411 1201 0.3 8 1806 14.6 445	
14 Sa ○	0037 1.8 54 0637 12.3 376 1244 1.7 51 1852 13.1 398		**29** Su	0025 - 0.1 - 4 0631 14.2 432 1242 - 0.3 - 9 1847 14.9 453	
15 Su	0105 1.5 46 0705 12.6 383 1312 1.5 45 1919 13.1 398		**30** M	0104 - 0.4 - 13 0711 14.5 441 1323 - 0.4 - 12 1928 14.7 447	

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Reykjavik, Iceland, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0143	- 0.3	- 8	**16** W	0129	1.4	44	**1** F	0239	1.8	54	**16** Sa	0211	2.1	63	**1** Su	0301	2.9	87	**16** M	0246	2.1	64
	0753	14.3	437		0733	13.1	400		0859	13.1	398		0821	13.0	397		0925	12.3	376		0901	13.2	401
	1405	0.0	0		1345	1.6	50		1516	2.3	70		1441	2.5	75		1545	3.2	98		1525	2.3	70
	2012	14.0	427		1947	12.6	383		2122	11.6	353		2044	11.6	354		2148	10.8	329		2132	11.5	351
2 W	0224	0.4	11	**17** Th	0158	1.7	52	**2** Sa	0323	2.9	87	**17** Su	0252	2.7	81	**2** M	0346	3.7	113	**17** Tu	0336	2.6	80
	0836	13.8	420		0802	12.9	394		0949	12.1	368		0906	12.5	381		1013	11.5	351		0955	12.6	384
	1449	0.8	25		1417	2.0	62		1608	3.4	104		1530	3.1	93		1635	4.0	121		1621	2.7	83
	2057	13.0	397		2018	12.1	369		2215	10.6	322		2135	11.0	334		2239	10.1	308		2231	11.1	337
3 Th	0306	1.3	41	**18** F	0230	2.2	66	**3** Su	0413	4.0	121	**18** M	0342	3.3	102	**3** Tu	0436	4.5	136	**18** W	0435	3.2	98
	0924	12.9	394		0836	12.5	382		1045	11.1	338		1003	11.8	361		1107	10.8	328		1056	12.0	365
	1538	2.0	60		1453	2.6	80		1707	4.4	134		1630	3.7	112		1731	4.6	139		1721	3.1	96
	2147	11.8	361		2054	11.5	350		2314	9.7	296		2241	10.3	315		2338	9.6	293		2336	10.7	326
4 F	0351	2.6	78	**19** Sa	0306	2.8	86	**4** M	0513	4.9	150	**19** Tu	0446	4.1	124	**4** W	0538	5.1	155	**19** Th	0543	3.7	113
	1016	11.9	362		0917	11.9	364		1151	10.3	314		1112	11.3	343		1210	10.2	311		1202	11.5	350
	1632	3.2	99		1537	3.4	103		1817	5.1	154		1741	4.1	125		1837	4.9	148		1828	3.4	103
	2242	10.6	324		2140	10.7	327	◐				◑	2356	10.0	304	◐				◑			
5 Sa	0444	3.8	116	**20** Su	0351	3.6	110	**5** Tu	0025	9.2	280	**20** W	0604	4.5	137	**5** Th	0047	9.4	286	**20** F	0047	10.6	323
	1117	10.9	331		1011	11.3	343		0632	5.5	167		1229	11.0	334		0655	5.4	164		0658	3.9	120
	1736	4.4	134		1636	4.2	127		1310	9.9	303		1900	4.1	125		1322	10.0	304		1312	11.2	342
◐	2346	9.6	294		2245	10.0	304		1944	5.2	158						1949	4.8	146		1938	3.4	103
6 Su	0550	4.9	148	**21** M	0455	4.4	134	**6** W	0153	9.2	281	**21** Th	0118	10.1	308	**6** F	0203	9.6	293	**21** Sa	0159	10.8	330
	1229	10.1	308		1125	10.6	324		0810	5.4	165		0730	4.4	133		0819	5.2	158		0814	3.7	114
	1857	5.2	157		1754	4.7	144		1433	10.1	309		1346	11.1	339		1431	10.1	308		1421	11.2	342
				◑					2101	4.7	143		2017	3.6	109		2053	4.4	134		2045	3.1	95
7 M	0105	9.1	276	**22** Tu	0009	9.5	290	**7** Th	0310	9.8	298	**22** F	0234	10.8	328	**7** Sa	0308	10.1	309	**22** Su	0305	11.4	347
	0719	5.4	164		0620	4.9	149		0924	4.8	146		0847	3.7	112		0923	4.7	142		0921	3.2	99
	1400	9.9	303		1251	10.4	318		1533	10.6	324		1454	11.7	356		1527	10.5	319		1523	11.5	349
	2036	5.1	155		1924	4.7	143		2152	4.0	122		2120	2.8	85		2143	3.9	118		2144	2.7	82
8 Tu	0240	9.2	281	**23** W	0140	9.6	294	**8** F	0401	10.6	322	**23** Sa	0335	11.7	356	**8** Su	0356	10.9	331	**23** M	0403	12.1	368
	0900	5.1	155		0755	4.7	142		1012	4.0	123		0948	2.8	84		1010	4.0	122		1019	2.7	81
	1523	10.4	317		1415	10.9	332		1617	11.2	342		1550	12.3	375		1612	10.9	333		1620	11.8	359
	2148	4.5	136		2049	3.9	120		2231	3.3	101		2211	2.0	61		2224	3.3	101		2236	2.3	69
9 W	0352	9.9	302	**24** Th	0302	10.5	319	**9** Sa	0439	11.3	345	**24** Su	0425	12.6	385	**9** M	0436	11.5	352	**24** Tu	0453	12.7	388
	1003	4.3	132		0914	3.7	114		1049	3.3	101		1038	1.9	57		1050	3.4	103		1110	2.1	65
	1616	11.1	338		1523	11.8	359		1653	11.7	357		1639	12.9	392		1651	11.4	346		1711	12.1	368
	2233	3.7	112		2151	2.8	85		2304	2.7	82		2256	1.3	40		2300	2.8	84		2322	1.9	57
10 Th	0437	10.7	326	**25** F	0401	11.6	354	**10** Su	0512	12.0	366	**25** M	0509	13.5	410	**10** Tu	0512	12.2	373	**25** W	0539	13.3	404
	1046	3.5	107		1012	2.5	77		1122	2.7	82		1123	1.2	36		1126	2.8	85		1156	1.7	53
	1654	11.7	358		1616	12.8	390		1725	12.1	370		1724	13.2	403		1727	11.8	359		1757	12.3	375
	2308	3.0	90		2239	1.6	50		2334	2.2	66		2338	0.9	28		2335	2.3	70				
11 F	0512	11.5	349	**26** Sa	0448	12.8	389	**11** M	0542	12.6	384	**26** Tu	0551	14.0	426	**11** W	0545	12.8	391	**26** Th	0006	1.6	50
	1120	2.8	85		1059	1.4	42		1152	2.2	67		1206	0.8	25		1200	2.3	70		0622	13.6	415
	1726	12.3	374		1702	13.6	415		1755	12.4	379		1808	13.4	407		1802	12.1	369		1239	1.6	48
	2339	2.3	71		2321	0.7	22					●								●	1840	12.4	378
12 Sa	0542	12.1	369	**27** Su	0529	13.7	418	**12** Tu	0004	1.8	55	**27** W	0019	0.8	24	**12** Th	0009	1.9	58	**27** F	0046	1.6	48
	1150	2.2	68		1141	0.5	15		0611	13.1	398		0632	14.2	434		0619	13.3	406		0703	13.7	417
	1756	12.7	386		1744	14.2	432		1222	1.8	56		1248	0.8	24		1235	2.0	60		1320	1.6	49
								○	1824	12.6	384		1850	13.2	402	○	1837	12.3	375		1921	12.3	375
13 Su	0007	1.8	56	**28** M	0001	0.1	4	**13** W	0033	1.6	48	**28** Th	0059	1.0	29	**13** F	0044	1.7	51	**28** Sa	0126	1.7	52
	0611	12.6	384		0609	14.3	437		0640	13.4	407		0714	14.1	431		0654	13.6	415		0743	13.5	413
	1219	1.8	54		1223	0.0	0		1253	1.7	52		1331	1.1	33		1312	1.8	54		1400	1.8	56
○	1823	12.9	393	●	1825	14.3	436		1854	12.6	384		1933	12.8	390		1914	12.4	377		2001	12.1	368
14 M	0034	1.5	46	**29** Tu	0039	0.0	0	**14** Th	0103	1.5	47	**29** F	0139	1.4	43	**14** Sa	0121	1.6	49	**29** Su	0204	2.0	62
	0638	13.0	395		0649	14.6	445		0710	13.5	411		0756	13.7	419		0732	13.7	418		0822	13.2	401
	1247	1.5	47		1304	0.0	0		1325	1.7	53		1414	1.7	51		1352	1.8	54		1440	2.2	68
	1851	13.0	395		1907	14.1	429		1926	12.5	380		2017	12.2	372		1954	12.3	374		2041	11.7	356
15 Tu	0101	1.4	42	**30** W	0118	0.2	6	**15** F	0135	1.7	52	**30** Sa	0219	2.1	63	**15** Su	0201	1.7	53	**30** M	0242	2.5	76
	0705	13.1	400		0730	14.4	440		0743	13.4	408		0839	13.1	399		0814	13.5	413		0901	12.6	385
	1315	1.5	45		1345	0.4	13		1401	2.0	61		1458	2.4	74		1436	2.0	60		1520	2.7	82
	1918	12.8	391		1950	13.5	410		2002	12.1	370		2102	11.5	351		2040	12.0	365		2121	11.2	342
				31 Th	0158	0.9	26													**31** Tu	0320	3.1	93
					0813	13.9	423														0941	12.0	365
					1429	1.2	37														1601	3.2	98
					2034	12.6	383														2203	10.7	327

Time meridian 0°. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Antwerp (Prosperpolder), Belgium, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0531	3.9 120	**16** W	0411	4.3 130
	1139	18.0 550		1033	16.7 510
	1818	2.0 60		1648	3.9 120
				2311	17.4 530
2 W	0016	18.4 560	**17** Th	0528	4.3 130
	0653	3.6 110		1143	17.4 530
	1242	18.0 550		1809	3.9 120
	1925	2.0 60			
3 Th	0113	18.7 570	**18** F	0019	18.0 550
	0755	3.0 90		0640	3.9 120
	1335	18.7 570		1248	18.0 550
	2017	2.0 60		1918	3.3 100
4 F	0203	19.0 580	**19** Sa	0120	19.0 580
	0844	2.6 80		0747	3.3 100
	1423	19.0 580		1345	19.4 590
	2100	2.3 70		2020	2.6 80
5 Sa	0248	19.4 590	**20** Su	0214	20.0 610
	0926	2.6 80		0849	2.6 80
	1506	19.4 590		1437	20.3 620
	2138	2.6 80		2116	2.3 70
6 Su	0328	19.7 600	**21** M	0304	20.7 630
	1004	2.6 80		0944	2.0 60
	1546	19.7 600		1526	21.3 650
●	2214	2.6 80	○	2208	2.0 60
7 M	0405	19.7 600	**22** Tu	0351	21.0 640
	1041	2.6 80		1037	1.3 40
	1623	20.0 610		1613	22.0 670
	2248	3.0 90		2258	2.0 60
8 Tu	0440	19.7 600	**23** W	0438	21.3 650
	1116	2.6 80		1127	0.7 20
	1658	20.0 610		1701	22.3 680
	2321	3.0 90		2345	2.0 60
9 W	0513	19.7 600	**24** Th	0525	21.3 650
	1149	2.6 80		1215	0.3 10
	1732	20.0 610		1749	22.0 670
	2353	3.0 90			
10 Th	0546	19.7 600	**25** F	0031	2.0 60
	1219	2.6 80		0612	21.0 640
	1806	20.0 610		1302	0.0 0
				1837	21.7 660
11 F	0025	3.3 100	**26** Sa	0116	2.3 70
	0620	19.4 590		0702	20.7 630
	1249	2.6 80		1347	0.3 10
	1841	19.4 590		1929	20.7 630
12 Sa	0100	3.3 100	**27** Su	0200	2.6 80
	0655	18.7 570		0753	19.7 600
	1321	2.6 80		1433	0.7 20
	1919	18.7 570	◑	2022	19.7 600
13 Su	0137	3.6 110	**28** M	0247	2.6 80
	0734	18.0 550		0849	19.0 580
	1358	3.0 90		1522	1.3 40
	2001	18.0 550		2121	18.7 570
14 M	0219	3.9 120	**29** Tu	0339	3.3 100
	0821	17.4 530		0951	18.0 550
	1441	3.3 100		1618	2.0 60
◐	2055	17.7 540		2229	17.7 540
15 Tu	0309	3.9 120	**30** W	0440	3.6 110
	0923	17.1 520		1103	17.1 520
	1535	3.6 110		1725	2.6 80
	2201	17.1 520		2341	17.1 520
			31 Th	0604	3.9 120
				1213	17.1 520
				1848	3.0 90

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0047	17.4 530	**16** Sa	0607	3.6 110
	0726	3.3 100		1218	17.4 530
	1315	17.7 540		1849	3.3 100
	1949	2.6 80			
2 Sa	0143	18.0 550	**17** Su	0057	18.0 550
	0822	2.6 80		0723	3.0 90
	1408	18.7 570		1328	18.7 570
	2037	2.6 80		2001	2.6 80
3 Su	0232	18.7 570	**18** M	0158	19.0 580
	0907	2.3 70		0833	2.0 60
	1454	19.4 590		1424	20.3 620
	2118	2.6 80		2103	2.0 60
4 M	0314	19.4 590	**19** Tu	0250	20.0 610
	0946	2.0 60		0932	1.0 30
	1534	19.7 600		1514	21.3 650
●	2155	2.6 80	○	2157	1.6 50
5 Tu	0351	19.7 600	**20** W	0338	21.0 640
	1023	2.0 60		1025	0.3 10
	1609	20.0 610		1601	22.0 670
	2230	2.6 80		2246	1.3 40
6 W	0425	20.0 610	**21** Th	0423	21.3 650
	1058	2.0 60		1114	- 0.3 - 10
	1642	20.3 620		1647	22.6 690
	2304	2.6 80		2332	1.3 40
7 Th	0457	20.0 610	**22** F	0507	21.7 660
	1131	1.6 50		1200	- 0.7 - 20
	1714	20.7 630		1732	22.3 680
	2336	2.6 80			
8 F	0528	20.0 610	**23** Sa	0016	1.3 40
	1201	1.6 50		0552	21.3 650
	1746	20.3 620		1243	- 0.7 - 20
				1816	21.7 660
9 Sa	0009	2.6 80	**24** Su	0057	1.6 50
	0559	20.0 610		0637	21.0 640
	1231	2.0 60		1324	- 0.3 - 10
	1817	20.0 610		1902	20.7 630
10 Su	0042	2.6 80	**25** M	0136	2.0 60
	0630	19.4 590		0723	20.0 610
	1301	2.3 70		1403	0.7 20
	1851	19.4 590		1950	19.4 590
11 M	0116	3.0 90	**26** Tu	0215	2.3 70
	0705	18.7 570		0812	19.0 580
	1334	2.6 80		1443	1.3 40
	1928	18.7 570	◑	2041	18.0 550
12 Tu	0153	3.3 100	**27** W	0259	2.6 80
	0744	18.4 560		0908	17.7 540
	1412	2.6 80		1531	2.3 70
◐	2013	18.0 550		2141	16.7 510
13 W	0236	3.3 100	**28** Th	0355	3.3 100
	0835	17.4 530		1019	16.4 500
	1459	3.3 100		1633	3.3 100
	2113	17.4 530		2300	15.7 480
14 Th	0331	3.6 110			
	0943	17.1 520			
	1604	3.6 110			
	2225	17.1 520			
15 F	0446	3.9 120			
	1059	16.7 510			
	1730	3.9 120			
	2342	17.1 520			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0509	3.9 120	**16** Sa	0416	3.6 110
	1143	16.1 490		1026	16.7 510
	1754	3.6 110		1703	3.6 110
				2315	16.4 500
2 Sa	0018	16.1 490	**17** Su	0543	3.3 100
	0649	3.6 110		1157	17.4 530
	1252	17.1 520		1828	3.3 100
	1917	3.3 100			
3 Su	0120	17.1 520	**18** M	0040	17.4 530
	0755	2.6 80		0706	2.6 80
	1348	18.4 560		1314	18.7 570
	2011	2.6 80		1948	2.6 80
4 M	0211	18.4 560	**19** Tu	0144	18.7 570
	0843	2.0 60		0820	1.3 40
	1435	19.4 590		1411	20.3 620
	2055	2.3 70		2051	1.6 50
5 Tu	0253	19.0 580	**20** W	0235	19.7 600
	0924	1.6 50		0919	0.3 10
	1514	20.0 610		1459	21.7 660
	2134	2.0 60		2143	1.3 40
6 W	0330	19.7 600	**21** Th	0320	20.7 630
	1001	1.3 40		1009	- 0.7 - 20
	1549	20.3 620		1544	22.3 680
●	2210	2.0 60	○	2230	1.0 30
7 Th	0403	20.0 610	**22** F	0403	21.3 650
	1035	1.3 40		1055	- 1.0 - 30
	1620	20.7 630		1627	22.3 680
	2244	2.0 60		2314	0.7 20
8 F	0433	20.3 620	**23** Sa	0445	21.7 660
	1107	1.3 40		1139	- 1.0 - 30
	1649	20.7 630		1709	22.0 670
	2316	2.0 60		2354	1.0 30
9 Sa	0503	20.3 620	**24** Su	0527	21.7 660
	1138	1.3 40		1219	- 0.7 - 20
	1720	20.7 630		1751	21.3 650
	2349	2.0 60			
10 Su	0533	20.3 620	**25** M	0032	1.3 40
	1209	1.6 50		0609	21.0 640
	1751	20.3 620		1256	0.3 10
				1832	20.3 620
11 M	0022	2.3 70	**26** Tu	0108	1.6 50
	0604	20.0 610		0651	20.0 610
	1241	2.0 60		1330	1.0 30
	1823	20.0 610		1914	19.0 580
12 Tu	0056	2.6 80	**27** W	0143	2.0 60
	0638	19.4 590		0735	18.7 570
	1313	2.3 70		1405	2.0 60
	1900	19.4 590		1958	17.7 540
13 W	0130	2.6 80	**28** Th	0221	2.6 80
	0717	19.0 580		0824	17.4 530
	1347	2.6 80		1446	3.0 90
	1944	18.4 560	◑	2051	16.4 500
14 Th	0210	3.0 90	**29** F	0311	3.3 100
	0804	18.0 550		0928	16.1 490
	1431	3.0 90		1545	3.6 110
◐	2039	17.4 530		2205	15.1 460
15 F	0301	3.3 100	**30** Sa	0425	3.9 120
	0907	17.4 530		1100	15.7 480
	1534	3.6 110		1706	3.9 120
	2152	16.7 510		2340	15.1 460
			31 Su	0559	3.6 110
				1221	16.4 500
				1833	3.6 110

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Antwerp (Prosperpolder), Belgium, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0049 16.4 500 0717 2.6 80 1320 18.0 550 1938 2.6 80		16 Tu	0022 17.4 530 0652 2.0 60 1258 19.0 580 1933 2.3 70	
2 Tu	0142 18.0 550 0810 2.0 60 1407 19.4 590 2027 2.0 60		17 W	0124 18.7 570 0805 0.7 20 1353 20.7 630 2034 1.6 50	
3 W	0225 19.0 580 0854 1.3 40 1447 20.0 610 2108 1.6 50		18 Th	0214 19.7 600 0901 0.0 0 1440 21.3 650 2124 1.0 30	
4 Th	0302 19.7 600 0933 1.3 40 1520 20.3 620 2144 1.6 50		19 F ○	0258 20.7 630 0949 - 0.7 - 20 1522 21.7 660 2209 1.0 30	
5 F ●	0334 20.0 610 1007 1.3 40 1551 20.7 630 2218 1.6 50		20 Sa	0340 21.3 650 1033 - 0.7 - 20 1603 22.0 670 2251 1.0 30	
6 Sa	0404 20.3 620 1039 1.3 40 1620 21.0 640 2251 1.6 50		21 Su	0421 21.7 660 1114 - 0.3 - 10 1644 21.7 660 2330 1.0 30	
7 Su	0434 20.7 630 1112 1.3 40 1651 21.0 640 2326 1.6 50		22 M	0502 21.3 650 1151 0.3 10 1724 20.7 630	
8 M	0506 20.7 630 1146 1.6 50 1724 20.7 630		23 Tu	0006 1.3 40 0542 20.7 630 1225 1.0 30 1803 19.7 600	
9 Tu	0002 2.0 60 0538 20.3 620 1221 2.0 60 1759 20.0 610		24 W	0041 1.6 50 0622 19.7 600 1257 2.0 60 1841 18.7 570	
10 W	0037 2.3 70 0615 20.0 610 1254 2.6 80 1837 19.4 590		25 Th	0114 2.3 70 0702 18.7 570 1329 2.6 80 1920 17.7 540	
11 Th	0112 2.3 70 0655 19.4 590 1329 2.6 80 1922 18.7 570		26 F ◑	0148 2.6 80 0746 17.7 540 1407 3.3 100 2008 16.4 500	
12 F ◐	0152 2.6 80 0744 18.7 570 1414 3.0 90 2018 17.7 540		27 Sa	0230 3.3 100 0843 16.7 510 1457 3.9 120 2114 15.4 470	
13 Sa	0245 3.0 90 0847 18.0 550 1518 3.3 100 2132 16.7 510		28 Su	0334 3.9 120 0959 16.1 490 1616 4.3 130 2241 15.1 460	
14 Su	0400 3.0 90 1008 17.4 530 1645 3.6 110 2258 16.4 500		29 M	0509 3.9 120 1132 16.4 500 1743 3.9 120	
15 M	0527 2.6 80 1142 17.7 540 1812 3.0 90		30 Tu	0005 16.1 490 0628 3.0 90 1241 17.7 540 1855 3.0 90	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0103 17.4 530 0730 2.3 70 1331 19.0 580 1950 2.3 70		16 Th	0100 18.7 570 0744 0.7 20 1330 20.3 620 2012 2.0 60	
2 Th	0149 18.7 570 0818 1.6 50 1412 20.0 610 2035 2.0 60		17 F	0150 19.7 600 0839 0.0 0 1417 21.0 640 2102 1.6 50	
3 F	0227 19.7 600 0859 1.6 50 1446 20.3 620 2113 2.0 60		18 Sa ○	0235 20.3 620 0926 0.0 0 1500 21.0 640 2147 1.3 40	
4 Sa ●	0300 20.0 610 0934 1.6 50 1518 20.7 630 2148 2.0 60		19 Su	0317 20.7 630 1008 0.3 10 1541 21.0 640 2228 1.3 40	
5 Su	0332 20.7 630 1008 1.6 50 1550 21.0 640 2224 2.0 60		20 M	0358 21.0 640 1047 0.7 20 1620 20.7 630 2306 1.6 50	
6 M	0406 21.0 640 1045 2.0 60 1625 21.0 640 2303 2.0 60		21 Tu	0439 21.0 640 1122 1.3 40 1700 20.3 620 2342 1.6 50	
7 Tu	0440 21.0 640 1123 2.0 60 1700 21.0 640 2342 2.0 60		22 W	0519 20.3 620 1155 2.0 60 1738 19.7 600	
8 W	0517 21.0 640 1201 2.3 70 1739 20.3 620		23 Th	0016 2.0 60 0557 19.7 600 1227 2.6 80 1815 18.7 570	
9 Th	0021 2.0 60 0556 20.7 630 1239 2.6 80 1820 19.7 600		24 F	0049 2.3 70 0636 19.0 580 1259 3.0 90 1852 18.0 550	
10 F	0101 2.3 70 0640 20.0 610 1318 2.6 80 1908 19.0 580		25 Sa	0121 2.6 80 0717 18.4 560 1335 3.3 100 1936 17.4 530	
11 Sa	0145 2.3 70 0733 19.4 590 1407 3.0 90 2007 18.0 550		26 Su ◑	0157 3.0 90 0808 17.7 540 1418 3.6 110 2034 16.7 510	
12 Su ◐	0240 2.3 70 0838 18.7 570 1511 3.3 100 2121 17.4 530		27 M	0244 3.3 100 0910 17.1 520 1516 3.9 120 2144 16.1 490	
13 M	0354 2.3 70 0957 18.4 560 1630 3.3 100 2241 17.1 520		28 Tu	0401 3.6 110 1022 16.7 510 1644 4.3 130 2259 16.4 500	
14 Tu	0513 2.0 60 1124 18.7 570 1752 3.0 90 2359 17.7 540		29 W	0531 3.3 100 1140 17.4 530 1800 3.6 110	
15 W	0634 1.3 40 1235 19.7 600 1912 2.3 70		30 Th	0009 17.1 520 0637 3.0 90 1242 18.4 560 1901 3.0 90	
			31 F	0103 18.4 560 0732 2.3 70 1329 19.4 590 1951 2.6 80	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0147 19.4 590 0817 2.3 70 1409 20.0 610 2035 2.3 70		16 Su	0215 19.7 600 0902 1.0 30 1440 20.0 610 2125 2.0 60	
2 Su	0225 20.0 610 0857 2.3 70 1446 20.7 630 2116 2.3 70		17 M ○	0259 20.0 610 0943 1.6 50 1522 20.0 610 2206 2.0 60	
3 M ●	0303 20.7 630 0938 2.3 70 1523 21.0 640 2158 2.3 70		18 Tu	0341 20.3 620 1021 2.0 60 1603 20.0 610 2244 2.0 60	
4 Tu	0341 21.0 640 1019 2.3 70 1602 21.0 640 2242 2.0 60		19 W	0422 20.3 620 1055 2.3 70 1642 20.0 610 2321 2.3 70	
5 W	0420 21.3 650 1102 2.3 70 1642 21.0 640 2326 2.0 60		20 Th	0501 20.0 610 1129 2.6 80 1719 19.7 600 2356 2.3 70	
6 Th	0501 21.3 650 1145 2.3 70 1724 20.7 630		21 F	0539 19.7 600 1202 3.0 90 1756 19.4 590	
7 F	0010 2.0 60 0544 21.0 640 1228 2.6 80 1809 20.0 610		22 Sa	0028 2.6 80 0616 19.4 590 1235 3.3 100 1831 18.7 570	
8 Sa	0055 2.0 60 0632 20.7 630 1313 2.6 80 1901 19.4 590		23 Su	0059 2.6 80 0655 19.0 580 1309 3.3 100 1911 18.4 560	
9 Su	0144 1.6 50 0727 20.3 620 1403 3.0 90 2000 18.7 570		24 M	0132 2.6 80 0738 18.7 570 1348 3.3 100 1958 17.7 540	
10 M ◐	0239 1.6 50 0832 19.7 600 1503 3.0 90 2108 18.4 560		25 Tu ◑	0210 2.6 80 0828 18.0 550 1433 3.6 110 2055 17.4 530	
11 Tu	0344 1.3 40 0943 19.4 590 1610 3.0 90 2219 18.0 550		26 W	0258 3.0 90 0927 17.7 540 1530 3.9 120 2158 17.1 520	
12 W	0452 1.3 40 1059 19.0 580 1722 3.0 90 2331 18.4 560		27 Th	0403 3.3 100 1031 17.4 530 1645 3.9 120 2304 17.1 520	
13 Th	0607 1.0 30 1208 19.4 590 1843 2.6 80		28 F	0528 3.6 110 1138 17.7 540 1759 3.6 110	
14 F	0033 18.7 570 0718 1.0 30 1306 19.7 600 1948 2.3 70		29 Sa	0008 17.7 540 0634 3.3 100 1240 18.7 570 1859 3.3 100	
15 Sa	0127 19.4 590 0814 0.7 20 1355 20.0 610 2040 2.0 60		30 Su	0104 18.7 570 0730 3.0 90 1331 19.4 590 1954 3.0 90	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Antwerp (Prosperpolder), Belgium, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0153 19.4 590 0821 2.6 80 1417 20.0 610 2045 2.6 80		**16** Tu ○	0246 19.4 590 0922 2.6 80 1510 19.4 590 2148 2.3 70	
2 Tu ●	0238 20.3 620 0910 2.6 80 1502 20.7 630 2135 2.3 70		**17** W	0330 19.7 600 0959 3.0 90 1550 19.7 600 2227 2.3 70	
3 W	0321 21.0 640 0958 2.6 80 1545 21.0 640 2224 2.0 60		**18** Th	0410 20.0 610 1034 3.0 90 1628 19.7 600 2303 2.3 70	
4 Th	0405 21.3 650 1045 2.3 70 1629 21.0 640 2313 1.6 50		**19** F	0448 20.0 610 1109 3.0 90 1704 19.7 600 2338 2.3 70	
5 F	0450 21.7 660 1133 2.3 70 1714 21.0 640		**20** Sa	0523 20.0 610 1142 3.0 90 1738 19.7 600	
6 Sa	0001 1.3 40 0536 21.7 660 1220 2.3 70 1801 20.7 630		**21** Su	0010 2.3 70 0557 20.0 610 1215 3.0 90 1811 19.7 600	
7 Su	0050 1.0 30 0625 21.7 660 1307 2.6 80 1851 20.3 620		**22** M	0040 2.3 70 0631 20.0 610 1248 3.0 90 1846 19.4 590	
8 M	0139 0.7 20 0718 21.0 640 1355 2.6 80 1946 20.0 610		**23** Tu	0109 2.3 70 0708 19.4 590 1323 3.0 90 1924 18.7 570	
9 Tu ◐	0229 0.7 20 0817 20.3 620 1447 2.6 80 2046 19.4 590		**24** W	0143 2.3 70 0749 19.0 580 1402 3.3 100 2007 18.0 550	
10 W	0324 0.7 20 0920 19.7 600 1543 3.0 90 2151 18.7 570		**25** Th ◑	0223 2.6 80 0836 18.4 560 1448 3.6 110 2101 17.4 530	
11 Th	0424 1.0 30 1029 19.0 580 1646 3.3 100 2300 18.4 560		**26** F	0312 3.3 100 0935 17.7 540 1544 3.9 120 2206 17.1 520	
12 F	0532 1.6 50 1138 18.7 570 1805 3.3 100		**27** Sa	0418 3.6 110 1042 17.4 530 1659 4.3 130 2314 17.1 520	
13 Sa	0006 18.4 560 0648 1.6 50 1241 18.7 570 1922 3.0 90		**28** Su	0540 3.9 120 1151 17.7 540 1813 3.9 120	
14 Su	0106 18.7 570 0750 2.0 60 1336 19.0 580 2019 2.6 80		**29** M	0023 17.7 540 0649 3.6 110 1258 18.4 560 1918 3.3 100	
15 M	0159 19.0 580 0839 2.0 60 1425 19.0 580 2107 2.3 70		**30** Tu	0125 18.7 570 0751 3.0 90 1355 19.4 590 2020 3.0 90	
			31 W	0218 20.0 610 0849 2.6 80 1445 20.3 620 2118 2.3 70	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0307 21.0 640 0942 2.6 80 1531 21.0 640 2211 1.6 50		**16** F	0356 20.0 610 1015 3.0 90 1612 19.7 600 2244 2.3 70	
2 F	0353 21.7 660 1033 2.3 70 1617 21.3 650 2302 1.0 30		**17** Sa	0430 20.3 620 1050 3.0 90 1645 20.0 610 2318 2.0 60	
3 Sa	0439 22.3 680 1122 2.3 70 1702 21.3 650 2351 0.7 20		**18** Su	0502 20.7 630 1123 2.6 80 1716 20.3 620 2349 2.0 60	
4 Su	0525 22.3 680 1209 2.0 60 1747 21.3 650		**19** M	0533 20.7 630 1155 2.6 80 1747 20.3 620	
5 M	0039 0.3 10 0611 22.0 670 1255 2.3 70 1834 21.0 640		**20** Tu	0018 2.0 60 0604 20.3 620 1227 2.6 80 1818 20.0 610	
6 Tu	0125 0.3 10 0701 21.3 650 1339 2.3 70 1924 20.3 620		**21** W	0047 2.3 70 0637 20.0 610 1300 3.0 90 1851 19.4 590	
7 W ◐	0209 0.3 10 0753 20.7 630 1423 2.6 80 2018 19.7 600		**22** Th	0118 2.6 80 0712 19.4 590 1335 3.3 100 1927 18.7 570	
8 Th	0256 1.0 30 0850 19.4 590 1511 3.0 90 2118 18.7 570		**23** F ◑	0154 3.0 90 0753 18.4 560 1415 3.6 110 2012 18.0 550	
9 F	0348 1.6 50 0954 18.4 560 1608 3.3 100 2226 17.7 540		**24** Sa	0237 3.6 110 0845 17.7 540 1504 3.9 120 2111 17.4 530	
10 Sa	0451 2.6 80 1106 17.4 530 1721 3.9 120 2340 17.4 530		**25** Su	0334 3.9 120 0953 17.1 520 1613 4.3 130 2226 16.7 510	
11 Su	0614 3.0 90 1216 17.4 530 1857 3.6 110		**26** M	0457 4.3 130 1110 16.7 510 1736 4.3 130 2347 17.1 520	
12 M	0047 17.7 540 0726 3.0 90 1318 17.7 540 2000 3.0 90		**27** Tu	0618 3.9 120 1231 17.4 530 1850 3.6 110	
13 Tu	0146 18.4 560 0819 3.0 90 1411 18.4 560 2049 2.6 80		**28** W	0104 18.4 560 0728 3.3 100 1337 18.7 570 2001 3.0 90	
14 W	0235 19.0 580 0902 3.0 90 1457 19.0 580 2131 2.3 70		**29** Th	0203 20.0 610 0834 2.6 80 1429 20.0 610 2104 2.0 60	
15 Th ○	0318 19.7 600 0940 3.0 90 1536 19.4 590 2208 2.3 70		**30** F ●	0253 21.3 650 0930 2.3 70 1516 20.7 630 2159 1.3 40	
			31 Sa	0338 22.0 670 1021 2.0 60 1600 21.3 650 2249 0.3 10	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0423 22.6 690 1109 1.6 50 1643 21.7 660 2336 0.0 0		**16** M	0436 21.0 640 1101 2.3 70 1649 20.7 630 2324 2.0 60	
2 M	0506 22.6 690 1154 1.6 50 1727 21.7 660		**17** Tu	0505 21.0 640 1133 2.6 80 1719 20.7 630 2353 2.3 70	
3 Tu	0021 0.0 0 0550 22.0 670 1236 2.0 60 1810 21.3 650		**18** W	0536 20.7 630 1205 2.6 80 1749 20.3 620	
4 W	0103 0.3 10 0636 21.3 650 1316 2.3 70 1857 20.7 630		**19** Th	0023 2.6 80 0607 20.0 610 1238 3.0 90 1821 19.7 600	
5 Th	0143 1.0 30 0724 20.0 610 1355 2.6 80 1946 19.4 590		**20** F	0055 3.3 100 0641 19.4 590 1311 3.3 100 1857 19.0 580	
6 F ◐	0223 2.0 60 0815 18.7 570 1437 3.0 90 2042 18.4 560		**21** Sa	0128 3.6 110 0720 18.4 560 1348 3.6 110 1939 18.4 560	
7 Sa	0308 2.6 80 0915 17.1 520 1528 3.6 110 2149 17.1 520		**22** Su ◑	0208 3.9 120 0808 17.4 530 1433 3.9 120 2033 17.7 540	
8 Su	0406 3.6 110 1029 16.1 490 1639 4.3 130 2310 16.4 500		**23** M	0302 4.6 140 0914 16.4 500 1539 4.6 140 2147 16.7 510	
9 M	0528 4.3 130 1149 16.1 490 1825 4.3 130		**24** Tu	0425 4.9 150 1036 16.1 490 1707 4.6 140 2318 17.1 520	
10 Tu	0026 17.1 520 0657 3.9 120 1257 16.7 510 1935 3.3 100		**25** W	0552 4.3 130 1209 16.7 510 1827 3.6 110	
11 W	0128 18.0 550 0754 3.3 100 1352 18.0 550 2026 2.6 80		**26** Th	0046 18.4 560 0711 3.6 110 1319 18.4 560 1947 2.6 80	
12 Th	0217 19.4 590 0839 3.0 90 1437 19.0 580 2107 2.3 70		**27** F	0146 20.0 610 0821 2.6 80 1410 19.7 600 2051 1.6 50	
13 F	0259 20.0 610 0918 2.6 80 1515 19.7 600 2145 2.0 60		**28** Sa ●	0235 21.3 650 0916 2.0 60 1456 20.7 630 2143 0.7 20	
14 Sa ○	0335 20.3 620 0954 2.6 80 1549 20.0 610 2220 2.0 60		**29** Su	0319 22.3 680 1005 1.6 50 1538 21.3 650 2231 0.0 0	
15 Su	0406 20.7 630 1029 2.6 80 1620 20.3 620 2253 2.0 60		**30** M	0402 22.6 690 1050 1.6 50 1620 22.0 670 2316 0.0 0	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Antwerp (Prosperpolder), Belgium, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0444	22.3 680	**16** W	0436	21.0 640
	1133	1.6 50		1108	2.6 80
	1702	22.0 670		1650	21.0 640
	2358	0.3 10		2328	2.6 80
2 W	0526	21.7 660	**17** Th	0508	20.7 630
	1213	2.0 60		1142	3.0 90
	1745	21.3 650		1722	20.7 630
3 Th	0037	1.0 30	**18** F	0000	3.0 90
	0609	20.7 630		0541	20.0 610
	1250	2.3 70		1217	3.3 100
	1828	20.3 620		1756	20.0 610
4 F	0113	2.0 60	**19** Sa	0034	3.6 110
	0652	19.4 590		0616	19.4 590
	1326	3.0 90		1252	3.6 110
	1913	19.4 590		1833	19.7 600
5 Sa ◐	0148	3.0 90	**20** Su	0107	3.9 120
	0739	17.7 540		0656	18.7 570
	1403	3.6 110		1328	3.9 120
	2004	17.7 540		1916	19.0 580
6 Su	0227	3.9 120	**21** M ◑	0147	4.3 130
	0833	16.4 500		0745	17.7 540
	1449	4.3 130		1414	4.3 130
	2108	16.4 500		2010	18.0 550
7 M	0320	4.6 140	**22** Tu	0242	4.6 140
	0944	15.4 470		0850	16.4 500
	1558	4.9 150		1520	4.3 130
	2230	15.7 480		2123	17.4 530
8 Tu	0439	5.2 160	**23** W	0402	4.9 150
	1112	15.1 460		1014	16.1 490
	1738	4.9 150		1646	4.3 130
	2356	16.4 500		2257	17.4 530
9 W	0613	4.6 140	**24** Th	0529	4.6 140
	1227	16.1 490		1147	16.7 510
	1859	3.9 120		1810	3.3 100
10 Th	0100	17.7 540	**25** F	0025	18.7 570
	0720	3.6 110		0654	3.6 110
	1324	17.7 540		1256	18.4 560
	1953	2.6 80		1931	2.3 70
11 F	0151	19.4 590	**26** Sa	0125	20.0 610
	0809	3.0 90		0804	3.0 90
	1410	19.0 580		1347	19.7 600
	2038	2.0 60		2033	1.3 40
12 Sa	0232	20.0 610	**27** Su	0213	21.3 650
	0851	2.3 70		0858	2.3 70
	1448	19.7 600		1432	20.7 630
	2117	2.0 60		2124	0.3 10
13 Su ○	0307	20.7 630	**28** M ●	0257	22.0 670
	0929	2.3 70		0945	2.0 60
	1521	20.3 620		1515	21.3 650
	2152	2.0 60		2210	0.3 10
14 M	0338	20.7 630	**29** Tu	0339	22.0 670
	1003	2.3 70		1029	2.0 60
	1550	20.7 630		1556	21.7 660
	2225	2.0 60		2253	0.3 10
15 Tu	0407	21.0 640	**30** W	0420	21.7 660
	1036	2.3 70		1110	2.0 60
	1620	21.0 640		1638	21.7 660
	2256	2.3 70		2332	1.0 30
			31 Th	0502	21.0 640
				1149	2.3 70
				1720	21.0 640

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0008	2.0 60	**16** Sa	0520	20.3 620
	0543	20.0 610		1200	3.3 100
	1225	2.6 80		1737	20.3 620
	1802	20.0 610			
2 Sa	0042	3.0 90	**17** Su	0016	3.6 110
	0624	18.7 570		0558	19.7 600
	1259	3.3 100		1239	3.6 110
	1845	19.0 580		1817	20.0 610
3 Su	0114	3.6 110	**18** M	0054	3.9 120
	0707	17.7 540		0641	18.7 570
	1334	3.9 120		1319	3.6 110
	1931	17.7 540		1903	19.4 590
4 M ◐	0150	4.3 130	**19** Tu ◑	0137	4.3 130
	0755	16.4 500		0732	18.0 550
	1415	4.3 130		1408	3.6 110
	2027	16.7 510		1959	18.7 570
5 Tu	0236	4.9 150	**20** W	0233	4.6 140
	0858	15.4 470		0838	17.1 520
	1513	4.9 150		1513	3.6 110
	2137	16.1 490		2112	18.0 550
6 W	0348	5.6 170	**21** Th	0346	4.6 140
	1016	15.1 460		0957	16.7 510
	1648	4.9 150		1631	3.3 100
	2306	16.1 490		2238	18.0 550
7 Th	0518	5.2 160	**22** F	0504	4.3 130
	1142	15.7 480		1120	17.4 530
	1808	4.3 130		1750	2.6 80
				2359	18.7 570
8 F	0021	17.1 520	**23** Sa	0629	3.9 120
	0632	4.3 130		1227	18.4 560
	1246	17.4 530		1910	2.0 60
	1911	3.3 100			
9 Sa	0116	18.7 570	**24** Su	0100	20.0 610
	0731	3.3 100		0742	3.3 100
	1334	18.7 570		1321	19.4 590
	2002	2.3 70		2011	1.0 30
10 Su	0159	19.7 600	**25** M	0150	20.7 630
	0818	2.6 80		0837	2.6 80
	1414	19.7 600		1409	20.3 620
	2044	2.0 60		2102	0.7 20
11 M	0235	20.3 620	**26** Tu ●	0235	21.0 640
	0859	2.6 80		0924	2.3 70
	1448	20.0 610		1453	20.7 630
	2121	2.3 70		2147	1.0 30
12 Tu ○	0307	20.7 630	**27** W	0318	21.0 640
	0934	2.6 80		1008	2.3 70
	1520	20.7 630		1535	21.0 640
	2154	2.6 80		2228	1.3 40
13 W	0337	20.7 630	**28** Th	0400	20.7 630
	1008	2.6 80		1049	2.3 70
	1551	20.7 630		1618	21.0 640
	2227	2.6 80		2306	2.0 60
14 Th	0410	20.7 630	**29** F	0441	20.3 620
	1044	3.0 90		1127	2.6 80
	1625	21.0 640		1701	20.7 630
	2303	3.0 90		2341	2.6 80
15 F	0444	20.7 630	**30** Sa	0523	19.7 600
	1122	3.0 90		1203	3.0 90
	1700	20.7 630		1743	19.7 600
	2339	3.3 100			

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0013	3.6 110	**16** M	0005	3.6 110
	0603	18.7 570		0547	20.0 610
	1238	3.3 100		1233	3.0 90
	1824	19.0 580		1807	20.3 620
2 M	0046	3.9 120	**17** Tu	0048	3.6 110
	0643	18.0 550		0633	19.4 590
	1311	3.6 110		1318	2.6 80
	1907	18.0 550		1856	20.0 610
3 Tu	0120	4.3 130	**18** W	0134	3.6 110
	0726	17.4 530		0725	18.7 570
	1346	3.9 120		1408	2.6 80
	1955	17.4 530		1953	19.7 600
4 W ◐	0200	4.6 140	**19** Th ◑	0227	3.9 120
	0819	16.7 510		0826	18.4 560
	1429	4.3 130		1506	2.3 70
	2051	16.7 510		2100	19.0 580
5 Th	0252	4.9 150	**20** F	0328	3.9 120
	0921	16.1 490		0936	17.7 540
	1542	4.6 140		1611	2.3 70
	2156	16.4 500		2215	18.7 570
6 F	0417	4.9 150	**21** Sa	0436	3.9 120
	1031	16.1 490		1049	17.7 540
	1712	4.3 130		1723	2.0 60
	2314	16.7 510		2329	18.7 570
7 Sa	0537	4.6 140	**22** Su	0554	3.9 120
	1148	16.7 510		1157	18.4 560
	1819	3.6 110		1843	1.6 50
8 Su	0025	17.7 540	**23** M	0033	19.4 590
	0642	3.9 120		0716	3.3 100
	1248	17.7 540		1257	18.7 570
	1917	3.0 90		1948	1.3 40
9 M	0117	18.7 570	**24** Tu	0128	19.7 600
	0737	3.3 100		0815	3.0 90
	1335	18.7 570		1349	19.4 590
	2005	2.6 80		2040	1.3 40
10 Tu	0158	19.4 590	**25** W	0217	19.7 600
	0822	3.3 100		0905	2.6 80
	1414	19.7 600		1437	19.7 600
	2045	2.6 80		2126	1.6 50
11 W	0235	20.0 610	**26** Th ●	0303	19.7 600
	0902	3.0 90		0950	2.3 70
	1451	20.0 610		1522	20.0 610
	2123	3.0 90		2206	2.3 70
12 Th ○	0311	20.3 620	**27** F	0346	19.7 600
	0942	3.0 90		1031	2.3 70
	1527	20.3 620		1606	20.0 610
	2201	3.0 90		2243	2.6 80
13 F	0348	20.3 620	**28** Sa	0428	19.7 600
	1023	3.0 90		1110	2.6 80
	1605	20.7 630		1649	20.0 610
	2241	3.3 100		2318	3.3 100
14 Sa	0426	20.3 620	**29** Su	0509	19.4 590
	1105	3.0 90		1146	2.6 80
	1643	20.7 630		1730	19.7 600
	2323	3.3 100		2351	3.6 110
15 Su	0505	20.3 620	**30** M	0548	19.0 580
	1149	3.0 90		1221	3.0 90
	1724	20.7 630		1809	19.4 590
			31 Tu	0024	3.6 110
				0625	18.7 570
				1253	3.0 90
				1846	19.0 580

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Vlissingen, Netherlands, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0405	4.0 123	**16** W	0255	4.1 126
	1015	14.1 429		0920	13.7 419
	1656	2.9 88		1534	3.2 97
	2255	14.6 445		2200	14.1 430
2 W	0524	3.8 115	**17** Th	0410	3.9 120
	1118	14.4 439		1029	14.1 429
	1756	2.8 84		1645	3.0 92
	2355	14.9 454		2305	14.6 444
3 Th	0616	3.3 101	**18** F	0520	3.5 107
	1215	14.8 452		1130	14.8 450
	1842	2.6 80		1755	2.7 82
4 F	0046	15.2 463	**19** Sa	0005	15.2 463
	0706	2.9 88		0620	2.9 89
	1306	15.3 465		1225	15.5 473
	1925	2.6 80		1850	2.3 70
5 Sa	0131	15.4 470	**20** Su	0055	15.8 481
	0750	2.5 77		0715	2.3 71
	1348	15.6 475		1315	16.2 495
	2002	2.7 82		1940	2.0 61
6 Su ●	0211	15.5 473	**21** M ○	0140	16.2 495
	0830	2.3 70		0808	1.8 54
	1428	15.8 481		1359	16.8 512
	2039	2.8 86		2028	1.9 57
7 M	0249	15.6 474	**22** Tu	0225	16.5 503
	0906	2.2 66		0858	1.3 41
	1505	15.8 483		1445	17.2 523
	2115	3.0 90		2115	1.9 57
8 Tu	0325	15.5 473	**23** W	0312	16.6 506
	0945	2.1 64		0947	1.0 31
	1539	15.8 483		1531	17.3 526
	2150	3.1 93		2200	1.9 59
9 W	0357	15.5 472	**24** Th	0357	16.5 504
	1020	2.1 64		1035	0.9 27
	1615	15.7 478		1616	17.1 522
	2225	3.2 98		2246	2.1 65
10 Th	0429	15.3 467	**25** F	0445	16.4 499
	1056	2.2 68		1122	0.9 27
	1648	15.4 470		1707	16.8 511
	2256	3.4 104		2335	2.4 73
11 F	0505	15.1 459	**26** Sa	0535	16.0 488
	1125	2.4 73		1208	1.1 34
	1721	15.1 459		1800	16.2 494
	2330	3.5 108			
12 Sa	0537	14.8 451	**27** Su ◑	0020	2.7 83
	1155	2.6 78		0627	15.6 474
	1759	14.7 448		1256	1.6 48
				1859	15.5 472
13 Su	0005	3.7 112	**28** M	0106	3.1 96
	0620	14.5 441		0726	14.9 455
	1235	2.7 82		1350	2.2 66
	1845	14.4 438		2000	14.7 448
14 M ◐	0045	3.8 117	**29** Tu	0206	3.6 110
	0707	14.1 430		0828	14.3 435
	1325	2.9 88		1449	2.9 87
	1945	14.0 428		2110	13.9 425
15 Tu	0145	4.0 123	**30** W	0314	4.0 122
	0810	13.8 420		0940	13.7 419
	1425	3.1 94		1610	3.3 102
	2055	13.9 424		2226	13.6 415
			31 Th	0448	4.0 122
				1052	13.7 419
				1726	3.4 103
				2335	13.9 423

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0556	3.5 108	**16** Sa	0445	3.6 109
	1159	14.2 433		1105	14.2 434
	1820	3.2 98		1726	3.0 92
				2341	14.4 438
2 Sa	0031	14.4 438	**17** Su	0605	3.0 91
	0655	3.0 92		1205	15.1 460
	1258	14.8 451		1834	2.6 78
	1909	3.1 94			
3 Su	0123	14.8 451	**18** M	0037	15.1 461
	0736	2.6 79		0702	2.2 67
	1339	15.2 464		1259	16.0 488
	1946	3.1 93		1928	2.1 65
4 M ●	0201	15.1 460	**19** Tu ○	0126	15.8 482
	0816	2.3 70		0756	1.5 46
	1416	15.5 472		1346	16.7 510
	2024	3.0 92		2015	1.9 57
5 Tu	0235	15.3 466	**20** W	0211	16.3 498
	0849	2.1 63		0845	1.0 30
	1449	15.7 479		1430	17.2 525
	2055	2.9 89		2059	1.7 53
6 W	0306	15.5 473	**21** Th	0255	16.7 509
	0926	1.9 57		0932	0.6 19
	1524	15.9 484		1515	17.4 531
	2135	2.8 86		2145	1.7 53
7 Th	0335	15.7 478	**22** F	0338	16.8 513
	1002	1.7 52		1017	0.5 15
	1553	15.9 486		1600	17.3 527
	2206	2.8 85		2226	1.8 55
8 F	0407	15.7 479	**23** Sa	0425	16.8 511
	1035	1.7 52		1059	0.6 19
	1625	15.8 481		1646	16.9 515
	2240	2.8 86		2309	2.0 62
9 Sa	0437	15.6 475	**24** Su	0507	16.4 501
	1106	1.8 56		1142	1.0 29
	1655	15.6 474		1735	16.2 495
	2310	2.9 89		2354	2.3 71
10 Su	0510	15.4 469	**25** M	0556	15.9 486
	1136	2.0 60		1222	1.5 46
	1727	15.3 467		1825	15.4 469
	2336	3.0 91			
11 M	0545	15.2 463	**26** Tu ◑	0038	2.7 83
	1206	2.1 64		0647	15.2 462
	1805	15.1 459		1307	2.3 69
				1919	14.4 438
12 Tu ◐	0015	3.0 92	**27** W	0130	3.3 100
	0625	14.9 454		0746	14.2 433
	1246	2.3 69		1405	3.1 95
	1851	14.6 446		2026	13.3 406
13 W	0105	3.2 98	**28** Th	0238	3.8 117
	0716	14.4 438		0905	13.3 406
	1340	2.6 80		1525	3.8 116
	2000	14.0 428		2155	12.7 386
14 Th	0205	3.6 109			
	0835	13.8 422			
	1450	3.1 93			
	2116	13.7 417			
15 F	0325	3.8 116			
	0950	13.8 420			
	1605	3.2 99			
	2230	13.8 420			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0405	4.0 123	**16** Sa	0255	3.6 109
	1026	13.1 399		0922	13.6 414
	1655	4.0 121		1543	3.5 106
	2315	12.9 393		2206	13.1 400
2 Sa	0530	3.7 112	**17** Su	0426	3.4 105
	1145	13.6 416		1041	14.0 426
	1757	3.7 113		1708	3.3 100
				2321	13.7 419
3 Su	0016	13.6 415	**18** M	0546	2.8 86
	0629	3.1 93		1151	14.9 455
	1239	14.4 440		1820	2.7 83
	1845	3.4 103			
4 M	0105	14.3 436	**19** Tu	0021	14.7 448
	0719	2.5 77		0654	2.0 60
	1325	15.0 458		1245	15.9 485
	1929	3.1 96		1912	2.2 67
5 Tu	0141	14.8 451	**20** W	0109	15.6 474
	0800	2.2 67		0742	1.2 37
	1359	15.4 469		1328	16.7 508
	2002	3.0 90		1957	1.8 56
6 W ●	0211	15.2 462	**21** Th ○	0152	16.2 494
	0830	1.9 59		0828	0.7 22
	1427	15.7 479		1413	17.1 522
	2032	2.7 83		2042	1.6 50
7 Th	0241	15.6 474	**22** F	0233	16.7 508
	0904	1.7 51		0911	0.5 15
	1457	16.0 488		1456	17.3 528
	2106	2.5 76		2125	1.6 48
8 F	0311	15.9 484	**23** Sa	0316	16.9 516
	0935	1.4 44		0955	0.5 15
	1527	16.2 493		1539	17.2 523
	2145	2.3 71		2208	1.6 49
9 Sa	0340	16.0 488	**24** Su	0358	16.9 514
	1010	1.4 42		1037	0.7 22
	1557	16.1 491		1623	16.7 509
	2215	2.3 71		2248	1.8 54
10 Su	0412	15.9 486	**25** M	0445	16.5 504
	1042	1.5 45		1116	1.2 37
	1627	15.9 485		1706	16.0 488
	2246	2.4 74		2326	2.0 62
11 M	0442	15.8 482	**26** Tu	0526	16.0 487
	1115	1.7 51		1152	1.8 55
	1659	15.7 479		1754	15.1 460
	2315	2.5 75			
12 Tu	0515	15.7 479	**27** W	0009	2.5 75
	1145	1.8 56		0615	15.1 461
	1735	15.4 470		1235	2.6 78
	2350	2.5 76		1845	14.0 428
13 W	0552	15.5 471	**28** Th ◑	0055	3.0 92
	1225	2.1 63		0715	14.1 429
	1818	14.9 454		1325	3.4 105
				1935	12.9 394
14 Th ◐	0036	2.7 83	**29** F	0210	3.6 110
	0641	14.8 452		0815	13.0 397
	1315	2.5 77		1445	4.2 127
	1924	14.0 427		2105	12.0 366
15 F	0136	3.2 97	**30** Sa	0330	3.9 118
	0756	13.9 424		1000	12.6 385
	1415	3.1 96		1609	4.4 133
	2042	13.3 405		2245	12.2 371
			31 Su	0456	3.7 112
				1116	13.2 402
				1724	4.0 123
				2346	13.0 396

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Vlissingen, Netherlands, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0604 3.1 94 1215 14.1 429 1826 3.5 108		**16** Tu	0536 2.5 76 1135 15.0 456 1802 2.8 85	
2 Tu	0035 13.8 422 0654 2.5 77 1255 14.8 451 1904 3.1 96		**17** W	0001 14.5 442 0635 1.7 52 1226 15.9 484 1855 2.3 69	
3 W	0109 14.5 442 0730 2.1 65 1329 15.3 467 1937 2.8 86		**18** Th	0047 15.4 468 0723 1.1 33 1310 16.5 503 1939 1.9 57	
4 Th	0141 15.0 458 0805 1.9 57 1357 15.7 480 2006 2.5 77		**19** F ○	0131 16.0 489 0808 0.8 23 1353 16.9 514 2023 1.6 49	
5 F ●	0209 15.6 474 0832 1.6 48 1428 16.1 492 2042 2.2 67		**20** Sa	0212 16.5 503 0850 0.6 19 1435 17.0 517 2105 1.5 46	
6 Sa	0239 16.0 487 0908 1.3 41 1457 16.3 498 2115 2.0 62		**21** Su	0255 16.8 511 0932 0.8 24 1516 16.7 510 2146 1.5 46	
7 Su	0312 16.2 493 0944 1.3 39 1528 16.3 497 2150 2.0 60		**22** M	0336 16.7 509 1012 1.1 34 1600 16.3 497 2226 1.6 50	
8 M	0343 16.2 493 1016 1.4 42 1600 16.1 491 2226 2.0 62		**23** Tu	0417 16.4 499 1048 1.6 50 1645 15.6 476 2306 1.9 59	
9 Tu	0416 16.1 491 1050 1.6 48 1635 15.8 483 2301 2.1 64		**24** W	0500 15.8 482 1126 2.3 70 1725 14.8 452 2346 2.3 70	
10 W	0452 15.9 486 1125 1.8 56 1712 15.5 471 2338 2.2 67		**25** Th	0545 15.0 457 1206 3.0 91 1809 13.9 425	
11 Th	0533 15.6 476 1205 2.2 66 1758 14.8 451		**26** F ◑	0036 2.8 85 0640 14.0 428 1256 3.7 113 1858 13.0 395	
12 F ◐	0022 2.4 74 0621 14.9 454 1256 2.7 82 1856 13.8 421		**27** Sa	0146 3.3 101 0739 13.1 399 1410 4.3 132 2005 12.1 368	
13 Sa	0126 2.9 88 0736 14.0 426 1406 3.3 101 2022 13.1 398		**28** Su	0256 3.6 109 0904 12.5 381 1530 4.5 136 2159 11.8 359	
14 Su	0246 3.2 97 0906 13.6 416 1525 3.6 110 2145 12.9 394		**29** M	0405 3.5 107 1036 12.9 392 1635 4.2 128 2305 12.5 381	
15 M	0416 3.1 94 1027 14.1 429 1655 3.4 103 2301 13.5 413		**30** Tu	0515 3.1 95 1135 13.7 417 1734 3.7 113 2355 13.4 408	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0605 2.6 80 1216 14.5 442 1826 3.2 98		**16** Th	0612 1.6 49 1206 15.7 479 1835 2.4 73	
2 Th	0034 14.2 432 0650 2.2 67 1252 15.2 463 1900 2.8 85		**17** F	0025 15.2 464 0702 1.2 37 1252 16.2 494 1920 2.0 61	
3 F	0106 14.9 453 0726 1.9 58 1322 15.7 480 1935 2.4 74		**18** Sa ○	0109 15.8 482 0745 1.0 32 1335 16.4 500 2002 1.7 52	
4 Sa ●	0136 15.5 473 0758 1.6 49 1356 16.2 494 2010 2.1 64		**19** Su	0152 16.2 494 0828 1.1 33 1417 16.4 501 2046 1.5 46	
5 Su	0207 16.0 487 0835 1.4 43 1429 16.4 501 2050 1.9 57		**20** M	0235 16.4 501 0906 1.3 39 1500 16.2 495 2128 1.5 45	
6 M	0243 16.3 496 0910 1.3 41 1503 16.4 500 2126 1.8 54		**21** Tu	0317 16.4 499 0947 1.7 51 1540 15.9 484 2206 1.6 49	
7 Tu	0316 16.3 498 0950 1.4 44 1537 16.2 493 2206 1.8 54		**22** W	0359 16.1 491 1026 2.2 67 1621 15.4 468 2246 1.8 56	
8 W	0355 16.3 496 1028 1.6 50 1616 15.8 482 2245 1.8 56		**23** Th	0441 15.6 476 1059 2.7 83 1705 14.7 449 2325 2.2 66	
9 Th	0435 16.1 490 1110 2.0 60 1659 15.3 467 2330 1.9 59		**24** F	0525 15.0 456 1145 3.3 100 1745 14.1 429	
10 F	0519 15.6 477 1156 2.4 72 1746 14.6 446		**25** Sa	0016 2.5 77 0615 14.2 433 1226 3.8 116 1829 13.4 409	
11 Sa	0020 2.1 65 0612 15.0 456 1246 2.9 87 1855 13.8 421		**26** Su ◑	0116 2.9 89 0706 13.5 411 1325 4.3 130 1925 12.8 389	
12 Su ◐	0126 2.4 74 0730 14.3 436 1350 3.3 101 2010 13.3 405		**27** M	0215 3.2 97 0809 13.0 395 1446 4.4 134 2024 12.3 375	
13 M	0235 2.6 79 0850 14.1 431 1505 3.5 108 2126 13.2 403		**28** Tu	0320 3.2 98 0930 12.9 392 1545 4.2 129 2156 12.4 378	
14 Tu	0356 2.5 77 1006 14.4 439 1636 3.3 102 2237 13.7 418		**29** W	0415 3.1 94 1036 13.4 408 1644 3.8 117 2300 13.1 399	
15 W	0516 2.2 66 1115 15.1 459 1740 2.9 88 2335 14.5 441		**30** Th	0520 2.8 84 1130 14.2 433 1736 3.4 103 2345 13.9 424	
			31 F	0606 2.4 73 1215 15.0 456 1819 2.9 89	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0023 14.7 449 0646 2.1 63 1246 15.6 477 1902 2.5 76		**16** Su	0050 15.5 472 0722 1.6 49 1321 15.9 484 1946 1.9 59	
2 Su	0101 15.4 470 0725 1.8 55 1325 16.1 492 1942 2.1 65		**17** M ○	0136 15.8 483 0806 1.7 53 1405 15.9 485 2026 1.7 51	
3 M ●	0139 16.0 487 0806 1.6 49 1402 16.4 499 2025 1.9 57		**18** Tu	0220 16.0 488 0846 2.0 60 1446 15.8 482 2109 1.6 49	
4 Tu	0216 16.3 497 0846 1.5 46 1440 16.4 499 2106 1.7 51		**19** W	0305 16.0 489 0925 2.3 69 1527 15.6 476 2154 1.6 50	
5 W	0256 16.4 501 0928 1.6 49 1520 16.2 493 2150 1.6 48		**20** Th	0345 15.9 484 1002 2.6 80 1605 15.3 467 2233 1.8 54	
6 Th	0338 16.4 501 1012 1.8 55 1605 15.8 482 2236 1.5 46		**21** F	0425 15.6 475 1040 3.0 91 1641 15.0 456 2315 2.0 61	
7 F	0421 16.2 495 1056 2.1 64 1649 15.4 469 2325 1.5 47		**22** Sa	0505 15.1 461 1117 3.3 102 1725 14.5 443 2356 2.3 69	
8 Sa	0510 15.8 483 1142 2.4 74 1741 14.8 452		**23** Su	0548 14.6 446 1200 3.7 112 1804 14.1 430	
9 Su	0016 1.6 50 0609 15.4 468 1236 2.8 86 1842 14.3 437		**24** M	0039 2.6 78 0635 14.1 430 1239 4.0 121 1846 13.7 417	
10 M ◐	0120 1.8 54 0720 15.0 456 1340 3.1 96 1955 14.0 426		**25** Tu ◑	0128 2.8 86 0725 13.7 417 1345 4.2 128 1944 13.3 405	
11 Tu	0225 2.0 60 0830 14.8 450 1444 3.4 103 2100 13.9 423		**26** W	0220 3.0 91 0820 13.5 410 1456 4.2 129 2045 13.1 399	
12 W	0329 2.1 64 0936 14.7 449 1606 3.4 103 2208 14.0 428		**27** Th	0322 3.1 93 0926 13.5 412 1550 4.0 122 2146 13.3 404	
13 Th	0446 2.1 64 1046 15.0 457 1716 3.1 95 2308 14.5 441		**28** F	0420 2.9 89 1029 14.0 426 1646 3.7 112 2254 13.8 421	
14 F	0546 1.9 57 1145 15.4 469 1810 2.7 81		**29** Sa	0516 2.7 82 1125 14.7 447 1736 3.2 98 2343 14.6 444	
15 Sa	0002 15.0 458 0640 1.7 51 1232 15.7 479 1900 2.3 69		**30** Su	0605 2.4 72 1215 15.3 467 1826 2.8 84	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Vlissingen, Netherlands, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0031 15.3 466 0652 2.1 63 1257 15.9 484 1915 2.3 70		**16** Tu ○	0129 15.6 474 0746 2.4 73 1357 15.6 474 2011 1.9 59	
2 Tu ●	0113 15.9 485 0740 1.9 57 1340 16.2 494 2002 1.9 58		**17** W	0215 15.8 481 0825 2.6 79 1436 15.6 475 2055 1.8 55	
3 W	0156 16.4 499 0823 1.8 54 1423 16.3 498 2050 1.6 48		**18** Th	0251 15.9 485 0905 2.8 84 1514 15.6 475 2135 1.7 53	
4 Th	0238 16.6 507 0908 1.8 55 1505 16.3 497 2138 1.3 41		**19** F	0328 15.9 485 0939 2.9 89 1546 15.6 474 2212 1.7 53	
5 F	0325 16.8 511 0956 2.0 60 1552 16.1 491 2225 1.2 36		**20** Sa	0405 15.8 481 1016 3.1 94 1625 15.4 469 2250 1.8 56	
6 Sa	0409 16.6 507 1042 2.1 65 1639 15.8 483 2318 1.1 33		**21** Su	0441 15.5 473 1049 3.2 99 1655 15.2 462 2326 2.1 63	
7 Su	0500 16.4 499 1130 2.4 73 1728 15.5 472		**22** M	0517 15.2 462 1129 3.4 105 1729 14.9 453 2355 2.3 70	
8 M	0006 1.1 35 0557 16.0 488 1222 2.7 81 1825 15.1 461		**23** Tu	0555 14.8 450 1200 3.6 110 1809 14.5 443	
9 Tu ◐	0100 1.3 40 0659 15.6 475 1316 3.0 91 1927 14.8 451		**24** W	0025 2.5 77 0635 14.4 439 1240 3.7 114 1855 14.2 432	
10 W	0155 1.6 50 0804 15.2 462 1415 3.3 100 2029 14.5 441		**25** Th ◑	0105 2.7 83 0726 14.1 429 1325 3.9 119 1950 13.8 422	
11 Th	0256 2.1 63 0909 14.8 451 1526 3.5 106 2138 14.3 435		**26** F	0205 3.0 90 0826 13.9 423 1429 4.0 123 2055 13.6 416	
12 F	0405 2.4 73 1016 14.6 446 1640 3.4 104 2244 14.3 437		**27** Sa	0316 3.1 95 0935 13.9 424 1550 3.9 120 2202 13.8 421	
13 Sa	0525 2.5 75 1124 14.8 451 1750 3.1 93 2345 14.7 448		**28** Su	0426 3.1 94 1044 14.2 434 1656 3.6 109 2307 14.3 437	
14 Su	0615 2.4 72 1221 15.1 461 1840 2.6 79		**29** M	0526 2.8 86 1141 14.9 453 1800 3.1 93	
15 M	0041 15.2 463 0705 2.3 71 1309 15.4 469 1929 2.2 67		**30** Tu	0006 15.1 460 0626 2.5 76 1235 15.5 472 1852 2.5 75	
			31 W	0055 15.9 485 0716 2.2 66 1321 16.0 488 1945 1.9 59	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0140 16.5 504 0806 2.0 62 1406 16.4 499 2036 1.5 45		**16** F	0237 16.0 487 0844 3.1 93 1452 15.7 479 2115 1.9 57	
2 F	0225 17.0 518 0855 2.0 60 1452 16.6 505 2125 1.1 34		**17** Sa	0309 16.1 490 0918 3.0 91 1525 15.8 483 2150 1.8 54	
3 Sa	0310 17.2 525 0939 2.0 61 1535 16.6 507 2212 0.9 27		**18** Su	0340 16.1 491 0954 3.0 91 1556 15.9 484 2225 1.8 55	
4 Su	0355 17.2 525 1026 2.1 64 1622 16.5 503 2259 0.8 25		**19** M	0415 15.9 486 1026 3.1 93 1627 15.8 481 2300 2.0 60	
5 M	0444 16.9 516 1112 2.3 70 1708 16.3 496 2345 1.0 29		**20** Tu	0445 15.6 477 1056 3.2 98 1657 15.5 473 2326 2.2 68	
6 Tu	0535 16.5 503 1158 2.6 78 1758 15.9 484		**21** W	0517 15.4 468 1126 3.3 101 1729 15.3 465 2355 2.4 73	
7 W ◐	0035 1.3 39 0629 15.9 485 1246 2.9 88 1856 15.4 469		**22** Th	0547 15.1 460 1156 3.3 102 1805 15.0 458	
8 Th	0125 1.8 55 0729 15.2 464 1345 3.3 100 1955 14.8 451		**23** F ◑	0026 2.6 78 0629 14.8 450 1240 3.4 105 1849 14.6 445	
9 F	0220 2.4 74 0835 14.5 442 1445 3.6 111 2105 14.2 434		**24** Sa	0114 2.9 87 0726 14.2 433 1336 3.8 115 1956 14.0 426	
10 Sa	0324 3.1 93 0950 14.0 427 1605 3.8 115 2218 14.0 428		**25** Su	0215 3.3 101 0846 13.8 420 1455 4.1 124 2120 13.7 419	
11 Su	0456 3.3 100 1105 14.0 428 1726 3.5 106 2329 14.4 438		**26** M	0339 3.5 108 1005 13.7 419 1620 3.9 118 2235 14.1 430	
12 M	0600 3.1 96 1209 14.5 443 1826 2.9 89		**27** Tu	0501 3.4 103 1115 14.3 435 1736 3.3 101 2345 15.0 456	
13 Tu	0035 15.0 457 0646 3.0 92 1259 15.1 459 1919 2.4 74		**28** W	0605 2.9 89 1215 15.1 460 1840 2.6 78	
14 W	0125 15.5 473 0735 3.0 91 1345 15.4 469 1959 2.1 65		**29** Th	0037 15.9 486 0700 2.5 76 1305 15.9 484 1930 1.9 57	
15 Th ○	0205 15.8 482 0810 3.0 92 1421 15.6 475 2038 2.0 60		**30** F ●	0125 16.8 511 0750 2.2 66 1348 16.5 503 2020 1.3 40	
			31 Sa	0206 17.3 528 0835 2.0 62 1432 16.9 515 2106 0.9 28	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0251 17.6 537 0922 2.0 61 1515 17.1 521 2152 0.8 24		**16** M	0313 16.4 500 0925 2.8 86 1526 16.3 497 2155 1.8 56	
2 M	0335 17.6 537 1005 2.1 64 1557 17.1 520 2237 0.9 26		**17** Tu	0345 16.3 498 1000 2.8 86 1556 16.2 495 2225 2.0 61	
3 Tu	0422 17.3 526 1050 2.3 69 1643 16.8 513 2320 1.1 35		**18** W	0412 16.1 491 1026 3.0 90 1626 16.0 489 2255 2.2 68	
4 W	0507 16.7 508 1135 2.5 77 1730 16.4 499		**19** Th	0442 15.8 483 1056 3.1 93 1656 15.9 484 2322 2.4 74	
5 Th	0005 1.6 50 0557 15.9 485 1216 2.9 88 1821 15.7 479		**20** F	0513 15.6 476 1128 3.1 93 1731 15.7 478 2356 2.6 80	
6 F ◐	0046 2.3 70 0655 15.0 457 1307 3.3 101 1919 14.9 453		**21** Sa	0555 15.2 464 1206 3.2 97 1815 15.2 464	
7 Sa	0140 3.1 94 0800 14.0 427 1416 3.8 117 2035 14.0 427		**22** Su ◑	0040 3.0 91 0645 14.5 442 1300 3.5 108 1911 14.4 438	
8 Su	0255 3.8 117 0920 13.3 404 1538 4.1 125 2200 13.6 415		**23** M	0140 3.6 109 0800 13.6 416 1420 4.0 122 2046 13.7 419	
9 M	0425 4.1 126 1045 13.3 405 1706 3.8 116 2316 14.0 428		**24** Tu	0304 4.0 123 0930 13.4 407 1556 4.0 121 2209 14.0 427	
10 Tu	0540 3.9 118 1149 14.0 427 1810 3.1 96		**25** W	0434 3.9 118 1052 13.8 422 1716 3.4 103 2325 14.9 455	
11 W	0020 14.9 454 0636 3.5 108 1245 14.8 450 1904 2.6 79		**26** Th	0550 3.3 101 1155 14.8 451 1825 2.6 78	
12 Th	0107 15.6 474 0715 3.3 102 1327 15.3 466 1945 2.3 70		**27** F	0019 16.0 489 0645 2.8 84 1242 15.8 481 1915 1.8 55	
13 F	0145 15.9 484 0746 3.2 99 1357 15.6 475 2015 2.1 65		**28** Sa ●	0105 16.9 515 0732 2.3 71 1326 16.5 504 2002 1.2 38	
14 Sa ○	0215 16.1 490 0820 3.1 95 1427 15.8 483 2046 2.0 61		**29** Su	0148 17.5 533 0816 2.1 63 1408 17.1 520 2047 1.0 29	
15 Su	0245 16.2 495 0855 3.0 90 1457 16.1 492 2119 1.9 57		**30** M	0230 17.7 540 0900 2.0 61 1451 17.4 529 2130 0.9 28	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Vlissingen, Netherlands, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0315	17.7	538	**16** W	0315	16.6	506
	0943	2.0	62		0932	2.6	79
	1533	17.4	529		1526	16.5	504
	2212	1.1	35		2155	2.0	62
2 W	0356	17.2	525	**17** Th	0345	16.4	501
	1025	2.2	67		1005	2.7	82
	1616	17.1	521		1557	16.4	500
	2252	1.6	48		2228	2.3	69
3 Th	0442	16.6	505	**18** F	0416	16.1	492
	1108	2.5	75		1036	2.8	85
	1702	16.6	505		1631	16.3	496
	2332	2.2	66		2256	2.5	77
4 F	0528	15.7	479	**19** Sa	0450	15.8	483
	1148	2.8	86		1111	2.9	87
	1751	15.8	481		1707	16.0	489
					2335	2.8	85
5 Sa ◐	0012	2.9	88	**20** Su	0530	15.4	468
	0619	14.7	449		1155	3.0	92
	1238	3.3	101		1751	15.5	472
	1848	14.8	451				
6 Su	0106	3.7	114	**21** M ◑	0025	3.2	99
	0720	13.6	416		0622	14.5	442
	1345	3.9	119		1246	3.4	103
	1956	13.8	420		1852	14.6	444
7 M	0215	4.5	138	**22** Tu	0120	3.8	117
	0846	12.7	387		0736	13.5	413
	1505	4.2	128		1404	3.8	115
	2130	13.3	404		2026	13.9	424
8 Tu	0349	4.8	146	**23** W	0239	4.3	130
	1016	12.7	386		0906	13.2	403
	1630	4.0	122		1530	3.7	114
	2255	13.7	417		2149	14.1	431
9 W	0514	4.5	137	**24** Th	0416	4.1	126
	1125	13.5	410		1026	13.6	416
	1746	3.4	104		1656	3.3	100
	2355	14.6	444		2303	15.0	456
10 Th	0604	4.0	122	**25** F	0526	3.6	110
	1215	14.3	437		1128	14.6	445
	1840	2.8	86		1802	2.5	76
					2357	16.0	487
11 F	0037	15.3	466	**26** Sa	0626	3.0	92
	0649	3.6	110		1219	15.6	475
	1257	15.0	457		1858	1.8	55
	1916	2.5	76				
12 Sa	0115	15.7	480	**27** Su	0045	16.8	512
	0719	3.3	102		0715	2.5	77
	1329	15.4	470		1305	16.4	499
	1948	2.3	70		1942	1.3	41
13 Su ○	0145	16.0	489	**28** M ●	0126	17.3	526
	0754	3.1	95		0756	2.2	66
	1357	15.8	483		1346	17.0	518
	2018	2.1	65		2026	1.1	35
14 M	0213	16.4	499	**29** Tu	0210	17.5	532
	0826	2.9	87		0840	2.0	61
	1425	16.2	495		1429	17.3	527
	2048	2.0	60		2105	1.2	37
15 Tu	0245	16.6	505	**30** W	0253	17.3	528
	0855	2.7	81		0922	2.0	60
	1455	16.5	503		1512	17.3	527
	2125	1.9	59		2147	1.5	47
				31 Th	0335	16.9	516
					1005	2.1	64
					1555	17.1	520
					2226	2.0	62

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0420	16.3	496	**16** Sa	0355	16.2	495
	1045	2.4	72		1022	2.4	74
	1639	16.5	503		1611	16.5	502
	2306	2.7	82		2245	2.6	78
2 Sa	0505	15.5	472	**17** Su	0435	15.8	483
	1126	2.7	83		1100	2.5	77
	1725	15.7	479		1652	16.1	492
	2345	3.4	103		2322	2.9	88
3 Su	0549	14.6	445	**18** M	0517	15.3	465
	1216	3.2	97		1148	2.7	82
	1816	14.8	450		1739	15.6	475
4 M ◐	0029	4.1	125	**19** Tu ◑	0010	3.3	102
	0645	13.6	416		0614	14.5	441
	1309	3.7	112		1244	3.0	91
	1915	13.8	420		1842	14.8	451
5 Tu	0135	4.8	147	**20** W	0105	3.9	118
	0745	12.7	388		0725	13.8	420
	1425	4.0	123		1349	3.2	98
	2046	13.1	399		2006	14.3	437
6 W	0258	5.1	156	**21** Th	0225	4.2	128
	0925	12.3	375		0844	13.5	412
	1540	4.0	123		1510	3.2	99
	2210	13.2	403		2122	14.4	440
7 Th	0420	4.9	150	**22** F	0335	4.2	128
	1045	12.8	391		0955	13.8	420
	1701	3.7	113		1630	3.0	92
	2315	13.9	425		2235	14.9	455
8 F	0519	4.5	136	**23** Sa	0506	3.8	117
	1136	13.6	416		1059	14.5	441
	1756	3.2	98		1741	2.5	77
					2335	15.6	477
9 Sa	0005	14.7	448	**24** Su	0605	3.3	100
	0609	3.9	120		1155	15.3	466
	1216	14.4	439		1832	2.0	61
	1840	2.8	86				
10 Su	0039	15.3	467	**25** M	0025	16.3	496
	0649	3.5	107		0655	2.8	84
	1251	15.1	459		1242	16.0	488
	1915	2.6	78		1920	1.7	51
11 M	0111	15.8	483	**26** Tu ●	0109	16.7	508
	0720	3.1	96		0736	2.3	70
	1321	15.6	477		1326	16.5	504
	1945	2.3	71		2005	1.6	48
12 Tu ○	0141	16.3	496	**27** W	0155	16.8	512
	0755	2.8	86		0822	2.0	62
	1352	16.2	493		1410	16.9	514
	2015	2.1	65		2043	1.7	51
13 W	0215	16.6	505	**28** Th	0236	16.7	510
	0830	2.6	78		0905	1.9	58
	1426	16.5	504		1455	16.9	516
	2050	2.0	62		2125	2.0	61
14 Th	0246	16.7	508	**29** F	0320	16.4	501
	0906	2.4	74		0948	1.9	59
	1500	16.7	508		1537	16.7	510
	2126	2.1	63		2205	2.5	75
15 F	0320	16.5	504	**30** Sa	0404	16.0	487
	0945	2.4	73		1030	2.1	65
	1535	16.6	507		1620	16.3	497
	2206	2.3	70		2242	3.0	91

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0445	15.4	469	**16** M	0425	15.9	484
	1110	2.4	74		1056	2.0	60
	1707	15.7	478		1645	16.3	497
	2320	3.5	108		2315	2.8	84
2 M	0526	14.7	449	**17** Tu	0510	15.4	469
	1156	2.8	86		1146	2.1	64
	1755	14.9	454		1735	15.8	483
3 Tu	0005	4.1	125	**18** W	0002	3.1	95
	0615	14.0	428		0605	14.8	452
	1240	3.2	98		1239	2.3	69
	1846	14.1	430		1835	15.3	466
4 W ◐	0055	4.6	141	**19** Th ◑	0100	3.5	107
	0705	13.4	407		0710	14.4	438
	1345	3.6	110		1340	2.5	75
	1946	13.4	408		1946	14.9	453
5 Th	0205	5.0	152	**20** F	0200	3.8	117
	0804	12.8	389		0818	14.1	429
	1450	3.8	116		1445	2.7	82
	2100	13.0	397		2055	14.7	447
6 F	0315	5.0	152	**21** Sa	0310	4.0	122
	0918	12.5	382		0925	14.0	427
	1556	3.8	116		1556	2.9	87
	2216	13.3	404		2201	14.7	449
7 Sa	0420	4.7	143	**22** Su	0425	3.9	120
	1034	13.0	396		1029	14.3	436
	1655	3.6	109		1710	2.7	83
	2315	13.9	424		2308	15.1	459
8 Su	0515	4.3	130	**23** M	0536	3.5	108
	1126	13.7	419		1129	14.8	452
	1745	3.2	98		1806	2.4	74
	2358	14.7	447				
9 M	0604	3.8	115	**24** Tu	0005	15.5	471
	1209	14.5	443		0630	3.0	91
	1829	2.9	87		1225	15.4	470
					1900	2.2	66
10 Tu	0035	15.3	467	**25** W	0055	15.8	482
	0646	3.3	101		0722	2.5	75
	1245	15.3	466		1315	15.9	485
	1906	2.6	78		1945	2.1	64
11 W	0111	15.9	485	**26** Th ●	0142	16.0	489
	0725	2.9	88		0806	2.1	64
	1325	15.9	484		1358	16.3	496
	1945	2.3	70		2026	2.2	67
12 Th ○	0147	16.3	497	**27** F	0225	16.1	490
	0805	2.5	77		0850	1.9	57
	1401	16.3	498		1445	16.4	501
	2023	2.1	65		2106	2.4	74
13 F	0225	16.5	502	**28** Sa	0308	16.0	488
	0846	2.3	69		0935	1.8	55
	1439	16.6	506		1526	16.4	500
	2106	2.1	65		2145	2.7	83
14 Sa	0302	16.4	501	**29** Su	0347	15.8	482
	0928	2.1	63		1015	1.9	57
	1518	16.7	509		1607	16.2	493
	2146	2.2	67		2220	3.1	93
15 Su	0342	16.2	494	**30** M	0426	15.5	473
	1010	2.0	61		1055	2.1	63
	1559	16.6	506		1648	15.7	480
	2230	2.5	75		2258	3.4	103
				31 Tu	0505	15.1	460
					1135	2.3	71
					1728	15.2	464
					2335	3.7	114

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Hoek van Holland, Netherlands, 2019

Times and Heights of High and Low Waters

January

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0638*	1.7	53	**16** W	0344	1.7	51	**1** F	0023	6.2	190	**16** Sa	0505	1.3	41	
	1110	6.1	187		1010	6.1	185		0544	1.4	43		1156	6.3	193	
	1859*	1.0	32		1534	0.9	27		1241	6.4	195		1728	1.1	33	
	2343	6.8	206		2254	6.6	200		1941	1.3	41					
2 W	0753*	1.6	50	**17** Th	0435	1.6	50	**2** Sa	0125	6.4	195	**17** Su	0030	6.3	192	
	1210	6.4	194		1120	6.2	190		0931*	1.2	36		0554	1.2	37	
	1942*	1.1	35		1649	1.0	31		1335	6.7	204		1255	6.8	207	
					2352	6.7	205		2155*	1.3	41		2113*	1.1	35	
3 Th	0034	6.8	208	**18** F	0535	1.5	47	**3** Su	0215	6.6	200	**18** M	0126	6.5	199	
	0848*	1.5	47		1219	6.6	200		1015*	1.0	31		0639	1.0	30	
	1259	6.7	203		1749	1.1	33		1424	6.9	211		1345	7.3	221	
	2034*	1.3	39						2244*	1.5	45		2205*	1.2	36	
4 F	0125	6.9	210	**19** Sa	0049	6.9	211	**4** M	0254	6.6	202	**19** Tu	0215	6.8	206	
	0940*	1.4	43		0615	1.4	43		0757	1.0	29		0719	0.8	23	
	1344	6.9	210		1311	7.0	213		1455	7.1	216		1429	7.6	233	
	1921	1.4	44		1835	1.1	35	●	2308*	1.6	50	○	2249*	1.3	40	
5 Sa	0215	6.9	211	**20** Su	0142	7.1	216	**5** Tu	0329	6.7	204	**20** W	0258	6.9	211	
	1020*	1.3	40		0705	1.2	37		0829	0.8	25		0759	0.5	16	
	1429	7.1	217		1401	7.4	225		1535	7.2	220		1515	7.9	240	
	2013	1.6	48		1918	1.2	38		2343*	1.7	53		2325*	1.4	42	
6 Su	0258	6.9	211	**21** M	0226	7.2	219	**6** W	0359	6.8	206	**21** Th	0344	7.0	214	
	0815	1.2	36		0739	1.0	30		0854	0.7	22		0839	0.3	10	
	1513	7.3	221		1445	7.7	235		1605	7.3	223		1558	8.0	243	
●	2144	1.7	52	○	1959	1.3	41		2355*	1.7	52					
7 M	0334	6.9	209	**22** Tu	0312	7.2	219	**7** Th	0425	6.8	207	**22** F	0010*	1.4	42	
	0843	1.0	31		0819	0.8	23		0924	0.6	19		0427	7.1	216	
	1548	7.3	224		1530	7.9	241		1644	7.3	223		0923	0.2	7	
	2246	1.8	55		2044	1.5	46						1643	7.9	241	
8 Tu	0412	6.8	208	**23** W	0358	7.1	217	**8** F	0009*	1.6	48	**23** Sa	0055*	1.3	41	
	0917	0.9	27		0904	0.6	17		0455	6.8	207		0510	7.1	216	
	1624	7.4	225		1615	8.0	244		1005	0.6	17		1009	0.2	7	
									1714	7.2	220		1728	7.7	234	
9 W	0011*	1.8	55	**24** Th	0027*	1.5	46	**9** Sa	0053*	1.5	45	**24** Su	0150*	1.3	40	
	0445	6.8	206		0445	7.0	214		0529	6.7	205		0555	7.0	214	
	0949	0.8	23		0947	0.4	12		1039	0.5	15		1103	0.3	9	
	1704	7.3	222		1704	7.9	242		1746	7.1	215		1817	7.3	224	
10 Th	0037*	1.8	55	**25** F	0115*	1.5	45	**10** Su	0124*	1.4	44	**25** M	0242*	1.4	42	
	0514	6.7	203		0533	6.9	211		0555	6.7	203		0644	6.9	210	
	1025	0.7	21		1036	0.3	10		1115	0.4	13		1205	0.4	11	
	1739	7.2	218		1750	7.8	237		1816	7.0	213		1914	6.9	210	
11 F	0110*	1.8	54	**26** Sa	0205*	1.5	46	**11** M	0202*	1.5	45	**26** Tu	0107	1.4	43	
	0554	6.6	200		0623	6.8	207		0635	6.7	203		0736	6.7	203	
	1105	0.6	19		1128	0.3	9		1155	0.3	10		1314	0.5	14	
	1811	7.0	213		1846	7.5	228		1856	6.9	211	◑	2009	6.4	195	
12 Sa	0148*	1.8	54	**27** Su	0254*	1.6	48	**12** Tu	0202*	1.5	46	**27** W	0158	1.2	38	
	0625	6.5	197		0715	6.6	202		0716	6.6	201		0835	6.3	192	
	1154	0.6	17		1230	0.3	10		1251	0.3	10		1424	0.7	21	
	1845	6.8	208	◑	1945	7.1	217	◐	1941	6.8	206		2115	5.8	178	
13 Su	0228*	1.8	54	**28** M	0157	1.7	51	**13** W	0207	1.4	43	**28** Th	0318	1.2	38	
	0705	6.4	194		0815	6.5	197		0809	6.4	195		0955	5.9	180	
	1244	0.5	16		1339	0.4	13		1404	0.5	14		1550	1.0	31	
	1935	6.7	204		2045	6.7	205		2055	6.4	196		2245	5.5	167	
14 M	0212	1.7	53	**29** Tu	0238	1.6	49	**14** Th	0300	1.4	42					
	0754	6.2	189		0920	6.2	190		0925	6.1	187					
	1341	0.6	18		1452	0.7	21		1510	0.7	21					
◐	2046	6.6	200		2154	6.3	193		2205	6.2	189					
15 Tu	0257	1.7	52	**30** W	0335	1.6	49	**15** F	0355	1.4	43					
	0906	6.1	185		1036	6.0	184		1044	6.1	186					
	1440	0.7	21		1604	1.0	30		1629	1.0	29					
	2146	6.5	199		2314	6.1	187		2320	6.1	187					
				31 Th	0449	1.5	47									
					1140	6.1	187									
					1712	1.2	37									

February

March

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 F	0430	1.2	36	**16** Sa	0335	1.1	34	**1** F	0005	5.6	171	**16** Su	0015	5.7	175	
	1115	5.8	178		1016	6.0	183		0524	1.1	33		0534	1.0	30	
	1704	1.2	37		1609	1.0	29		1224	6.1	187		1236	6.7	204	
					2254	5.5	169		1816	1.3	41		2055*	1.0	31	
2 Sa	0005	5.6	171	**17** Su	0435	1.1	34	**2** Sa	0105	5.9	181	**17** M	0111	6.1	187	
	0524	1.1	33		1135	6.2	189		0616	1.0	29		0619	0.8	24	
	1224	6.1	187		1717	1.1	35		1325	6.5	199		1328	7.2	219	
	1816	1.3	41						2145*	1.2	37		2148*	1.0	32	
3 Su	0105	5.9	181	**18** M	0015	5.7	175	**3** M	0155	6.2	190	**18** Tu	0111	6.1	187	
	0616	1.0	29		0534	1.0	30		1000*	0.8	25		0619	0.8	24	
	1325	6.5	199		1236	6.7	204		1404	6.8	207		1328	7.2	219	
	2145*	1.2	37		2055*	1.0	31		2220*	1.2	37		2148*	1.0	32	
4 M	0155	6.2	190	**19** Tu	0111	6.1	187	**4** Tu	0234	6.4	195	**19** W	0158	6.5	197	
	1000*	0.8	25		0619	0.8	24		1040*	0.8	23		0656	0.6	18	
	1404	6.8	207		1328	7.2	219		1439	7.0	213		1414	7.5	230	
	2220*	1.2	37		2148*	1.0	32		2302*	1.4	42		2229*	1.2	36	
5 Tu	0234	6.4	195	**20** W	0158	6.5	197	**5** W	0309	6.5	199	**20** Th	0238	6.7	205	
	1040*	0.8	23		0656	0.6	18		0809	0.8	23		0736	0.4	12	
	1439	7.0	213		1414	7.5	230		1514	7.2	218		1455	7.8	237	
	2302*	1.4	42		2229*	1.2	36	●	2324*	1.5	46	○	2300*	1.2	38	
6 W	0309	6.5	199	**21** Th	0238	6.7	205	**6** Th	0335	6.7	203	**21** F	0322	7.0	212	
	0809	0.8	23		0736	0.4	12		0829	0.7	20		0817	0.3	8	
	1514	7.2	218		1455	7.8	237		1544	7.3	222		1539	7.8	238	
●	2324*	1.5	46	○	2300*	1.2	38		2254*	1.5	46		2355*	1.2	38	
7 Th	0335	6.7	203	**22** F	0322	7.0	212	**7** F	0403	6.8	208	**22** Sa	0405	7.1	216	
	0829	0.7	20		0817	0.3	8		0855	0.6	18		0901	0.3	8	
	1544	7.3	222		1539	7.8	238		1616	7.3	223		1622	7.7	234	
	2254*	1.5	46		2355*	1.2	38		2348*	1.3	41					
8 F	0403	6.8	208	**23** Sa	0405	7.1	216	**8** Sa	0431	6.9	210	**23** Su	0045*	1.1	35	
	0855	0.6	18		0901	0.3	8		0935	0.6	17		0446	7.2	219	
	1616	7.3	223		1622	7.7	234		1646	7.2	220		0946	0.4	12	
	2348*	1.3	41										1705	7.4	225	
9 Sa	0431	6.9	210	**24** Su	0045*	1.1	35	**9** Su	0030*	1.2	37	**24** M	0130*	1.0	32	
	0935	0.6	17		0446	7.2	219		0505	6.8	208		0528	7.2	218	
	1646	7.2	220		0946	0.4	12		1005	0.5	16		1411*	0.5	14	
					1705	7.4	225		1716	7.1	216		1751	7.0	214	
10 Su	0030*	1.2	37	**25** M	0130*	1.0	32	**10** M	0105*	1.1	35	**25** Tu	0215*	1.0	32	
	0505	6.8	208		0528	7.2	218		0531	6.8	208		0615	7.0	214	
	1005	0.5	16		1411*	0.5	14		1037	0.5	14		1134	0.7	20	
	1716	7.1	216		1751	7.0	214		1748	7.0	214		1839	6.6	200	
													2354	1.1	33	
11 M	0105*	1.1	35	**26** Tu	0215*	1.0	32	**11** Tu	0139*	1.2	37	**26** W	0659	6.8	206	
	0531	6.8	208		0615	7.0	214		0605	6.9	209		1259	0.7	22	
	1037	0.5	14		1134	0.7	20		1119	0.3	10		1925	6.0	183	
	1748	7.0	214		1839	6.6	200		1827	7.0	212					
					2354	1.1	33		2335	1.1	33					
12 Tu	0139*	1.2	37	**27** W	0659	6.8	206	**12** W	0644	6.9	210	**27** Th	0111	0.9	28	
	0605	6.9	209		1259	0.7	22		1204	0.3	10		0759	6.3	193	
	1119	0.3	10		1925	6.0	183		1909	6.7	204		1355	0.9	27	
	1827	7.0	212									◑	2035	5.4	166	
	2335	1.1	33													
13 W	0644	6.9	210	**28** Th	0111	0.9	28	**14** Th	0029	1.0	30	**29** F	0244	0.9	27	
	1204	0.3	10		0759	6.3	193		0735	6.7	203		0905	5.8	177	
	1909	6.7	204		1355	0.9	27		1327	0.5	15		1530	1.1	34	
				◑	2035	5.4	166	◐	2005	6.2	189		2212	5.0	151	
14 Th	0029	1.0	30	**29** F	0244	0.9	27	**15** F	0229	1.1	33	**30** Sa	0408	0.9	26	
	0735	6.7	203		0905	5.8	177		0839	6.2	190		1055	5.6	171	
	1327	0.5	15		1530	1.1	34		1459	0.7	22		1644	1.2	38	
◐	2005	6.2	189		2212	5.0	151		2135	5.7	175		2344	5.1	155	
15 F	0229	1.1	33	**30** Sa	0408	0.9	26					**31** Su	0508	0.8	23	
	0839	6.2	190		1055	5.6	171						1205	5.9	181	
	1459	0.7	22		1644	1.2	38						1749	1.3	40	
	2135	5.7	175		2344	5.1	155									

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
Low waters last for 1 to 2 1/2 hours with variations in level up to 0.7ft (21 cm). Times are for the beginning of low water period.
* The time indicated is for the second low water or end of a low water period.

Hoek van Holland, Netherlands, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0040	5.5	168	**16** Tu	0000	5.5	167	**1** W	0049	5.5	168	**16** Th	0026	5.9	179	
	0559	0.7	21		0504	0.8	24		0624	0.6	18		0529	0.6	18	
	1255	6.4	194		1219	6.7	205		1259	6.5	199		1249	7.1	216	
	2108*	1.2	37		2034*	0.9	28		2102*	1.0	32		2100*	1.0	30	
2 Tu	0125	5.9	179	**17** W	0052	5.9	180	**2** Th	0125	5.9	179	**17** F	0115	6.3	191	
	0635	0.7	22		0554	0.7	20		0701	0.7	22		0615	0.6	18	
	1339	6.7	204		1308	7.2	218		1338	6.8	208		1335	7.2	220	
	2150*	1.0	32		2120*	1.0	29		2151*	1.0	30		2135*	1.1	33	
3 W	0205	6.1	187	**18** Th	0138	6.3	192	**3** F	0155	6.2	189	**18** Sa	0157	6.6	202	
	1009*	0.8	23		0636	0.5	16		0716	0.8	24		0659	0.6	18	
	1413	6.9	210		1354	7.4	226		1409	7.1	215		1416	7.3	222	
	2230*	1.1	34		2154*	1.1	33		2235*	1.0	32	○	2210*	1.1	34	
4 Th	0235	6.3	193	**19** F	0218	6.6	202	**4** Sa	0227	6.6	200	**19** Su	0238	6.9	210	
	0744	0.8	23		0716	0.4	13		0734	0.8	23		0741	0.7	21	
	1444	7.1	216		1435	7.6	231		1441	7.3	221		1500	7.2	219	
	2305*	1.2	38	○	2240*	1.1	35	●	2309*	1.1	35		2300*	1.0	30	
5 F	0303	6.6	201	**20** Sa	0300	6.9	211	**5** Su	0258	6.9	209	**20** M	0323	7.1	216	
	0759	0.7	21		0757	0.4	12		0805	0.7	22		0825	0.9	28	
	1515	7.3	221		1517	7.5	229		1515	7.3	222		1544	7.0	213	
●	2325*	1.3	40		2328*	1.1	34		2326*	1.1	34		2356*	0.8	24	
6 Sa	0329	6.8	208	**21** Su	0340	7.1	217	**6** M	0331	7.0	214	**21** Tu	0404	7.2	219	
	0829	0.6	19		0839	0.5	16		0835	0.8	23		1228*	0.9	28	
	1545	7.3	223		1600	7.3	224		1551	7.2	220		1625	6.7	205	
	2311*	1.2	36						2354*	1.0	30					
7 Su	0405	6.9	211	**22** M	0015*	1.0	29	**7** Tu	0407	7.1	216	**22** W	0044*	0.6	18	
	0903	0.6	19		0422	7.2	220		0915	0.8	25		0445	7.2	218	
	1617	7.3	221		1255*	0.6	18		1627	7.0	214		1315*	1.0	29	
					1644	7.0	214						1708	6.4	196	
8 M	0009*	1.0	32	**23** Tu	0105*	0.8	24	**8** W	0035*	0.9	27	**23** Th	0131*	0.5	15	
	0432	7.0	212		0505	7.2	219		0445	7.1	217		0525	7.0	214	
	1227*	0.6	19		1345*	0.7	20		1234*	0.8	24		1401*	1.1	33	
	1648	7.1	216		1727	6.7	203		1705	6.8	206		1749	6.1	187	
									2215	0.8	25					
9 Tu	0009*	1.0	32	**24** W	0154*	0.7	22	**9** Th	0521	7.2	218	**24** F	0206*	0.5	16	
	0505	7.0	212		0547	7.1	215		1307*	0.8	25		0609	6.8	207	
	1015	0.6	19		1425*	0.9	26		1747	6.5	198		1429*	1.3	40	
	1725	6.9	211		1814	6.2	190		2305	0.6	19		1830	5.8	178	
					2324	0.8	24									
10 W	0125*	1.0	30	**25** Th	0634	6.8	206	**10** F	0607	7.1	216	**25** Sa	0017	0.5	14	
	0541	7.1	215		1254	1.1	33		1344*	0.9	26		0700	6.5	197	
	1055	0.6	17		1855	5.8	177		1835	6.1	186		1353	1.4	42	
	1802	6.8	206										1914	5.5	168	
	2315	0.8	25													
11 Th	0619	7.0	214	**26** F	0036	0.6	19	**11** Sa	0004	0.5	16	**26** Su	0100	0.4	13	
	1144	0.6	19		0725	6.3	193		0656	6.8	207		0755	6.1	186	
	1847	6.4	196		1352	1.1	35		1410*	0.9	28		1508*	1.4	42	
				◑	1949	5.3	163		1934	5.6	171	◑	2016	5.2	159	
12 F	0003	0.7	22	**27** Sa	0245	0.6	19	**12** Su	0130	0.5	15	**27** M	0322*	0.4	13	
	0709	6.8	207		0824	5.9	179		0809	6.4	196		0855	5.8	178	
	1358	0.7	22		1518	1.2	38		1440	1.0	32		1546	1.3	41	
◐	1949	5.9	179		2049	4.9	149	◐	2105	5.3	162		2110	5.0	152	
13 Sa	0158	0.8	24	**28** Su	0354*	0.6	17	**13** M	0238	0.5	16	**28** Tu	0425*	0.5	14	
	0814	6.3	191		0959	5.5	169		0940	6.3	193		1009	5.8	176	
	1446	0.9	26		1620	1.3	39		1550	1.2	37		1658	1.3	40	
	2115	5.4	164		2305	4.7	143		2219	5.2	160		2225	4.9	150	
14 Su	0255	0.8	25	**29** M	0445	0.5	16	**14** Tu	0334	0.6	18	**29** W	0507	0.5	16	
	0955	6.1	185		1125	5.7	175		1054	6.5	198		1128	6.0	182	
	1558	1.1	33		1724	1.3	39		1901*	1.1	33		1736	1.2	38	
	2238	5.2	159						2334	5.5	167		2355	5.3	161	
15 M	0405	0.9	26	**30** Tu	0006	5.1	155	**15** W	0434	0.6	19	**30** Th	0607	0.6	19	
	1115	6.3	191		0534	0.5	16		1155	6.8	207		1216	6.4	194	
	1929*	1.1	34		1220	6.2	188		2010*	1.0	29		2000*	1.2	36	
					1941*	1.2	38									
												31 F	0040	5.7	175	
													0636	0.8	23	
													1256	6.7	205	
													2110*	1.0	32	

May

June

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Sa	0116	6.2	188	**16** Su	0139	6.6	202	**1** Su	0151	6.6	201	**16** M	0221	6.9	210	
	0854*	0.8	25		0654	0.9	27		0705	0.8	25		0739	1.0	32	
	1334	7.0	213		1405	7.0	212		1409	7.2	219		1447	6.9	210	
	2200*	1.0	31		2158*	1.1	34		2240*	1.0	32	○	1955	1.0	30	
2 Su	0151	6.6	201	**17** M	0221	6.9	210	**2** M	0227	6.9	211	**17** Tu	0306	7.1	215	
	0705	0.8	25		0739	1.0	32		0745	0.9	26		1056*	1.2	38	
	1409	7.2	219		1447	6.9	210		1447	7.3	221		1530	6.8	206	
	2240*	1.0	32	○	1955	1.0	30	●	2004	1.0	31		2335*	0.8	24	
3 M	0227	6.9	211	**18** Tu	0306	7.1	215	**3** Tu	0305	7.1	217	**18** W	0346	7.2	218	
	0745	0.9	26		1056*	1.2	38		0815	0.9	28		1200*	1.3	39	
	1447	7.3	221		1530	6.8	206		1527	7.2	218		1611	6.6	201	
●	2004	1.0	31		2335*	0.8	24		2036	0.9	28					
4 Tu	0305	7.1	217	**19** W	0346	7.2	218	**4** W	0346	7.3	222	**19** Th	0024*	0.6	18	
	0815	0.9	28		1200*	1.3	39		0854	1.0	32		0425	7.2	218	
	1527	7.2	218		1611	6.6	201		1607	7.0	212		1245*	1.3	40	
	2036	0.9	28						2115	0.8	24		1653	6.4	195	
5 W	0346	7.3	222	**20** Th	0024*	0.6	18	**5** Th	0425	7.3	223	**20** F	0106*	0.5	15	
	0854	1.0	32		0425	7.2	218		1220*	1.0	31		0505	7.1	215	
	1607	7.0	212		1245*	1.3	40		1649	6.7	204		1330*	1.4	43	
	2115	0.8	24		1653	6.4	195		2203	0.6	19		1729	6.2	190	
6 Th	0425	7.3	223	**21** F	0106*	0.5	15	**6** F	0507	7.3	223	**21** Sa	0140*	0.5	14	
	1220*	1.0	31		0505	7.1	215		1309*	1.0	31		0548	6.9	210	
	1649	6.7	204		1330*	1.4	43		1735	6.4	194		1408*	1.5	46	
	2203	0.6	19		1729	6.2	190		2254	0.5	14		1805	6.1	185	
													2329	0.4	12	
7 F	0507	7.3	223	**22** Sa	0140*	0.5	14	**7** Sa	0555	7.2	219	**22** Su	0636	6.7	203	
	1309*	1.0	31		0548	6.9	210		1349*	1.0	31		1416*	1.5	47	
	1735	6.4	194		1408*	1.5	46		1825	6.0	184		1845	5.9	180	
	2254	0.5	14		1805	6.1	185		2345	0.4	11					
					2329	0.4	12									
8 Sa	0555	7.2	219	**23** Su	0636	6.7	203	**8** Su	0648	7.0	213	**23** M	0024	0.4	11	
	1349*	1.0	31		1416*	1.5	47		1422*	1.1	34		0724	6.4	196	
	1825	6.0	184		1845	5.9	180		1935	5.7	175		1434*	1.5	45	
	2345	0.4	11										1936	5.7	175	
9 Su	0648	7.0	213	**24** M	0024	0.4	11	**9** M	0054	0.3	9	**24** Tu	0117	0.4	12	
	1422*	1.1	34		0724	6.4	196		0805	6.8	206		0816	6.2	190	
	1935	5.7	175		1434*	1.5	45		1546*	1.2	37		1521*	1.4	44	
					1936	5.7	175	◐	2045	5.6	171	◑	2030	5.6	170	
10 M	0054	0.3	9	**25** Tu	0117	0.4	12	**10** Tu	0204	0.3	9	**25** W	0210	0.5	15	
	0805	6.8	206		0816	6.2	190		0920	6.7	204		0914	6.1	187	
	1546*	1.2	37		1521*	1.4	44		1703*	1.3	39		1619*	1.4	43	
◐	2045	5.6	171	◑	2030	5.6	170		2155	5.5	169		2130	5.5	167	
11 Tu	0204	0.3	9	**26** W	0210	0.5	15	**11** W	0309	0.4	12	**26** Th	0309	0.7	20	
	0920	6.7	204		0914	6.1	187		1025	6.7	204		1014	6.2	188	
	1703*	1.3	39		1619*	1.4	43		1828*	1.2	37		1700	1.3	41	
	2155	5.5	169		2130	5.5	167		2306	5.7	173		2235	5.5	169	
12 W	0309	0.4	12	**27** Th	0309	0.7	20	**12** Th	0409	0.5	16	**27** F	0535	0.8	24	
	1025	6.7	204		1014	6.2	188		1129	6.8	207		1115	6.3	193	
	1828*	1.2	37		1700	1.3	41		1942*	1.1	35		1732	1.3	40	
	2306	5.7	173		2235	5.5	169						2335	5.8	177	
13 Th	0409	0.5	16	**28** F	0535	0.8	24	**13** F	0511	0.9	27	**28** Sa	0511	0.9	27	
	1129	6.8	207		1115	6.3	193		1210	6.6	202		1210	6.6	202	
	1942*	1.1	35		1732	1.3	40		1816	1.2	38		1816	1.2	38	
					2335	5.8	177									
14 F	0004	6.0	182	**29** Sa	0511	0.9	27	**14** Sa	0051	6.3	193	**29** Su	0032	6.2	190	
	0515	0.7	20		1210	6.6	202		0605	0.8	23		0554	0.9	28	
	1225	6.9	210		1816	1.2	38		1316	7.0	212		1300	6.9	210	
	2027*	1.1	35						2112*	1.1	35		1839	1.1	35	
15 Sa	0051	6.3	193	**30** Su	0032	6.2	190									
	0605	0.8	23		0554	0.9	28									
	1316	7.0	212		1300	6.9	210									
	2112*	1.1	35		1839	1.1	35									

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
Low waters last for 1 to 2 1/2 hours with variations in level up to 0.7ft (21 cm). Times are for the beginning of low water period.
* The time indicated is for the second low water or end of a low water period.

Hoek van Holland, Netherlands, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0119	6.6	202	**16** Tu	0213	6.9	210	**1** Th	0227	7.5	228	**16** F	0318	7.3	223	**1** Su	0336	8.2	249	**16** M	0402	7.6	231
	0644	1.0	29		0740	1.4	42		0745	1.3	41		1133*	1.9	58		0839	1.8	55		1122*	1.9	59
	1345	7.1	215		1438	6.7	205		1455	7.1	215		1544	6.8	206		1604	7.3	221		1618	7.2	218
	1915	1.0	32	○	1950	0.9	27	●	2005	0.7	22		2039	0.8	23		2059	0.4	13		2115	0.9	28
2 Tu	0204	7.0	213	**17** W	0254	7.1	216	**2** F	0311	7.7	236	**17** Sa	0351	7.4	226	**2** M	0419	8.1	248	**17** Tu	0431	7.5	229
	0725	1.0	31		0826	1.6	48		0824	1.5	46		1203*	1.9	59		1235*	1.8	54		1208*	1.8	55
	1426	7.1	217		1523	6.7	203		1537	7.1	215		1615	6.8	208		1645	7.3	221		1646	7.1	217
●	1949	0.9	28		2024	0.8	24		2044	0.5	16		2109	0.7	21		2145	0.5	14		2145	1.0	29
3 W	0245	7.3	222	**18** Th	0335	7.2	219	**3** Sa	0356	7.9	241	**18** Su	0426	7.4	226	**3** Tu	0505	7.9	242	**18** W	0504	7.3	224
	0804	1.1	34		1147*	1.7	51		1200*	1.6	48		1214*	1.9	57		1315*	1.7	53		1250*	1.7	52
	1509	7.1	216		1602	6.6	202		1622	7.0	213		1647	6.9	209		1728	7.2	220		1715	7.1	216
	2024	0.8	24		2105	0.7	20		2122	0.4	11		2145	0.7	21		2235	0.6	17		2224	1.0	29
4 Th	0327	7.5	228	**19** F	0409	7.3	221	**4** Su	0438	7.9	241	**19** M	0459	7.3	223	**4** W	0551	7.6	233	**19** Th	0531	7.3	221
	0840	1.2	38		1225*	1.7	51		1244*	1.5	47		1238*	1.8	54		1419*	1.7	53		1330*	1.7	53
	1555	6.9	211		1635	6.6	200		1707	6.9	210		1716	6.8	207		1816	7.1	217		1745	7.1	217
	2101	0.6	18		2134	0.6	18		2206	0.3	10		2219	0.7	21		2325	0.7	21		2254	0.9	27
5 F	0410	7.6	231	**20** Sa	0449	7.2	220	**5** M	0527	7.8	238	**20** Tu	0535	7.2	218	**5** Th	0642	7.2	220	**20** F	0603	7.2	220
	1207*	1.3	40		1304*	1.7	51		1334*	1.5	46		1319*	1.7	52		1502*	1.8	54		1115	1.5	46
	1637	6.8	206		1705	6.5	198		1755	6.8	207		1746	6.7	205		1906	7.0	212		1819	7.2	219
	2146	0.5	14		2215	0.5	16		2259	0.3	10		2255	0.7	21						2339	0.8	25
6 Sa	0455	7.6	231	**21** Su	0526	7.1	216	**6** Tu	0617	7.6	231	**21** W	0605	7.0	214	**6** F	0035	0.8	25	**21** Sa	0641	7.1	216
	1300*	1.2	38		1328*	1.7	51		1424*	1.5	47		1352*	1.7	52		0739	6.8	206		1154	1.4	42
	1725	6.5	199		1739	6.4	196		1845	6.7	203		1818	6.7	205		1330	1.6	49		1902	7.1	216
	2234	0.3	10		2254	0.5	15		2355	0.4	11		2334	0.7	20	◐	2005	6.7	203				
7 Su	0544	7.5	228	**22** M	0605	6.9	210	**7** W	0711	7.3	222	**22** Th	0636	7.0	212	**7** Sa	0145	1.0	30	**22** Su	0037	1.0	30
	1355*	1.2	38		1338*	1.6	50		1528*	1.6	50		1414*	1.7	52		0845	6.2	190		0734	6.7	204
	1815	6.3	193		1815	6.3	193		1945	6.5	199		1854	6.7	204		1434	1.5	46		1255	1.4	44
	2325	0.3	8		2334	0.5	15	◐									2115	6.3	192	◑	1955	6.7	203
8 M	0639	7.3	223	**23** Tu	0646	6.7	205	**8** Th	0104	0.4	13	**23** F	0014	0.6	19	**8** Su	0311	1.3	39	**23** M	0224	1.2	37
	1440*	1.3	39		1418*	1.6	49		0815	6.9	211		0715	6.9	209		1005	5.8	177		0844	6.1	187
	1914	6.2	188		1855	6.2	190		1418	1.6	49		1355	1.6	49		1600	1.5	45		1454	1.5	46
									2045	6.4	194	◑	1935	6.6	200		2245	6.1	187		2130	6.3	191
9 Tu	0029	0.2	7	**24** W	0025	0.5	14	**9** F	0214	0.6	18	**24** Sa	0139	0.7	22	**9** M	0427	1.5	47	**24** Tu	0334	1.4	44
	0739	7.1	217		0725	6.6	201		0915	6.5	199		0815	6.6	201		1134	5.8	178		1020	5.9	179
	1530*	1.4	42		1448*	1.6	48		1505	1.5	47		1435	1.5	46		1704	1.3	41		1602	1.5	47
◐	2015	6.1	185		1935	6.1	187		2145	6.2	188		2045	6.3	191		2355	6.4	195		2304	6.4	195
10 W	0134	0.3	8	**25** Th	0127	0.5	15	**10** Sa	0331	0.9	27	**25** Su	0247	0.9	28	**10** Tu	0539	1.7	51	**25** W	0445	1.6	49
	0849	6.9	211		0818	6.5	197		1035	6.2	190		0935	6.3	192		1235	6.2	188		1135	6.0	182
	1648*	1.5	45		1432	1.5	47		1619	1.5	45		1525	1.5	47		1754	1.2	37		1704	1.4	43
	2120	6.0	183	◑	2040	6.0	183		2309	6.2	188		2216	6.1	187								
11 Th	0238	0.4	12	**26** F	0221	0.6	18	**11** Su	0444	1.1	35	**26** M	0400	1.1	35	**11** W	0105	6.9	209	**26** Th	0010	6.9	210
	0955	6.7	205		0915	6.4	195		1149	6.2	190		1049	6.2	188		0925*	1.5	47		0822*	1.6	48
	1749*	1.5	45		1523	1.5	45		1714	1.4	42		1640	1.5	46		1335	6.5	198		1242	6.4	194
	2225	6.0	182		2146	5.9	180						2330	6.3	193		2141*	1.1	33		1755	1.2	37
12 F	0345	0.6	19	**27** Sa	0320	0.8	23	**12** M	0015	6.4	195	**27** Tu	0505	1.3	40	**12** Th	0145	7.2	218	**27** F	0106	7.4	226
	1106	6.6	201		1020	6.4	195		0544	1.3	41		1204	6.3	192		1014*	1.5	47		0929*	1.5	47
	1843*	1.4	44		1627	1.4	44		1255	6.4	195		1744	1.3	41		1419	6.7	205		1331	6.8	206
	2334	6.1	186		2255	6.0	183		1805	1.2	37						2228*	1.0	32		1836	1.0	30
13 Sa	0446	0.9	26	**28** Su	0424	1.0	29	**13** Tu	0114	6.7	205	**28** W	0035	6.8	206	**13** F	0224	7.3	223	**28** Sa	0149	7.9	240
	1205	6.6	201		1126	6.5	197		0939*	1.4	44		0556	1.4	43		1054*	1.7	53		1000*	1.7	51
	2001*	1.3	41		1721	1.4	42		1353	6.6	201		1302	6.6	201		1445	6.8	207		1416	7.1	216
					2356	6.3	191		1859	1.0	32		1825	1.1	35		1945	1.0	32	●	1915	0.8	23
14 Su	0034	6.4	194	**29** M	0538	1.1	33	**14** W	0204	7.0	214	**29** Th	0125	7.3	222	**14** Sa	0259	7.4	227	**29** Su	0230	8.1	248
	0554	1.0	31		1225	6.6	202		1012*	1.6	48		0645	1.5	45		1114*	1.9	59		0738	1.8	55
	1305	6.7	203		1804	1.2	38		1434	6.7	204		1352	6.9	209		1518	6.9	211		1457	7.3	223
	1823	1.2	37						1934	1.0	29		1859	0.9	28	○	2014	1.0	30		1955	0.6	19
15 M	0124	6.7	203	**30** Tu	0055	6.7	204	**15** Th	0244	7.2	219	**30** F	0208	7.7	235	**15** Su	0328	7.5	230	**30** M	0315	8.2	251
	0648	1.2	36		0629	1.1	35		1100*	1.7	53		0725	1.6	49		1138*	2.0	62		0816	1.8	56
	1354	6.7	204		1322	6.9	209		1514	6.7	205		1435	7.1	215		1546	7.1	215		1539	7.5	229
	1914	1.0	32		1849	1.1	33	○	2015	0.9	26	●	1939	0.7	21		2045	0.9	28		2036	0.6	18
				31 W	0141	7.1	217					**31** Sa	0254	8.0	244								
					0705	1.2	37						0804	1.7	52								
					1409	7.0	213						1518	7.2	219								
					1925	0.9	28						2016	0.5	16								

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
Low waters last for 1 to 2 1/2 hours with variations in level up to 0.7ft (21 cm). Times are for the beginning of low water period.
* The time indicated is for the second low water or end of a low water period.

Hoek van Holland, Netherlands, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0357	8.1	248	**16** W	0401	7.6	233	**1** F	0505	7.3	221	**16** Sa	0445	7.3	223	
	0856	1.8	56		1131*	1.8	54		1009	1.4	44		0955	1.3	40	
	1620	7.6	231		1616	7.4	226		1724	7.6	232		1702	7.6	232	
	2119	0.7	22		2119	1.2	36						2215	1.5	45	
2 W	0440	7.9	240	**17** Th	0435	7.5	228	**2** Sa	0212*	1.6	48	**17** Su	0523	7.1	216	
	1308*	1.8	54		1225*	1.7	51		0549	6.9	209		1039	1.1	34	
	1702	7.6	231		1648	7.4	225		1059	1.3	40		1741	7.6	231	
	2207	0.9	28		2155	1.2	37		1806	7.3	224		2304	1.6	48	
									2357	1.8	54					
3 Th	0526	7.5	229	**18** F	0505	7.3	224	**3** Su	0635	6.4	195	**18** M	0605	6.8	206	
	1029	1.7	52		1009	1.5	47		1157	1.2	37		1127	1.0	31	
	1747	7.5	228		1721	7.4	227		1904	7.0	212		1829	7.4	225	
	2303	1.1	35		2234	1.2	36									
4 F	0611	7.1	215	**19** Sa	0539	7.2	220	**4** M	0119	1.8	56	**19** Tu	0143*	1.7	51	
	1124	1.6	49		1050	1.3	40		0727	5.9	181		0659	6.3	193	
	1835	7.2	220		1757	7.5	228		1305	1.2	36		1224	1.0	31	
					2314	1.2	37	◐	2005	6.5	198	◑	1926	7.0	213	
5 Sa	0014	1.3	40	**20** Su	0622	7.0	214	**5** Tu	0228	2.0	60	**20** W	0220	1.7	53	
	0705	6.5	199		1140	1.2	36		0834	5.5	167		0806	5.9	179	
	1224	1.5	45		1842	7.3	224		1510	1.2	37		1345	1.0	32	
◐	1929	6.9	209						2114	6.1	186		2050	6.7	205	
6 Su	0134	1.4	44	**21** M	0014	1.4	42	**6** W	0341	2.1	63	**21** Th	0306	1.9	57	
	0804	6.0	182		0705	6.5	199		1034	5.2	159		0935	5.7	174	
	1357	1.4	43		1235	1.3	39		1618	1.2	36		1454	1.1	34	
	2045	6.4	194	◑	1936	6.9	210		2310	6.2	188		2205	6.8	206	
7 M	0250	1.7	51	**22** Tu	0221	1.5	47	**7** Th	0500	2.0	62	**22** F	0617*	1.9	58	
	0928	5.5	167		0828	5.9	181		1146	5.5	169		1049	5.8	177	
	1534	1.4	42		1425	1.3	41		1704	1.1	35		1559	1.1	35	
	2220	6.1	186		2104	6.5	197						2324	7.0	214	
8 Tu	0405	1.9	57	**23** W	0324	1.7	52	**8** F	0005	6.6	200	**23** Sa	0740*	1.7	52	
	1116	5.5	168		0955	5.7	173		0738*	1.9	59		1156	6.1	187	
	1639	1.3	39		1539	1.4	43		1229	6.0	182		1654	1.1	35	
	2337	6.4	194		2240	6.6	200		1804	1.1	35					
9 W	0626	1.9	59	**24** Th	0645*	1.9	57	**9** Sa	0050	6.9	211	**24** Su	0019	7.3	224	
	1215	5.9	180		1120	5.8	177		0849*	1.7	52		0834*	1.6	50	
	1734	1.2	36		1634	1.3	41		1316	6.3	192		1245	6.6	201	
					2345	7.0	213		1850	1.2	37		1745	1.1	33	
10 Th	0035	6.8	208	**25** F	0809*	1.6	50	**10** Su	0121	7.2	219	**25** M	0106	7.6	231	
	0845*	1.7	52		1224	6.2	189		0935*	1.6	49		0918*	1.7	52	
	1310	6.3	193		1725	1.2	37		1345	6.6	201		1329	7.0	213	
	1824	1.1	35						1918	1.3	40		1832	1.0	32	
11 F	0125	7.2	218	**26** Sa	0045	7.5	228	**11** M	0156	7.4	225	**26** Tu	0150	7.7	235	
	0935*	1.6	48		0902*	1.6	48		1026*	1.7	51		0957*	1.7	53	
	1349	6.6	201		1309	6.7	203		1414	6.9	211		1415	7.3	223	
	2151*	1.1	35		1809	1.0	31		1924	1.3	41	●	1919	1.1	34	
12 Sa	0159	7.3	224	**27** Su	0128	7.8	239	**12** Tu	0229	7.6	231	**27** W	0237	7.7	234	
	1020*	1.7	51		0938*	1.7	52		1100*	1.8	54		0744	1.6	49	
	1426	6.8	206		1354	7.1	215		1445	7.2	220		1457	7.6	231	
	1934	1.2	37		1853	0.9	27	○	1955	1.3	40		2004	1.3	39	
13 Su	0228	7.5	228	**28** M	0211	8.0	245	**13** W	0258	7.7	234	**28** Th	0320	7.5	230	
	1052*	1.8	56		1010*	1.8	55		0814	1.7	51		0822	1.4	44	
	1445	7.0	212		1435	7.4	225		1516	7.5	228		1538	7.7	235	
○	1945	1.2	37	●	1932	0.8	25		2025	1.3	40		2049	1.5	46	
14 M	0259	7.6	232	**29** Tu	0255	8.1	246	**14** Th	0335	7.6	233	**29** F	0405	7.3	223	
	1116*	2.0	60		0755	1.7	53		0845	1.6	48		0905	1.3	40	
	1516	7.2	219		1516	7.6	233		1548	7.5	230		1622	7.7	236	
	2014	1.1	35		2015	0.9	28		2055	1.4	42					
15 Tu	0331	7.7	235	**30** W	0337	7.9	242	**15** F	0408	7.5	229	**30** Sa	0055*	1.6	49	
	0834	1.9	57		0837	1.6	50		0920	1.5	45		0448	7.0	214	
	1546	7.3	224		1557	7.7	236		1625	7.6	231		1311*	1.1	35	
	2045	1.1	35		2059	1.1	34		2134	1.4	43		1705	7.6	232	
				31 Th	0420	7.6	233									
					0915	1.6	48									
					1640	7.7	236									
					2149	1.4	42									

November

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Su	0140*	1.7	52	**16** M	0034*	1.5	47	**1** Tu	0225*	1.9	58	**16** W	0129*	1.6	48	
	0529	6.7	205		0514	6.9	211		0614	6.4	196		0559	6.6	202	
	1035	1.0	32		1029	0.8	25		1134	0.9	28		1115	0.7	22	
	1749	7.4	225		1731	7.6	233		1835	7.1	215		1818	7.4	227	
2 M	0225*	1.9	58	**17** Tu	0129*	1.6	48	**2** W	0312	2.0	62	**17** Th	0244*	1.7	53	
	0614	6.4	196		0559	6.6	202		0655	6.1	186		0759	6.1	185	
	1134	0.9	28		1115	0.7	22		1238	0.9	27		1325	0.7	21	
	1835	7.1	215		1818	7.4	227		1936	6.7	203	◑	2025	7.0	212	
3 Tu	0116	2.0	62	**18** W	0208*	1.6	50	**3** Th	0328	2.1	63	**18** F	0251	1.9	57	
	0655	6.1	186		0655	6.3	192		0844	5.5	167		0905	5.9	181	
	1238	0.9	27		1209	0.7	20		1548*	1.0	32		1435	0.8	24	
	1936	6.7	203		1919	7.2	219		2145	6.1	186		2144	6.9	210	
4 W	0152	2.1	63	**19** Th	0244*	1.7	53	**4** F	0411	2.0	62	**19** Sa	0547*	1.9	59	
	0749	5.8	176		0759	6.1	185		0955	5.3	162		1022	5.9	181	
	1332	1.0	30		1325	0.7	21		1644	1.1	33		1535	0.9	28	
◐	2030	6.3	193	◑	2025	7.0	212		2310	6.2	188		2254	6.9	210	
5 Th	0328	2.1	63	**20** F	0251	1.9	57	**5** Sa	0514	1.9	59	**20** Su	0707*	1.8	56	
	0844	5.5	167		0905	5.9	181		1141	5.5	169		1126	6.1	187	
	1548*	1.0	32		1435	0.8	24		1738	1.1	35		1635	1.0	32	
	2145	6.1	186		2144	6.9	210						2356	7.0	213	
6 F	0411	2.0	62	**21** Sa	0547*	1.9	59	**6** Su	0005	6.5	198	**21** M	0820*	1.7	53	
	0955	5.3	162		1022	5.9	181		0716*	1.9	57		1222	6.5	198	
	1644	1.1	33		1535	0.9	28		1224	6.0	182		1735	1.1	35	
	2310	6.2	188		2254	6.9	210		1825	1.2	38					
7 Sa	0514	1.9	59	**22** Su	0707*	1.8	56	**7** M	0046	6.8	208	**22** Tu	0049	7.1	217	
	1141	5.5	169		1126	6.1	187		0855*	1.7	51		0854*	1.6	50	
	1738	1.1	35		1635	1.0	32		1259	6.4	195		1311	6.9	209	
					2356	7.0	213		2038*	1.3	40		1824	1.2	38	
8 Su	0005	6.5	198	**23** M	0820*	1.7	53	**8** Tu	0124	7.1	217	**25** W	0138	7.2	219	
	0716*	1.9	57		1222	6.5	198		0945*	1.6	48		0938*	1.6	48	
	1224	6.0	182		1735	1.1	35		1336	6.8	207		1358	7.2	218	
	1825	1.2	38						2121*	1.4	42		1914	1.4	42	
9 M	0046	6.8	208	**24** Tu	0049	7.1	217	**11** W	0156	7.3	224	**26** Th	0226	7.2	219	
	0855*	1.7	51		0854*	1.6	50		1028*	1.6	48		0739	1.4	42	
	1259	6.4	195		1311	6.9	209		1415	7.2	218		1442	7.4	226	
	2038*	1.3	40		1824	1.2	38		1934	1.4	42	●	2004	1.5	47	
10 Tu	0124	7.1	217	**25** W	0138	7.2	219	**12** Th	0235	7.5	228	**27** F	0312	7.1	217	
	0945*	1.6	48		0938*	1.6	48		0754	1.5	45		0814	1.2	37	
	1336	6.8	207		1358	7.2	218		1451	7.4	227		1526	7.5	230	
	2121*	1.4	42		1914	1.4	42	○	2009	1.4	42		2339*	1.7	51	
11 W	0156	7.3	224	**26** Th	0226	7.2	219	**13** F	0311	7.5	229	**28** Sa	0355	7.0	214	
	1028*	1.6	48		0739	1.4	42		0825	1.3	41		0859	1.0	31	
	1415	7.2	218		1442	7.4	226		1527	7.6	232		1608	7.6	232	
	1934	1.4	42	●	2004	1.5	47		2043	1.4	44					
12 Th	0235	7.5	228	**27** F	0312	7.1	217	**14** Sa	0348	7.4	225	**29** Su	0028*	1.7	52	
	0754	1.5	45		0814	1.2	37		0903	1.2	36		0437	6.9	210	
	1451	7.4	227		1526	7.5	230		1605	7.7	235		0935	0.9	27	
○	2009	1.4	42		2339*	1.7	51		2123	1.5	47		1648	7.5	230	
13 F	0311	7.5	229	**28** Sa	0355	7.0	214	**15** Su	0431	7.2	219	**30** M	0118*	1.8	54	
	0825	1.3	41		0859	1.0	31		0946	1.0	31		0514	6.7	205	
	1527	7.6	232		1608	7.6	232		1647	7.7	235		1025	0.8	23	
	2043	1.4	44										1735	7.4	225	
14 Sa	0348	7.4	225	**29** Su	0028*	1.7	52					**31** Tu	0158*	1.9	57	
	0903	1.2	36		0437	6.9	210						0552	6.6	200	
	1605	7.7	235		0935	0.9	27						1109	0.7	20	
	2123	1.5	47		1648	7.5	230						1816	7.1	217	

December

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Su	0140*	1.7	52	**16** M	0034*	1.5	47	**1** Tu	0225*	1.9	58	**16** W	0129*	1.6	48	
	0529	6.7	205		0514	6.9	211		0614	6.4	196		0559	6.6	202	
	1035	1.0	32		1029	0.8	25		1134	0.9	28		1115	0.7	22	
	1749	7.4	225		1731	7.6	233		1835	7.1	215		1818	7.4	227	
2 M	0225*	1.9	58	**17** Tu	0129*	1.6	48	**2** W	0312	2.0	62	**17** Th	0244*	1.7	53	
	0614	6.4	196		0559	6.6	202		0655	6.1	186		0759	6.1	185	
	1134	0.9	28		1115	0.7	22		1238	0.9	27		1325	0.7	21	
	1835	7.1	215		1818	7.4	227		1936	6.7	203	◑	2025	7.0	212	
3 Tu	0116	2.0	62	**18** W	0208*	1.6	50	**3** Th	0328	2.1	63	**18** F	0251	1.9	57	
	0655	6.1	186		0655	6.3	192		0844	5.5	167		0905	5.9	181	
	1238	0.9	27		1209	0.7	20		1548*	1.0	32		1435	0.8	24	
	1936	6.7	203		1919	7.2	219		2145	6.1	186		2144	6.9	210	
4 W	0152	2.1	63	**19** Th	0244*	1.7	53	**4** F	0411	2.0	62	**19** Sa	0547*	1.9	59	
	0749	5.8	176		0759	6.1	185		0955	5.3	162		1022	5.9	181	
	1332	1.0	30		1325	0.7	21		1644	1.1	33		1535	0.9	28	
◐	2030	6.3	193	◑	2025	7.0	212		2310	6.2	188		2254	6.9	210	
5 Th	0328	2.1	63	**20** F	0251	1.9	57	**5** Sa	0514	1.9	59	**20** Su	0707*	1.8	56	
	0844	5.5	167		0905	5.9	181		1141	5.5	169		1126	6.1	187	
	1548*	1.0	32		1435	0.8	24		1738	1.1	35		1635	1.0	32	
	2145	6.1	186		2144	6.9	210						2356	7.0	213	
6 F	0411	2.0	62	**21** Sa	0547*	1.9	59	**6** Su	0005	6.5	198	**21** M	0820*	1.7	53	
	0955	5.3	162		1022	5.9	181		0716*	1.9	57		1222	6.5	198	
	1644	1.1	33		1535	0.9	28		1224	6.0	182		1735	1.1	35	
	2310	6.2	188		2254	6.9	210		1825	1.2	38					
7 Sa	0514	1.9	59	**22** Su	0707*	1.8	56	**7** M	0046	6.8	208	**22** Tu	0049	7.1	217	
	1141	5.5	169		1126	6.1	187		0855*	1.7	51		0854*	1.6	50	
	1738	1.1	35		1635	1.0	32		1259	6.4	195		1311	6.9	209	
					2356	7.0	213		2038*	1.3	40		1824	1.2	38	
8 Su	0005	6.5	198	**23** M	0820*	1.7	53	**8** Tu	0124	7.1	217	**25** W	0138	7.2	219	
	0716*	1.9	57		1222	6.5	198		0945*	1.6	48		0938*	1.6	48	
	1224	6.0	182		1735	1.1	35		1336	6.8	207		1358	7.2	218	
	1825	1.2	38						2121*	1.4	42		1914	1.4	42	
9 M	0046	6.8	208	**24** Tu	0049	7.1	217	**11** W	0156	7.3	224	**26** Th	0226	7.2	219	
	0855*	1.7	51		0854*	1.6	50		1028*	1.6	48		0739	1.4	42	
	1259	6.4	195		1311	6.9	209		1415	7.2	218		1442	7.4	226	
	2038*	1.3	40		1824	1.2	38		1934	1.4	42	●	2004	1.5	47	
10 Tu	0124	7.1	217	**25** W	0138	7.2	219	**12** Th	0235	7.5	228	**27** F	0312	7.1	217	
	0945*	1.6	48		0938*	1.6	48		0754	1.5	45		0814	1.2	37	
	1336	6.8	207		1358	7.2	218		1451	7.4	227		1526	7.5	230	
	2121*	1.4	42		1914	1.4	42	○	2009	1.4	42		2339*	1.7	51	
11 W	0156	7.3	224	**26** Th	0226	7.2	219	**13** F	0311	7.5	229	**28** Sa	0355	7.0	214	
	1028*	1.6	48		0739	1.4	42		0825	1.3	41		0859	1.0	31	
	1415	7.2	218		1442	7.4	226		1527	7.6	232		1608	7.6	232	
	1934	1.4	42	●	2004	1.5	47		2043	1.4	44					
12 Th	0235	7.5	228	**27** F	0312	7.1	217	**14** Sa	0348	7.4	225	**29** Su	0028*	1.7	52	
	0754	1.5	45		0814	1.2	37		0903	1.2	36		0437	6.9	210	
	1451	7.4	227		1526	7.5	230		1605	7.7	235		0935	0.9	27	
○	2009	1.4	42		2339*	1.7	51		2123	1.5	47		1648	7.5	230	
13 F	0311	7.5	229	**28** Sa	0355	7.0	214	**15** Su	0431	7.2	219	**30** M	0118*	1.8	54	
	0825	1.3	41		0859	1.0	31		0946	1.0	31		0514	6.7	205	
	1527	7.6	232		1608	7.6	232		1647	7.7	235		1025	0.8	23	
	2043	1.4	44										1735	7.4	225	
14 Sa	0348	7.4	225	**29** Su	0028*	1.7	52					**31** Tu	0158*	1.9	57	
	0903	1.2	36		0437	6.9	210						0552	6.6	200	
	1605	7.7	235		0935	0.9	27						1109	0.7	20	
	2123	1.5	47		1648	7.5	230						1816	7.1	217	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.
Low waters last for 1 to 2 1/2 hours with variations in level up to 0.7ft (21 cm). Times are for the beginning of low water period.
* The time indicated is for the second low water or end of a low water period.

Helgoland, Germany, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 Tu	0149	2.6	80	**16** W	0031	3.3	100	**1** F	0338	2.6	80	**16** Sa	0224	2.3	70
	0736	9.8	300		0621	9.5	290		0927	9.5	290		0813	9.2	280
	1434	2.3	70		1310	3.0	90		1614	2.6	80		1504	2.3	70
	2020	9.2	280		1903	8.9	270		2157	9.5	290		2051	9.2	280
2 W	0301	2.6	80	**17** Th	0147	3.0	90	**2** Sa	0449	2.3	70	**17** Su	0349	1.6	50
	0849	9.8	300		0736	9.5	290		1032	9.5	290		0934	9.2	280
	1542	2.6	80		1425	2.6	80		1712	2.3	70		1622	2.0	60
	2126	9.5	290		2016	9.2	280		2251	9.8	300		2204	9.5	290
3 Th	0410	2.6	80	**18** F	0305	2.6	80	**3** Su	0541	2.0	60	**18** M	0502	1.3	40
	0954	10.2	310		0851	9.5	290		1120	9.5	290		1042	9.5	290
	1641	2.3	70		1539	2.3	70		1757	2.3	70		1727	1.6	50
	2222	9.8	300		2125	9.5	290		2334	9.8	300		2305	10.2	310
4 F	0508	2.3	70	**19** Sa	0415	2.0	60	**4** M	0622	1.6	50	**19** Tu	0603	1.0	30
	1048	9.8	300		0957	9.5	290		1159	9.5	290		1139	9.8	300
	1731	2.3	70		1643	2.0	60		1835	2.0	60		1823	1.3	40
	2310	9.8	300		2226	9.8	300	●				○	2358	10.5	320
5 Sa	0557	2.0	60	**20** Su	0517	1.6	50	**5** Tu	0011	10.2	310	**20** W	0656	0.7	20
	1134	9.8	300		1056	9.8	300		0658	1.6	50		1229	9.8	300
	1814	2.0	60		1740	1.6	50		1233	9.5	290		1914	1.0	30
	2351	10.2	310		2320	10.2	310		1910	2.0	60				
6 Su ●	0637	1.6	50	**21** M ○	0612	1.3	40	**6** W	0045	10.2	310	**21** Th	0046	10.5	320
	1213	9.8	300		1149	9.8	300		0732	1.6	50		0746	0.7	20
	1851	2.0	60		1832	1.6	50		1306	9.5	290		1317	9.8	300
									1942	1.6	50		2002	1.0	30
7 M	0028	10.2	310	**22** Tu	0010	10.5	320	**7** Th	0117	10.2	310	**22** F	0133	10.8	330
	0712	1.6	50		0705	1.3	40		0803	1.3	40		0834	0.7	20
	1248	9.8	300		1240	10.2	310		1338	9.5	290		1404	9.8	300
	1924	2.0	60		1923	1.3	40		2012	1.6	50		2047	1.0	30
8 Tu	0102	10.2	310	**23** W	0059	10.8	330	**8** F	0147	10.2	310	**23** Sa	0219	10.8	330
	0746	1.6	50		0758	1.0	30		0833	1.6	50		0918	0.7	20
	1323	9.8	300		1332	10.2	310		1409	9.5	290		1447	9.8	300
	1957	2.0	60		2014	1.3	40		2041	1.6	50		2129	1.0	30
9 W	0135	10.5	320	**24** Th	0149	10.8	330	**9** Sa	0218	10.2	310	**24** Su	0302	10.5	320
	0820	1.6	50		0849	1.0	30		0904	1.6	50		0958	1.0	30
	1357	9.5	290		1421	9.8	300		1442	9.5	290		1528	9.5	290
	2028	2.0	60		2102	1.3	40		2114	1.6	50		2208	1.0	30
10 Th	0207	10.5	320	**25** F	0235	10.8	330	**10** Su	0253	10.2	310	**25** M	0343	10.5	320
	0852	2.0	60		0936	1.0	30		0939	1.6	50		1035	1.3	40
	1429	9.5	290		1507	9.8	300		1518	9.5	290		1609	9.5	290
	2058	2.3	70		2145	1.3	40		2149	2.0	60		2246	1.3	40
11 F	0239	10.5	320	**26** Sa	0320	10.8	330	**11** M	0329	10.2	310	**26** Tu	0424	10.2	310
	0924	2.3	70		1019	1.0	30		1013	2.0	60		1111	1.6	50
	1503	9.5	290		1553	9.5	290		1552	9.5	290		1649	9.2	280
	2131	2.3	70		2229	1.6	50		2222	2.0	60	◑	2325	1.6	50
12 Sa	0314	10.2	310	**27** Su	0406	10.5	320	**12** Tu	0402	9.8	300	**27** W	0509	9.5	290
	1000	2.3	70		1104	1.3	40		1042	2.0	60		1151	2.3	70
	1541	9.5	290		1640	9.2	280		1623	9.2	280		1736	8.9	270
	2208	2.6	80	◑	2315	1.6	50	◐	2252	2.3	70				
13 Su	0352	10.2	310	**28** M	0454	10.2	310	**13** W	0436	9.5	290	**28** Th	0017	2.3	70
	1037	2.3	70		1148	1.6	50		1116	2.3	70		0607	8.9	270
	1620	9.2	280		1729	9.2	280		1702	8.9	270		1250	2.6	80
	2246	3.0	90						2339	2.6	80		1841	8.9	270
14 M ◐	0431	9.8	300	**29** Tu	0003	2.3	70	**14** Th	0528	9.2	280				
	1115	2.6	80		0547	9.8	300		1213	2.6	80				
	1702	9.2	280		1238	2.3	70		1804	8.9	270				
	2330	3.0	90		1823	8.9	270								
15 Tu	0518	9.5	290	**30** W	0102	2.6	80	**15** F	0053	2.6	80				
	1204	2.6	80		0651	9.5	290		0645	8.9	270				
	1755	8.9	270		1343	2.6	80		1335	2.6	80				
					1931	8.9	270		1926	8.9	270				
				31 Th	0217	2.6	80								
					0809	9.2	280								
					1500	2.6	80								
					2047	9.2	280								

February

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0338	2.6	80	**16** Sa	0224	2.3	70
	0927	9.5	290		0813	9.2	280
	1614	2.6	80		1504	2.3	70
	2157	9.5	290		2051	9.2	280
2 Sa	0449	2.3	70	**17** Su	0349	1.6	50
	1032	9.5	290		0934	9.2	280
	1712	2.3	70		1622	2.0	60
	2251	9.8	300		2204	9.5	290
3 Su	0541	2.0	60	**18** M	0502	1.3	40
	1120	9.5	290		1042	9.5	290
	1757	2.3	70		1727	1.6	50
	2334	9.8	300		2305	10.2	310
4 M ●	0622	1.6	50	**19** Tu ○	0603	1.0	30
	1159	9.5	290		1139	9.8	300
	1835	2.0	60		1823	1.3	40
					2358	10.5	320
5 Tu	0011	10.2	310	**20** W	0656	0.7	20
	0658	1.6	50		1229	9.8	300
	1233	9.5	290		1914	1.0	30
	1910	2.0	60				
6 W	0045	10.2	310	**21** Th	0046	10.5	320
	0732	1.6	50		0746	0.7	20
	1306	9.5	290		1317	9.8	300
	1942	1.6	50		2002	1.0	30
7 Th	0117	10.2	310	**22** F	0133	10.8	330
	0803	1.3	40		0834	0.7	20
	1338	9.5	290		1404	9.8	300
	2012	1.6	50		2047	1.0	30
8 F	0147	10.2	310	**23** Sa	0219	10.8	330
	0833	1.6	50		0918	0.7	20
	1409	9.5	290		1447	9.8	300
	2041	1.6	50		2129	1.0	30
9 Sa	0218	10.2	310	**24** Su	0302	10.5	320
	0904	1.6	50		0958	1.0	30
	1442	9.5	290		1528	9.5	290
	2114	1.6	50		2208	1.0	30
10 Su	0253	10.2	310	**25** M	0343	10.5	320
	0939	1.6	50		1035	1.3	40
	1518	9.5	290		1609	9.5	290
	2149	2.0	60		2246	1.3	40
11 M	0329	10.2	310	**26** Tu ◑	0424	10.2	310
	1013	2.0	60		1111	1.6	50
	1552	9.5	290		1649	9.2	280
	2222	2.0	60		2325	1.6	50
12 Tu ◐	0402	9.8	300	**27** W	0509	9.5	290
	1042	2.0	60		1151	2.3	70
	1623	9.2	280		1736	8.9	270
	2252	2.3	70				
13 W	0436	9.5	290	**28** Th	0017	2.3	70
	1116	2.3	70		0607	8.9	270
	1702	8.9	270		1250	2.6	80
	2339	2.6	80		1841	8.9	270
14 Th	0528	9.2	280				
	1213	2.6	80				
	1804	8.9	270				
15 F	0053	2.6	80				
	0645	8.9	270				
	1335	2.6	80				
	1926	8.9	270				

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0132	2.6	80	**16** Sa	0021	2.3	70
	0726	8.5	260		0614	8.9	270
	1413	3.0	90		1303	2.6	80
	2004	8.9	270		1854	8.9	270
2 Sa	0303	2.6	80	**17** Su	0158	2.0	60
	0855	8.5	260		0749	8.9	270
	1540	3.0	90		1441	2.3	70
	2126	9.2	280		2027	9.2	280
3 Su	0425	2.3	70	**18** M	0333	1.6	50
	1010	8.9	270		0918	9.2	280
	1649	2.6	80		1607	2.0	60
	2229	9.5	290		2147	9.8	300
4 M	0523	2.0	60	**19** Tu	0449	1.0	30
	1102	9.2	280		1029	9.5	290
	1737	2.0	60		1714	1.6	50
	2313	9.8	300		2249	10.2	310
5 Tu	0603	1.6	50	**20** W	0549	0.7	20
	1140	9.5	290		1125	9.5	290
	1814	2.0	60		1809	1.3	40
	2349	10.2	310		2342	10.5	320
6 W ●	0638	1.3	40	**21** Th ○	0641	0.3	10
	1213	9.5	290		1214	9.8	300
	1849	1.6	50		1859	1.0	30
7 Th	0023	10.2	310	**22** F	0029	10.5	320
	0711	1.3	40		0728	0.3	10
	1245	9.5	290		1259	9.8	300
	1922	1.3	40		1944	0.7	20
8 F	0055	10.2	310	**23** Sa	0114	10.5	320
	0743	1.0	30		0812	0.3	10
	1316	9.5	290		1341	9.8	300
	1953	1.3	40		2027	0.7	20
9 Sa	0126	10.2	310	**24** Su	0158	10.5	320
	0812	1.0	30		0853	0.7	20
	1347	9.5	290		1422	9.8	300
	2023	1.3	40		2106	0.7	20
10 Su	0158	10.2	310	**25** M	0239	10.5	320
	0843	1.3	40		0930	1.0	30
	1419	9.5	290		1500	9.8	300
	2055	1.3	40		2142	0.7	20
11 M	0232	10.2	310	**26** Tu	0318	10.2	310
	0917	1.3	40		1003	1.3	40
	1453	9.8	300		1536	9.5	290
	2129	1.3	40		2217	1.0	30
12 Tu	0307	10.2	310	**27** W	0355	9.5	290
	0949	1.6	50		1034	1.6	50
	1525	9.8	300		1613	9.2	280
	2159	1.6	50		2253	1.3	40
13 W	0338	9.8	300	**28** Th ◑	0436	9.2	280
	1015	1.6	50		1111	2.0	60
	1553	9.5	290		1656	9.2	280
	2227	1.6	50		2340	2.0	60
14 Th ◐	0409	9.5	290	**29** F	0530	8.5	260
	1044	2.0	60		1204	2.6	80
	1627	9.2	280		1757	8.9	270
	2308	2.0	60				
15 F	0457	9.2	280	**30** Sa	0050	2.3	70
	1138	2.3	70		0644	8.2	250
	1727	8.9	270		1324	3.0	90
					1918	8.9	270
				31 Su	0220	2.3	70
					0813	8.2	250
					1456	3.0	90
					2045	9.2	280

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Helgoland, Germany, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0348	2.3	70	16 Tu	0319	1.3	40	
	0934	8.5	260		0903	9.2	280	
	1613	2.6	80		1549	2.0	60	
	2154	9.5	290		2128	9.8	300	
2 Tu	0451	1.6	50	17 W	0431	1.0	30	
	1031	8.9	270		1010	9.5	290	
	1706	2.0	60		1654	1.6	50	
	2241	9.8	300		2229	10.2	310	
3 W	0532	1.3	40	18 Th	0528	0.7	20	
	1110	9.2	280		1104	9.5	290	
	1744	1.6	50		1749	1.3	40	
	2318	9.8	300		2321	10.5	320	
4 Th	0607	1.3	40	19 F ○	0619	0.3	10	
	1144	9.5	290		1153	9.8	300	
	1821	1.6	50		1839	1.0	30	
	2354	9.8	300					
5 F ●	0643	1.0	30	20 Sa	0009	10.5	320	
	1218	9.5	290		0705	0.3	10	
	1856	1.3	40		1237	9.8	300	
					1923	0.7	20	
6 Sa	0029	10.2	310	21 Su	0053	10.5	320	
	0716	1.0	30		0746	0.3	10	
	1250	9.5	290		1317	9.8	300	
	1929	1.0	30		2003	0.7	20	
7 Su	0102	10.2	310	22 M	0133	10.2	310	
	0747	1.0	30		0823	0.7	20	
	1321	9.8	300		1354	9.8	300	
	2001	1.0	30		2040	0.7	20	
8 M	0134	10.2	310	23 Tu	0213	10.2	310	
	0818	1.0	30		0858	1.0	30	
	1354	9.8	300		1430	9.8	300	
	2033	1.3	40		2116	0.7	20	
9 Tu	0208	9.8	300	24 W	0252	9.8	300	
	0851	1.3	40		0931	1.3	40	
	1427	9.8	300		1506	9.8	300	
	2106	1.3	40		2151	1.0	30	
10 W	0243	9.8	300	25 Th	0330	9.2	280	
	0923	1.3	40		1003	1.6	50	
	1459	9.8	300		1544	9.5	290	
	2139	1.3	40		2228	1.3	40	
11 Th	0319	9.8	300	26 F ◑	0411	8.9	270	
	0954	1.6	50		1039	2.3	70	
	1533	9.8	300		1626	9.5	290	
	2214	1.6	50		2312	2.0	60	
12 F ◐	0357	9.5	290	27 Sa	0500	8.5	260	
	1031	2.0	60		1127	2.6	80	
	1613	9.5	290		1720	9.2	280	
	2301	2.0	60					
13 Sa	0449	9.2	280	28 Su	0012	2.3	70	
	1127	2.3	70		0604	8.2	250	
	1714	9.2	280		1236	3.0	90	
					1830	9.2	280	
14 Su	0014	2.0	60	29 M	0131	2.3	70	
	0604	8.9	270		0722	8.2	250	
	1251	2.6	80		1400	3.0	90	
	1839	9.2	280		1950	9.2	280	
15 M	0147	2.0	60	30 Tu	0254	2.0	60	
	0736	8.9	270		0841	8.5	260	
	1426	2.3	70		1520	2.6	80	
	2010	9.5	290		2103	9.5	290	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0401	1.6	50	16 Th	0407	1.0	30	
	0944	8.9	270		0946	9.5	290	
	1620	2.0	60		1629	1.6	50	
	2157	9.5	290		2204	10.2	310	
2 Th	0449	1.6	50	17 F	0502	0.7	20	
	1030	9.2	280		1039	9.5	290	
	1705	2.0	60		1724	1.3	40	
	2239	9.8	300		2258	10.2	310	
3 F	0528	1.3	40	18 Sa ○	0553	0.7	20	
	1109	9.5	290		1129	9.8	300	
	1746	1.6	50		1815	1.0	30	
	2320	10.2	310		2347	10.2	310	
4 Sa ●	0607	1.3	40	19 Su	0640	0.7	20	
	1146	9.8	300		1214	9.8	300	
	1825	1.3	40		1900	1.0	30	
	2358	10.2	310					
5 Su	0644	1.0	30	20 M	0031	10.2	310	
	1220	9.8	300		0720	0.7	20	
	1901	1.3	40		1252	9.8	300	
					1939	0.7	20	
6 M	0034	10.2	310	21 Tu	0109	10.2	310	
	0718	1.0	30		0755	1.0	30	
	1252	9.8	300		1328	10.2	310	
	1935	1.0	30		2015	0.7	20	
7 Tu	0108	10.2	310	22 W	0148	9.8	300	
	0751	1.0	30		0829	1.3	40	
	1327	10.2	310		1405	10.2	310	
	2011	1.3	40		2052	1.0	30	
8 W	0146	9.8	300	23 Th	0228	9.5	290	
	0826	1.3	40		0903	1.6	50	
	1403	10.2	310		1442	10.2	310	
	2047	1.3	40		2130	1.0	30	
9 Th	0225	9.8	300	24 F	0308	9.2	280	
	0902	1.6	50		0937	1.6	50	
	1441	10.2	310		1520	9.8	300	
	2127	1.3	40		2207	1.3	40	
10 F	0308	9.8	300	25 Sa	0348	8.9	270	
	0943	1.6	50		1014	2.3	70	
	1523	10.2	310		1601	9.8	300	
	2213	1.6	50		2248	2.0	60	
11 Sa	0356	9.5	290	26 Su ◑	0433	8.9	270	
	1030	2.3	70		1057	2.6	80	
	1613	10.2	310		1647	9.8	300	
	2308	1.6	50		2337	2.3	70	
12 Su ◐	0454	9.2	280	27 M	0524	8.5	260	
	1131	2.3	70		1151	3.0	90	
	1715	9.8	300		1742	9.5	290	
13 M	0017	1.6	50	28 Tu	0038	2.3	70	
	0604	8.9	270		0627	8.5	260	
	1247	2.3	70		1300	3.0	90	
	1830	9.8	300		1849	9.5	290	
14 Tu	0139	1.6	50	29 W	0149	2.3	70	
	0724	8.9	270		0737	8.5	260	
	1410	2.3	70		1415	2.6	80	
	1952	9.8	300		2000	9.5	290	
15 W	0300	1.3	40	30 Th	0257	2.0	60	
	0842	9.2	280		0845	8.9	270	
	1527	2.0	60		1522	2.3	70	
	2105	10.2	310		2104	9.5	290	
				31 F	0355	2.0	60	
					0941	9.2	280	
					1618	2.3	70	
					2156	9.8	300	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0444	1.6	50	16 Su	0526	1.3	40	
	1028	9.5	290		1104	9.8	300	
	1706	2.0	60		1752	1.3	40	
	2242	10.2	310		2326	10.2	310	
2 Su	0529	1.6	50	17 M ○	0614	1.3	40	
	1110	9.8	300		1150	10.2	310	
	1751	1.6	50		1839	1.0	30	
	2325	10.2	310					
3 M ●	0610	1.3	40	18 Tu	0011	9.8	300	
	1148	10.2	310		0655	1.3	40	
	1831	1.3	40		1230	10.2	310	
					1918	1.0	30	
4 Tu	0005	10.2	310	19 W	0050	9.8	300	
	0649	1.3	40		0731	1.3	40	
	1224	10.2	310		1307	10.2	310	
	1910	1.3	40		1955	1.0	30	
5 W	0045	10.2	310	20 Th	0129	9.8	300	
	0728	1.3	40		0807	1.6	50	
	1304	10.2	310		1344	10.2	310	
	1953	1.3	40		2033	1.3	40	
6 Th	0129	10.2	310	21 F	0208	9.5	290	
	0810	1.3	40		0842	1.6	50	
	1347	10.5	320		1421	10.5	320	
	2038	1.3	40		2110	1.3	40	
7 F	0215	9.8	300	22 Sa	0246	9.5	290	
	0853	1.6	50		0915	2.0	60	
	1431	10.5	320		1457	10.5	320	
	2124	1.3	40		2146	1.6	50	
8 Sa	0303	9.8	300	23 Su	0324	9.2	280	
	0939	1.6	50		0951	2.3	70	
	1518	10.5	320		1535	10.2	310	
	2215	1.3	40		2223	2.0	60	
9 Su	0356	9.5	290	24 M	0404	9.2	280	
	1032	2.0	60		1030	2.6	80	
	1611	10.5	320		1615	10.2	310	
	2312	1.6	50		2304	2.3	70	
10 M ◐	0455	9.5	290	25 Tu ◑	0447	9.2	280	
	1131	2.3	70		1112	3.0	90	
	1712	10.2	310		1659	9.8	300	
					2348	2.3	70	
11 Tu	0015	1.6	50	26 W	0535	8.9	270	
	0558	9.2	280		1204	3.0	90	
	1237	2.3	70		1752	9.5	290	
	1818	10.2	310					
12 W	0122	1.3	40	27 Th	0043	2.3	70	
	0705	9.2	280		0633	8.9	270	
	1347	2.0	60		1308	3.0	90	
	1929	10.2	310		1856	9.5	290	
13 Th	0233	1.3	40	28 F	0148	2.3	70	
	0815	9.2	280		0739	8.9	270	
	1458	2.0	60		1419	2.6	80	
	2038	10.2	310		2005	9.5	290	
14 F	0338	1.3	40	29 Sa	0255	2.3	70	
	0918	9.5	290		0844	9.2	280	
	1602	2.0	60		1526	2.6	80	
	2140	10.2	310		2108	9.8	300	
15 Sa	0435	1.3	40	30 Su	0356	2.0	60	
	1013	9.8	300		0941	9.5	290	
	1700	1.6	50		1625	2.0	60	
	2235	10.2	310		2204	9.8	300	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Helgoland, Germany, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0450	1.6	50	**16** Tu	0553	1.6	50	**1** Th	0610	1.6	50	**16** F	0020	9.8	300	
	1032	9.8	300		1131	10.2	310		1147	10.5	320		0656	2.0	60	
	1718	1.6	50		1821	1.3	40		1842	1.3	40		1232	10.5	320	
	2254	10.2	310	○	2356	9.8	300	●					1921	1.6	50	
2 Tu	0539	1.6	50	**17** W	0636	1.6	50	**2** F	0018	10.2	310	**17** Sa	0054	9.8	300	
	1118	10.2	310		1213	10.2	310		0701	1.6	50		0731	1.6	50	
	1806	1.3	40		1901	1.3	40		1236	10.8	330		1306	10.5	320	
●	2341	10.2	310						1934	1.0	30		1955	1.6	50	
3 W	0625	1.6	50	**18** Th	0036	9.8	300	**3** Sa	0108	10.2	310	**18** Su	0127	9.8	300	
	1202	10.5	320		0714	1.6	50		0752	1.3	40		0802	1.6	50	
	1853	1.3	40		1251	10.5	320		1323	10.8	330		1337	10.5	320	
					1939	1.6	50		2024	1.0	30		2025	1.6	50	
4 Th	0029	10.2	310	**19** F	0113	9.8	300	**4** Su	0157	10.2	310	**19** M	0158	9.8	300	
	0712	1.6	50		0749	1.6	50		0839	1.3	40		0831	1.6	50	
	1248	10.5	320		1326	10.5	320		1410	10.8	330		1408	10.5	320	
	1943	1.3	40		2015	1.6	50		2111	1.0	30		2055	2.0	60	
5 F	0119	10.2	310	**20** Sa	0148	9.8	300	**5** M	0243	9.8	300	**20** Tu	0229	9.8	300	
	0801	1.6	50		0823	2.0	60		0924	1.3	40		0902	2.0	60	
	1336	10.8	330		1400	10.5	320		1456	10.8	330		1441	10.5	320	
	2033	1.0	30		2049	1.6	50		2156	1.0	30		2127	2.0	60	
6 Sa	0208	10.2	310	**21** Su	0222	9.8	300	**6** Tu	0330	9.8	300	**21** W	0304	9.8	300	
	0848	1.6	50		0854	2.0	60		1009	1.3	40		0936	2.3	70	
	1422	10.8	330		1433	10.5	320		1543	10.8	330		1517	10.2	310	
	2121	1.0	30		2122	2.0	60		2242	1.3	40		2201	2.3	70	
7 Su	0257	9.8	300	**22** M	0257	9.5	290	**7** W	0418	9.5	290	**22** Th	0340	9.8	300	
	0934	1.6	50		0926	2.3	70		1056	1.6	50		1010	2.3	70	
	1509	10.8	330		1508	10.5	320		1633	10.5	320		1551	10.2	310	
	2211	1.0	30		2156	2.0	60	◐	2328	1.6	50		2230	2.3	70	
8 M	0348	9.5	290	**23** Tu	0334	9.5	290	**8** Th	0507	9.5	290	**23** F	0411	9.5	290	
	1025	1.6	50		1003	2.3	70		1143	2.0	60		1039	2.6	80	
	1601	10.5	320		1546	10.2	310		1725	10.2	310		1623	9.8	300	
	2304	1.3	40		2232	2.3	70					◑	2259	2.6	80	
9 Tu	0443	9.5	290	**24** W	0413	9.5	290	**9** F	0015	2.3	70	**24** Sa	0445	9.2	280	
	1119	2.0	60		1040	2.6	80		0558	9.5	290		1117	3.0	90	
	1658	10.5	320		1624	10.2	310		1237	2.3	70		1707	9.5	290	
◐	2358	1.6	50		2307	2.3	70		1824	9.8	300		2346	3.0	90	
10 W	0539	9.5	290	**25** Th	0451	9.2	280	**10** Sa	0113	2.6	80	**25** Su	0537	9.2	280	
	1215	2.0	60		1118	2.6	80		0659	9.2	280		1222	3.0	90	
	1756	10.2	310		1703	9.8	300		1346	2.6	80		1815	9.2	280	
				◑	2346	2.6	80		1936	9.5	290					
11 Th	0054	1.6	50	**26** F	0534	9.2	280	**11** Su	0227	3.0	90	**26** M	0101	3.0	90	
	0636	9.2	280		1207	3.0	90		0813	9.5	290		0653	8.9	270	
	1315	2.3	70		1756	9.5	290		1507	2.6	80		1349	3.0	90	
	1859	10.2	310						2056	9.5	290		1942	9.2	280	
12 F	0156	2.0	60	**27** Sa	0042	2.6	80	**12** M	0344	3.0	90	**27** Tu	0230	3.0	90	
	0740	9.2	280		0633	9.2	280		0928	9.8	300		0819	9.2	280	
	1423	2.3	70		1315	3.0	90		1624	2.3	70		1518	2.3	70	
	2008	10.2	310		1905	9.5	290		2207	9.5	290		2106	9.2	280	
13 Sa	0304	2.3	70	**28** Su	0154	2.6	80	**13** Tu	0449	2.6	80	**28** W	0353	2.6	80	
	0847	9.5	290		0744	9.2	280		1029	10.2	310		0936	9.5	290	
	1535	2.3	70		1433	2.6	80		1722	2.0	60		1634	1.6	50	
	2118	10.2	310		2021	9.5	290		2301	9.8	300		2216	9.5	290	
14 Su	0409	2.3	70	**29** M	0309	2.6	80	**14** W	0538	2.3	70	**29** Th	0501	2.0	60	
	0949	9.8	300		0856	9.2	280		1115	10.2	310		1039	10.2	310	
	1640	2.0	60		1547	2.3	70		1806	2.0	60		1736	1.3	40	
	2219	9.8	300		2130	9.5	290		2343	9.8	300		2314	9.8	300	
15 M	0505	2.0	60	**30** Tu	0417	2.0	60	**15** Th	0619	2.0	60	**30** F	0558	1.6	50	
	1043	9.8	300		1000	9.5	290		1156	10.5	320		1133	10.5	320	
	1735	1.6	50		1652	1.6	50		1845	1.6	50		1830	1.0	30	
	2311	9.8	300		2231	9.8	300	○				●				
				31 W	0516	1.6	50					**31** Sa	0005	10.2	310	
					1056	10.2	310						0649	1.6	50	
					1749	1.3	40						1221	10.8	330	
					2326	10.2	310						1920	1.0	30	

August

September

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Su	0052	10.2	310	**16** M	0102	9.8	300	**1** Tu	0132	9.8	300	**16** W	0202	9.8	300	
	0737	1.3	40		0739	1.6	50		0808	1.6	50		0837	2.0	60	
	1307	10.8	330		1313	10.5	320		1343	10.5	320		1415	10.2	310	
	2007	0.7	20		1959	1.6	50		2027	1.6	50		2057	2.0	60	
2 M	0138	10.2	310	**17** Tu	0132	9.8	300	**2** W	0223	10.2	310	**17** Th	0233	9.8	300	
	0822	1.3	40		0808	1.6	50		0905	1.3	40		0909	2.0	60	
	1352	10.8	330		1343	10.5	320		1437	10.8	330		1448	10.2	310	
	2052	1.0	30		2027	1.6	50		2133	1.0	30		2128	2.3	70	
3 Tu	0223	10.2	310	**18** W	0202	9.8	300	**3** Th	0305	9.8	300	**18** F	0305	9.8	300	
	0905	1.3	40		0837	2.0	60		0946	1.3	40		0939	2.3	70	
	1437	10.8	330		1415	10.2	310		1520	10.8	330		1520	10.2	310	
	2133	1.0	30		2057	2.0	60		2212	1.3	40		2155	2.3	70	
4 W	0305	9.8	300	**19** Th	0233	9.8	300	**4** F	0346	9.8	300	**19** Sa	0335	9.8	300	
	0946	1.3	40		0909	2.0	60		1026	1.6	50		1008	2.6	80	
	1520	10.8	330		1448	10.2	310		1604	10.5	320		1552	9.8	300	
	2212	1.3	40		2128	2.3	70		2251	2.0	60		2223	2.6	80	
5 Th	0346	9.8	300	**20** F	0305	9.8	300	**5** Sa	0429	9.5	290	**20** Su	0408	9.5	290	
	1026	1.6	50		0939	2.3	70		1107	2.0	60		1045	2.6	80	
	1604	10.5	320		1520	10.2	310		1651	9.8	300		1635	9.2	280	
	2251	2.0	60		2155	2.3	70	◐	2332	2.6	80	◑	2309	3.0	90	
6 F	0429	9.5	290	**21** Sa	0335	9.8	300	**6** Su	0516	9.5	290	**21** M	0500	9.2	280	
	1107	2.0	60		1008	2.6	80		1157	2.6	80		1149	3.0	90	
	1651	9.8	300		1552	9.8	300		1747	9.5	290		1744	8.9	270	
◐	2332	2.6	80		2223	2.6	80									
7 Sa	0516	9.5	290	**22** Su	0408	9.5	290	**7** M	0027	3.0	90	**22** Tu	0026	3.3	100	
	1157	2.6	80		1045	2.6	80		0617	9.2	280		0620	9.2	280	
	1747	9.5	290		1635	9.2	280		1307	3.0	90		1321	3.0	90	
				◑	2309	3.0	90		1902	9.2	280		1917	8.9	270	
8 Su	0027	3.0	90	**23** M	0500	9.2	280	**8** Tu	0146	3.6	110	**23** W	0203	3.3	100	
	0617	9.2	280		1149	3.0	90		0738	9.2	280		0753	9.5	290	
	1307	3.0	90		1744	8.9	270		1437	3.0	90		1458	2.3	70	
	1902	9.2	280						2031	8.9	270		2048	9.2	280	
9 M	0146	3.6	110	**24** Tu	0026	3.3	100	**9** W	0315	3.6	110	**24** Th	0334	3.0	90	
	0738	9.2	280		0620	9.2	280		0903	9.5	290		0916	9.8	300	
	1437	3.0	90		1321	3.0	90		1604	2.6	80		1618	1.6	50	
	2031	8.9	270		1917	8.9	270		2151	9.2	280		2201	9.5	290	
10 Tu	0315	3.6	110	**25** W	0203	3.3	100	**10** Th	0430	3.0	90	**25** F	0445	2.3	70	
	0903	9.5	290		0753	9.5	290		1012	10.2	310		1022	10.2	310	
	1604	2.6	80		1458	2.3	70		1708	2.3	70		1720	1.3	40	
	2151	9.2	280		2048	9.2	280		2247	9.5	290		2258	9.8	300	
11 W	0430	3.0	90	**26** Th	0334	3.0	90	**11** F	0521	2.6	80	**26** Sa	0541	2.0	60	
	1012	10.2	310		0916	9.8	300		1058	10.2	310		1115	10.5	320	
	1708	2.3	70		1618	1.6	50		1749	2.0	60		1813	1.0	30	
	2247	9.5	290		2201	9.5	290		2325	9.8	300	●	2347	10.2	310	
12 Th	0521	2.6	80	**27** F	0445	2.3	70	**12** Sa	0558	2.3	70	**27** Su	0631	1.6	50	
	1058	10.2	310		1022	10.2	310		1133	10.5	320		1203	10.8	330	
	1749	2.0	60		1720	1.3	40		1822	2.0	60		1900	1.0	30	
	2325	9.8	300		2258	9.8	300		2358	9.8	300					
13 F	0558	2.3	70	**28** Sa	0541	2.0	60	**13** Su	0631	2.0	60	**28** M	0033	10.2	310	
	1133	10.5	320		1115	10.5	320		1208	10.5	320		0717	1.3	40	
	1822	2.0	60		1813	1.0	30		1856	1.6	50		1248	10.8	330	
	2358	9.8	300	●	2347	10.2	310	○					1944	1.0	30	
14 Sa	0633	2.0	60	**29** Su	0631	1.6	50	**14** M	0031	9.8	300					
	1208	10.5	320		1203	10.8	330		0707	2.0	60					
	1856	1.6	50		1900	1.0	30		1241	10.5	320					
○									1929	1.6	50					
15 Su	0031	9.8	300	**30** M	0033	10.2	310	**15** Tu	0127	9.8	300					
	0707	2.0	60		0717	1.3	40		0802	2.0	60					
	1241	10.5	320		1248	10.8	330		1337	10.5	320					
	1929	1.6	50		1944	1.0	30		2025	1.6	50					

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Helgoland, Germany, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0116	10.2 310	**16** W	0105	10.2 310
	0800	1.3 40		0743	1.6 50
	1331	10.8 330		1317	10.2 310
	2026	1.0 30		1958	1.6 50
2 W	0157	10.2 310	**17** Th	0135	10.2 310
	0841	1.3 40		0812	2.0 60
	1414	10.8 330		1348	10.2 310
	2104	1.3 40		2027	2.0 60
3 Th	0237	10.2 310	**18** F	0204	10.2 310
	0919	1.3 40		0842	2.0 60
	1454	10.5 320		1420	10.2 310
	2139	1.6 50		2057	2.3 70
4 F	0314	9.8 300	**19** Sa	0235	10.2 310
	0956	1.6 50		0913	2.3 70
	1535	9.8 300		1455	9.8 300
	2214	2.3 70		2127	2.6 80
5 Sa ◐	0354	9.8 300	**20** Su	0309	10.2 310
	1035	2.0 60		0948	2.6 80
	1619	9.5 290		1534	9.8 300
	2253	3.0 90		2203	3.0 90
6 Su	0440	9.5 290	**21** M ◑	0348	9.8 300
	1123	2.6 80		1032	3.0 90
	1715	8.9 270		1623	9.5 290
	2346	3.6 110		2254	3.3 100
7 M	0539	9.2 280	**22** Tu	0444	9.5 290
	1231	3.0 90		1137	3.0 90
	1827	8.5 260		1732	9.2 280
8 Tu	0102	3.9 120	**23** W	0010	3.6 110
	0658	9.2 280		0602	9.5 290
	1358	3.3 100		1305	3.0 90
	1955	8.5 260		1900	9.2 280
9 W	0233	3.9 120	**24** Th	0144	3.3 100
	0826	9.5 290		0732	9.8 300
	1529	3.0 90		1440	2.3 70
	2119	8.9 270		2029	9.2 280
10 Th	0356	3.3 100	**25** F	0313	3.0 90
	0940	9.8 300		0855	10.2 310
	1637	2.6 80		1558	2.0 60
	2219	9.2 280		2142	9.5 290
11 F	0451	3.0 90	**26** Sa	0423	2.6 80
	1029	10.2 310		1000	10.5 320
	1719	2.3 70		1658	1.3 40
	2258	9.5 290		2237	9.8 300
12 Sa	0529	2.6 80	**27** Su	0519	2.0 60
	1104	10.2 310		1054	10.5 320
	1751	2.0 60		1750	1.3 40
	2329	9.8 300		2326	10.2 310
13 Su ○	0603	2.3 70	**28** M ●	0609	1.6 50
	1138	10.2 310		1143	10.8 330
	1824	1.6 50		1837	1.0 30
14 M	0003	9.8 300	**29** Tu	0011	10.2 310
	0639	2.0 60		0655	1.3 40
	1214	10.2 310		1227	10.8 330
	1858	1.6 50		1919	1.3 40
15 Tu	0035	9.8 300	**30** W	0051	10.2 310
	0712	1.6 50		0736	1.3 40
	1247	10.2 310		1308	10.8 330
	1929	1.6 50		1957	1.3 40
			31 Th	0130	10.2 310
				0815	1.3 40
				1349	10.5 320
				2034	1.6 50

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0208	10.2 310	**16** Sa	0142	10.5 320
	0854	1.3 40		0823	2.0 60
	1430	10.2 310		1402	10.2 310
	2109	2.0 60		2036	2.3 70
2 Sa	0247	10.2 310	**17** Su	0217	10.5 320
	0932	1.6 50		0900	2.3 70
	1511	9.5 290		1441	9.8 300
	2144	2.3 70		2112	2.6 80
3 Su	0326	9.8 300	**18** M	0255	10.5 320
	1011	2.0 60		0942	2.3 70
	1554	9.2 280		1527	9.8 300
	2222	3.0 90		2157	3.0 90
4 M ◐	0411	9.8 300	**19** Tu ◑	0341	10.2 310
	1057	2.6 80		1033	2.6 80
	1645	8.9 270		1621	9.5 290
	2311	3.6 110		2252	3.3 100
5 Tu	0505	9.5 290	**20** W	0438	10.2 310
	1155	3.0 90		1136	2.6 80
	1748	8.5 260		1727	9.2 280
6 W	0016	3.9 120	**21** Th	0002	3.3 100
	0613	9.5 290		0549	9.8 300
	1310	3.3 100		1253	2.3 70
	1904	8.5 260		1844	9.2 280
7 Th	0138	3.9 120	**22** F	0124	3.3 100
	0731	9.5 290		0710	9.8 300
	1433	3.3 100		1416	2.3 70
	2024	8.9 270		2004	9.2 280
8 F	0300	3.6 110	**23** Sa	0245	3.0 90
	0847	9.8 300		0829	10.2 310
	1544	2.6 80		1531	2.0 60
	2131	9.2 280		2115	9.5 290
9 Sa	0404	3.0 90	**24** Su	0355	2.6 80
	0945	9.8 300		0935	10.5 320
	1635	2.3 70		1631	1.6 50
	2218	9.5 290		2213	9.8 300
10 Su	0450	2.6 80	**25** M	0453	2.3 70
	1028	10.2 310		1031	10.5 320
	1713	2.3 70		1724	1.6 50
	2256	9.8 300		2303	9.8 300
11 M	0529	2.6 80	**26** Tu ●	0546	2.0 60
	1106	10.2 310		1122	10.5 320
	1749	2.0 60		1813	1.3 40
	2331	9.8 300		2348	10.2 310
12 Tu ○	0607	2.3 70	**27** W	0634	1.6 50
	1143	10.2 310		1207	10.5 320
	1825	2.0 60		1855	1.3 40
13 W	0005	10.2 310	**28** Th	0029	10.2 310
	0643	2.0 60		0714	1.3 40
	1218	10.2 310		1248	10.5 320
	1858	2.0 60		1932	1.6 50
14 Th	0036	10.2 310	**29** F	0106	10.2 310
	0716	2.0 60		0752	1.3 40
	1251	10.2 310		1328	10.2 310
	1929	2.0 60		2009	2.0 60
15 F	0108	10.2 310	**30** Sa	0146	10.5 320
	0749	2.0 60		0833	1.3 40
	1325	10.2 310		1411	9.8 300
	2002	2.0 60		2046	2.3 70

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0226	10.5 320	**16** M	0208	10.8 330
	0913	1.6 50		0858	2.0 60
	1452	9.5 290		1436	9.8 300
	2122	2.3 70		2109	2.3 70
2 M	0305	10.5 320	**17** Tu	0250	10.8 330
	0952	2.0 60		0943	2.0 60
	1533	9.2 280		1524	9.8 300
	2158	2.6 80		2156	2.3 70
3 Tu	0346	10.2 310	**18** W	0337	10.5 320
	1033	2.3 70		1035	2.0 60
	1617	8.9 270		1618	9.5 290
	2240	3.3 100		2251	2.6 80
4 W ◐	0431	10.2 310	**19** Th ◑	0432	10.5 320
	1119	3.0 90		1132	2.0 60
	1707	8.9 270		1717	9.2 280
	2331	3.6 110		2352	2.6 80
5 Th	0524	9.8 300	**20** F	0534	10.2 310
	1216	3.3 100		1235	2.0 60
	1806	8.9 270		1821	9.2 280
6 F	0035	3.6 110	**21** Sa	0059	2.6 80
	0628	9.5 290		0643	10.2 310
	1323	3.0 90		1345	2.0 60
	1915	8.9 270		1931	9.2 280
7 Sa	0149	3.6 110	**22** Su	0211	2.6 80
	0739	9.5 290		0757	10.2 310
	1433	3.0 90		1457	2.3 70
	2025	8.9 270		2042	9.5 290
8 Su	0301	3.3 100	**23** M	0323	2.6 80
	0847	9.8 300		0908	10.2 310
	1536	3.0 90		1602	2.3 70
	2126	9.2 280		2145	9.8 300
9 M	0401	3.0 90	**24** Tu	0429	2.3 70
	0943	9.8 300		1010	10.2 310
	1627	2.6 80		1700	2.0 60
	2214	9.5 290		2240	9.8 300
10 Tu	0450	2.6 80	**25** W	0526	2.0 60
	1029	9.8 300		1104	10.2 310
	1711	2.3 70		1751	2.0 60
	2255	9.8 300		2328	10.2 310
11 W	0534	2.3 70	**26** Th ●	0616	1.6 50
	1111	10.2 310		1152	10.2 310
	1751	2.0 60		1835	1.6 50
	2333	10.2 310			
12 Th ○	0614	2.3 70	**27** F	0011	10.2 310
	1150	10.2 310		0658	1.3 40
	1829	2.0 60		1234	10.2 310
				1913	2.0 60
13 F	0009	10.2 310	**28** Sa	0050	10.2 310
	0652	2.0 60		0737	1.3 40
	1228	10.2 310		1313	9.8 300
	1906	2.0 60		1951	2.0 60
14 Sa	0047	10.5 320	**29** Su	0129	10.5 320
	0732	2.0 60		0817	1.6 50
	1310	10.2 310		1354	9.8 300
	1946	2.0 60		2029	2.3 70
15 Su	0128	10.5 320	**30** M	0208	10.5 320
	0815	2.0 60		0857	1.6 50
	1353	10.2 310		1434	9.5 290
	2027	2.3 70		2103	2.3 70
			31 Tu	0245	10.5 320
				0933	2.0 60
				1510	9.5 290
				2137	2.3 70

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bremerhaven, Germany, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0230	3.3 100	16 W	0110	3.6 110
	0856	15.1 460		0739	14.1 430
	1518	2.6 80		1348	3.3 100
	2148	13.8 420		2025	13.8 420
2 W	0344	3.3 100	17 Th	0223	3.6 110
	1008	15.1 460		0853	14.1 430
	1629	3.0 90		1504	3.3 100
	2252	14.4 440		2138	13.8 420
3 Th	0458	3.3 100	18 F	0343	3.0 90
	1115	15.1 460		1009	14.4 440
	1734	2.6 80		1622	3.0 90
	2347	14.8 450		2249	14.1 430
4 F	0602	2.6 80	19 Sa	0500	2.3 70
	1213	15.1 460		1120	14.4 440
	1828	2.6 80		1732	2.3 70
				2353	14.8 450
5 Sa	0036	14.8 450	20 Su	0609	2.0 60
	0654	2.3 70		1223	14.8 450
	1303	14.8 450		1836	2.0 60
	1915	2.3 70			
6 Su ●	0118	15.1 460	21 M ○	0048	15.1 460
	0737	2.0 60		0711	1.6 50
	1344	14.8 450		1318	15.1 460
	1953	2.0 60		1934	1.6 50
7 M	0154	15.1 460	22 Tu	0136	15.4 470
	0814	2.0 60		0807	1.3 40
	1421	14.8 450		1411	15.1 460
	2027	2.0 60		2029	1.6 50
8 Tu	0225	15.1 460	23 W	0223	15.7 480
	0848	2.0 60		0901	1.3 40
	1455	14.4 440		1505	15.1 460
	2059	2.3 70		2121	1.6 50
9 W	0257	15.4 470	24 Th	0311	16.1 490
	0922	2.0 60		0953	1.0 30
	1529	14.4 440		1557	15.1 460
	2130	2.3 70		2207	1.6 50
10 Th	0328	15.4 470	25 F	0358	16.1 490
	0955	2.0 60		1039	1.0 30
	1601	14.1 430		1645	14.8 450
	2200	2.3 70		2248	1.6 50
11 F	0401	15.1 460	26 Sa	0445	16.1 490
	1026	2.3 70		1120	1.3 40
	1632	14.1 430		1732	14.4 440
	2230	2.6 80		2328	1.6 50
12 Sa	0437	15.1 460	27 Su ◑	0532	15.7 480
	1059	2.3 70		1201	1.6 50
	1707	14.1 430		1817	14.1 430
	2304	3.0 90			
13 Su	0514	15.1 460	28 M	0008	2.0 60
	1133	2.6 80		0621	15.4 470
	1745	14.1 430		1241	2.0 60
	2339	3.0 90		1902	13.8 420
14 M ◐	0553	14.8 450	29 Tu	0050	2.6 80
	1207	2.6 80		0712	14.8 450
	1827	13.8 420		1325	2.3 70
				1953	13.5 410
15 Tu	0017	3.3 100	30 W	0141	3.0 90
	0638	14.4 440		0814	14.4 440
	1249	3.0 90		1422	3.0 90
	1919	13.8 420		2058	13.8 420
			31 Th	0252	3.3 100
				0930	14.4 440
				1538	3.3 100
				2211	14.1 430

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0415	3.3 100	16 Sa	0252	3.0 90
	1049	14.4 440		0933	13.8 420
	1656	3.3 100		1538	3.0 90
	2320	14.4 440		2214	14.1 430
2 Sa	0533	3.0 90	17 Su	0425	2.3 70
	1157	14.4 440		1058	14.1 430
	1802	3.0 90		1705	2.3 70
				2331	14.4 440
3 Su	0015	14.8 450	18 M	0548	1.6 50
	0633	2.3 70		1211	14.4 440
	1248	14.4 440		1820	2.0 60
	1852	2.3 70			
4 M ●	0059	15.1 460	19 Tu ○	0033	15.1 460
	0718	2.0 60		0658	1.3 40
	1329	14.4 440		1312	14.8 450
	1934	2.3 70		1924	1.3 40
5 Tu	0135	15.1 460	20 W	0125	15.4 470
	0756	1.6 50		0757	1.0 30
	1405	14.8 450		1404	15.1 460
	2010	2.0 60		2019	1.3 40
6 W	0208	15.4 470	21 Th	0211	15.7 480
	0832	1.6 50		0849	0.7 20
	1438	14.8 450		1454	15.1 460
	2043	2.0 60		2109	1.0 30
7 Th	0240	15.4 470	22 F	0257	16.1 490
	0905	1.6 50		0938	0.7 20
	1510	14.4 440		1542	15.1 460
	2115	1.6 50		2153	1.0 30
8 F	0311	15.4 470	23 Sa	0345	16.1 490
	0936	1.6 50		1023	0.7 20
	1541	14.4 440		1627	14.8 450
	2144	1.6 50		2233	1.0 30
9 Sa	0343	15.1 460	24 Su	0430	15.7 480
	1007	1.6 50		1103	1.0 30
	1613	14.4 440		1708	14.4 440
	2216	2.0 60		2309	1.3 40
10 Su	0418	15.1 460	25 M	0514	15.4 470
	1040	2.0 60		1137	1.3 40
	1648	14.4 440		1747	14.4 440
	2250	2.3 70		2342	1.3 40
11 M	0455	15.1 460	26 Tu ◑	0556	15.1 460
	1113	2.0 60		1207	1.6 50
	1722	14.4 440		1823	14.1 430
	2321	2.3 70			
12 Tu ◐	0527	15.1 460	27 W	0015	2.0 60
	1139	2.0 60		0639	14.4 440
	1753	14.1 430		1239	2.3 70
	2346	2.3 70		1906	13.5 410
13 W	0600	14.4 440	28 Th	0057	2.6 80
	1205	2.6 80		0734	13.8 420
	1830	13.8 420		1328	3.0 90
				2007	13.5 410
14 Th	0020	3.0 90			
	0649	14.1 430			
	1251	3.0 90			
	1928	13.8 420			
15 F	0123	3.0 90			
	0804	13.8 420			
	1406	3.0 90			
	2049	13.8 420			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0201	3.0 90	16 Sa	0050	2.6 80
	0850	13.8 420		0737	13.5 410
	1443	3.6 110		1332	3.0 90
	2127	13.8 420		2017	13.8 420
2 Sa	0330	3.3 100	17 Su	0222	2.6 80
	1018	13.8 420		0912	13.5 410
	1614	3.6 110		1512	3.0 90
	2249	14.1 430		2151	14.1 430
3 Su	0500	2.6 80	18 M	0405	2.0 60
	1136	14.1 430		1045	14.1 430
	1732	3.0 90		1648	2.3 70
	2352	14.8 450		2312	14.8 450
4 M	0609	2.3 70	19 Tu	0533	1.3 40
	1231	14.1 430		1201	14.4 440
	1828	2.3 70		1807	2.0 60
5 Tu	0038	15.1 460	20 W	0016	15.1 460
	0656	2.0 60		0644	1.0 30
	1310	14.4 440		1302	14.8 450
	1911	2.0 60		1910	1.3 40
6 W ●	0114	15.1 460	21 Th ○	0109	15.4 470
	0734	1.6 50		0743	0.7 20
	1344	14.4 440		1352	15.1 460
	1948	1.6 50		2004	1.0 30
7 Th	0148	15.1 460	22 F	0156	15.7 480
	0810	1.3 40		0832	0.3 10
	1417	14.4 440		1438	15.1 460
	2024	1.3 40		2051	0.7 20
8 F	0222	15.1 460	23 Sa	0242	15.7 480
	0844	1.3 40		0917	0.3 10
	1450	14.4 440		1520	15.1 460
	2056	1.3 40		2133	0.7 20
9 Sa	0254	15.1 460	24 Su	0327	15.7 480
	0915	1.0 30		0959	0.7 20
	1521	14.4 440		1601	14.8 450
	2127	1.3 40		2211	0.7 20
10 Su	0325	15.1 460	25 M	0411	15.4 470
	0946	1.3 40		1036	1.0 30
	1553	14.4 440		1638	14.8 450
	2159	1.3 40		2245	1.0 30
11 M	0359	15.1 460	26 Tu	0451	15.1 460
	1019	1.3 40		1106	1.3 40
	1626	14.8 450		1713	14.4 440
	2233	1.6 50		2315	1.0 30
12 Tu	0434	15.1 460	27 W	0530	14.4 440
	1051	1.6 50		1132	1.6 50
	1658	14.8 450		1746	14.1 430
	2301	1.6 50		2344	1.6 50
13 W	0506	15.1 460	28 Th ◑	0610	14.1 430
	1115	1.6 50		1200	2.3 70
	1725	14.4 440		1825	13.8 420
	2323	2.0 60			
14 Th ◐	0536	14.4 440	29 F	0021	2.3 70
	1136	2.3 70		0700	13.5 410
	1757	14.1 430		1242	3.0 90
	2351	2.3 70		1921	13.5 410
15 F	0622	13.8 420	30 Sa	0120	3.0 90
	1216	2.6 80		0811	13.1 400
	1853	13.8 420		1352	3.6 110
				2040	13.5 410
			31 Su	0246	3.0 90
				0939	13.1 400
				1525	3.6 110
				2207	14.1 430

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bremerhaven, Germany, 2019

Times and Heights of High and Low Waters

April

Day	Time (h m)	Height (ft)	Height (cm)
1 M	0419	2.6	80
	1102	13.5	410
	1652	3.0	90
	2318	14.4	440
2 Tu	0534	2.0	60
	1201	13.8	420
	1754	2.3	70
3 W	0007	14.8	450
	0624	1.6	50
	1241	14.1	430
	1839	2.0	60
4 Th	0045	15.1	460
	0702	1.3	40
	1316	14.4	440
	1919	1.6	50
5 F ●	0121	15.1	460
	0741	1.0	30
	1351	14.4	440
	1958	1.3	40
6 Sa	0157	15.1	460
	0817	1.0	30
	1424	14.8	450
	2034	1.0	30
7 Su	0231	15.1	460
	0850	1.0	30
	1456	14.8	450
	2107	1.0	30
8 M	0304	15.1	460
	0922	1.0	30
	1528	14.8	450
	2139	1.3	40
9 Tu	0338	15.1	460
	0955	1.3	40
	1601	14.8	450
	2211	1.3	40
10 W	0413	15.1	460
	1026	1.3	40
	1633	14.8	450
	2242	1.3	40
11 Th	0449	14.8	450
	1054	1.6	50
	1704	14.8	450
	2311	1.6	50
12 F ◐	0527	14.4	440
	1123	2.3	70
	1742	14.4	440
	2347	2.0	60
13 Sa	0617	13.8	420
	1209	2.6	80
	1840	14.1	430
14 Su	0047	2.3	70
	0732	13.5	410
	1325	3.0	90
	2002	14.1	430
15 M	0216	2.3	70
	0904	13.8	420
	1501	3.0	90
	2134	14.4	440
16 Tu	0355	2.0	60
	1033	14.1	430
	1635	2.3	70
	2253	15.1	460
17 W	0518	1.3	40
	1145	14.4	440
	1749	2.0	60
	2355	15.4	470
18 Th	0624	1.0	30
	1242	14.8	450
	1849	1.6	50
19 F ○	0048	15.4	470
	0720	0.7	20
	1332	15.1	460
	1943	1.0	30
20 Sa	0139	15.7	480
	0810	0.7	20
	1416	15.1	460
	2030	0.7	20
21 Su	0225	15.7	480
	0853	0.7	20
	1455	15.1	460
	2110	0.7	20
22 M	0307	15.4	470
	0930	1.0	30
	1531	15.1	460
	2145	0.7	20
23 Tu	0348	15.1	460
	1004	1.0	30
	1606	14.8	450
	2219	1.0	30
24 W	0428	14.8	450
	1034	1.3	40
	1639	14.8	450
	2250	1.0	30
25 Th	0506	14.1	430
	1101	1.6	50
	1713	14.4	440
	2321	1.3	40
26 F ◑	0545	13.8	420
	1130	2.3	70
	1752	14.1	430
	2358	2.0	60
27 Sa	0632	13.1	400
	1209	3.0	90
	1842	14.1	430
28 Su	0050	2.6	80
	0732	12.8	390
	1310	3.6	110
	1951	13.8	420
29 M	0202	3.0	90
	0850	12.8	390
	1432	3.6	110
	2113	14.1	430
30 Tu	0327	2.6	80
	1010	13.1	400
	1557	3.0	90
	2228	14.4	440

May

Day	Time (h m)	Height (ft)	Height (cm)
1 W	0443	2.0	60
	1114	13.8	420
	1707	2.6	80
	2324	14.8	450
2 Th	0539	1.6	50
	1200	14.1	430
	1758	2.0	60
3 F	0007	15.1	460
	0623	1.6	50
	1239	14.4	440
	1844	2.0	60
4 Sa ●	0048	15.1	460
	0706	1.3	40
	1318	14.8	450
	1928	1.6	50
5 Su	0127	15.1	460
	0747	1.3	40
	1354	14.8	450
	2007	1.3	40
6 M	0203	15.1	460
	0823	1.3	40
	1427	15.1	460
	2042	1.3	40
7 Tu	0239	15.1	460
	0857	1.3	40
	1500	15.1	460
	2117	1.3	40
8 W	0317	15.1	460
	0932	1.3	40
	1535	15.1	460
	2153	1.3	40
9 Th	0357	14.8	450
	1007	1.6	50
	1612	15.1	460
	2230	1.6	50
10 F	0441	14.8	450
	1043	2.0	60
	1652	15.1	460
	2310	1.6	50
11 Sa	0529	14.4	440
	1125	2.3	70
	1739	15.1	460
	2358	2.0	60
12 Su ◐	0625	14.1	430
	1219	2.6	80
	1839	15.1	460
13 M	0100	2.0	60
	0736	14.1	430
	1329	3.0	90
	1955	14.8	450
14 Tu	0219	2.0	60
	0858	14.1	430
	1453	2.6	80
	2117	15.1	460
15 W	0343	1.6	50
	1017	14.4	440
	1615	2.3	70
	2230	15.4	470
16 Th	0458	1.3	40
	1122	14.8	450
	1725	2.0	60
	2330	15.4	470
17 F	0558	1.3	40
	1216	14.8	450
	1824	1.6	50
18 Sa ○	0026	15.4	470
	0653	1.0	30
	1305	15.1	460
	1918	1.3	40
19 Su	0119	15.4	470
	0745	1.0	30
	1351	15.1	460
	2007	1.0	30
20 M	0207	15.4	470
	0827	1.0	30
	1429	15.1	460
	2046	1.0	30
21 Tu	0247	15.1	460
	0902	1.0	30
	1502	15.1	460
	2120	1.0	30
22 W	0326	14.8	450
	0934	1.3	40
	1536	15.1	460
	2154	1.0	30
23 Th	0405	14.4	440
	1005	1.6	50
	1610	15.1	460
	2229	1.3	40
24 F	0444	14.1	430
	1036	2.0	60
	1645	15.1	460
	2304	1.6	50
25 Sa	0522	13.8	420
	1109	2.6	80
	1724	14.8	450
	2342	2.0	60
26 Su ◑	0604	13.5	410
	1147	3.0	90
	1809	14.4	440
27 M	0026	2.6	80
	0653	13.1	400
	1235	3.6	110
	1904	14.4	440
28 Tu	0121	2.6	80
	0756	13.1	400
	1340	3.6	110
	2013	14.1	430
29 W	0229	2.6	80
	0907	13.1	400
	1456	3.3	100
	2125	14.4	440
30 Th	0341	2.3	70
	1014	13.8	420
	1610	3.0	90
	2229	14.8	450
31 F	0445	2.3	70
	1110	14.1	430
	1711	2.6	80
	2322	15.1	460

June

Day	Time (h m)	Height (ft)	Height (cm)
1 Sa	0539	2.0	60
	1156	14.4	440
	1805	2.3	70
2 Su	0009	15.1	460
	0628	1.6	50
	1240	14.8	450
	1853	2.0	60
3 M ●	0053	15.4	470
	0713	1.6	50
	1320	15.1	460
	1937	1.6	50
4 Tu	0135	15.4	470
	0755	1.6	50
	1357	15.4	470
	2018	1.6	50
5 W	0217	15.4	470
	0835	1.6	50
	1435	15.4	470
	2100	1.6	50
6 Th	0302	15.1	460
	0917	1.6	50
	1516	15.4	470
	2144	1.3	40
7 F	0350	15.1	460
	0959	1.6	50
	1559	15.4	470
	2227	1.3	40
8 Sa	0438	14.8	450
	1042	2.0	60
	1645	15.7	480
	2314	1.6	50
9 Su	0531	14.4	440
	1130	2.3	70
	1737	15.7	480
10 M ◐	0008	2.0	60
	0629	14.4	440
	1226	2.6	80
	1837	15.4	470
11 Tu	0107	2.0	60
	0733	14.1	430
	1328	2.6	80
	1943	15.4	470
12 W	0213	2.0	60
	0842	14.1	430
	1437	2.6	80
	2055	15.4	470
13 Th	0323	2.0	60
	0951	14.4	440
	1549	2.6	80
	2204	15.4	470
14 F	0432	2.0	60
	1052	14.8	450
	1657	2.3	70
	2307	15.4	470
15 Sa	0532	1.6	50
	1146	15.1	460
	1759	2.0	60
16 Su	0005	15.4	470
	0627	1.6	50
	1237	15.1	460
	1855	1.6	50
17 M ○	0100	15.1	460
	0718	1.3	40
	1324	15.1	460
	1944	1.3	40
18 Tu	0149	15.1	460
	0803	1.3	40
	1404	15.1	460
	2025	1.3	40
19 W	0229	14.8	450
	0839	1.6	50
	1438	15.4	470
	2100	1.3	40
20 Th	0307	14.8	450
	0912	2.0	60
	1512	15.4	470
	2136	1.6	50
21 F	0345	14.4	440
	0945	2.0	60
	1545	15.4	470
	2213	1.6	50
22 Sa	0422	14.4	440
	1018	2.3	70
	1620	15.4	470
	2249	2.0	60
23 Su	0457	14.1	430
	1051	2.6	80
	1658	15.4	470
	2325	2.3	70
24 M	0535	13.8	420
	1127	3.0	90
	1739	15.1	460
25 Tu ◑	0003	2.6	80
	0616	13.8	420
	1208	3.3	100
	1823	14.8	450
26 W	0044	2.6	80
	0704	13.8	420
	1255	3.3	100
	1916	14.4	440
27 Th	0133	2.6	80
	0803	13.5	410
	1356	3.6	110
	2020	14.4	440
28 F	0236	2.6	80
	0908	13.8	420
	1507	3.3	100
	2128	14.4	440
29 Sa	0344	2.6	80
	1011	14.1	430
	1617	3.0	90
	2232	14.8	450
30 Su	0449	2.6	80
	1109	14.4	440
	1720	2.3	70
	2330	14.8	450

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bremerhaven, Germany, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0547	2.3 70	16 Tu ○	0045	15.1 460
	1202	14.8 450		0657	2.0 60
	1817	2.0 60		1301	15.1 460
				1925	1.6 50
2 Tu ●	0023	15.1 460	17 W	0133	14.8 450
	0641	2.0 60		0743	2.0 60
	1250	15.1 460		1343	15.4 470
	1910	1.6 50		2007	1.6 50
3 W	0112	15.4 470	18 Th	0213	14.8 450
	0732	1.6 50		0822	2.0 60
	1334	15.4 470		1419	15.4 470
	2000	1.6 50		2046	1.6 50
4 Th	0201	15.4 470	19 F	0250	14.8 450
	0821	1.6 50		0857	2.0 60
	1418	15.7 480		1452	15.7 480
	2050	1.6 50		2122	2.0 60
5 F	0253	15.4 470	20 Sa	0325	14.8 450
	0911	1.6 50		0930	2.3 70
	1504	16.1 490		1525	15.7 480
	2141	1.3 40		2157	2.0 60
6 Sa	0345	15.1 460	21 Su	0358	14.4 440
	0958	1.6 50		1001	2.3 70
	1550	16.1 490		1557	15.7 480
	2228	1.3 40		2229	2.0 60
7 Su	0435	14.8 450	22 M	0430	14.4 440
	1042	2.0 60		1032	2.6 80
	1637	16.1 490		1633	15.4 470
	2314	1.3 40		2302	2.3 70
8 M	0526	14.8 450	23 Tu	0504	14.4 440
	1128	2.0 60		1107	2.6 80
	1729	15.7 480		1711	15.4 470
				2337	2.6 80
9 Tu ◐	0005	1.6 50	24 W	0542	14.1 430
	0620	14.4 440		1143	3.0 90
	1219	2.3 70		1749	15.1 460
	1825	15.7 480			
10 W	0058	2.0 60	25 Th ◑	0011	2.6 80
	0715	14.4 440		0620	14.1 430
	1312	2.6 80		1218	3.3 100
	1923	15.4 470		1828	14.8 450
11 Th	0152	2.0 60	26 F	0045	3.0 90
	0812	14.1 430		0704	13.8 420
	1408	2.6 80		1301	3.3 100
	2026	15.4 470		1919	14.4 440
12 F	0251	2.3 70	27 Sa	0133	3.0 90
	0914	14.1 430		0802	13.8 420
	1514	2.6 80		1403	3.6 110
	2135	15.1 460		2027	14.1 430
13 Sa	0358	2.6 80	28 Su	0240	3.3 100
	1019	14.4 440		0911	13.8 420
	1627	2.6 80		1519	3.3 100
	2245	15.1 460		2143	14.4 440
14 Su	0505	2.6 80	29 M	0357	3.0 90
	1120	14.8 450		1023	14.1 430
	1737	2.3 70		1635	2.6 80
	2349	15.1 460		2255	14.4 440
15 M	0605	2.3 70	30 Tu	0510	2.6 80
	1214	15.1 460		1129	14.4 440
	1835	2.0 60		1746	2.0 60
			31 W	0000	14.8 450
				0616	2.0 60
				1227	15.1 460
				1850	1.6 50

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0058	15.1 460	16 F	0155	14.8 450
	0717	2.0 60		0805	2.3 70
	1318	15.4 470		1359	15.4 470
	1949	1.6 50		2029	2.0 60
2 F	0152	15.4 470	17 Sa	0230	14.8 450
	0814	2.0 60		0841	2.0 60
	1404	15.7 480		1433	15.4 470
	2043	1.3 40		2104	2.0 60
3 Sa	0244	15.4 470	18 Su	0303	14.8 450
	0905	1.6 50		0913	2.0 60
	1451	16.1 490		1505	15.4 470
	2135	1.0 30		2136	2.0 60
4 Su	0336	15.1 460	19 M	0334	14.8 450
	0952	1.6 50		0942	2.0 60
	1538	16.1 490		1536	15.4 470
	2222	1.0 30		2205	2.0 60
5 M	0425	15.1 460	20 Tu	0403	14.4 440
	1034	1.6 50		1012	2.3 70
	1624	16.1 490		1608	15.4 470
	2305	1.0 30		2236	2.3 70
6 Tu	0511	14.8 450	21 W	0435	14.4 440
	1115	1.6 50		1045	2.3 70
	1713	15.7 480		1643	15.1 460
	2348	1.6 50		2309	2.3 70
7 W ◐	0558	14.4 440	22 Th	0510	14.4 440
	1159	2.0 60		1118	2.6 80
	1803	15.7 480		1717	15.1 460
				2337	2.6 80
8 Th	0032	2.0 60	23 F ◑	0541	14.4 440
	0643	14.1 430		1145	3.0 90
	1243	2.3 70		1748	14.8 450
	1854	15.4 470			
9 F	0116	2.3 70	24 Sa	0002	3.0 90
	0731	14.1 430		0614	14.1 430
	1331	3.0 90		1214	3.3 100
	1951	14.8 450		1830	14.1 430
10 Sa	0208	3.0 90	25 Su	0038	3.3 100
	0829	14.1 430		0705	13.8 420
	1433	3.3 100		1307	3.6 110
	2102	14.4 440		1937	13.8 420
11 Su	0317	3.3 100	26 M	0144	3.6 110
	0942	14.1 430		0819	13.5 410
	1553	3.3 100		1428	3.3 100
	2223	14.4 440		2103	13.8 420
12 M	0436	3.3 100	27 Tu	0313	3.3 100
	1055	14.8 450		0944	13.8 420
	1715	3.0 90		1600	2.6 80
	2337	14.4 440		2230	14.1 430
13 Tu	0547	3.0 90	28 W	0443	3.0 90
	1156	15.1 460		1103	14.4 440
	1821	2.3 70		1725	2.0 60
				2346	14.4 440
14 W	0034	14.8 450	29 Th	0600	2.3 70
	0641	2.6 80		1208	15.1 460
	1243	15.1 460		1837	1.6 50
	1910	2.0 60			
15 Th ○	0118	14.8 450	30 F ●	0048	14.8 450
	0725	2.3 70		0706	2.0 60
	1323	15.4 470		1302	15.4 470
	1951	2.0 60		1939	1.3 40
			31 Sa	0141	15.1 460
				0803	1.6 50
				1349	15.7 480
				2032	1.0 30

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0231	15.1 460	16 M	0238	14.4 440
	0853	1.6 50		0851	1.6 50
	1435	16.1 490		1442	15.1 460
	2120	1.0 30		2110	1.6 50
2 M	0318	15.1 460	17 Tu	0308	14.8 450
	0938	1.3 40		0921	1.6 50
	1521	16.1 490		1513	15.1 460
	2205	1.0 30		2138	2.0 60
3 Tu	0404	15.1 460	18 W	0336	14.8 450
	1018	1.3 40		0950	2.0 60
	1607	15.7 480		1543	15.1 460
	2246	1.0 30		2207	2.0 60
4 W	0446	14.8 450	19 Th	0406	14.8 450
	1055	1.6 50		1019	2.3 70
	1652	15.4 470		1615	15.1 460
	2322	1.6 50		2237	2.3 70
5 Th	0526	14.4 440	20 F	0436	14.8 450
	1131	2.0 60		1048	2.3 70
	1736	15.1 460		1647	14.8 450
	2357	2.3 70		2302	2.6 80
6 F ◐	0605	14.1 430	21 Sa	0505	14.4 440
	1207	2.3 70		1113	2.6 80
	1822	14.8 450		1718	14.4 440
				2325	3.0 90
7 Sa	0032	2.6 80	22 Su ◑	0535	14.1 430
	0647	13.8 420		1140	3.0 90
	1249	3.0 90		1759	13.8 420
	1915	14.1 430			
8 Su	0119	3.6 110	23 M	0000	3.6 110
	0743	13.8 420		0624	13.8 420
	1350	3.6 110		1230	3.3 100
	2027	13.8 420		1906	13.5 410
9 M	0229	3.9 120	24 Tu	0107	3.9 120
	0901	13.8 420		0742	13.8 420
	1515	3.6 110		1355	3.3 100
	2155	13.8 420		2038	13.5 410
10 Tu	0359	4.3 130	25 W	0243	3.6 110
	1026	14.4 440		0916	13.8 420
	1649	3.3 100		1537	3.0 90
	2318	14.1 430		2213	13.8 420
11 W	0523	3.6 110	26 Th	0423	3.3 100
	1136	14.8 450		1041	14.4 440
	1803	2.6 80		1710	2.0 60
				2332	14.1 430
12 Th	0019	14.1 430	27 F	0545	2.6 80
	0622	3.0 90		1148	15.1 460
	1223	15.1 460		1823	1.6 50
	1852	2.3 70			
13 F	0058	14.4 440	28 Sa ●	0034	14.8 450
	0704	2.6 80		0649	2.3 70
	1300	15.4 470		1242	15.4 470
	1928	2.0 60		1922	1.3 40
14 Sa ○	0132	14.4 440	29 Su	0125	14.8 450
	0741	2.3 70		0745	1.6 50
	1335	15.4 470		1330	15.7 480
	2004	2.0 60		2013	1.0 30
15 Su	0205	14.4 440	30 M	0211	15.1 460
	0817	2.0 60		0834	1.3 40
	1410	15.1 460		1416	15.7 480
	2039	1.6 50		2058	1.0 30

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bremerhaven, Germany, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0254	15.1 460	**16** W	0238	14.8 450
	0916	1.3 40		0856	2.0 60
	1501	15.7 480		1446	15.1 460
	2140	1.0 30		2109	2.0 60
2 W	0336	15.1 460	**17** Th	0307	14.8 450
	0955	1.3 40		0925	2.0 60
	1545	15.4 470		1517	14.8 450
	2218	1.3 40		2137	2.0 60
3 Th	0415	14.8 450	**18** F	0335	14.8 450
	1030	1.6 50		0953	2.3 70
	1628	15.1 460		1548	14.8 450
	2251	1.6 50		2205	2.3 70
4 F	0451	14.4 440	**19** Sa	0405	14.8 450
	1102	1.6 50		1021	2.3 70
	1709	14.4 440		1622	14.8 450
	2319	2.3 70		2232	2.6 80
5 Sa ◐	0526	14.1 430	**20** Su	0435	14.8 450
	1134	2.3 70		1049	2.6 80
	1752	14.1 430		1700	14.4 440
	2350	3.0 90		2301	3.3 100
6 Su	0606	13.8 420	**21** M ◑	0512	14.4 440
	1213	3.0 90		1124	3.0 90
	1842	13.5 410		1747	13.8 420
				2343	3.6 110
7 M	0033	3.9 120	**22** Tu	0604	14.1 430
	0700	13.8 420		1219	3.3 100
	1311	3.6 110		1854	13.5 410
	1951	13.1 400			
8 Tu	0140	4.6 140	**23** W	0052	3.9 120
	0816	13.8 420		0721	14.1 430
	1433	3.9 120		1341	3.3 100
	2117	13.1 400		2023	13.5 410
9 W	0311	4.6 140	**24** Th	0225	3.9 120
	0944	14.1 430		0852	14.4 440
	1608	3.6 110		1520	3.0 90
	2243	13.5 410		2156	13.8 420
10 Th	0442	3.9 120	**25** F	0402	3.3 100
	1101	14.4 440		1017	14.8 450
	1728	3.0 90		1650	2.3 70
	2348	13.8 420		2312	14.1 430
11 F	0549	3.3 100	**26** Sa	0522	3.0 90
	1153	15.1 460		1123	15.1 460
	1820	2.3 70		1800	1.6 50
12 Sa	0028	14.1 430	**27** Su	0012	14.4 440
	0632	2.6 80		0625	2.3 70
	1230	15.1 460		1217	15.4 470
	1855	2.0 60		1857	1.3 40
13 Su ○	0101	14.4 440	**28** M ●	0102	14.8 450
	0709	2.3 70		0720	2.0 60
	1305	15.1 460		1308	15.7 480
	1931	2.0 60		1948	1.3 40
14 M	0134	14.4 440	**29** Tu	0147	15.1 460
	0748	2.0 60		0809	1.6 50
	1341	15.1 460		1356	15.7 480
	2007	1.6 50		2032	1.3 40
15 Tu	0208	14.4 440	**30** W	0227	15.1 460
	0824	2.0 60		0851	1.3 40
	1415	15.1 460		1440	15.4 470
	2040	1.6 50		2111	1.3 40
			31 Th	0304	15.1 460
				0927	1.3 40
				1522	15.1 460
				2146	1.6 50

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0342	15.1 460	**16** Sa	0309	15.1 460
	1002	1.6 50		0932	2.3 70
	1604	14.8 450		1530	14.8 450
	2218	2.0 60		2143	2.3 70
2 Sa	0418	14.8 450	**17** Su	0342	15.1 460
	1035	1.6 50		1005	2.3 70
	1645	14.1 430		1610	14.4 440
	2247	2.3 70		2216	2.6 80
3 Su	0454	14.4 440	**18** M	0419	15.1 460
	1108	2.0 60		1041	2.6 80
	1727	13.8 420		1655	14.4 440
	2317	3.0 90		2254	3.3 100
4 M ◐	0533	14.4 440	**19** Tu ◑	0502	15.1 460
	1146	2.6 80		1125	3.0 90
	1813	13.1 400		1748	14.1 430
	2357	3.9 120		2343	3.6 110
5 Tu	0622	14.1 430	**20** W	0557	14.8 450
	1237	3.6 110		1221	3.0 90
	1912	13.1 400		1852	13.8 420
6 W	0054	4.3 130	**21** Th	0047	3.9 120
	0727	13.8 420		0707	14.8 450
	1347	3.9 120		1334	3.0 90
	2025	12.8 390		2010	13.8 420
7 Th	0213	4.6 140	**22** F	0207	3.6 110
	0847	14.1 430		0828	14.8 450
	1510	3.6 110		1459	2.6 80
	2146	13.1 400		2133	13.8 420
8 F	0341	4.3 130	**23** Sa	0333	3.3 100
	1006	14.4 440		0948	15.1 460
	1629	3.3 100		1621	2.3 70
	2256	13.5 410		2245	14.4 440
9 Sa	0455	3.6 110	**24** Su	0450	3.0 90
	1107	14.8 450		1055	15.4 470
	1730	2.6 80		1730	2.0 60
	2345	14.1 430		2343	14.8 450
10 Su	0549	3.0 90	**25** M	0555	2.6 80
	1151	14.8 450		1153	15.4 470
	1813	2.3 70		1828	1.6 50
11 M	0023	14.4 440	**26** Tu ●	0034	14.8 450
	0632	2.6 80		0652	2.0 60
	1230	14.8 450		1247	15.4 470
	1852	2.0 60		1920	1.6 50
12 Tu ○	0059	14.4 440	**27** W	0120	15.1 460
	0714	2.3 70		0742	1.6 50
	1309	14.8 450		1337	15.4 470
	1931	2.0 60		2005	1.6 50
13 W	0134	14.8 450	**28** Th	0200	15.1 460
	0752	2.0 60		0824	1.3 40
	1344	14.8 450		1420	15.1 460
	2007	2.0 60		2041	1.6 50
14 Th	0206	14.8 450	**29** F	0236	15.1 460
	0826	2.0 60		0901	1.6 50
	1418	14.8 450		1501	14.8 450
	2039	2.0 60		2116	2.0 60
15 F	0236	15.1 460	**30** Sa	0313	15.1 460
	0859	2.0 60		0937	1.6 50
	1453	14.8 450		1544	14.4 440
	2111	2.3 70		2151	2.3 70

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0350	15.1 460	**16** M	0331	15.4 470
	1014	2.0 60		1002	2.0 60
	1626	14.1 430		1608	14.8 450
	2223	2.6 80		2213	2.6 80
2 M	0427	15.1 460	**17** Tu	0412	15.7 480
	1050	2.0 60		1043	2.0 60
	1705	13.8 420		1656	14.4 440
	2254	3.0 90		2255	2.6 80
3 Tu	0506	14.8 450	**18** W	0458	15.4 470
	1127	2.6 80		1129	2.3 70
	1745	13.5 410		1749	14.4 440
	2330	3.6 110		2344	3.0 90
4 W ◐	0548	14.8 450	**19** Th ◑	0552	15.4 470
	1208	3.3 100		1221	2.3 70
	1831	13.1 400		1847	14.1 430
5 Th	0014	3.9 120	**20** F	0040	3.3 100
	0640	14.4 440		0653	15.4 470
	1259	3.6 110		1321	2.3 70
	1928	13.1 400		1951	13.8 420
6 F	0113	4.3 130	**21** Sa	0143	3.3 100
	0744	14.1 430		0802	15.1 460
	1402	3.6 110		1429	2.3 70
	2036	13.1 400		2101	13.8 420
7 Sa	0227	4.3 130	**22** Su	0256	3.3 100
	0857	14.1 430		0916	15.1 460
	1514	3.3 100		1544	2.6 80
	2147	13.5 410		2210	14.1 430
8 Su	0346	3.9 120	**23** M	0412	3.0 90
	1006	14.4 440		1027	15.1 460
	1624	3.0 90		1654	2.3 70
	2248	14.1 430		2312	14.4 440
9 M	0453	3.3 100	**24** Tu	0523	2.6 80
	1103	14.8 450		1132	15.1 460
	1721	3.0 90		1757	2.3 70
	2337	14.4 440			
10 Tu	0548	3.0 90	**25** W	0007	14.8 450
	1151	14.8 450		0625	2.3 70
	1809	2.6 80		1230	15.1 460
				1852	2.0 60
11 W	0020	14.8 450	**26** Th ●	0056	15.1 460
	0635	2.6 80		0718	1.6 50
	1235	14.8 450		1322	15.1 460
	1853	2.3 70		1940	2.0 60
12 Th ○	0059	14.8 450	**27** F	0139	15.1 460
	0718	2.3 70		0802	1.6 50
	1315	14.8 450		1406	14.8 450
	1933	2.0 60		2019	2.0 60
13 F	0135	15.1 460	**28** Sa	0216	15.1 460
	0758	2.0 60		0840	1.6 50
	1355	15.1 460		1446	14.8 450
	2013	2.3 70		2055	2.3 70
14 Sa	0212	15.4 470	**29** Su	0251	15.4 470
	0839	2.0 60		0919	1.6 50
	1437	15.1 460		1527	14.4 440
	2053	2.3 70		2131	2.3 70
15 Su	0251	15.4 470	**30** M	0328	15.4 470
	0922	2.0 60		0958	2.0 60
	1522	14.8 450		1607	14.4 440
	2134	2.3 70		2205	2.3 70
			31 Tu	0404	15.4 470
				1034	2.0 60
				1642	14.1 430
				2236	2.6 80

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cuxhaven, Germany, 2019

Times and Heights of High and Low Waters

January

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm
1 Tu	0302	2.6	80	16 W	0141	3.0	90
	0848	11.8	360		0730	11.2	340
	1551	2.3	70		1422	2.6	80
	2134	10.8	330		2013	10.8	330
2 W	0416	2.6	80	17 Th	0257	3.0	90
	1000	11.8	360		0844	11.2	340
	1701	2.6	80		1538	2.6	80
	2241	11.2	340		2126	10.8	330
3 Th	0527	2.6	80	18 F	0418	2.6	80
	1105	11.8	360		0958	11.2	340
	1803	2.3	70		1654	2.3	70
	2337	11.5	350		2236	11.2	340
4 F	0628	2.3	70	19 Sa	0533	2.0	60
	1201	11.8	360		1105	11.5	350
	1854	2.3	70		1802	2.0	60
					2339	11.5	350
5 Sa	0024	11.8	360	20 Su	0638	1.6	50
	0719	2.0	60		1206	11.5	350
	1249	11.8	360		1901	1.6	50
	1937	2.0	60				
6 Su ●	0105	11.8	360	21 M ○	0034	11.8	360
	0801	1.6	50		0736	1.3	40
	1330	11.5	350		1302	11.8	360
	2013	1.6	50		1955	1.3	40
7 M	0142	11.8	360	22 Tu	0125	12.5	380
	0836	1.6	50		0829	1.3	40
	1405	11.5	350		1355	11.8	360
	2046	1.6	50		2047	1.3	40
8 Tu	0215	12.1	370	23 W	0214	12.8	390
	0910	1.6	50		0923	1.0	30
	1439	11.5	350		1448	11.8	360
	2118	2.0	60		2139	1.3	40
9 W	0247	12.1	370	24 Th	0303	12.8	390
	0943	1.6	50		1014	1.0	30
	1513	11.5	350		1538	11.8	360
	2149	2.0	60		2226	1.3	40
10 Th	0320	12.1	370	25 F	0350	12.8	390
	1016	2.0	60		1100	1.0	30
	1545	11.2	340		1626	11.5	350
	2219	2.0	60		2309	1.3	40
11 F	0353	12.1	370	26 Sa	0435	12.8	390
	1048	2.0	60		1143	1.0	30
	1618	11.2	340		1711	11.5	350
	2251	2.3	70		2351	1.3	40
12 Sa	0429	12.1	370	27 Su ◑	0521	12.5	380
	1123	2.3	70		1226	1.3	40
	1655	11.2	340		1757	11.2	340
	2326	2.6	80				
13 Su	0506	11.8	360	28 M	0033	1.6	50
	1158	2.3	70		0609	12.1	370
	1732	11.2	340		1307	1.6	50
					1844	10.8	330
14 M ◐	0002	2.6	80	29 Tu	0117	2.0	60
	0544	11.8	360		0700	11.8	360
	1233	2.3	70		1354	2.0	60
	1814	10.8	330		1937	10.5	320
15 Tu	0043	3.0	90	30 W	0212	2.3	70
	0629	11.5	350		0803	11.5	350
	1318	2.6	80		1456	2.3	70
	1906	10.8	330		2044	10.5	320
				31 Th	0327	2.6	80
					0919	11.2	340
					1613	2.6	80
					2159	10.8	330

February

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm
1 F	0451	2.6	80	16 Sa	0331	2.3	70
	1037	11.2	340		0919	10.8	330
	1730	2.6	80		1615	2.3	70
	2309	11.5	350		2200	10.8	330
2 Sa	0605	2.3	70	17 Su	0502	1.6	50
	1142	11.5	350		1042	10.8	330
	1831	2.3	70		1738	1.6	50
					2316	11.5	350
3 Su	0004	11.8	360	18 M	0621	1.0	30
	0702	2.0	60		1153	11.2	340
	1232	11.5	350		1847	1.3	40
	1917	2.0	60				
4 M ●	0047	11.8	360	19 Tu ○	0019	11.8	360
	0744	1.6	50		0726	1.0	30
	1313	11.5	350		1253	11.5	350
	1955	2.0	60		1946	1.3	40
5 Tu	0123	12.1	370	20 W	0112	12.5	380
	0820	1.6	50		0820	0.7	20
	1348	11.5	350		1346	11.8	360
	2030	1.6	50		2038	1.0	30
6 W	0157	12.1	370	21 Th	0200	12.8	390
	0854	1.6	50		0910	0.7	20
	1422	11.5	350		1434	11.8	360
	2103	1.6	50		2127	1.0	30
7 Th	0228	12.1	370	22 F	0247	12.8	390
	0927	1.3	40		0959	0.7	20
	1453	11.5	350		1521	11.8	360
	2134	1.3	40		2212	1.0	30
8 F	0300	12.1	370	23 Sa	0333	12.8	390
	0957	1.3	40		1044	0.7	20
	1524	11.2	340		1606	11.5	350
	2203	1.6	50		2253	1.0	30
9 Sa	0332	12.1	370	24 Su	0418	12.5	380
	1028	1.6	50		1123	1.0	30
	1556	11.2	340		1648	11.5	350
	2235	1.6	50		2330	1.0	30
10 Su	0407	12.1	370	25 M	0500	12.1	370
	1102	1.6	50		1159	1.3	40
	1631	11.5	350		1727	11.2	340
	2310	1.6	50				
11 M	0443	12.1	370	26 Tu ◑	0005	1.3	40
	1135	1.6	50		0540	11.8	360
	1705	11.5	350		1230	1.6	50
	2341	2.0	60		1804	10.8	330
12 Tu ◐	0515	11.8	360	27 W	0040	1.6	50
	1202	2.0	60		0622	11.2	340
	1735	11.2	340		1305	2.0	60
					1849	10.5	320
13 W	0007	2.3	70	28 Th	0126	2.0	60
	0548	11.5	350		0719	10.8	330
	1231	2.0	60		1359	2.3	70
	1813	10.8	330		1952	10.5	320
14 Th	0049	2.3	70				
	0637	11.2	340				
	1323	2.3	70				
	1914	10.5	320				
15 F	0159	2.6	80				
	0751	10.8	330				
	1443	2.3	70				
	2035	10.5	320				

March

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm
1 F	0237	2.3	70	16 Sa	0126	2.0	60
	0836	10.5	320		0722	10.5	320
	1520	2.6	80		1409	2.3	70
	2115	10.5	320		2003	10.5	320
2 Sa	0409	2.3	70	17 Su	0303	2.0	60
	1003	10.5	320		0857	10.5	320
	1650	2.6	80		1549	2.3	70
	2237	11.2	340		2137	11.2	340
3 Su	0537	2.3	70	18 M	0443	1.3	40
	1119	10.8	330		1028	10.8	330
	1804	2.3	70		1721	1.6	50
	2341	11.5	350		2258	11.5	350
4 M	0640	2.0	60	19 Tu	0607	1.0	30
	1212	11.2	340		1142	11.2	340
	1854	2.0	60		1833	1.3	40
5 Tu	0025	11.8	360	20 W	0003	12.1	370
	0723	1.6	50		0712	0.7	20
	1252	11.5	350		1241	11.5	350
	1933	1.6	50		1932	1.0	30
6 W ●	0100	11.8	360	21 Th ○	0056	12.5	380
	0758	1.3	40		0805	0.3	10
	1326	11.5	350		1331	11.8	360
	2009	1.3	40		2023	1.0	30
7 Th	0134	12.1	370	22 F	0143	12.5	380
	0832	1.0	30		0852	0.3	10
	1359	11.5	350		1416	11.8	360
	2044	1.0	30		2109	0.7	20
8 F	0206	12.1	370	23 Sa	0228	12.8	390
	0904	1.0	30		0936	0.3	10
	1431	11.5	350		1459	11.8	360
	2115	1.0	30		2151	0.7	20
9 Sa	0238	11.8	360	24 Su	0312	12.5	380
	0934	1.0	30		1018	0.7	20
	1501	11.5	350		1540	11.8	360
	2145	1.0	30		2229	0.7	20
10 Su	0311	11.8	360	25 M	0355	12.5	380
	1005	1.0	30		1055	0.7	20
	1533	11.5	350		1619	11.5	350
	2217	1.3	40		2304	0.7	20
11 M	0345	11.8	360	26 Tu	0434	11.8	360
	1038	1.3	40		1126	1.0	30
	1607	11.5	350		1653	11.2	340
	2251	1.3	40		2336	1.0	30
12 Tu	0420	12.1	370	27 W	0511	11.5	350
	1110	1.3	40		1152	1.3	40
	1639	11.5	350		1727	11.2	340
	2320	1.3	40				
13 W	0450	11.8	360	28 Th ◑	0008	1.3	40
	1135	1.6	50		0550	10.8	330
	1705	11.5	350		1222	2.0	60
	2343	1.6	50		1809	10.8	330
14 Th ◐	0521	11.5	350	29 F	0049	1.6	50
	1159	2.0	60		0642	10.2	310
	1739	10.8	330		1310	2.3	70
					1908	10.5	320
15 F	0018	2.0	60	30 Sa	0153	2.3	70
	0607	10.8	330		0755	9.8	300
	1246	2.3	70		1427	2.6	80
	1838	10.5	320		2029	10.5	320
				31 Su	0323	2.3	70
					0923	10.2	310
					1601	2.6	80
					2155	10.8	330

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cuxhaven, Germany, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 M	0456	2.0	60	**16** Tu	0430	1.3	40	
	1044	10.5	320		1016	10.8	330	
	1724	2.3	70		1704	2.0	60	
	2305	11.2	340		2240	11.8	360	
2 Tu	0606	1.6	50	**17** W	0549	1.0	30	
	1141	10.8	330		1126	11.2	340	
	1821	1.6	50		1813	1.6	50	
	2353	11.5	350		2342	12.1	370	
3 W	0651	1.3	40	**18** Th	0650	0.7	20	
	1222	11.2	340		1222	11.5	350	
	1902	1.6	50		1910	1.0	30	
4 Th	0029	11.8	360	**19** F ○	0035	12.5	380	
	0727	1.0	30		0743	0.3	10	
	1257	11.2	340		1311	11.8	360	
	1941	1.3	40		2002	1.0	30	
5 F ●	0105	11.8	360	**20** Sa	0124	12.5	380	
	0803	1.0	30		0830	0.3	10	
	1332	11.5	350		1355	11.8	360	
	2018	1.0	30		2047	0.7	20	
6 Sa	0141	11.8	360	**21** Su	0208	12.5	380	
	0836	0.7	20		0910	0.3	10	
	1405	11.5	350		1434	11.8	360	
	2052	1.0	30		2126	0.7	20	
7 Su	0215	11.8	360	**22** M	0249	12.1	370	
	0908	0.7	20		0947	0.7	20	
	1436	11.5	350		1511	11.8	360	
	2124	1.0	30		2202	0.7	20	
8 M	0248	11.8	360	**23** Tu	0329	11.8	360	
	0939	1.0	30		1021	1.0	30	
	1508	11.5	350		1547	11.8	360	
	2156	1.0	30		2237	0.7	20	
9 Tu	0322	11.8	360	**24** W	0408	11.5	350	
	1012	1.0	30		1051	1.0	30	
	1542	11.8	360		1622	11.5	350	
	2228	1.0	30		2310	1.0	30	
10 W	0357	11.8	360	**25** Th	0446	10.8	330	
	1044	1.3	40		1120	1.3	40	
	1614	11.8	360		1657	11.2	340	
	2300	1.3	40		2344	1.3	40	
11 Th	0432	11.8	360	**26** F ◑	0526	10.5	320	
	1113	1.6	50		1151	2.0	60	
	1647	11.5	350		1739	11.2	340	
	2331	1.3	40					
12 F ◐	0510	11.5	350	**27** Sa	0023	1.6	50	
	1145	2.0	60		0614	10.2	310	
	1726	11.5	350		1234	2.6	80	
					1832	10.8	330	
13 Sa	0012	1.6	50	**28** Su	0118	2.0	60	
	0602	10.8	330		0717	9.8	300	
	1236	2.3	70		1340	3.0	90	
	1827	11.2	340		1942	10.8	330	
14 Su	0120	2.0	60	**29** M	0235	2.3	70	
	0717	10.5	320		0835	9.8	300	
	1357	2.3	70		1505	2.6	80	
	1951	11.2	340		2102	10.8	330	
15 M	0254	1.6	50	**30** Tu	0402	2.0	60	
	0849	10.5	320		0954	10.2	310	
	1535	2.3	70		1629	2.3	70	
	2122	11.5	350		2215	11.2	340	

May

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 W	0515	1.6	50	**16** Th	0525	1.3	40	
	1056	10.5	320		1104	11.5	350	
	1734	2.0	60		1747	1.6	50	
	2310	11.5	350		2319	12.1	370	
2 Th	0607	1.3	40	**17** F	0623	1.0	30	
	1143	11.2	340		1157	11.5	350	
	1822	1.6	50		1844	1.3	40	
	2353	11.8	360					
3 F	0648	1.3	40	**18** Sa ○	0012	12.5	380	
	1222	11.5	350		0716	1.0	30	
	1906	1.6	50		1246	11.8	360	
					1938	1.0	30	
4 Sa ●	0033	11.8	360	**19** Su	0103	12.5	380	
	0728	1.0	30		0804	0.7	20	
	1300	11.5	350		1331	11.8	360	
	1948	1.3	40		2025	1.0	30	
5 Su	0112	12.1	370	**20** M	0148	12.1	370	
	0805	1.0	30		0843	0.7	20	
	1335	11.8	360		1410	12.1	370	
	2024	1.0	30		2103	0.7	20	
6 M	0148	12.1	370	**21** Tu	0228	11.8	360	
	0838	1.0	30		0917	1.0	30	
	1408	11.8	360		1444	11.8	360	
	2058	1.0	30		2137	1.0	30	
7 Tu	0223	12.1	370	**22** W	0306	11.8	360	
	0912	1.0	30		0949	1.3	40	
	1442	11.8	360		1519	11.8	360	
	2133	1.0	30		2212	1.0	30	
8 W	0300	12.1	370	**23** Th	0345	11.2	340	
	0947	1.3	40		1022	1.3	40	
	1519	12.1	370		1556	11.8	360	
	2209	1.3	40		2248	1.0	30	
9 Th	0339	11.8	360	**24** F	0424	10.8	330	
	1023	1.3	40		1054	1.6	50	
	1557	12.1	370		1634	11.8	360	
	2247	1.3	40		2325	1.3	40	
10 F	0423	11.5	350	**25** Sa	0504	10.5	320	
	1102	1.6	50		1128	2.0	60	
	1639	12.1	370		1716	11.8	360	
	2330	1.3	40					
11 Sa	0512	11.5	350	**26** Su ◑	0004	2.0	60	
	1146	2.0	60		0548	10.5	320	
	1727	11.8	360		1208	2.6	80	
					1802	11.5	350	
12 Su ◐	0022	1.6	50	**27** M	0050	2.3	70	
	0610	11.2	340		0640	10.2	310	
	1243	2.3	70		1259	3.0	90	
	1828	11.8	360		1857	11.2	340	
13 M	0129	1.6	50	**28** Tu	0148	2.3	70	
	0721	10.8	330		0743	10.2	310	
	1357	2.3	70		1407	3.0	90	
	1945	11.8	360		2004	11.2	340	
14 Tu	0251	1.6	50	**29** W	0259	2.0	60	
	0842	10.8	330		0853	10.2	310	
	1522	2.3	70		1524	2.6	80	
	2107	11.8	360		2115	11.2	340	
15 W	0414	1.3	40	**30** Th	0411	2.0	60	
	0959	11.2	340		1000	10.5	320	
	1642	2.0	60		1635	2.3	70	
	2219	12.1	370		2218	11.5	350	
				31 F	0512	1.6	50	
					1055	11.2	340	
					1735	2.0	60	
					2310	11.8	360	

June

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Sa	0602	1.6	50	**16** Su	0648	1.3	40	
	1142	11.5	350		1221	11.8	360	
	1826	2.0	60		1914	1.3	40	
	2356	11.8	360					
2 Su	0649	1.3	40	**17** M ○	0044	12.1	370	
	1224	11.8	360		0737	1.3	40	
	1913	1.6	50		1307	12.1	370	
					2003	1.0	30	
3 M ●	0039	12.1	370	**18** Tu	0130	11.8	360	
	0731	1.3	40		0818	1.0	30	
	1303	11.8	360		1348	12.1	370	
	1954	1.3	40		2042	1.0	30	
4 Tu	0119	12.1	370	**19** W	0210	11.8	360	
	0809	1.3	40		0853	1.3	40	
	1340	12.1	370		1423	12.1	370	
	2034	1.3	40		2117	1.3	40	
5 W	0200	12.1	370	**20** Th	0247	11.5	350	
	0849	1.3	40		0926	1.6	50	
	1421	12.5	380		1458	12.1	370	
	2116	1.3	40		2154	1.3	40	
6 Th	0244	12.1	370	**21** F	0325	11.5	350	
	0931	1.3	40		1000	1.6	50	
	1504	12.5	380		1535	12.5	380	
	2200	1.3	40		2230	1.6	50	
7 F	0331	11.8	360	**22** Sa	0403	11.2	340	
	1014	1.6	50		1034	2.0	60	
	1548	12.5	380		1613	12.1	370	
	2245	1.3	40		2307	1.6	50	
8 Sa	0420	11.8	360	**23** Su	0441	11.2	340	
	1059	1.6	50		1108	2.3	70	
	1635	12.5	380		1652	12.1	370	
	2334	1.3	40		2344	2.0	60	
9 Su	0514	11.5	350	**24** M	0521	10.8	330	
	1150	2.0	60		1145	2.6	80	
	1727	12.5	380		1733	12.1	370	
10 M ◐	0030	1.6	50	**25** Tu ◑	0023	2.3	70	
	0613	11.2	340		0604	10.8	330	
	1247	2.3	70		1226	3.0	90	
	1827	12.5	380		1817	11.8	360	
11 Tu	0132	1.6	50	**26** W	0105	2.3	70	
	0717	11.2	340		0653	10.8	330	
	1350	2.3	70		1315	3.0	90	
	1934	12.1	370		1908	11.5	350	
12 W	0239	1.6	50	**27** Th	0157	2.3	70	
	0826	11.2	340		0751	10.5	320	
	1501	2.3	70		1418	3.0	90	
	2045	12.1	370		2011	11.5	350	
13 Th	0350	1.6	50	**28** F	0301	2.3	70	
	0934	11.2	340		0856	10.8	330	
	1613	2.0	60		1531	2.6	80	
	2155	12.1	370		2119	11.5	350	
14 F	0456	1.6	50	**29** Sa	0409	2.3	70	
	1037	11.5	350		0959	11.2	340	
	1719	2.0	60		1640	2.3	70	
	2256	12.5	380		2222	11.8	360	
15 Sa	0555	1.6	50	**30** Su	0512	2.0	60	
	1132	11.8	360		1055	11.5	350	
	1819	1.6	50		1742	2.0	60	
	2352	12.1	370		2317	11.8	360	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cuxhaven, Germany, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0608 2.0 60 1146 11.8 360 1838 1.6 50		**16** Tu ○	0030 11.8 360 0715 1.6 50 1248 12.1 370 1944 1.6 50	
2 Tu ●	0007 11.8 360 0659 1.6 50 1233 12.1 370 1928 1.6 50		**17** W	0115 11.8 360 0758 1.6 50 1330 12.1 370 2025 1.6 50	
3 W	0056 12.1 370 0746 1.6 50 1319 12.5 380 2016 1.3 40		**18** Th	0155 11.8 360 0835 1.6 50 1407 12.5 380 2102 1.6 50	
4 Th	0145 12.1 370 0834 1.6 50 1405 12.5 380 2106 1.3 40		**19** F	0232 11.8 360 0910 1.6 50 1442 12.5 380 2138 1.6 50	
5 F	0236 12.1 370 0923 1.6 50 1453 12.8 390 2156 1.3 40		**20** Sa	0307 11.5 350 0943 2.0 60 1515 12.5 380 2212 1.6 50	
6 Sa	0326 12.1 370 1011 1.6 50 1540 12.8 390 2244 1.0 30		**21** Su	0340 11.5 350 1014 2.0 60 1549 12.5 380 2244 2.0 60	
7 Su	0415 11.8 360 1057 1.6 50 1627 12.8 390 2332 1.3 40		**22** M	0414 11.5 350 1046 2.0 60 1625 12.5 380 2319 2.0 60	
8 M	0507 11.5 350 1146 1.6 50 1719 12.8 390		**23** Tu	0451 11.2 340 1122 2.3 70 1703 12.1 370 2355 2.3 70	
9 Tu ◐	0025 1.3 40 0602 11.5 350 1238 2.0 60 1814 12.5 380		**24** W	0530 11.2 340 1158 2.6 80 1741 12.1 370	
10 W	0119 1.6 50 0659 11.2 340 1331 2.0 60 1913 12.5 380		**25** Th ◑	0028 2.3 70 0608 11.2 340 1233 2.6 80 1820 11.8 360	
11 Th	0214 2.0 60 0757 11.2 340 1429 2.3 70 2016 12.1 370		**26** F	0103 2.6 80 0652 10.8 330 1319 3.0 90 1911 11.5 350	
12 F	0315 2.0 60 0900 11.2 340 1537 2.3 70 2126 12.1 370		**27** Sa	0155 2.6 80 0750 10.8 330 1425 3.0 90 2019 11.2 340	
13 Sa	0422 2.3 70 1006 11.5 350 1650 2.3 70 2235 12.1 370		**28** Su	0305 2.6 80 0900 10.8 330 1544 2.6 80 2132 11.2 340	
14 Su	0528 2.3 70 1108 11.8 360 1758 2.0 60 2337 11.8 360		**29** M	0421 2.3 70 1010 11.2 340 1701 2.0 60 2242 11.5 350	
15 M	0626 2.0 60 1201 11.8 360 1856 1.6 50		**30** Tu	0533 2.0 60 1114 11.5 350 1810 1.6 50 2345 11.5 350	
			31 W	0636 1.6 50 1212 12.1 370 1910 1.3 40	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0042 11.8 360 0732 1.6 50 1304 12.5 380 2006 1.3 40		**16** F	0139 11.8 360 0817 2.0 60 1349 12.5 380 2044 1.6 50	
2 F	0136 12.1 370 0825 1.6 50 1353 12.8 390 2058 1.3 40		**17** Sa	0213 11.5 350 0853 1.6 50 1422 12.5 380 2118 1.6 50	
3 Sa	0227 12.1 370 0916 1.3 40 1441 12.8 390 2149 1.0 30		**18** Su	0245 11.5 350 0925 1.6 50 1454 12.5 380 2149 1.6 50	
4 Su	0316 12.1 370 1004 1.3 40 1528 12.8 390 2235 1.0 30		**19** M	0315 11.5 350 0954 1.6 50 1525 12.5 380 2218 1.6 50	
5 M	0404 11.8 360 1048 1.3 40 1614 12.8 390 2320 1.0 30		**20** Tu	0346 11.5 350 1024 2.0 60 1558 12.1 370 2250 2.0 60	
6 Tu	0451 11.5 350 1131 1.3 40 1702 12.5 380		**21** W	0420 11.5 350 1058 2.0 60 1634 12.1 370 2324 2.3 70	
7 W ◐	0006 1.3 40 0539 11.5 350 1216 1.6 50 1751 12.5 380		**22** Th	0455 11.5 350 1131 2.3 70 1707 12.1 370 2352 2.3 70	
8 Th	0051 1.6 50 0627 11.2 340 1301 2.0 60 1842 12.1 370		**23** F ◑	0526 11.5 350 1158 2.6 80 1739 11.8 360	
9 F	0135 2.3 70 0718 11.2 340 1350 2.3 70 1941 11.8 360		**24** Sa	0017 2.6 80 0601 11.2 340 1231 2.6 80 1821 11.2 340	
10 Sa	0230 2.6 80 0818 10.8 330 1457 2.6 80 2053 11.5 350		**25** Su	0058 2.6 80 0653 10.8 330 1330 3.0 90 1928 10.8 330	
11 Su	0342 3.0 90 0932 11.2 340 1619 2.6 80 2213 11.5 350		**26** M	0209 3.0 90 0808 10.5 320 1456 2.6 80 2053 10.8 330	
12 M	0500 3.0 90 1046 11.5 350 1740 2.3 70 2324 11.5 350		**27** Tu	0340 2.6 80 0933 10.8 330 1629 2.0 60 2218 11.2 340	
13 Tu	0608 2.6 80 1147 11.8 360 1842 2.0 60		**28** W	0507 2.3 70 1051 11.5 350 1751 1.6 50 2331 11.5 350	
14 W	0019 11.5 350 0658 2.3 70 1233 12.1 370 1929 2.0 60		**29** Th	0620 2.0 60 1156 11.8 360 1859 1.3 40	
15 Th ○	0102 11.5 350 0740 2.0 60 1312 12.1 370 2008 1.6 50		**30** F ●	0032 11.8 360 0721 1.6 50 1251 12.5 380 1955 1.0 30	
			31 Sa	0126 11.8 360 0814 1.3 40 1339 12.8 390 2046 1.0 30	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0214 12.1 370 0904 1.3 40 1425 12.8 390 2133 1.0 30		**16** M	0220 11.5 350 0904 1.6 50 1430 12.1 370 2122 1.6 50	
2 M	0259 12.1 370 0949 1.3 40 1510 12.8 390 2218 1.0 30		**17** Tu	0250 11.5 350 0933 1.6 50 1500 12.1 370 2150 1.6 50	
3 Tu	0344 11.8 360 1031 1.0 30 1555 12.8 390 2259 1.0 30		**18** W	0318 11.5 350 1001 1.6 50 1531 12.1 370 2220 2.0 60	
4 W	0427 11.8 360 1109 1.3 40 1639 12.5 380 2337 1.3 40		**19** Th	0349 11.8 360 1031 2.0 60 1603 12.1 370 2250 2.0 60	
5 Th	0508 11.5 350 1147 1.6 50 1723 12.1 370		**20** F	0420 11.8 360 1101 2.0 60 1634 11.8 360 2317 2.3 70	
6 F ◐	0013 2.0 60 0548 11.2 340 1226 2.0 60 1808 11.5 350		**21** Sa	0450 11.5 350 1127 2.3 70 1706 11.5 350 2341 2.6 80	
7 Sa	0050 2.3 70 0634 10.8 330 1310 2.3 70 1903 11.2 340		**22** Su ◑	0522 11.2 340 1158 2.6 80 1749 10.8 330	
8 Su	0141 3.0 90 0734 10.8 330 1416 3.0 90 2017 10.8 330		**23** M	0021 3.0 90 0614 10.8 330 1257 3.0 90 1857 10.5 320	
9 M	0257 3.3 100 0854 10.8 330 1545 3.0 90 2146 10.8 330		**24** Tu	0134 3.0 90 0734 10.8 330 1428 2.6 80 2028 10.5 320	
10 Tu	0427 3.3 100 1020 11.2 340 1717 2.6 80 2307 10.8 330		**25** W	0313 3.0 90 0907 10.8 330 1609 2.3 70 2202 10.8 330	
11 W	0547 3.0 90 1129 11.8 360 1826 2.3 70		**26** Th	0448 2.6 80 1032 11.5 350 1737 1.6 50 2319 11.2 340	
12 Th	0005 11.2 340 0640 2.6 80 1215 12.1 370 1911 2.0 60		**27** F	0605 2.3 70 1139 11.8 360 1844 1.3 40	
13 F	0043 11.5 350 0718 2.3 70 1250 12.1 370 1945 1.6 50		**28** Sa ●	0019 11.5 350 0705 1.6 50 1233 12.5 380 1939 1.0 30	
14 Sa ○	0116 11.5 350 0754 2.0 60 1323 12.1 370 2019 1.6 50		**29** Su	0109 11.8 360 0757 1.3 40 1321 12.5 380 2028 1.0 30	
15 Su	0149 11.5 350 0831 1.6 50 1358 12.1 370 2053 1.6 50		**30** M	0155 11.8 360 0845 1.3 40 1405 12.8 390 2111 1.0 30	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Cuxhaven, Germany, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0237	12.1 370	**16** W	0222	11.5 350
	0928	1.3 40		0909	1.6 50
	1449	12.8 390		1434	11.8 360
	2153	1.0 30		2121	1.6 50
2 W	0318	11.8 360	**17** Th	0250	11.8 360
	1008	1.3 40		0937	1.6 50
	1532	12.5 380		1505	11.8 360
	2231	1.3 40		2150	2.0 60
3 Th	0357	11.8 360	**18** F	0320	11.8 360
	1044	1.3 40		1006	2.0 60
	1613	12.1 370		1536	11.8 360
	2304	1.6 50		2219	2.0 60
4 F	0434	11.5 350	**19** Sa	0351	11.8 360
	1118	1.3 40		1035	2.0 60
	1653	11.5 350		1609	11.8 360
	2335	2.0 60		2249	2.3 70
5 Sa ◐	0510	11.2 340	**20** Su	0423	11.8 360
	1154	1.6 50		1107	2.3 70
	1736	10.8 330		1647	11.5 350
				2321	2.6 80
6 Su	0009	2.6 80	**21** M ◑	0501	11.5 350
	0554	10.8 330		1146	2.6 80
	1237	2.3 70		1736	10.8 330
	1828	10.5 320			
7 M	0056	3.3 100	**22** Tu	0007	3.0 90
	0653	10.8 330		0556	11.2 340
	1338	3.0 90		1247	2.6 80
	1940	10.2 310		1845	10.5 320
8 Tu	0210	3.6 110	**23** W	0120	3.3 100
	0812	10.8 330		0715	11.2 340
	1505	3.0 90		1415	2.6 80
	2107	10.2 310		2014	10.5 320
9 W	0343	3.6 110	**24** Th	0255	3.3 100
	0940	11.2 340		0846	11.2 340
	1639	3.0 90		1553	2.3 70
	2232	10.5 320		2145	10.8 330
10 Th	0510	3.3 100	**25** F	0429	3.0 90
	1055	11.5 350		1010	11.8 360
	1755	2.6 80		1718	1.6 50
	2335	10.8 330		2300	11.2 340
11 F	0610	2.6 80	**26** Sa	0543	2.3 70
	1145	11.8 360		1117	12.1 370
	1841	2.0 60		1823	1.3 40
				2358	11.5 350
12 Sa	0015	11.2 340	**27** Su	0642	2.0 60
	0650	2.3 70		1211	12.5 380
	1220	11.8 360		1917	1.3 40
	1915	1.6 50			
13 Su ○	0048	11.2 340	**28** M ●	0047	11.8 360
	0726	2.0 60		0735	1.6 50
	1253	11.8 360		1300	12.5 380
	1948	1.6 50		2005	1.0 30
14 M	0121	11.5 350	**29** Tu	0131	11.8 360
	0803	1.6 50		0822	1.3 40
	1329	11.8 360		1345	12.5 380
	2022	1.3 40		2047	1.0 30
15 Tu	0153	11.5 350	**30** W	0212	12.1 370
	0838	1.6 50		0904	1.3 40
	1403	11.8 360		1427	12.5 380
	2053	1.6 50		2124	1.3 40
			31 Th	0249	11.8 360
				0942	1.3 40
				1508	12.1 370
				2200	1.6 50

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0327	11.8 360	**16** Sa	0257	12.1 370
	1018	1.3 40		0948	2.0 60
	1549	11.5 350		1517	11.8 360
	2233	1.6 50		2158	2.3 70
2 Sa	0403	11.8 360	**17** Su	0332	12.1 370
	1053	1.3 40		1022	2.0 60
	1629	11.2 340		1556	11.5 350
	2304	2.0 60		2234	2.3 70
3 Su	0441	11.5 350	**18** M	0410	12.1 370
	1130	1.6 50		1101	2.3 70
	1711	10.5 320		1641	11.5 350
	2337	2.6 80		2315	2.6 80
4 M ◐	0523	11.2 340	**19** Tu ◑	0454	12.1 370
	1211	2.3 70		1149	2.3 70
	1759	10.2 310		1735	11.2 340
5 Tu	0021	3.3 100	**20** W	0007	3.0 90
	0617	11.2 340		0550	11.8 360
	1305	3.0 90		1250	2.6 80
	1900	9.8 300		1841	10.8 330
6 W	0123	3.6 110	**21** Th	0115	3.3 100
	0725	10.8 330		0701	11.5 350
	1418	3.3 100		1407	2.3 70
	2016	9.8 300		1959	10.8 330
7 Th	0246	3.6 110	**22** F	0238	3.0 90
	0844	11.2 340		0823	11.8 360
	1543	3.0 90		1532	2.3 70
	2137	10.2 310		2120	10.8 330
8 F	0412	3.3 100	**23** Sa	0402	3.0 90
	1000	11.2 340		0943	11.8 360
	1701	2.6 80		1651	2.0 60
	2245	10.5 320		2233	11.2 340
9 Sa	0522	3.0 90	**24** Su	0515	2.6 80
	1100	11.5 350		1050	12.1 370
	1756	2.3 70		1756	1.6 50
	2334	10.8 330		2331	11.5 350
10 Su	0611	2.6 80	**25** M	0615	2.3 70
	1143	11.8 360		1146	12.5 380
	1835	2.0 60		1851	1.6 50
11 M	0012	11.2 340	**26** Tu ●	0021	11.8 360
	0652	2.3 70		0711	1.6 50
	1220	11.8 360		1238	12.5 380
	1912	2.0 60		1940	1.3 40
12 Tu ○	0048	11.5 350	**27** W	0106	11.8 360
	0732	2.0 60		0800	1.3 40
	1258	11.8 360		1325	12.1 370
	1948	1.6 50		2022	1.3 40
13 W	0122	11.5 350	**28** Th	0147	11.8 360
	0809	2.0 60		0841	1.3 40
	1333	11.8 360		1407	12.1 370
	2021	1.6 50		2057	1.6 50
14 Th	0152	11.8 360	**29** F	0223	12.1 370
	0842	1.6 50		0918	1.3 40
	1407	11.8 360		1447	11.8 360
	2053	2.0 60		2132	1.6 50
15 F	0224	11.8 360	**30** Sa	0301	12.1 370
	0915	2.0 60		0957	1.6 50
	1441	11.8 360		1528	11.5 350
	2125	2.0 60		2208	2.0 60

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0339	12.1 370	**16** M	0323	12.5 380
	1035	1.6 50		1021	2.0 60
	1609	11.2 340		1553	11.8 360
	2241	2.3 70		2231	2.3 70
2 M	0418	11.8 360	**17** Tu	0404	12.5 380
	1112	2.0 60		1104	2.0 60
	1649	10.8 330		1640	11.5 350
	2315	2.6 80		2317	2.3 70
3 Tu	0459	11.8 360	**18** W	0451	12.5 380
	1151	2.3 70		1154	2.0 60
	1732	10.5 320		1733	11.2 340
	2353	3.0 90			
4 W ◐	0544	11.5 350	**19** Th ◑	0009	2.6 80
	1235	2.6 80		0544	12.1 370
	1820	10.2 310		1250	2.0 60
				1832	10.8 330
5 Th	0041	3.3 100	**20** F	0107	2.6 80
	0636	11.2 340		0646	12.1 370
	1328	3.0 90		1352	2.0 60
	1919	10.2 310		1937	10.8 330
6 F	0144	3.6 110	**21** Sa	0213	2.6 80
	0740	11.2 340		0756	11.8 360
	1435	3.0 90		1502	2.0 60
	2028	10.2 310		2047	10.8 330
7 Sa	0300	3.6 110	**22** Su	0327	2.6 80
	0851	11.2 340		0910	11.8 360
	1548	3.0 90		1615	2.3 70
	2138	10.5 320		2157	11.2 340
8 Su	0416	3.3 100	**23** M	0441	2.6 80
	0959	11.5 350		1020	12.1 370
	1654	2.6 80		1724	2.3 70
	2238	10.8 330		2300	11.5 350
9 M	0520	3.0 90	**24** Tu	0548	2.3 70
	1056	11.5 350		1123	12.1 370
	1747	2.3 70		1824	2.0 60
	2328	11.2 340		2355	11.8 360
10 Tu	0612	2.6 80	**25** W	0649	2.0 60
	1142	11.8 360		1220	12.1 370
	1833	2.3 70		1916	1.6 50
11 W	0010	11.5 350	**26** Th ●	0043	11.8 360
	0657	2.3 70		0741	1.6 50
	1223	11.8 360		1309	11.8 360
	1913	2.0 60		2000	1.6 50
12 Th ○	0048	11.8 360	**27** F	0127	12.1 370
	0738	2.0 60		0823	1.3 40
	1303	11.8 360		1352	11.8 360
	1951	2.0 60		2037	1.6 50
13 F	0124	11.8 360	**28** Sa	0205	12.1 370
	0817	2.0 60		0901	1.6 50
	1343	11.8 360		1432	11.8 360
	2029	2.0 60		2113	2.0 60
14 Sa	0202	12.1 370	**29** Su	0242	12.1 370
	0858	2.0 60		0941	1.6 50
	1425	11.8 360		1512	11.5 350
	2110	2.0 60		2149	2.0 60
15 Su	0242	12.5 380	**30** M	0320	12.5 380
	0940	2.0 60		1020	1.6 50
	1508	11.8 360		1550	11.2 340
	2151	2.0 60		2224	2.3 70
			31 Tu	0358	12.5 380
				1056	2.0 60
				1627	11.2 340
				2256	2.3 70

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Hamburg, Germany, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0657	1.6 50	**16** W	0536	2.0 60
	1219	13.5 410		1058	13.1 400
	1948	1.6 50		1820	1.6 50
				2342	12.5 380
2 W	0106	12.8 390	**17** Th	0651	2.0 60
	0811	2.0 60		1213	12.8 390
	1331	13.5 410		1937	1.6 50
	2056	1.6 50			
3 Th	0212	13.1 400	**18** F	0057	12.5 380
	0923	2.0 60		0813	1.6 50
	1438	13.5 410		1330	12.8 390
	2156	1.6 50		2052	1.3 40
4 F	0309	13.5 410	**19** Sa	0208	12.8 390
	1024	1.6 50		0928	1.0 30
	1534	13.5 410		1439	13.1 400
	2248	1.3 40		2159	1.0 30
5 Sa	0356	13.5 410	**20** Su	0311	13.1 400
	1115	1.3 40		1034	1.0 30
	1621	13.5 410		1540	13.1 400
	2332	1.3 40		2257	1.0 30
6 Su ●	0438	13.5 410	**21** M ○	0406	13.5 410
	1157	1.0 30		1131	0.7 20
	1701	13.1 400		1635	13.5 410
				2349	1.0 30
7 M	0009	1.0 30	**22** Tu	0456	14.1 430
	0514	13.5 410		1224	0.7 20
	1232	1.0 30		1727	13.5 410
	1736	13.1 400			
8 Tu	0041	1.0 30	**23** W	0040	1.0 30
	0546	13.8 420		0544	14.4 440
	1305	1.0 30		1318	0.7 20
	1810	13.1 400		1819	13.5 410
9 W	0113	1.3 40	**24** Th	0132	1.0 30
	0617	13.8 420		0632	14.4 440
	1338	1.3 40		1411	0.7 20
	1843	12.8 390		1910	13.5 410
10 Th	0144	1.3 40	**25** F	0219	1.0 30
	0649	13.8 420		0720	14.4 440
	1410	1.3 40		1458	0.7 20
	1915	12.8 390		1957	13.1 400
11 F	0213	1.3 40	**26** Sa	0303	1.0 30
	0722	13.8 420		0805	14.4 440
	1442	1.3 40		1540	0.7 20
	1948	12.8 390		2042	12.8 390
12 Sa	0245	1.6 50	**27** Su ◑	0346	1.0 30
	0758	13.8 420		0852	14.1 430
	1518	1.6 50		1624	1.0 30
	2023	12.8 390		2128	12.8 390
13 Su	0321	1.6 50	**28** M	0431	1.0 30
	0835	13.5 410		0940	13.8 420
	1554	1.6 50		1707	1.0 30
	2101	12.8 390		2215	12.5 380
14 M ◐	0357	2.0 60	**29** Tu	0517	1.3 40
	0913	13.5 410		1030	13.5 410
	1631	1.6 50		1754	1.3 40
	2143	12.5 380		2308	12.5 380
15 Tu	0439	2.0 60	**30** W	0612	1.6 50
	0957	13.1 400		1132	13.1 400
	1717	1.6 50		1855	1.6 50
	2235	12.5 380			
			31 Th	0014	12.5 380
				0726	1.6 50
				1248	13.1 400
				2010	1.6 50

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0130	12.8 390	**16** Sa	0004	12.5 380
	0849	1.6 50		0729	1.3 40
	1407	13.1 400		1250	12.5 380
	2125	1.6 50		2013	1.3 40
2 Sa	0240	13.1 400	**17** Su	0131	12.8 390
	1003	1.6 50		0900	0.7 20
	1515	13.1 400		1415	12.8 390
	2226	1.6 50		2135	1.0 30
3 Su	0335	13.5 410	**18** M	0248	13.1 400
	1059	1.3 40		1019	0.7 20
	1605	13.1 400		1526	13.1 400
	2314	1.3 40		2243	0.7 20
4 M ●	0418	13.8 420	**19** Tu ○	0351	13.8 420
	1142	1.0 30		1123	0.3 10
	1644	13.1 400		1625	13.5 410
	2353	1.3 40		2340	0.7 20
5 Tu	0455	13.8 420	**20** W	0443	14.1 430
	1218	1.0 30		1217	0.3 10
	1719	13.1 400		1717	13.5 410
6 W	0027	1.0 30	**21** Th	0032	0.7 20
	0528	13.8 420		0530	14.4 440
	1251	1.0 30		1307	0.3 10
	1752	13.1 400		1806	13.5 410
7 Th	0059	1.0 30	**22** F	0120	0.7 20
	0559	13.8 420		0617	14.4 440
	1323	1.0 30		1356	0.3 10
	1823	13.1 400		1853	13.5 410
8 F	0130	1.0 30	**23** Sa	0206	0.7 20
	0630	13.8 420		0704	14.4 440
	1353	1.0 30		1441	0.3 10
	1854	12.8 390		1937	13.5 410
9 Sa	0159	1.0 30	**24** Su	0247	0.7 20
	0702	13.8 420		0748	14.4 440
	1423	1.0 30		1520	0.7 20
	1926	13.1 400		2018	13.1 400
10 Su	0231	1.3 40	**25** M	0327	0.7 20
	0737	13.8 420		0831	14.1 430
	1458	1.3 40		1556	0.7 20
	2001	13.1 400		2056	12.8 390
11 M	0306	1.3 40	**26** Tu ◑	0405	0.7 20
	0813	13.8 420		0911	13.5 410
	1533	1.3 40		1630	1.0 30
	2035	13.1 400		2134	12.5 380
12 Tu ◐	0338	1.3 40	**27** W	0443	1.0 30
	0845	13.8 420		0953	13.1 400
	1601	1.3 40		1706	1.3 40
	2106	13.1 400		2219	12.5 380
13 W	0406	1.6 50	**28** Th	0529	1.3 40
	0917	13.5 410		1047	12.8 390
	1632	1.3 40		1800	1.6 50
	2143	12.8 390		2321	12.1 370
14 Th	0447	1.6 50			
	1006	12.8 390			
	1724	1.6 50			
	2242	12.5 380			
15 F	0557	1.6 50			
	1120	12.5 380			
	1843	1.3 40			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0639	1.3 40	**16** Sa	0527	1.0 30
	1203	12.5 380		1051	12.1 370
	1918	1.6 50		1808	1.3 40
				2332	12.5 380
2 Sa	0043	12.5 380	**17** Su	0703	1.0 30
	0809	1.3 40		1227	12.5 380
	1332	12.5 380		1947	1.0 30
	2047	1.6 50			
3 Su	0206	12.8 390	**18** M	0107	12.8 390
	0936	1.3 40		0843	0.7 20
	1450	12.8 390		1359	12.8 390
	2200	1.6 50		2117	1.0 30
4 M	0311	13.5 410	**19** Tu	0230	13.5 410
	1039	1.3 40		1006	0.3 10
	1545	13.1 400		1514	13.1 400
	2252	1.3 40		2228	0.7 20
5 Tu	0355	13.8 420	**20** W	0333	13.8 420
	1122	1.0 30		1110	0.3 10
	1624	13.1 400		1613	13.5 410
	2331	1.0 30		2326	0.7 20
6 W ●	0431	13.8 420	**21** Th ○	0426	14.1 430
	1157	1.0 30		1203	0.3 10
	1657	13.1 400		1703	13.5 410
7 Th	0007	1.0 30	**22** F	0017	0.7 20
	0506	13.8 420		0513	14.4 440
	1230	0.7 20		1250	0.3 10
	1730	13.1 400		1747	13.5 410
8 F	0040	0.7 20	**23** Sa	0103	0.3 10
	0538	13.8 420		0559	14.4 440
	1302	0.7 20		1334	0.3 10
	1801	13.1 400		1830	13.5 410
9 Sa	0111	0.7 20	**24** Su	0146	0.3 10
	0609	13.8 420		0643	14.4 440
	1332	0.7 20		1415	0.3 10
	1832	13.1 400		1910	13.5 410
10 Su	0142	0.7 20	**25** M	0225	0.3 10
	0642	13.8 420		0726	14.1 430
	1402	0.7 20		1451	0.7 20
	1904	13.1 400		1948	13.1 400
11 M	0213	1.0 30	**26** Tu	0302	0.3 10
	0716	13.8 420		0805	13.8 420
	1435	1.0 30		1523	0.7 20
	1937	13.5 410		2023	13.1 400
12 Tu	0247	1.0 30	**27** W	0337	0.3 10
	0751	13.8 420		0842	13.1 400
	1508	1.0 30		1552	0.7 20
	2009	13.5 410		2057	12.8 390
13 W	0318	1.0 30	**28** Th ◑	0411	0.7 20
	0822	13.8 420		0921	12.5 380
	1535	1.0 30		1624	1.0 30
	2036	13.1 400		2137	12.5 380
14 Th ◐	0344	1.0 30	**29** F	0453	1.0 30
	0852	13.1 400		1010	12.1 370
	1600	1.3 40		1712	1.3 40
	2109	12.8 390		2235	12.5 380
15 F	0419	1.0 30	**30** Sa	0556	1.0 30
	0937	12.8 390		1121	11.8 360
	1647	1.3 40		1826	1.6 50
	2206	12.5 380		2355	12.5 380
			31 Su	0724	1.3 40
				1250	12.1 370
				1959	1.6 50

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Hamburg, Germany, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0123 12.8 390 0856 1.0 30 1414 12.1 370 2121 1.3 40		**16** Tu	0052 13.1 400 0831 0.7 20 1347 12.8 390 2100 1.0 30	
2 Tu	0235 13.1 400 1005 1.0 30 1514 12.8 390 2218 1.0 30		**17** W	0211 13.5 410 0949 0.3 10 1458 13.1 400 2209 1.0 30	
3 W	0324 13.5 410 1050 0.7 20 1555 12.8 390 2259 1.0 30		**18** Th	0313 13.8 420 1049 0.3 10 1553 13.5 410 2305 0.7 20	
4 Th	0401 13.8 420 1126 0.7 20 1629 13.1 400 2337 0.7 20		**19** F ○	0405 14.1 430 1141 0.3 10 1642 13.5 410 2357 0.3 10	
5 F ●	0437 13.8 420 1201 0.7 20 1703 13.1 400		**20** Sa	0455 14.1 430 1228 0.3 10 1726 13.5 410	
6 Sa	0015 0.7 20 0513 13.8 420 1235 0.3 10 1736 13.1 400		**21** Su	0043 0.3 10 0541 14.1 430 1307 0.3 10 1805 13.5 410	
7 Su	0048 0.7 20 0547 13.8 420 1306 0.7 20 1808 13.5 410		**22** M	0123 0.3 10 0622 14.1 430 1344 0.3 10 1842 13.5 410	
8 M	0120 0.7 20 0620 13.5 410 1337 0.7 20 1839 13.5 410		**23** Tu	0200 0.3 10 0701 13.8 420 1417 0.7 20 1917 13.5 410	
9 Tu	0152 0.7 20 0654 13.5 410 1408 1.0 30 1912 13.5 410		**24** W	0236 0.3 10 0739 13.1 400 1449 0.7 20 1952 13.1 400	
10 W	0225 0.7 20 0729 13.5 410 1440 1.0 30 1945 13.5 410		**25** Th	0310 0.3 10 0818 12.8 390 1519 0.7 20 2027 13.1 400	
11 Th	0258 1.0 30 0804 13.5 410 1511 1.0 30 2017 13.5 410		**26** F ◑	0346 0.3 10 0857 12.1 370 1551 1.0 30 2107 12.8 390	
12 F ◐	0332 1.0 30 0842 13.1 400 1545 1.0 30 2056 13.1 400		**27** Sa	0426 0.7 20 0943 11.8 360 1635 1.3 40 2159 12.8 390	
13 Sa	0415 1.0 30 0933 12.8 390 1635 1.3 40 2155 13.1 400		**28** Su	0521 1.0 30 1044 11.8 360 1738 1.6 50 2308 12.5 380	
14 Su	0523 1.0 30 1047 12.5 380 1755 1.3 40 2319 13.1 400		**29** M	0636 1.0 30 1201 11.8 360 1902 1.6 50	
15 M	0656 1.0 30 1219 12.5 380 1932 1.0 30		**30** Tu	0030 12.8 390 0802 1.0 30 1323 12.1 370 2026 1.3 40	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0146 13.1 400 0914 0.7 20 1429 12.5 380 2130 1.0 30		**16** Th	0151 13.8 420 0926 0.7 20 1436 13.1 400 2144 1.0 30	
2 Th	0242 13.5 410 1005 0.7 20 1517 12.8 390 2218 1.0 30		**17** F	0251 14.1 430 1022 0.7 20 1529 13.5 410 2240 1.0 30	
3 F	0325 13.5 410 1046 0.7 20 1555 13.1 400 2301 1.0 30		**18** Sa ○	0345 14.1 430 1114 0.3 10 1618 13.5 410 2334 0.7 20	
4 Sa ●	0404 13.8 420 1126 0.7 20 1633 13.5 410 2343 1.0 30		**19** Su	0436 13.8 420 1201 0.3 10 1704 13.5 410	
5 Su	0444 13.8 420 1203 0.7 20 1708 13.5 410		**20** M	0021 0.3 10 0523 13.8 420 1240 0.3 10 1742 13.5 410	
6 M	0020 0.7 20 0520 13.8 420 1237 0.7 20 1740 13.5 410		**21** Tu	0100 0.3 10 0602 13.5 410 1313 0.3 10 1816 13.5 410	
7 Tu	0055 0.7 20 0556 13.8 420 1309 0.7 20 1814 13.8 420		**22** W	0136 0.3 10 0639 13.1 400 1346 0.7 20 1851 13.5 410	
8 W	0130 0.7 20 0633 13.5 410 1343 1.0 30 1850 13.8 420		**23** Th	0211 0.3 10 0718 12.8 390 1419 0.7 20 1927 13.5 410	
9 Th	0206 0.7 20 0713 13.5 410 1419 1.0 30 1927 13.8 420		**24** F	0247 0.3 10 0757 12.5 380 1452 1.0 30 2004 13.5 410	
10 F	0246 1.0 30 0755 13.1 400 1458 1.0 30 2008 13.8 420		**25** Sa	0324 0.7 20 0837 12.5 380 1526 1.3 40 2044 13.5 410	
11 Sa	0331 1.0 30 0843 13.1 400 1543 1.3 40 2057 13.8 420		**26** Su ◑	0404 1.0 30 0919 12.1 370 1606 1.6 50 2129 13.1 400	
12 Su ◐	0425 1.0 30 0941 12.8 390 1640 1.3 40 2159 13.8 420		**27** M	0450 1.3 40 1009 12.1 370 1657 1.6 50 2225 13.1 400	
13 M	0532 1.0 30 1052 12.8 390 1753 1.3 40 2315 13.5 410		**28** Tu	0548 1.3 40 1111 11.8 360 1803 1.6 50 2333 12.8 390	
14 Tu	0653 0.7 20 1213 12.8 390 1918 1.3 40		**29** W	0658 1.0 30 1223 12.1 370 1920 1.3 40	
15 W	0038 13.5 410 0816 0.7 20 1332 12.8 390 2039 1.0 30		**30** Th	0046 13.1 400 0810 1.0 30 1332 12.5 380 2031 1.3 40	
			31 F	0151 13.1 400 0910 1.0 30 1429 12.8 390 2130 1.3 40	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0243 13.5 410 1001 1.0 30 1515 13.1 400 2222 1.3 40		**16** Su	0326 13.8 420 1046 1.0 30 1555 13.5 410 2312 0.7 20	
2 Su	0329 13.5 410 1047 1.0 30 1558 13.5 410 2309 1.0 30		**17** M ○	0419 13.5 410 1135 0.7 20 1642 13.5 410	
3 M ●	0412 13.8 420 1129 1.0 30 1637 13.5 410 2351 1.0 30		**18** Tu	0000 0.7 20 0505 13.5 410 1216 0.7 20 1722 13.8 420	
4 Tu	0453 13.8 420 1207 1.0 30 1714 13.8 420		**19** W	0040 0.7 20 0545 13.1 400 1250 0.7 20 1757 13.8 420	
5 W	0030 1.0 30 0535 13.8 420 1246 1.0 30 1753 13.8 420		**20** Th	0116 0.7 20 0622 13.1 400 1323 1.0 30 1831 13.8 420	
6 Th	0113 1.0 30 0619 13.5 410 1327 1.0 30 1835 14.1 430		**21** F	0152 0.7 20 0700 13.1 400 1357 1.0 30 1907 13.8 420	
7 F	0158 1.0 30 0705 13.5 410 1409 1.0 30 1919 14.1 430		**22** Sa	0228 1.0 30 0737 12.8 390 1430 1.3 40 1944 13.8 420	
8 Sa	0244 1.0 30 0753 13.1 400 1454 1.3 40 2005 14.1 430		**23** Su	0304 1.0 30 0815 12.5 380 1504 1.3 40 2022 13.8 420	
9 Su	0334 1.0 30 0846 13.1 400 1545 1.3 40 2059 14.1 430		**24** M	0341 1.3 40 0853 12.5 380 1542 1.6 50 2103 13.8 420	
10 M ◐	0431 1.0 30 0946 13.1 400 1643 1.3 40 2200 14.1 430		**25** Tu ◑	0421 1.3 40 0935 12.5 380 1623 1.6 50 2147 13.5 410	
11 Tu	0534 1.0 30 1051 12.8 390 1747 1.3 40 2307 13.8 420		**26** W	0504 1.3 40 1023 12.1 370 1712 2.0 60 2239 13.1 400	
12 W	0642 1.0 30 1159 12.8 390 1858 1.3 40		**27** Th	0556 1.3 40 1122 12.1 370 1815 1.6 50 2342 13.1 400	
13 Th	0019 13.8 420 0752 1.0 30 1308 12.8 390 2011 1.3 40		**28** F	0701 1.3 40 1228 12.5 380 1927 1.6 50	
14 F	0128 13.8 420 0857 1.0 30 1411 13.1 400 2118 1.3 40		**29** Sa	0051 13.1 400 0809 1.3 40 1332 12.8 390 2037 1.3 40	
15 Sa	0230 13.8 420 0954 1.0 30 1505 13.5 410 2217 1.0 30		**30** Su	0156 13.1 400 0911 1.3 40 1430 13.1 400 2139 1.3 40	

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Heights are referred to the chart datum of soundings.

Hamburg, Germany, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0252 13.1 400 1007 1.0 30 1521 13.1 400 2235 1.0 30		**16** Tu ○	0405 13.1 400 1112 1.0 30 1623 13.5 410 2342 1.0 30	
2 Tu ●	0343 13.5 410 1057 1.0 30 1609 13.5 410 2325 1.0 30		**17** W	0451 13.1 400 1155 1.0 30 1705 13.8 420	
3 W	0432 13.5 410 1144 1.0 30 1654 13.8 420		**18** Th	0023 1.0 30 0530 13.1 400 1232 1.0 30 1742 13.8 420	
4 Th	0013 1.0 30 0520 13.8 420 1230 1.0 30 1739 14.1 430		**19** F	0059 1.0 30 0606 13.1 400 1307 1.0 30 1815 14.1 430	
5 F	0103 1.0 30 0610 13.5 410 1319 1.0 30 1826 14.1 430		**20** Sa	0135 1.0 30 0641 13.1 400 1340 1.3 40 1848 14.1 430	
6 Sa	0155 0.7 20 0701 13.5 410 1406 1.0 30 1912 14.1 430		**21** Su	0208 1.0 30 0715 12.8 390 1410 1.3 40 1922 14.1 430	
7 Su	0243 0.7 20 0750 13.1 400 1451 1.0 30 2000 14.1 430		**22** M	0240 1.3 40 0748 12.8 390 1442 1.3 40 1958 13.8 420	
8 M	0331 0.7 20 0841 13.1 400 1540 1.0 30 2052 14.1 430		**23** Tu	0314 1.3 40 0824 12.8 390 1518 1.6 50 2036 13.8 420	
9 Tu ◐	0424 1.0 30 0936 12.8 390 1633 1.3 40 2149 14.1 430		**24** W	0351 1.3 40 0903 12.8 390 1554 1.6 50 2113 13.5 410	
10 W	0519 1.0 30 1033 12.8 390 1728 1.3 40 2248 13.8 420		**25** Th ◑	0425 1.6 50 0941 12.8 390 1630 2.0 60 2152 13.5 410	
11 Th	0615 1.0 30 1132 12.8 390 1827 1.3 40 2351 13.8 420		**26** F	0502 1.6 50 1025 12.5 380 1716 2.0 60 2243 13.1 400	
12 F	0715 1.3 40 1235 12.8 390 1936 1.3 40		**27** Sa	0555 1.6 50 1122 12.5 380 1822 1.6 50 2351 12.8 390	
13 Sa	0100 13.8 420 0821 1.3 40 1341 13.1 400 2050 1.3 40		**28** Su	0705 1.6 50 1232 12.5 380 1941 1.3 40	
14 Su	0210 13.5 410 0926 1.3 40 1443 13.5 410 2157 1.3 40		**29** M	0107 12.8 390 0821 1.3 40 1344 12.5 380 2059 1.0 30	
15 M	0312 13.5 410 1022 1.3 40 1536 13.5 410 2255 1.0 30		**30** Tu	0219 12.8 390 0931 1.0 30 1450 12.8 390 2207 1.0 30	
			31 W	0322 12.8 390 1032 1.0 30 1548 13.5 410 2308 0.7 20	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0418 13.1 400 1128 1.0 30 1640 13.8 420		**16** F	0005 1.0 30 0513 13.1 400 1214 1.0 30 1723 13.8 420	
2 F	0002 0.7 20 0511 13.5 410 1220 1.0 30 1728 14.1 430		**17** Sa	0041 1.0 30 0547 13.1 400 1249 1.0 30 1756 13.8 420	
3 Sa	0055 0.7 20 0602 13.5 410 1311 1.0 30 1815 14.4 440		**18** Su	0114 1.0 30 0620 13.1 400 1320 1.0 30 1827 13.8 420	
4 Su	0146 0.7 20 0652 13.5 410 1358 0.7 20 1901 14.1 430		**19** M	0145 1.0 30 0650 12.8 390 1349 1.0 30 1858 13.8 420	
5 M	0234 0.7 20 0739 13.1 400 1442 0.7 20 1948 14.1 430		**20** Tu	0213 1.0 30 0720 12.8 390 1419 1.3 40 1931 13.5 410	
6 Tu	0318 0.7 20 0826 12.8 390 1526 0.7 20 2036 14.1 430		**21** W	0245 1.3 40 0754 13.1 400 1452 1.3 40 2007 13.5 410	
7 W ◐	0402 0.7 20 0913 12.8 390 1612 1.0 30 2127 13.8 420		**22** Th	0319 1.3 40 0829 13.1 400 1526 1.6 50 2041 13.5 410	
8 Th	0448 1.0 30 1001 12.5 380 1658 1.0 30 2218 13.5 410		**23** F ◑	0349 1.6 50 0901 12.8 390 1554 1.6 50 2112 13.1 400	
9 F	0534 1.3 40 1052 12.5 380 1750 1.3 40 2315 13.1 400		**24** Sa	0415 1.6 50 0934 12.5 380 1628 1.6 50 2153 12.8 390	
10 Sa	0628 1.6 50 1153 12.5 380 1856 1.6 50		**25** Su	0457 1.6 50 1025 12.1 370 1727 1.6 50 2300 12.5 380	
11 Su	0026 13.1 400 0739 1.6 50 1306 12.8 390 2019 1.6 50		**26** M	0608 1.6 50 1140 12.1 370 1854 1.3 40	
12 M	0146 13.1 400 0856 1.6 50 1420 13.1 400 2139 1.3 40		**27** Tu	0027 12.1 370 0738 1.3 40 1307 12.5 380 2027 1.0 30	
13 Tu	0259 13.1 400 1003 1.6 50 1521 13.5 410 2241 1.0 30		**28** W	0154 12.5 380 0903 1.0 30 1426 12.8 390 2149 0.7 20	
14 W	0355 13.1 400 1055 1.3 40 1607 13.5 410 2327 1.0 30		**29** Th	0307 12.8 390 1014 1.0 30 1531 13.5 410 2255 0.7 20	
15 Th ○	0437 13.1 400 1137 1.3 40 1647 13.8 420		**30** F ●	0408 13.1 400 1114 0.7 20 1625 13.8 420 2351 0.7 20	
			31 Sa	0500 13.1 400 1207 0.7 20 1713 14.1 430	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0041 0.3 10 0548 13.5 410 1256 0.7 20 1759 14.1 430		**16** M	0047 1.0 30 0555 12.8 390 1257 0.7 20 1804 13.5 410	
2 M	0129 0.3 10 0634 13.5 410 1342 0.7 20 1844 14.1 430		**17** Tu	0117 0.7 20 0624 12.8 390 1327 1.0 30 1834 13.5 410	
3 Tu	0214 0.3 10 0719 13.1 400 1424 0.7 20 1929 14.1 430		**18** W	0145 1.0 30 0653 12.8 390 1355 1.0 30 1905 13.5 410	
4 W	0255 0.7 20 0801 12.8 390 1504 0.7 20 2013 13.8 420		**19** Th	0214 1.3 40 0723 13.1 400 1424 1.3 40 1937 13.5 410	
5 Th	0332 0.7 20 0840 12.8 390 1544 0.7 20 2057 13.5 410		**20** F	0244 1.3 40 0754 13.1 400 1455 1.3 40 2009 13.1 400	
6 F ◐	0409 1.0 30 0921 12.5 380 1624 1.0 30 2142 12.8 390		**21** Sa	0312 1.3 40 0823 13.1 400 1522 1.3 40 2040 12.8 390	
7 Sa	0447 1.3 40 1006 12.5 380 1710 1.3 40 2236 12.5 380		**22** Su ◑	0338 1.6 50 0855 12.8 390 1555 1.6 50 2121 12.5 380	
8 Su	0538 1.6 50 1106 12.1 370 1815 1.6 50 2348 12.5 380		**23** M	0418 1.6 50 0945 12.1 370 1653 1.6 50 2228 12.1 370	
9 M	0651 2.0 60 1225 12.5 380 1943 1.6 50		**24** Tu	0530 1.6 50 1105 12.1 370 1824 1.3 40	
10 Tu	0117 12.5 380 0821 2.0 60 1351 12.8 390 2114 1.3 40		**25** W	0000 12.1 370 0707 1.3 40 1240 12.5 380 2006 1.0 30	
11 W	0240 12.5 380 0941 1.6 50 1502 13.1 400 2224 1.3 40		**26** Th	0136 12.1 370 0841 1.3 40 1406 12.8 390 2133 0.7 20	
12 Th	0340 12.8 390 1035 1.3 40 1549 13.5 410 2308 1.0 30		**27** F	0254 12.5 380 0957 1.0 30 1512 13.5 410 2239 0.3 10	
13 F	0418 12.8 390 1114 1.3 40 1624 13.8 420 2342 1.0 30		**28** Sa ●	0353 12.8 390 1056 0.7 20 1606 13.8 420 2334 0.3 10	
14 Sa ○	0450 12.8 390 1150 1.0 30 1658 13.8 420		**29** Su	0443 13.1 400 1148 0.7 20 1654 14.1 430	
15 Su	0015 1.0 30 0523 12.8 390 1225 1.0 30 1732 13.5 410		**30** M	0021 0.3 10 0528 13.5 410 1235 0.7 20 1739 14.1 430	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Hamburg, Germany, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0105	0.3 10	**16** W	0046	1.0 30
	0610	13.5 410		0556	13.1 400
	1319	0.7 20		1301	1.0 30
	1823	14.1 430		1807	13.1 400
2 W	0147	0.7 20	**17** Th	0115	1.0 30
	0651	13.1 400		0624	13.1 400
	1401	0.7 20		1330	1.0 30
	1906	13.8 420		1838	13.1 400
3 Th	0225	0.7 20	**18** F	0143	1.3 40
	0729	13.1 400		0653	13.1 400
	1439	0.7 20		1358	1.0 30
	1946	13.5 410		1909	13.1 400
4 F	0258	0.7 20	**19** Sa	0211	1.3 40
	0806	12.8 390		0723	13.5 410
	1515	0.7 20		1428	1.3 40
	2026	12.8 390		1942	13.1 400
5 Sa ◐	0329	1.0 30	**20** Su	0241	1.3 40
	0842	12.5 380		0754	13.1 400
	1552	0.7 20		1502	1.3 40
	2108	12.1 370		2019	12.8 390
6 Su	0404	1.3 40	**21** M ◑	0314	1.6 50
	0924	12.5 380		0832	13.1 400
	1636	1.0 30		1543	1.3 40
	2200	11.8 360		2107	12.5 380
7 M	0452	1.6 50	**22** Tu	0401	1.6 50
	1022	12.1 370		0926	12.8 390
	1736	1.3 40		1644	1.3 40
	2309	11.8 360		2215	12.1 370
8 Tu	0603	2.0 60	**23** W	0512	1.6 50
	1139	12.5 380		1044	12.8 390
	1901	1.6 50		1811	1.3 40
				2344	12.1 370
9 W	0036	11.8 360	**24** Th	0646	1.6 50
	0734	2.0 60		1217	12.8 390
	1309	12.8 390		1949	1.0 30
	2035	1.6 50			
10 Th	0204	12.1 370	**25** F	0116	12.5 380
	0901	1.6 50		0820	1.6 50
	1426	13.1 400		1343	13.1 400
	2150	1.3 40		2114	0.7 20
11 F	0309	12.5 380	**26** Sa	0233	12.8 390
	1003	1.3 40		0934	1.3 40
	1519	13.5 410		1449	13.5 410
	2237	1.0 30		2218	0.7 20
12 Sa	0350	12.5 380	**27** Su	0331	13.1 400
	1043	1.0 30		1033	1.0 30
	1554	13.5 410		1542	13.8 420
	2310	1.0 30		2310	0.7 20
13 Su ○	0421	12.8 390	**28** M ●	0419	13.1 400
	1118	1.0 30		1125	0.7 20
	1627	13.5 410		1632	13.8 420
	2342	0.7 20		2358	0.7 20
14 M	0453	12.8 390	**29** Tu	0503	13.1 400
	1156	1.0 30		1213	0.7 20
	1703	13.5 410		1718	13.8 420
15 Tu	0016	0.7 20	**30** W	0039	0.7 20
	0526	12.8 390		0543	13.5 410
	1230	0.7 20		1255	0.7 20
	1736	13.1 400		1800	13.8 420
			31 Th	0116	0.7 20
				0620	13.5 410
				1335	0.7 20
				1840	13.5 410

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0152	0.7 20	**16** Sa	0117	1.3 40
	0657	13.1 400		0628	13.5 410
	1413	0.7 20		1340	1.3 40
	1920	12.8 390		1849	13.1 400
2 Sa	0226	0.7 20	**17** Su	0150	1.3 40
	0734	13.1 400		0702	13.8 420
	1450	0.7 20		1416	1.3 40
	2000	12.5 380		1927	13.1 400
3 Su	0258	1.0 30	**18** M	0225	1.3 40
	0811	12.8 390		0738	13.8 420
	1527	0.7 20		1456	1.3 40
	2042	12.1 370		2011	12.8 390
4 M ◐	0332	1.3 40	**19** Tu ◑	0308	1.6 50
	0852	12.8 390		0823	13.5 410
	1609	1.0 30		1546	1.3 40
	2129	11.8 360		2105	12.5 380
5 Tu	0415	1.6 50	**20** W	0400	2.0 60
	0943	12.5 380		0919	13.5 410
	1702	1.3 40		1647	1.3 40
	2228	11.5 350		2211	12.5 380
6 W	0516	2.0 60	**21** Th	0507	2.0 60
	1050	12.5 380		1031	13.1 400
	1813	1.6 50		1804	1.3 40
	2343	11.5 350		2329	12.5 380
7 Th	0636	2.0 60	**22** F	0628	1.6 50
	1211	12.8 390		1153	13.1 400
	1937	1.6 50		1929	1.3 40
8 F	0106	11.8 360	**23** Sa	0051	12.5 380
	0802	2.0 60		0753	1.6 50
	1330	12.8 390		1314	13.5 410
	2054	1.3 40		2047	1.0 30
9 Sa	0217	12.1 370	**24** Su	0204	12.8 390
	0912	1.6 50		0906	1.6 50
	1432	13.1 400		1421	13.8 420
	2150	1.3 40		2150	1.0 30
10 Su	0308	12.5 380	**25** M	0302	13.1 400
	1002	1.3 40		1007	1.3 40
	1515	13.5 410		1517	13.8 420
	2229	1.0 30		2244	1.0 30
11 M	0345	12.8 390	**26** Tu ●	0352	13.1 400
	1043	1.3 40		1102	1.0 30
	1553	13.5 410		1610	13.8 420
	2306	1.0 30		2332	0.7 20
12 Tu ○	0420	13.1 400	**27** W	0438	13.5 410
	1123	1.3 40		1152	0.7 20
	1630	13.5 410		1657	13.8 420
	2342	1.0 30			
13 W	0453	13.1 400	**28** Th	0014	0.7 20
	1201	1.0 30		0518	13.5 410
	1706	13.5 410		1234	0.7 20
				1739	13.5 410
14 Th	0015	1.0 30	**29** F	0049	0.7 20
	0524	13.1 400		0554	13.5 410
	1234	1.0 30		1312	0.7 20
	1740	13.1 400		1818	13.1 400
15 F	0045	1.3 40	**30** Sa	0124	1.0 30
	0555	13.5 410		0630	13.5 410
	1306	1.3 40		1351	0.7 20
	1814	13.1 400		1859	12.8 390

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0200	1.0 30	**16** M	0142	1.3 40
	0708	13.5 410		0651	14.1 430
	1430	0.7 20		1416	1.3 40
	1940	12.5 380		1922	13.1 400
2 M	0235	1.3 40	**17** Tu	0223	1.6 50
	0747	13.5 410		0732	14.1 430
	1508	1.0 30		1500	1.3 40
	2020	12.1 370		2009	13.1 400
3 Tu	0309	1.3 40	**18** W	0309	1.6 50
	0826	13.5 410		0818	14.1 430
	1548	1.3 40		1551	1.3 40
	2100	11.8 360		2102	12.8 390
4 W ◐	0347	1.6 50	**19** Th ◑	0402	1.6 50
	0910	13.1 400		0913	13.8 420
	1631	1.6 50		1648	1.3 40
	2147	11.8 360		2202	12.8 390
5 Th	0434	2.0 60	**20** F	0500	1.6 50
	1002	13.1 400		1016	13.8 420
	1723	1.6 50		1751	1.3 40
	2245	11.8 360		2307	12.5 380
6 F	0536	2.3 70	**21** Sa	0606	1.6 50
	1106	12.8 390		1126	13.5 410
	1829	1.6 50		1900	1.3 40
	2354	11.8 360			
7 Sa	0650	2.0 60	**22** Su	0017	12.5 380
	1219	12.8 390		0720	1.6 50
	1941	1.6 50		1240	13.5 410
				2012	1.3 40
8 Su	0107	12.1 370	**23** M	0127	12.8 390
	0806	2.0 60		0835	1.6 50
	1329	13.1 400		1351	13.8 420
	2048	1.6 50		2118	1.3 40
9 M	0211	12.5 380	**24** Tu	0231	13.1 400
	0910	1.6 50		0943	1.6 50
	1426	13.1 400		1455	13.8 420
	2142	1.6 50		2217	1.3 40
10 Tu	0300	13.1 400	**25** W	0326	13.5 410
	1003	1.6 50		1043	1.3 40
	1513	13.5 410		1551	13.5 410
	2227	1.3 40		2309	1.0 30
11 W	0341	13.1 400	**26** Th ●	0415	13.5 410
	1049	1.3 40		1135	1.0 30
	1555	13.5 410		1640	13.5 410
	2308	1.3 40		2353	1.0 30
12 Th ○	0418	13.1 400	**27** F	0458	13.5 410
	1131	1.3 40		1218	1.0 30
	1635	13.5 410		1723	13.1 400
	2345	1.3 40			
13 F	0454	13.5 410	**28** Sa	0030	1.0 30
	1210	1.3 40		0535	13.8 420
	1715	13.5 410		1256	1.0 30
				1802	13.1 400
14 Sa	0022	1.3 40	**29** Su	0106	1.3 40
	0532	13.8 420		0611	13.8 420
	1250	1.3 40		1335	1.0 30
	1756	13.5 410		1841	13.1 400
15 Su	0101	1.3 40	**30** M	0143	1.3 40
	0611	13.8 420		0648	13.8 420
	1334	1.3 40		1415	1.0 30
	1839	13.5 410		1920	12.8 390
			31 Tu	0218	1.3 40
				0726	14.1 430
				1451	1.3 40
				1956	12.5 380

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Esbjerg, Denmark, 2019

Times and Heights of High and Low Waters

January

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Tu	0408	2.3	70	**16** W	0310	2.3	70	
	1053	7.2	220		0928	6.9	210	
	1655	2.0	60		1553	2.0	60	
	2336	6.6	200		2212	6.2	190	
2 W	0515	2.0	60	**17** Th	0418	2.3	70	
	1159	7.2	220		1038	6.9	210	
	1757	2.0	60		1702	2.0	60	
					2326	6.2	190	
3 Th	0034	6.9	210	**18** F	0530	2.3	70	
	0618	2.0	60		1156	6.6	200	
	1258	7.2	220		1808	2.0	60	
	1852	2.0	60					
4 F	0127	6.9	210	**19** Sa	0037	6.6	200	
	0715	1.6	50		0638	2.0	60	
	1353	7.2	220		1308	6.9	210	
	1942	1.6	50		1909	2.0	60	
5 Sa	0216	7.2	220	**20** Su	0140	6.9	210	
	0806	1.6	50		0737	1.6	50	
	1442	7.2	220		1411	6.9	210	
	2027	1.6	50		2002	1.6	50	
6 Su	0301	7.2	220	**21** M	0234	6.9	210	
	0853	1.6	50		0831	1.3	40	
	1526	6.9	210		1507	6.9	210	
●	2108	2.0	60	○	2052	1.6	50	
7 M	0340	7.2	220	**22** Tu	0324	7.2	220	
	0935	1.6	50		0921	1.0	30	
	1603	6.6	200		1557	6.9	210	
	2146	2.0	60		2138	1.3	40	
8 Tu	0413	7.2	220	**23** W	0410	7.2	220	
	1013	1.6	50		1009	1.0	30	
	1634	6.6	200		1644	6.9	210	
	2220	2.0	60		2224	1.3	40	
9 W	0439	7.2	220	**24** Th	0454	7.5	230	
	1048	2.0	60		1056	1.0	30	
	1658	6.2	190		1729	6.6	200	
	2252	2.0	60		2309	1.3	40	
10 Th	0503	7.2	220	**25** F	0538	7.5	230	
	1121	2.0	60		1143	1.0	30	
	1723	6.2	190		1813	6.6	200	
	2324	2.0	60		2355	1.3	40	
11 F	0530	7.2	220	**26** Sa	0624	7.5	230	
	1154	2.0	60		1230	1.0	30	
	1753	6.2	190		1859	6.6	200	
	2358	2.0	60					
12 Sa	0604	7.2	220	**27** Su	0043	1.3	40	
	1230	2.0	60		0713	7.2	220	
	1831	6.6	200		1320	1.3	40	
				◑	1949	6.2	190	
13 Su	0037	2.0	60	**28** M	0134	1.6	50	
	0645	7.2	220		0808	7.2	220	
	1311	2.0	60		1414	1.6	50	
	1916	6.6	200		2046	6.2	190	
14 M	0121	2.0	60	**29** Tu	0230	1.6	50	
	0733	7.2	220		0911	6.9	210	
	1357	2.0	60		1514	2.0	60	
◐	2007	6.6	200		2151	6.2	190	
15 Tu	0212	2.0	60	**30** W	0335	2.0	60	
	0827	6.9	210		1022	6.9	210	
	1451	2.0	60		1621	2.0	60	
	2106	6.2	190		2258	6.2	190	
				31 Th	0446	2.0	60	
					1131	6.6	200	
					1728	2.0	60	

February

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 F	0002	6.6	200	**16** Sa	0458	2.0	60	
	0556	2.0	60		1128	6.2	190	
	1234	6.6	200		1738	2.0	60	
	1829	2.0	60					
2 Sa	0100	6.6	200	**17** Su	0004	6.2	190	
	0658	1.6	50		0615	1.6	50	
	1331	6.6	200		1250	6.2	190	
	1922	1.6	50		1845	2.0	60	
3 Su	0153	6.9	210	**18** M	0116	6.6	200	
	0751	1.3	40		0719	1.3	40	
	1422	6.6	200		1357	6.6	200	
	2009	1.6	50		1943	1.6	50	
4 M	0240	6.9	210	**19** Tu	0215	6.9	210	
	0837	1.3	40		0815	1.0	30	
	1507	6.6	200		1453	6.6	200	
●	2050	1.6	50	○	2033	1.3	40	
5 Tu	0321	6.9	210	**20** W	0307	6.9	210	
	0918	1.3	40		0905	0.7	20	
	1545	6.6	200		1542	6.6	200	
	2126	1.6	50		2120	1.0	30	
6 W	0355	6.9	210	**21** Th	0354	7.2	220	
	0954	1.3	40		0951	0.3	10	
	1616	6.2	190		1627	6.6	200	
	2159	1.6	50		2205	0.7	20	
7 Th	0422	6.9	210	**22** F	0438	7.2	220	
	1026	1.6	50		1036	0.3	10	
	1640	6.2	190		1708	6.6	200	
	2230	1.6	50		2249	0.7	20	
8 F	0445	6.9	210	**23** Sa	0520	7.2	220	
	1057	1.6	50		1121	0.7	20	
	1703	6.2	190		1748	6.6	200	
	2301	1.6	50		2333	0.7	20	
9 Sa	0510	6.9	210	**24** Su	0603	7.2	220	
	1128	1.3	40		1205	0.7	20	
	1730	6.2	190		1829	6.2	190	
	2334	1.3	40					
10 Su	0541	6.9	210	**25** M	0018	1.0	30	
	1202	1.3	40		0648	6.9	210	
	1804	6.2	190		1251	1.0	30	
					1912	6.2	190	
11 M	0011	1.3	40	**26** Tu	0106	1.0	30	
	0619	6.9	210		0737	6.6	200	
	1240	1.3	40		1340	1.3	40	
	1844	6.2	190	◑	2002	5.9	180	
12 Tu	0053	1.3	40	**27** W	0159	1.3	40	
	0703	6.9	210		0835	6.6	200	
	1323	1.3	40		1435	1.6	50	
◐	1931	6.2	190		2102	5.9	180	
13 W	0140	1.3	40	**28** Th	0301	1.6	50	
	0754	6.9	210		0945	6.2	190	
	1413	1.6	50		1541	2.0	60	
	2024	6.2	190		2214	5.9	180	
14 Th	0234	1.6	50					
	0852	6.6	200					
	1512	2.0	60					
	2126	6.2	190					
15 F	0340	2.0	60					
	1002	6.2	190					
	1622	2.0	60					
	2240	5.9	180					

March

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 F	0417	1.6	50	**16** Sa	0315	1.6	50	
	1100	5.9	180		0939	5.9	180	
	1655	2.0	60		1552	2.0	60	
	2326	5.9	180		2207	5.9	180	
2 Sa	0534	1.6	50	**17** Su	0437	1.6	50	
	1206	5.9	180		1113	5.6	170	
	1803	2.0	60		1713	2.0	60	
					2338	5.9	180	
3 Su	0029	6.2	190	**18** M	0557	1.3	40	
	0638	1.6	50		1237	5.9	180	
	1305	6.2	190		1824	1.6	50	
	1858	1.6	50					
4 M	0125	6.6	200	**19** Tu	0055	6.2	190	
	0731	1.3	40		0702	1.0	30	
	1356	6.2	190		1341	6.2	190	
	1946	1.6	50		1922	1.3	40	
5 Tu	0214	6.6	200	**20** W	0156	6.6	200	
	0816	1.0	30		0756	0.7	20	
	1442	6.2	190		1435	6.2	190	
	2027	1.3	40		2013	1.0	30	
6 W	0256	6.6	200	**21** Th	0248	6.9	210	
	0855	1.0	30		0845	0.3	10	
	1521	6.2	190		1522	6.2	190	
●	2103	1.3	40	○	2100	0.7	20	
7 Th	0332	6.6	200	**22** F	0335	6.9	210	
	0929	1.0	30		0930	0.0	0	
	1553	6.2	190		1605	6.6	200	
	2136	1.3	40		2144	0.3	10	
8 F	0401	6.6	200	**23** Sa	0418	7.2	220	
	1000	1.0	30		1014	0.3	10	
	1619	6.2	190		1644	6.2	190	
	2207	1.0	30		2227	0.3	10	
9 Sa	0425	6.6	200	**24** Su	0459	6.9	210	
	1030	1.0	30		1056	0.3	10	
	1643	6.2	190		1720	6.2	190	
	2238	1.0	30		2310	0.3	10	
10 Su	0450	6.6	200	**25** M	0539	6.9	210	
	1101	1.0	30		1138	0.7	20	
	1709	6.2	190		1757	6.2	190	
	2311	1.0	30		2354	0.7	20	
11 M	0520	6.6	200	**26** Tu	0620	6.6	200	
	1135	1.0	30		1220	1.0	30	
	1740	6.2	190		1835	6.2	190	
	2348	1.0	30					
12 Tu	0556	6.6	200	**27** W	0039	0.7	20	
	1212	1.0	30		0704	6.2	190	
	1817	6.2	190		1305	1.3	40	
					1918	5.9	180	
13 W	0029	1.0	30	**28** Th	0129	1.0	30	
	0639	6.6	200		0756	5.9	180	
	1255	1.0	30		1355	1.6	50	
	1901	6.2	190	◑	2011	5.9	180	
14 Th	0115	1.0	30	**29** F	0228	1.3	40	
	0728	6.2	190		0902	5.6	170	
	1343	1.3	40		1456	2.0	60	
◐	1951	5.9	180		2120	5.9	180	
15 F	0209	1.3	40	**30** Sa	0343	1.6	50	
	0827	6.2	190		1021	5.6	170	
	1440	1.6	50		1613	2.3	70	
	2051	5.9	180		2241	5.9	180	
				31 Su	0504	1.6	50	
					1132	5.6	170	
					1728	2.0	60	
					2351	5.9	180	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Esbjerg, Denmark, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0610	1.3	40	**16** Tu	0538	1.0	30	**1** W	0003	5.9	180	**16** Th	0011	6.2	190	**1** Sa	0059	6.2	190	**16** Su	0146	6.6	200
	1232	5.6	170		1221	5.6	170		0622	1.3	40		0617	0.7	20		0707	1.0	30		0737	0.7	20
	1827	1.6	50		1801	1.6	50		1244	5.6	170		1258	5.9	180		1337	5.9	180		1414	6.2	190
									1835	1.6	50		1834	1.0	30		1923	1.3	40		1958	0.7	20
2 Tu	0050	6.2	190	**17** W	0034	6.2	190	**2** Th	0058	6.2	190	**17** F	0112	6.6	200	**2** Su	0149	6.2	190	**17** M	0237	6.6	200
	0702	1.3	40		0641	0.7	20		0708	1.0	30		0711	0.3	10		0750	1.0	30		0824	0.7	20
	1324	5.9	180		1322	5.9	180		1333	5.9	180		1350	6.2	190		1421	6.2	190		1459	6.6	200
	1915	1.3	40		1859	1.0	30		1920	1.3	40		1927	0.7	20		2008	1.0	30	○	2046	0.7	20
3 W	0140	6.2	190	**18** Th	0134	6.6	200	**3** F	0145	6.2	190	**18** Sa	0206	6.6	200	**3** M	0235	6.2	190	**18** Tu	0323	6.6	200
	0746	1.0	30		0734	0.3	10		0748	1.0	30		0759	0.3	10		0831	0.7	20		0907	1.0	30
	1411	5.9	180		1414	6.2	190		1416	5.9	180		1436	6.2	190		1501	6.2	190		1539	6.6	200
	1957	1.3	40		1950	0.7	20		2000	1.0	30	○	2016	0.3	10	●	2050	1.0	30		2132	0.7	20
4 Th	0224	6.6	200	**19** F	0227	6.9	210	**4** Sa	0227	6.2	190	**19** Su	0254	6.6	200	**4** Tu	0317	6.2	190	**19** W	0404	6.2	190
	0824	1.0	30		0822	0.0	0		0825	0.7	20		0844	0.3	10		0911	0.7	20		0948	1.0	30
	1451	6.2	190		1500	6.2	190		1454	6.2	190		1518	6.2	190		1539	6.2	190		1615	6.6	200
	2034	1.0	30	○	2038	0.3	10	●	2038	1.0	30		2102	0.3	10		2132	0.7	20		2214	1.0	30
5 F	0302	6.6	200	**20** Sa	0314	6.9	210	**5** Su	0304	6.2	190	**20** M	0339	6.6	200	**5** W	0359	6.2	190	**20** Th	0440	5.9	180
	0859	0.7	20		0907	0.0	0		0900	0.7	20		0927	0.3	10		0951	0.7	20		1026	1.3	40
	1525	6.2	190		1541	6.2	190		1528	6.2	190		1557	6.2	190		1615	6.2	190		1646	6.6	200
●	2108	1.0	30		2122	0.3	10		2115	0.7	20		2147	0.3	10		2215	0.7	20		2254	1.0	30
6 Sa	0334	6.6	200	**21** Su	0357	6.9	210	**6** M	0338	6.2	190	**21** Tu	0419	6.2	190	**6** Th	0440	6.2	190	**21** F	0511	5.6	170
	0931	0.7	20		0949	0.3	10		0935	0.7	20		1007	0.7	20		1033	1.0	30		1102	1.3	40
	1554	6.2	190		1619	6.2	190		1559	6.2	190		1631	6.2	190		1653	6.2	190		1715	6.2	190
	2141	1.0	30		2206	0.0	0		2152	0.7	20		2229	0.3	10		2300	0.7	20		2333	1.3	40
7 Su	0402	6.6	200	**22** M	0438	6.6	200	**7** Tu	0412	6.2	190	**22** W	0456	5.9	180	**7** F	0523	5.9	180	**22** Sa	0539	5.6	170
	1002	0.7	20		1030	0.3	10		1012	0.7	20		1046	1.0	30		1116	1.0	30		1137	1.6	50
	1621	6.2	190		1653	6.2	190		1630	6.2	190		1703	6.2	190		1733	6.6	200		1744	6.2	190
	2214	0.7	20		2248	0.3	10		2230	0.7	20		2311	0.7	20		2347	0.7	20				
8 M	0430	6.6	200	**23** Tu	0516	6.2	190	**8** W	0448	6.2	190	**23** Th	0530	5.9	180	**8** Sa	0610	5.9	180	**23** Su	0011	1.3	40
	1035	0.7	20		1110	0.7	20		1050	0.7	20		1124	1.3	40		1203	1.0	30		0611	5.6	170
	1648	6.2	190		1727	6.2	190		1704	6.2	190		1734	6.2	190		1818	6.6	200		1213	1.6	50
	2249	0.7	20		2330	0.3	10		2312	0.7	20		2353	1.0	30						1820	6.2	190
9 Tu	0502	6.2	190	**24** W	0553	5.9	180	**9** Th	0528	5.9	180	**24** F	0604	5.6	170	**9** Su	0037	0.7	20	**24** M	0050	1.6	50
	1110	0.7	20		1150	1.0	30		1131	1.0	30		1202	1.3	40		0702	5.6	170		0650	5.6	170
	1719	6.2	190		1801	6.2	190		1741	6.2	190		1809	6.2	190		1253	1.3	40		1253	1.6	50
	2328	0.7	20						2356	0.7	20						1910	6.2	190		1902	6.2	190
10 W	0539	6.2	190	**25** Th	0014	0.7	20	**10** F	0613	5.9	180	**25** Sa	0036	1.3	40	**10** M	0133	1.0	30	**25** Tu	0133	1.6	50
	1149	0.7	20		0632	5.9	180		1215	1.0	30		0642	5.2	160		0802	5.6	170		0736	5.6	170
	1756	6.2	190		1231	1.3	40		1825	6.2	190		1242	1.6	50		1349	1.3	40		1339	1.6	50
					1840	5.9	180						1850	6.2	190	◐	2011	6.2	190	◑	1951	6.2	190
11 Th	0010	0.7	20	**26** F	0101	1.0	30	**11** Sa	0046	0.7	20	**26** Su	0122	1.3	40	**11** Tu	0235	1.0	30	**26** W	0222	1.6	50
	0622	6.2	190		0717	5.6	170		0705	5.6	170		0728	5.2	160		0912	5.6	170		0831	5.6	170
	1232	1.0	30		1316	1.6	50		1305	1.3	40		1328	2.0	60		1452	1.6	50		1432	2.0	60
	1838	6.2	190	◑	1926	5.9	180		1916	5.9	180	◑	1939	5.9	180		2122	6.2	190		2047	6.2	190
12 F	0057	0.7	20	**27** Sa	0155	1.3	40	**12** Su	0143	1.0	30	**27** M	0216	1.6	50	**12** W	0342	1.0	30	**27** Th	0319	1.6	50
	0712	5.9	180		0813	5.2	160		0807	5.6	170		0824	5.2	160		1025	5.6	170		0934	5.6	170
	1321	1.3	40		1409	2.0	60		1404	1.6	50		1423	2.0	60		1559	1.6	50		1533	2.0	60
◐	1928	5.9	180		2024	5.9	180	◐	2018	5.9	180		2037	5.9	180		2238	6.2	190		2151	6.2	190
13 Sa	0153	1.0	30	**28** Su	0302	1.6	50	**13** M	0250	1.0	30	**28** Tu	0320	1.6	50	**13** Th	0449	1.0	30	**28** F	0422	1.6	50
	0812	5.6	170		0926	5.2	160		0926	5.2	160		0934	5.2	160		1131	5.6	170		1044	5.6	170
	1419	1.6	50		1518	2.0	60		1513	1.6	50		1529	2.0	60		1707	1.3	40		1641	2.0	60
	2029	5.9	180		2139	5.6	170		2136	5.9	180		2146	5.9	180		2348	6.6	200		2301	6.2	190
14 Su	0301	1.3	40	**29** M	0420	1.6	50	**14** Tu	0405	1.0	30	**29** W	0427	1.6	50	**14** F	0551	1.0	30	**29** Sa	0525	1.6	50
	0930	5.6	170		1044	5.2	160		1049	5.2	160		1047	5.2	160		1231	5.9	180		1152	5.9	180
	1530	2.0	60		1637	2.0	60		1627	1.6	50		1640	2.0	60		1809	1.0	30		1747	2.0	60
	2147	5.9	180		2258	5.9	180		2300	6.2	190		2259	5.9	180								
15 M	0422	1.3	40	**30** Tu	0528	1.6	50	**15** W	0516	1.0	30	**30** Th	0528	1.3	40	**15** Sa	0050	6.6	200	**30** Su	0010	6.2	190
	1104	5.6	170		1148	5.2	160		1159	5.6	170		1152	5.6	170		0647	0.7	20		0623	1.3	40
	1651	2.0	60		1742	2.0	60		1735	1.3	40		1742	1.6	50		1325	6.2	190		1253	5.9	180
	2319	5.9	180														1906	1.0	30		1846	1.6	50
												31 F	0004	5.9	180								
													0620	1.3	40								
													1247	5.9	180								
													1836	1.6	50								

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Esbjerg, Denmark, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0113 6.2 190 0715 1.3 40 1347 6.2 190 1939 1.3 40		**16** Tu ○	0221 6.6 200 0806 1.3 40 1441 6.6 200 2033 1.0 30	
2 Tu ●	0209 6.2 190 0804 1.3 40 1436 6.6 200 2029 1.0 30		**17** W	0309 6.6 200 0851 1.3 40 1524 6.9 210 2119 1.0 30	
3 W	0300 6.2 190 0850 1.0 30 1521 6.6 200 2116 1.0 30		**18** Th	0351 6.2 190 0931 1.3 40 1602 6.9 210 2200 1.3 40	
4 Th	0348 6.2 190 0934 1.0 30 1603 6.6 200 2202 0.7 20		**19** F	0426 6.2 190 1008 1.6 50 1633 6.9 210 2237 1.3 40	
5 F	0434 6.2 190 1018 1.0 30 1644 6.9 210 2249 0.7 20		**20** Sa	0454 5.9 180 1042 1.6 50 1658 6.6 200 2312 1.3 40	
6 Sa	0518 6.2 190 1103 1.0 30 1727 6.9 210 2336 0.7 20		**21** Su	0518 5.9 180 1114 1.6 50 1723 6.9 210 2344 1.6 50	
7 Su	0604 6.2 190 1149 1.0 30 1812 6.9 210		**22** M	0544 5.9 180 1147 1.6 50 1753 6.9 210	
8 M	0025 0.7 20 0653 5.9 180 1238 1.3 40 1901 6.9 210		**23** Tu	0018 1.6 50 0617 5.9 180 1223 1.6 50 1830 6.9 210	
9 Tu ◐	0116 1.0 30 0746 5.9 180 1329 1.3 40 1957 6.9 210		**24** W	0055 1.6 50 0658 6.2 190 1303 1.6 50 1914 6.9 210	
10 W	0212 1.0 30 0845 5.9 180 1427 1.6 50 2101 6.6 200		**25** Th ◑	0137 1.6 50 0745 6.2 190 1350 1.6 50 2004 6.6 200	
11 Th	0313 1.3 40 0951 5.9 180 1530 1.6 50 2212 6.6 200		**26** F	0226 1.6 50 0839 6.2 190 1443 2.0 60 2101 6.6 200	
12 F	0418 1.3 40 1059 5.9 180 1638 1.6 50 2324 6.6 200		**27** Sa	0323 2.0 60 0941 5.9 180 1547 2.0 60 2208 6.6 200	
13 Sa	0523 1.3 40 1202 6.2 190 1746 1.3 40		**28** Su	0430 2.0 60 1052 5.9 180 1659 2.0 60 2324 6.2 190	
14 Su	0029 6.6 200 0623 1.3 40 1300 6.2 190 1848 1.3 40		**29** M	0540 2.0 60 1208 6.2 190 1812 2.0 60	
15 M	0128 6.6 200 0717 1.3 40 1353 6.6 200 1943 1.0 30		**30** Tu	0042 6.2 190 0644 2.0 60 1315 6.6 200 1915 1.6 50	
			31 W	0148 6.6 200 0740 1.6 50 1412 6.6 200 2010 1.3 40	

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th ●	0245 6.6 200 0831 1.3 40 1503 6.9 210 2100 1.0 30		**16** F	0333 6.6 200 0913 1.6 50 1544 7.2 220 2141 1.6 50	
2 F	0336 6.6 200 0917 1.3 40 1549 7.2 220 2148 1.0 30		**17** Sa	0407 6.6 200 0948 1.6 50 1615 7.2 220 2215 1.6 50	
3 Sa	0422 6.6 200 1002 1.3 40 1632 7.2 220 2234 0.7 20		**18** Su	0434 6.6 200 1020 1.6 50 1640 7.2 220 2246 1.6 50	
4 Su	0506 6.6 200 1047 1.0 30 1715 7.5 230 2319 0.7 20		**19** M	0456 6.2 190 1051 1.6 50 1702 7.2 220 2316 1.6 50	
5 M	0549 6.6 200 1131 1.0 30 1759 7.5 230		**20** Tu	0519 6.6 200 1122 1.6 50 1729 7.2 220 2347 1.6 50	
6 Tu	0005 1.0 30 0632 6.6 200 1218 1.3 40 1845 7.2 220		**21** W	0548 6.6 200 1155 1.6 50 1802 7.2 220	
7 W ◐	0053 1.0 30 0719 6.2 190 1306 1.3 40 1937 7.2 220		**22** Th	0021 1.6 50 0625 6.6 200 1233 1.6 50 1843 7.2 220	
8 Th	0144 1.3 40 0811 6.2 190 1359 1.6 50 2035 6.9 210		**23** F ◑	0101 1.6 50 0707 6.6 200 1317 1.6 50 1930 6.9 210	
9 F	0240 1.6 50 0912 6.2 190 1500 1.6 50 2145 6.9 210		**24** Sa	0146 2.0 60 0757 6.6 200 1407 2.0 60 2024 6.9 210	
10 Sa	0344 2.0 60 1021 6.2 190 1610 2.0 60 2259 6.6 200		**25** Su	0240 2.3 70 0854 6.6 200 1507 2.3 70 2129 6.6 200	
11 Su	0454 2.3 70 1131 6.2 190 1724 2.0 60		**26** M	0345 2.3 70 1003 6.2 190 1622 2.3 70 2250 6.6 200	
12 M	0008 6.6 200 0601 2.0 60 1234 6.6 200 1832 1.6 50		**27** Tu	0503 2.6 80 1126 6.6 200 1744 2.3 70	
13 Tu	0109 6.6 200 0659 2.0 60 1331 6.9 210 1929 1.6 50		**28** W	0018 6.6 200 0617 2.3 70 1245 6.6 200 1854 2.0 60	
14 W	0203 6.6 200 0749 2.0 60 1422 6.9 210 2019 1.3 40		**29** Th	0130 6.6 200 0718 2.0 60 1349 6.9 210 1952 1.6 50	
15 Th ○	0251 6.6 200 0833 1.6 50 1506 7.2 220 2103 1.3 40		**30** F ●	0228 6.9 210 0810 1.6 50 1443 7.2 220 2042 1.0 30	
			31 Sa	0319 6.9 210 0858 1.3 40 1531 7.5 230 2129 1.0 30	

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0404 7.2 220 0943 1.3 40 1615 7.9 240 2214 1.0 30		**16** M	0411 6.9 210 0955 2.0 60 1617 7.2 220 2218 2.0 60	
2 M	0446 7.2 220 1027 1.0 30 1658 7.9 240 2257 1.0 30		**17** Tu	0433 6.9 210 1025 2.0 60 1639 7.2 220 2247 2.0 60	
3 Tu	0526 6.9 210 1110 1.0 30 1740 7.9 240 2341 1.0 30		**18** W	0456 6.9 210 1057 1.6 50 1706 7.2 220 2318 2.0 60	
4 W	0605 6.9 210 1155 1.3 40 1824 7.5 230		**19** Th	0523 6.9 210 1130 1.6 50 1738 7.2 220 2352 2.0 60	
5 Th	0026 1.3 40 0647 6.9 210 1241 1.3 40 1911 7.2 220		**20** F	0557 7.2 220 1208 1.6 50 1817 7.2 220	
6 F ◐	0113 2.0 60 0733 6.6 200 1332 1.6 50 2006 7.2 220		**21** Sa	0031 2.0 60 0637 7.2 220 1251 2.0 60 1903 7.2 220	
7 Sa	0206 2.3 70 0829 6.6 200 1431 2.0 60 2114 6.9 210		**22** Su ◑	0116 2.3 70 0724 6.9 210 1341 2.0 60 1958 6.9 210	
8 Su	0308 2.6 80 0939 6.6 200 1543 2.3 70 2232 6.6 200		**23** M	0208 2.6 80 0820 6.9 210 1441 2.3 70 2103 6.6 200	
9 M	0422 3.0 90 1057 6.6 200 1704 2.3 70 2343 6.6 200		**24** Tu	0313 2.6 80 0927 6.9 210 1558 2.6 80 2229 6.6 200	
10 Tu	0535 2.6 80 1205 6.9 210 1814 2.3 70		**25** W	0434 3.0 90 1053 6.9 210 1723 2.3 70	
11 W	0045 6.6 200 0636 2.6 80 1304 7.2 220 1911 2.0 60		**26** Th	0001 6.6 200 0552 2.6 80 1219 6.9 210 1833 2.0 60	
12 Th	0139 6.9 210 0727 2.3 70 1356 7.2 220 1959 1.6 50		**27** F	0111 6.9 210 0654 2.3 70 1325 7.5 230 1930 1.6 50	
13 F	0227 6.9 210 0811 2.0 60 1442 7.5 230 2041 1.6 50		**28** Sa ●	0208 7.2 220 0748 2.0 60 1420 7.9 240 2020 1.3 40	
14 Sa ○	0308 6.9 210 0849 2.0 60 1520 7.5 230 2117 1.6 50		**29** Su	0257 7.2 220 0836 1.6 50 1509 7.9 240 2107 1.0 30	
15 Su	0343 6.9 210 0924 2.0 60 1552 7.5 230 2149 1.6 50		**30** M	0341 7.5 230 0921 1.3 40 1554 8.2 250 2150 1.0 30	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Esbjerg, Denmark, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0421	7.5 230	**16** W	0409	7.2 220
	1005	1.3 40		1000	2.0 60
	1637	7.9 240		1618	7.5 230
	2233	1.3 40		2219	2.0 60
2 W	0459	7.2 220	**17** Th	0434	7.2 220
	1048	1.3 40		1033	2.0 60
	1718	7.9 240		1646	7.5 230
	2315	1.6 50		2252	2.0 60
3 Th	0536	7.2 220	**18** F	0502	7.2 220
	1132	1.3 40		1109	2.0 60
	1800	7.5 230		1720	7.2 220
	2358	2.0 60		2328	2.0 60
4 F	0615	7.2 220	**19** Sa	0535	7.2 220
	1217	1.6 50		1148	2.0 60
	1844	7.2 220		1759	7.2 220
5 Sa ◐	0042	2.3 70	**20** Su	0008	2.3 70
	0657	7.2 220		0614	7.2 220
	1307	2.0 60		1233	2.0 60
	1936	6.9 210		1846	7.2 220
6 Su	0131	2.6 80	**21** M ◑	0054	2.3 70
	0748	6.9 210		0701	7.2 220
	1404	2.3 70		1324	2.3 70
	2040	6.6 200		1941	6.9 210
7 M	0230	3.0 90	**22** Tu	0147	2.6 80
	0853	6.9 210		0756	7.2 220
	1516	2.6 80		1426	2.3 70
	2158	6.6 200		2049	6.6 200
8 Tu	0344	3.3 100	**23** W	0252	3.0 90
	1015	6.9 210		0904	6.9 210
	1638	2.6 80		1542	2.6 80
	2311	6.6 200		2216	6.6 200
9 W	0502	3.3 100	**24** Th	0410	3.0 90
	1129	6.9 210		1030	7.2 220
	1748	2.6 80		1702	2.3 70
				2342	6.6 200
10 Th	0014	6.6 200	**25** F	0525	3.0 90
	0605	3.0 90		1154	7.2 220
	1230	7.2 220		1810	2.0 60
	1844	2.3 70			
11 F	0108	6.9 210	**26** Sa	0049	6.9 210
	0657	2.6 80		0629	2.3 70
	1323	7.5 230		1300	7.5 230
	1930	2.0 60		1906	1.6 50
12 Sa	0156	7.2 220	**27** Su	0144	7.2 220
	0742	2.3 70		0723	2.0 60
	1410	7.5 230		1357	7.9 240
	2011	2.0 60		1956	1.3 40
13 Su ○	0238	7.2 220	**28** M ●	0233	7.5 230
	0821	2.3 70		0812	1.6 50
	1450	7.5 230		1447	7.9 240
	2046	2.0 60		2043	1.3 40
14 M	0314	7.2 220	**29** Tu	0317	7.5 230
	0856	2.0 60		0859	1.3 40
	1523	7.5 230		1533	7.9 240
	2118	2.0 60		2127	1.3 40
15 Tu	0344	7.2 220	**30** W	0357	7.5 230
	0928	2.0 60		0943	1.3 40
	1551	7.5 230		1616	7.9 240
	2149	2.0 60		2209	1.6 50
			31 Th	0434	7.5 230
				1027	1.3 40
				1657	7.5 230
				2250	2.0 60

November

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0510	7.5 230	**16** Sa	0446	7.2 220
	1111	1.6 50		1053	2.0 60
	1737	7.2 220		1708	7.2 220
	2331	2.3 70		2309	2.0 60
2 Sa	0546	7.2 220	**17** Su	0521	7.5 230
	1156	2.0 60		1135	2.0 60
	1819	6.9 210		1750	6.9 210
				2352	2.3 70
3 Su	0014	2.6 80	**18** M	0601	7.5 230
	0625	7.2 220		1222	2.0 60
	1244	2.3 70		1838	6.9 210
	1905	6.6 200			
4 M ◐	0059	3.0 90	**19** Tu ◑	0039	2.3 70
	0711	7.2 220		0648	7.2 220
	1338	2.6 80		1315	2.0 60
	2001	6.6 200		1934	6.6 200
5 Tu	0152	3.0 90	**20** W	0132	2.6 80
	0808	6.9 210		0744	7.2 220
	1443	2.6 80		1416	2.3 70
	2111	6.2 190		2041	6.6 200
6 W	0257	3.3 100	**21** Th	0235	3.0 90
	0921	6.9 210		0851	7.2 220
	1559	3.0 90		1526	2.3 70
	2226	6.2 190		2201	6.6 200
7 Th	0413	3.3 100	**22** F	0346	3.0 90
	1039	6.9 210		1011	7.2 220
	1708	2.6 80		1638	2.3 70
	2331	6.6 200		2318	6.6 200
8 F	0521	3.0 90	**23** Sa	0457	2.6 80
	1145	7.2 220		1129	7.5 230
	1805	2.6 80		1743	2.0 60
9 Sa	0027	6.9 210	**24** Su	0023	6.9 210
	0617	3.0 90		0601	2.3 70
	1241	7.2 220		1236	7.5 230
	1853	2.3 70		1841	1.6 50
10 Su	0117	6.9 210	**25** M	0118	7.2 220
	0705	2.6 80		0658	2.0 60
	1330	7.5 230		1335	7.9 240
	1934	2.0 60		1932	1.6 50
11 M	0201	7.2 220	**26** Tu ●	0208	7.2 220
	0747	2.3 70		0750	1.6 50
	1414	7.5 230		1427	7.9 240
	2012	2.0 60		2020	1.6 50
12 Tu ○	0241	7.2 220	**27** W	0254	7.5 230
	0825	2.3 70		0839	1.6 50
	1452	7.5 230		1515	7.9 240
	2047	2.0 60		2104	1.6 50
13 W	0316	7.2 220	**28** Th	0336	7.5 230
	0901	2.0 60		0925	1.3 40
	1526	7.5 230		1600	7.5 230
	2120	2.0 60		2147	2.0 60
14 Th	0346	7.2 220	**29** F	0414	7.5 230
	0937	2.0 60		1010	1.6 50
	1558	7.2 220		1641	7.2 220
	2155	2.0 60		2228	2.0 60
15 F	0415	7.2 220	**30** Sa	0450	7.5 230
	1014	2.0 60		1054	1.6 50
	1631	7.2 220		1719	6.9 210
	2231	2.0 60		2309	2.3 70

December

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0524	7.2 220	**16** M	0513	7.5 230
	1138	2.0 60		1125	1.6 50
	1756	6.6 200		1746	6.9 210
	2349	2.6 80		2339	2.0 60
2 M	0600	7.2 220	**17** Tu	0555	7.5 230
	1223	2.3 70		1213	1.6 50
	1835	6.6 200		1834	6.6 200
3 Tu	0030	2.6 80	**18** W	0027	2.3 70
	0640	7.2 220		0642	7.5 230
	1311	2.3 70		1305	1.6 50
	1920	6.2 190		1927	6.6 200
4 W ◐	0116	3.0 90	**19** Th ◑	0119	2.3 70
	0727	7.2 220		0736	7.5 230
	1404	2.6 80		1401	2.0 60
	2014	6.2 190		2028	6.6 200
5 Th	0209	3.0 90	**20** F	0216	2.3 70
	0823	6.9 210		0838	7.2 220
	1504	2.6 80		1504	2.0 60
	2119	6.2 190		2137	6.6 200
6 F	0311	3.0 90	**21** Sa	0320	2.3 70
	0930	6.9 210		0950	7.2 220
	1609	2.6 80		1610	2.0 60
	2229	6.2 190		2248	6.6 200
7 Sa	0420	3.0 90	**22** Su	0428	2.3 70
	1041	6.9 210		1105	7.2 220
	1710	2.6 80		1715	2.0 60
	2333	6.6 200		2354	6.6 200
8 Su	0524	3.0 90	**23** M	0534	2.3 70
	1146	6.9 210		1214	7.2 220
	1804	2.3 70		1815	2.0 60
9 M	0029	6.9 210	**24** Tu	0053	6.9 210
	0619	2.6 80		0635	2.0 60
	1243	7.2 220		1316	7.5 230
	1852	2.3 70		1909	1.6 50
10 Tu	0120	6.9 210	**25** W	0146	7.2 220
	0708	2.3 70		0731	1.6 50
	1334	7.2 220		1411	7.2 220
	1935	2.0 60		1959	1.6 50
11 W	0206	7.2 220	**26** Th ●	0235	7.2 220
	0753	2.3 70		0823	1.6 50
	1420	7.2 220		1502	7.2 220
	2015	2.0 60		2046	1.6 50
12 Th ○	0247	7.2 220	**27** F	0319	7.2 220
	0835	2.0 60		0911	1.6 50
	1503	7.2 220		1548	6.9 210
	2055	2.0 60		2129	2.0 60
13 F	0324	7.2 220	**28** Sa	0400	7.2 220
	0916	2.0 60		0957	1.6 50
	1543	7.2 220		1628	6.9 210
	2134	2.0 60		2210	2.0 60
14 Sa	0400	7.2 220	**29** Su	0436	7.2 220
	0958	1.6 50		1040	1.6 50
	1622	6.9 210		1704	6.6 200
	2214	2.0 60		2249	2.0 60
15 Su	0435	7.2 220	**30** M	0508	7.2 220
	1040	1.6 50		1121	2.0 60
	1703	6.9 210		1735	6.2 190
	2255	2.0 60		2327	2.3 70
			31 Tu	0539	7.2 220
				1201	2.0 60

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bergen, Norway, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height		Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm	h m	ft	cm	h m	ft	cm
1 Tu	0100	2.0	60	**16** W	0607	3.9	120	**1** F	0230	2.0	60	**16** Sa	0128	2.0	60
	0711	4.3	130		1215	2.3	70		0843	4.3	130		0749	4.3	130
	1321	2.3	70		1826	4.3	130		1501	2.0	60		1411	1.6	50
	1935	4.6	140						2113	4.3	130		2021	4.3	130
2 W	0158	2.0	60	**17** Th	0054	2.0	60	**2** Sa	0318	2.0	60	**17** Su	0235	1.6	50
	0812	4.6	140		0717	4.3	130		0932	4.6	140		0853	4.6	140
	1421	2.0	60		1329	2.3	70		1547	1.6	50		1511	1.3	40
	2035	4.6	140		1937	4.3	130		2159	4.6	140		2123	4.6	140
3 Th	0249	1.6	50	**18** F	0158	2.0	60	**3** Su	0359	1.6	50	**18** M	0330	1.3	40
	0904	4.6	140		0820	4.6	140		1013	4.6	140		0947	4.9	150
	1512	2.0	60		1431	2.0	60		1627	1.3	40		1603	1.0	30
	2126	4.9	150		2040	4.6	140		2239	4.6	140		2216	4.9	150
4 F	0333	1.6	50	**19** Sa	0253	1.6	50	**4** M	0435	1.6	50	**19** Tu	0419	1.0	30
	0948	4.9	150		0914	4.9	150		1049	4.9	150		1035	5.2	160
	1558	1.6	50		1525	1.6	50		1703	1.3	40		1651	0.7	20
	2211	4.9	150		2136	4.9	150	●	2315	4.6	140	○	2305	5.2	160
5 Sa	0413	1.6	50	**20** Su	0344	1.3	40	**5** Tu	0508	1.3	40	**20** W	0504	0.7	20
	1029	4.9	150		1003	4.9	150		1123	4.9	150		1121	5.6	170
	1639	1.6	50		1615	1.3	40		1735	1.3	40		1736	0.3	10
	2253	4.9	150		2228	5.2	160		2349	4.6	140		2352	5.2	160
6 Su	0450	1.6	50	**21** M	0432	1.0	30	**6** W	0539	1.3	40	**21** Th	0547	0.7	20
	1107	4.9	150		1050	5.2	160		1156	4.9	150		1208	5.6	170
	1716	1.3	40		1703	1.0	30		1806	1.3	40		1820	0.3	10
●	2331	4.9	150	○	2318	5.2	160								
7 M	0524	1.6	50	**22** Tu	0518	1.0	30	**7** Th	0021	4.6	140	**22** F	0039	5.2	160
	1142	5.2	160		1138	5.6	170		0608	1.3	40		0629	0.7	20
	1752	1.3	40		1750	0.7	20		1228	4.9	150		1254	5.6	170
									1835	1.3	40		1904	0.3	10
8 Tu	0008	4.9	150	**23** W	0008	5.2	160	**8** F	0054	4.6	140	**23** Sa	0125	5.2	160
	0557	1.6	50		0603	1.0	30		0638	1.3	40		0711	1.0	30
	1217	4.9	150		1225	5.6	170		1300	4.9	150		1340	5.2	160
	1825	1.3	40		1838	0.7	20		1904	1.3	40		1947	0.7	20
9 W	0043	4.9	150	**24** Th	0058	5.2	160	**9** Sa	0127	4.6	140	**24** Su	0211	4.9	150
	0628	1.6	50		0648	1.0	30		0708	1.3	40		0753	1.0	30
	1251	4.9	150		1314	5.6	170		1333	4.9	150		1427	4.9	150
	1858	1.6	50		1925	0.7	20		1935	1.3	40		2031	1.0	30
10 Th	0119	4.6	140	**25** F	0148	5.2	160	**10** Su	0202	4.6	140	**25** M	0256	4.6	140
	0700	1.6	50		0733	1.3	40		0740	1.6	50		0837	1.3	40
	1325	4.9	150		1403	5.2	160		1410	4.6	140		1515	4.6	140
	1931	1.6	50		2014	1.0	30		2008	1.6	50		2119	1.3	40
11 F	0155	4.6	140	**26** Sa	0238	4.9	150	**11** M	0240	4.3	130	**26** Tu	0344	4.3	130
	0733	2.0	60		0819	1.6	50		0817	1.6	50		0929	1.6	50
	1402	4.9	150		1454	5.2	160		1450	4.6	140		1607	4.3	130
	2007	1.6	50		2106	1.3	40		2047	1.6	50	◑	2217	2.0	60
12 Sa	0234	4.3	130	**27** Su	0329	4.6	140	**12** Tu	0323	4.3	130	**27** W	0436	3.9	120
	0809	2.0	60		0910	1.6	50		0900	2.0	60		1038	2.0	60
	1441	4.6	140		1546	4.9	150		1537	4.3	130		1708	3.9	120
	2047	2.0	60	◑	2203	1.6	50	◐	2135	2.0	60		2332	2.0	60
13 Su	0316	4.3	130	**28** M	0422	4.3	130	**13** W	0414	3.9	120	**28** Th	0540	3.9	120
	0852	2.3	70		1011	2.0	60		0958	2.0	60		1214	2.3	70
	1526	4.6	140		1643	4.6	140		1633	4.3	130		1827	3.6	110
	2135	2.0	60		2308	2.0	60		2240	2.0	60				
14 M	0405	4.3	130	**29** Tu	0520	4.3	130	**14** Th	0515	3.9	120				
	0946	2.3	70		1125	2.3	70		1119	2.3	70				
	1617	4.3	130		1748	4.3	130		1742	3.9	120				
◐	2234	2.0	60												
15 Tu	0502	3.9	120	**30** W	0020	2.0	60	**15** F	0004	2.0	60				
	1055	2.3	70		0628	3.9	120		0630	3.9	120				
	1718	4.3	130		1249	2.3	70		1253	2.0	60				
	2344	2.0	60		1903	4.3	130		1904	3.9	120				
				31 Th	0130	2.0	60								
					0741	4.3	130								
					1403	2.0	60								
					2015	4.3	130								

February

March

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0059	2.3	70	**16** Sa	0556	3.9	120
	0702	3.6	110		1231	2.0	60
	1343	2.0	60		1844	3.9	120
	1955	3.9	120				
2 Sa	0209	2.0	60	**17** Su	0108	2.0	60
	0818	3.9	120		0724	3.9	120
	1444	1.6	50		1355	1.6	50
	2058	3.9	120		2008	4.3	130
3 Su	0259	2.0	60	**18** M	0221	1.6	50
	0911	4.3	130		0834	4.3	130
	1529	1.6	50		1456	1.0	30
	2143	4.3	130		2110	4.6	140
4 M	0340	1.6	50	**19** Tu	0315	1.3	40
	0952	4.3	130		0929	4.6	140
	1607	1.3	40		1546	0.7	20
	2220	4.3	130		2201	4.9	150
5 Tu	0415	1.3	40	**20** W	0403	1.0	30
	1027	4.6	140		1017	4.9	150
	1641	1.0	30		1632	0.3	10
	2254	4.6	140		2248	4.9	150
6 W	0446	1.3	40	**21** Th	0446	0.7	20
	1100	4.9	150		1102	5.2	160
	1711	1.0	30		1716	0.0	0
●	2325	4.6	140	○	2332	5.2	160
7 Th	0516	1.0	30	**22** F	0527	0.3	10
	1131	4.9	150		1147	5.2	160
	1739	1.0	30		1757	0.0	0
	2355	4.6	140				
8 F	0545	1.0	30	**23** Sa	0016	5.2	160
	1201	4.9	150		0607	0.3	10
	1807	1.0	30		1231	5.2	160
					1837	0.3	10
9 Sa	0026	4.6	140	**24** Su	0058	4.9	150
	0614	1.0	30		0647	0.7	20
	1233	4.9	150		1316	4.9	150
	1835	1.0	30		1916	0.7	20
10 Su	0058	4.6	140	**25** M	0141	4.6	140
	0644	1.0	30		0726	1.0	30
	1307	4.6	140		1401	4.6	140
	1904	1.0	30		1956	1.0	30
11 M	0132	4.6	140	**26** Tu	0223	4.6	140
	0715	1.3	40		0807	1.3	40
	1343	4.6	140		1446	4.3	130
	1936	1.0	30		2037	1.3	40
12 Tu	0209	4.3	130	**27** W	0307	4.3	130
	0750	1.3	40		0855	1.6	50
	1423	4.3	130		1535	3.9	120
	2012	1.3	40		2127	1.6	50
13 W	0251	4.3	130	**28** Th	0355	3.9	120
	0831	1.6	50		0959	2.0	60
	1510	4.3	130		1632	3.6	110
	2057	1.6	50	◑	2239	2.0	60
14 Th	0339	3.9	120	**29** F	0454	3.6	110
	0925	1.6	50		1135	2.0	60
	1606	3.9	120		1748	3.6	110
◐	2158	2.0	60				
15 F	0439	3.9	120	**30** Sa	0019	2.3	70
	1046	2.0	60		0614	3.6	110
	1716	3.9	120		1311	2.0	60
	2328	2.0	60		1924	3.6	110
				31 Su	0138	2.0	60
					0741	3.6	110
					1413	1.6	50
					2032	3.6	110

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bergen, Norway, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0231	1.6	50	**16** Tu	0202	1.3	40	**1** W	0234	1.6	50	**16** Th	0231	1.0	30	**1** Sa	0311	1.0	30	**16** Su	0346	1.0	30
	0840	3.9	120		0813	4.3	130		0842	3.9	120		0845	4.6	140		0920	4.3	130		1002	4.6	140
	1459	1.3	40		1435	1.0	30		1457	1.0	30		1501	0.7	20		1528	1.0	30		1607	0.7	20
	2117	3.9	120		2052	4.3	130		2115	3.9	120		2117	4.6	140		2148	4.3	130		2223	4.6	140
2 Tu	0312	1.6	50	**17** W	0255	1.0	30	**2** Th	0312	1.3	40	**17** F	0319	0.7	20	**2** Su	0350	1.0	30	**17** M	0430	0.7	20
	0922	4.3	130		0908	4.6	140		0921	4.3	130		0934	4.6	140		1000	4.3	130		1048	4.6	140
	1536	1.3	40		1525	0.3	10		1532	1.0	30		1546	0.3	10		1605	0.7	20		1648	0.7	20
	2153	4.3	130		2141	4.6	140		2149	4.3	130		2202	4.6	140		2225	4.6	140	○	2305	4.6	140
3 W	0347	1.3	40	**18** Th	0342	0.7	20	**3** F	0346	1.0	30	**18** Sa	0403	0.7	20	**3** M	0428	0.7	20	**18** Tu	0512	0.7	20
	0958	4.3	130		0956	4.9	150		0956	4.3	130		1020	4.9	150		1041	4.6	140		1131	4.6	140
	1609	1.0	30		1610	0.3	10		1604	0.7	20		1628	0.3	10		1643	0.7	20		1726	1.0	30
	2225	4.3	130		2226	4.9	150		2222	4.3	130	○	2244	4.6	140	●	2304	4.6	140		2345	4.6	140
4 Th	0419	1.0	30	**19** F	0425	0.7	20	**4** Sa	0420	0.7	20	**19** Su	0445	0.3	10	**4** Tu	0508	0.7	20	**19** W	0552	0.7	20
	1030	4.6	140		1041	4.9	150		1031	4.6	140		1104	4.9	150		1124	4.6	140		1213	4.3	130
	1639	0.7	20		1652	0.0	0		1636	0.7	20		1708	0.3	10		1722	0.7	20		1803	1.0	30
	2255	4.6	140	○	2308	4.9	150	●	2255	4.6	140		2325	4.6	140		2345	4.6	140				
5 F	0449	1.0	30	**20** Sa	0506	0.3	10	**5** Su	0453	0.7	20	**20** M	0526	0.3	10	**5** W	0549	0.7	20	**20** Th	0024	4.6	140
	1102	4.6	140		1125	5.2	160		1106	4.6	140		1148	4.6	140		1209	4.6	140		0631	0.7	20
	1708	0.7	20		1732	0.3	10		1708	0.7	20		1746	0.7	20		1803	0.7	20		1254	4.3	130
●	2326	4.6	140		2350	4.9	150		2329	4.6	140										1839	1.0	30
6 Sa	0519	0.7	20	**21** Su	0545	0.3	10	**6** M	0527	0.7	20	**21** Tu	0006	4.6	140	**6** Th	0029	4.6	140	**21** F	0102	4.3	130
	1134	4.6	140		1208	4.9	150		1144	4.6	140		0606	0.7	20		0632	0.7	20		0709	1.0	30
	1737	0.7	20		1810	0.3	10		1741	0.7	20		1231	4.6	140		1257	4.6	140		1334	4.3	130
	2357	4.6	140										1822	0.7	20		1846	0.7	20		1915	1.3	40
7 Su	0550	0.7	20	**22** M	0031	4.9	150	**7** Tu	0006	4.6	140	**22** W	0046	4.6	140	**7** F	0115	4.6	140	**22** Sa	0141	4.3	130
	1207	4.6	140		0624	0.7	20		0603	0.7	20		0645	0.7	20		0720	0.7	20		0748	1.0	30
	1807	0.7	20		1252	4.6	140		1224	4.6	140		1314	4.3	130		1349	4.3	130		1415	3.9	120
					1847	0.7	20		1817	0.7	20		1859	1.0	30		1933	1.0	30		1952	1.3	40
8 M	0030	4.6	140	**23** Tu	0111	4.6	140	**8** W	0045	4.6	140	**23** Th	0125	4.3	130	**8** Sa	0205	4.3	130	**23** Su	0221	4.3	130
	0621	0.7	20		0703	0.7	20		0641	0.7	20		0725	1.0	30		0813	0.7	20		0830	1.3	40
	1243	4.6	140		1336	4.6	140		1308	4.6	140		1357	3.9	120		1443	4.3	130		1457	3.9	120
	1838	0.7	20		1924	1.0	30		1855	0.7	20		1936	1.3	40		2026	1.3	40		2034	1.6	50
9 Tu	0106	4.6	140	**24** W	0152	4.3	130	**9** Th	0127	4.3	130	**24** F	0206	4.3	130	**9** Su	0259	4.3	130	**24** M	0303	3.9	120
	0655	1.0	30		0744	1.0	30		0723	0.7	20		0809	1.3	40		0914	1.0	30		0917	1.3	40
	1322	4.6	140		1420	4.3	130		1356	4.3	130		1442	3.9	120		1541	3.9	120		1543	3.6	110
	1911	1.0	30		2002	1.3	40		1938	1.0	30		2018	1.6	50		2128	1.3	40		2125	1.6	50
10 W	0145	4.3	130	**25** Th	0234	3.9	120	**10** F	0214	4.3	130	**25** Sa	0249	3.9	120	**10** M	0358	4.3	130	**25** Tu	0351	3.9	120
	0732	1.0	30		0829	1.3	40		0813	1.0	30		0900	1.3	40		1024	1.0	30		1013	1.6	50
	1406	4.3	130		1507	3.9	120		1449	3.9	120		1530	3.6	110		1644	3.9	120		1635	3.6	110
	1949	1.0	30		2048	1.6	50		2029	1.3	40		2110	1.6	50	◐	2242	1.6	50	◑	2228	2.0	60
11 Th	0228	4.3	130	**26** F	0320	3.9	120	**11** Sa	0307	3.9	120	**26** Su	0337	3.6	110	**11** Tu	0503	3.9	120	**26** W	0446	3.6	110
	0816	1.3	40		0928	1.6	50		0916	1.3	40		1003	1.6	50		1137	1.0	30		1117	1.6	50
	1455	3.9	120		1600	3.6	110		1549	3.9	120		1624	3.3	100		1752	3.9	120		1734	3.6	110
	2036	1.3	40	◑	2150	2.0	60		2136	1.6	50	◑	2220	2.0	60		2358	1.6	50		2340	2.0	60
12 F	0318	3.9	120	**27** Sa	0413	3.6	110	**12** Su	0409	3.9	120	**27** M	0434	3.6	110	**12** W	0613	3.9	120	**27** Th	0548	3.6	110
	0914	1.6	50		1050	1.6	50		1036	1.3	40		1118	1.6	50		1245	1.0	30		1220	1.6	50
	1554	3.9	120		1706	3.3	100		1658	3.6	110		1730	3.3	100		1859	3.9	120		1837	3.6	110
◐	2140	1.6	50		2323	2.0	60	◐	2303	1.6	50		2342	2.0	60								
13 Sa	0419	3.9	120	**28** Su	0522	3.6	110	**13** M	0521	3.9	120	**28** Tu	0543	3.6	110	**13** Th	0107	1.3	40	**28** F	0047	1.6	50
	1038	1.6	50		1221	1.6	50		1202	1.3	40		1228	1.6	50		0721	4.3	130		0652	3.6	110
	1706	3.6	110		1833	3.3	100		1816	3.9	120		1842	3.6	110		1344	1.0	30		1317	1.3	40
	2314	2.0	60														2000	4.3	130		1937	3.9	120
14 Su	0536	3.6	110	**29** M	0050	2.0	60	**14** Tu	0029	1.6	50	**29** W	0052	2.0	60	**14** F	0206	1.3	40	**29** Sa	0146	1.6	50
	1219	1.6	50		0647	3.6	110		0640	3.9	120		0654	3.6	110		0821	4.3	130		0752	3.9	120
	1832	3.6	110		1328	1.6	50		1313	1.0	30		1324	1.3	40		1437	1.0	30		1408	1.3	40
					1947	3.6	110		1929	3.9	120		1943	3.6	110		2053	4.3	130		2029	3.9	120
15 M	0052	1.6	50	**30** Tu	0149	1.6	50	**15** W	0137	1.3	40	**30** Th	0146	1.6	50	**15** Sa	0258	1.0	30	**30** Su	0236	1.3	40
	0703	3.9	120		0755	3.6	110		0748	4.3	130		0751	3.9	120		0914	4.3	130		0845	4.3	130
	1337	1.3	40		1417	1.3	40		1411	0.7	20		1410	1.3	40		1524	0.7	20		1455	1.0	30
	1952	3.9	120		2037	3.6	110		2028	4.3	130		2030	3.9	120		2140	4.6	140		2116	4.3	130
												31 F	0230	1.3	40								
													0838	3.9	120								
													1450	1.0	30								
													2110	3.9	120								

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bergen, Norway, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0323	1.0	30	**16** Tu	0420	1.0	30	**1** Th	0441	0.7	20	**16** F	0521	1.0	30	
	0934	4.3	130		1035	4.3	130		1055	4.9	150		1136	4.6	140	
	1540	1.0	30		1633	1.0	30		1655	0.7	20		1726	1.3	40	
	2200	4.6	140	○	2248	4.6	140	●	2313	5.2	160		2342	4.9	150	
2 Tu	0408	1.0	30	**17** W	0501	1.0	30	**2** F	0527	0.3	10	**17** Sa	0553	1.0	30	
	1021	4.6	140		1117	4.6	140		1144	4.9	150		1209	4.6	140	
	1624	0.7	20		1711	1.0	30		1740	0.7	20		1757	1.3	40	
●	2244	4.6	140		2327	4.6	140		2359	5.2	160					
3 W	0453	0.7	20	**18** Th	0539	1.0	30	**3** Sa	0613	0.3	10	**18** Su	0014	4.9	150	
	1108	4.6	140		1156	4.6	140		1232	5.2	160		0623	1.0	30	
	1708	0.7	20		1746	1.0	30		1824	0.7	20		1242	4.6	140	
	2328	4.9	150										1827	1.3	40	
4 Th	0539	0.3	10	**19** F	0004	4.6	140	**4** Su	0047	5.2	160	**19** M	0047	4.9	150	
	1157	4.9	150		0615	1.0	30		0659	0.3	10		0652	1.0	30	
	1752	0.7	20		1233	4.3	130		1322	4.9	150		1315	4.6	140	
					1819	1.0	30		1908	0.7	20		1857	1.3	40	
5 F	0015	4.9	150	**20** Sa	0039	4.6	140	**5** M	0136	5.2	160	**20** Tu	0120	4.6	140	
	0625	0.3	10		0649	1.0	30		0746	0.3	10		0721	1.3	40	
	1247	4.9	150		1310	4.3	130		1411	4.9	150		1349	4.6	140	
	1837	0.7	20		1852	1.3	40		1954	1.0	30		1928	1.3	40	
6 Sa	0103	4.9	150	**21** Su	0115	4.6	140	**6** Tu	0226	4.9	150	**21** W	0155	4.6	140	
	0714	0.3	10		0722	1.0	30		0836	0.7	20		0753	1.3	40	
	1338	4.6	140		1346	4.3	130		1501	4.6	140		1425	4.3	130	
	1924	1.0	30		1925	1.3	40		2043	1.3	40		2003	1.6	50	
7 Su	0153	4.9	150	**22** M	0151	4.6	140	**7** W	0318	4.9	150	**22** Th	0234	4.6	140	
	0805	0.7	20		0756	1.3	40		0929	1.0	30		0829	1.6	50	
	1431	4.6	140		1423	4.3	130		1553	4.3	130		1506	4.3	130	
	2014	1.0	30		2000	1.3	40	◐	2139	1.6	50		2043	2.0	60	
8 M	0246	4.6	140	**23** Tu	0229	4.3	130	**8** Th	0413	4.6	140	**23** F	0319	4.3	130	
	0900	0.7	20		0833	1.3	40		1029	1.3	40		0912	1.6	50	
	1525	4.3	130		1503	3.9	120		1648	4.3	130		1553	3.9	120	
	2109	1.3	40		2040	1.6	50		2247	1.6	50	◑	2136	2.0	60	
9 Tu	0341	4.6	140	**24** W	0311	4.3	130	**9** F	0514	4.3	130	**24** Sa	0411	3.9	120	
	1001	1.0	30		0916	1.6	50		1139	1.6	50		1011	2.0	60	
	1621	4.3	130		1548	3.9	120		1751	3.9	120		1649	3.9	120	
◐	2212	1.6	50		2128	2.0	60						2251	2.3	70	
10 W	0440	4.3	130	**25** Th	0358	3.9	120	**10** Sa	0009	2.0	60	**25** Su	0515	3.9	120	
	1106	1.0	30		1008	1.6	50		0625	3.9	120		1130	2.0	60	
	1721	3.9	120		1638	3.9	120		1253	1.6	50		1759	3.9	120	
	2323	1.6	50	◑	2230	2.0	60		1902	3.9	120					
11 Th	0544	4.3	130	**26** F	0453	3.9	120	**11** Su	0130	2.0	60	**26** M	0025	2.0	60	
	1213	1.3	40		1111	1.6	50		0743	3.9	120		0634	3.9	120	
	1826	3.9	120		1737	3.6	110		1400	1.6	50		1258	2.0	60	
					2345	2.0	60		2011	4.3	130		1918	3.9	120	
12 F	0036	1.6	50	**27** Sa	0557	3.9	120	**12** M	0235	1.6	50	**27** Tu	0147	2.0	60	
	0653	4.3	130		1221	1.6	50		0849	4.3	130		0755	4.3	130	
	1318	1.3	40		1844	3.9	120		1455	1.6	50		1410	1.6	50	
	1931	3.9	120						2107	4.3	130		2026	4.3	130	
13 Sa	0144	1.6	50	**28** Su	0101	2.0	60	**13** Tu	0326	1.3	40	**28** W	0248	1.3	40	
	0800	4.3	130		0708	3.9	120		0940	4.3	130		0859	4.6	140	
	1416	1.3	40		1329	1.6	50		1540	1.6	50		1506	1.3	40	
	2030	4.3	130		1951	3.9	120		2152	4.6	140		2121	4.9	150	
14 Su	0243	1.3	40	**29** M	0207	1.6	50	**14** W	0409	1.3	40	**29** Th	0339	1.0	30	
	0859	4.3	130		0815	4.3	130		1023	4.6	140		0952	4.9	150	
	1507	1.3	40		1428	1.3	40		1619	1.3	40		1555	1.0	30	
	2122	4.3	130		2049	4.3	130		2232	4.6	140		2209	5.2	160	
15 M	0335	1.3	40	**30** Tu	0303	1.3	40	**15** Th	0447	1.0	30	**30** F	0426	0.7	20	
	0950	4.3	130		0914	4.3	130		1101	4.6	140		1040	5.2	160	
	1552	1.3	40		1521	1.3	40		1654	1.3	40		1640	1.0	30	
	2207	4.6	140		2139	4.6	140	○	2308	4.9	150	●	2255	5.6	170	
				31 W	0353	1.0	30					**31** Sa	0511	0.3	10	
					1006	4.6	140						1127	5.6	170	
					1609	1.0	30						1723	0.7	20	
					2226	4.9	150						2340	5.6	170	

September

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Su	0554	0.3	10	**16** M	0553	1.0	30	
	1213	5.6	170		1212	4.9	150	
	1805	0.7	20		1801	1.3	40	
2 M	0027	5.6	170	**17** Tu	0018	5.2	160	
	0638	0.3	10		0620	1.0	30	
	1259	5.2	160		1243	4.9	150	
	1847	0.7	20		1830	1.3	40	
3 Tu	0114	5.6	170	**18** W	0050	4.9	150	
	0721	0.7	20		0648	1.3	40	
	1346	5.2	160		1316	4.9	150	
	1930	1.0	30		1900	1.3	40	
4 W	0202	5.2	160	**19** Th	0125	4.9	150	
	0805	1.0	30		0718	1.3	40	
	1433	4.9	150		1351	4.6	140	
	2015	1.3	40		1933	1.6	50	
5 Th	0252	4.9	150	**20** F	0204	4.6	140	
	0853	1.3	40		0751	1.6	50	
	1521	4.6	140		1431	4.6	140	
	2107	1.6	50		2012	2.0	60	
6 F	0345	4.6	140	**21** Sa	0249	4.6	140	
	0949	2.0	60		0832	2.0	60	
	1613	4.3	130		1518	4.3	130	
◐	2214	2.0	60		2102	2.0	60	
7 Sa	0445	4.3	130	**22** Su	0343	4.3	130	
	1102	2.3	70		0927	2.3	70	
	1715	3.9	120		1614	4.3	130	
	2346	2.3	70	◑	2218	2.3	70	
8 Su	0600	3.9	120	**23** M	0450	3.9	120	
	1231	2.3	70		1053	2.3	70	
	1833	3.9	120		1726	4.3	130	
9 M	0119	2.0	60	**24** Tu	0004	2.3	70	
	0730	3.9	120		0614	4.3	130	
	1346	2.3	70		1238	2.3	70	
	1952	4.3	130		1852	4.3	130	
10 Tu	0224	2.0	60	**25** W	0131	2.0	60	
	0839	4.3	130		0741	4.3	130	
	1440	2.0	60		1355	2.0	60	
	2050	4.3	130		2006	4.6	140	
11 W	0312	1.6	50	**26** Th	0231	1.6	50	
	0927	4.3	130		0845	4.9	150	
	1523	1.6	50		1450	1.6	50	
	2134	4.6	140		2102	4.9	150	
12 Th	0351	1.3	40	**27** F	0321	1.0	30	
	1006	4.6	140		0936	5.2	160	
	1559	1.6	50		1537	1.3	40	
	2211	4.9	150		2150	5.6	170	
13 F	0425	1.3	40	**28** Sa	0407	0.7	20	
	1040	4.9	150		1022	5.6	170	
	1632	1.3	40		1621	1.0	30	
	2244	4.9	150	●	2235	5.6	170	
14 Sa	0457	1.0	30	**29** Su	0450	0.3	10	
	1111	4.9	150		1106	5.6	170	
	1703	1.3	40		1703	1.0	30	
○	2316	5.2	160		2320	5.9	180	
15 Su	0526	1.0	30	**30** M	0532	0.3	10	
	1142	4.9	150		1150	5.6	170	
	1732	1.3	40		1744	0.7	20	
	2347	5.2	160					

August

	Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm	
1 Th	0441	0.7	20	**16** F	0521	1.0	30	
	1055	4.9	150		1136	4.6	140	
	1655	0.7	20		1726	1.3	40	
●	2313	5.2	160		2342	4.9	150	
2 F	0527	0.3	10	**17** Sa	0553	1.0	30	
	1144	4.9	150		1209	4.6	140	
	1740	0.7	20		1757	1.3	40	
	2359	5.2	160					
3 Sa	0613	0.3	10	**18** Su	0014	4.9	150	
	1232	5.2	160		0623	1.0	30	
	1824	0.7	20		1242	4.6	140	
					1827	1.3	40	
4 Su	0047	5.2	160	**19** M	0047	4.9	150	
	0659	0.3	10		0652	1.0	30	
	1322	4.9	150		1315	4.6	140	
	1908	0.7	20		1857	1.3	40	
5 M	0136	5.2	160	**20** Tu	0120	4.6	140	
	0746	0.3	10		0721	1.3	40	
	1411	4.9	150		1349	4.6	140	
	1954	1.0	30		1928	1.3	40	
6 Tu	0226	4.9	150	**21** W	0155	4.6	140	
	0836	0.7	20		0753	1.3	40	
	1501	4.6	140		1425	4.3	130	
	2043	1.3	40		2003	1.6	50	
7 W	0318	4.9	150	**22** Th	0234	4.6	140	
	0929	1.0	30		0829	1.6	50	
	1553	4.3	130		1506	4.3	130	
◐	2139	1.6	50		2043	2.0	60	
8 Th	0413	4.6	140	**23** F	0319	4.3	130	
	1029	1.3	40		0912	1.6	50	
	1648	4.3	130		1553	3.9	120	
	2247	1.6	50	◑	2136	2.0	60	
9 F	0514	4.3	130	**24** Sa	0411	3.9	120	
	1139	1.6	50		1011	2.0	60	
	1751	3.9	120		1649	3.9	120	
					2251	2.3	70	
10 Sa	0009	2.0	60	**25** Su	0515	3.9	120	
	0625	3.9	120		1130	2.0	60	
	1253	1.6	50		1759	3.9	120	
	1902	3.9	120					
11 Su	0130	2.0	60	**26** M	0025	2.0	60	
	0743	3.9	120		0634	3.9	120	
	1400	1.6	50		1258	2.0	60	
	2011	4.3	130		1918	3.9	120	
12 M	0235	1.6	50	**27** Tu	0147	2.0	60	
	0849	4.3	130		0755	4.3	130	
	1455	1.6	50		1410	1.6	50	
	2107	4.3	130		2026	4.3	130	
13 Tu	0326	1.3	40	**28** W	0248	1.3	40	
	0940	4.3	130		0859	4.6	140	
	1540	1.6	50		1506	1.3	40	
	2152	4.6	140		2121	4.9	150	
14 W	0409	1.3	40	**29** Th	0339	1.0	30	
	1023	4.6	140		0952	4.9	150	
	1619	1.3	40		1555	1.0	30	
	2232	4.6	140		2209	5.2	160	
15 Th	0447	1.0	30	**30** F	0426	0.7	20	
	1101	4.6	140		1040	5.2	160	
	1654	1.3	40		1640	1.0	30	
○	2308	4.9	150	●	2255	5.6	170	
				31 Sa	0511	0.3	10	
					1127	5.6	170	
					1723	0.7	20	
					2340	5.6	170	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Bergen, Norway, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0005	5.9	180	**16** W	0550	1.3	40	**1** F	0116	5.2	160	**16** Sa	0045	4.9	150	**1** Su	0142	4.9	150	**16** M	0122	4.9	150
	0613	0.7	20		1214	5.2	160		0706	1.6	50		0633	1.6	50		0724	2.0	60		0707	1.6	50
	1234	5.6	170		1805	1.3	40		1335	5.2	160		1305	5.2	160		1354	4.9	150		1339	5.2	160
	1824	1.0	30						1929	1.6	50		1902	1.6	50		1959	2.0	60		1946	1.6	50
2 W	0051	5.6	170	**17** Th	0024	5.2	160	**2** Sa	0203	4.9	150	**17** Su	0131	4.9	150	**2** M	0229	4.6	140	**17** Tu	0214	4.9	150
	0653	1.0	30		0619	1.3	40		0747	2.0	60		0712	1.6	50		0806	2.3	70		0754	2.0	60
	1318	5.2	160		1247	4.9	150		1420	4.9	150		1349	4.9	150		1438	4.6	140		1430	4.9	150
	1905	1.3	40		1837	1.6	50		2018	2.0	60		1948	2.0	60		2051	2.0	60		2042	1.6	50
3 Th	0138	5.2	160	**18** F	0101	4.9	150	**3** Su	0253	4.6	140	**18** M	0222	4.6	140	**3** Tu	0318	4.3	130	**18** W	0309	4.6	140
	0734	1.3	40		0651	1.6	50		0834	2.3	70		0759	2.0	60		0856	2.6	80		0850	2.0	60
	1403	4.9	150		1324	4.9	150		1508	4.6	140		1440	4.6	140		1527	4.6	140		1526	4.9	150
	1949	1.6	50		1912	1.6	50		2119	2.3	70		2046	2.0	60		2155	2.3	70		2147	1.6	50
4 F	0226	4.9	150	**19** Sa	0143	4.9	150	**4** M	0349	4.3	130	**19** Tu	0320	4.6	140	**4** W	0414	4.3	130	**19** Th	0410	4.6	140
	0818	1.6	50		0725	1.6	50		0938	2.6	80		0858	2.3	70		1003	2.6	80		0957	2.3	70
	1449	4.6	140		1405	4.6	140		1604	4.3	130		1539	4.6	140		1624	4.3	130		1628	4.9	150
	2039	2.0	60		1953	2.0	60	◐	2245	2.3	70	◑	2201	2.0	60	◐	2310	2.3	70	◑	2259	2.0	60
5 Sa	0318	4.6	140	**20** Su	0231	4.6	140	**5** Tu	0457	3.9	120	**20** W	0426	4.3	130	**5** Th	0520	3.9	120	**20** F	0515	4.6	140
	0909	2.3	70		0808	2.0	60		1111	2.6	80		1019	2.6	80		1126	2.6	80		1113	2.3	70
	1540	4.6	140		1454	4.6	140		1714	4.3	130		1648	4.6	140		1732	4.3	130		1735	4.6	140
◐	2145	2.3	70		2047	2.3	70						2328	2.0	60								
6 Su	0417	4.3	130	**21** M	0328	4.3	130	**6** W	0014	2.3	70	**21** Th	0542	4.6	140	**6** F	0021	2.3	70	**21** Sa	0011	1.6	50
	1021	2.6	80		0905	2.3	70		0623	3.9	120		1151	2.6	80		0632	3.9	120		0624	4.6	140
	1639	4.3	130		1552	4.3	130		1239	2.6	80		1805	4.6	140		1239	2.6	80		1229	2.3	70
	2322	2.3	70	◑	2207	2.3	70		1837	4.3	130						1842	4.3	130		1846	4.9	150
7 M	0533	3.9	120	**22** Tu	0437	4.3	130	**7** Th	0120	2.3	70	**22** F	0044	2.0	60	**7** Sa	0117	2.3	70	**22** Su	0116	1.6	50
	1201	2.6	80		1034	2.6	80		0738	4.3	130		0657	4.6	140		0735	4.3	130		0730	4.6	140
	1757	4.3	130		1705	4.3	130		1338	2.6	80		1305	2.3	70		1335	2.3	70		1336	2.0	60
					2349	2.3	70		1944	4.6	140		1917	4.9	150		1941	4.6	140		1951	4.9	150
8 Tu	0057	2.3	70	**23** W	0600	4.3	130	**8** F	0208	2.0	60	**23** Sa	0144	1.6	50	**8** Su	0203	2.0	60	**23** M	0212	1.6	50
	0709	3.9	120		1219	2.6	80		0828	4.6	140		0800	4.9	150		0823	4.6	140		0828	4.9	150
	1322	2.6	80		1830	4.6	140		1423	2.3	70		1403	2.0	60		1421	2.3	70		1433	2.0	60
	1924	4.3	130						2032	4.6	140		2016	5.2	160		2029	4.6	140		2049	4.9	150
9 W	0200	2.0	60	**24** Th	0111	2.0	60	**9** Sa	0248	2.0	60	**24** Su	0236	1.3	40	**9** M	0243	2.0	60	**24** Tu	0303	1.6	50
	0818	4.3	130		0723	4.6	140		0907	4.6	140		0852	5.2	160		0903	4.6	140		0919	4.9	150
	1416	2.3	70		1334	2.3	70		1501	2.0	60		1453	1.6	50		1501	2.0	60		1525	1.6	50
	2024	4.6	140		1944	4.9	150		2111	4.9	150		2108	5.2	160		2110	4.9	150		2141	5.2	160
10 Th	0245	2.0	60	**25** F	0210	1.6	50	**10** Su	0322	1.6	50	**25** M	0322	1.3	40	**10** Tu	0319	1.6	50	**25** W	0350	1.3	40
	0904	4.6	140		0826	4.9	150		0940	4.9	150		0939	5.2	160		0939	4.9	150		1005	5.2	160
	1458	2.0	60		1429	2.0	60		1535	2.0	60		1540	1.3	40		1539	1.6	50		1613	1.3	40
	2108	4.6	140		2040	5.2	160		2145	4.9	150		2155	5.6	170		2148	4.9	150		2229	5.2	160
11 F	0323	1.6	50	**26** Sa	0259	1.3	40	**11** M	0354	1.6	50	**26** Tu	0406	1.0	30	**11** W	0354	1.6	50	**26** Th	0433	1.3	40
	0940	4.6	140		0916	5.2	160		1012	4.9	150		1023	5.6	170		1014	4.9	150		1049	5.2	160
	1533	2.0	60		1516	1.3	40		1608	1.6	50		1624	1.3	40		1616	1.6	50		1658	1.3	40
	2144	4.9	150		2129	5.6	170		2218	5.2	160	●	2242	5.6	170		2227	5.2	160	●	2315	5.2	160
12 Sa	0356	1.3	40	**27** Su	0344	1.0	30	**12** Tu	0424	1.3	40	**27** W	0448	1.0	30	**12** Th	0429	1.3	40	**27** F	0513	1.3	40
	1013	4.9	150		1001	5.6	170		1043	5.2	160		1105	5.6	170		1051	5.2	160		1131	5.2	160
	1606	1.6	50		1600	1.3	40		1640	1.6	50		1707	1.3	40		1654	1.3	40		1740	1.3	40
	2217	5.2	160		2214	5.9	180	○	2251	5.2	160		2327	5.6	170	○	2307	5.2	160		2358	4.9	150
13 Su	0427	1.3	40	**28** M	0427	0.7	20	**13** W	0454	1.3	40	**28** Th	0528	1.3	40	**13** F	0506	1.3	40	**28** Sa	0551	1.6	50
	1043	4.9	150		1044	5.6	170		1115	5.2	160		1147	5.6	170		1128	5.2	160		1211	5.2	160
	1636	1.3	40		1642	1.0	30		1712	1.3	40		1749	1.3	40		1733	1.3	40		1820	1.3	40
○	2248	5.2	160	●	2259	5.9	180		2326	5.2	160						2349	5.2	160				
14 M	0455	1.3	40	**29** Tu	0508	0.7	20	**14** Th	0525	1.3	40	**29** F	0012	5.2	160	**14** Sa	0544	1.3	40	**29** Su	0040	4.9	150
	1112	5.2	160		1126	5.6	170		1148	5.2	160		0607	1.3	40		1209	5.2	160		0628	1.6	50
	1705	1.3	40		1723	1.0	30		1746	1.3	40		1229	5.2	160		1813	1.3	40		1250	5.2	160
	2319	5.2	160		2344	5.9	180						1831	1.3	40						1859	1.6	50
15 Tu	0522	1.3	40	**30** W	0548	1.0	30	**15** F	0004	5.2	160	**30** Sa	0057	5.2	160	**15** Su	0034	5.2	160	**30** M	0121	4.9	150
	1142	5.2	160		1209	5.6	170		0558	1.3	40		0645	1.6	50		0624	1.6	50		0703	1.6	50
	1735	1.3	40		1804	1.0	30		1225	5.2	160		1311	5.2	160		1252	5.2	160		1329	4.9	150
	2350	5.2	160						1822	1.6	50		1914	1.6	50		1857	1.3	40		1938	1.6	50
				31 Th	0029	5.6	170													**31** Tu	0202	4.6	140
					0627	1.3	40														0739	2.0	60
					1251	5.2	160														1409	4.9	150
					1845	1.3	40														2019	2.0	60

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Narvik, Norway, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0300	3.3 100	**16** W	0147	3.9 120
	0857	9.2 280		0801	8.5 260
	1531	3.9 120		1422	4.6 140
	2112	9.5 290		2012	8.9 270
2 W	0357	3.3 100	**17** Th	0250	3.6 110
	0959	9.5 290		0909	8.9 270
	1630	3.9 120		1531	4.3 130
	2212	9.5 290		2120	9.2 280
3 Th	0449	3.0 90	**18** F	0351	3.3 100
	1050	9.8 300		1008	9.5 290
	1721	3.3 100		1631	3.6 110
	2305	9.5 290		2222	9.5 290
4 F	0534	3.0 90	**19** Sa	0447	2.6 80
	1135	10.5 320		1100	10.5 320
	1805	3.0 90		1726	3.0 90
	2351	9.8 300		2317	10.2 310
5 Sa	0613	3.0 90	**20** Su	0539	2.3 70
	1216	10.8 330		1148	11.2 340
	1845	3.0 90		1816	2.3 70
6 Su ●	0034	9.8 300	**21** M ○	0010	10.8 330
	0649	2.6 80		0628	2.0 60
	1254	10.8 330		1235	11.8 360
	1921	2.6 80		1905	1.6 50
7 M	0113	10.2 310	**22** Tu	0100	11.2 340
	0721	2.6 80		0716	1.6 50
	1330	10.8 330		1322	12.1 370
	1954	2.6 80		1953	1.3 40
8 Tu	0151	9.8 300	**23** W	0150	11.5 350
	0751	3.0 90		0803	1.6 50
	1405	10.8 330		1408	12.5 380
	2026	2.6 80		2042	1.0 30
9 W	0227	9.8 300	**24** Th	0238	11.5 350
	0820	3.0 90		0850	1.6 50
	1438	10.5 320		1455	12.1 370
	2059	3.0 90		2132	1.3 40
10 Th	0303	9.5 290	**25** F	0326	11.2 340
	0852	3.3 100		0939	2.3 70
	1513	10.5 320		1542	11.8 360
	2134	3.0 90		2223	1.6 50
11 F	0339	9.5 290	**26** Sa	0415	10.5 320
	0928	3.6 110		1030	3.0 90
	1548	10.2 310		1630	11.2 340
	2213	3.3 100		2317	2.3 70
12 Sa	0418	9.2 280	**27** Su ◑	0505	9.8 300
	1009	3.9 120		1128	3.6 110
	1626	9.8 300		1721	10.5 320
	2258	3.6 110			
13 Su	0500	8.9 270	**28** M	0015	3.0 90
	1058	4.3 130		0559	9.2 280
	1709	9.5 290		1235	3.9 120
	2349	3.6 110		1817	9.5 290
14 M ◐	0550	8.5 260	**29** Tu	0119	3.3 100
	1158	4.6 140		0702	8.9 270
	1800	8.9 270		1350	4.3 130
				1923	8.9 270
15 Tu	0046	3.9 120	**30** W	0226	3.6 110
	0651	8.5 260		0817	8.5 260
	1309	4.9 150		1505	4.3 130
	1902	8.9 270		2039	8.5 260
			31 Th	0331	3.6 110
				0932	8.9 270
				1612	3.9 120
				2153	8.5 260

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0429	3.6 110	**16** Sa	0323	3.3 100
	1032	9.2 280		0939	9.2 280
	1707	3.6 110		1611	3.6 110
	2252	8.9 270		2203	9.2 280
2 Sa	0518	3.3 100	**17** Su	0429	3.0 90
	1120	9.8 300		1040	9.8 300
	1753	3.3 100		1710	2.6 80
	2340	9.2 280		2305	9.8 300
3 Su	0559	3.0 90	**18** M	0526	2.3 70
	1201	10.2 310		1132	10.8 330
	1832	3.0 90		1803	1.6 50
				2359	10.5 320
4 M ●	0022	9.5 290	**19** Tu ○	0617	1.6 50
	0634	3.0 90		1220	11.5 350
	1238	10.5 320		1852	1.0 30
	1906	2.6 80			
5 Tu	0059	9.8 300	**20** W	0049	11.2 340
	0706	2.6 80		0704	1.3 40
	1312	10.5 320		1307	12.1 370
	1937	2.3 70		1938	0.7 20
6 W	0134	9.8 300	**21** Th	0136	11.5 350
	0735	2.6 80		0749	1.0 30
	1345	10.8 330		1352	12.5 380
	2007	2.3 70		2024	0.3 10
7 Th	0207	9.8 300	**22** F	0222	11.8 360
	0804	2.6 80		0833	1.3 40
	1416	10.8 330		1437	12.1 370
	2036	2.3 70		2109	0.7 20
8 F	0240	9.8 300	**23** Sa	0306	11.5 350
	0833	2.6 80		0917	1.6 50
	1448	10.5 320		1521	11.8 360
	2107	2.3 70		2154	1.3 40
9 Sa	0313	9.8 300	**24** Su	0350	10.8 330
	0905	3.0 90		1003	2.3 70
	1521	10.5 320		1605	11.2 340
	2141	2.6 80		2241	2.0 60
10 Su	0347	9.5 290	**25** M	0435	10.2 310
	0940	3.3 100		1053	3.0 90
	1555	10.2 310		1651	10.2 310
	2218	3.0 90		2332	3.0 90
11 M	0425	9.2 280	**26** Tu ◑	0523	9.2 280
	1021	3.6 110		1154	3.6 110
	1634	9.5 290		1742	9.2 280
	2300	3.3 100			
12 Tu ◐	0507	8.9 270	**27** W	0031	3.6 110
	1112	3.9 120		0618	8.5 260
	1718	9.2 280		1312	4.3 130
	2352	3.6 110		1844	8.2 250
13 W	0559	8.5 260	**28** Th	0144	3.9 120
	1220	4.6 140		0731	8.2 250
	1813	8.5 260		1436	4.3 130
				2006	7.9 240
14 Th	0056	3.6 110			
	0705	8.5 260			
	1340	4.6 140			
	1925	8.5 260			
15 F	0210	3.6 110			
	0824	8.5 260			
	1500	4.3 130			
	2048	8.5 260			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0300	4.3 130	**16** Sa	0143	3.9 120
	0859	8.2 250		0749	8.2 250
	1549	3.9 120		1440	3.9 120
	2136	7.9 240		2029	8.2 250
2 Sa	0406	3.9 120	**17** Su	0306	3.6 110
	1012	8.5 260		0914	8.9 270
	1647	3.6 110		1553	3.0 90
	2240	8.2 250		2151	8.9 270
3 Su	0458	3.6 110	**18** M	0415	3.0 90
	1102	9.2 280		1021	9.5 290
	1733	3.0 90		1654	2.3 70
	2327	8.9 270		2253	9.5 290
4 M	0541	3.0 90	**19** Tu	0512	2.3 70
	1142	9.5 290		1114	10.5 320
	1811	2.6 80		1746	1.3 40
				2346	10.5 320
5 Tu	0005	9.2 280	**20** W	0602	1.6 50
	0616	2.6 80		1202	11.5 350
	1217	10.2 310		1833	0.7 20
	1844	2.3 70			
6 W ●	0040	9.5 290	**21** Th ○	0033	11.2 340
	0647	2.3 70		0648	1.0 30
	1249	10.2 310		1248	11.8 360
	1913	2.0 60		1918	0.3 10
7 Th	0112	9.8 300	**22** F	0117	11.5 350
	0716	2.3 70		0731	1.0 30
	1320	10.5 320		1332	12.1 370
	1942	2.0 60		2000	0.3 10
8 F	0143	10.2 310	**23** Sa	0200	11.5 350
	0744	2.0 60		0813	1.0 30
	1350	10.5 320		1415	11.8 360
	2010	1.6 50		2042	0.7 20
9 Sa	0214	10.2 310	**24** Su	0242	11.2 340
	0813	2.3 70		0854	1.3 40
	1421	10.5 320		1457	11.5 350
	2039	2.0 60		2122	1.3 40
10 Su	0246	10.2 310	**25** M	0323	10.8 330
	0844	2.3 70		0936	2.0 60
	1454	10.5 320		1540	10.5 320
	2110	2.0 60		2202	2.0 60
11 M	0319	9.8 300	**26** Tu	0405	10.2 310
	0917	2.6 80		1022	2.6 80
	1528	10.2 310		1624	9.5 290
	2142	2.3 70		2245	3.0 90
12 Tu	0354	9.5 290	**27** W	0449	9.2 280
	0955	3.0 90		1118	3.3 100
	1606	9.5 290		1711	8.5 260
	2220	3.0 90		2338	3.6 110
13 W	0434	9.2 280	**28** Th ◑	0539	8.5 260
	1042	3.6 110		1232	3.9 120
	1649	9.2 280		1809	7.9 240
	2310	3.3 100			
14 Th ◐	0522	8.9 270	**29** F	0051	4.3 130
	1150	3.9 120		0644	7.9 240
	1743	8.5 260		1358	3.9 120
				1930	7.2 220
15 F	0019	3.6 110	**30** Sa	0218	4.3 130
	0625	8.2 250		0815	7.9 240
	1315	4.3 130		1515	3.9 120
	1857	8.2 250		2110	7.2 220
			31 Su	0333	3.9 120
				0939	8.2 250
				1615	3.3 100
				2218	7.9 240

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Narvik, Norway, 2019

Times and Heights of High and Low Waters

April

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0429 3.6 110 1032 8.5 260 1701 3.0 90 2303 8.5 260		**16** Tu	0359 3.0 90 0959 9.5 290 1633 1.6 50 2237 9.5 290	
2 Tu	0513 3.3 100 1113 9.2 280 1739 2.6 80 2339 9.2 280		**17** W	0455 2.0 60 1053 10.2 310 1725 1.0 30 2327 10.5 320	
3 W	0549 2.6 80 1147 9.5 290 1812 2.0 60		**18** Th	0544 1.6 50 1141 10.8 330 1811 0.7 20	
4 Th	0012 9.5 290 0621 2.3 70 1219 9.8 300 1842 1.6 50		**19** F ○	0012 10.8 330 0629 1.0 30 1226 11.2 340 1854 0.3 10	
5 F ●	0043 9.8 300 0652 2.0 60 1250 10.2 310 1911 1.6 50		**20** Sa	0055 11.2 340 0712 1.0 30 1309 11.5 350 1935 0.3 10	
6 Sa	0114 10.2 310 0722 2.0 60 1321 10.5 320 1940 1.3 40		**21** Su	0137 11.2 340 0753 1.0 30 1352 11.2 340 2013 0.7 20	
7 Su	0146 10.2 310 0753 2.0 60 1354 10.5 320 2010 1.3 40		**22** M	0217 11.2 340 0833 1.3 40 1434 10.5 320 2050 1.3 40	
8 M	0218 10.2 310 0825 2.0 60 1429 10.2 310 2041 1.6 50		**23** Tu	0257 10.5 320 0913 2.0 60 1516 9.8 300 2126 2.3 70	
9 Tu	0252 10.2 310 0900 2.3 70 1506 9.8 300 2115 2.0 60		**24** W	0337 9.8 300 0957 2.3 70 1600 9.2 280 2205 3.0 90	
10 W	0329 9.8 300 0940 2.6 80 1546 9.5 290 2155 2.6 80		**25** Th	0419 9.2 280 1048 3.0 90 1646 8.2 250 2251 3.6 110	
11 Th	0411 9.5 290 1032 3.0 90 1633 8.9 270 2248 3.0 90		**26** F ◑	0505 8.5 260 1152 3.6 110 1740 7.5 230 2355 3.9 120	
12 F ◐	0500 8.9 270 1142 3.3 100 1730 8.2 250		**27** Sa	0603 7.9 240 1309 3.6 110 1852 7.2 220	
13 Sa	0002 3.6 110 0603 8.5 260 1305 3.6 110 1845 7.9 240		**28** Su	0120 4.3 130 0721 7.5 230 1424 3.6 110 2024 7.2 220	
14 Su	0130 3.6 110 0725 8.2 250 1425 3.3 100 2017 8.2 250		**29** M	0242 4.3 130 0846 7.9 240 1526 3.3 100 2137 7.5 230	
15 M	0251 3.3 100 0851 8.5 260 1534 2.6 80 2137 8.9 270		**30** Tu	0344 3.6 110 0947 8.2 250 1616 3.0 90 2226 8.2 250	

May

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 W	0433 3.3 100 1031 8.5 260 1657 2.3 70 2304 8.9 270		**16** Th	0434 2.3 70 1028 9.8 300 1701 1.0 30 2305 9.8 300	
2 Th	0513 3.0 90 1108 9.2 280 1732 2.0 60 2338 9.2 280		**17** F	0525 1.6 50 1117 10.2 310 1748 1.0 30 2350 10.5 320	
3 F	0549 2.3 70 1143 9.5 290 1805 1.6 50		**18** Sa ○	0611 1.3 40 1203 10.5 320 1831 0.7 20	
4 Sa ●	0011 9.8 300 0623 2.0 60 1217 9.8 300 1838 1.3 40		**19** Su	0033 10.8 330 0654 1.3 40 1248 10.5 320 1911 1.0 30	
5 Su	0044 10.2 310 0657 1.6 50 1252 10.2 310 1910 1.3 40		**20** M	0114 10.8 330 0735 1.3 40 1331 10.2 310 1948 1.3 40	
6 M	0117 10.5 320 0732 1.6 50 1329 10.2 310 1944 1.3 40		**21** Tu	0154 10.5 320 0815 1.6 50 1414 9.8 300 2023 1.6 50	
7 Tu	0153 10.5 320 0808 1.6 50 1408 10.2 310 2019 1.6 50		**22** W	0233 10.2 310 0855 2.0 60 1456 9.2 280 2058 2.3 70	
8 W	0230 10.2 310 0849 2.0 60 1449 9.8 300 2058 2.0 60		**23** Th	0313 9.8 300 0936 2.3 70 1538 8.9 270 2134 3.0 90	
9 Th	0311 10.2 310 0935 2.3 70 1534 9.5 290 2144 2.3 70		**24** F	0353 9.2 280 1022 2.6 80 1623 8.2 250 2217 3.3 100	
10 F	0356 9.5 290 1032 2.6 80 1625 8.9 270 2243 3.0 90		**25** Sa	0437 8.5 260 1115 3.0 90 1712 7.5 230 2311 3.6 110	
11 Sa	0448 9.2 280 1141 2.6 80 1725 8.5 260 2357 3.3 100		**26** Su ◑	0527 8.2 250 1216 3.3 100 1810 7.2 220	
12 Su ◐	0550 8.9 270 1255 2.6 80 1837 8.2 250		**27** M	0018 3.9 120 0628 7.9 240 1321 3.3 100 1923 7.2 220	
13 M	0118 3.3 100 0706 8.5 260 1407 2.6 80 2000 8.2 250		**28** Tu	0134 3.9 120 0739 7.5 230 1423 3.3 100 2037 7.5 230	
14 Tu	0233 3.3 100 0825 8.9 270 1512 2.0 60 2115 8.9 270		**29** W	0243 3.9 120 0846 7.9 240 1518 3.0 90 2135 7.9 240	
15 W	0338 2.6 80 0932 9.2 280 1610 1.6 50 2215 9.5 290		**30** Th	0341 3.6 110 0939 8.2 250 1605 2.6 80 2221 8.5 260	
			31 F	0430 3.0 90 1023 8.5 260 1647 2.3 70 2300 9.2 280	

June

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Sa	0513 2.6 80 1104 9.2 280 1727 2.0 60 2337 9.5 290		**16** Su	0556 2.0 60 1144 9.5 290 1811 1.6 50	
2 Su	0554 2.3 70 1144 9.5 290 1805 1.6 50		**17** M ○	0012 10.2 310 0640 1.6 50 1230 9.5 290 1851 1.6 50	
3 M ●	0014 10.2 310 0633 2.0 60 1225 9.8 300 1843 1.3 40		**18** Tu	0054 10.2 310 0721 1.6 50 1314 9.5 290 1927 1.6 50	
4 Tu	0052 10.5 320 0713 1.6 50 1307 9.8 300 1922 1.3 40		**19** W	0134 10.2 310 0800 1.6 50 1356 9.5 290 2002 2.0 60	
5 W	0131 10.5 320 0755 1.3 40 1351 9.8 300 2004 1.3 40		**20** Th	0213 10.2 310 0838 2.0 60 1438 9.2 280 2035 2.3 70	
6 Th	0213 10.5 320 0841 1.6 50 1438 9.8 300 2049 1.6 50		**21** F	0251 9.8 300 0916 2.0 60 1518 8.9 270 2109 2.6 80	
7 F	0258 10.5 320 0932 1.6 50 1527 9.5 290 2140 2.0 60		**22** Sa	0330 9.5 290 0955 2.3 70 1559 8.5 260 2148 3.0 90	
8 Sa	0346 10.2 310 1029 2.0 60 1619 9.2 280 2239 2.6 80		**23** Su	0409 9.2 280 1039 2.6 80 1642 8.2 250 2233 3.3 100	
9 Su	0439 9.8 300 1133 2.0 60 1717 8.9 270 2346 3.0 90		**24** M	0452 8.5 260 1128 3.0 90 1729 7.9 240 2327 3.6 110	
10 M ◐	0538 9.2 280 1239 2.0 60 1823 8.5 260		**25** Tu ◑	0539 8.2 250 1221 3.3 100 1824 7.5 230	
11 Tu	0058 3.3 100 0644 8.9 270 1345 2.0 60 1935 8.5 260		**26** W	0031 3.9 120 0635 7.9 240 1318 3.3 100 1928 7.5 230	
12 W	0209 3.3 100 0755 8.9 270 1447 2.0 60 2047 8.5 260		**27** Th	0139 3.9 120 0738 7.9 240 1416 3.0 90 2034 7.9 240	
13 Th	0314 3.0 90 0902 9.2 280 1545 1.6 50 2149 9.2 280		**28** F	0245 3.9 120 0840 7.9 240 1511 3.0 90 2131 8.2 250	
14 F	0414 2.6 80 1002 9.2 280 1638 1.6 50 2242 9.5 290		**29** Sa	0345 3.6 110 0937 8.2 250 1602 2.6 80 2220 8.9 270	
15 Sa	0507 2.3 70 1055 9.5 290 1727 1.6 50 2329 9.8 300		**30** Su	0438 3.0 90 1028 8.5 260 1650 2.3 70 2304 9.5 290	

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Narvik, Norway, 2019

Times and Heights of High and Low Waters

July

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 M	0526	2.6 80	**16** Tu	0629	2.0 60
	1116	9.2 280		1217	9.2 280
	1736	2.0 60		1835	2.3 70
	2347	9.8 300	○		
2 Tu	0612	2.0 60	**17** W	0038	10.2 310
	1203	9.5 290		0708	2.0 60
	1821	1.6 50		1300	9.2 280
●				1911	2.0 60
3 W	0030	10.5 320	**18** Th	0117	10.2 310
	0657	1.6 50		0745	2.0 60
	1251	9.8 300		1341	9.5 290
	1906	1.3 40		1944	2.3 70
4 Th	0114	10.8 330	**19** F	0154	10.2 310
	0743	1.3 40		0819	2.0 60
	1339	10.2 310		1419	9.2 280
	1952	1.3 40		2015	2.3 70
5 F	0159	11.2 340	**20** Sa	0229	10.2 310
	0832	1.0 30		0852	2.0 60
	1428	10.2 310		1456	9.2 280
	2040	1.6 50		2046	2.6 80
6 Sa	0246	11.2 340	**21** Su	0304	9.8 300
	0923	1.0 30		0926	2.3 70
	1517	10.2 310		1532	8.9 270
	2131	1.6 50		2120	2.6 80
7 Su	0335	10.8 330	**22** M	0340	9.5 290
	1017	1.3 40		1002	2.6 80
	1608	9.8 300		1609	8.5 260
	2226	2.3 70		2158	3.3 100
8 M	0425	10.5 320	**23** Tu	0416	9.2 280
	1115	1.6 50		1042	2.6 80
	1702	9.5 290		1649	8.2 250
	2327	2.6 80		2244	3.6 110
9 Tu	0519	9.8 300	**24** W	0456	8.9 270
	1215	2.0 60		1128	3.0 90
	1800	8.9 270		1733	8.2 250
◐				2339	3.9 120
10 W	0033	3.0 90	**25** Th	0542	8.5 260
	0617	9.2 280		1221	3.3 100
	1317	2.0 60		1827	7.9 240
	1904	8.5 260	◑		
11 Th	0142	3.3 100	**26** F	0044	4.3 130
	0723	8.9 270		0637	8.2 250
	1420	2.3 70		1319	3.3 100
	2014	8.5 260		1931	7.9 240
12 F	0252	3.3 100	**27** Sa	0155	4.3 130
	0832	8.5 260		0743	7.9 240
	1521	2.3 70		1421	3.3 100
	2122	8.9 270		2040	8.2 250
13 Sa	0356	3.0 90	**28** Su	0305	3.9 120
	0939	8.5 260		0853	8.2 250
	1618	2.3 70		1523	3.0 90
	2221	9.2 280		2143	8.5 260
14 Su	0454	2.6 80	**29** M	0408	3.3 100
	1038	8.9 270		0957	8.5 260
	1710	2.3 70		1621	2.6 80
	2311	9.5 290		2236	9.2 280
15 M	0544	2.3 70	**30** Tu	0503	2.6 80
	1130	8.9 270		1055	9.2 280
	1755	2.3 70		1715	2.3 70
	2356	9.8 300		2325	10.2 310
			31 W	0554	2.0 60
				1147	9.8 300
				1805	1.6 50

August

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Th	0012	10.8 330	**16** F	0058	10.2 310
	0642	1.3 40		0724	2.0 60
	1238	10.5 320		1322	9.8 300
●	1853	1.3 40		1924	2.3 70
2 F	0058	11.2 340	**17** Sa	0132	10.5 320
	0729	1.0 30		0755	2.0 60
	1327	10.8 330		1356	9.8 300
	1939	1.3 40		1953	2.3 70
3 Sa	0144	11.8 360	**18** Su	0204	10.5 320
	0817	0.7 20		0824	2.0 60
	1415	10.8 330		1429	9.8 300
	2026	1.3 40		2022	2.3 70
4 Su	0231	11.8 360	**19** M	0236	10.2 310
	0905	0.7 20		0853	2.0 60
	1502	10.8 330		1502	9.5 290
	2114	1.6 50		2053	2.6 80
5 M	0318	11.5 350	**20** Tu	0308	10.2 310
	0955	1.0 30		0925	2.3 70
	1550	10.5 320		1535	9.5 290
	2205	2.0 60		2127	3.0 90
6 Tu	0405	11.2 340	**21** W	0341	9.8 300
	1048	1.3 40		0959	2.6 80
	1639	10.2 310		1610	9.2 280
	2300	2.6 80		2206	3.3 100
7 W	0454	10.2 310	**22** Th	0418	9.2 280
	1143	2.0 60		1039	3.0 90
	1731	9.5 290		1650	8.9 270
◐				2255	3.9 120
8 Th	0003	3.3 100	**23** F	0459	8.9 270
	0548	9.5 290		1128	3.3 100
	1244	2.6 80		1737	8.5 260
	1829	8.9 270	◑	2359	4.3 130
9 F	0115	3.6 110	**24** Sa	0550	8.2 250
	0650	8.9 270		1228	3.6 110
	1350	3.0 90		1837	8.2 250
	1938	8.5 260			
10 Sa	0231	3.6 110	**25** Su	0116	4.3 130
	0804	8.2 250		0657	7.9 240
	1458	3.3 100		1340	3.9 120
	2055	8.5 260		1952	8.2 250
11 Su	0342	3.6 110	**26** M	0235	4.3 130
	0922	8.2 250		0819	7.9 240
	1601	3.3 100		1454	3.6 110
	2204	8.9 270		2110	8.5 260
12 M	0442	3.3 100	**27** Tu	0345	3.6 110
	1029	8.5 260		0937	8.5 260
	1656	3.0 90		1601	3.3 100
	2257	9.2 280		2213	9.5 290
13 Tu	0533	2.6 80	**28** W	0444	3.0 90
	1122	8.9 270		1040	9.2 280
	1741	3.0 90		1659	2.6 80
	2342	9.8 300		2306	10.2 310
14 W	0615	2.3 70	**29** Th	0536	2.0 60
	1206	9.2 280		1135	10.2 310
	1820	2.6 80		1750	2.0 60
				2354	11.2 340
15 Th	0021	10.2 310	**30** F	0624	1.3 40
	0652	2.0 60		1224	10.8 330
	1246	9.5 290		1837	1.3 40
○	1854	2.3 70	●		
			31 Sa	0041	11.8 360
				0711	0.7 20
				1311	11.5 350
				1923	1.0 30

September

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Su	0126	12.1 370	**16** M	0135	10.8 330
	0756	0.3 10		0752	2.0 60
	1357	11.8 360		1400	10.5 320
	2007	1.3 40		1957	2.3 70
2 M	0211	12.1 370	**17** Tu	0205	10.5 320
	0841	0.3 10		0820	2.0 60
	1442	11.5 350		1430	10.2 310
	2052	1.3 40		2027	2.6 80
3 Tu	0256	12.1 370	**18** W	0237	10.5 320
	0927	1.0 30		0849	2.3 70
	1526	11.2 340		1502	10.2 310
	2139	2.0 60		2059	3.0 90
4 W	0341	11.2 340	**19** Th	0310	10.2 310
	1015	1.6 50		0920	2.6 80
	1611	10.5 320		1536	9.8 300
	2231	2.6 80		2136	3.3 100
5 Th	0428	10.5 320	**20** F	0346	9.5 290
	1106	2.6 80		0956	3.3 100
	1659	9.8 300		1613	9.5 290
	2332	3.3 100		2222	3.9 120
6 F	0519	9.5 290	**21** Sa	0427	9.2 280
	1206	3.3 100		1041	3.6 110
	1753	8.9 270		1658	8.9 270
◐				2327	4.3 130
7 Sa	0048	3.9 120	**22** Su	0518	8.5 260
	0619	8.5 260		1147	3.9 120
	1318	3.9 120		1756	8.5 260
	1900	8.5 260	◑		
8 Su	0211	4.3 130	**23** M	0050	4.6 140
	0738	7.9 240		0627	8.2 250
	1435	4.3 130		1311	4.3 130
	2027	8.5 260		1914	8.5 260
9 M	0325	3.9 120	**24** Tu	0214	4.3 130
	0911	7.9 240		0757	8.2 250
	1543	3.9 120		1435	3.9 120
	2146	8.9 270		2042	8.9 270
10 Tu	0426	3.6 110	**25** W	0325	3.6 110
	1022	8.5 260		0923	8.9 270
	1639	3.6 110		1545	3.6 110
	2241	9.2 280		2152	9.5 290
11 W	0514	3.0 90	**26** Th	0425	2.6 80
	1110	8.9 270		1027	9.8 300
	1723	3.3 100		1643	3.0 90
	2323	9.8 300		2246	10.5 320
12 Th	0553	2.6 80	**27** F	0516	2.0 60
	1150	9.5 290		1119	10.8 330
	1800	3.0 90		1733	2.0 60
				2334	11.5 350
13 F	0000	10.2 310	**28** Sa	0604	1.0 30
	0627	2.3 70		1206	11.5 350
	1225	9.8 300		1819	1.6 50
	1833	2.6 80	●		
14 Sa	0033	10.5 320	**29** Su	0020	12.1 370
	0658	2.0 60		0648	0.7 20
	1258	10.2 310		1251	12.1 370
○	1902	2.3 70		1903	1.3 40
15 Su	0105	10.5 320	**30** M	0104	12.5 380
	0725	2.0 60		0732	0.3 10
	1329	10.2 310		1335	12.1 370
	1929	2.3 70		1946	1.3 40

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Narvik, Norway, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0148	12.5	380	**16** W	0136	10.8	330
	0814	0.7	20		0748	2.3	70
	1418	12.1	370		1400	10.8	330
	2030	1.6	50		2005	2.6	80
2 W	0232	12.1	370	**17** Th	0209	10.5	320
	0856	1.3	40		0817	2.3	70
	1500	11.5	350		1432	10.8	330
	2114	2.3	70		2039	3.0	90
3 Th	0317	11.2	340	**18** F	0244	10.2	310
	0939	2.3	70		0849	2.6	80
	1543	10.8	330		1507	10.5	320
	2203	3.0	90		2117	3.3	100
4 F	0403	10.2	310	**19** Sa	0323	9.8	300
	1025	3.0	90		0925	3.3	100
	1628	10.2	310		1546	9.8	300
	2302	3.6	110		2205	3.9	120
5 Sa ◐	0452	9.2	280	**20** Su	0407	9.5	290
	1121	3.9	120		1012	3.9	120
	1719	9.2	280		1632	9.5	290
					2312	4.3	130
6 Su	0018	4.3	130	**21** M ◑	0501	8.9	270
	0551	8.5	260		1124	4.3	130
	1236	4.6	140		1730	9.2	280
	1823	8.5	260				
7 M	0143	4.3	130	**22** Tu	0035	4.3	130
	0711	7.9	240		0612	8.5	260
	1403	4.9	150		1254	4.6	140
	1951	8.5	260		1848	8.9	270
8 Tu	0258	4.3	130	**23** W	0155	3.9	120
	0853	7.9	240		0741	8.5	260
	1516	4.6	140		1418	4.3	130
	2117	8.9	270		2016	9.2	280
9 W	0358	3.6	110	**24** Th	0304	3.3	100
	1002	8.5	260		0906	9.2	280
	1613	4.3	130		1527	3.9	120
	2214	9.2	280		2127	9.8	300
10 Th	0445	3.3	100	**25** F	0403	2.6	80
	1048	9.2	280		1009	10.2	310
	1657	3.6	110		1624	3.0	90
	2256	9.8	300		2223	10.8	330
11 F	0523	3.0	90	**26** Sa	0454	2.0	60
	1125	9.5	290		1100	10.8	330
	1734	3.3	100		1714	2.3	70
	2331	10.2	310		2312	11.5	350
12 Sa	0556	2.6	80	**27** Su	0541	1.3	40
	1158	10.2	310		1146	11.8	360
	1806	3.0	90		1801	2.0	60
					2358	12.1	370
13 Su ○	0003	10.5	320	**28** M ●	0625	1.0	30
	0626	2.3	70		1229	12.1	370
	1229	10.5	320		1845	1.6	50
	1836	2.6	80				
14 M	0034	10.8	330	**29** Tu	0042	12.1	370
	0653	2.0	60		0707	1.0	30
	1259	10.8	330		1312	12.1	370
	1905	2.6	80		1927	1.6	50
15 Tu	0104	10.8	330	**30** W	0127	12.1	370
	0720	2.0	60		0748	1.3	40
	1329	10.8	330		1354	12.1	370
	1934	2.6	80		2010	2.0	60
				31 Th	0211	11.5	350
					0827	2.0	60
					1435	11.5	350
					2053	2.3	70

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0255	10.8	330	**16** Sa	0226	10.5	320
	0906	2.6	80		0830	3.0	90
	1517	11.2	340		1447	10.8	330
	2140	3.0	90		2109	3.3	100
2 Sa	0340	10.2	310	**17** Su	0309	10.2	310
	0947	3.6	110		0911	3.3	100
	1600	10.2	310		1529	10.5	320
	2234	3.6	110		2201	3.6	110
3 Su	0429	9.2	280	**18** M	0357	9.5	290
	1035	4.3	130		1004	3.9	120
	1648	9.5	290		1618	10.2	310
	2342	4.3	130		2306	3.6	110
4 M ◐	0524	8.5	260	**19** Tu ◑	0453	9.2	280
	1143	4.9	150		1114	4.3	130
	1746	8.9	270		1716	9.5	290
5 Tu	0100	4.3	130	**20** W	0020	3.9	120
	0636	7.9	240		0601	8.9	270
	1311	5.2	160		1236	4.6	140
	1902	8.5	260		1827	9.5	290
6 W	0214	4.3	130	**21** Th	0133	3.6	110
	0808	7.9	240		0721	8.9	270
	1431	4.9	150		1355	4.3	130
	2028	8.5	260		1946	9.5	290
7 Th	0315	3.9	120	**22** F	0240	3.3	100
	0923	8.5	260		0840	9.5	290
	1533	4.6	140		1504	3.9	120
	2131	9.2	280		2057	10.2	310
8 F	0404	3.6	110	**23** Sa	0338	2.6	80
	1013	9.2	280		0944	10.2	310
	1621	4.3	130		1603	3.3	100
	2217	9.5	290		2157	10.5	320
9 Sa	0444	3.3	100	**24** Su	0431	2.0	60
	1052	9.5	290		1037	10.8	330
	1701	3.6	110		1656	3.0	90
	2254	9.8	300		2248	11.2	340
10 Su	0519	3.0	90	**25** M	0520	1.6	50
	1126	10.2	310		1124	11.5	350
	1736	3.3	100		1744	2.3	70
	2328	10.2	310		2337	11.5	350
11 M	0550	2.6	80	**26** Tu ●	0605	1.6	50
	1157	10.5	320		1209	11.8	360
	1809	3.0	90		1829	2.3	70
12 Tu ○	0001	10.5	320	**27** W	0023	11.5	350
	0621	2.3	70		0647	1.6	50
	1228	10.8	330		1251	11.8	360
	1841	3.0	90		1913	2.0	60
13 W	0034	10.8	330	**28** Th	0108	11.5	350
	0651	2.3	70		0726	2.0	60
	1300	11.2	340		1333	11.8	360
	1914	2.6	80		1955	2.3	70
14 Th	0109	10.8	330	**29** F	0153	11.2	340
	0722	2.3	70		0804	2.3	70
	1333	11.2	340		1414	11.5	350
	1948	2.6	80		2038	2.6	80
15 F	0146	10.5	320	**30** Sa	0237	10.5	320
	0755	2.6	80		0841	3.0	90
	1409	11.2	340		1455	11.2	340
	2026	3.0	90		2121	3.0	90

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0321	9.8	300	**16** M	0300	10.5	320
	0918	3.6	110		0907	3.0	90
	1536	10.5	320		1519	11.2	340
	2208	3.6	110		2157	3.0	90
2 M	0407	9.2	280	**17** Tu	0350	10.2	310
	0959	4.3	130		1000	3.3	100
	1621	9.8	300		1608	10.8	330
	2302	3.9	120		2256	3.0	90
3 Tu	0456	8.9	270	**18** W	0444	9.8	300
	1050	4.6	140		1102	3.9	120
	1710	9.2	280		1702	10.5	320
4 W ◐	0004	4.3	130	**19** Th ◑	0000	3.3	100
	0553	8.2	250		0545	9.5	290
	1158	4.9	150		1213	4.3	130
	1809	8.9	270		1804	9.8	300
5 Th	0110	4.3	130	**20** F	0107	3.3	100
	0704	8.2	250		0654	9.2	280
	1317	5.2	160		1327	4.3	130
	1919	8.5	260		1913	9.8	300
6 F	0213	4.3	130	**21** Sa	0211	3.0	90
	0821	8.2	250		0808	9.2	280
	1430	4.9	150		1438	3.9	120
	2028	8.9	270		2024	9.8	300
7 Sa	0308	3.9	120	**22** Su	0313	3.0	90
	0923	8.9	270		0916	9.8	300
	1530	4.6	140		1542	3.6	110
	2124	8.9	270		2129	9.8	300
8 Su	0355	3.6	110	**23** M	0410	2.6	80
	1010	9.2	280		1015	10.2	310
	1620	4.3	130		1640	3.3	100
	2210	9.2	280		2227	10.2	310
9 M	0436	3.3	100	**24** Tu	0502	2.3	70
	1049	9.8	300		1105	10.8	330
	1703	3.9	120		1733	3.0	90
	2251	9.8	300		2320	10.5	320
10 Tu	0514	3.0	90	**25** W	0549	2.3	70
	1125	10.2	310		1152	11.2	340
	1742	3.3	100		1820	2.6	80
	2329	10.2	310				
11 W	0550	2.6	80	**26** Th ●	0009	10.5	320
	1200	10.8	330		0632	2.3	70
	1819	3.0	90		1235	11.5	350
					1904	2.3	70
12 Th ○	0008	10.2	310	**27** F	0055	10.5	320
	0626	2.3	70		0711	2.3	70
	1235	11.2	340		1317	11.5	350
	1857	2.6	80		1945	2.3	70
13 F	0048	10.5	320	**28** Sa	0139	10.5	320
	0703	2.3	70		0748	2.6	80
	1312	11.2	340		1357	11.2	340
	1936	2.6	80		2024	2.6	80
14 Sa	0130	10.5	320	**29** Su	0222	10.2	310
	0741	2.3	70		0822	3.0	90
	1352	11.5	350		1436	11.2	340
	2018	2.6	80		2103	2.6	80
15 Su	0214	10.5	320	**30** M	0303	9.8	300
	0822	2.6	80		0855	3.3	100
	1434	11.2	340		1515	10.5	320
	2104	2.6	80		2141	3.0	90
				31 Tu	0344	9.5	290
					0930	3.6	110
					1554	10.2	310
					2222	3.3	100

Time meridian 15° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Yekaterininskaya, Russia, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0311	10.6 323	**16** W	0214	9.8 300
	0946	3.1 94		0841	4.2 127
	1614	10.7 327		1516	10.1 307
	2223	4.2 127		2129	5.0 151
2 W	0414	10.5 319	**17** Th	0316	9.8 300
	1047	3.1 96		0944	4.0 121
	1710	11.0 334		1614	10.5 320
	2323	3.9 119		2234	4.5 137
3 Th	0514	10.5 319	**18** F	0418	10.1 307
	1140	3.1 95		1045	3.5 108
	1759	11.3 343		1708	11.1 339
				2331	3.8 116
4 F	0015	3.5 108	**19** Sa	0517	10.5 321
	0607	10.5 321		1142	3.0 91
	1228	3.1 93		1758	11.8 359
	1842	11.5 351			
5 Sa	0101	3.2 98	**20** Su	0023	3.0 91
	0654	10.7 325		0612	11.1 339
	1312	3.0 91		1236	2.4 74
	1921	11.7 358		1845	12.4 379
6 Su	0142	2.9 89	**21** M	0112	2.1 65
	0737	10.8 328		0705	11.7 358
	1352	3.0 90		1328	1.9 59
●	1959	11.9 362	○	1932	13.0 395
7 M	0221	2.8 85	**22** Tu	0200	1.4 43
	0818	10.8 330		0757	12.2 373
	1431	3.0 92		1418	1.6 49
	2036	11.9 363		2018	13.3 405
8 Tu	0258	2.8 84	**23** W	0247	0.9 26
	0857	10.8 330		0848	12.5 382
	1509	3.1 96		1507	1.5 47
	2113	11.8 360		2106	13.4 409
9 W	0333	2.8 86	**24** Th	0335	0.6 18
	0935	10.7 327		0940	12.6 383
	1545	3.4 103		1557	1.7 53
	2148	11.6 354		2154	13.3 404
10 Th	0409	3.0 91	**25** F	0424	0.7 20
	1013	10.6 322		1033	12.3 376
	1622	3.7 112		1647	2.2 66
	2223	11.4 346		2244	12.9 392
11 F	0445	3.2 98	**26** Sa	0514	1.0 32
	1051	10.3 315		1128	11.9 362
	1700	4.0 122		1738	2.8 84
	2259	11.0 336		2336	12.2 373
12 Sa	0522	3.5 106	**27** Su	0606	1.7 52
	1132	10.1 308		1225	11.3 345
	1740	4.4 134		1833	3.4 105
	2338	10.7 326			
13 Su	0603	3.7 114	**28** M	0032	11.5 351
	1219	9.9 301		0702	2.5 76
	1826	4.7 144		1327	10.8 329
			◑	1933	4.1 125
14 M	0022	10.3 315	**29** Tu	0132	10.8 329
	0649	4.0 122		0804	3.2 99
	1313	9.8 298		1433	10.4 318
◐	1919	5.0 153		2042	4.5 138
15 Tu	0115	10.0 306	**30** W	0238	10.2 311
	0741	4.2 127		0912	3.8 116
	1414	9.8 299		1542	10.3 315
	2021	5.1 156		2154	4.6 141
			31 Th	0350	9.8 300
				1021	4.0 123
				1646	10.5 320
				2303	4.4 135

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0501	9.8 300	**16** Sa	0349	9.9 301
	1123	4.0 122		1018	3.9 119
	1740	10.8 330		1641	10.9 333
				2307	3.8 116
2 Sa	0001	4.0 122	**17** Su	0503	10.4 317
	0559	10.0 306		1127	3.3 102
	1216	3.8 115		1739	11.6 355
	1826	11.2 342			
3 Su	0048	3.5 108	**18** M	0007	2.8 86
	0647	10.4 316		0604	11.2 341
	1300	3.5 107		1227	2.6 80
	1906	11.6 353		1830	12.4 378
4 M	0128	3.1 96	**19** Tu	0058	1.8 55
	0728	10.7 326		0658	12.0 366
	1340	3.2 99		1319	1.9 59
	1943	11.9 362	○	1917	13.1 398
5 Tu	0205	2.8 86	**20** W	0145	0.9 28
	0805	11.0 334		0747	12.6 385
	1417	3.1 93		1407	1.4 43
●	2018	12.0 366		2002	13.5 412
6 W	0239	2.6 80	**21** Th	0231	0.3 8
	0841	11.1 338		0835	13.0 396
	1452	3.0 92		1453	1.2 37
	2052	12.0 366		2047	13.7 417
7 Th	0312	2.5 77	**22** F	0316	0.0 0
	0915	11.1 339		0923	13.0 397
	1526	3.1 94		1539	1.3 40
	2123	11.9 363		2133	13.5 411
8 F	0344	2.6 78	**23** Sa	0402	0.2 5
	0947	11.1 337		1011	12.7 387
	1558	3.2 99		1624	1.7 52
	2153	11.7 357		2220	13.0 396
9 Sa	0415	2.7 81	**24** Su	0448	0.8 23
	1019	10.9 332		1100	12.1 369
	1631	3.5 107		1711	2.4 72
	2223	11.5 349		2309	12.2 373
10 Su	0448	2.9 88	**25** M	0535	1.6 50
	1052	10.7 326		1152	11.4 348
	1706	3.8 116		1801	3.2 97
	2257	11.1 339			
11 M	0524	3.1 96	**26** Tu	0001	11.3 345
	1130	10.5 319		0627	2.7 82
	1746	4.2 127		1248	10.7 326
	2337	10.7 327	◑	1857	4.0 121
12 Tu	0604	3.5 106	**27** W	0059	10.4 317
	1217	10.2 312		0725	3.7 113
	1833	4.5 138		1351	10.1 309
				2004	4.6 140
13 W	0025	10.3 314	**28** Th	0207	9.6 294
	0652	3.8 117		0835	4.4 135
	1313	10.1 308		1503	9.9 302
◐	1931	4.8 147		2122	4.9 148
14 Th	0123	9.9 302			
	0751	4.1 125			
	1419	10.1 308			
	2041	4.9 148			
15 F	0232	9.7 296			
	0902	4.2 127			
	1532	10.4 316			
	2157	4.5 138			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0328	9.3 283	**16** Sa	0207	9.6 292
	0954	4.7 144		0836	4.3 131
	1615	10.0 305		1501	10.2 310
	2240	4.7 142		2131	4.2 128
2 Sa	0445	9.4 286	**17** Su	0336	9.7 297
	1104	4.6 140		1002	4.1 124
	1714	10.4 317		1618	10.7 325
	2341	4.2 128		2248	3.4 105
3 Su	0545	9.7 297	**18** M	0455	10.4 317
	1159	4.2 127		1117	3.4 104
	1803	10.9 331		1720	11.4 347
				2349	2.4 74
4 M	0028	3.6 111	**19** Tu	0555	11.3 344
	0631	10.2 312		1215	2.6 78
	1243	3.7 112		1811	12.2 371
	1844	11.3 345			
5 Tu	0107	3.1 96	**20** W	0040	1.3 41
	0710	10.7 326		0646	12.1 370
	1322	3.2 99		1305	1.8 55
	1921	11.7 356		1858	12.8 391
6 W	0142	2.7 83	**21** Th	0126	0.5 14
	0746	11.1 338		0732	12.8 389
	1357	2.9 89		1350	1.2 38
●	1955	11.9 362	○	1942	13.3 405
7 Th	0215	2.4 73	**22** F	0211	- 0.1 - 3
	0819	11.3 345		0817	13.1 399
	1430	2.7 83		1434	1.0 30
	2026	11.9 364		2026	13.4 408
8 F	0245	2.2 67	**23** Sa	0254	- 0.2 - 6
	0850	11.4 348		0901	13.0 397
	1502	2.7 82		1517	1.0 32
	2054	11.9 363		2110	13.2 401
9 Sa	0315	2.1 64	**24** Su	0336	0.1 4
	0918	11.4 347		0945	12.6 385
	1532	2.8 84		1600	1.4 44
	2121	11.8 359		2155	12.6 383
10 Su	0344	2.1 65	**25** M	0419	0.9 26
	0946	11.3 344		1031	12.0 366
	1603	2.9 89		1644	2.1 64
	2150	11.6 353		2242	11.7 358
11 M	0415	2.3 70	**26** Tu	0504	1.8 56
	1017	11.1 339		1119	11.3 343
	1636	3.2 97		1731	2.9 88
	2224	11.3 343		2332	10.8 329
12 Tu	0449	2.6 79	**27** W	0551	3.0 90
	1054	10.9 332		1211	10.5 320
	1714	3.5 107		1823	3.7 112
	2304	10.8 330			
13 W	0528	3.0 92	**28** Th	0029	9.9 301
	1139	10.6 323		0647	4.0 122
	1759	3.9 119		1311	9.9 302
	2353	10.3 315	◑	1928	4.4 133
14 Th	0616	3.5 108	**29** F	0138	9.2 279
	1234	10.3 314		0757	4.8 145
	1856	4.3 130		1421	9.5 291
◐				2045	4.7 144
15 F	0053	9.8 300	**30** Sa	0300	8.9 270
	0717	4.0 123		0919	5.1 154
	1340	10.1 308		1534	9.6 292
	2009	4.5 136		2206	4.7 142
				2205	4.6 141
			31 Su	0417	9.0 275
				1035	4.8 147
				1638	9.9 302
				2310	4.2 128

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Yekaterininskaya, Russia, 2019

Times and Heights of High and Low Waters

April

Day	Time (h m)	Height (ft)	Height (cm)
1 M	0517	9.5	289
	1132	4.3	131
	1730	10.4	316
	2358	3.6	111
2 Tu	0604	10.1	307
	1218	3.7	113
	1814	10.8	330
3 W	0037	3.1	94
	0644	10.6	323
	1256	3.2	97
	1852	11.2	341
4 Th	0112	2.6	79
	0719	11.0	336
	1331	2.8	85
	1925	11.4	348
5 F ●	0144	2.2	67
	0751	11.3	345
	1404	2.5	77
	1954	11.5	351
6 Sa	0214	1.9	58
	0820	11.5	350
	1434	2.4	73
	2022	11.5	352
7 Su	0243	1.7	53
	0847	11.5	351
	1504	2.3	71
	2049	11.5	351
8 M	0313	1.7	53
	0915	11.5	351
	1535	2.4	73
	2121	11.4	347
9 Tu	0345	1.9	57
	0948	11.4	347
	1610	2.6	78
	2158	11.1	338
10 W	0421	2.2	67
	1027	11.2	340
	1650	2.8	86
	2242	10.7	326
11 Th	0503	2.7	83
	1114	10.8	329
	1737	3.2	98
	2334	10.2	310
12 F ◐	0554	3.3	102
	1210	10.4	317
	1837	3.6	110
13 Sa	0038	9.7	296
	0701	3.9	120
	1318	10.1	308
	1950	3.8	115
14 Su	0159	9.5	290
	0824	4.2	128
	1439	10.1	307
	2111	3.5	108
15 M	0330	9.8	298
	0950	4.0	121
	1555	10.5	319
	2227	2.9	87
16 Tu	0443	10.5	319
	1102	3.3	101
	1656	11.1	338
	2328	2.0	60
17 W	0540	11.3	344
	1158	2.5	77
	1748	11.7	358
18 Th	0019	1.1	33
	0628	12.0	366
	1246	1.8	56
	1835	12.3	375
19 F ○	0104	0.4	12
	0713	12.5	381
	1330	1.3	40
	1919	12.6	384
20 Sa	0148	0.1	2
	0756	12.7	387
	1413	1.1	33
	2003	12.6	384
21 Su	0230	0.1	3
	0838	12.6	384
	1455	1.1	34
	2047	12.3	376
22 M	0311	0.5	16
	0920	12.2	373
	1536	1.4	44
	2131	11.7	358
23 Tu	0352	1.3	39
	1003	11.7	357
	1619	2.0	60
	2218	11.0	336
24 W	0435	2.2	67
	1048	11.1	337
	1704	2.7	81
	2307	10.2	312
25 Th	0520	3.2	97
	1137	10.4	317
	1754	3.4	103
26 F	0003	9.5	289
	0612	4.1	124
	1234	9.8	300
	1852	4.0	122
27 Sa ◑	0109	8.9	272
	0717	4.7	144
	1339	9.4	288
	2002	4.4	135
28 Su	0224	8.7	265
	0835	5.0	153
	1449	9.4	285
	2118	4.5	136
29 M	0336	8.9	270
	0952	4.9	149
	1553	9.5	291
	2225	4.2	127
30 Tu	0437	9.3	282
	1054	4.4	135
	1648	9.9	301
	2317	3.7	112

May

Day	Time (h m)	Height (ft)	Height (cm)
1 W	0528	9.8	299
	1143	3.9	118
	1735	10.2	312
2 Th	0000	3.1	96
	0610	10.3	315
	1224	3.3	102
	1815	10.5	321
3 F	0036	2.6	80
	0647	10.8	329
	1300	2.9	89
	1849	10.8	329
4 Sa	0109	2.2	67
	0719	11.1	339
	1333	2.6	78
	1919	11.0	334
5 Su ●	0140	1.8	56
	0747	11.4	347
	1405	2.3	70
	1949	11.1	338
6 M	0211	1.6	49
	0816	11.5	352
	1437	2.1	64
	2021	11.2	340
7 Tu	0244	1.5	47
	0848	11.6	354
	1511	2.0	61
	2058	11.1	339
8 W	0320	1.7	51
	0925	11.6	353
	1550	2.1	63
	2140	10.9	333
9 Th	0401	2.0	62
	1009	11.4	346
	1634	2.3	69
	2230	10.6	322
10 F	0449	2.6	78
	1059	11.0	335
	1726	2.6	78
	2327	10.2	310
11 Sa	0546	3.1	96
	1157	10.6	324
	1828	2.9	87
12 Su ◐	0035	9.8	299
	0656	3.7	112
	1304	10.3	314
	1938	3.0	91
13 M	0156	9.7	297
	0813	3.9	119
	1418	10.2	312
	2051	2.8	86
14 Tu	0317	10.0	305
	0930	3.8	115
	1528	10.5	319
	2202	2.4	72
15 W	0424	10.5	321
	1039	3.3	100
	1629	10.8	330
	2303	1.8	54
16 Th	0520	11.1	338
	1135	2.7	83
	1723	11.2	342
	2355	1.2	37
17 F	0608	11.6	354
	1224	2.2	66
	1812	11.5	352
18 Sa	0042	0.9	26
	0653	12.0	365
	1310	1.7	53
	1858	11.7	356
19 Su ○	0125	0.7	22
	0735	12.1	369
	1353	1.5	46
	1943	11.6	355
20 M	0208	0.9	26
	0817	12.1	368
	1435	1.5	46
	2028	11.4	347
21 Tu	0249	1.3	39
	0858	11.8	361
	1517	1.7	52
	2112	11.0	334
22 W	0330	1.9	57
	0940	11.5	349
	1559	2.1	64
	2158	10.5	319
23 Th	0412	2.6	78
	1023	11.0	335
	1642	2.6	79
	2246	9.9	302
24 F	0456	3.3	100
	1109	10.5	321
	1728	3.1	95
	2338	9.4	287
25 Sa	0543	3.9	120
	1200	10.1	307
	1819	3.6	111
26 Su ◑	0037	9.0	275
	0639	4.5	136
	1257	9.7	296
	1916	4.0	123
27 M	0142	8.8	269
	0743	4.8	146
	1359	9.5	289
	2021	4.2	128
28 Tu	0248	8.9	271
	0854	4.9	148
	1501	9.4	288
	2127	4.1	126
29 W	0349	9.2	279
	1002	4.6	141
	1557	9.5	291
	2225	3.8	116
30 Th	0443	9.6	292
	1058	4.2	129
	1647	9.7	297
	2313	3.4	103
31 F	0530	10.0	306
	1144	3.8	115
	1730	10.0	305
	2354	2.9	88

June

Day	Time (h m)	Height (ft)	Height (cm)
1 Sa	0609	10.5	321
	1224	3.3	101
	1808	10.3	313
2 Su	0031	2.4	74
	0644	11.0	334
	1300	2.9	87
	1843	10.5	321
3 M ●	0106	2.0	62
	0716	11.3	345
	1336	2.4	74
	1919	10.8	329
4 Tu	0142	1.7	53
	0750	11.6	355
	1413	2.1	63
	1958	11.0	335
5 W	0221	1.6	49
	0828	11.8	361
	1453	1.8	54
	2042	11.1	338
6 Th	0304	1.6	50
	0910	11.9	362
	1537	1.7	51
	2131	11.0	336
7 F	0352	1.9	58
	0957	11.7	358
	1625	1.7	52
	2225	10.8	330
8 Sa	0444	2.3	71
	1049	11.5	350
	1719	1.9	57
	2325	10.6	322
9 Su	0543	2.9	87
	1147	11.2	340
	1818	2.1	63
10 M ◐	0031	10.3	315
	0646	3.3	101
	1249	10.9	331
	1921	2.3	69
11 Tu	0143	10.2	311
	0754	3.6	110
	1354	10.7	325
	2028	2.3	71
12 W	0254	10.3	313
	0904	3.7	112
	1459	10.6	322
	2134	2.3	69
13 Th	0359	10.5	320
	1011	3.5	107
	1601	10.6	323
	2236	2.1	64
14 F	0458	10.8	330
	1111	3.2	97
	1659	10.7	326
	2331	1.9	58
15 Sa	0549	11.2	340
	1204	2.8	85
	1752	10.8	329
16 Su	0021	1.8	54
	0636	11.5	349
	1253	2.4	74
	1842	10.9	331
17 M ○	0107	1.7	53
	0719	11.6	354
	1338	2.2	66
	1929	10.9	331
18 Tu	0151	1.8	56
	0800	11.7	357
	1420	2.1	63
	2014	10.8	328
19 W	0233	2.1	63
	0840	11.6	355
	1502	2.1	64
	2059	10.6	323
20 Th	0314	2.4	74
	0921	11.5	350
	1542	2.3	70
	2142	10.3	315
21 F	0354	2.8	86
	1002	11.2	342
	1622	2.6	79
	2226	10.1	307
22 Sa	0435	3.2	99
	1043	10.9	333
	1703	2.9	89
	2312	9.7	297
23 Su	0517	3.7	112
	1127	10.6	322
	1746	3.3	101
24 M	0001	9.5	289
	0602	4.1	125
	1214	10.2	311
	1832	3.6	111
25 Tu ◑	0055	9.3	282
	0653	4.5	136
	1305	9.9	302
	1923	3.9	119
26 W	0154	9.2	280
	0750	4.7	144
	1400	9.6	294
	2019	4.0	123
27 Th	0254	9.3	282
	0855	4.8	147
	1456	9.5	290
	2119	4.0	121
28 F	0351	9.5	290
	1000	4.7	142
	1551	9.5	291
	2216	3.7	114
29 Sa	0443	9.9	302
	1056	4.3	132
	1641	9.7	295
	2306	3.4	103
30 Su	0528	10.4	316
	1145	3.8	117
	1727	10.0	304
	2352	2.9	89

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Yekaterininskaya, Russia, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0609	10.9	332	**16** Tu	0055	2.8	84	**1** Th	0108	2.3	70	**16** F	0204	3.0	90	**1** Su	0229	1.3	39	**16** M	0248	2.8	84
	1229	3.2	99		0705	11.4	347		0711	12.2	373		0803	11.9	362		0822	13.5	411		0841	11.9	362
	1812	10.4	316		1326	2.8	84		1338	1.8	55		1425	2.5	77		1450	0.1	4		1500	2.3	70
					1922	10.5	320	●	1934	11.7	357		2027	11.1	337		2056	13.1	400		2105	11.5	350
2 Tu	0037	2.4	74	**17** W	0139	2.7	82	**2** F	0157	1.8	55	**17** Sa	0240	2.8	86	**2** M	0314	1.2	36	**17** Tu	0319	2.8	86
	0648	11.4	348		0745	11.6	354		0756	12.7	388		0838	11.9	364		0907	13.5	411		0910	11.7	357
●	1311	2.6	80		1407	2.5	77		1425	1.1	34		1459	2.4	74		1536	0.1	2		1530	2.4	72
	1857	10.8	329	○	2005	10.6	324		2024	12.2	372		2102	11.2	340		2144	13.0	396		2134	11.4	346
3 W	0121	2.0	62	**18** Th	0220	2.7	82	**3** Sa	0245	1.5	46	**18** Su	0314	2.9	87	**3** Tu	0400	1.4	42	**18** W	0349	3.0	91
	0729	11.9	362		0824	11.7	357		0842	13.1	398		0912	11.9	362		0955	13.2	402		0938	11.5	350
	1354	2.0	62		1446	2.4	73		1511	0.6	19		1532	2.4	74		1622	0.5	14		1600	2.6	78
	1944	11.2	341		2045	10.7	326		2114	12.4	379		2136	11.1	338		2233	12.5	382		2203	11.2	340
4 Th	0207	1.7	53	**19** F	0259	2.8	84	**4** Su	0333	1.4	44	**19** M	0347	3.0	91	**4** W	0447	1.9	58	**19** Th	0421	3.2	99
	0812	12.2	373		0902	11.7	357		0929	13.1	400		0944	11.7	357		1044	12.6	383		1009	11.2	341
	1439	1.5	47		1523	2.4	74		1558	0.5	14		1604	2.6	78		1710	1.2	37		1633	2.9	88
	2033	11.5	350		2125	10.7	325		2205	12.4	378		2209	10.9	333		2325	11.9	362		2236	10.9	332
5 F	0255	1.6	50	**20** Sa	0336	2.9	88	**5** M	0421	1.6	50	**20** Tu	0420	3.2	98	**5** Th	0536	2.6	79	**20** F	0457	3.6	109
	0858	12.4	379		0939	11.6	354		1018	12.9	394		1015	11.5	349		1136	11.7	358		1047	10.8	329
	1526	1.2	37		1559	2.6	78		1647	0.6	19		1636	2.8	85		1801	2.2	67		1709	3.3	101
	2125	11.6	354		2203	10.5	321		2258	12.1	369		2242	10.7	326						2317	10.6	324
6 Sa	0345	1.7	53	**21** Su	0413	3.1	96	**6** Tu	0511	2.1	64	**21** W	0454	3.5	108	**6** F	0020	11.2	341	**21** Sa	0538	3.9	120
	0946	12.4	379		1015	11.4	347		1109	12.5	381		1047	11.1	339		0632	3.4	103		1132	10.3	315
	1615	1.1	33		1635	2.8	84		1737	1.1	34		1710	3.1	94		1234	10.9	331		1753	3.8	116
	2219	11.5	352		2242	10.3	315		2353	11.6	354		2317	10.5	319	◐	1859	3.2	99				
7 Su	0437	2.0	61	**22** M	0450	3.4	105	**7** W	0603	2.7	83	**22** Th	0530	3.9	119	**7** Sa	0122	10.5	321	**22** Su	0007	10.3	314
	1037	12.2	373		1052	11.1	339		1202	11.8	361		1123	10.7	327		0736	4.1	124		0630	4.3	132
	1707	1.1	35		1712	3.0	92		1831	1.8	56		1747	3.5	106		1341	10.1	307		1227	9.9	302
	2316	11.4	346		2322	10.1	308	◐					2358	10.2	311		2007	4.1	126	◑	1848	4.3	132
8 M	0531	2.4	74	**23** Tu	0528	3.8	116	**8** Th	0051	11.1	338	**23** F	0613	4.3	131	**8** Su	0232	10.1	309	**23** M	0108	10.1	307
	1131	11.9	363		1130	10.8	328		0700	3.4	103		1207	10.3	314		0850	4.5	137		0735	4.6	139
	1801	1.4	44		1750	3.3	102		1300	11.1	339		1830	3.9	118		1500	9.6	292		1336	9.6	293
									1930	2.7	81	◑					2124	4.6	140		2002	4.6	141
9 Tu	0016	11.0	336	**24** W	0005	9.9	301	**9** F	0155	10.6	324	**24** Sa	0048	10.0	304	**9** M	0345	10.1	308	**24** Tu	0224	10.1	307
	0627	3.0	90		0609	4.2	128		0804	4.0	121		0704	4.7	142		1008	4.5	137		0853	4.5	136
	1227	11.5	350		1210	10.4	317		1404	10.4	318		1259	9.9	301		1620	9.6	292		1502	9.7	296
◐	1858	1.8	56		1832	3.7	112		2036	3.3	102		1924	4.2	129		2239	4.6	140		2126	4.5	138
10 W	0120	10.7	327	**25** Th	0053	9.7	295	**10** Sa	0303	10.3	315	**25** Su	0149	9.9	301	**10** Tu	0448	10.4	316	**25** W	0344	10.4	317
	0728	3.4	105		0656	4.6	139		0915	4.3	130		0808	4.9	148		1115	4.1	126		1011	3.9	119
	1327	11.0	336		1256	10.0	305		1515	10.0	304		1403	9.6	293		1723	9.9	301		1623	10.3	313
	2000	2.3	70	◑	1919	3.9	120		2147	3.8	116		2030	4.4	135		2338	4.3	130		2245	3.9	120
11 Th	0226	10.5	321	**26** F	0148	9.6	292	**11** Su	0412	10.3	315	**26** M	0300	10.0	304	**11** W	0540	10.8	328	**26** Th	0448	11.1	337
	0834	3.8	115		0752	4.8	147		1029	4.2	129		0922	4.7	144		1207	3.7	112		1117	3.0	91
	1430	10.6	324		1350	9.7	296		1630	9.8	299		1519	9.6	293		1812	10.3	314		1725	11.1	339
	2105	2.6	80		2014	4.1	126		2256	3.9	119		2146	4.3	131						2347	3.1	95
12 F	0332	10.5	319	**27** Sa	0249	9.6	294	**12** M	0514	10.6	322	**27** Tu	0412	10.4	317	**12** Th	0025	3.8	116	**27** F	0541	11.8	361
	0942	3.9	119		0857	4.9	149		1134	3.9	120		1035	4.2	128		0624	11.2	342		1210	1.9	59
	1535	10.3	315		1450	9.5	291		1736	9.9	303		1635	10.0	306		1248	3.2	98		1816	12.0	367
	2211	2.9	87		2116	4.1	125		2355	3.7	114		2300	3.8	117		1852	10.8	328				
13 Sa	0436	10.6	322	**28** Su	0350	9.9	302	**13** Tu	0604	11.0	334	**28** W	0513	11.0	336	**13** F	0105	3.4	103	**28** Sa	0038	2.3	70
	1048	3.8	115		1005	4.7	143		1227	3.5	107		1139	3.4	103		0702	11.6	353		0629	12.6	384
	1640	10.2	311		1553	9.6	293		1828	10.2	312		1738	10.8	328		1325	2.8	86		1258	1.0	30
	2312	2.9	88		2220	3.9	118										1928	11.2	340	●	1903	12.8	389
14 Su	0532	10.8	330	**29** M	0447	10.4	316	**14** W	0043	3.5	106	**29** Th	0002	3.1	95	**14** Sa	0142	3.0	92	**29** Su	0124	1.6	49
	1148	3.4	105		1107	4.2	127		0648	11.3	345		0604	11.8	359		0737	11.8	360		0714	13.2	401
	1741	10.2	312		1655	9.9	303		1311	3.1	94		1232	2.4	72		1358	2.5	77		1343	0.3	9
					2320	3.4	105		1911	10.6	322		1832	11.6	354	○	2002	11.4	348		1949	13.2	403
15 M	0006	2.9	87	**30** Tu	0539	11.0	334	**15** Th	0126	3.2	97	**30** F	0055	2.4	72	**15** Su	0216	2.8	85	**30** M	0208	1.2	36
	0621	11.1	339		1201	3.5	106		0727	11.6	355		0651	12.5	382		0810	11.9	363		0758	13.4	409
	1240	3.1	94		1751	10.5	319	○	1350	2.8	84		1320	1.4	43		1430	2.3	71		1427	0.0	- 1
	1835	10.4	316						1950	10.9	331	●	1921	12.4	377		2035	11.5	351		2034	13.4	407
				31 W	0016	2.9	88					**31** Sa	0143	1.7	52								
					0626	11.6	354						0737	13.1	400								
					1251	2.6	80						1405	0.6	18								
					1844	11.1	339						2008	12.9	393								

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Yekaterininskaya, Russia, 2019

Times and Heights of High and Low Waters

October

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Tu	0252	1.1	33	**16** W	0249	2.7	83	**1** F	0359	1.9	58	**16** Sa	0330	2.7	81	**1** Su	0426	2.6	78	**16** M	0400	2.2	68
	0844	13.3	406		0835	11.5	350		0957	11.6	353		0918	11.0	336		1030	10.6	322		0957	11.2	340
	1511	0.1	3		1457	2.3	69		1616	2.2	67		1539	2.7	82		1642	3.4	105		1617	2.9	87
	2119	13.1	399		2100	11.6	353		2228	11.7	356		2144	11.5	351		2251	11.2	341		2219	11.8	361
2 W	0336	1.3	40	**17** Th	0320	2.8	85	**2** Sa	0447	2.6	78	**17** Su	0411	2.8	85	**2** M	0514	3.1	95	**17** Tu	0449	2.3	70
	0930	12.9	393		0905	11.3	345		1049	10.8	329		1004	10.8	328		1123	10.0	306		1053	11.0	335
	1555	0.7	21		1527	2.4	74		1705	3.2	98		1624	3.1	95		1731	4.1	126		1711	3.2	99
	2206	12.6	383		2129	11.4	348		2318	11.0	336		2231	11.3	343		2342	10.7	326		2312	11.6	353
3 Th	0422	1.8	56	**18** F	0352	3.0	90	**3** Su	0539	3.2	99	**18** M	0459	3.0	92	**3** Tu	0604	3.7	112	**18** W	0544	2.5	75
	1019	12.2	371		0939	11.1	338		1147	10.0	306		1058	10.5	319		1221	9.6	293		1155	10.8	329
	1642	1.6	50		1601	2.8	84		1759	4.1	126		1717	3.6	111		1825	4.7	143		1811	3.7	112
	2255	11.8	361		2205	11.2	342						2325	10.9	333								
4 F	0510	2.6	78	**19** Sa	0429	3.2	97	**4** M	0015	10.4	317	**19** Tu	0556	3.2	99	**4** W	0037	10.3	313	**19** Th	0011	11.3	344
	1111	11.3	344		1020	10.7	327		0637	3.9	119		1202	10.2	310		0700	4.1	126		0644	2.6	80
	1732	2.7	83		1640	3.2	98		1254	9.5	289		1822	4.1	125		1323	9.4	286		1303	10.7	325
	2348	11.1	337		2248	10.9	332	◐	1903	4.9	148					◐	1926	5.1	154	◑	1916	4.0	121
5 Sa	0604	3.3	102	**20** Su	0513	3.5	107	**5** Tu	0119	10.0	304	**20** W	0028	10.6	324	**5** Th	0137	10.0	305	**20** F	0115	11.0	336
	1210	10.4	317		1109	10.3	314		0744	4.4	133		0702	3.4	103		0801	4.4	134		0748	2.7	83
	1828	3.8	117		1728	3.8	115		1407	9.2	281		1317	10.1	307		1427	9.4	286		1414	10.7	326
◐					2340	10.6	322		2016	5.2	158	◑	1935	4.4	133		2034	5.2	158		2025	4.1	125
6 Su	0048	10.4	317	**21** M	0608	3.9	118	**6** W	0226	9.8	300	**21** Th	0139	10.5	321	**6** F	0238	9.9	301	**21** Sa	0221	10.9	332
	0707	4.1	124		1209	9.9	302		0855	4.5	138		0812	3.3	100		0905	4.4	135		0855	2.7	83
	1320	9.6	294		1829	4.3	131		1516	9.3	284		1437	10.3	314		1528	9.6	292		1522	10.9	332
	1937	4.7	142	◑					2130	5.1	156		2051	4.3	130		2141	5.0	153		2134	4.0	122
7 M	0157	10.0	304	**22** Tu	0044	10.3	313	**7** Th	0329	9.9	303	**22** F	0250	10.7	326	**7** Sa	0336	9.9	303	**22** Su	0325	10.9	332
	0820	4.5	137		0716	4.1	124		1002	4.3	132		0922	2.9	89		1005	4.2	129		1000	2.6	78
	1440	9.3	284		1324	9.7	296		1616	9.7	295		1547	10.8	329		1624	10.0	304		1624	11.2	342
	2056	5.1	155		1948	4.6	140		2232	4.8	145		2202	3.8	117		2239	4.7	143		2239	3.6	111
8 Tu	0309	9.9	302	**23** W	0200	10.2	311	**8** F	0425	10.2	311	**23** Sa	0354	11.0	336	**8** Su	0430	10.1	307	**23** M	0427	11.0	335
	0938	4.5	138		0833	3.9	120		1056	4.0	121		1026	2.4	72		1056	3.9	119		1059	2.3	71
	1556	9.4	287		1453	9.9	302		1707	10.2	310		1646	11.4	347		1713	10.4	317		1720	11.6	354
	2212	5.0	151		2111	4.5	136		2322	4.3	130		2303	3.2	99		2328	4.3	130		2336	3.2	98
9 W	0413	10.1	309	**24** Th	0318	10.5	320	**9** Sa	0514	10.5	321	**24** Su	0450	11.5	349	**9** M	0517	10.3	313	**24** Tu	0524	11.1	339
	1045	4.2	129		0948	3.4	103		1140	3.5	107		1122	1.8	54		1139	3.5	107		1153	2.1	65
	1656	9.8	298		1608	10.6	322		1751	10.7	325		1737	12.0	365		1756	10.9	331		1809	11.9	364
	2311	4.5	138		2226	3.9	118						2355	2.7	81								
10 Th	0507	10.5	320	**25** F	0422	11.1	337	**10** Su	0005	3.8	115	**25** M	0542	11.8	360	**10** Tu	0010	3.9	118	**25** W	0028	2.8	84
	1136	3.8	116		1053	2.6	78		0556	10.8	329		1212	1.3	39		0558	10.5	319		0618	11.3	344
	1744	10.3	314		1707	11.4	347		1218	3.1	94		1824	12.4	379		1217	3.1	96		1243	2.0	62
	2358	4.0	122		2326	3.1	94		1829	11.1	338						1833	11.2	342		1855	12.2	372
11 F	0552	10.9	333	**26** Sa	0516	11.7	358	**11** M	0043	3.3	102	**26** Tu	0043	2.1	65	**11** W	0048	3.4	105	**26** Th	0116	2.4	72
	1217	3.3	101		1146	1.6	50		0633	11.0	335		0631	12.1	368		0634	10.7	325		0708	11.4	347
	1824	10.8	329		1757	12.1	370		1253	2.7	83		1258	1.0	32		1253	2.8	86		1330	2.1	63
									1904	11.4	348	●	1909	12.7	386		1905	11.5	352	●	1938	12.3	376
12 Sa	0038	3.5	106	**27** Su	0017	2.3	71	**12** Tu	0118	3.1	93	**27** W	0128	1.8	55	**12** Th	0123	3.1	94	**27** F	0201	2.1	65
	0632	11.3	344		0604	12.3	376		0706	11.1	339		0718	12.1	369		0708	10.9	331		0756	11.4	346
	1254	2.9	88		1234	0.9	27		1325	2.5	75		1343	1.1	34		1328	2.6	78		1414	2.3	69
	1900	11.2	342		1843	12.8	389	○	1934	11.6	354		1952	12.7	387	○	1936	11.8	360		2020	12.3	376
13 Su	0114	3.1	94	**28** M	0103	1.7	52	**13** W	0150	2.8	86	**28** Th	0213	1.7	51	**13** F	0158	2.7	83	**28** Sa	0244	2.1	64
	0707	11.5	351		0651	12.8	389		0736	11.2	341		0805	11.9	364		0744	11.1	337		0842	11.3	343
	1327	2.5	77		1319	0.4	12		1355	2.3	70		1427	1.4	44		1404	2.4	74		1457	2.6	78
	1934	11.5	351	●	1927	13.1	399		2002	11.7	357		2035	12.5	382		2010	12.0	365		2101	12.2	372
14 M	0148	2.8	86	**29** Tu	0147	1.3	41	**14** Th	0222	2.7	82	**29** F	0257	1.8	54	**14** Sa	0235	2.5	75	**29** Su	0326	2.2	68
	0739	11.6	353		0736	12.9	393		0806	11.2	341		0852	11.6	354		0823	11.2	342		0926	11.0	336
	1358	2.3	71		1403	0.3	9		1427	2.3	70		1511	2.0	61		1444	2.4	74		1539	3.0	90
○	2005	11.6	355		2011	13.1	400		2031	11.7	358		2119	12.2	371		2048	12.1	368		2143	11.9	364
15 Tu	0219	2.7	83	**30** W	0230	1.2	38	**15** F	0254	2.6	80	**30** Sa	0341	2.1	64	**15** Su	0315	2.3	69	**30** M	0407	2.5	76
	0808	11.6	353		0822	12.7	388		0839	11.2	340		0940	11.1	339		0907	11.3	343		1011	10.7	327
	1427	2.2	68		1447	0.6	19		1501	2.4	74		1556	2.7	82		1528	2.6	78		1621	3.4	104
	2033	11.6	355		2055	12.9	392		2104	11.7	356		2204	11.7	357		2131	12.0	367		2225	11.6	353
				31 Th	0314	1.4	44													**31** Tu	0448	2.9	88
					0908	12.3	374														1056	10.4	317
					1531	1.3	39														1703	3.9	118
					2140	12.3	376														2308	11.2	341

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Kem, White Sea, Russia, 2019

Times and Heights of High and Low Waters

January

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 Tu	0130	5.6 170	**16** W	0044	5.2 160
	0804	2.3 70		0711	2.6 80
	1347	5.9 180		1258	5.2 160
	2037	1.6 50		1943	2.0 60
2 W	0230	5.9 180	**17** Th	0144	5.6 170
	0910	2.0 60		0824	2.3 70
	1445	5.9 180		1356	5.2 160
	2134	1.3 40		2046	1.6 50
3 Th	0323	5.9 180	**18** F	0237	5.6 170
	1006	1.6 50		0925	2.3 70
	1537	5.9 180		1449	5.6 170
	2224	1.3 40		2141	1.6 50
4 F	0409	5.9 180	**19** Sa	0325	5.9 180
	1055	1.6 50		1017	2.0 60
	1623	5.6 170		1539	5.6 170
	2309	1.3 40		2230	1.3 40
5 Sa	0451	5.9 180	**20** Su	0411	5.9 180
	1139	1.3 40		1105	1.6 50
	1706	5.6 170		1627	5.6 170
	2351	1.3 40		2317	1.3 40
6 Su ●	0531	5.9 180	**21** M ○	0457	6.2 190
	1221	1.3 40		1151	1.3 40
	1746	5.6 170		1715	5.9 180
7 M	0030	1.3 40	**22** Tu	0004	1.0 30
	0608	5.9 180		0543	6.2 190
	1301	1.3 40		1238	1.0 30
	1825	5.2 160		1804	5.9 180
8 Tu	0108	1.3 40	**23** W	0050	1.0 30
	0645	5.9 180		0630	6.2 190
	1339	1.3 40		1324	1.0 30
	1903	5.2 160		1856	5.9 180
9 W	0144	1.6 50	**24** Th	0137	1.0 30
	0721	5.9 180		0719	6.6 200
	1415	1.3 40		1411	0.7 20
	1941	5.2 160		1949	5.9 180
10 Th	0219	1.6 50	**25** F	0224	1.0 30
	0758	5.9 180		0810	6.6 200
	1451	1.3 40		1458	0.7 20
	2020	5.2 160		2043	5.9 180
11 F	0253	1.6 50	**26** Sa	0313	1.0 30
	0835	5.9 180		0903	6.2 190
	1525	1.6 50		1548	1.0 30
	2101	5.6 170		2141	5.9 180
12 Sa	0326	2.0 60	**27** Su	0406	1.3 40
	0915	5.9 180		1000	6.2 190
	1601	1.6 50		1643	1.0 30
	2147	5.2 160		2243	5.6 170
13 Su	0402	2.0 60	**28** M ◑	0506	1.6 50
	1001	5.9 180		1103	5.9 180
	1641	1.6 50		1745	1.3 40
	2240	5.2 160		2349	5.6 170
14 M ◐	0447	2.3 70	**29** Tu	0616	2.0 60
	1054	5.6 170		1211	5.6 170
	1730	2.0 60		1855	1.3 40
	2341	5.2 160			
15 Tu	0551	2.3 70	**30** W	0057	5.2 160
	1155	5.2 160		0731	2.0 60
	1834	2.0 60		1319	5.2 160
				2005	1.6 50
			31 Th	0201	5.6 170
				0844	2.0 60
				1422	5.2 160
				2110	1.3 40

February

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0259	5.6 170	**16** Sa	0206	5.2 160
	0945	1.6 50		0857	2.0 60
	1518	5.2 160		1426	5.2 160
	2204	1.3 40		2118	1.6 50
2 Sa	0349	5.6 170	**17** Su	0302	5.6 170
	1037	1.3 40		0956	1.6 50
	1607	5.2 160		1522	5.2 160
	2251	1.3 40		2214	1.3 40
3 Su	0433	5.6 170	**18** M	0353	5.9 180
	1122	1.3 40		1048	1.3 40
	1650	5.2 160		1614	5.6 170
	2333	1.3 40		2303	1.3 40
4 M	0512	5.6 170	**19** Tu ○	0440	5.9 180
	1203	1.3 40		1135	1.0 30
	1729	5.2 160		1703	5.6 170
				2350	1.0 30
5 Tu ●	0012	1.3 40	**20** W	0527	6.2 190
	0548	5.6 170		1221	0.7 20
	1241	1.3 40		1752	5.9 180
	1805	5.2 160			
6 W	0048	1.3 40	**21** Th	0036	1.0 30
	0622	5.6 170		0614	6.2 190
	1316	1.3 40		1306	0.7 20
	1840	5.2 160		1841	5.9 180
7 Th	0123	1.3 40	**22** F	0122	0.7 20
	0656	5.9 180		0702	6.2 190
	1349	1.3 40		1351	0.3 10
	1914	5.2 160		1931	5.9 180
8 F	0155	1.3 40	**23** Sa	0208	0.7 20
	0728	5.9 180		0751	6.2 190
	1421	1.3 40		1437	0.3 10
	1948	5.2 160		2022	5.9 180
9 Sa	0225	1.3 40	**24** Su	0254	1.0 30
	0802	5.9 180		0841	6.2 190
	1450	1.3 40		1524	0.7 20
	2025	5.6 170		2115	5.9 180
10 Su	0253	1.3 40	**25** M	0343	1.0 30
	0837	5.9 180		0935	5.9 180
	1519	1.3 40		1614	1.0 30
	2105	5.6 170		2211	5.6 170
11 M	0321	1.6 50	**26** Tu ◑	0438	1.3 40
	0917	5.6 170		1034	5.9 180
	1548	1.3 40		1711	1.3 40
	2151	5.6 170		2314	5.6 170
12 Tu	0353	2.0 60	**27** W	0543	1.6 50
	1003	5.6 170		1140	5.6 170
	1624	1.6 50		1818	1.6 50
	2247	5.2 160			
13 W ◐	0438	2.0 60	**28** Th	0021	5.2 160
	1102	5.2 160		0657	2.0 60
	1716	1.6 50		1249	5.2 160
	2354	5.2 160		1931	1.6 50
14 Th	0557	2.3 70			
	1212	5.2 160			
	1844	2.0 60			
15 F	0103	5.2 160			
	0741	2.3 70			
	1323	4.9 150			
	2010	2.0 60			

March

	Time	Height		Time	Height
	h m	ft cm		h m	ft cm
1 F	0129	5.2 160	**16** Sa	0028	5.2 160
	0813	2.0 60		0707	2.3 70
	1356	5.2 160		1300	4.9 150
	2041	1.6 50		1943	2.3 70
2 Sa	0230	5.6 170	**17** Su	0140	5.2 160
	0919	1.6 50		0832	2.3 70
	1456	5.2 160		1409	5.2 160
	2140	1.3 40		2059	2.0 60
3 Su	0324	5.6 170	**18** M	0241	5.6 170
	1013	1.3 40		0936	1.6 50
	1547	5.2 160		1508	5.6 170
	2229	1.3 40		2158	1.6 50
4 M	0409	5.6 170	**19** Tu	0334	5.9 180
	1059	1.3 40		1029	1.3 40
	1630	5.2 160		1601	5.6 170
	2311	1.3 40		2248	1.3 40
5 Tu	0448	5.6 170	**20** W	0423	5.9 180
	1138	1.3 40		1116	1.0 30
	1707	5.2 160		1649	5.9 180
	2349	1.3 40		2335	1.3 40
6 W ●	0523	5.6 170	**21** Th ○	0509	6.2 190
	1214	1.3 40		1201	1.0 30
	1741	5.2 160		1736	5.9 180
7 Th	0025	1.3 40	**22** F	0020	1.0 30
	0555	5.6 170		0555	6.2 190
	1248	1.3 40		1246	0.7 20
	1813	5.2 160		1823	6.2 190
8 F	0058	1.3 40	**23** Sa	0105	1.0 30
	0626	5.6 170		0641	6.2 190
	1319	1.3 40		1329	0.7 20
	1845	5.6 170		1910	6.2 190
9 Sa	0129	1.3 40	**24** Su	0149	1.0 30
	0657	5.9 180		0729	6.2 190
	1349	1.3 40		1414	0.7 20
	1918	5.6 170		1958	6.2 190
10 Su	0158	1.3 40	**25** M	0235	1.0 30
	0730	5.9 180		0818	6.2 190
	1416	1.3 40		1459	0.7 20
	1952	5.9 180		2048	6.2 190
11 M	0226	1.3 40	**26** Tu	0322	1.0 30
	0804	5.9 180		0909	6.2 190
	1442	1.3 40		1546	1.0 30
	2030	5.9 180		2141	5.9 180
12 Tu	0253	1.6 50	**27** W	0414	1.3 40
	0843	5.9 180		1006	5.9 180
	1509	1.3 40		1640	1.3 40
	2113	5.6 170		2240	5.9 180
13 W	0324	1.6 50	**28** Th ◑	0514	1.6 50
	0928	5.6 170		1110	5.6 170
	1542	1.6 50		1742	2.0 60
	2205	5.6 170		2345	5.6 170
14 Th ◐	0405	2.0 60	**29** F	0623	2.0 60
	1024	5.2 160		1218	5.2 160
	1629	2.0 60		1853	2.0 60
	2312	5.2 160			
15 F	0512	2.3 70	**30** Sa	0052	5.6 170
	1139	5.2 160		0737	2.0 60
	1753	2.0 60		1326	5.2 160
				2005	2.0 60
			31 Su	0155	5.6 170
				0845	2.0 60
				1427	5.2 160
				2108	2.0 60

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Kem, White Sea, Russia, 2019

Times and Heights of High and Low Waters

April

	Time	Height			Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0250	5.6	170	**16** Tu	0220	5.9	180	**1** W	0257	5.9	180	**16** Th	0253	6.2	190	**1** Sa	0336	5.9	180	**16** Su	0411	6.2	190
	0941	1.6	50		0914	2.0	60		0948	2.0	60		0945	1.6	50		1026	2.0	60		1100	1.6	50
	1518	5.6	170		1454	5.9	180		1525	5.9	180		1529	6.2	190		1603	6.2	190		1641	6.6	200
	2200	1.6	50		2140	2.0	60		2209	2.0	60		2212	2.0	60		2254	2.3	70		2330	2.0	60
2 Tu	0337	5.9	180	**17** W	0314	5.9	180	**2** Th	0338	5.9	180	**17** F	0343	6.2	190	**2** Su	0413	6.2	190	**17** M	0457	6.2	190
	1027	1.6	50		1008	1.6	50		1029	1.6	50		1034	1.6	50		1103	2.0	60		1145	1.6	50
	1601	5.6	170		1546	5.9	180		1603	5.9	180		1615	6.6	200		1640	6.6	200		1724	6.6	200
	2243	1.6	50		2231	1.6	50		2249	2.0	60		2300	2.0	60		2333	2.3	70	○			
3 W	0416	5.9	180	**18** Th	0403	6.2	190	**3** F	0414	5.9	180	**18** Sa	0429	6.2	190	**3** M	0450	6.2	190	**18** Tu	0015	1.6	50
	1107	1.3	40		1055	1.3	40		1105	1.6	50		1119	1.3	40		1140	2.0	60		0541	5.9	180
	1638	5.6	170		1633	6.2	190		1637	6.2	190		1659	6.6	200		1717	6.6	200		1228	1.6	50
	2322	1.6	50		2318	1.6	50		2326	2.0	60		2346	1.6	50	●					1806	6.6	200
4 Th	0451	5.9	180	**19** F	0449	6.2	190	**4** Sa	0448	5.9	180	**19** Su	0514	6.2	190	**4** Tu	0012	2.0	60	**19** W	0100	1.6	50
	1142	1.3	40		1140	1.0	30		1139	1.6	50		1203	1.3	40		0528	6.2	190		0626	5.9	180
	1711	5.6	170		1718	6.2	190		1711	6.2	190		1742	6.6	200		1218	2.0	60		1311	2.0	60
	2357	1.6	50	○								○					1756	6.6	200		1848	6.6	200
5 F	0523	5.9	180	**20** Sa	0002	1.3	40	**5** Su	0002	2.0	60	**20** M	0030	1.6	50	**5** W	0052	2.0	60	**20** Th	0143	1.6	50
	1215	1.3	40		0534	6.6	200		0520	5.9	180		0558	6.2	190		0611	6.2	190		0712	5.9	180
	1743	5.9	180		1224	1.0	30		1213	1.6	50		1246	1.6	50		1258	2.0	60		1352	2.0	60
●					1802	6.6	200	●	1744	6.2	190		1825	6.6	200		1839	6.6	200		1932	6.6	200
6 Sa	0031	1.6	50	**21** Su	0047	1.3	40	**6** M	0037	2.0	60	**21** Tu	0115	1.6	50	**6** Th	0134	2.0	60	**21** F	0225	1.6	50
	0554	5.9	180		0619	6.6	200		0555	6.2	190		0644	6.2	190		0658	6.2	190		0758	5.9	180
	1247	1.3	40		1307	1.0	30		1245	1.6	50		1330	1.6	50		1341	2.0	60		1434	2.0	60
	1814	5.9	180		1847	6.6	200		1820	6.6	200		1910	6.6	200		1925	6.6	200		2016	6.6	200
7 Su	0103	1.6	50	**22** M	0131	1.3	40	**7** Tu	0112	2.0	60	**22** W	0200	1.6	50	**7** F	0218	2.0	60	**22** Sa	0308	1.6	50
	0626	5.9	180		0706	6.2	190		0633	6.2	190		0732	6.2	190		0749	6.2	190		0845	5.9	180
	1316	1.3	40		1351	1.0	30		1318	1.6	50		1413	1.6	50		1426	2.0	60		1516	2.3	70
	1848	5.9	180		1933	6.6	200		1859	6.6	200		1956	6.6	200		2015	6.6	200		2101	6.2	190
8 M	0134	1.6	50	**23** Tu	0216	1.3	40	**8** W	0148	2.0	60	**23** Th	0245	1.6	50	**8** Sa	0306	2.0	60	**23** Su	0350	2.0	60
	0700	5.9	180		0754	6.2	190		0714	6.2	190		0822	5.9	180		0846	6.2	190		0934	5.9	180
	1345	1.3	40		1435	1.3	40		1353	1.6	50		1457	2.0	60		1516	2.0	60		1559	2.3	70
	1924	6.2	190		2021	6.6	200		1942	6.6	200		2044	6.6	200		2110	6.6	200		2149	6.2	190
9 Tu	0204	1.6	50	**24** W	0303	1.3	40	**9** Th	0227	2.0	60	**24** F	0331	1.6	50	**9** Su	0358	2.0	60	**24** M	0435	2.0	60
	0737	5.9	180		0845	6.2	190		0801	6.2	190		0914	5.9	180		0950	5.9	180		1026	5.6	170
	1413	1.3	40		1521	1.6	50		1432	2.0	60		1543	2.0	60		1614	2.3	70		1647	2.6	80
	2003	6.2	190		2112	6.2	190		2028	6.6	200		2135	6.2	190		2212	6.2	190		2241	6.2	190
10 W	0236	1.6	50	**25** Th	0352	1.6	50	**10** F	0310	2.0	60	**25** Sa	0420	2.0	60	**10** M	0458	2.0	60	**25** Tu	0524	2.3	70
	0818	5.9	180		0940	5.9	180		0853	5.9	180		1009	5.9	180		1100	5.9	180		1122	5.6	170
	1444	1.6	50		1611	2.0	60		1518	2.0	60		1634	2.3	70		1721	2.6	80		1742	2.6	80
	2047	6.2	190		2207	6.2	190		2122	6.2	190		2230	6.2	190	◐	2320	6.2	190	◑	2336	5.9	180
11 Th	0312	2.0	60	**26** F	0447	2.0	60	**11** Sa	0403	2.3	70	**26** Su	0513	2.3	70	**11** Tu	0606	2.0	60	**26** W	0618	2.3	70
	0905	5.9	180		1040	5.6	170		0957	5.9	180		1109	5.6	170		1211	5.9	180		1218	5.6	170
	1522	2.0	60		1707	2.3	70		1616	2.3	70		1731	2.6	80		1837	2.6	80		1845	3.0	90
	2138	5.9	180		2308	5.9	180		2227	6.2	190	◑	2328	6.2	190								
12 F	0359	2.0	60	**27** Sa	0549	2.0	60	**12** Su	0509	2.3	70	**27** M	0612	2.3	70	**12** W	0030	6.2	190	**27** Th	0032	5.9	180
	1004	5.6	170		1146	5.6	170		1113	5.6	170		1209	5.6	170		0717	2.0	60		0716	2.3	70
	1613	2.3	70		1813	2.3	70		1735	2.6	80		1835	2.6	80		1318	5.9	180		1314	5.9	180
◐	2244	5.6	170	◑				◐	2341	5.9	180						1951	2.6	80		1948	2.6	80
13 Sa	0510	2.3	70	**28** Su	0012	5.9	180	**13** M	0628	2.3	70	**28** Tu	0027	5.9	180	**13** Th	0134	6.2	190	**28** F	0126	5.9	180
	1122	5.2	160		0656	2.3	70		1229	5.6	170		0713	2.3	70		0823	2.0	60		0812	2.3	70
	1740	2.6	80		1251	5.6	170		1901	2.6	80		1307	5.9	180		1417	6.2	190		1404	5.9	180
					1923	2.6	80						1939	2.6	80		2057	2.3	70		2046	2.6	80
14 Su	0002	5.6	170	**29** M	0114	5.9	180	**14** Tu	0053	5.9	180	**29** W	0123	5.9	180	**14** F	0232	6.2	190	**29** Sa	0215	5.9	180
	0646	2.3	70		0803	2.3	70		0744	2.3	70		0811	2.3	70		0922	1.6	50		0903	2.0	60
	1244	5.2	160		1351	5.6	170		1338	5.9	180		1400	5.9	180		1510	6.2	190		1449	6.2	190
	1922	2.6	80		2028	2.3	70		2017	2.6	80		2038	2.6	80		2153	2.3	70		2137	2.6	80
15 M	0116	5.6	170	**30** Tu	0209	5.9	180	**15** W	0158	5.9	180	**30** Th	0213	5.9	180	**15** Sa	0324	6.2	190	**30** Su	0300	5.9	180
	0809	2.3	70		0900	2.0	60		0850	2.0	60		0902	2.3	70		1013	1.6	50		0948	2.0	60
	1355	5.6	170		1442	5.6	170		1437	6.2	190		1445	5.9	180		1557	6.6	200		1532	6.2	190
	2039	2.3	70		2123	2.3	70		2119	2.3	70		2129	2.6	80		2243	2.0	60		2223	2.3	70
												31 F	0256	5.9	180								
													0946	2.0	60								
													1526	6.2	190								
													2213	2.3	70								

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Kem, White Sea, Russia, 2019

Times and Heights of High and Low Waters

July

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 M	0342	5.9	180	**16** Tu	0443	5.9	180	**1** Th ●	0452	5.9	180	**16** F	0023	1.3	40	
	1031	2.0	60		1128	1.6	50		1140	1.6	50		0550	5.6	170	
	1612	6.2	190		1708	6.2	190		1718	6.6	200		1232	1.6	50	
	2306	2.3	70										1805	5.9	180	
2 Tu ●	0424	5.9	180	**17** W ○	0001	1.6	50	**2** F	0015	1.6	50	**17** Sa	0100	1.3	40	
	1114	2.0	60		0526	5.6	170		0540	5.9	180		0627	5.6	170	
	1653	6.6	200		1212	1.6	50		1227	1.6	50		1309	1.6	50	
	2350	2.0	60		1748	6.2	190		1804	6.6	200		1840	5.9	180	
3 W	0508	5.9	180	**18** Th	0044	1.6	50	**3** Sa	0101	1.3	40	**18** Su	0136	1.6	50	
	1157	1.6	50		0609	5.6	170		0631	6.2	190		0702	5.6	170	
	1736	6.6	200		1252	1.6	50		1314	1.3	40		1344	1.6	50	
					1828	6.2	190		1852	6.6	200		1914	5.9	180	
4 Th	0034	2.0	60	**19** F	0124	1.6	50	**4** Su	0147	1.0	30	**19** M	0209	1.6	50	
	0554	5.9	180		0650	5.6	170		0723	6.2	190		0738	5.6	170	
	1242	1.6	50		1332	2.0	60		1401	1.3	40		1417	2.0	60	
	1821	6.6	200		1907	6.2	190		1942	6.6	200		1948	5.9	180	
5 F	0119	1.6	50	**20** Sa	0203	1.6	50	**5** M	0233	1.0	30	**20** Tu	0240	1.6	50	
	0645	6.2	190		0732	5.6	170		0817	6.2	190		0814	5.6	170	
	1329	1.6	50		1410	2.0	60		1449	1.6	50		1449	2.0	60	
	1909	6.6	200		1946	6.2	190		2034	6.6	200		2024	5.9	180	
6 Sa	0205	1.6	50	**21** Su	0240	1.6	50	**6** Tu	0321	1.0	30	**21** W	0311	1.6	50	
	0738	6.2	190		0813	5.6	170		0913	6.2	190		0853	5.9	180	
	1417	1.6	50		1447	2.0	60		1540	1.6	50		1520	2.0	60	
	2000	6.6	200		2026	6.2	190		2130	6.6	200		2102	5.9	180	
7 Su	0253	1.3	40	**22** M	0317	1.6	50	**7** W ◐	0413	1.3	40	**22** Th	0341	1.6	50	
	0835	6.2	190		0855	5.6	170		1013	5.9	180		0938	5.9	180	
	1506	2.0	60		1524	2.0	60		1637	2.0	60		1555	2.3	70	
	2055	6.6	200		2106	6.2	190		2231	6.2	190		2147	5.9	180	
8 M	0343	1.3	40	**23** Tu	0354	1.6	50	**8** Th	0511	1.6	50	**23** F ◑	0415	2.0	60	
	0935	6.2	190		0940	5.6	170		1117	5.9	180		1031	5.6	170	
	1600	2.0	60		1603	2.3	70		1742	2.0	60		1640	2.6	80	
	2153	6.6	200		2151	5.9	180		2337	5.9	180		2243	5.6	170	
9 Tu ◐	0438	1.6	50	**24** W	0433	2.0	60	**9** F	0617	1.6	50	**24** Sa	0502	2.3	70	
	1039	5.9	180		1030	5.6	170		1223	5.9	180		1134	5.6	170	
	1701	2.3	70		1647	2.3	70		1856	2.3	70		1751	2.6	80	
	2257	6.2	190		2241	5.9	180						2352	5.2	160	
10 W	0540	1.6	50	**25** Th ◑	0518	2.0	60	**10** Sa	0046	5.6	170	**25** Su	0617	2.3	70	
	1146	5.9	180		1125	5.6	170		0728	2.0	60		1241	5.6	170	
	1810	2.3	70		1743	2.6	80		1329	5.9	180		1919	2.6	80	
					2338	5.6	170		2010	2.3	70					
11 Th	0004	6.2	190	**26** F	0614	2.3	70	**11** Su	0152	5.6	170	**26** M	0102	5.2	160	
	0648	2.0	60		1224	5.6	170		0836	1.6	50		0741	2.3	70	
	1252	5.9	180		1852	2.6	80		1429	5.9	180		1343	5.6	170	
	1924	2.3	70						2116	2.0	60		2032	2.6	80	
12 F	0110	5.9	180	**27** Sa	0038	5.6	170	**12** M	0251	5.6	170	**27** Tu	0205	5.6	170	
	0756	2.0	60		0717	2.3	70		0936	1.6	50		0850	2.3	70	
	1354	5.9	180		1322	5.9	180		1522	5.9	180		1439	5.9	180	
	2033	2.3	70		2001	2.6	80		2211	1.6	50		2132	2.3	70	
13 Sa	0211	5.9	180	**28** Su	0136	5.6	170	**13** Tu	0344	5.6	170	**28** W	0300	5.6	170	
	0859	1.6	50		0820	2.3	70		1027	1.6	50		0947	2.0	60	
	1450	6.2	190		1415	5.9	180		1609	6.2	190		1528	6.2	190	
	2135	2.0	60		2102	2.6	80		2300	1.6	50		2223	1.6	50	
14 Su	0307	5.9	180	**29** M	0229	5.6	170	**14** W	0430	5.6	170	**29** Th	0351	5.9	180	
	0954	1.6	50		0916	2.0	60		1112	1.6	50		1037	1.6	50	
	1540	6.2	190		1503	5.9	180		1651	6.2	190		1614	6.2	190	
	2228	2.0	60		2155	2.3	70		2343	1.3	40		2309	1.6	50	
15 M	0357	5.9	180	**30** Tu	0318	5.6	170	**15** Th ○	0512	5.6	170	**30** F ●	0439	5.9	180	
	1043	1.6	50		1006	2.0	60		1153	1.6	50		1124	1.6	50	
	1625	6.2	190		1549	6.2	190		1729	6.2	190		1700	6.6	200	
	2316	1.6	50		2243	2.0	60						2354	1.3	40	
				31 W	0405	5.9	180					**31** Sa	0526	6.2	190	
					1054	1.6	50						1210	1.3	40	
					1633	6.2	190						1745	6.6	200	
					2329	1.6	50									

August

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Su	0039	1.0	30	**16** M	0104	1.6	50	**1** Tu	0124	1.0	30	**16** W	0134	1.6	50	
	0614	6.2	190		0631	5.9	180		0703	6.2	190		0703	5.9	180	
	1256	1.3	40		1316	2.0	60		1342	1.3	40		1347	2.0	60	
	1832	6.6	200		1840	5.9	180		1920	6.6	200		1912	5.9	180	
2 M	0124	1.0	30	**17** Tu	0134	1.6	50	**2** W	0209	1.0	30	**17** Th	0202	1.6	50	
	0703	6.2	190		0703	5.9	180		0753	6.2	190		0736	5.9	180	
	1342	1.3	40		1347	2.0	60		1429	1.3	40		1416	2.0	60	
	1920	6.6	200		1912	5.9	180		2010	6.6	200		1945	5.9	180	
3 Tu	0209	1.0	30	**18** W	0202	1.6	50	**3** Th	0256	1.0	30	**18** F	0228	1.6	50	
	0753	6.2	190		0736	5.9	180		0846	6.2	190		0813	5.9	180	
	1429	1.3	40		1416	2.0	60		1518	1.3	40		1444	2.0	60	
	2010	6.6	200		1945	5.9	180		2104	6.2	190		2022	5.9	180	
4 W	0256	1.0	30	**19** Th	0228	1.6	50	**4** F	0346	1.3	40	**19** Sa	0253	1.6	50	
	0846	6.2	190		0813	5.9	180		0942	6.2	190		0854	5.9	180	
	1518	1.3	40		1444	2.0	60		1612	1.6	50		1515	2.3	70	
	2104	6.2	190		2022	5.9	180		2203	6.2	190		2105	5.9	180	
5 Th	0346	1.3	40	**20** F	0253	1.6	50	**5** Sa	0441	1.6	50	**20** Su	0323	2.0	60	
	0942	6.2	190		0854	5.9	180		1045	5.9	180		0944	5.9	180	
	1612	1.6	50		1515	2.3	70		1715	2.0	60		1555	2.3	70	
	2203	6.2	190		2105	5.9	180		2310	5.9	180		2200	5.6	170	
6 F	0441	1.6	50	**21** Sa	0323	2.0	60	**6** Su	0546	2.0	60	**21** M	0405	2.3	70	
	1045	5.9	180		0944	5.9	180		1152	5.9	180		1047	5.6	170	
	1715	2.0	60		1555	2.3	70		1827	2.3	70		1701	2.6	80	
	2310	5.9	180		2200	5.6	170						2313	5.2	160	
7 Sa	0546	2.0	60	**22** Su	0405	2.3	70	**7** M	0021	5.6	170	**22** Tu	0519	2.6	80	
	1152	5.9	180		1047	5.6	170		0658	2.0	60		1203	5.6	170	
	1827	2.3	70		1701	2.6	80		1301	5.9	180		1843	2.6	80	
					2313	5.2	160		1944	2.0	60					
8 Su	0021	5.6	170	**23** M	0519	2.6	80	**8** Tu	0132	5.6	170	**23** W	0035	5.2	160	
	0658	2.0	60		1203	5.6	170		0811	2.0	60		0710	2.6	80	
	1301	5.9	180		1843	2.6	80		1405	5.9	180		1315	5.6	170	
	1944	2.0	60						2053	2.0	60		2006	2.6	80	
9 M	0132	5.6	170	**24** Tu	0035	5.2	160	**9** W	0235	5.6	170	**24** Th	0146	5.6	170	
	0811	2.0	60		0710	2.6	80		0914	2.0	60		0829	2.3	70	
	1405	5.9	180		1315	5.6	170		1501	5.9	180		1416	5.9	180	
	2053	2.0	60		2006	2.6	80		2151	1.6	50		2110	2.3	70	
10 Tu	0235	5.6	170	**25** W	0146	5.6	170	**10** Th	0328	5.6	170	**25** F	0246	5.6	170	
	0914	2.0	60		0829	2.3	70		1007	1.6	50		0930	2.0	60	
	1501	5.9	180		1416	5.9	180		1548	6.2	190		1508	6.2	190	
	2151	1.6	50		2110	2.3	70		2238	1.3	40		2202	1.6	50	
11 W	0328	5.6	170	**26** Th	0246	5.6	170	**11** F	0414	5.6	170	**26** Sa	0337	5.9	180	
	1007	1.6	50		0930	2.0	60		1052	1.6	50		1021	2.0	60	
	1548	6.2	190		1508	6.2	190		1629	6.2	190		1556	6.6	200	
	2238	1.3	40		2202	1.6	50		2320	1.3	40		2249	1.3	40	
12 Th	0414	5.6	170	**27** F	0337	5.9	180	**12** Sa	0453	5.6	170	**27** Su	0424	6.2	190	
	1052	1.6	50		1021	2.0	60		1132	1.6	50		1107	1.6	50	
	1629	6.2	190		1556	6.6	200		1706	6.2	190		1641	6.6	200	
	2320	1.3	40		2249	1.3	40		2357	1.3	40		2333	1.0	30	
13 F	0453	5.6	170	**28** Sa	0424	6.2	190	**13** Su	0527	5.6	170	**28** M	0510	6.6	200	
	1132	1.6	50		1107	1.6	50		1209	1.6	50		1152	1.3	40	
	1706	6.2	190		1641	6.6	200		1739	5.9	180		1725	6.6	200	
	2357	1.3	40		2333	1.0	30									
14 Sa	0527	5.6	170	**29** Su	0510	6.6	200	**14** M ○	0031	1.3	40	**29** Tu	0016	1.0	30	
	1209	1.6	50		1152	1.3	40		0600	5.6	170		0554	6.6	200	
	1739	5.9	180		1725	6.6	200		1244	1.6	50		1237	1.3	40	
									1810	5.9	180		1810	6.6	200	
15 Su	0031	1.3	40	**30** M	0016	1.0	30									
	0600	5.6	170		0554	6.6	200									
	1244	1.6	50		1237	1.3	40									
	1810	5.9	180		1810	6.6	200									

September

	Time	Height			Time	Height			Time	Height			Time	Height		
	h m	ft	cm		h m	ft	cm		h m	ft	cm		h m	ft	cm	
1 Su	0039	1.0	30	**16** M	0104	1.6	50	**1** Tu	0124	1.0	30	**16** W	0134	1.6	50	
	0614	6.2	190		0631	5.9	180		0703	6.2	190		0703	5.9	180	
	1256	1.3	40		1316	2.0	60		1342	1.3	40		1347	2.0	60	
	1832	6.6	200		1840	5.9	180		1920	6.6	200		1912	5.9	180	
2 M	0124	1.0	30	**17** Tu	0134	1.6	50	**2** W	0209	1.0	30	**17** Th	0202	1.6	50	
	0703	6.2	190		0703	5.9	180		0753	6.2	190		0736	5.9	180	
	1342	1.3	40		1347	2.0	60		1429	1.3	40		1416	2.0	60	
	1920	6.6	200		1912	5.9	180		2010	6.6	200		1945	5.9	180	
3 Tu	0209	1.0	30	**18** W	0202	1.6	50	**3** Th	0256	1.0	30	**18** F	0228	1.6	50	
	0753	6.2	190		0736	5.9	180		0846	6.2	190		0813	5.9	180	
	1429	1.3	40		1416	2.0	60		1518	1.3	40		1444	2.0	60	
	2010	6.6	200		1945	5.9	180		2104	6.2	190		2022	5.9	180	
4 W	0256	1.0	30	**19** Th	0228	1.6	50	**4** F	0346	1.3	40	**19** Sa	0253	1.6	50	
	0846	6.2	190		0813	5.9	180		0942	6.2	190		0854	5.9	180	
	1518	1.3	40		1444	2.0	60		1612	1.6	50		1515	2.3	70	
	2104	6.2	190		2022	5.9	180		2203	6.2	190		2105	5.9	180	
5 Th	0346	1.3	40	**20** F	0253	1.6	50	**5** Sa	0441	1.6	50	**20** Su	0323	2.0	60	
	0942	6.2	190		0854	5.9	180		1045	5.9	180		0944	5.9	180	
	1612	1.6	50		1515	2.3	70		1715	2.0	60		1555	2.3	70	
	2203	6.2	190		2105	5.9	180		2310	5.9	180		2200	5.6	170	
6 F	0441	1.6	50	**21** Sa	0323	2.0	60	**6** Su	0546	2.0	60	**21** M	0405	2.3	70	
	1045	5.9	180		0944	5.9	180		1152	5.9	180		1047	5.6	170	
	1715	2.0	60		1555	2.3	70		1827	2.3	70		1701	2.6	80	
	2310	5.9	180		2200	5.6	170						2313	5.2	160	
7 Sa	0546	2.0	60	**22** Su	0405	2.3	70	**7** M	0021	5.6	170	**22** Tu	0519	2.6	80	
	1152	5.9	180		1047	5.6	170		0658	2.0	60		1203	5.6	170	
	1827	2.3	70		1701	2.6	80		1301	5.9	180		1843	2.6	80	
					2313	5.2	160		1944	2.0	60					
8 Su	0021	5.6	170	**23** M	0519	2.6	80	**8** Tu	0132	5.6	170	**23** W	0035	5.2	160	
	0658	2.0	60		1203	5.6	170		0811	2.0	60		0710	2.6	80	
	1301	5.9	180		1843	2.6	80		1405	5.9	180		1315	5.6	170	
	1944	2.0	60						2053	2.0	60		2006	2.6	80	
9 M	0132	5.6	170	**24** Tu	0035	5.2	160	**9** W	0235	5.6	170	**24** Th	0146	5.6	170	
	0811	2.0	60		0710	2.6	80		0914	2.0	60		0829	2.3	70	
	1405	5.9	180		1315	5.6	170		1501	5.9	180		1416	5.9	180	
	2053	2.0	60		2006	2.6	80		2151	1.6	50		2110	2.3	70	
10 Tu	0235	5.6	170	**25** W	0146	5.6	170	**10** Th	0328	5.6	170	**25** F	0246	5.6	170	
	0914	2.0	60		0829	2.3	70		1007	1.6	50		0930	2.0	60	
	1501	5.9	180		1416	5.9	180		1548	6.2	190		1508	6.2	190	
	2151	1.6	50		2110	2.3	70		2238	1.3	40		2202	1.6	50	
11 W	0328	5.6	170	**26** Th	0246	5.6	170	**11** F	0414	5.6	170	**26** Sa	0337	5.9	180	
	1007	1.6	50		0930	2.0	60		1052	1.6	50		1021	2.0	60	
	1548	6.2	190		1508	6.2	190		1629	6.2	190		1556	6.6	200	
	2238	1.3	40		2202	1.6	50		2320	1.3	40		2249	1.3	40	
12 Th	0414	5.6	170	**27** F	0337	5.9	180	**12** Sa	0453	5.6	170	**27** Su	0424	6.2	190	
	1052	1.6	50		1021	2.0	60		1132	1.6	50		1107	1.6	50	
	1629	6.2	190		1556	6.6	200		1706	6.2	190		1641	6.6	200	
	2320	1.3	40		2249	1.3	40		2357	1.3	40		2333	1.0	30	
13 F	0453	5.6	170	**28** Sa	0424	6.2	190	**13** Su	0527	5.6	170	**28** M	0510	6.6	200	
	1132	1.6	50		1107	1.6	50		1209	1.6	50		1152	1.3	40	
	1706	6.2	190		1641	6.6	200		1739	5.9	180		1725	6.6	200	
	2357	1.3	40		2333	1.0	30									
14 Sa	0527	5.6	170	**29** Su	0510	6.6	200	**14** M ○	0031	1.3	40	**29** Tu	0016	1.0	30	
	1209	1.6	50		1152	1.3	40		0600	5.6	170		0554	6.6	200	
	1739	5.9	180		1725	6.6	200		1244	1.6	50		1237	1.3	40	
									1810	5.9	180		1810	6.6	200	
15 Su	0031	1.3	40	**30** M	0016	1.0	30									
	0600	5.6	170		0554	6.6	200									
	1244	1.6	50		1237	1.3	40									
	1810	5.9	180		1810	6.6	200									

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

Kem, White Sea, Russia, 2019

Times and Heights of High and Low Waters

October

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Tu	0100	1.0	30	**16** W	0100	1.6	50
	0641	6.6	200		0632	6.2	190
	1322	1.3	40		1320	2.0	60
	1857	6.6	200		1839	6.2	190
2 W	0145	1.0	30	**17** Th	0127	1.6	50
	0728	6.6	200		0705	6.2	190
	1408	1.3	40		1350	2.0	60
	1946	6.6	200		1913	6.2	190
3 Th	0230	1.0	30	**18** F	0153	1.6	50
	0818	6.6	200		0741	6.2	190
	1456	1.6	50		1420	2.0	60
	2038	6.2	190		1952	6.2	190
4 F	0318	1.3	40	**19** Sa	0220	2.0	60
	0912	6.2	190		0823	6.2	190
	1549	1.6	50		1454	2.3	70
	2136	6.2	190		2037	5.9	180
5 Sa ◐	0412	1.6	50	**20** Su	0253	2.0	60
	1012	6.2	190		0911	6.2	190
	1649	2.0	60		1537	2.3	70
	2242	5.9	180		2133	5.6	170
6 Su	0514	2.0	60	**21** M ◑	0338	2.3	70
	1118	5.9	180		1012	5.9	180
	1758	2.3	70		1643	2.6	80
	2355	5.6	170		2248	5.6	170
7 M	0626	2.3	70	**22** Tu	0452	2.6	80
	1228	5.9	180		1130	5.9	180
	1914	2.3	70		1816	2.6	80
8 Tu	0106	5.6	170	**23** W	0015	5.6	170
	0740	2.3	70		0644	3.0	90
	1334	5.9	180		1247	5.9	180
	2024	2.0	60		1940	2.6	80
9 W	0211	5.6	170	**24** Th	0129	5.6	170
	0847	2.3	70		0807	2.6	80
	1432	6.2	190		1352	5.9	180
	2123	1.6	50		2046	2.3	70
10 Th	0305	5.9	180	**25** F	0230	5.9	180
	0941	2.0	60		0911	2.3	70
	1521	6.2	190		1448	6.2	190
	2210	1.6	50		2140	1.6	50
11 F	0349	5.9	180	**26** Sa	0322	6.2	190
	1027	2.0	60		1003	2.0	60
	1601	6.2	190		1536	6.6	200
	2251	1.6	50		2228	1.3	40
12 Sa	0427	5.9	180	**27** Su	0408	6.6	200
	1106	2.0	60		1050	1.6	50
	1637	6.2	190		1621	6.6	200
	2327	1.6	50		2312	1.3	40
13 Su	0500	5.9	180	**28** M ●	0452	6.6	200
	1142	2.0	60		1135	1.6	50
	1709	6.2	190		1705	6.6	200
					2355	1.0	30
14 M ○	0000	1.6	50	**29** Tu	0535	6.9	210
	0530	6.2	190		1219	1.6	50
	1217	2.0	60		1749	6.6	200
	1738	6.2	190				
15 Tu	0031	1.6	50	**30** W	0038	1.0	30
	0601	6.2	190		0619	6.9	210
	1249	2.0	60		1304	1.3	40
	1808	6.2	190		1835	6.6	200
				31 Th	0122	1.3	40
					0705	6.9	210
					1350	1.6	50
					1923	6.6	200

November

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 F	0207	1.3	40	**16** Sa	0131	2.0	60
	0753	6.6	200		0719	6.6	200
	1437	1.6	50		1407	2.0	60
	2014	6.2	190		1933	5.9	180
2 Sa	0254	1.6	50	**17** Su	0204	2.0	60
	0844	6.6	200		0802	6.6	200
	1528	1.6	50		1447	2.0	60
	2111	5.9	180		2021	5.9	180
3 Su	0344	2.0	60	**18** M	0244	2.0	60
	0940	6.2	190		0851	6.2	190
	1624	2.0	60		1534	2.3	70
	2214	5.9	180		2119	5.9	180
4 M ◐	0441	2.3	70	**19** Tu	0334	2.3	70
	1043	6.2	190		0950	6.2	190
	1727	2.3	70		1635	2.3	70
	2323	5.6	170		2233	5.6	170
5 Tu	0548	2.6	80	**20** W ◑	0446	2.6	80
	1150	5.9	180		1102	5.9	180
	1836	2.3	70		1751	2.3	70
					2354	5.6	170
6 W	0033	5.6	170	**21** Th	0618	3.0	90
	0700	2.6	80		1218	5.9	180
	1256	5.9	180		1910	2.3	70
	1945	2.3	70				
7 Th	0137	5.6	170	**22** F	0107	5.6	170
	0809	2.6	80		0741	2.6	80
	1354	5.9	180		1326	5.9	180
	2045	2.0	60		2019	2.0	60
8 F	0232	5.9	180	**23** Sa	0210	5.9	180
	0907	2.3	70		0849	2.6	80
	1445	6.2	190		1425	6.2	190
	2135	2.0	60		2117	1.6	50
9 Sa	0317	5.9	180	**24** Su	0304	6.2	190
	0955	2.3	70		0945	2.3	70
	1527	6.2	190		1516	6.2	190
	2216	1.6	50		2207	1.3	40
10 Su	0355	6.2	190	**25** M	0351	6.6	200
	1037	2.0	60		1034	2.0	60
	1603	6.2	190		1603	6.6	200
	2253	1.6	50		2253	1.3	40
11 M	0429	6.2	190	**26** Tu ●	0435	6.6	200
	1114	2.0	60		1120	1.6	50
	1636	6.2	190		1647	6.6	200
	2327	1.6	50		2337	1.3	40
12 Tu ○	0501	6.2	190	**27** W	0518	6.6	200
	1149	2.0	60		1204	1.6	50
	1708	6.2	190		1732	6.2	190
	2359	1.6	50				
13 W	0533	6.2	190	**28** Th	0020	1.3	40
	1223	2.0	60		0601	6.6	200
	1739	5.9	180		1250	1.6	50
					1817	6.2	190
14 Th	0029	1.6	50	**29** F	0104	1.3	40
	0605	6.6	200		0645	6.6	200
	1257	2.0	60		1335	1.6	50
	1813	6.2	190		1904	6.2	190
15 F	0100	1.6	50	**30** Sa	0148	1.6	50
	0640	6.6	200		0731	6.6	200
	1331	2.0	60		1421	1.6	50
	1850	6.2	190		1954	5.9	180

December

	Time	Height		Time	Height
	h m	ft	cm	h m	ft	cm
1 Su	0232	1.6	50	**16** M	0159	1.6	50
	0819	6.6	200		0748	6.6	200
	1508	1.6	50		1440	1.6	50
	2047	5.9	180		2013	5.9	180
2 M	0319	2.0	60	**17** Tu	0243	1.6	50
	0910	6.2	190		0838	6.6	200
	1558	1.6	50		1527	1.6	50
	2144	5.6	170		2110	5.9	180
3 Tu	0409	2.3	70	**18** W	0333	2.0	60
	1006	6.2	190		0933	6.2	190
	1652	2.0	60		1621	1.6	50
	2245	5.6	170		2216	5.6	170
4 W ◐	0507	2.3	70	**19** Th ◑	0434	2.3	70
	1106	5.9	180		1038	5.9	180
	1752	2.0	60		1725	2.0	60
	2349	5.6	170		2329	5.6	170
5 Th	0612	2.6	80	**20** F	0549	2.6	80
	1208	5.9	180		1149	5.9	180
	1856	2.3	70		1838	2.0	60
6 F	0052	5.6	170	**21** Sa	0041	5.6	170
	0720	2.6	80		0709	2.6	80
	1308	5.9	180		1258	5.9	180
	1957	2.0	60		1949	2.0	60
7 Sa	0148	5.6	170	**22** Su	0146	5.6	170
	0824	2.6	80		0823	2.3	70
	1401	5.9	180		1401	5.9	180
	2052	2.0	60		2053	1.6	50
8 Su	0237	5.9	180	**23** M	0243	5.9	180
	0918	2.3	70		0925	2.0	60
	1447	5.9	180		1456	5.9	180
	2138	2.0	60		2148	1.3	40
9 M	0319	5.9	180	**24** Tu	0334	6.2	190
	1004	2.3	70		1019	2.0	60
	1527	5.9	180		1547	5.9	180
	2218	1.6	50		2237	1.3	40
10 Tu	0357	6.2	190	**25** W	0420	6.2	190
	1045	2.3	70		1107	1.6	50
	1604	5.9	180		1634	5.9	180
	2255	1.6	50		2322	1.3	40
11 W	0432	6.2	190	**26** Th ●	0504	6.2	190
	1123	2.0	60		1153	1.6	50
	1639	5.9	180		1719	5.9	180
	2330	1.6	50				
12 Th ○	0507	6.2	190	**27** F	0006	1.3	40
	1200	2.0	60		0546	6.2	190
	1715	5.9	180		1238	1.3	40
					1804	5.6	170
13 F	0005	1.6	50	**28** Sa	0049	1.3	40
	0543	6.2	190		0629	6.2	190
	1238	2.0	60		1322	1.3	40
	1753	5.9	180		1849	5.6	170
14 Sa	0041	1.6	50	**29** Su	0131	1.3	40
	0621	6.6	200		0712	6.2	190
	1316	2.0	60		1405	1.3	40
	1835	5.9	180		1936	5.6	170
15 Su	0119	1.6	50	**30** M	0213	1.6	50
	0703	6.6	200		0756	6.2	190
	1357	1.6	50		1448	1.3	40
	1922	5.9	180		2023	5.6	170
				31 Tu	0255	1.6	50
					0841	6.2	190
					1530	1.3	40
					2111	5.6	170

Time meridian 45° E. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
Heights are referred to the chart datum of soundings.

TABLE 2. — TIDAL DIFFERENCES AND OTHER CONSTANTS

EXPLANATION OF TABLE

The publication of full daily predictions is necessarily limited to a comparatively small number of stations. Tide predictions for many other places, however, can be obtained by applying certain differences to the predictions for the reference stations in Table 1. The following pages list the places called “subordinate stations” for which such predictions can be made, and the differences or ratios to be used. These differences or ratios are to be applied to the predictions for the proper reference station which is listed in Table 2 in boldface type above the differences for the subordinate station. The stations in this table are arranged in geographical order. The index to stations at the end of this volume will assist in locating a particular station.

Time differences. — To determine the time of high water or low water at any station listed in this table there is given in the columns headed “Differences, Time” the hours and minutes to be added to or subtracted from the time of high or low water at some reference station. A plus (+) sign indicates that the tide at the subordinate station is later than at the reference station and the difference should be added; a minus (–) sign indicates that it is earlier and should be subtracted.

To obtain the tide at a subordinate station on any date, apply the difference to the tide at the reference station for that same date. In some cases, however, to obtain an a.m. tide it may be necessary to use the preceding day’s p.m. tide at the reference station, or to obtain a p.m. tide it may be necessary to use the following day’s a.m. tide. For example, if a high water occurs at a reference station at 2200 on July 2, and the tide at the subordinate station occurs 3 hours later, then high water will occur at 0100 on July 3 at the subordinate station. For the second case, if a high water at a reference station occurs at 0200 on July 17, and the tide at the subordinate station occurs 5 hours earlier, the high water at the subordinate station will occur at 2100 on July 16. The necessary allowance for changes in date when the international date line is crossed is included in the time differences. In such cases use the same date at the reference station as desired for the subordinate station as explained above.

The results obtained by the application of the time differences will be in the kind of time indicated by the time meridian shown above the name of the subordinate station. Summer or daylight saving time is not used in the tide tables.

Height differences. — The height of the tide, referred to the datum of charts, is obtained by means of the height differences or ratios. A plus (+) sign indicates that the difference should be added to the height at the reference station, and a minus (–) sign indicates that it should be subtracted. All height differences, ranges, and levels in Table 2 are in feet but may be converted to centimeters by the use of Table 6.

Ratio. — For some stations, use of predicted height differences would give unsatisfactory predictions. In such cases they have been omitted and one or two ratios are given (*). Where two ratios are given, one in the “height of high water” column and one in the “height of low water” column, the high waters and low waters at the reference station should be multiplied by these respective ratios. Where only one is given, the omitted ratio is either unreliable or unknown.

For some subordinate stations there is given in parentheses a ratio as well as a correction in feet. In those instances, each predicted high and low water at the reference station should first be multiplied by the ratio and then the correction in feet is added to or subtracted from each product as indicated.

As an example, at Porto Grande, the values in the time and height difference columns in Table 2 are given as –2 14, – 2 07, and (*0.67 + 0.5) as referred to the reference station at Dakar, Senegal. If we assume that the tide predictions in column (1) below are those of Dakar on a particular day, application of the time and height corrections in columns (2) and (3) would result in the tide predictions for Port Grande in column (4).

TABLE 2. — TIDAL DIFFERENCES AND OTHER CONSTANTS

(1)		(2)	(3)	(4)		
Time h.m.	*Height ft.*	*Time Corrections*	*Height Corrections*	*Time h.m.*	*ft.*	*Height centimeters*
0453	0.8	$-2^h\ 07^m$	x0.67 + 0.5	0246	1.0	30
1101	4.9	$-2^h\ 14^m$	x0.67 + 0.5	0847	3.8	116
1702	1.0	$-2^h\ 07^m$	x0.67 + 0.5	1455	1.2	37
2316	5.1	$-2^h\ 14^m$	x0.67 + 0.5	2102	3.9	119

Range.—The *mean range* is the difference in height between mean high water (MHW) and mean low water (MLW). The *spring range* is the average semidiurnal range occurring semimonthly as a result of the Moon being new or full. It is larger than the mean range where the type of tide is either semidiurnal or mixed, and is of no practical significance where the type of tide is diurnal. Where the tide is chiefly of the diurnal type the table gives the *diurnal range*, which is the difference in height between mean higher high water and mean lower low water.

Caution. — For stations where the tide is chiefly diurnal the time differences and the height differences and ratios are intended primarily for predicting the higher high and lower low waters. When the lower high water and the higher low water at the reference station are nearly the same height the corresponding tides often cannot be obtained satisfactorily by means of the tidal differences.

Datum.—The datum of the predictions obtained through the height differences or ratios is also the datum of the largest scale chart for the locality. To obtain the depth at the time of high or low water, the predicted height should be added to the depth on the chart unless such height is negative (–), when it should be subtracted. To find the height at times between high and low water see Table 3. On some charts the depths are given in meters and in such cases the heights of the tide can be converted to centimeters by the use of Table 6. For the area covered by these tables the datums generally used are approximately *mean low water springs*, *Indian spring low water*, or the *lowest possible low water.*

Mean Tide Level (Half-Tide Level). — The mean tide level is a plane midway between mean low water and mean high water. Tabular values are reckoned from chart depth.

NOTE.—Dashes are entered in the place of data which are unknown, unreliable, or not applicable.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		South	**West**	h m	h m	ft	ft	ft	ft	ft
	DETACHED ISLANDS Time meridian, 0°				**on Takoradi, p.12**					
1	Tristan da Cunha	37° 03'	12° 18'	-3 32	-3 20	-2.3	-0.9	1.8	2.6	1.6
	Time meridian, 30° W									
3	Martin Vaz, Ilhas	20° 29'	28° 53'	-0 08	+0 00	-1.8	-1.2	2.6	3.5	1.7
5	Trinidade, Ilha da	20° 30'	29° 22'	-0 01	+0 07	-1.3	-1.1	3.0	4.0	2.0
	Time meridian, 0°									
7	St. Helena Island	15° 55'	5° 43'	-0 19	-0 14	-1.1	-0.2	2.3	3.2	2.5
9	Ascension Island	7° 55'	14° 25'	+2 21	+2 20	-1.1	-0.2	2.3	3.0	2.5
	REPUBLIC of CAPE VERDE Time meridian, 30° W	**North**	**West**		**on Dakar, p.16**					
11	Porto da Praia, Sao Tiago Island	14° 55'	23° 31'	-2 29	-2 29	-0.7	-0.5	3.1	4.1	2.6
13	Porto da Faja, Brava Island	14° 52'	24° 45'	-2 25	-2 25	-1.6	-1.1	2.8	3.7	1.8
15	Porto Grande, Sao Vincente Island	16° 53'	25° 00'	-2 14	-2 07	(*0.67+0.5)		2.2	3.0	2.6
	CANARY ISLANDS, Etc. Time meridian, 0°				**on Casablanca, p.20**					
17	Puerto Hierro	27° 46'	17° 55'	-1 21	-1 19	*0.63	*0.59	4.6	6.4	4.3
19	Santa Cruz, Palma Island	28° 40'	17° 45'	-1 21	-1 19	*0.63	*0.59	4.6	6.4	4.3
21	San Sebastian de la Gomera	28° 06'	17° 07'	-1 01	-0 59	*0.63	*0.59	4.6	6.4	4.3
23	Santa Cruz, Tenerife Island	28° 29'	16° 14'	-1 22	-1 20	*0.67	*0.68	4.7	6.4	4.7
25	Puerto de la Luz, Gran Canaria Island	28° 09'	15° 25'	-1 01	-0 59	*0.70	*0.59	5.3	7.1	4.7
27	Puerto del Rosario, Fuerteventura Island	28° 29'	13° 51'	-0 51	-0 49	*0.63	*0.59	4.6	6.4	4.3
29	Puerto Arrecife, Lanzarote Island	28° 57'	13° 32'	-1 06	-1 04	-2.5	-1.4	6.0	7.8	5.0
31	Ilheu de Fora, Ilhas Selvagens	30° 02'	16° 03'	-0 44	-0 44	*0.70	*0.56	5.4	7.2	4.6
	MADEIRA ISLANDS									
33	Porto do Funchal, Madeira Island	32° 38'	16° 55'	-0 26	-0 25	*0.68	*0.62	5.0	6.7	4.6
35	Porto Moniz, Madeira Island	32° 52'	17° 10'	-0 19	-0 21	*0.70	*0.53	5.6	7.2	4.6
37	Porto da Cruz, Madeira Island	32° 47'	16° 49'	-0 14	-0 16	*0.70	*0.50	5.7	7.4	4.6
39	Porto Santo	33° 03'	16° 20'	-0 14	-0 16	*0.70	*0.53	5.3	7.1	4.6
	AZORES Time meridian, 15° W				**on Ponta Delgada, p.4**					
41	Vila do Porto, Island da Santa Maria	36° 57'	25° 09'	-0 07	-0 04	+0.1	-0.1	3.6	4.7	3.3
43	PONTA DELGADA, Sao Miguel Island	37° 44'	25° 40'		*Daily predictions*			3.4	4.6	3.3
45	Porto da Horta, Ilha do Faial	38° 32'	28° 37'	+0 01	+0 00	-0.3	+0.2	2.9	3.9	3.3
47	Porto de Angra, Ilha Terceira	38° 39'	27° 13'	+0 03	+0 01	-0.2	+0.1	3.1	4.1	3.3
49	Baia Praia, Ilha Terceira	38° 44'	27° 03'	+0 05	+0 09	+0.1	-0.2	3.7	4.9	3.3
51	Santa Cruz, Ilha Graciosa	39° 05'	28° 00'	-0 01	+0 02	0.0	0.0	3.4	4.4	3.3
53	Lajens, Flores Island	39° 23'	31° 11'	-0 05	-0 06	-0.4	+0.3	2.7	3.6	3.3
	AFRICA <1> SOUTH AFRICA and NAMIBIA Time meridian, 30° E	**South**	**East**		**on Cape Town, p.8**					
55	Knysna	34° 04'	23° 03'	+0 33	+0 23	+0.5	+0.2	3.7	5.2	3.8
57	Mosselbaai	34° 11'	22° 09'	+0 16	+0 12	+0.6	0.0	4.0	5.8	3.7
59	Hermanus	34° 25'	19° 14'	-0 04	-0 05	+0.2	+0.1	3.5	4.7	3.6
61	Simons Bay	34° 12'	18° 26'	-0 06	-0 04	+0.1	0.0	3.5	4.9	3.5
63	CAPE TOWN, Table Bay	33° 54'	18° 25'		*Daily predictions*			3.4	4.7	3.4
65	Saldanha	33° 01'	17° 57'	+0 00	-0 03	0.0	-0.1	3.5	4.9	3.3
67	Port Nolloth	29° 15'	16° 52'	-0 06	-0 07	-0.3	-0.7	3.8	5.1	2.9
69	Luderitz Bay	26° 38'	15° 09'	+0 01	-0 03	-1.0	-0.9	3.3	4.4	2.4
71	Walvisbaai	22° 57'	14° 30'	+0 11	-0 01	-0.4	-0.5	3.5	4.7	3.0
	ANGOLA to GABON Time meridian, 15° E				**on Takoradi, p.12**					
73	Baia dos Tigres	16° 36'	11° 44'	-0 15	+0 01	+0.3	+0.4	3.1	4.0	3.6
75	Porto Alexandre	15° 48'	11° 51'	-0 19	-0 20	+0.2	+0.5	2.9	3.7	3.6
77	Mocamedes	15° 12'	12° 09'	-0 14	-0 07	+0.3	+0.5	3.0	3.8	3.6
79	Baia de Santa Marta	13° 53'	12° 29'	-0 12	-0 05	+0.3	+0.5	3.0	3.9	3.6
81	Baia dos Elefantes	13° 14'	12° 43'	-0 04	-0 05	+0.4	+0.4	3.2	4.2	3.6
83	Benguela	12° 34'	13° 24'	-0 07	-0 07	+0.4	+0.4	3.2	4.2	3.6
85	Lobito	12° 21'	13° 33'	-0 12	-0 04	+0.3	+0.4	3.1	4.1	3.6
87	Porto Amboim	10° 44'	13° 45'	-0 04	-0 04	+0.4	+0.4	3.2	4.2	3.6
89	Porto de Luanda	8° 47'	13° 14'	+0 02	+0 05	+0.4	+0.3	3.3	4.4	3.6
91	Ambriz	7° 52'	13° 08'	+0 00	+0 00	+0.3	+0.3	3.2	4.2	3.5
93	Ambrizete	7° 15'	12° 54'	+0 10	+0 10	+0.3	+0.3	3.2	4.2	3.5
95	Ponta do Padrao, Congo River entrance	6° 05'	12° 20'	+0 18	+0 21	+0.4	+0.2	3.4	4.4	3.5
97	Baia de Cabinda	5° 33'	12° 12'	+0 15	+0 22	+0.6	+0.2	3.6	4.7	3.6
99	Pointe Noire	4° 48'	11° 50'	+0 05	+0 13	+0.1	-0.2	3.5	4.4	3.2
101	Mayumba	3° 23'	10° 38'	+0 21	+0 21	+0.7	+0.2	3.7	4.6	3.7
103	Cape Lopez	0° 37'	8° 42'	+0 43	+0 51	+1.1	+0.4	3.9	5.1	4.0
105	Kondjo entrance, Cape Lopez Bay	0° 43'	8° 56'	+0 57	+1 26	+1.1	+0.4	3.9	5.1	4.0

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	ANGOLA to GABON Time meridian, 15° E				**on Takoradi, p.12**					
107	Pointe Owendo, Gabon River	0° 17'	9° 30'	+1 24	+1 31	+2.6	+0.6	5.2	6.8	4.8
109	Cape Esteiras	0° 37'	9° 20'	+0 55	+1 02	+1.9	+0.6	4.5	6.0	4.5
		South	**East**							
111	Annobon Island	1° 25'	5° 37'	+0 18	+0 18	-0.6	-0.8	3.4	4.4	2.5
		North	**East**							
113	Bahia de Ana Chaves, Soa Tome	0° 22'	6° 34'	+0 42	+0 33	+0.9	+0.5	3.6	4.6	3.9
115	San Antonio Bay, Ilha do Principe	1° 38'	7° 25'	+1 01	+0 50	+0.9	+0.4	3.7	4.8	3.9
	EQUATORIAL GUINEA to NIGERIA									
117	Kogo, Rio Muni	1° 05'	9° 42'	+0 48	+1 10	*1.75	*1.75	5.6	7.6	5.1
119	San Benito River, Rio Muni	1° 32'	9° 40'	+1 03	+0 50	+0.3	-0.3	3.8	4.8	3.2
121	Bata Bay, Rio Muni	1° 51'	9° 48'	+0 53	+0 40	+0.3	-0.3	3.8	4.8	3.2
123	San Carlos Bay, Fernando Poo	3° 30'	8° 34'	+0 57	+0 51	+0.2	-0.3	3.7	4.8	3.2
125	Santa Isabel, Fernando Poo	3° 46'	8° 47'	+0 52	+0 46	+0.7	-0.2	4.1	5.3	3.5
127	Kribi, Cameroon	2° 56'	9° 55'	+1 29	+1 29	+0.7	-0.5	4.4	5.7	3.3
129	Cap Cameroon, Cameroon River	3° 54'	9° 29'	+1 53	+1 40	+2.2	+0.3	5.1	6.5	4.5
131	Douala, Cameroon River	4° 03'	9° 41'	+2 06	+2 14	+2.7	+0.6	5.3	6.8	4.9
133	Bimbia River entrance	3° 58'	9° 17'	+1 43	+1 30	+1.5	-0.5	5.2	6.7	3.7
135	Tiko, Bimbia River	4° 04'	9° 24'	+2 40	+2 40	+1.7	- -	- -	- -	4.0
137	Rio-del-Rey entrance	4° 18'	8° 51'	+1 20	+1 16	+2.6	+0.1	5.7	7.4	4.6
139	Calabar River approach	4° 20'	8° 22'	+1 17	+1 17	+1.3	-0.7	5.2	6.7	3.5
141	Tom Shot Point, Calabar River	4° 36'	8° 20'	+1 37	+1 37	+1.6	-0.9	5.7	7.4	3.6
143	Akpa-Yafe River	4° 41'	8° 32'	+2 05	+2 05	+2.5	+1.3	4.4	6.2	5.1
145	Calabar, Calabar River	4° 58'	8° 19'	+2 37	+2 59	+4.6	+0.9	6.9	8.1	6.0
147	Opobo River entrance	4° 29'	7° 35'	+0 53	+0 49	+1.4	-0.6	5.2	6.7	3.6
149	Bonny River Bar, Niger River Delta	4° 20'	7° 05'	+0 53	+0 40	+2.2	+0.7	4.7	6.1	4.7
151	Bonny, Bonny River	4° 27'	7° 10'	+1 29	+1 27	+2.2	+0.6	4.8	6.2	4.6
153	Port Harcourt, Bonny River	4° 46'	7° 00'	+3 02	+2 31	+2.5	-0.3	6.0	7.2	4.3
155	New Calabar River Bar	4° 21'	7° 02'	+0 40	+0 40	-0.5	-0.7	3.4	4.4	2.6
157	Bakana, New Calabar River	4° 44'	6° 58'	+2 28	+2 28	+1.7	-0.8	5.7	7.4	3.7
159	Sambreiro River	4° 47'	6° 46'	+2 38	+2 38	- -	- -	- -	- -	- -
161	Brass River entrance	4° 19'	6° 15'	+1 33	+1 33	+0.7	-0.7	4.6	5.9	3.2
163	Nun Entrance, Niger River	4° 19'	6° 04'	+1 27	+1 23	-0.5	-1.0	3.7	4.6	2.5
165	Forcados River Bar, Niger Delta	5° 23'	5° 13'	+1 00	+0 43	-0.2	-0.4	3.4	4.4	2.9
167	Forcados, Forcados River	5° 22'	5° 26'	+1 57	+2 07	-0.6	-0.6	3.2	4.2	2.6
169	Ogidigbe, Escravos River	5° 34'	5° 11'	+1 18	+1 17	0.0	0.0	3.2	4.1	3.2
171	Benin River Bar	5° 43'	5° 02'	+0 43	+0 43	-0.2	-0.2	3.2	4.2	3.0
173	Lagos entrance	6° 24'	3° 24'	+1 16	+1 16	-2.0	-1.4	2.6	3.4	1.5
175	Lagos, Lagos River	6° 27'	3° 23'	+1 36	+1 36	- -	- -	- -	- -	- -
	TOGO to IVORY COAST Time meridian, 0°									
177	Lome, Togo	6° 07'	1° 14'	+0 00	+0 00	-0.6	-0.3	2.9	3.8	2.8
	Ghana									
179	Ada Panya, Volta River	5° 47'	0° 38'	+0 09	+0 11	-0.9	-0.6	2.9	3.7	2.5
181	Tema	5° 37'	+0° 00'	+0 00	+0 00	-0.4	-0.4	3.2	4.2	2.8
		North	**West**							
183	Accra	5° 32'	0° 12'	-0 01	+0 07	-0.3	-0.4	3.3	4.2	2.9
185	Cape Coast	5° 06'	1° 14'	+0 02	+0 02	-0.3	-0.4	3.3	4.2	2.9
187	TAKORADI	4° 53'	1° 45'		*Daily predictions*			3.2	4.2	3.2
189	Dixcove	4° 48'	1° 57'	-0 19	-0 19	-0.7	-0.8	3.3	4.2	2.5
191	Axim	4° 52'	2° 15'	-0 02	-0 02	-0.7	-0.8	3.3	4.2	2.5
	Ivory Coast									
193	Vridi	5° 15'	4° 00'	+1 07	+1 14	*0.69	*0.69	2.0	2.8	2.3
195	Grand-Lahou	5° 09'	4° 59'	+0 13	+0 13	-0.7	-0.8	3.3	4.2	2.5
197	Mouillage de Sassandra	4° 57'	6° 03'	+0 17	+0 17	-0.1	-0.4	3.5	4.4	3.0
199	San Pedro River	4° 44'	6° 37'	+0 19	+0 19	-0.1	-0.4	3.5	4.4	3.0
201	Tabou River	4° 25'	7° 21'	+0 47	+0 47	-1.4	-1.0	2.8	3.6	2.0
	LIBERIA Time meridian, 11° 5' W				**on Cape Town, p.8**					
203	Harper	4° 22'	7° 44'	+1 38	+1 58	(*0.68+0.7)		2.3	3.0	3.0
205	Greenville	4° 59'	9° 02'	+2 16	+2 04	(*0.68+0.7)		2.3	3.0	3.0
207	Bafu Bay	5° 10'	9° 18'	+2 26	+2 14	*0.71	*0.65	2.5	3.2	2.4
209	Cestos Bay	5° 26'	9° 35'	+2 31	+2 19	*0.71	*0.65	2.5	3.2	2.4
211	Upper Buchanan	5° 55'	10° 04'	+2 41	+2 29	*0.63	*0.41	2.5	3.2	2.0
213	Junk River entrance	6° 08'	10° 23'	+2 46	+2 34	*0.63	*0.41	2.5	3.2	2.0
215	Marshall, Junk River	6° 09'	10° 23'	+3 53	+4 02	*0.55	*0.41	2.1	2.8	1.8
217	Harbel, Farmington River	6° 16'	10° 20'	+4 34	+5 00	*0.57	*0.41	2.2	2.9	1.8
219	Monrovia	6° 20'	10° 48'	+2 51	+2 39	*0.75	*0.59	2.8	3.6	2.4
221	Cape Mount Bay	6° 44'	11° 23'	+3 01	+2 49	*0.53	*0.29	2.2	3.2	1.6
	SIERRA LEONE Time meridian, 0°				**on Casablanca, p.20**					
223	Kerefe River	7° 00'	11° 39'	-7 05	-7 05	*0.38	*0.26	3.1	4.0	2.5
225	Shenge Point, Sherbro River	7° 55'	12° 58'	-6 46	-6 17	-1.8	-1.8	7.1	9.2	5.2
227	Buoy Point, Sherbro River	7° 42'	12° 42'	-6 02	-5 26	-1.8	-1.5	6.8	8.8	5.3
229	York Island, Sherbro River	7° 32'	12° 29'	-5 19	-4 09	*0.54	*0.47	4.1	5.3	3.7
231	Banana Islands	8° 08'	13° 11'	-6 44	-6 33	-1.9	-0.8	6.0	8.0	5.6

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	SIERRA LEONE Time meridian, 0°			**on Casablanca, p.20**						
233	Freetown	8° 30'	13° 14'	-6 29	-6 21	-1.5	-1.2	6.8	8.8	5.6
235	Maroon River	8° 25'	13° 07'	-5 49	-5 54	-0.9	-0.9	7.1	9.2	6.1
237	Pepel	8° 35'	13° 04'	-5 46	-5 34	-1.3	-1.7	7.5	9.7	5.5
	GUINEA									
239	Tana Island, Melikhoure River	9° 10'	13° 16'	-6 28	-5 58	+1.1	-1.2	9.4	11.3	6.9
241	Conakry	9° 30'	13° 43'	-6 28	-6 19	+0.2	-0.5	7.8	10.3	6.8
243	Dubreka	9° 47'	13° 32'	-5 35	-5 35	+2.8	-1.0	10.9	14.1	7.9
245	Taboriya	9° 58'	13° 57'	-6 33	-6 37	+0.5	-0.6	8.2	10.6	6.9
247	Port Kakande, Rio Nunez	10° 39'	14° 37'	-5 26	-5 06	+4.6	+0.5	11.2	14.3	9.5
	GUINEA-BISSAU Time meridian, 15° W									
249	Joao Vieira Island	11° 03'	15° 38'	-5 36	-5 22	+2.7	+0.1	9.7	12.2	8.4
251	Cacine	11° 08'	15° 01'	-5 38	-5 25	+7.0	+0.8	13.3	17.3	10.9
253	Bubaque, Bubaque Island	11° 20'	15° 52'	-5 11	-5 14	+2.8	-0.1	10.0	12.4	8.3
255	Porto de Bolama	11° 35'	15° 29'	-4 26	-4 22	+4.8	-0.3	12.2	15.1	9.2
257	Porto de Bissau	11° 51'	15° 35'	-3 49	-3 18	+5.1	-0.4	12.6	15.5	9.3
259	Jabada, Geba River	11° 53'	15° 21'	-3 19	-2 39	+7.6	0.0	14.7	17.8	10.8
261	Biombo	11° 44'	15° 57'	-4 32	-4 14	-2.1	-0.8	10.0	11.3	7.6
263	Ilheu de Caio	11° 50'	16° 20'	-4 59	-4 58	-0.9	-0.6	6.8	8.5	6.2
265	Porto do Cacheu	12° 17'	16° 10'	-4 16	-4 12	*0.77	*0.50	6.4	7.8	4.9
	SENEGAL to MAURITANIA Time meridian, 0°			**on Dakar, p.16**						
267	Riviere Casamance entrance	12° 34'	16° 44'	+0 17	+0 27	+0.1	0.0	3.4	4.4	3.2
269	Karabane, Riviere Casamance	12° 33'	16° 42'	+0 27	+0 51	-0.1	+0.1	3.1	4.2	3.2
	Gambia River									
271	Cape St. Mary	13° 29'	16° 40'	+0 10	+0 19	+0.4	-0.4	4.1	5.3	3.2
273	Banjul	13° 27'	16° 34'	+0 57	+1 09	+0.5	-0.2	4.0	5.1	3.3
275	St. James Island	13° 19'	16° 22'	+2 19	+2 37	+0.7	-0.1	4.1	5.3	3.5
277	Salekini Point	13° 26'	16° 02'	+4 00	+4 30	+1.7	-0.8	5.8	7.5	3.6
279	Balingho	13° 29'	15° 36'	+5 45	+6 30	+2.4	-0.8	6.5	8.4	4.0
281	Kuntaur	13° 39'	14° 52'	+10 44	+11 34	+0.5	-0.8	4.6	6.0	3.0
283	Pointe de Sangomar, Saloum River	13° 51'	16° 46'	+0 11	+0 21	-0.1	+0.5	2.7	3.6	3.3
285	DAKAR	14° 40'	17° 25'		*Daily predictions*			3.3	4.4	3.2
287	St. Louis	16° 01'	16° 30'	+0 40	+0 40	0.0	0.0	3.3	4.4	3.3
289	Portendick	18° 35'	16° 05'	+1 50	+1 50	+0.3	0.0	3.6	4.8	3.3
291	Bale d'Arguin	20° 33'	16° 31'	+2 50	+2 50	+0.2	-0.1	3.6	4.8	3.2
293	Port Etienne, Levrier Bay	20° 55'	17° 02'	+2 44	+2 55	+1.4	+0.8	3.9	5.3	4.3
	SPANISH SAHARA			**on Casablanca, p.20**						
295	La Guera	20° 50'	17° 06'	-3 13	-2 59	*0.40	*0.38	2.9	4.0	2.8
297	Rio de Oro	23° 38'	15° 59'	-1 32	-1 37	*0.64	*0.56	4.8	6.3	4.3
299	Villa Cisneros	23° 42'	15° 55'	-1 12	-1 17	*0.67	*0.65	4.8	6.3	4.6
301	Cabo Bojador	26° 07'	14° 30'	-1 24	-1 10	*0.57	*0.50	4.3	5.9	3.9
	MOROCCO									
303	Cap Juby	27° 57'	12° 56'	-1 20	-1 20	-1.6	-1.2	6.7	9.0	5.6
305	Tamajarusch, Ifni	29° 33'	10° 04'	-0 38	-0 32	-1.0	-0.3	6.4	8.3	6.3
307	Agadir	30° 25'	9° 37'	-0 32	-0 26	-0.2	+0.4	6.5	8.5	7.1
309	Essaouira	31° 31'	9° 47'	-0 34	-0 26	+1.0	+0.7	7.4	9.9	7.8
311	Safi	32° 20'	9° 17'	-0 16	-0 10	-0.1	+0.2	6.8	8.6	7.0
313	El Jadida	33° 15'	8° 30'	-0 09	-0 04	-0.3	+0.1	6.7	8.9	6.9
315	CASABLANCA	33° 36'	7° 37'		*Daily predictions*			7.1	9.5	7.0
317	Rabat	34° 02'	6° 50'	+0 02	+0 08	-0.5	+0.4	6.2	8.2	6.9
319	Mehdiya	34° 16'	6° 40'	+0 01	-0 04	+0.3	+0.7	6.7	8.8	7.5
321	Kenitra	34° 16'	6° 35'	+1 00	+1 20	*0.71	*0.82	4.7	6.3	5.2
323	Larache	35° 12'	6° 09'	+0 09	+0 15	-1.9	-0.4	5.6	7.9	5.8
325	Asilah	35° 28'	6° 02'	+0 14	+0 20	*0.79	*0.88	5.3	7.6	9.6
327	Tanger, Strait of Gibraltar	35° 47'	5° 48'	+0 24	+0 19	*0.64	*0.56	4.8	6.4	4.3
	MEDITERRANEAN SEA MOROCCO			**on Gibraltar, p.32**						
329	Ceuta, Strait of Gibraltar	35° 53'	5° 16'	-0 52	-0 57	+0.8	+0.2	2.1	2.8	1.9
331	Tetouan Bay	35° 37'	5° 17'	-0 46	- - -	-0.1	+0.3	1.7	2.5	1.8
333	Alhucemas Bay	35° 14'	3° 55'	-0 40	- - -	*0.67	*1.17	1.1	1.5	1.2
335	Melilla	35° 18'	2° 57'	-0 38	- - -	*0.63	*1.00	1.1	1.5	1.2
337	Islas Chafarinas	35° 11'	2° 26'	-0 36	- - -	*0.56	*0.83	1.0	1.4	1.0
	ALGERIA	**North**	**East**							
339	Cap Ivi	36° 07'	0° 13'	-0 32	- - -	(*0.43+0.7)		0.9	1.2	1.4
341	Algiers	36° 47'	3° 04'	- - -	- - -	- -	- -	0.2	- -	- -
343	Collo	37° 00'	6° 35'	-0 15	- - -	(*0.48+0.8)		1.0	1.4	1.7

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	TUNISIA Time meridian, 0°				**on Gibraltar, p.32**					
345	Banzart <2>	37° 17'	9° 53'	- - -	- - -	- -	- -	- -	- -	- -
347	Halq al Wadi, Tunis entrance <2>	37° 49'	10° 18'	- - -	- - -	- -	- -	- -	- -	- -
349	Susah <2>	35° 50'	10° 39'	- - -	- - -	- -	- -	- -	- -	- -
					on Sfax, p.24					
351	SFAX	34° 44'	10° 46'	- - -	- - -	- -	- -	3.1	4.6	3.2
353	Gabis	33° 54'	10° 07'	+0 14	+0 09	+1.4	+0.8	3.7	5.5	4.3
355	Hawmat As Suq	33° 53'	10° 51'	+0 25	+1 08	(*0.77+1.0)		2.4	3.6	3.5
357	Jarjis	33° 30'	11° 07'	+0 03	-0 02	(*0.55+0.3)		1.7	2.5	2.1
	LIBYA Time meridian, 30° E				**on Gibraltar, p.32**					
359	Tripoli (Tarabulus)	32° 54'	13° 11'	+1 25	+1 25	*0.52	*1.33	0.6	0.9	1.0
361	Banghazi	32° 07'	20° 03'	-0 19	- - -	*0.37	*0.33	0.8	1.2	0.6
	EGYPT <4>									
363	Alexandria	31° 12'	29° 52'	- - -	- - -	- -	- -	1.1	1.5	0.6
365	Port Said	31° 16'	32° 19'	-5 20	-4 45	*0.74	*1.83	0.9	1.3	1.6
	ISRAEL and LEBANON									
367	Tel Aviv-Yafo	32° 03'	34° 44'	-5 05	- - -	*0.41	*0.33	0.9	1.5	0.6
369	Beirut	33° 54'	35° 30'	-4 56	- - -	*0.44	*0.33	1.0	1.4	0.7
371	Tarabulus (Tripoli)	34° 27'	34° 49'	-4 42	- - -	*0.63	*1.00	1.1	1.7	1.2
	CYPRUS and TURKEY									
373	Kyrenia, Cyprus	35° 20'	33° 19'	-5 07	-4 46	(*0.33+0.8)		0.7	1.1	1.4
375	Famagusta, Cyprus	35° 07'	33° 57'	-5 00	-4 38	(*0.38+0.7)		0.6	0.9	1.4
377	Izmir <4>	38° 25'	27° 08'	-5 39	- - -	-0.6	0.0	1.5	2.5	1.4
	GREECE									
379	Thessaloniki	40° 38'	22° 57'	+1 44	- - -	*0.56	*0.83	1.0	1.4	1.0
381	Volos, Gulf of Volos <4>	39° 22'	22° 58'	-5 20	- - -	-0.5	+0.1	1.5	2.1	1.4
383	Patras, Gulf of Corinth	38° 14'	21° 45'	+2 15	- - -	-0.8	-0.2	1.5	2.3	1.2
	YUGOSLAVIA Time meridian, 15° E									
385	Bar	42° 04'	19° 05'	+1 00	+1 15	*0.41	*0.83	0.6	0.9	0.8
387	Dubrovnik (Ragusa)	42° 38'	18° 06'	+0 46	+1 11	*0.30	*0.17	0.7	1.0	0.5
								Mean	Diurnal	
389	Sant Andrea Island #	43° 02'	15° 46'	- - -	- - -	- -	- -	- -	0.8	1.7
					on Venezia, p.28					
391	Komiza, Vis Island #	43° 03'	16° 05'	-7 09	- - -	- -	- -	- -	0.9	0.8
393	Rogiznica #	43° 32'	15° 58'	-6 00	- - -	- -	- -	- -	0.8	0.8
395	Sibenik #	43° 44'	15° 52'	-6 12	- - -	- -	- -	- -	0.8	0.8
397	Zadar #	44° 08'	15° 12'	-2 50	- - -	- -	- -	- -	0.7	0.8
399	Senj #	44° 59'	14° 54'	-2 30	- - -	- -	- -	- -	1.0	1.2
401	Rijeka #	45° 20'	14° 26'	-2 17	- - -	*0.60	*0.87	- -	1.3	1.1
403	Pula #	44° 52'	13° 50'	-1 43	-1 44	*0.68	*0.62	- -	1.9	1.1
	ITALY									
								Mean	Spring	
405	Trieste <5>	45° 39'	13° 45'	-1 18	-1 15	+0.2	-0.1	2.0	2.8	1.7
407	Grado <5>	45° 41'	13° 23'	-0 20	-0 20	0.0	0.0	1.7	2.4	1.7
409	VENEZIA (Punta della Salute) <5>	45° 26'	12° 20'		*Daily predictions*			1.7	2.4	1.7
411	Malamocco <5>	45° 20'	12° 21'	-0 39	-0 39	0.0	0.0	1.7	2.6	1.7
413	Chioggia <5>	45° 14'	12° 18'	-0 30	-0 30	0.0	0.0	1.7	2.4	1.7
								Mean	Diurnal	
415	Pesaro #	43° 55'	12° 55'	- - -	- - -	- -	- -	- -	1.1	1.2
417	Ancona #	43° 37'	13° 30'	- - -	- - -	- -	- -	- -	1.1	1.0
					on Gibralter, p.32					
419	Brindisi	40° 39'	17° 58'	- - -	- - -	- -	- -	0.5	0.9	0.6
421	Taranto	40° 28'	17° 13'	- - -	- - -	- -	- -	0.3	0.5	0.6
423	Messina, Sicily	38° 12'	15° 34'	- - -	- - -	- -	- -	0.3	0.4	0.5
425	Valletta, Malta	35° 53'	14° 31'	- - -	- - -	- -	- -	0.2	0.5	1.5
427	Palermo, Sicily	38° 08'	13° 22'	+6 18	+6 34	*0.33	*0.17	0.8	1.0	0.5
429	Lipari, Lipari Islands	38° 29'	14° 58'	+6 21	+6 31	*0.41	*0.50	0.8	1.1	0.7
431	Milazzo, Sicily	38° 13'	15° 15'	+6 27	+6 32	*0.41	*0.50	0.8	1.1	0.7
433	Cagliari, Sardinia	39° 12'	9° 06'	- - -	- - -	- -	- -	0.6	0.8	0.7
435	Naples	40° 50'	14° 15'	- - -	- - -	- -	- -	0.9	1.3	0.8
437	Genoa	44° 23'	8° 56'	- - -	- - -	- -	- -	0.5	0.7	0.6

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	FRANCE Time meridian, 15° E				**on Gibralter, p.32**					
439	Nice	43° 42'	7° 16'	- - -	- - -	- -	- -	0.5	0.7	- -
441	Toulon	43° 07'	5° 56'	- - -	- - -	- -	- -	0.3	0.5	1.2
443	Marseille	43° 18'	5° 22'	- - -	- - -	- -	- -	0.3	0.5	1.2
	SPAIN South Coast	**North**	**West**							
445	Malaga	36° 43'	4° 25'	-0 09	+0 15	*0.63	*0.67	1.3	1.8	1.1
447	GIBRALTAR	36° 08'	5° 21'		*Daily predictions*			2.1	2.9	1.7
449	Tarifa, Strait of Gibralter	36° 00'	5° 36'	-0 22	-0 27	+0.9	+0.2	2.8	3.7	2.2
					on Lisbon, p.36					
451	Conil	36° 17'	6° 05'	-0 43	-0 20	-3.2	-0.9	6.1	8.5	5.2
453	La Carraca	36° 30'	6° 11'	+0 13	+0 27	-1.4	-0.3	7.3	9.7	6.4
455	Cadiz	36° 32'	6° 17'	+0 02	+0 30	-1.9	-0.4	6.9	9.3	6.1
457	Rota	36° 37'	6° 21'	-0 08	+0 15	-1.6	-0.9	7.7	10.1	6.0
459	Bajo Salmedina	36° 44'	6° 28'	-0 36	-0 10	-1.8	+0.1	6.5	9.1	6.4
461	Sanlucar, Rio Guadalquivir	36° 47'	6° 21'	+0 22	+0 59	-2.3	-0.6	6.7	8.9	5.8
463	Sevilla, Rio Guadalquivir	32° 22'	6° 00'	+3 29	+4 54	-2.2	0.0	6.2	7.7	6.1
465	Huelva, Rio Odiel	37° 15'	6° 58'	+0 13	+0 41	-1.2	-0.7	7.9	10.3	6.3
467	Ayamonte	37° 13'	7° 25'	+0 02	+0 34	-2.2	-0.8	7.0	9.0	5.7
	PORTUGAL Time meridian, 0°									
469	Vila Real de Santo Antonio	37° 11'	7° 25'	-0 58	-0 12	-1.5	+0.2	6.7	8.6	6.6
471	Faro bar	36° 58'	7° 52'	-0 50	-0 08	-1.5	+0.4	6.5	8.4	6.7
473	Ponta da Balieira	37° 05'	8° 16'	-0 40	-0 09	-1.3	+0.7	6.4	8.6	6.9
475	Ponta do Altar	37° 06'	8° 31'	-0 53	-0 22	-1.3	+0.7	6.4	8.6	6.9
477	Lagos	37° 06'	8° 40'	-1 05	-0 38	-1.3	+0.1	7.0	9.4	6.6
479	Ponta de Sagres	37° 00'	8° 57'	-0 43	-0 17	-1.4	+0.2	6.8	8.9	6.6
481	Arrifana	37° 17'	8° 52'	-0 14	+0 12	+1.4	+0.2	6.8	8.9	6.6
483	Vila Nova de Milfontes	37° 43'	8° 47'	-0 25	+0 01	-1.5	+0.2	6.7	8.9	6.6
485	Enseada de Sines	37° 57'	8° 53'	-0 30	-0 04	-1.7	+0.1	6.6	8.7	6.4
487	Setubal, Setubal Harbor	38° 31'	8° 54'	-0 25	-0 04	-1.3	-0.2	7.3	9.5	6.5
489	Sezimbra	38° 26'	9° 06'	-0 51	-0 23	-1.4	+0.1	6.9	9.1	6.6
491	LISBON, Tagus River	38° 42'	9° 08'		*Daily predictions*			8.4	10.8	7.2
493	Cascais	38° 42'	9° 25'	-0 33	-0 07	-0.9	+0.9	6.6	8.7	7.2
495	Peniche	39° 21'	9° 23'	-0 18	+0 08	-2.0	-0.4	6.8	8.9	6.0
497	Baia de Pederneira	39° 36'	9° 05'	-0 16	+0 10	-1.6	-0.3	7.1	9.3	6.2
499	Figueira da Foz	40° 09'	8° 52'	-0 13	+0 13	-1.6	-0.3	7.1	9.3	6.2
501	Barra de Aveiro	40° 38'	8° 45'	-0 10	+0 03	*0.61	*0.73	4.8	6.2	4.6
503	Cantareira, Rio Douro	41° 09'	8° 40'	-0 03	+0 20	-1.6	+0.2	6.6	8.6	6.5
505	Oporto, Rio Douro	41° 08'	8° 36'	-0 05	+0 35	-1.6	-0.1	6.9	8.9	6.4
507	Porto de Leixoes	41° 11'	8° 42'	-0 06	-0 13	-1.2	-0.1	7.3	10.0	6.6
509	Povoa de Varzim	41° 22'	8° 46'	-0 12	+0 14	-1.5	+0.2	6.7	8.8	6.5
511	Esposende, Rio Cavado	41° 32'	8° 47'	-0 13	+0 13	-1.8	+0.2	6.4	8.5	6.4
513	Viana do Castelo	41° 41'	8° 50'	-0 12	+0 14	-1.7	+0.1	6.6	8.7	6.4
	SPAIN West and North Coasts Time meridian, 15° E									
515	La Guardia	41° 54'	8° 53'	+0 37	+1 09	-1.4	-0.7	7.7	10.2	6.1
517	Puerto de Bayona	42° 08'	8° 50'	+0 27	+0 59	-1.1	-0.4	7.7	10.2	6.4
519	Vigo	42° 15'	8° 43'	+0 40	+1 11	-1.1	-0.4	7.7	10.1	6.5
521	Marin	42° 24'	8° 42'	+0 50	+1 21	-1.4	-0.3	7.3	9.7	6.4
523	Villagarcia de Arosa	42° 36'	8° 46'	+0 40	+1 11	-0.8	-0.2	7.8	10.2	6.7
525	Santa Eugenia de Ribeira	42° 33'	8° 59'	+0 32	+1 04	-1.1	-0.4	7.7	10.2	6.4
527	Cabo Corrubedo	42° 35'	9° 05'	+0 32	+1 04	-1.4	-0.7	7.7	10.2	6.2
529	Freijo	42° 48'	8° 59'	+0 27	+0 59	-0.8	-0.4	8.0	10.5	6.6
531	Muros	42° 46'	9° 03'	+0 47	+1 19	-1.1	-0.4	7.7	10.2	6.4
533	Corcubion	42° 57'	9° 12'	+0 52	+1 24	-1.4	-0.7	7.7	10.2	6.1
535	Ria de Camarinas	43° 08'	9° 11'	+0 51	+1 18	-0.5	-0.4	8.3	11.0	6.8
537	Corme-Puerto	43° 16'	8° 58'	+0 41	+1 08	-0.8	-0.7	8.3	11.0	6.5
539	La Coruña	43° 23'	8° 23'	+0 52	+1 23	-0.6	-0.4	8.2	10.8	6.7
541	El Ferrol	43° 28'	8° 16'	+1 00	+1 32	-0.3	-0.2	8.3	10.8	7.0
543	Cedeira	43° 40'	8° 04'	+1 36	+2 03	+0.2	-0.4	9.0	11.8	7.1
545	Carino	43° 44'	7° 52'	+1 21	+1 48	+0.2	-0.4	9.0	11.8	7.1
547	Ria de Vivero	43° 43'	7° 36'	+1 25	+1 53	+0.1	-0.5	9.0	11.8	7.0
549	Ria de Foz	43° 34'	7° 14'	+1 25	+1 53	+0.1	-0.2	8.7	11.5	7.2
551	Ribadeo	43° 32'	7° 02'	+1 25	+1 53	+0.1	-0.5	9.0	11.8	7.0
553	Luarca	43° 33'	6° 32'	+1 25	+1 53	+0.7	-0.2	9.3	12.2	7.5
555	Ria de Pravia	43° 34'	6° 05'	+1 10	+1 38	+0.1	-0.2	8.7	11.5	7.2
557	Aviles	43° 36'	5° 57'	+1 06	+1 38	+0.3	0.0	8.7	11.4	7.4
559	Luanco	43° 37'	5° 47'	+1 05	+1 33	+0.1	-0.2	8.7	11.5	7.2
561	Gijon	43° 33'	5° 40'	+1 10	+1 38	+0.5	-0.1	9.0	11.8	7.4
563	Ribadesella	43° 28'	5° 04'	+1 20	+1 48	+0.4	-0.2	9.0	11.8	7.3
565	Llanes	43° 25'	4° 45'	+1 20	+1 48	+0.1	-0.2	8.7	11.5	7.2
567	San Vicente de la Barquera	43° 23'	4° 23'	+1 12	+1 39	+0.4	0.0	8.8	11.7	7.4
569	Ria de Suances	43° 27'	4° 02'	+1 37	+2 04	0.0	-0.3	8.7	11.6	7.1
571	Santander	43° 28'	3° 47'	+1 21	+1 46	+0.5	-0.2	9.1	12.0	7.4
573	Santona	43° 26'	3° 27'	+1 27	+1 54	+0.4	0.0	8.8	11.7	7.4
575	Castro Urdiales	43° 23'	3° 13'	+0 57	+1 24	0.0	-0.3	8.7	11.6	7.1

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	SPAIN West and North Coasts-cont. Time meridian, 15° E					**on Lisbon, p.36**				
577	Bilbao Bay	43° 21'	3° 02'	+0 54	+1 21	+0.5	-0.3	9.2	12.1	7.3
579	Portugalete, Abra Bilbao	43° 20'	3° 02'	+1 19	+1 46	+0.5	-0.3	9.2	12.1	7.3
581	Bilbao	43° 16'	2° 56'	+2 03	+2 03	+0.6	0.0	9.0	11.8	7.5
583	Bermeo	43° 25'	2° 43'	+1 43	+2 06	+1.9	0.0	10.3	13.3	8.2
585	Lequeitio	43° 22'	2° 30'	+1 23	+1 46	+0.6	0.0	9.0	12.0	7.5
587	Ondarroa	43° 19'	2° 25'	+1 28	+1 51	-0.1	-0.3	8.6	11.6	7.0
589	Deva	43° 18'	2° 21'	+1 33	+1 56	+0.6	0.0	9.0	12.0	7.5
591	Guetaria	43° 18'	2° 12'	+1 33	+1 56	+0.6	0.0	9.0	12.0	7.5
593	Ria de Orio	43° 17'	2° 08'	+1 28	+1 51	+0.6	0.0	9.0	12.0	7.5
595	San Sebastian	43° 19'	2° 00'	+1 28	+1 51	+0.6	0.0	9.0	12.0	7.5
597	Pasajes	43° 20'	1° 56'	+1 14	+1 40	+0.7	-0.1	9.2	12.1	7.5
599	Fuenterrabia	43° 22'	1° 48'	+1 38	+2 01	+0.9	0.0	9.3	12.3	7.7
	FRANCE Bay of Biscay					**on Pointe de Grave, p.40**				
601	St. Jean de Luz (socoa)	43° 24'	1° 41'	-0 31	-0 22	-3.6	-1.9	9.3	12.5	7.5
603	Le Boucau, Adour River	43° 31'	1° 30'	-0 29	-0 23	-5.6	-3.1	8.5	11.5	5.9
605	Cap Ferret, Bassin D'Arcachon	44° 37'	1° 15'	-0 04	+0 00	-4.8	-2.2	8.4	11.3	6.7
607	Arcachon	44° 40'	1° 10'	+0 24	+0 28	-3.5	-2.7	10.2	19.9	7.1
	Gironde River									
609	POINTE DE GRAVE	45° 34'	1° 04'			*Daily predictions*		11.0	14.1	10.2
611	Cordouan	45° 35'	1° 10'	-0 18	-0 18	-1.3	-0.7	10.4	14.0	9.2
613	Royan	45° 37'	1° 02'	-0 05	-0 03	-0.5	-0.3	10.8	13.8	9.8
615	La Marechale	45° 19'	0° 47'	+0 44	+1 31	+0.4	-1.3	12.7	15.8	9.8
617	Pauillac	45° 12'	0° 45'	+0 58	+1 59	+0.8	-1.8	13.6	16.8	9.9
619	Blaye <6>	45° 08'	0° 40'	+1 20	+2 43	+0.1		13.4	16.2	9.1
621	Bordeaux, Garonne River <6>	44° 50'	0° 34'	+2 24	+4 22	-0.2		15.2	17.5	7.9
623	La Cayenne, Seudre River	45° 47'	1° 07'	-0 28	-0 12	+1.4	+1.4	11.0	14.3	11.6
625	Rochefort, Charente River <6>	45° 57'	0° 58'	-0 10	+1 06	+3.3		13.2	16.4	12.4
627	Ile d'Aix	46° 01'	1° 10'	-0 18	-0 08	+2.5	+0.2	13.3	17.5	11.6
629	La Rochelle	46° 09'	1° 09'	-0 24	-0 10	+1.2	-0.7	12.9	16.8	10.5
631	La Pallice	46° 10'	1° 13'	-0 24	-0 15	+0.8	-0.8	12.6	16.3	10.2
633	St. Martin, Ile de Re	46° 12'	1° 22'	-0 33	-0 04	+1.7	-0.1	12.8	17.6	11.0
635	Les Sables d'Olonne	46° 30'	1° 47'	-0 23	-0 01	-0.9	-0.7	10.8	14.2	9.4
637	St. Gilles sur Vie	46° 42'	1° 56'	-0 43	-0 19	-0.2	-0.6	11.4	15.0	9.8
639	Port Joinville, Ile d'Yeu	46° 42'	2° 20'	-0 59	-0 19	-1.9	-1.9	11.0	14.5	8.3
641	Fromentine	46° 54'	2° 10'	-0 41	+0 15	-0.3	-1.0	11.7	15.3	9.6
643	Bois de la Chaise, Noirmoutier Island	47° 01'	2° 13'	-0 42	+0 10	-0.3	-1.6	12.3	16.0	9.3
645	Pornic	47° 07'	2° 06'	-0 43	+0 17	0.0	-1.6	12.6	16.6	9.4
647	St. Nazaire, Loire River	47° 16'	2° 12'	-0 23	+0 17	+0.1	-1.3	12.4	16.1	9.6
649	Paimboeuf, Loire River	47° 17'	2° 02'	+0 07	+1 09	-0.6	-1.0	11.4	14.9	9.4
651	Nantes, Loire River <6>	47° 13'	1° 35'	+1 14	+3 24	+0.9		11.8	14.2	10.7
653	Le Pouliguen	47° 17'	2° 25'	-0 37	+0 02	-0.3	-0.8	11.5	15.7	9.6
655	Le Croisic	47° 18'	2° 31'	-0 37	-0 09	+0.8	0.0	11.8	15.5	10.6
657	Penerf	47° 31'	2° 37'	-0 27	-0 05	+0.2	-0.7	11.9	15.7	10.0
659	Port Navalo, Morbihan entrance	47° 33'	2° 55'	-0 19	+0 09	-1.2	-1.0	10.8	14.0	9.1
661	Vannes, Morbihan	47° 40'	2° 46'	+1 43	- - -	-1.4	+0.8	8.8	11.4	9.9
663	Auray, Morbihan	47° 40'	2° 59'	+0 08	- - -	-0.2	-0.4	11.2	15.2	9.9
665	La Trinite, Crach River	47° 35'	3° 02'	-0 27	-0 05	+0.1	-0.4	11.5	15.2	10.1
667	Le Palais, Belle Ile	47° 21'	3° 09'	-0 37	-0 16	-0.5	-0.7	11.2	15.3	9.6
669	Port Louis	47° 42'	3° 21'	-0 33	-0 11	-1.1	-1.0	10.9	14.2	9.2
671	Lorient	47° 45'	3° 21'	-0 27	-0 13	-1.1	-1.0	10.9	14.2	9.2
673	Ile de Penfret	47° 43'	3° 57'	-0 33	-0 14	-1.4	-1.0	10.6	13.9	9.0
675	Concarneau	47° 52'	3° 54'	-0 29	-0 13	-1.3	-0.9	10.6	13.9	9.1
677	Benodet, Odet River	47° 53'	4° 07'	-0 28	-0 13	-1.4	-1.0	10.6	13.9	9.0
679	Loctudy	47° 50'	4° 10'	-0 31	-0 13	-1.4	-0.7	10.3	13.8	9.2
681	Penmarch	47° 48'	4° 22'	-0 35	-0 17	-1.1	-0.9	10.8	14.0	9.2
683	Audierne	48° 01'	4° 33'	-0 41	-0 19	+1.9	+1.6	11.3	15.2	11.9
	FRANCE and CHANNEL ISLANDS English Channel					**on Brest, p.44**				
685	Ile de Sein	48° 02'	4° 52'	-0 14	-0 18	-2.6	-1.0	13.2	17.6	12.8
687	Douarnenez	48° 06'	4° 20'	-0 10	-0 22	-0.8	0.0	14.0	18.6	14.2
689	Camaret	48° 16'	4° 36'	-0 08	-0 10	-0.2	+0.2	14.4	19.4	14.6
691	BREST	48° 20'	4° 29'			*Daily predictions*		14.8	19.6	14.6
693	Le Conquet	48° 22'	4° 47'	-0 05	+0 00	-0.2	+0.1	14.5	19.4	14.6
695	Ile de Molene	48° 24'	4° 58'	+0 08	+0 14	+0.1	-0.4	15.3	20.7	14.5
697	Ile d'Ouessant	48° 27'	5° 06'	-0 04	+0 03	+0.2	0.0	15.0	20.3	14.7
699	L'Aberbenoit entrance	48° 35'	4° 38'	+0 22	+0 33	+1.9	-0.3	17.0	22.3	15.4
701	L'Abervrach (Fort Cezon)	48° 36'	4° 35'	+0 42	+0 34	+1.9	-0.2	16.9	22.2	15.5
703	Roscoff	48° 43'	3° 58'	+0 54	+1 00	+3.2	-0.9	18.9	25.0	15.8
705	Morlaix River entrance	48° 41'	3° 53'	+1 01	+1 05	+4.3	+0.3	18.8	24.8	16.9
707	Ploumanach	48° 50'	3° 29'	+1 15	+1 12	+4.7	-0.4	19.9	26.2	16.7
709	Plougrescan, Treguier River	48° 51'	3° 13'	+1 18	+1 23	+6.6	+0.6	20.8	27.3	18.2
711	Heaux-de-Brehat	48° 54'	3° 05'	+1 53	+1 46	+6.8	+0.1	21.5	29.0	18.0
713	Ile de Brehat	48° 51'	3° 00'	+1 49	+1 48	+8.9	+0.2	23.5	30.8	19.2
715	Lezardrieux	48° 47'	3° 06'	+1 49	+1 48	+8.1	-0.8	23.7	31.1	18.3
717	Paimpol	48° 47'	3° 02'	+1 51	+1 58	+8.4	-1.6	24.8	32.6	18.0
719	Binic	48° 36'	2° 49'	+2 01	+2 13	+11.2	+1.6	24.4	32.6	21.0
721	Le Legue entrance	48° 32'	2° 43'	+2 01	+2 13	+11.2	+1.6	24.4	32.6	21.0
723	Erquy	48° 38'	2° 28'	+1 59	+2 17	+11.3	+1.5	24.6	32.6	21.0
725	St. Malo	48° 38'	2° 02'	+2 04	+2 37	(*1.77-3.3)		26.2	35.1	22.5

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	FRANCE and CHANNEL ISLANDS English Channel-cont. Time meridian, 15° E					**on Brest, p.44**				
727	Cancale	48° 41'	1° 51'	+2 07	+2 49	(*1.88-1.8)		27.8	37.2	25.6
729	Granville	48° 50'	1° 37'	+2 06	+2 49	(*1.91-4.2)		28.2	37.8	23.7
731	Carteret	49° 22'	1° 47'	+2 30	+2 58	+10.5	+1.7	23.6	31.5	20.7
733	Dielette	49° 33'	1° 52'	+2 40	+2 57	+6.3	+0.6	20.5	27.4	18.1
735	Iles Chausey	48° 52'	1° 49'	+2 13	+2 49	(*1.82-2.0)		26.9	35.9	24.6
737	Les Minquiers, Bailiwick of Jersey	48° 57'	2° 08'	+2 27	+2 46	(*1.70-3.6)		25.1	32.9	21.2
739	St. Helier, Bailiwick of Jersey	49° 11'	2° 07'	+2 23	+2 38	(*1.59-3.0)		23.6	32.1	20.2
741	St. Peter Port, Guernsey Island	49° 27'	2° 31'	+2 29	+2 35	+4.2	-0.2	19.2	26.1	16.6
743	Braye. Alderney Island	49° 43'	2° 12'	+2 52	+3 03	-3.9	-3.7	14.6	19.3	10.8
						on Cherbourg, p.48				
745	Omonville	49° 42'	1° 50'	-0 24	-0 26	-0.6	-0.3	12.7	17.7	11.6
747	CHERBOURG	49° 39'	1° 38'			*Daily predictions*		13.0	18.0	12.1
749	Barfleur	49° 40'	1° 15'	+0 49	+0 44	+0.3	0.0	13.3	17.5	12.2
751	St. Vaast la Hougue	49° 35'	1° 16'	+0 52	+1 11	+1.5	0.0	14.5	19.1	12.8
						on Le Havre, p.52				
753	Port-en-Bessin	49° 21'	0° 49'	-0 50	-0 32	-2.4	-0.8	15.6	19.9	13.4
755	Ouistreham	49° 17'	0° 15'	-0 30	-0 06	-1.2	-1.1	17.1	21.8	13.9
		North	**East**							
757	Trouville	49° 22'	0° 05'	-0 31	-0 03	-0.5	-1.2	17.9	22.3	14.2
	Seine River									
759	LE HAVRE	49° 29'	0° 07'			*Daily predictions*		17.2	21.8	15.0
761	Quillebeuf <7><8>	49° 28'	0° 32'	-0 34	+2 08	- -	- -	13.8	16.7	17.5
763	Caudebec <7><8>	49° 32'	0° 44'	+0 42	+3 23	- -	- -	9.6	11.5	19.3
765	Duclair <7><8>	49° 29'	0° 52'	+2 12	+4 41	- -	- -	6.3	7.4	20.3
767	Rouen <7>	49° 27'	1° 05'	+4 42	+6 18	- -	- -	5.4	6.2	21.7
						on Dover, p.72				
769	Fecamp	49° 46'	0° 22'	+0 15	-0 27	+4.0	+1.5	18.3	23.0	14.9
771	St. Valery-en-Caux	49° 52'	0° 42'	+0 22	+0 01	+6.5	+1.2	21.1	25.9	16.0
773	Dieppe	49° 56'	1° 05'	+0 39	+0 11	+7.3	+1.0	22.1	28.0	16.3
775	Le Treport	50° 04'	1° 22'	+0 41	+0 19	+10.2	+3.2	22.8	28.7	18.8
777	Cayeux	50° 11'	1° 29'	+0 47	+0 13	+9.9	+1.9	23.8	29.9	18.0
779	Le Hourdel, Somme River	50° 13'	1° 34'	+1 03	- - -	+9.4	- -	- -	- -	- -
781	Le Touquet	50° 31'	1° 35'	+0 51	- - -	+6.7	+1.8	20.7	25.9	16.4
783	Boulogne	50° 44'	1° 35'	+0 58	+0 53	+6.8	+1.4	21.2	26.3	16.2
785	Calais	50° 58'	1° 51'	+1 20	+1 05	+0.9	-0.3	17.0	20.4	12.4
787	Gravelines	51° 01'	2° 06'	+1 38	+1 24	-1.8	-0.9	14.9	18.0	10.8
789	Dunkerque	51° 03'	2° 22'	+1 48	+1 24	-2.6	-1.1	14.3	17.0	10.3
	SCOTLAND East Coast Time meridian, 0°	**North**	**West**			**on Leith, p.56**				
791	Duncansby Head	58° 39'	3° 03'	-4 35	-4 23	*0.54	- -	- -	- -	- -
793	Wick	58° 26'	3° 05'	-3 23	-3 18	*0.60	*0.67	7.0	9.4	6.6
795	Golspie	57° 58'	3° 59'	-3 07	-2 45	*0.71	*0.72	8.6	11.3	7.6
797	Portmahomack	57° 50'	3° 50'	-3 00	-2 28	*0.69	*0.65	8.6	11.4	7.3
799	Invergordon	57° 41'	4° 10'	-2 40	-2 23	*0.75	*0.65	9.6	12.6	7.8
801	Inverness	57° 30'	4° 15'	-2 35	-2 35	-2.5	-0.8	10.4	13.7	9.0
803	Lossiemouth	57° 43'	3° 18'	-2 57	-2 31	*0.65	*0.48	8.7	11.3	6.6
805	Banff	57° 40'	2° 31'	-2 40	-2 23	(*0.67-1.7)		8.1	10.2	5.5
807	Peterhead	57° 30'	1° 46'	-1 55	-1 41	*0.69	*0.70	8.3	10.8	7.4
809	Aberdeen	57° 09'	2° 05'	-1 15	-1 03	-4.0	-1.0	9.1	11.9	8.2
811	Stonehaven	56° 58'	2° 12'	-1 05	-0 52	-3.2	-0.9	9.8	12.7	8.6
813	Montrose	56° 42'	2° 27'	-0 15	-0 28	-2.2	-0.5	10.4	13.5	9.3
815	Arbroath	56° 33'	2° 35'	-0 29	-0 19	-1.7	-0.7	11.1	14.2	9.5
817	Tay River Bar	56° 27'	2° 38'	-0 17	+0 02	-1.1	-0.5	11.5	14.9	9.9
819	Dundee, Tay River	56° 27'	2° 58'	+0 15	+0 35	-0.9	-0.5	11.7	15.0	10.0
821	Anstruther Easter	56° 13'	2° 42'	-0 22	-0 20	-0.3	-0.3	12.1	15.7	10.4
823	Burntisland, Firth of Forth	56° 03'	3° 14'	+0 00	-0 03	0.0	0.0	12.1	15.7	10.7
825	Rosyth, Forth River	56° 01'	3° 27'	+0 09	-0 03	+0.7	+0.2	12.6	16.4	11.1
827	Grangemouth, Forth River	56° 02'	3° 39'	+0 27	-0 37	+0.2	-0.8	13.1	17.1	10.4
829	LEITH, Firth of Forth	55° 59'	3° 10'			*Daily predictions*		12.1	15.7	10.7
831	Fidra Island	56° 04'	2° 47'	-0 05	-0 10	-0.8	-0.3	11.6	15.1	10.1
833	Dunbar	56° 00'	2° 31'	-0 08	+0 14	-1.0	-0.3	11.4	15.0	10.0
835	Eyemouth	55° 52'	2° 05'	-0 20	-0 09	- -	- -	- -	- -	- -
	ENGLAND East Coast									
837	Berwick-upon-Tweed	55° 47'	2° 00'	+0 02	+0 16	-2.7	-1.6	11.0	13.5	8.5
839	Blyth	55° 07'	1° 29'	+0 54	+1 29	-2.0	-0.7	10.8	14.0	9.3
841	Tyne River entrance	55° 01'	1° 24'	+1 00	+1 20	-1.8	-0.5	10.8	14.1	9.5
843	Newcastle-on-Tyne	54° 58'	1° 36'	+0 58	+1 33	-1.1	-0.6	11.6	14.8	9.8
845	Sunderland, Durham	54° 55'	1° 21'	+0 55	+1 25	-1.1	-0.2	11.2	14.5	10.0
847	Seaham	54° 50'	1° 19'	+0 57	+1 26	-1.4	-0.4	11.1	14.6	9.8
849	Hartlepool	54° 41'	1° 11'	+1 02	+1 34	-1.7	-0.6	11.0	14.1	9.5

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	ENGLAND East Coast-cont. Time meridian, 0°					**on Leith, p.56**				
851	River Tees Entrance	54° 38'	1° 09'	+1 12	+1 41	-0.5	0.0	11.6	15.2	10.4
853	Whitby	54° 29'	0° 37'	+1 26	+1 52	-0.7	-0.1	11.5	15.1	10.3
855	Scarborough	54° 17'	0° 23'	+1 52	+2 11	+0.3	+0.6	11.8	15.5	11.1
						on Immingham, p.60				
857	Bridlington	54° 05'	0° 11'	-1 14	- - -	-6.0	-2.7	12.9	16.7	9.2
		North	**East**							
	Humber River									
859	Spurn Head	53° 35'	0° 07'	-0 15	-0 25	-1.3	+0.1	14.8	19.4	12.9
		North	**West**							
861	Grimsby	53° 35'	0° 04'	-0 07	-0 08	-0.7	+0.3	15.2	19.8	13.3
863	IMMINGHAM	53° 38'	0° 11'		*Daily predictions*			16.2	21.0	13.5
865	Hull	53° 44'	0° 15'	+0 20	+0 12	+0.1	-0.4	16.7	21.5	13.4
867	Goole	53° 42'	0° 52'	+1 32	+3 50	-6.4	-3.8	13.6	17.0	8.4
		North	**East**							
869	Skegness	53° 09'	0° 21'	+0 16	+0 24	-0.9	-0.2	15.5	20.2	13.0
		North	**West**							
871	Boston	52° 58'	0° 01'	+0 34	+1 49	-2.0	-2.6	16.8	22.3	11.2
		North	**East**							
873	Wells Bar	52° 59'	0° 49'	+0 22	+0 22	- -	- -	- -	- -	- -
875	Cromer	52° 56'	1° 18'	+0 56	+1 04	*0.73	*0.70	11.9	15.5	9.8
						on Sheerness, p.64				
877	Gorleston, Great Yarmouth	52° 34'	1° 44'	-3 49	-3 48	*0.38	*0.45	5.0	6.4	4.0
879	Lowestoft	52° 28'	1° 45'	-3 14	-3 18	*0.38	*0.45	5.0	6.4	4.0
881	Orford Ness	52° 05'	1° 35'	-1 39	-1 48	*0.52	*0.64	6.9	7.8	5.6
883	Harwich, Stour River	51° 57'	1° 17'	-0 56	-1 11	*0.71	*0.73	9.8	11.9	7.3
885	Brightlingsea, Colne River	51° 48'	1° 00'	-0 35	-0 25	*0.79	*0.45	12.1	14.7	7.6
887	Osea Island, Blackwater River	51° 43'	0° 46'	-0 05	-0 16	-1.3	-0.7	13.4	16.0	9.3
889	Southend Pier, Thames River	51° 31'	0° 45'	-0 10	-0 02	-0.5	-0.7	14.2	17.1	9.7
891	SHEERNESS, Medway River	51° 27'	0° 45'		*Daily predictions*			14.0	16.9	10.3
893	Chatham, Medway River	51° 27'	0° 32'	+0 07	+0 11	-0.3	-1.6	15.3	18.3	9.4
895	Tilbury Dock, Thames River	51° 28'	0° 22'	+0 20	+0 20	+1.5	-1.0	16.5	19.6	10.6
897	Royal Albert Dock, Thames River	51° 30'	0° 05'	+0 49	+0 44	+3.1	-1.2	18.3	21.5	11.2
		North	**West**							
899	LONDON BRIDGE, Thames River	51° 30'	0° 05'		*Daily predictions*			18.7	21.7	12.2
		North	**East**							
901	Margate	51° 24'	1° 23'	-0 42	-0 43	*0.74	*0.45	11.3	13.7	7.2
						on Dover, p.72				
903	Ramsgate	51° 20'	1° 25'	+0 20	-0 07	-4.9	-2.1	13.0	16.1	8.6
905	Deal	51° 13'	1° 25'	+0 10	+0 04	-3.7	- -	- -	- -	- -
	South Coast									
907	DOVER	51° 07'	1° 19'		*Daily predictions*			15.8	19.4	12.1
909	Folkestone	51° 05'	1° 12'	-0 12	-0 10	-1.1	-2.2	16.9	20.9	10.5
911	Dungeness	50° 54'	0° 58'	-0 14	-0 16	+1.6	-1.0	18.4	22.9	12.4
913	Rye Bay	50° 56'	0° 45'	-0 02	- - -	+1.6	- -	- -	- -	- -
915	Hastings	50° 51'	0° 35'	-0 05	-0 30	+0.4	-1.3	17.5	22.1	11.7
917	Eastbourne	50° 46'	0° 17'	-0 08	-0 37	-0.3	-1.2	16.7	21.3	11.4
		North	**West**							
919	Brighton	50° 49'	0° 08'	-0 08	-1 00	-3.0	-2.3	15.1	19.2	9.5
921	Shoreham Harbor entrance	50° 50'	0° 15'	+0 00	-0 55	-3.6	-2.1	14.3	18.1	9.3
923	Littlehampton	50° 48'	0° 32'	+0 08	-1 08	-5.1	-2.8	13.5	17.1	8.2
						on Southampton, p.78				
925	Selsey Bill <9>	50° 43'	0° 47'	+0 25	+0 46	+2.1	+0.3	12.1	15.5	9.8
927	Portsmouth <9>	50° 48'	1° 07'	+0 30	+0 11	+0.3	+0.3	10.3	13.4	8.9
929	Ventnor, Isle of Wight <9>	50° 36'	1° 12'	+0 02	-0 17	*0.67	*0.38	7.9	10.2	5.3
931	Cowes, Isle of Wight <9>	50° 46'	1° 18'	+0 30	+0 01	*0.79	*0.47	9.2	12.0	6.2
933	SOUTHAMPTON <10>	50° 54'	1° 24'		*Daily predictions*			10.3	13.4	8.6
935	Calshot Castle <10>	50° 49'	1° 18'	+0 40	-0 04	-0.3	+0.5	9.5	12.4	8.6
937	Yarmouth, Isle of Wight <10>	50° 42'	1° 30'	-0 15	-0 15	*0.55	*0.41	6.2	8.2	4.5
939	Poole entrance<10>	50° 40'	1° 56'	- - -	-0 34	- -	- -	3.9	5.5	3.1
						on Ringaskiddy, p.98				
941	Portland <11>	50° 34'	2° 26'	+1 14	-0 30	*0.48	*0.50	4.5	6.3	3.5
943	Bridport	50° 42'	2° 45'	+0 44	-0 03	-1.3	-0.2	8.4	11.7	6.6
945	Lyme Regis	50° 43'	2° 55'	+1 02	-0 03	-1.2	-0.4	8.7	12.1	6.6
947	Exmouth	50° 37'	3° 25'	+1 02	+0 32	-0.8	-0.3	9.0	12.3	6.8
949	Teignmouth	50° 33'	3° 30'	+0 44	-0 03	+1.7	+1.3	9.9	13.6	8.9
951	Torquay	50° 28'	3° 31'	+0 47	+0 02	+0.1	-0.5	10.1	13.8	7.2
953	Dartmouth	50° 21'	3° 34'	+0 40	+0 02	+1.9	+0.7	10.7	14.5	8.7
955	Salcombe, Salcombe River	50° 13'	3° 47'	+0 17	-0 03	+3.5	+1.7	11.3	15.1	10.0
957	Plymouth breakwater	50° 20'	4° 09'	+0 06	-0 09	+4.1	- -	- -	- -	- -
959	Devonport	50° 22'	4° 11'	+0 12	-0 03	+4.3	+1.9	11.9	15.7	10.5
961	East Looe	50° 21'	4° 27'	+0 02	-0 08	+3.9	+1.5	11.9	15.7	10.0
963	Fowey	50° 20'	4° 38'	+0 00	-0 11	+3.9	+1.5	11.9	15.6	10.1

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	ENGLAND South Coast-cont. Time meridian, 0°					**on Ringaskiddy, p.98**				
965	Falmouth	50° 09'	5° 03'	-0 18	-0 13	+3.6	+1.2	11.9	15.5	9.8
967	Penzance (Newlyn)	50° 06'	5° 33'	-0 40	-0 35	+4.5	+1.9	12.1	15.7	10.6
969	St. Mary's Pool, Scilly Isles	49° 55'	6° 19'	-0 39	-0 54	+2.7	0.0	12.2	15.8	8.7
	West Coast					**on Brest, p.44**				
971	Sennen Cove, Lands End	50° 04'	5° 42'	-0 18	-0 17	-4.1	- -	- -	- -	- -
973	St. Ives	50° 12'	5° 28'	+0 13	+0 07	-2.1	-2.2	14.9	20.0	12.6
975	Newquay	50° 25'	5° 05'	+0 28	+0 20	-2.2	- -	- -	- -	- -
977	Padstow	50° 33'	4° 56'	+0 37	+0 27	-1.7	-4.3	17.4	21.8	11.6
979	Bude Haven	50° 50'	4° 33'	+0 48	+0 37	-1.9	- -	- -	- -	- -
						on Liverpool, p.82				
981	Appledore, Bristol Channel	51° 03'	4° 12'	-5 53	-6 04	*0.75	*0.43	18.3	23.9	11.8
983	Bideford, Torridge River <12>	51° 01'	4° 12'	-5 51	-5 49	- -	- -	15.7	19.5	- -
985	Barnstaple, Taw River <13>	51° 05'	4° 04'	-5 33	-8 08	- -	- -	8.0	12.4	- -
987	Ilfracombe, Bristol Channel	51° 13'	4° 07'	-5 49	-6 27	-0.8	-0.1	21.0	27.8	16.4
989	Watchet, Bristol Channel	51° 11'	3° 20'	-5 05	-5 49	+6.0	+1.1	26.6	34.6	20.4
991	Burnham, Parrett River	51° 14'	3° 00'	-4 43	-4 49	(*1.38-5.4)		29.9	37.6	17.9
993	Bridgwater, Parrett River <14>	51° 08'	3° 00'	-4 30	-1 05	- -	- -	9.6	14.2	- -
995	Weston-super-Mare, Bristol Channel	51° 21'	2° 59'	-4 48	-5 28	(*1.36-2.9)		29.5	37.1	20.1
997	Port of Bristol (Avonmouth)	51° 30'	2° 43'	-4 27	-4 30	*1.39	*1.15	31.5	40.3	22.7
999	Bristol, Avon River	51° 27'	2° 37'	-4 17	- - -	+0.6	- -	- -	- -	- -
1001	Wellhouse Rock, Severn River <15><16>	51° 44'	2° 29'	-3 41	-1 22	-3.5	- -	22.7	27.7	12.9
1003	Chepstow, Wye River	51° 39'	2° 40'	-4 07	- - -	- -	- -	- -	- -	- -
1005	Newport, Bristol Channel	51° 33'	2° 59'	-4 37	-4 42	(*1.40-3.6)		30.3	38.9	20.0
	WALES									
1007	Cardiff, Bristol Channel	51° 27'	3° 09'	-4 43	-5 19	*1.30	*1.32	28.1	36.5	22.0
1009	Barry, Bristol Channel	51° 23'	3° 16'	-4 47	-5 25	(*1.25-0.5)		27.1	35.2	20.6
1011	Porthcawl, Bristol Channel	51° 28'	3° 42'	-5 14	-5 47	+1.2	+0.6	22.3	29.4	17.8
1013	Swansea, Bristol Channel	51° 37'	3° 55'	-5 19	-5 55	+0.4	+0.6	21.5	28.2	17.4
1015	Whiteford Lighthouse, Burry Inlet	51° 39'	4° 15'	-5 25	-5 48	-2.1	-0.1	19.7	25.7	15.8
1017	Ferryside, Towy River	51° 46'	4° 22'	-5 28	-5 55	-9.2	-4.7	17.2	21.7	9.9
1019	Tenby, Bristol Channel	51° 40'	4° 42'	-5 31	-6 02	-3.4	0.0	18.3	24.5	15.2
1021	Neyland, Cleddau River	51° 42'	4° 57'	-5 13	-5 44	-7.4	-1.1	15.4	20.6	12.6
1023	Ramsey Sound	51° 51'	5° 19'	-5 09	-5 28	*0.55	- -	- -	- -	- -
						on Dublin, p.94				
	Cardigan Bay									
1025	Fishguard	52° 00'	4° 58'	-4 37	-3 48	-0.1	-0.6	9.7	13.3	6.7
1027	Port Cardigan	52° 07'	4° 42'	-4 35	-3 44	+0.8	- -	- -	- -	- -
1029	Aberystwyth	52° 24'	4° 05'	-4 02	-2 59	+1.3	0.0	10.5	13.6	7.7
1031	Aberdovey	52° 32'	4° 03'	-3 44	-2 36	+1.6	0.0	10.8	14.0	7.8
1033	Barmouth	52° 43'	4° 03'	-3 37	-2 11	+2.3	+0.4	11.1	14.2	8.4
1035	Portmadoc (Borth)	52° 55'	4° 08'	-3 36	-1 48	+2.0	+0.1	11.1	14.1	8.1
1037	Pwllheli Road	52° 53'	4° 24'	-3 46	-2 13	+2.0	+0.2	11.0	14.2	8.1
1039	Bardsey Island	52° 46'	4° 47'	-3 51	-2 39	+1.4	+1.0	9.6	12.2	8.2
1041	Belan Point, Menai Strait	53° 07'	4° 20'	-1 50	-1 11	+2.2	+1.3	10.1	13.5	8.8
1043	Holyhead	53° 19'	4° 37'	-1 22	-0 56	+3.3	0.0	12.5	16.2	8.7
						on Liverpool, p.82				
1045	Amlwch	53° 25'	4° 20'	-0 59	-1 24	-6.4	-1.4	16.7	21.2	13.0
1047	Trwyn du, Menai Strait	53° 19'	4° 02'	-0 44	-0 59	-5.4	-1.4	17.7	22.6	13.5
1049	Menai Bridge, Menai Strait	53° 13'	4° 09'	-0 25	-0 25	-5.7	-0.8	16.8	21.6	13.6
1051	Llandudno	53° 20'	3° 50'	-0 41	-0 54	-4.6	-0.5	17.6	22.7	14.3
	ENGLAND West Coast									
1053	Hilbre Island, Dee River	53° 23'	3° 13'	-0 16	-0 18	-0.8	+0.8	20.1	25.5	16.9
1055	Chester, Dee River	53° 12'	2° 54'	+1 05	+5 02	- -	- -	8.6	12.3	- -
1057	LIVERPOOL, Mersey River	53° 25'	3° 00'			*Daily predictions*		21.7	27.5	16.9
1059	Eastham	53° 19'	2° 57'	+0 25	+0 22	+0.9	-0.3	22.9	29.0	17.2
1061	Preston, Ribble River	53° 45'	2° 43'	+0 00	- -	- -	- -	14.3	17.4	- -
1063	St. Anne's, Ribble River	53° 45'	3° 02'	-0 04	+0 13	-0.4	+1.9	19.4	26.1	17.6
1065	Fleetwood, River Wyre	53° 56'	3° 00'	+0 00	-0 02	+0.5	+0.7	21.5	27.4	17.5
1067	Morecambe, Morecambe Bay	54° 04'	2° 52'	+0 01	+0 04	+0.4	+0.2	21.9	27.6	17.2
1069	Barrow (Ramsden Dock)	54° 06'	3° 12'	+0 15	+0 20	-0.9	-0.1	20.9	26.8	16.4
	Solway Firth									
1071	Whitehaven	54° 33'	3° 36'	+0 02	-0 11	-3.6	-0.6	18.7	24.0	14.8
1073	Workington	54° 39'	3° 34'	+0 09	+0 01	-3.2	-0.7	19.2	24.6	14.9
1075	Maryport	54° 43'	3° 30'	+0 24	+0 12	-2.5	-0.6	19.8	25.2	15.3
1077	Silloth	54° 52'	3° 24'	+0 35	+0 50	-1.1	-1.0	21.6	27.5	15.8
	Isle of Man									
1079	Ramsey	54° 19'	4° 22'	+0 04	-0 05	-6.2	-1.2	16.7	21.3	13.2
1081	Douglas	54° 09'	4° 28'	-0 04	-0 27	-7.2	-1.0	15.5	20.1	12.8
1083	Peel	54° 14'	4° 42'	-0 02	-0 05	*0.57	*0.50	12.7	15.8	9.4

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No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	SCOTLAND West Coast Time meridian, 0°			**on Liverpool, p.82**						
1085	Garliestown, Wigtown Bay	54° 47'	4° 21'	+0 20	+0 10	- -	- -	- -	- -	- -
1087	Isle of Whithorn, Wigtown Bay	54° 42'	4° 22'	+0 20	+0 10	-6.4	-1.2	16.5	21.0	13.1
1089	Drummore, Wigtown Bay	54° 41'	4° 53'	+0 25	-0 05	*0.62	*0.63	13.5	17.0	10.6
				on Greenock, p.86						
1091	Stranraer, Loch Ryan	54° 55'	5° 03'	-0 20	-0 17	-1.3	-0.8	7.8	9.1	5.2
1093	Ayr, Firth of Clyde	55° 28'	4° 39'	-0 20	-0 08	-1.1	+0.4	6.8	8.4	5.9
1095	Ardrossan, Firth of Clyde	55° 38'	4° 49'	-0 20	-0 08	-0.8	-0.1	7.6	9.3	5.8
1097	GREENOCK	55° 57'	4° 46'		*Daily predictions*			8.3	10.1	6.3
1099	Glasgow, Clyde River	55° 51'	4° 17'	+0 41	+1 08	+4.2	+1.6	10.9	13.4	9.2
1101	Bowling, Clyde River	55° 56'	4° 29'	+0 24	+0 55	+1.8	+0.8	9.3	11.4	7.6
1103	Rothesay Bay, Firth of Clyde	55° 51'	5° 03'	-0 11	-0 07	0.0	0.0	8.3	10.1	6.3
1105	Inverary, Loch Fyne	56° 14'	5° 04'	+0 11	+0 34	0.0	-0.9	9.2	10.1	5.8
1107	Campbeltown, Firth of Clyde	55° 25'	5° 36'	-0 32	-0 18	-1.4	0.0	6.9	8.4	5.6
				on Ullapool, p.90						
1109	Port Askaig, Sound of Jura	55° 51'	6° 06'	-2 06	-1 38	(*0.35+1.1)		3.8	5.3	3.9
1111	Rudha Mhail, Isle of Islay	55° 56'	6° 07'	-1 26	-1 23	-3.6	0.0	7.4	10.1	6.3
1113	Oban, Firth of Lorne	56° 25'	5° 29'	-1 16	-1 18	-3.8	-0.3	7.5	10.4	6.1
1115	Port Appin, Loch Linnhe	56° 33'	5° 25'	-1 21	-1 33	-2.7	+0.4	7.9	11.0	7.0
1117	Tobermory, Sound of Mull	56° 37'	6° 05'	-1 06	-0 58	-2.0	-0.1	9.1	12.3	7.1
1119	Scarinish, Tiree Island	56° 30'	6° 48'	-1 18	-1 15	-3.1	-0.5	8.4	11.3	6.3
1121	Inverie Bay, Loch Nevis	57° 02'	5° 41'	-0 59	-0 57	-0.4	+0.1	10.5	14.2	8.0
1123	Kyle Akin	57° 17'	5° 43'	-0 16	-0 10	-0.7	-1.1	11.4	15.4	7.2
1125	Portree, Raasey Sound	57° 24'	6° 11'	-0 21	-0 25	-0.3	-0.3	11.0	15.0	7.8
1127	Uig Bay, Skye Island	57° 37'	6° 23'	-0 34	-0 25	+0.4	+0.7	10.7	14.6	8.7
1129	ULLAPOOL, Loch Broom	57° 54'	5° 10'		*Daily predictions*			11.0	14.8	8.1
1131	Loch Inver	58° 09'	5° 18'	-0 01	-0 05	-0.4	+0.4	10.2	13.8	8.1
1133	Loch Inchard	58° 27'	5° 01'	+0 24	+0 00	-1.7	-0.6	9.9	13.2	7.0
	North Coast									
1135	Cape Wrath	58° 37'	5° 00'	+0 29	+0 25	*0.98	- -	- -	- -	- -
1137	Rispond, Loch Eriboll	58° 33'	4° 40'	+0 39	- -	-1.1	- -	- -	- -	- -
1139	Kyle of Tongue	58° 33'	4° 22'	+0 54	- -	*0.98	- -	- -	- -	- -
1141	Thurso	58° 36'	3° 33'	+1 49	+1 37	-0.9	+0.5	9.6	13.2	7.9
	NORTHERN IRELAND East Coast			**on Dublin, p.94**						
1143	Red Bay	55° 04'	6° 03'	-0 33	-0 15	*0.43	*0.29	4.3	4.5	2.9
1145	Larne	54° 51'	5° 47'	-0 37	-0 08	*0.75	*0.79	6.8	7.8	5.3
1147	Belfast	54° 36'	5° 55'	-0 39	-0 10	-1.0	0.0	8.2	10.0	6.5
1149	Donaghadee	54° 38'	5° 32'	-0 19	+0 13	+0.5	+0.2	9.5	11.5	7.4
1151	Strangford, Lough Strangford	54° 22'	5° 33'	+1 13	+1 48	-0.5	-0.4	9.1	10.7	6.6
1153	Newcastle	54° 12'	5° 53'	-0 09	+0 20	+3.6	+0.7	12.1	14.9	9.2
1155	Cranfield Point, Lough Carlingford	54° 01'	6° 03'	-0 19	+0 05	*1.18	*1.12	11.0	13.4	8.2
	EIRE East Coast									
1157	Dundalk (pile light)	53° 58'	6° 17'	-0 16	+0 22	+3.0	+0.6	11.6	14.7	8.8
1159	Boyne River (bar)	55° 43'	6° 14'	-0 20	+0 35	+0.8	- -	- -	- -	- -
1161	DUBLIN (Baile Atha Cliath)	53° 21'	6° 13'		*Daily predictions*			9.2	11.7	7.0
1163	Dun Laoghaire (Kingstown)	53° 18'	6° 08'	-0 04	-0 02	-0.2	+0.2	8.8	11.3	7.0
1165	Wicklow	52° 59'	6° 02'	-0 41	-0 41	*0.66	- -	- -	- -	- -
1167	Arklow	52° 47'	6° 08'	-2 35	-2 35	*0.30	- -	- -	- -	- -
1169	Wexford	52° 20'	6° 27'	-5 35	-5 25	*0.45	*0.50	4.0	5.1	3.2
	South Coast									
1171	Great Saltee Island	52° 07'	6° 38'	+0 12	-0 06	-1.1	- -	- -	- -	- -
1173	Dunmore, Waterford Harbor	52° 09'	6° 59'	+0 11	-0 06	+0.5	+0.4	9.6	11.8	7.8
1175	Dungarvan Bay	52° 05'	7° 33'	+0 06	-0 04	-0.3	-0.6	9.8	12.0	6.9
1177	Youghal	51° 57'	7° 50'	+0 04	+0 01	-0.4	-0.5	9.6	11.8	6.9
1179	Queenstown, Cork Harbor	51° 50'	8° 18'	-0 02	-0 07	+0.1	+0.2	9.4	11.9	7.5
1181	RINGASKIDDY (Cobh)	51° 50'	8° 19'		*Daily predictions*			9.5	12.2	7.5
1183	Cork, Cork Harbor	51° 54'	8° 27'	+0 18	+0 13	-0.1	-0.8	10.2	12.9	6.9
1185	Kinsale	51° 42'	8° 31'	-0 14	-0 23	-0.2	+0.4	8.9	11.3	7.5
1187	Courtmacsherry	51° 38'	8° 42'	-0 20	-0 13	-2.6	-1.7	8.6	10.6	5.2
1189	Clonakilty Bay	51° 35'	8° 50'	-0 24	-0 37	-1.9	- -	- -	- -	- -
1191	Baltimore	51° 29'	9° 23'	-0 31	-0 47	-2.4	-0.7	7.8	9.6	5.8
1193	Skull	51° 31'	9° 32'	-0 48	-1 04	-2.7	-1.0	7.8	9.4	5.5
	West Coast									
1195	Bantry, Bantry Bay	51° 41'	9° 28'	-0 57	-1 10	-1.2	+0.2	8.1	10.2	6.9
1197	Dunkerron Harbor, Kenmare River	51° 51'	9° 38'	-0 54	-1 22	-2.3	-1.1	8.3	11.0	5.7
1199	Knights Town, Valencia Harbor	51° 56'	10° 18'	-1 00	-1 23	-1.9	-0.7	8.3	10.8	6.1
1201	Cromane Pt., Castlemaine Harbor	52° 09'	9° 54'	-0 18	-0 34	-0.3	-0.2	9.4	12.4	7.1
1203	Dingle Harbor	52° 07'	10° 15'	-0 58	-1 11	-2.0	-0.7	8.2	10.7	6.0
1205	Fenit Pier, Tralee Bay	52° 18'	9° 52'	-0 39	-0 56	-0.1	-0.7	10.1	13.1	7.0

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	EIRE West Coast-cont. Time meridian, 0°					**on Dublin, p.94**				
1207	Kilrush, Shannon River	52° 38'	9° 30'	-0 06	-0 25	+0.2	-0.6	10.3	13.6	7.2
1209	Foynes Island, Shannon River	52° 37'	9° 07'	+0 34	-0 07	*1.18	*0.96	11.8	15.5	8.4
1211	Limerick Dock, Shannon River	52° 40'	8° 38'	+1 06	+0 58	+4.2	0.0	13.7	16.5	9.5
1213	Liscanor	52° 56'	9° 23'	-0 19	-0 49	*1.04	- -	- -	- -	- -
1215	Galway	53° 16'	9° 03'	-0 14	-0 53	(*1.12-0.1)		10.6	14.1	8.3
1217	Clifden Bay	53° 29'	10° 04'	-0 09	-0 37	*0.97	- -	- -	- -	- -
1219	Inishraher, Westport Bay	53° 48'	9° 38'	+0 07	-0 11	*0.94	*0.81	9.3	12.4	6.8
1221	Broadhaven	54° 16'	9° 53'	+0 16	-0 06	-2.8	-0.7	7.4	9.6	5.6
1223	Killala Bay (Moyne), Donegal Bay	54° 12'	9° 10'	+0 29	+0 03	-2.8	- -	- -	- -	- -
1225	Sligo Hbr. (Oyster I.), Donegal Bay	54° 18'	8° 34'	+0 35	-0 05	-1.8	- -	- -	- -	- -
1227	Killybegs, Donegal Bay	54° 38'	8° 26'	+0 30	+0 00	-1.6	- -	- -	- -	- -
1229	Rutland Island	54° 58'	8° 28'	+0 34	-0 01	-1.8	- -	- -	- -	- -
	North Coast									
1231	Inishbofin Bay	55° 10'	8° 10'	+0 19	-0 14	-1.8	- -	- -	- -	- -
1233	Rathmullan, Lough Swilly	55° 05'	7° 31'	+0 54	+0 29	*0.97	*0.96	9.2	12.4	7.1
1235	Moville, Lough Foyle	55° 11'	7° 03'	+1 59	+1 30	(*0.54+0.2)		5.1	6.5	4.2
	NORTHERN IRELAND North Coast									
1237	Londonderry, Lough Foyle	55° 00'	7° 19'	+2 51	+2 30	-4.9	-1.2	5.8	7.7	4.3
1239	Inishtrahull	55° 26'	7° 14'	+0 46	+0 45	(*0.65+0.7)		6.2	8.7	5.6
1241	Coleraine	55° 08'	6° 40'	+1 34	+1 41	(*0.49-0.3)		4.7	6.1	3.4
1243	Portrush	55° 12'	6° 40'	+1 11	+0 50	*0.40	*0.42	3.8	5.6	3.0
1245	Ballycastle Bay	55° 12'	6° 14'	+2 24	+2 16	*0.26	*0.26	2.4	3.3	1.9
	HEBRIDES					**on Ullapool, p.90**				
1247	Village Bay, St. Kilda Island	57° 48'	8° 34'	-0 51	-1 00	-5.3	-1.4	7.1	9.4	4.8
1249	North Bay, Barra	57° 00'	7° 24'	-0 53	-0 51	-2.4	-0.2	8.8	12.0	6.8
1251	Loch Boisdale	57° 09'	7° 16'	-0 50	-0 48	-1.8	-0.1	9.3	12.9	7.2
1253	Loch Maddy	57° 36'	7° 06'	-0 35	-0 33	-1.1	-0.1	10.0	13.7	7.5
1255	Leverburgh	57° 46'	7° 01'	-0 36	-0 30	-1.3	+0.2	9.5	13.0	7.6
1257	East Loch Tarbert	57° 54'	6° 48'	-0 35	-0 30	-0.8	+0.1	10.1	13.9	7.8
1259	West Loch Tarbert	57° 55'	6° 55'	-0 49	-0 34	*0.79	- -	- -	- -	- -
1261	Bernera Harbor	58° 16'	6° 52'	-0 22	-0 32	-2.8	-0.9	9.1	12.4	6.3
1263	Stornoway	58° 12'	6° 23'	-0 06	-0 10	-1.1	+0.1	9.8	13.4	7.6
	ORKNEY ISLANDS					**on Narvik, p.142**				
1265	Stromness <17>	58° 58'	3° 18'	-3 02	-3 08	-0.3	-0.7	7.0	10.1	5.4
1267	Kirkwall	58° 59'	2° 58'	-2 00	-2 22	*0.82	*0.69	5.7	7.8	4.7
1269	Pierowall	59° 19'	2° 58'	-3 00	-3 06	+0.4	-0.2	7.2	10.4	6.0
1271	Fair Isle	59° 33'	1° 38'	-1 54	-2 12	*0.83	*0.65	5.9	7.1	4.6
	SHETLAND ISLANDS					**on Bergen, p.138**				
1273	Lerwick	60° 09'	1° 08'	-0 06	-0 05	+1.1	+0.1	4.2	5.5	3.2
1275	Scalloway	60° 08'	1° 16'	-1 48	-1 45	+0.4	+0.8	2.8	3.7	3.2
1277	Hillswick	60° 27'	1° 30'	-2 14	-1 49	+1.7	+0.9	4.0	5.5	3.9
	FAEROE ISLANDS					**on Reykjavik, p.102**				
1279	Lopransfjordhur, Sudhuroy Island	61° 27'	6° 46'	+1 45	+1 45	*0.79	*0.23	8.5	9.6	4.8
1281	Vagur, Sudhuroy Island	61° 28'	6° 48'	+1 52	+1 52	*0.29	*0.27	2.7	4.0	2.0
1283	Trangisvagur, Sudhuroy Island	61° 34'	6° 50'	+1 38	+1 38	*0.31	*0.32	2.8	4.2	2.1
1285	Sudhuroyarfjordhur	61° 39'	6° 49'	+1 45	+1 45	*0.79	*0.23	8.5	9.6	4.8
1287	Sandsvagur, Sandoy Island	61° 50'	6° 48'	+1 56	+1 56	*0.54	*0.50	5.0	7.2	3.6
1289	Mykines	62° 06'	7° 38'	+4 45	+4 45	*0.79	*0.23	8.5	9.6	4.8
1291	Vestmanna, Streymoy Island	62° 09'	7° 09'	+2 47	+2 47	*0.49	*0.41	4.7	6.6	3.3
1293	Torshavn, Streymoy Island	62° 00'	6° 46'	+1 33	+1 33	*0.07	*0.04	0.7	1.0	0.5
1295	Hoyvik, Streymoy Island	62° 02'	6° 45'	- - -	- - -	- -	- -	- -	- -	- -
1297	Nes, Eysturoy Island	62° 05'	6° 43'	- - -	- - -	- -	- -	- -	- -	- -
1299	Eidhi, Eysturoy Island	62° 18'	7° 05'	-1 05	-1 05	*0.75	*0.23	8.0	9.6	4.5
1301	Leirvik, Eysturoy Island	62° 13'	6° 42'	+2 10	+2 10	*0.54	*0.23	5.6	6.6	3.3
1303	Klaksvik, Bordhoy Island	62° 14'	6° 35'	+4 43	+4 43	*0.33	*0.32	3.1	4.6	2.3
1305	Svinoyarfjordhur	62° 16'	6° 25'	+3 10	+3 10	*0.54	*0.23	5.6	6.6	3.3
1307	Fugloyarfjordhur	62° 19'	6° 18'	+2 25	+2 25	*0.48	*0.18	5.1	6.6	3.0
	JAN MAYEN ISLAND Time meridian, 15° W					**on Bergen, p.138**				
1309	Mary Muss Bay	71° 00'	8° 28'	+0 01	+0 07	-1.0	-0.6	2.8	3.7	1.8
	ICELAND Time meridian, 0°					**on Reykjavik, p.102**				
1311	Keflavik Harbor	64° 00'	22° 33'	-0 05	-0 05	-0.5	-0.2	8.9	12.1	6.5
1313	REYKJAVIK	64° 09'	21° 56'			*Daily predictions*		9.2	12.5	6.8
1315	Hvammsvik	64° 22'	21° 34'	-0 02	-0 01	+0.6	+0.2	9.6	12.5	7.2
1317	Akranes	64° 19'	22° 06'	+0 03	-0 05	0.0	+0.4	8.8	11.8	7.0
1319	Hrutafjordur	65° 15'	21° 07'	+3 48	+3 58	(*0.39+0.5)		3.6	4.5	3.2

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**West**	h m	h m	ft	ft	ft	ft	ft
	ICELAND Time meridian, 0°				**on Reykjavik, p.102**					
1321	Hrisey	65° 59'	18° 22'	+4 22	+4 10	(*0.33+0.6)		3.0	3.8	2.8
1323	Akureyri	65° 41'	18° 05'	+4 17	+4 09	(*0.34+0.6)		3.1	3.9	2.9
1325	Vestdalseyri	65° 17'	13° 59'	-4 46	-4 46	*0.31	*0.32	2.9	4.0	2.2
	BELGIUM Time meridian, 15° E	**North**	**East**		**on Vlissingen, p.110**					
1327	Nieuwpoort	51° 09'	2° 43'	-1 10	-0 30	+0.9	-0.1	13.5	16.4	8.5
1329	Oostende	51° 14'	2° 55'	-0 56	-0 32	+0.9	+0.6	12.8	15.7	8.5
1331	Zeebrugge	51° 21'	3° 12'	-0 36	-0 37	-0.4	+0.3	11.8	14.4	8.5
					on Antwerp, p.106					
1333	ANTWERP (Prosperpolder) Schelde River	51° 14'	4° 14'		*Daily predictions*			15.9	17.9	9.7
1335	Antwerp (Roads) Schelde River	51° 14'	4° 24'	+0 22	+0 42	+0.8	-0.1	16.8	18.8	10.0
	NETHERLANDS				**on Vlissingen, p.110**					
1337	VLISSINGEN, West Schelde River	51° 27'	3° 36'		*Daily predictions*			12.7	14.7	8.0
1339	Terneuzen, West Schelde River	51° 20'	3° 50'	+0 19	+0 26	+1.2	+0.1	13.7	15.8	8.7
1341	Hansweert, West Schelde River	51° 27'	4° 00'	+0 56	+0 52	+2.1	0.0	14.7	16.6	9.1
1343	Roompot, East Schelde River	51° 37'	3° 40'	-0 06	-0 10	-3.6	-0.4	9.4	10.8	6.0
1345	Stavenisse, East Schelde River	51° 36'	4° 01'	+1 39	+1 08	-3.6	-0.7	9.7	10.6	5.9
	Maas River									
1347	Dordrecht	51° 49'	4° 40'	+2 16	+4 48	*0.21	*0.25	2.6	2.9	1.7
1349	HOEK VAN HOLLAND <18>	51° 59'	4° 07'		*Daily predictions*			5.7	6.2	3.5
1351	Rotterdam <19>	51° 55'	4° 30'	+1 48	+3 28	*0.45	*0.51	5.6	6.1	3.6
1353	Scheveningen <19>	52° 06'	4° 16'	+1 01	+2 37	*0.46	*0.43	5.8	6.5	3.6
1355	Ijmuiden (Ymuiden)	52° 28'	4° 35'	+1 42	+3 14	*0.44	*0.43	5.6	6.2	3.5
					on Cuxhaven, p.126					
1357	Den Helder <20>	52° 58'	4° 45'	-6 11	-6 06	-4.9	+0.4	4.6	5.1	3.3
1359	West Terschelling	53° 22'	5° 13'	-4 01	-4 34	-3.2	+0.5	6.2	7.0	4.1
1361	Harlingen	53° 10'	5° 25'	-3 45	-2 58	-3.4	+0.1	6.2	6.8	3.9
1363	Delfzijl, Ems River	53° 20'	6° 57'	-1 17	-1 30	+0.8	+0.8	9.8	10.9	6.3
	GERMANY North Sea				**on Helgoland, p.118**					
	Ems River									
1365	Approach	53° 46'	6° 04'	-2 07	- -	-1.0	0.0	6.6	7.8	3.9
1367	Borkum, west coast	53° 35'	6° 39'	-1 06	-1 24	-0.4	0.0	7.2	8.2	4.2
1369	Knock	53° 20'	7° 03'	+0 20	+0 18	+1.1	-0.3	9.0	10.0	4.8
1371	Emden	53° 21'	7° 12'	+0 42	+0 26	+2.3	+0.1	9.8	11.0	5.6
1373	Pogum	53° 19'	7° 16'	+0 57	+0 47	+1.9	-0.4	9.9	10.7	5.2
1375	Leer	53° 13'	7° 27'	+1 57	+2 31	-0.6	-0.5	7.5	8.1	3.9
1377	Juist, north coast	53° 41'	6° 59'	-0 50	-1 14	-0.6	0.0	7.0	8.1	4.1
1379	Norddeich	53° 37'	7° 10'	-0 21	-0 40	+0.7	+0.1	8.2	9.4	4.8
1381	Norderney-Seegat	53° 42'	7° 10'	-0 24	-0 43	+0.3	+0.1	7.8	9.1	4.6
1383	Baltrum, west approach	53° 44'	7° 22'	-0 24	-0 25	0.0	-0.4	8.0	8.8	4.2
1385	Langeoog	53° 44'	7° 28'	-0 03	-0 23	+0.9	+0.1	8.4	9.8	4.9
1387	Neuharlingersiel	53° 42'	7° 42'	+0 11	- - -	+1.0	- -	- -	- -	- -
1389	Spiekeroog, west approach	53° 45'	7° 40'	-0 03	-0 20	+0.6	-0.1	8.3	9.4	4.7
1391	Wangerooge, west end	53° 47'	7° 51'	+0 00	-0 07	+0.8	0.0	8.4	9.6	4.8
1393	HELGOLAND	54° 11'	7° 54'		*Daily predictions*			7.6	8.8	4.4
					on Bremerhaven, p.122					
	Jade River									
1395	Wangerooge, east end	53° 47'	7° 58'	-1 28	-1 29	-1.8	+0.1	9.1	10.5	5.4
1397	Schillighorn	53° 42'	8° 03'	-1 03	-1 00	-1.5	-0.1	9.6	10.9	5.4
1399	Hooksiel	53° 38'	8° 03'	-0 46	- - -	-1.3	0.0	9.7	11.3	5.6
1401	Genius Bank	53° 37'	8° 09'	-0 34	-0 44	-0.8	0.0	10.2	11.6	5.8
1403	Wilhelmshaven	53° 31'	8° 10'	-0 15	-0 35	+0.4	-0.1	11.5	13.1	6.4
1405	Schweiburger Tief	53° 27'	8° 16'	-0 08	-0 28	+0.8	-0.1	11.9	13.5	6.6
	Weser River									
1407	Roter Sand	53° 51'	8° 05'	-1 24	-1 22	-2.0	0.0	9.0	10.3	5.2
1409	Hohe Weg Light	53° 43'	8° 15'	-0 58	- - -	-1.0	-0.2	10.2	11.3	5.6
1411	BREMERHAVEN	53° 32'	8° 35'		*Daily predictions*			11.0	12.3	6.2
1413	Nordenham	53° 30'	8° 30'	+0 21	+0 27	-0.3	-0.3	11.0	12.3	5.9
1415	Sandstedt	53° 22'	8° 31'	+0 48	+0 59	-0.2	+0.1	10.7	12.1	6.1
1417	Brake	53° 20'	8° 29'	+0 59	+1 17	-0.3	-0.3	11.0	12.0	5.9
1419	Elsfleth	53° 15'	8° 28'	+1 21	+1 42	-0.7	-0.3	10.6	11.6	5.7
1421	Farge	53° 12'	8° 31'	+1 33	+2 04	-1.2	-0.6	10.4	11.3	5.3
1423	Vegesack	53° 10'	8° 38'	+1 54	+2 26	-1.2	-0.3	10.1	11.0	5.4
1425	Bremen (Oslebshausen)	53° 07'	8° 43'	+2 09	+2 50	-0.9	-0.3	10.4	11.3	5.6
1427	Bremen (bridge)	53° 05'	8° 47'	+2 20	+3 18	-0.6	-0.3	10.7	11.6	5.8

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	GERMANY North Sea-cont. Time meridian, 15° E			**on Cuxhaven, p.126**						
	Elbe River									
1429	Scharhorn	53° 58'	8° 28'	-0 46	-0 57	-0.1	+0.1	9.8	11.1	5.5
1431	CUXHAVEN	53° 52'	8° 43'		*Daily predictions*			10.0	11.1	5.5
1433	Brunsbuttelkoog	53° 53'	9° 08'	+1 00	+1 18	-0.9	-0.2	9.3	10.2	5.0
1435	Gluckstadt	53° 47'	9° 25'	+2 03	+2 13	-0.9	-0.1	9.2	9.9	5.0
1437	Stadersand	53° 38'	9° 32'	+2 40	+2 57	-0.4	-0.1	9.7	10.4	5.3
				on Hamburg, p.130						
1439	Luhedeich	53° 34'	9° 38'	-0 41	-0 58	-0.8	+0.3	10.1	10.7	5.4
1441	Schulau	53° 34'	9° 42'	-0 33	-0 48	-0.7	+0.2	10.3	10.9	5.4
1443	Cranz	53° 32'	9° 48'	-0 22	-0 26	-0.4	+0.2	10.6	11.2	5.5
1445	HAMBURG	53° 33'	9° 58'		*Daily predictions*			11.2	11.8	5.7
				on Bremerhaven, p.122						
1447	Busum, Norderpiep	54° 08'	8° 51'	-0 31	-1 07	-0.6	0.0	10.4	11.7	5.9
1449	Falsches Tief	54° 04'	8° 35'	-0 46	- - -	-0.5	+0.2	9.9	11.1	5.8
1451	Suderpiep	54° 06'	8° 26'	-0 57	- - -	-0.5	+0.2	9.9	11.1	5.8
1453	Norderpiep	54° 11'	8° 24'	-0 53	- - -	-0.5	+0.2	9.9	11.1	5.8
1455	Blauort Sand, Norderpiep	54° 10'	8° 38'	-0 26	- - -	-1.0	-0.2	10.2	11.4	5.6
	Eider River									
1457	Approach	54° 14'	8° 18'	-0 55	- - -	-1.1	0.0	9.9	11.1	5.7
1459	Entrance	54° 14'	8° 35'	-0 41	- - -	-1.0	+0.1	9.9	11.1	5.8
1461	Vollerwiek Plate	54° 17'	8° 47'	-0 25	-0 11	-1.4	-0.5	10.1	11.1	5.3
1463	Tonning	54° 19'	8° 57'	+0 04	+0 16	-0.6	-0.2	10.6	12.0	5.8
	Hever River									
1465	Mittel Hever	54° 23'	8° 21'	-0 42	- - -	-1.6	+0.1	9.3	10.6	5.5
1467	Sudfall, Hever Strom	54° 27'	8° 43'	+0 15	-0 33	-1.8	-0.1	9.3	10.5	5.3
1469	Nordstrand, Hever Strom	54° 28'	8° 56'	+0 30	+0 04	-1.3	0.0	9.7	11.2	5.6
1471	Husum	54° 29'	9° 03'	+0 32	+0 29	-0.4	0.0	10.6	11.8	6.0
1473	Ochsen Sand, Pellworm	54° 30'	8° 42'	+0 04	-0 07	-0.7	-0.1	10.4	11.8	5.8
				on Helgoland, p.118						
1475	Hooge, Suder Aue	54° 35'	8° 34'	+1 37	+1 38	+1.1	-0.4	9.1	9.8	4.8
1477	Wyk, Fohr, Norder Aue	54° 41'	8° 35'	+2 16	+2 03	+0.9	-0.1	8.6	9.5	4.8
1479	Dagebull, Norder Aue	54° 43'	8° 41'	+2 27	+2 37	+1.1	-0.2	8.9	9.8	4.9
1481	Kniep Hafen, Amrum, Vortrapp Tief	54° 40'	8° 18'	+1 29	- - -	-0.3	0.0	7.3	8.5	4.3
1483	Hornum Odde, Vortrapp Tief	54° 45'	8° 17'	+1 40	+1 29	*0.77	*0.50	6.0	6.5	3.3
1485	Munkmarsch, Lister Tief	54° 55'	8° 22'	+3 01	+2 11	*0.74	+0.50	5.8	6.5	3.2
1487	List, Lister Tief	55° 01'	8° 27'	+2 42	+2 06	*0.72	*0.50	5.6	6.2	3.1
1489	Lister Tief approach	55° 04'	8° 18'	+2 03	+1 26	*0.68	*0.50	5.6	6.2	3.1
	DENMARK North Sea			**on Esbjerg, p.134**						
1491	Hojer Sluice	54° 58'	8° 41'	+0 08	+0 25	+2.6	+0.2	7.0	7.8	3.8
1493	Romo, South Point	55° 05'	8° 34'	-0 14	- - -	+0.8	0.0	5.4	6.1	2.8
1495	Sonderho, Fano Island	55° 21'	8° 29'	-0 24	+0 21	+0.1	+0.1	4.6	5.5	2.5
1497	Nordby, Fano Island	55° 27'	8° 25'	+0 16	+0 24	-0.4	+0.2	4.0	4.8	2.3
1499	ESBJERG	55° 28'	8° 27'		*Daily predictions*			4.6	5.2	2.4
1501	Hjerting	55° 31'	8° 21'	-0 01	+0 09	-0.5	0.0	4.1	4.8	2.2
1503	Blaavands Huk	55° 33'	8° 05'	-1 01	-0 48	+0.4	0.0	5.0	5.8	2.6
1505	Horns Rev	55° 34'	7° 20'	-2 13	-2 07	- -	- -	- -	- -	- -
1507	Nymindegab	55° 48'	8° 11'	-0 04	-0 12	*0.64	*0.64	3.0	3.5	1.5
1509	Thyboron Channel	56° 42'	8° 14'	+1 18	- - -	*0.30	*0.30	1.6	1.8	0.6
				on Gibraltar, p.32						
1511	Agger	56° 47'	8° 15'	+0 49	+0 40	*0.37	*0.17	0.9	1.1	0.6
1513	Hirtshals	57° 36'	9° 57'	+1 33	+1 58	*0.33	*0.17	0.8	1.0	0.5
1515	Skagen	57° 43'	10° 36'	+2 29	- - -	*0.37	*0.17	0.9	1.3	0.6
1517	Kobenhavn (Copenhagen), Baltic Sea	55° 42'	12° 36'	- - -	- - -	- -	- -	0.4	0.6	0.0
1519	Aarhus, Kattegat	56° 10'	10° 13'	+8 04	- - -	(*0.43-0.7)		0.9	1.2	0.0
	NORWAY			**on Bergen, p.138**						
1521	Oskarsborg	59° 40'	10° 37'	-5 30	-6 14	*0.36	*0.40	1.1	1.2	1.0
1523	Oslo	59° 55'	10° 44'	-5 13	-6 01	*0.33	*0.40	1.0	1.1	0.9
1525	Arendal	58° 27'	8° 46'	-6 23	-6 48	*0.24	*0.20	0.8	0.9	0.6
1527	Mandal (Tregde)	58° 00'	7° 34'	-6 40	-6 33	*0.21	*0.30	0.6	0.7	0.6
1529	Tjorvebugten (Lister)	58° 06'	6° 36'	- - -	- - -	- -	- -	0.3	0.4	- -
1531	Stavanger	58° 58'	5° 44'	-0 46	-0 31	*0.40	*0.30	1.4	1.9	1.0
1533	BERGEN	60° 24'	5° 18'		*Daily predictions*			3.2	4.1	2.6
1535	Floro	61° 36'	5° 02'	-0 08	+0 00	+0.7	+0.2	3.7	4.9	3.1
1537	Kristiansund	63° 07'	7° 44'	+0 17	+0 33	+2.1	+0.6	4.7	6.1	4.0
				on Narvik, p.142						
1539	Trondheim	63° 27'	10° 24'	-0 54	-1 00	-0.3	-0.2	6.5	8.7	5.7
1541	Rorvik	64° 52'	11° 15'	-0 38	-0 36	*0.79	*0.73	5.4	7.1	4.6
1543	Mo, Ranenfjord	66° 19'	14° 08'	-0 21	-0 17	-0.9	-0.3	6.0	7.8	5.3
1545	Bodo	67° 17'	14° 23'	+0 04	+0 10	*0.87	*0.85	5.8	7.6	5.1
1547	Finneid	67° 15'	15° 26'	+1 54	+1 54	*0.54	*0.46	3.8	4.5	3.1

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	NORWAY Time meridian, 15° E				**on Narvik, p.142**					
1549	Kabelvaag	68° 13'	14° 30'	+0 04	+0 14	-0.5	-0.3	6.4	8.4	5.5
1551	NARVIK	68° 26'	17° 25'		*Daily predictions*			6.6	8.7	5.9
1553	Andenes	69° 19'	16° 07'	+0 17	+0 10	*0.65	*0.58	4.5	5.8	3.8
1555	Tromso	69° 39'	18° 58'	+1 03	+1 00	-1.1	-0.6	6.1	7.9	5.1
1557	Hammerfest	70° 40'	23° 41'	+1 41	+1 39	-0.8	-0.4	6.2	7.9	5.3
					on Yekaterininskaya, p.146					
1559	Vardoya	70° 22'	31° 06'	-2 44	-2 46	-1.5	-0.7	7.1	9.0	5.8
	RUSSIA Barents Sea Time meridian, 45° E									
1561	Bazarnaya Bay	69° 46'	31° 02'	-0 29	-0 29	-0.8	-0.2	7.3	9.2	6.5
1563	Linakhamari, Petsamonvuono	69° 39'	31° 22'	-0 36	-0 36	-0.9	-0.2	7.2	9.0	6.4
1565	Pummanki, Bolshaya Volokovaya	69° 47'	31° 56'	-0 39	-0 39	-0.6	-0.2	7.5	9.4	6.6
1567	Vaida Bay	69° 56'	32° 00'	-0 23	-0 32	-0.2	0.0	7.7	9.7	6.9
1569	Zubovskaya Bay	69° 47'	32° 41'	-0 14	-0 14	+0.2	+0.1	8.0	10.0	7.1
1571	Bolshaya Korabelnaya Bay	69° 41'	33° 06'	-0 05	-0 05	0.0	0.0	7.9	9.9	7.0
1573	Malaya Korabelnaya Bay	69° 35'	32° 45'	-0 01	-0 01	0.0	0.0	7.9	9.9	7.0
	Motovski Gulf									
1575	Eyna Bay	69° 38'	32° 25'	+0 01	+0 01	0.0	0.0	7.9	9.9	7.0
1577	Motka Bay	69° 40'	32° 10'	-0 07	-0 07	0.0	0.0	7.9	9.9	7.0
1579	Ozerko Bay	69° 44'	32° 09'	-0 10	-0 10	0.0	0.0	7.9	9.9	7.0
1581	Titovka Bay	69° 35'	32° 04'	-0 02	-0 02	0.0	0.0	7.9	9.9	7.0
1583	Zapadnaya Bay	69° 29'	32° 30'	-0 03	-0 03	0.0	0.0	7.9	9.9	7.0
1585	Vichany Islands	69° 28'	32° 39'	-0 13	-0 13	0.0	0.0	7.9	9.9	7.0
1587	Ara Bay	69° 26'	32° 51'	-0 05	-0 05	0.0	0.0	7.9	9.9	7.0
1589	Nasha Bay, Ura Bay	69° 23'	32° 55'	-0 03	-0 03	0.0	0.0	7.9	9.9	7.0
1591	Port Vladimirski	69° 25'	33° 09'	-0 02	-0 02	0.0	0.0	7.9	9.9	7.0
1593	Kislaya Harbor	69° 23'	33° 05'	-0 03	-0 03	-0.6	-0.1	7.4	9.3	6.6
	Kola Inlet									
1595	Kuvshinskaya Strait	69° 18'	33° 25'	+0 02	+0 02	0.0	0.0	7.9	9.9	7.0
1597	Sayda Bay	69° 15'	33° 15'	+0 03	+0 03	0.0	0.0	7.9	9.9	7.0
1599	Bolshaya Volokovaya Bay	69° 16'	33° 36'	+0 01	+0 01	0.0	0.0	7.9	9.9	7.0
1601	Olenya Bay	69° 13'	33° 21'	+0 00	+0 00	0.0	0.0	7.9	9.9	7.0
1603	YEKATERININSKAYA	69° 12'	33° 28'		*Daily predictions*			7.9	9.9	7.0
1605	Veliki Point	69° 05'	33° 17'	+0 01	+0 01	0.0	0.0	7.9	9.9	7.0
1607	Bazisnyy Point	69° 01'	33° 04'	+0 17	+0 17	0.0	0.0	7.9	9.9	7.0
1609	Murmansk	68° 59'	33° 04'	+0 17	+0 17	0.0	0.0	7.9	9.9	7.0
	Kola Inlet									
1611	Drovyanoi Point	68° 56'	33° 01'	+0 34	+0 34	0.0	0.0	7.9	9.9	7.0
1613	Kola	68° 53'	33° 01'	+0 59	+0 59	0.0	0.0	7.9	9.9	7.0
1615	Zyelyenyets Bay	69° 18'	33° 45'	-0 01	-0 01	0.0	0.0	7.9	9.9	7.0
1617	Dolgaya Bay	69° 17'	33° 52'	-0 02	-0 02	0.0	0.0	7.9	9.9	7.0
1619	Bik Point, Kildin Island	69° 20'	33° 58'	+0 08	+0 08	0.0	0.0	7.9	9.9	7.0
1621	Mogilnyy Point, Kildin Island	69° 19'	34° 20'	+0 17	+0 17	+0.8	+0.2	8.5	10.6	7.5
1623	Mali Oleni Strait	69° 15'	34° 42'	+0 15	+0 15	+0.5	+0.2	8.2	10.3	7.3
1625	Teriberka Bay	69° 11'	35° 08'	+0 20	+0 20	+0.5	+0.2	8.2	10.3	7.3
1627	Podpakhta Bay	69° 09'	35° 56'	+0 45	+0 40	+1.4	+0.4	8.9	11.2	7.9
1629	Porchnikha Cove	69° 05'	36° 18'	+0 46	+0 41	+1.6	+0.5	9.0	11.3	8.0
1631	Rynda Bay	68° 55'	36° 50'	+1 01	+0 57	+1.4	+0.4	8.9	11.2	7.9
1633	Kharlovka River mouth	68° 47'	37° 20'	+1 10	+1 06	+2.4	+0.7	9.6	12.1	8.5
1635	Semiostrovski Road, SE. entrance	68° 44'	37° 30'	+1 07	+1 06	*1.23	*1.23	9.7	12.2	8.6
1637	Vostochnaya Litsa Bay	68° 38'	37° 48'	+1 24	+1 17	*1.30	*1.30	10.3	12.9	9.1
1639	Drozdovka Bay	68° 20'	38° 25'	+1 27	+1 19	*1.39	*1.39	10.9	13.7	9.7
1641	Savikha Bay	68° 11'	39° 07'	+1 43	+1 38	*1.50	*1.50	11.8	14.8	10.5
	White Sea									
1643	Gryemikha Bay	68° 04'	39° 30'	+2 00	+1 48	*1.54	*1.54	12.2	15.2	10.8
1645	Zyelyony Island	68° 02'	39° 37'	+1 56	+1 49	*1.54	*1.54	12.2	15.2	10.8
1647	Gorodetskaya Bay	67° 43'	40° 57'	+2 26	+2 20	*1.68	*1.40	14.1	16.9	11.3
1649	Cape Orlov	67° 12'	41° 20'	+3 52	+3 54	*1.75	*1.47	14.7	17.6	11.8
1651	Three Islands	67° 06'	41° 23'	+4 05	+4 04	*1.86	*1.57	15.6	18.7	12.5
1653	Sosnovets Island	66° 29'	40° 41'	+4 50	+4 44	+2.1	0.0	10.0	12.0	8.0
					on Kem, p.150					
1655	Tetrino	66° 04'	38° 17'	-1 43	-1 43	0.0	0.0	4.1	4.8	3.6
1657	Varzukha River entrance	66° 16'	36° 58'	-1 13	-1 13	-0.9	-0.2	3.4	4.0	3.0
1659	Cape Turiya	66° 33'	34° 31'	-1 29	-1 08	+0.5	+0.1	4.5	5.2	3.9
1661	Volostrov	66° 37'	34° 21'	-1 30	-1 04	+0.6	+0.2	4.5	5.3	4.0
1663	Mal Piryu Bay	66° 42'	34° 20'	-1 30	-1 04	+0.7	+0.2	4.6	5.3	4.0
1665	Tar Bay	66° 42'	33° 54'	-1 34	-1 05	+0.8	+0.2	4.7	5.5	4.1
1667	Porya Anchorage	66° 46'	33° 48'	-1 30	-1 22	+0.8	+0.2	4.7	5.5	4.1
1669	Kandalaksha	67° 08'	32° 25'	-1 31	-0 57	*1.70	*1.70	7.0	8.2	6.1
1671	Kovda River entrance	66° 42'	32° 53'	-1 14	-1 14	+1.6	+0.5	5.2	6.1	4.6
1673	Sredni Anchorage, Keret Bay	66° 18'	33° 36'	-1 20	-1 02	+0.7	+0.2	4.6	5.3	4.0
1675	Gridina Bay	65° 54'	34° 40'	-1 07	-1 10	+0.2	0.0	4.3	5.0	3.7
1677	Kalgalaksha Bay entrance	65° 40'	34° 53'	-0 33	-0 33	-0.1	0.0	4.0	4.7	3.5
1679	Kalgalaksha, Kalgalaksha Bay	65° 46'	34° 41'	+0 08	+0 08	-0.3	-0.1	3.9	4.5	3.4
1681	Pongama Bay	65° 19'	34° 34'	-0 22	-0 22	-0.2	0.0	3.9	4.6	3.5
1683	KEM, Popov Island	64° 59'	34° 47'		*Daily predictions*			4.1	4.8	3.6

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	RUSSIA White Sea-cont. Time meridian, 45° E									
					on Kem, p.150					
1685	Rombaki Island	65° 02'	35° 02'	-0 01	-0 13	0.0	0.0	4.1	4.8	3.6
1687	Kuzov Island	64° 57'	35° 08'	+0 22	+0 22	-2.0	-0.5	2.6	3.1	2.3
1689	Lukovatyy Island	64° 49'	35° 00'	+0 42	+0 39	-1.2	-0.3	3.2	3.8	2.8
	Time meridian, 60° E									
	Gulf of Onega									
1691	Zhuzhmuy Islands	64° 39'	35° 35'	+2 06	+2 06	-2.6	-0.7	2.2	2.6	1.9
1693	Sorokas Road	64° 34'	34° 56'	+2 12	+2 36	-0.3	-0.1	3.9	4.5	3.4
1695	Molchanov Island	64° 30'	35° 02'	+2 00	+2 43	-0.6	-0.1	3.6	4.2	3.2
1697	Sum Island	64° 23'	35° 14'	+2 02	+2 57	0.0	0.0	4.1	4.8	3.6
1699	Raz Island	64° 24'	35° 26'	+2 30	+2 30	0.0	0.0	4.1	4.8	3.6
1701	Berejnoi Island	64° 21'	36° 07'	+3 37	+3 06	+0.7	+0.2	4.6	5.4	4.0
1703	Parusnitsa Beacon	64° 11'	36° 18'	+4 09	+4 01	+1.9	+0.6	5.4	6.3	4.8
1705	Ponomarev Point	64° 08'	36° 14'	+4 17	+4 17	+0.7	+0.2	4.6	5.4	4.0
1707	Kond Island	64° 12'	36° 37'	+4 42	+4 42	+1.7	+0.5	5.3	6.2	4.7
1709	Malaya Korepalka	64° 01'	36° 35'	+4 33	+4 08	*1.46	*1.46	6.0	7.1	5.3
1711	Unezhemskaya Bay	63° 55'	36° 45'	+4 35	+4 14	*1.54	*1.54	6.3	7.4	5.5
1713	Nyapa Beacon	64° 02'	37° 09'	+4 46	+4 25	*1.66	*1.66	6.8	8.0	6.0
1715	Paskanets Islet	63° 53'	37° 18'	+4 50	+4 26	*1.90	*1.90	7.8	9.1	6.8
1717	Onega River entrance	63° 56'	38° 01'	+5 04	+5 39	*1.90	*1.90	7.8	9.1	6.8
1719	Kii Island, Onega Bay	63° 59'	37° 54'	+4 57	+4 48	*2.00	*2.00	8.0	9.4	7.1
1721	Cape Gluboki	64° 21'	37° 20'	+5 05	+5 05	+1.7	+0.5	5.3	6.2	4.7
1723	Cape Chesmenski	64° 43'	36° 32'	+4 29	+3 45	-2.0	-0.5	2.6	3.0	2.3
1725	Pushlakhta Bay	64° 49'	36° 32'	+3 33	+3 33	-2.0	-0.5	2.6	3.1	2.3
1727	Cape Letni Orlov	64° 55'	36° 27'	+1 28	+1 28	-1.4	-0.3	3.0	3.6	2.7
1729	Muksalma Island	65° 01'	36° 00'	+1 48	+1 48	*0.54	*0.54	2.2	2.6	1.9
1731	Solovets Roads, Solovetski Island	65° 01'	35° 42'	+1 22	+1 32	*0.54	*0.54	2.2	2.6	1.9
1733	Sosnovaya Bay, Solovetski Island	65° 08'	35° 38'	+1 01	+1 01	0.0	0.0	4.1	4.8	3.6
1735	Anzerski Island	65° 08'	36° 12'	+0 44	+0 44	-1.4	-0.3	3.0	3.6	2.7
1737	Zhizhgin Island	65° 12'	36° 49'	+0 36	+0 02	-1.2	-0.3	3.2	3.7	2.8
1739	Lopshenga River entrance	64° 57'	37° 42'	-0 38	-0 38	*0.66	*0.66	2.7	3.2	2.4
1741	Unskaya Inlet	64° 47'	38° 27'	+0 54	-0 14	*0.61	*0.61	2.5	3.0	2.2
	North Dvina River									
1743	Nikolskoi Bar	64° 35'	39° 47'	+1 19	+1 19	*0.63	*0.63	2.6	3.1	2.3
1745	Kyegostrov	64° 32'	40° 28'	+3 12	+2 39	*0.50	*0.50	2.0	2.4	1.8
1747	Archangel, Solombala Island	64° 34'	40° 30'	+3 12	+2 39	*0.51	*0.51	2.1	2.5	1.9
1749	Novo Dvina Fortress	64° 42'	40° 25'	+2 29	+2 29	*0.63	*0.63	2.6	3.1	2.3
1751	Lapominka Island	64° 46'	40° 30'	+2 03	+0 57	-1.4	-0.3	3.0	3.6	2.7
1753	Mudyugskiy Island	64° 51'	40° 17'	+1 31	+0 08	-1.7	-0.5	2.9	3.4	2.5
1755	Berezovvy Bar	64° 54'	40° 11'	+1 42	+1 42	-1.4	-0.3	3.0	3.6	2.7
1757	Kuya River entrance	65° 05'	40° 06'	+1 09	+1 09	-0.9	-0.2	3.4	4.0	3.0
1759	Kerets Point	65° 20'	39° 45'	+0 24	+0 24	+0.7	+0.2	4.6	5.4	4.0
1761	Lisunov Point	65° 34'	39° 47'	+2 04	+2 34	*0.27	*0.27	1.1	1.3	1.0
1763	Bolshaya Tova River entrance	65° 47'	40° 26'	+5 58	+5 58	-1.4	-0.3	3.0	3.6	2.7
1765	Intsi Point	65° 59'	40° 47'	+7 09	+6 10	+1.3	+0.4	5.0	5.9	4.4
1767	Ruchi River entrance	66° 03'	41° 16'	+7 37	+7 37	+1.9	+0.5	5.5	6.4	4.8
1769	Megra River entrance	66° 09'	41° 37'	+7 17	+6 59	+2.2	+0.6	5.7	6.6	5.0
1771	Mayda River entrance	66° 20'	41° 56'	+7 40	+8 42	*2.00	*2.00	8.2	9.6	7.2
1773	Bolshaya Kedovaya River entrance	66° 30'	42° 08'	+7 35	+7 35	*2.34	*2.34	9.6	11.2	8.4
					on Yekaterininskaya, p.146					
1775	Cape Voronov	66° 31'	42° 17'	+4 49	+4 49	*1.85	*1.85	14.6	18.3	13.0
1777	Morzhovetz Island	66° 45'	42° 25'	+6 06	+6 03	*1.62	*1.37	13.6	16.3	10.9
	Gulf of Mezen									
1779	Yurovati Point	66° 27'	42° 34'	+6 03	+6 12	*2.08	*2.08	16.4	20.6	14.6
1781	Cape Abramov	66° 25'	43° 16'	+6 34	+7 04	*2.42	*2.42	19.1	24.0	16.9
1783	Nerninski Point	66° 14'	43° 40'	+6 40	+7 35	*2.75	*2.75	21.6	27.1	19.3
1785	Kuloy River	66° 12'	43° 45'	+7 08	+7 08	*2.16	*2.16	17.1	21.5	15.2
1787	Semzha River mouth	66° 09'	44° 07'	+7 09	+8 14	*2.85	*2.85	22.5	28.2	20.0
1789	Piya River mouth, Mezen River	66° 02'	44° 09'	+7 20	+9 10	*1.98	*1.98	15.6	19.6	13.9
1791	Kamenka, Mezen River	65° 53'	44° 08'	+7 48	+11 05	+1.4	+0.4	8.9	11.2	7.9
1793	Cape Konushin	67° 11'	43° 47'	+7 11	+7 02	*1.83	*1.53	15.4	18.5	12.3
1795	Litke Bank	67° 11'	42° 48'	+5 12	+5 12	*1.63	*1.63	12.9	16.1	11.4
1797	Kiya River entrance	67° 40'	44° 06'	+4 53	+5 50	+2.0	+0.6	9.3	11.7	8.3
1799	Tarkhanovo	68° 30'	43° 39'	+4 46	+5 02	-0.6	-0.2	7.5	9.4	6.6
	Barents Sea									
1801	Cape Kanin	68° 40'	43° 15'	+4 10	+3 58	-1.7	-0.4	6.6	8.3	5.9
1803	Kambalnitsa River entrance	68° 19'	45° 58'	+6 46	+6 34	-2.0	-0.5	6.4	8.0	5.7
1805	Indiga River entrance	67° 42'	48° 46'	-2 41	-2 41	*0.68	*0.68	5.4	6.7	4.8
1807	Bugrino, Kolguyev Island	68° 48'	49° 21'	+6 05	+7 32	*0.41	*0.41	3.2	4.1	2.9
	Time meridian, 75° E									
1809	Russki Zavorot	68° 59'	54° 20'	-3 15	-3 15	*0.27	*0.27	2.1	2.7	1.9
1811	Gulyayevskiye Koshki	68° 58'	54° 40'	-2 28	-2 28	*0.27	*0.27	2.1	2.7	1.9
1813	Pyechora River bar	68° 24'	54° 26'	-0 08	+0 03	*0.27	*0.27	2.1	2.7	1.9
1815	Cape Bolvanski	66° 17'	54° 27'	+0 12	+0 12	*0.27	*0.27	2.1	2.7	1.9
1817	Zyelyony I., Pyechora River mouth	68° 16'	54° 18'	+0 46	+1 09	*0.22	*0.22	1.7	2.2	1.5

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	RUSSIA Barents Sea-cont. Time meridian, 75° E			**on Yekaterininskaya, p.146**						
1819	Varandei Island	68° 49'	58° 00'	-1 29	-1 29	*0.27	*0.27	2.1	2.7	1.9
1821	Dolgoi Island	69° 12'	59° 10'	-1 31	-1 31	*0.27	*0.27	2.1	2.7	1.9
1823	Lyamchin Cape, Vaygach Island	69° 51'	59° 11'	-1 29	-1 33	*0.15	*0.13	1.2	1.6	1.0
	Novaya Zemlya									
1825	Petukhovski Strait	70° 34'	56° 24'	+9 55	+9 29	*0.19	*0.19	1.5	1.9	1.3
1827	Rakhmanova Inlet, Sakhanikha Bay	70° 38'	55° 38'	+9 26	+9 26	*0.11	*0.11	0.9	1.1	0.8
1829	Propashchaya Inlet	71° 03'	53° 43'	+4 25	+4 04	*0.10	*0.10	0.8	1.0	0.7
1831	Nekhvatovo River	71° 18'	53° 40'	+3 43	+3 43	*0.07	*0.07	0.6	0.7	0.5
1833	Byelushya Bay	71° 32'	52° 19'	+3 39	+3 39	*0.13	*0.13	1.0	1.3	0.9
1835	Malyye Karmakuly, Moller Bay	72° 23'	52° 45'	+3 37	+3 37	*0.20	*0.20	1.6	2.0	1.4
1837	Pukhovy Bay	72° 39'	52° 42'	+3 28	+2 52	*0.26	*0.26	2.1	2.6	1.8
1839	Matochkin Strait, west entrance	73° 19'	54° 20'	+3 43	+3 43	*0.32	*0.32	2.5	3.2	2.2
1841	Lagernyy, Matochkin Strait	73° 20'	54° 22'	+3 40	+3 40	*0.20	*0.20	1.6	2.0	1.4
1843	Uzki Point, Matochkin Strait	73° 19'	55° 36'	-4 13	-4 11	*0.14	*0.17	1.0	1.3	1.0
1845	Matochkin Strait, east end	73° 16'	56° 24'	-4 37	-4 35	*0.14	*0.17	1.0	1.4	1.0
1847	Mityushikha Bay	73° 39'	54° 48'	+3 50	+3 17	*0.27	*0.27	2.1	2.7	1.9
1849	Krestovaya Bay	74° 07'	55° 30'	+3 26	+3 26	*0.20	*0.20	1.6	2.0	1.4
1851	Gorbovi Islands	75° 55'	58° 55'	+3 51	+3 51	*0.21	*0.21	1.7	2.1	1.5
1853	Foki Bight	76° 00'	59° 55'	+3 42	+3 45	*0.14	*0.14	1.1	1.4	1.0
1855	Russkaya Harbor	76° 12'	62° 30'	+3 20	+3 20	*0.14	*0.14	1.1	1.4	1.0
1857	Cape Zhelaniya	76° 57'	68° 34'	+3 46	+3 46	*0.18	*0.18	1.4	1.8	1.3
1859	Blagopoluchiya Bay	75° 42'	63° 41'	+5 20	+5 22	*0.17	*0.20	1.2	1.6	1.2
	Kara Strait									
	Novaya Zemlya									
1861	Kamenka Bay	70° 36'	57° 25'	-3 00	-3 05	*0.20	*0.23	1.5	2.0	1.5
1863	Bolshoi Loginov Island	70° 30'	57° 24'	-2 35	-2 33	*0.20	*0.23	1.5	2.0	1.5
1865	Kusova Zemlya Island	70° 29'	57° 02'	-2 28	-2 26	*0.17	*0.20	1.3	1.7	1.3
1867	Bolvanski Point, Vaigach Island	70° 28'	59° 05'	-3 10	-3 08	*0.22	*0.27	1.6	2.1	1.6
1869	Bolshaya Voronov I., Vaigach Island	70° 21'	58° 32'	-3 22	-3 26	*0.15	*0.13	1.2	1.6	1.0
1871	Dolgaya Bay, Vaigach Island	70° 15'	58° 29'	-3 05	-2 42	*0.15	*0.13	1.2	1.6	1.0
	Yugorski Strait									
1873	Varneka Bay	69° 42'	60° 03'	-0 43	-0 25	*0.20	*0.20	1.6	2.2	1.4
1875	Khabarovo	69° 39'	60° 25'	-1 42	-1 46	*0.17	*0.17	1.4	1.9	1.2
1877	Sokoli Island	69° 49'	60° 45'	-2 57	-3 01	*0.17	*0.17	1.4	1.9	1.2
	Kara Sea									
1879	Mestnyy Island	69° 49'	61° 12'	-2 47	-2 45	*0.20	*0.23	1.5	2.0	1.5
1881	Karskaya Bay	69° 15'	64° 57'	-0 52	-0 56	*0.17	*0.17	1.4	1.9	1.2
	Time meridian, 90° E									
1883	Cape Morrasale	69° 37'	66° 50'	-1 55	-1 53	*0.14	*0.17	1.0	1.3	1.0
1885	Payndte River mouth	72° 39'	69° 00'	+1 05	+0 52	*0.17	*0.20	1.2	1.6	1.2
1887	Cape Ragozina, Belyy Island	73° 20'	70° 02'	+3 42	+3 44	*0.25	*0.30	1.8	2.4	1.8
1889	Cape Drovyanoy, Yamal Peninsula	72° 38'	72° 54'	-2 47	-2 45	*0.52	*0.63	3.8	5.1	3.8
1891	Sabule-Yaga River mouth	72° 10'	75° 00'	-1 18	-0 31	*0.30	*0.37	2.2	3.0	2.2
1893	Sabu-to River mouth	70° 58'	73° 56'	+2 26	+3 14	*0.17	*0.20	1.3	1.8	1.3
1895	Cape Kharse, Obskaya Gulf	70° 10'	73° 43'	+5 51	+6 04	*0.21	*0.20	1.7	2.2	1.5
1897	Khampyl-Yaga River mouth	69° 23'	73° 56'	+6 04	+7 09	*0.14	*0.17	1.0	1.3	1.0
1899	Cape Kamenni, Obskaya Gulf	68° 30'	73° 35'	-2 01	-1 23	*0.17	*0.20	1.3	1.8	1.3
1901	Novyy Port, Obskaya Gulf	67° 40'	72° 55'	+1 23	+2 18	*0.17	*0.20	1.3	1.8	1.3
1903	Cape Yamsale	66° 54'	71° 45'	+5 38	+6 45	*0.09	*0.10	0.7	0.9	0.7
1905	Shirokaya River mouth	68° 54'	75° 45'	-2 07	-2 17	*0.16	*0.16	1.3	1.6	1.1
1907	Khorlyanka River mouth	68° 06'	77° 12'	- - -	- - -	- -	- -	0.5	0.6	0.5
	Time meridian, 105° E									
1909	Oleniy Island	72° 36'	77° 41'	-2 01	-2 02	*0.18	*0.17	1.5	2.1	1.3
1911	Cape Daleki	72° 18'	75° 42'	-1 51	-1 49	*0.25	*0.30	1.8	2.4	1.8
1913	Cape Minina	72° 02'	76° 46'	-0 09	+0 05	*0.19	*0.23	1.4	1.9	1.4
1915	Cape Chernyy	71° 09'	77° 21'	+3 15	+3 17	*0.15	*0.17	1.1	1.5	1.1
1917	Cape Leskina	72° 20'	79° 31'	+1 04	+1 00	*0.10	*0.10	0.8	1.1	0.7
1919	Korsakovskiye Islands	72° 14'	81° 06'	+1 17	+1 19	*0.14	*0.17	1.0	1.3	1.0
1921	Olginski Sand, Yenisey River	72° 02'	82° 24'	+2 40	+2 40	*0.22	*0.22	1.7	2.2	1.5
1923	Cape Sopochnaya Korga, Yenisey Gulf	71° 53'	82° 45'	+2 38	+2 34	*0.17	*0.20	1.3	1.8	1.3
1925	Golchikha, Yenisey River	71° 44'	83° 28'	+5 11	+5 50	*0.11	*0.13	0.8	1.1	0.8
1927	Nasonovski Island, Yenisey River	70° 52'	83° 14'	+8 51	+9 05	*0.09	*0.10	0.7	1.0	0.7
1929	Cape Efremov-Kamen	73° 10'	80° 20'	-4 02	-4 06	*0.07	*0.07	0.6	0.8	0.5
1931	Dickson Island, Yenisey Gulf	73° 30'	80° 25'	-3 41	-3 39	*0.09	*0.10	0.7	1.0	0.7
1933	Rastorguyeva Island	73° 59'	84° 04'	-4 14	-4 18	*0.12	*0.13	0.9	1.2	0.9
1935	Cape Zveroboi	73° 48'	85° 34'	-4 00	-4 03	*0.14	*0.17	1.0	1.3	1.0
1937	Pyasina River entrance	73° 49'	85° 52'	-3 57	-3 55	*0.14	*0.17	1.0	1.3	1.0
1939	Rybnyye Islands	74° 17'	85° 36'	-3 55	-3 59	*0.10	*0.10	0.8	1.1	0.7
1941	Sev. (North) Plavikovy Island	74° 33'	84° 55'	-4 16	-4 14	*0.08	*0.10	0.6	0.8	0.6
1943	Cape Sterlegova	75° 25'	88° 54'	+5 42	+5 44	*0.09	*0.10	0.7	1.0	0.7
1945	Isachenko I., Sergeya Kirova Island	77° 13'	89° 16'	- - -	- - -	- -	- -	0.5	0.6	0.4

Endnotes can be found at the end of table 2.

TABLE 2. – TIDAL DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	POSITION		DIFFERENCES				RANGES		Mean Tide Level
				Time		Height				
		Latitude	Longitude	High Water	Low Water	High Water	Low Water	Mean	Spring	
		North	**East**	h m	h m	ft	ft	ft	ft	ft
	RUSSIA Kara Sea-cont. Time meridian, 90° E				**on Yekaterininskaya, p.146**					
1947	Vai I., Arkticheskogo Instituta Island	75° 12'	82° 07'	- - -	- - -	- -	- -	0.5	0.7	0.5
1949	Uyedineniya Island	77° 30'	82° 12'	+5 17	+5 19	*0.09	*0.10	0.7	0.9	0.7
1951	Vize Island	79° 29'	76° 53'	+4 52	+4 46	*0.11	*0.10	0.9	1.2	0.8
	Franz Josef Land Time meridian, 75° E									
1953	Cape Flora	79° 57'	49° 59'	+3 58	+3 54	*0.12	*0.10	1.0	1.2	0.8
1955	Teplitts Bay	81° 47'	57° 59'	-0 05	-0 10	*0.15	*0.17	1.1	1.5	1.0
	Svalbard Time meridian, 15° E				**on Bergen, p.138**					
1957	Bear Island, Barents Sea	74° 29'	19° 12'	+2 55	+3 02	-1.4	-0.6	2.4	3.2	1.6
1959	Advent Bay, Vestspitsbergen	78° 15'	15° 34'	+2 36	+2 44	-0.3	-0.5	3.4	4.4	2.2
1961	Magdalenefjord, Vestspitsbergen	79° 33'	11° 13'	+3 50	+3 23	-1.4	-0.8	2.6	3.2	1.5
1963	Sorgfjord, Vestspitsbergen	79° 53'	16° 54'	+4 49	+5 18	*0.55	*0.40	1.9	2.6	1.3

Endnotes can be found at the end of table 2.

ENDNOTES

* Ratio. If the ratio is accompanied by a correction factor, multiply the heights of the high and low waters at the reference station by the ratio and then apply the correction factor.

\# The tide at this location is chiefly diurnal. SEE CAUTION NOTE.

<1> For places on the east coast of Africa, see “Tide Tables, Central and Western Pacific Ocean and Indian Ocean.”

<2> On the north coast of Tunisia and on the east coast, as far as the entrance to Kerkenah Channel, the tides are small and are often masked by the effects of wind and atmospheric pressure which may cause the water level to vary by as much as 3 feet.

<4> Tide data questionable.

<5> For places on the Red Sea, see “Tide Tables, Central and Western Pacific Ocean and Indian Ocean.”

<6> For the following stations there are separate low water corrections for periods of neap and spring tides. The height differences are given in feet.

Place	Neap	Spring
Blaye	-3.4	-1.5
Bordeaux, Garonne River	-5.6	-3.6
Rochefort, Charente River	+0.4	+1.8
Nantes, Loire River	-1.5	+1.3

<7> For the following stations there are separate high and low water height corrections for periods of neaps and spring tides. The height differences are given in feet.

	High Water		Low Water	
Place	Neap	Spring	Neap	Spring
Quilebuf	+0.4	+1.0	+1.9	+6.1
Caudebec	+0.3	+0.6	+4.9	+0.9
Duclair	+0.1	-0.4	+7.0	+4.0
Rouen	+1.3	+0.3	+8.8	+5.9

<8> A double high water occurs in La Seine below Rouen, the second following by about 1 hour the one obtained through the differences. At springs the first high water occurs about 1/2 hour earlier than given by the differences and the second follows about 2 hours later.

<9> Apply differences to first of double high waters at Southampton.

<10> A double high water occurs at this station. The differences may be applied to both high waters except at Poole entrance where the high water time differences and the high and low water height differences are variable. SEE PAGES 76 AND 77.

<11> There is a double low water at Portland. Low water time difference is for first low. Second low water is about 3h 25m later than first low.

<12> Height of high water is about 19 1/2 feet at springs and 12 feet at neaps. Low water is about 0.0 foot.

<13> Height of high water is about 13 1/2 feet at springs and 4 1/2 feet at neaps. Low water is about 1 foot.

<14> At Bridgwater the height of high water is about 15 feet at springs and 6 feet at neaps; low water is about 1 foot. In the Parrett River, a bore occurs immediately after low water near springs and may attain a height of about 2 feet.

<15> The Severn Bore which occurs only near springs begins near the bridge just after low water and attains its maximum height of 4 to 5 feet near Framilode.

<16> Low water is about 2 feet at springs and 1 foot at neaps.

<17> High water, in Scapa Flow and approaches, occurs approximately as follows with respect to high water at Narvik: Hoy Sound, Hoxa Sound and inside the Flow, -2h 50m; western end of Holm Sound and Water Sound, -2h 20m; Burray Ness, on the outer coast, -1h 00m.

<18> Low water usually lasts for 1 to 2 1/2 hours with a variation in level of up to 0.7 foot.

<19> A double low water occurs at this station. Predictions are for second low water. First low water occurs about 3 hours earlier.

<20> At this station there occurs a high water stand lasting about 4 hours. Predictions are for the end of the stand.

TABLE 3.—HEIGHT OF TIDE AT ANY TIME

EXPLANATION OF TABLES

Although the footnote of Table 3 may contain sufficient explanation for finding the height of tide at any time, two examples are given here to illustrate its use.

Example 1.—Find the height of the tide at 0755 at Bergen, Norway on a day when the predicted tides from Table 1 are given as:

Low Water	
Time	*Height*
h.m.	*ft*
0502	0.1
1723	0.3

High Water	
Time	*Height*
h.m.	*ft*
1117	4.4
2355	4.5

An inspection of the above example shows that the desired time falls between the two morning tides

The duration of rise is $11^h\ 17^m - 5^h\ 02^m = 6^h\ 15^m$.

The time after low water for which the height is required is $7^h\ 55^m - 5^h\ 02^m = 2^h\ 53^m$.

The range of tide is 4.4 – 0.1 = 4.3 feet.

The duration of rise or fall in Table 3 is given in heavy-faced type for each 20 minutes from 4h 00m to $10^h\ 40^m$. The nearest tabular value to $6^h\ 15^m$, the above duration of rise, is $6^h\ 20^m$; and on the horizontal line of $6^h\ 20^m$, the nearest tabular time to $2^h\ 53^m$ after low water for which the height is required is $2^h\ 57^m$. Following down the column in which this $2^h\ 57^m$ is found to its intersection with the line of the range 4.5 feet (the nearest tabular value to the above range of 4.3 feet), the correction is found to be 2.0 feet, which being reckoned from low water, must be added, making 0.1 + 2.0 = 2.1 feet or 64 centimeters which is the required height above the chart datum for Bergen.

Example 2. —Find the height of the tide at 1045 at Hamburg, Germany, on a day when the predicted tides from Table 1 are given as:

High Water	
Time	*Height*
h.m.	*ft*
0710	7.9

Low Water	
Time	*Height*
h.m.	*ft*
1433	– 0.4

The duration of fall is $14^h\ 33^m - 7^h\ 10^m = 7^h\ 23^m$.

The time after high water for which the height is required is $10^h\ 45^m - 7^h\ 10^m = 3^h\ 35^m$.

The range of tide is 7.9 –(– 0.4) = 8.3 feet.

Entering Table 3 at the duration of fall of $7^h\ 20^m$, which is the nearest value to $7^h\ 23^m$, the nearest value on the horizontal line to $3^h\ 35^m$ is $3^h\ 40^m$ after high water. Following down this column to its intersection with a range of 8.5 feet which is the nearest tabular value to 8.3 feet, one obtains 4.2 which, being calculated from high water, must be subtracted from it. The approximate height at $10^h\ 45^m$ is, therefore, 7.9 – 4.2 = 3.7 feet or 113 centimeters.

When the duration of rise or fall is greater than $10^h\ 40^m$, enter the table with one-half the given duration and with one-half the time from the nearest high or low water; but if the duration of rise or fall is less than 4 hours, enter the table with double the given duration and with double the time from the nearest high or low water.

TABLE 3.—HEIGHT OF TIDE AT ANY TIME

EXPLANATION OF TABLE

Similarly, when the range of tide is greater than 20 feet, enter the table with one-half the given range. The tabular correction should then be doubled before applying it to the given high or low water height. If the range of tide is greater than 40 feet, take one-third of the range and multiply the tabular correction by 3.

If the height at any time is desired for a place listed in Table 2 predictions of the high and low waters for the day in question should be obtained by the use of the difference given for the place in that table. Having obtained these predictions, the height for any intermediate time is obtained in the same manner as illustrated in the foregoing example.

GRAPHIC METHOD

If the height of the tide is required for a number of times on a certain day the full tide curve for the day may be obtained by the one-quarter, one-tenth rule. The procedure is as follows:

1. On cross-section paper plot the high and low water points in the order of their occurrence for the day, measuring time horizontally and height vertically. These are the basic points for the curve.
2. Draw light straight lines connecting the points representing successive high and low waters.
3. Divide each of these straight lines into four equal parts. The halfway point of each line gives another point for the curve.
4. At the quarter point adjacent to high water draw a vertical line above the point and at the quarter point adjacent to low water draw a vertical line below the point, making the length of these lines equal to one-tenth of the range between the high and low waters used. The points marking the ends of these vertical lines give two additional intermediate points for the curve.
5. Draw a smooth curve through the points of high and low waters and the intermediate points, making the curve well rounded near high and low waters. This curve will approximate the actual tide curve and heights for any time of the day may be readily scaled from it.

Caution.—Both methods presented are based on the assumption that the rise and fall conform to simple cosine curves. Therefore the heights obtained will be approximate. The roughness of approximation will vary as the tide curve differs from a cosine curve.

An example of the use of the graphical method is illustrated below. Using the same predicted tides as in example 2, the approximate height at $3^h\ 00^m$ could be determined as shown below.

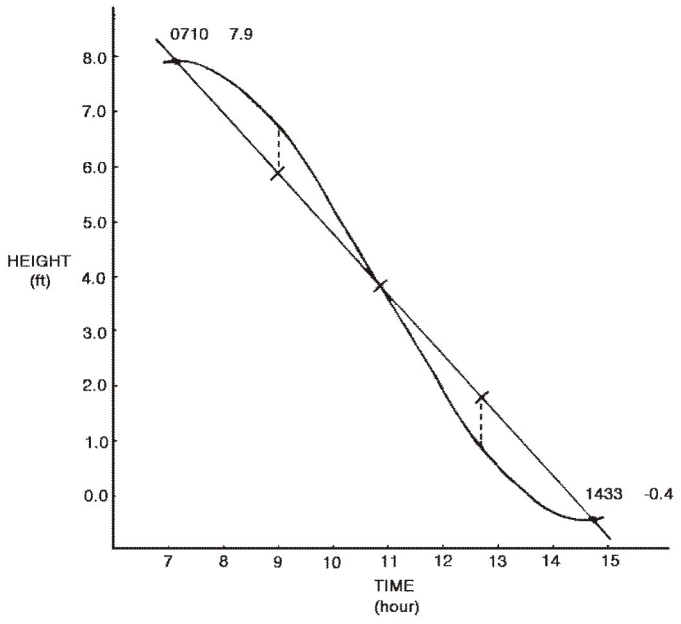

TABLE 3.—HEIGHT OF TIDE AT ANY TIME

Duration of rise or fall, see footnote	Time from the nearest high water or low water														
h. m.	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*
4 10	0 08	0 16	0 24	0 32	0 40	0 48	0 56	1 04	1 12	1 20	1 28	1 36	1 44	1 52	2 00
4 20	0 09	0 17	0 26	0 35	0 43	0 52	1 01	1 09	1 18	1 27	1 35	1 44	1 53	2 01	2 10
4 40	0 09	0 19	0 28	0 37	0 47	0 56	1 05	1 15	1 24	1 33	1 43	1 52	2 01	2 11	2 20
5 00	0 10	0 20	0 30	0 40	0 50	1 00	1 10	1 20	1 30	1 40	1 50	2 00	2 10	2 20	2 30
5 20	0 11	0 21	0 32	0 43	0 53	1 04	1 15	1 25	1 36	1 47	1 57	2 08	2 19	2 29	2 40
5 40	0 11	0 23	0 34	0 45	0 57	1 08	1 19	1 31	1 42	1 53	2 05	2 16	2 27	2 39	2 50
6 00	0 12	0 24	0 36	0 48	1 00	1 12	1 24	1 36	1 48	2 00	2 12	2 24	2 36	2 48	3 00
6 20	0 13	0 25	0 38	0 51	1 03	1 16	1 29	1 41	1 54	2 07	2 19	2 32	2 45	2 57	3 10
6 40	0 13	0 27	0 40	0 53	1 07	1 20	1 33	1 47	2 00	2 13	2 27	2 40	2 53	3 07	3 20
7 00	0 14	0 28	0 42	0 56	1 10	1 24	1 38	1 52	2 06	2 20	2 34	2 48	3 02	3 16	3 30
7 20	0 15	0 29	0 44	0 59	1 13	1 28	1 43	1 57	2 12	2 27	2 41	2 56	3 11	3 25	3 40
7 40	0 15	0 31	0 46	1 01	1 17	1 32	1 47	2 03	2 18	2 33	2 49	3 04	3 19	3 35	3 50
8 00	0 16	0 32	0 48	1 04	1 20	1 36	1 52	2 08	2 24	2 40	2 56	3 12	3 28	3 44	4 00
8 20	0 17	0 33	0 50	1 07	1 23	1 40	1 57	2 13	2 30	2 47	3 03	3 20	3 37	3 53	4 10
8 40	0 17	0 35	0 52	1 09	1 27	1 44	2 01	2 19	2 36	2 53	3 11	3 28	3 45	4 03	4 20
9 00	0 18	0 36	0 54	1 12	1 30	1 48	2 06	2 24	2 42	3 00	3 18	3 36	3 54	4 12	4 30
9 20	0 19	0 37	0 56	1 15	1 33	1 52	2 11	2 29	2 48	3 07	3 25	3 44	4 03	4 21	4 40
9 40	0 19	0 39	0 58	1 17	1 37	1 56	2 15	2 35	2 54	3 13	3 33	3 52	4 11	4 31	4 50
10 00	0 20	0 40	1 00	1 20	1 40	2 00	2 20	2 40	3 00	3 20	3 40	4 00	4 20	4 40	5 00
10 20	0 21	0 41	1 02	1 23	1 43	2 04	2 25	2 45	3 06	3 27	3 47	4 08	4 29	4 49	5 10
10 40	0 21	0 43	1 04	1 25	1 47	2 08	2 29	2 51	3 12	3 33	3 55	4 16	4 37	4 59	5 20

Range of tide, see footnote	Correction to height														
Ft.	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*	*Ft.*
0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
1.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5
1.5	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8
2.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
2.5	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.2
3.0	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.2	1.3	1.5
3.5	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.6	0.7	0.9	1.0	1.2	1.4	1.6	1.8
4.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0
4.5	0.0	0.0	0.1	0.2	0.3	0.4	0.6	0.7	0.9	1.1	1.3	1.6	1.8	2.0	2.2
5.0	0.0	0.1	0.1	0.2	0.3	0.5	0.6	0.8	1.0	1.2	1.5	1.7	2.0	2.2	2.5
5.5	0.0	0.1	0.1	0.2	0.4	0.5	0.7	0.9	1.1	1.4	1.6	1.9	2.2	2.5	2.8
6.0	0.0	0.1	0.1	0.3	0.4	0.6	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.7	3.0
6.5	0.0	0.1	0.2	0.3	0.4	0.6	0.8	1.1	1.3	1.6	1.9	2.2	2.6	2.9	3.2
7.0	0.0	0.1	0.2	0.3	0.5	0.7	0.9	1.2	1.4	1.8	2.1	2.4	2.8	3.1	3.5
7.5	0.0	0.1	0.2	0.3	0.5	0.7	1.0	1.2	1.5	1.9	2.2	2.6	3.0	3.4	3.8
8.0	0.0	0.1	0.2	0.3	0.5	0.8	1.0	1.3	1.6	2.0	2.4	2.8	3.2	3.6	4.0
8.5	0.0	0.1	0.2	0.4	0.6	0.8	1.1	1.4	1.8	2.1	2.5	2.9	3.4	3.8	4.2
9.0	0.0	0.1	0.2	0.4	0.6	0.9	1.2	1.5	1.9	2.2	2.7	3.1	3.6	4.0	4.5
9.5	0.0	0.1	0.2	0.4	0.6	0.9	1.2	1.6	2.0	2.4	2.8	3.3	3.8	4.3	4.8
10.0	0.0	0.1	0.2	0.4	0.7	1.0	1.3	1.7	2.1	2.5	3.0	3.5	4.0	4.5	5.0
10.5	0.0	0.1	0.3	0.5	0.7	1.0	1.3	1.7	2.2	2.6	3.1	3.6	4.2	4.7	5.2
11.0	0.0	0.1	0.3	0.5	0.7	1.1	1.4	1.7	2.3	2.8	3.3	3.8	4.4	4.9	5.5
11.5	0.0	0.1	0.3	0.5	0.8	1.1	1.5	1.8	2.3	2.9	3.4	4.0	4.6	5.1	5.8
12.0	0.0	0.1	0.3	0.5	0.8	1.1	1.5	1.9	2.5	3.0	3.6	4.1	4.8	5.4	6.0
12.5	0.0	0.1	0.3	0.5	0.8	1.2	2.6	1.9	2.6	3.1	3.7	4.3	5.0	5.6	6.2
13.0	0.0	0.1	0.3	0.6	0.9	1.2	1.7	2.2	2.7	3.2	3.9	4.5	5.1	5.8	6.5
13.5	0.0	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.4	4.0	4.7	5.3	6.0	6.8
14.0	0.0	0.2	0.3	0.6	0.9	1.3	1.8	2.3	2.9	3.5	4.2	4.8	5.5	6.3	7.0
14.5	0.0	0.2	0.4	0.6	1.0	1.4	1.9	2.4	3.0	3.6	4.3	5.0	5.7	6.5	7.2
15.0	0.0	0.2	0.4	0.6	1.0	1.4	1.9	2.5	3.1	3.8	4.4	5.2	5.9	6.7	7.5
15.5	0.0	0.2	0.4	0.7	1.0	1.5	2.0	2.6	3.2	3.9	4.6	5.4	6.1	6.9	7.8
16.0	0.0	0.2	0.4	0.7	1.1	1.5	2.1	2.6	3.3	4.0	4.7	5.5	6.3	7.2	8.0
16.5	0.0	0.2	0.4	0.7	1.1	1.6	2.1	2.7	3.4	4.1	4.9	5.7	6.5	7.4	8.2
17.0	0.0	0.2	0.4	0.7	1.1	1.6	2.2	2.8	3.5	4.2	5.0	5.9	6.7	7.6	8.5
17.5	0.0	0.2	0.4	0.8	1.2	1.7	2.2	2.9	3.6	4.4	5.2	6.0	6.9	7.8	8.8
18.0	0.0	0.2	0.4	0.8	1.2	1.7	2.3	3.0	3.7	4.5	5.3	6.2	7.1	8.1	9.0
18.5	0.1	0.2	0.5	0.8	1.2	1.8	2.4	3.1	3.8	4.6	5.5	6.4	7.3	8.3	9.2
19.0	0.1	0.2	0.5	0.8	1.3	1.8	2.4	3.1	3.9	4.8	5.6	6.6	7.5	8.5	9.5
19.5	0.1	0.2	0.5	0.8	1.3	1.9	2.5	3.2	4.0	4.9	5.8	6.7	7.7	8.7	9.8
20.0	0.1	0.2	0.5	0.9	1.3	1.9	2.6	3.3	4.1	5.0	5.9	6.9	7.9	9.0	10.0

Obtain from the predictions the high water and low water, one of which is before and the other after the time for which the height is required. The difference between the times of occurrence of these tides is the duration of rise or fall, and the difference between their heights is the range of tide for the above table. Find the difference between the nearest high or low water and the time for which the height is required.

Enter the table with the duration of rise or fall, printed in heavy-faced type, which most nearly agrees with the actual value, and on that horizontal line find the time from the nearest high or low water which agrees most nearly with the corresponding actual difference. The correction sought is in the column directly below, on the line with the range of tide.

When the nearest tide is high water, subtract the correction.

When the nearest tide is low, add the correction.

TABLE 4.—LOCAL MEAN TIME OF SUNRISE AND SUNSET

EXPLANATION OF TABLE

This table gives the local mean time of the rising and setting of the Sun's upper limb for every fifth day of the year. The times were computed for the instant when the true zenith distance of the Sun's center is 90° 50', 34' having been allowed for horizontal refraction and 16' for semidiameter. No allowance has been made for elevation of the observer.

Because of the sensible variations which may be made in the time of rising or setting of the Sun by a difference in elevation of the observer, and by changes in the refraction, any great refinement in the interpolation of intermediate dates or latitudes in this table is unnecessary.

The value obtained from Table 4 may be converted to standard time by means of Table 5, which follows it.

Date	0°		5°N.		10°N.		15°N.		20°N.		25°N.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	06 00	18 07	06 08	17 59	06 17	17 50	06 26	17 41	06 35	17 32	06 45	17 22
6	06 02	18 09	06 10	18 01	06 19	17 53	06 27	17 44	06 36	17 35	06 46	17 25
11	06 04	18 12	06 12	18 04	06 20	17 55	06 29	17 47	06 37	17 38	06 47	17 29
16	06 06	18 13	06 14	18 06	06 21	17 58	06 29	17 50	06 38	17 42	06 47	17 33
21	06 08	18 15	06 15	18 08	06 22	18 00	06 30	17 53	06 38	17 45	06 46	17 37
26	06 09	18 16	06 16	18 09	06 23	18 02	06 30	17 55	06 37	17 48	06 45	17 40
31	06 10	18 17	06 16	18 11	06 23	18 04	06 29	17 58	06 36	17 51	06 43	17 44
Feb. 5	06 10	18 17	06 16	18 12	06 22	18 06	06 28	18 00	06 34	17 54	06 41	17 47
10	06 11	18 18	06 16	18 13	06 21	18 07	06 26	18 02	06 32	17 57	06 38	17 51
15	06 11	18 18	06 15	18 13	06 20	18 09	06 25	18 04	06 29	17 59	06 35	17 54
20	06 10	18 17	06 14	18 13	06 18	18 09	06 22	18 05	06 26	18 01	06 31	17 57
25	06 10	18 16	06 13	18 13	06 16	18 10	06 20	18 07	06 23	18 03	06 27	18 00
Mar. 2	06 09	18 15	06 11	18 13	06 14	18 11	06 17	18 08	06 19	18 05	06 22	18 03
7	06 08	18 14	06 10	18 13	06 12	18 11	06 13	18 09	06 15	18 07	06 18	18 05
12	06 07	18 13	06 08	18 12	06 09	18 11	06 10	18 10	06 11	18 09	06 13	18 07
17	06 05	18 12	06 06	18 11	06 06	18 11	06 07	18 10	06 07	18 10	06 08	18 10
22	06 04	18 10	06 04	18 10	06 03	18 11	06 03	18 11	06 03	18 11	06 02	18 12
27	06 02	18 09	06 01	18 10	06 00	18 11	05 59	18 12	05 58	18 13	05 57	18 14
Apr. 1	06 01	18 07	05 59	18 09	05 58	18 11	05 56	18 12	05 54	18 14	05 52	18 16
6	05 59	18 06	05 57	18 08	05 55	18 10	05 52	18 13	05 50	18 16	05 47	18 18
11	05 58	18 04	05 55	18 07	05 52	18 10	05 49	18 14	05 46	18 17	05 42	18 21
16	05 57	18 03	05 53	18 07	05 49	18 11	05 46	18 14	05 42	18 18	05 37	18 23
21	05 55	18 02	05 51	18 06	05 47	18 11	05 43	18 15	05 38	18 20	05 33	18 25
26	05 54	18 01	05 50	18 06	05 45	18 11	05 40	18 16	05 34	18 22	05 29	18 28
May. 1	05 54	18 01	05 48	18 06	05 43	18 12	05 37	18 17	05 31	18 23	05 25	18 30
6	05 53	18 00	05 47	18 06	05 41	18 12	05 35	18 19	05 28	18 25	05 21	18 32
11	05 53	18 00	05 46	18 06	05 40	18 13	05 33	18 20	05 26	18 27	05 18	18 35
16	05 53	18 00	05 46	18 07	05 39	18 14	05 32	18 21	05 24	18 29	05 15	18 38
21	05 53	18 00	05 46	18 08	05 38	18 15	05 30	18 23	05 22	18 31	05 13	18 40
26	05 53	18 01	05 46	18 08	05 38	18 16	05 30	18 25	05 21	18 33	05 12	18 43
31	05 54	18 01	05 46	18 09	05 38	18 18	05 29	18 26	05 20	18 35	05 10	18 45
Jun. 5	05 55	18 02	05 47	18 10	05 38	18 19	05 29	18 28	05 20	18 37	05 10	18 47
10	05 56	18 03	05 47	18 12	05 39	18 20	05 30	18 29	05 20	18 39	05 10	18 49
15	05 57	18 04	05 48	18 13	05 39	18 22	05 30	18 31	05 20	18 41	05 10	18 51
20	05 58	18 05	05 49	18 14	05 40	18 23	05 31	18 32	05 21	18 42	05 11	18 52
25	05 59	18 06	05 50	18 15	05 41	18 24	05 32	18 33	05 22	18 43	05 12	18 53
30	06 00	18 07	05 51	18 16	05 43	18 25	05 33	18 34	05 24	18 43	05 13	18 54
Jul. 5	06 01	18 08	05 53	18 17	05 44	18 25	05 35	18 34	05 25	18 44	05 15	18 54
10	06 02	18 09	05 54	18 17	05 45	18 26	05 36	18 34	05 27	18 43	05 17	18 53
15	06 02	18 10	05 54	18 17	05 46	18 26	05 38	18 34	05 29	18 43	05 19	18 52
20	06 03	18 10	05 55	18 17	05 47	18 25	05 39	18 33	05 31	18 42	05 22	18 51
25	06 03	18 10	05 56	18 17	05 48	18 25	05 41	18 32	05 33	18 40	05 24	18 49
30	06 03	18 10	05 56	18 17	05 49	18 23	05 42	18 31	05 35	18 38	05 27	18 46
Aug. 4	06 03	18 10	05 56	18 16	05 50	18 22	05 43	18 29	05 36	18 36	05 29	18 43
9	06 02	18 09	05 56	18 15	05 51	18 20	05 45	18 26	05 38	18 33	05 31	18 40
14	06 01	18 08	05 56	18 13	05 51	18 18	05 45	18 24	05 40	18 30	05 33	18 36
19	06 00	18 07	05 56	18 12	05 51	18 16	05 46	18 21	05 41	18 26	05 36	18 31
24	05 59	18 06	05 55	18 10	05 51	18 14	05 47	18 18	05 42	18 22	05 38	18 27
29	05 58	18 04	05 54	18 08	05 51	18 11	05 47	18 14	05 44	18 18	05 40	18 22
Sep. 3	05 56	18 03	05 53	18 05	05 51	18 08	05 48	18 11	05 45	18 14	05 41	18 17
8	05 55	18 01	05 52	18 03	05 50	18 05	05 48	18 07	05 46	18 09	05 43	18 12
13	05 53	17 59	05 51	18 01	05 50	18 02	05 48	18 03	05 47	18 05	05 45	18 06
18	05 51	17 57	05 50	17 58	05 50	17 59	05 49	17 59	05 48	18 00	05 47	18 01
23	05 49	17 56	05 49	17 56	05 49	17 56	05 49	17 56	05 49	17 56	05 49	17 56
28	05 47	17 54	05 48	17 53	05 49	17 53	05 49	17 52	05 50	17 51	05 51	17 50
Oct. 3	05 46	17 52	05 47	17 51	05 49	17 50	05 50	17 48	05 51	17 47	05 53	17 45
8	05 44	17 51	05 46	17 49	05 48	17 47	05 50	17 45	05 53	17 42	05 55	17 40
13	05 43	17 50	05 46	17 47	05 48	17 44	05 51	17 41	05 54	17 38	05 57	17 35
18	05 42	17 49	05 45	17 45	05 49	17 42	05 52	17 38	05 56	17 34	05 59	17 31
23	05 41	17 48	05 45	17 44	05 49	17 40	05 53	17 35	05 57	17 31	06 02	17 26
28	05 40	17 47	05 45	17 43	05 50	17 38	05 54	17 33	05 59	17 28	06 05	17 22
Nov. 2	05 40	17 47	05 45	17 42	05 51	17 36	05 56	17 31	06 02	17 25	06 08	17 19
7	05 40	17 47	05 46	17 41	05 52	17 35	05 58	17 29	06 04	17 23	06 11	17 16
12	05 41	17 48	05 47	17 41	05 53	17 35	06 00	17 28	06 07	17 21	06 14	17 14
17	05 41	17 48	05 48	17 42	05 55	17 35	06 02	17 27	06 10	17 20	06 18	17 12
22	05 42	17 50	05 50	17 42	05 57	17 35	06 05	17 27	06 13	17 19	06 21	17 11
27	05 44	17 51	05 52	17 43	05 59	17 36	06 07	17 27	06 16	17 19	06 25	17 10
Dec. 2	05 46	17 53	05 54	17 45	06 02	17 37	06 10	17 28	06 19	17 19	06 28	17 10
7	05 48	17 55	05 56	17 47	06 04	17 38	06 13	17 30	06 22	17 20	06 32	17 11
12	05 50	17 57	05 58	17 49	06 07	17 40	06 16	17 31	06 25	17 22	06 35	17 12
17	05 52	18 00	06 01	17 51	06 10	17 42	06 19	17 33	06 28	17 24	06 38	17 14
22	05 55	18 02	06 03	17 54	06 12	17 45	06 21	17 36	06 31	17 26	06 41	17 16
27	05 57	18 05	06 06	17 56	06 15	17 47	06 24	17 38	06 33	17 29	06 43	17 19

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	30°N.		32°N.		34°N.		36°N.		38°N.		40°N.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	06 56	17 11	07 00	17 06	07 05	17 02	07 11	16 56	07 16	16 51	07 22	16 45
6	06 57	17 15	07 01	17 10	07 06	17 06	07 11	17 01	07 16	16 55	07 22	16 50
11	06 57	17 19	07 01	17 14	07 06	17 10	07 11	17 05	07 16	17 00	07 21	16 55
16	06 57	17 23	07 01	17 19	07 05	17 15	07 10	17 10	07 15	17 05	07 20	17 00
21	06 55	17 27	06 59	17 23	07 03	17 19	07 08	17 15	07 12	17 10	07 17	17 06
26	06 54	17 32	06 57	17 28	07 01	17 24	07 05	17 20	07 09	17 16	07 14	17 11
31	06 51	17 36	06 54	17 33	06 58	17 29	07 02	17 25	07 06	17 22	07 10	17 17
Feb. 5	06 48	17 40	06 51	17 37	06 54	17 34	06 58	17 31	07 01	17 27	07 05	17 23
10	06 44	17 44	06 47	17 42	06 50	17 39	06 53	17 36	06 56	17 33	06 59	17 30
15	06 40	17 48	06 43	17 46	06 45	17 44	06 48	17 41	06 50	17 38	06 53	17 35
20	06 36	17 52	06 38	17 50	06 40	17 48	06 42	17 46	06 44	17 44	06 47	17 41
25	06 31	17 56	06 32	17 54	06 34	17 53	06 36	17 51	06 38	17 49	06 40	17 47
Mar. 2	06 25	18 00	06 27	17 58	06 28	17 57	06 29	17 56	06 31	17 54	06 33	17 53
7	06 20	18 03	06 21	18 02	06 22	18 01	06 23	18 00	06 24	17 59	06 25	17 58
12	06 14	18 06	06 15	18 06	06 15	18 05	06 16	18 05	06 16	18 04	06 17	18 03
17	06 08	18 09	06 08	18 09	06 08	18 09	06 09	18 09	06 09	18 09	06 09	18 09
22	06 02	18 12	06 02	18 13	06 02	18 13	06 01	18 13	06 01	18 13	06 01	18 14
27	05 56	18 15	05 55	18 16	05 55	18 17	05 54	18 17	05 54	18 18	05 53	18 19
Apr. 1	05 50	18 18	05 49	18 19	05 48	18 20	05 47	18 22	05 46	18 23	05 45	18 24
6	05 44	18 22	05 43	18 23	05 41	18 24	05 40	18 26	05 38	18 27	05 37	18 29
11	05 38	18 25	05 37	18 26	05 35	18 28	05 33	18 30	05 31	18 32	05 29	18 34
16	05 33	18 28	05 31	18 30	05 28	18 32	05 26	18 34	05 24	18 37	05 21	18 39
21	05 27	18 31	05 25	18 33	05 22	18 36	05 20	18 38	05 17	18 41	05 14	18 44
26	05 22	18 34	05 20	18 37	05 17	18 40	05 14	18 43	05 11	18 46	05 07	18 49
May. 1	05 18	18 37	05 15	18 40	05 11	18 43	05 08	18 47	05 04	18 50	05 01	18 54
6	05 13	18 40	05 10	18 44	05 06	18 47	05 03	18 51	04 59	18 55	04 55	18 59
11	05 10	18 44	05 06	18 47	05 02	18 51	04 58	18 55	04 54	19 00	04 49	19 04
16	05 06	18 47	05 02	18 51	04 58	18 55	04 54	18 59	04 49	19 04	04 44	19 09
21	05 04	18 50	04 59	18 54	04 55	18 59	04 50	19 03	04 45	19 08	04 40	19 14
26	05 01	18 53	04 57	18 57	04 52	19 02	04 47	19 07	04 42	19 12	04 37	19 18
31	05 00	18 56	04 55	19 00	04 50	19 05	04 45	19 10	04 40	19 16	04 34	19 22
Jun. 5	04 59	18 58	04 54	19 03	04 49	19 08	04 44	19 14	04 38	19 19	04 32	19 25
10	04 58	19 01	04 54	19 06	04 48	19 11	04 43	19 16	04 37	19 22	04 31	19 28
15	04 59	19 02	04 54	19 07	04 48	19 13	04 43	19 18	04 37	19 24	04 31	19 30
20	04 59	19 04	04 54	19 09	04 49	19 14	04 43	19 20	04 37	19 26	04 31	19 32
25	05 00	19 05	04 55	19 10	04 50	19 15	04 45	19 21	04 39	19 26	04 32	19 33
30	05 02	19 05	04 57	19 10	04 52	19 15	04 46	19 21	04 41	19 27	04 34	19 33
Jul. 5	05 04	19 05	04 59	19 10	04 54	19 15	04 49	19 20	04 43	19 26	04 37	19 32
10	05 06	19 04	05 02	19 09	04 57	19 14	04 51	19 19	04 46	19 25	04 40	19 30
15	05 09	19 03	05 04	19 07	05 00	19 12	04 55	19 17	04 49	19 22	04 44	19 28
20	05 12	19 01	05 07	19 05	05 03	19 10	04 58	19 14	04 53	19 19	04 47	19 25
25	05 15	18 58	05 11	19 02	05 06	19 06	05 02	19 11	04 57	19 16	04 52	19 21
30	05 18	18 55	05 14	18 59	05 10	19 03	05 05	19 07	05 01	19 11	04 56	19 16
Aug. 4	05 21	18 51	05 17	18 55	05 13	18 58	05 09	19 02	05 05	19 06	05 01	19 11
9	05 24	18 47	05 20	18 50	05 17	18 54	05 13	18 57	05 10	19 01	05 06	19 05
14	05 27	18 42	05 24	18 45	05 21	18 48	05 17	18 52	05 14	18 55	05 10	18 59
19	05 29	18 37	05 27	18 40	05 24	18 43	05 21	18 46	05 18	18 49	05 15	18 52
24	05 32	18 32	05 30	18 34	05 28	18 37	05 25	18 39	05 23	18 42	05 20	18 44
29	05 35	18 26	05 33	18 28	05 31	18 30	05 29	18 32	05 27	18 35	05 25	18 37
Sep. 3	05 38	18 21	05 36	18 22	05 35	18 24	05 33	18 25	05 31	18 27	05 29	18 29
8	05 41	18 14	05 39	18 16	05 38	18 17	05 37	18 18	05 35	18 19	05 34	18 21
13	05 43	18 08	05 42	18 09	05 42	18 10	05 41	18 11	05 40	18 12	05 39	18 13
18	05 46	18 02	05 45	18 02	05 45	18 03	05 44	18 03	05 44	18 04	05 43	18 04
23	05 49	17 56	05 49	17 56	05 48	17 56	05 48	17 56	05 48	17 56	05 48	17 56
28	05 51	17 50	05 52	17 49	05 52	17 49	05 52	17 49	05 53	17 48	05 53	17 48
Oct. 3	05 54	17 44	05 55	17 43	05 56	17 42	05 56	17 41	05 57	17 41	05 58	17 40
8	05 57	17 38	05 58	17 37	05 59	17 35	06 00	17 34	06 02	17 33	06 03	17 32
13	06 00	17 32	06 02	17 30	06 03	17 29	06 05	17 27	06 06	17 26	06 08	17 24
18	06 04	17 26	06 05	17 25	06 07	17 23	06 09	17 21	06 11	17 19	06 13	17 17
23	06 07	17 21	06 09	17 19	06 11	17 17	06 14	17 15	06 16	17 12	06 19	17 10
28	06 11	17 17	06 13	17 14	06 16	17 12	06 18	17 09	06 21	17 06	06 24	17 03
Nov. 2	06 14	17 12	06 17	17 10	06 20	17 07	06 23	17 04	06 26	17 00	06 30	16 57
7	06 18	17 09	06 21	17 06	06 25	17 02	06 28	16 59	06 32	16 55	06 35	16 51
12	06 22	17 06	06 26	17 02	06 29	16 59	06 33	16 55	06 37	16 51	06 41	16 47
17	06 26	17 03	06 30	16 59	06 34	16 56	06 38	16 51	06 42	16 47	06 47	16 42
22	06 30	17 01	06 34	16 57	06 39	16 53	06 43	16 49	06 48	16 44	06 53	16 39
27	06 35	17 00	06 39	16 56	06 43	16 52	06 48	16 47	06 53	16 42	06 58	16 37
Dec. 2	06 39	17 00	06 43	16 55	06 48	16 51	06 53	16 46	06 58	16 41	07 03	16 35
7	06 43	17 00	06 47	16 55	06 52	16 51	06 57	16 46	07 02	16 40	07 08	16 35
12	06 46	17 01	06 51	16 56	06 56	16 51	07 01	16 46	07 06	16 41	07 12	16 35
17	06 49	17 03	06 54	16 58	06 59	16 53	07 04	16 48	07 10	16 42	07 16	16 36
22	06 52	17 05	06 57	17 00	07 02	16 55	07 07	16 50	07 13	16 44	07 19	16 38
27	06 54	17 08	06 59	17 03	07 04	16 58	07 09	16 53	07 15	16 47	07 21	16 41

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	42°N.		44°N.		46°N.		48°N.		50°N.		52°N.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	07 28	16 39	07 35	16 32	07 42	16 25	07 50	16 17	07 59	16 09	08 08	15 59
6	07 28	16 44	07 35	16 37	07 42	16 30	07 49	16 22	07 58	16 14	08 07	16 05
11	07 27	16 49	07 33	16 43	07 40	16 36	07 47	16 29	07 56	16 21	08 04	16 12
16	07 25	16 54	07 31	16 49	07 38	16 42	07 45	16 35	07 52	16 28	08 00	16 19
21	07 22	17 00	07 28	16 55	07 34	16 49	07 40	16 42	07 48	16 35	07 55	16 28
26	07 19	17 07	07 24	17 02	07 29	16 56	07 35	16 50	07 42	16 44	07 49	16 36
31	07 14	17 13	07 19	17 08	07 24	17 03	07 29	16 58	07 35	16 52	07 42	16 45
Feb. 5	07 09	17 20	07 13	17 15	07 18	17 11	07 23	17 06	07 28	17 01	07 34	16 55
10	07 03	17 26	07 07	17 22	07 11	17 18	07 15	17 14	07 20	17 09	07 25	17 04
15	06 56	17 32	07 00	17 29	07 03	17 26	07 07	17 22	07 11	17 18	07 16	17 13
20	06 49	17 39	06 52	17 36	06 55	17 33	06 58	17 30	07 02	17 26	07 06	17 23
25	06 42	17 45	06 44	17 43	06 47	17 40	06 49	17 38	06 52	17 35	06 55	17 32
Mar. 2	06 34	17 51	06 36	17 49	06 38	17 47	06 40	17 45	06 42	17 43	06 44	17 41
7	06 26	17 57	06 27	17 56	06 29	17 54	06 30	17 53	06 32	17 51	06 33	17 50
12	06 18	18 03	06 18	18 02	06 19	18 01	06 20	18 00	06 21	18 00	06 22	17 59
17	06 09	18 08	06 09	18 08	06 10	18 08	06 10	18 08	06 10	18 08	06 10	18 07
22	06 01	18 14	06 00	18 14	06 00	18 15	06 00	18 15	05 59	18 16	05 59	18 16
27	05 52	18 20	05 51	18 20	05 50	18 21	05 50	18 22	05 48	18 23	05 47	18 25
Apr. 1	05 44	18 25	05 42	18 27	05 41	18 28	05 39	18 30	05 38	18 31	05 36	18 33
6	05 35	18 31	05 33	18 33	05 31	18 35	05 29	18 37	05 27	18 39	05 24	18 42
11	05 27	18 36	05 24	18 39	05 22	18 41	05 19	18 44	05 16	18 47	05 13	18 50
16	05 19	18 42	05 16	18 45	05 13	18 48	05 10	18 51	05 06	18 55	05 02	18 59
21	05 11	18 47	05 08	18 51	05 04	18 54	05 00	18 58	04 56	19 03	04 51	19 07
26	05 04	18 53	05 00	18 57	04 56	19 01	04 51	19 05	04 46	19 10	04 41	19 16
May. 1	04 57	18 58	04 52	19 03	04 48	19 07	04 43	19 13	04 37	19 18	04 31	19 24
6	04 50	19 04	04 45	19 09	04 40	19 14	04 35	19 20	04 29	19 26	04 22	19 33
11	04 44	19 09	04 39	19 14	04 33	19 20	04 27	19 26	04 21	19 33	04 13	19 41
16	04 39	19 14	04 33	19 20	04 27	19 26	04 21	19 33	04 13	19 40	04 05	19 49
21	04 35	19 19	04 28	19 25	04 22	19 32	04 15	19 39	04 07	19 47	03 58	19 56
26	04 31	19 24	04 24	19 30	04 17	19 37	04 10	19 45	04 01	19 53	03 52	20 03
31	04 28	19 28	04 21	19 35	04 14	19 42	04 06	19 50	03 57	19 59	03 47	20 09
Jun. 5	04 26	19 32	04 19	19 39	04 11	19 46	04 03	19 55	03 54	20 04	03 43	20 14
10	04 24	19 35	04 17	19 42	04 09	19 50	04 01	19 58	03 51	20 08	03 41	20 18
15	04 24	19 37	04 17	19 44	04 09	19 52	04 00	20 01	03 50	20 11	03 40	20 22
20	04 24	19 39	04 17	19 46	04 09	19 54	04 00	20 03	03 50	20 13	03 40	20 24
25	04 26	19 40	04 18	19 47	04 10	19 55	04 01	20 04	03 52	20 13	03 41	20 24
30	04 28	19 40	04 20	19 47	04 12	19 55	04 04	20 03	03 54	20 13	03 44	20 23
Jul. 5	04 30	19 39	04 23	19 46	04 15	19 53	04 07	20 02	03 58	20 11	03 47	20 21
10	04 34	19 37	04 27	19 44	04 19	19 51	04 11	19 59	04 02	20 08	03 52	20 18
15	04 37	19 34	04 31	19 41	04 24	19 48	04 16	19 56	04 07	20 04	03 58	20 14
20	04 42	19 31	04 35	19 37	04 29	19 44	04 21	19 51	04 13	19 59	04 04	20 08
25	04 46	19 26	04 40	19 32	04 34	19 38	04 27	19 45	04 19	19 53	04 11	20 01
30	04 51	19 21	04 46	19 27	04 40	19 33	04 33	19 39	04 26	19 46	04 18	19 54
Aug. 4	04 56	19 16	04 51	19 21	04 46	19 26	04 40	19 32	04 33	19 38	04 26	19 45
9	05 01	19 09	04 57	19 14	04 52	19 19	04 46	19 24	04 40	19 30	04 34	19 36
14	05 06	19 02	05 02	19 06	04 58	19 11	04 53	19 16	04 48	19 21	04 42	19 27
19	05 12	18 55	05 08	18 59	05 04	19 03	05 00	19 07	04 55	19 11	04 50	19 16
24	05 17	18 47	05 14	18 50	05 10	18 54	05 06	18 57	05 02	19 01	04 58	19 06
29	05 22	18 39	05 19	18 42	05 16	18 45	05 13	18 48	05 10	18 51	05 06	18 55
Sep. 3	05 27	18 31	05 25	18 33	05 23	18 35	05 20	18 38	05 17	18 41	05 14	18 43
8	05 32	18 22	05 31	18 24	05 29	18 26	05 27	18 28	05 25	18 30	05 23	18 32
13	05 38	18 14	05 36	18 15	05 35	18 16	05 34	18 17	05 32	18 19	05 31	18 20
18	05 43	18 05	05 42	18 06	05 41	18 06	05 41	18 07	05 40	18 08	05 39	18 09
23	05 48	17 56	05 48	17 56	05 48	17 56	05 47	17 57	05 47	17 57	05 47	17 57
28	05 53	17 48	05 54	17 47	05 54	17 47	05 54	17 46	05 55	17 46	05 55	17 45
Oct. 3	05 59	17 39	05 59	17 38	06 00	17 37	06 01	17 36	06 02	17 35	06 04	17 34
8	06 04	17 30	06 05	17 29	06 07	17 28	06 08	17 26	06 10	17 24	06 12	17 22
13	06 10	17 22	06 12	17 20	06 14	17 18	06 16	17 16	06 18	17 14	06 21	17 11
18	06 15	17 14	06 18	17 12	06 20	17 09	06 23	17 07	06 26	17 04	06 29	17 00
23	06 21	17 07	06 24	17 04	06 27	17 01	06 31	16 57	06 34	16 54	06 38	16 50
28	06 27	17 00	06 31	16 56	06 34	16 53	06 38	16 49	06 42	16 45	06 47	16 40
Nov. 2	06 33	16 53	06 37	16 49	06 41	16 45	06 46	16 41	06 51	16 36	06 56	16 30
7	06 39	16 47	06 44	16 43	06 48	16 38	06 54	16 33	06 59	16 28	07 05	16 22
12	06 46	16 42	06 50	16 37	06 56	16 32	07 01	16 26	07 07	16 20	07 14	16 14
17	06 52	16 38	06 57	16 32	07 03	16 27	07 09	16 21	07 15	16 14	07 23	16 07
22	06 58	16 34	07 03	16 28	07 09	16 22	07 16	16 16	07 23	16 08	07 31	16 00
27	07 04	16 31	07 10	16 25	07 16	16 19	07 23	16 12	07 31	16 04	07 39	15 56
Dec. 2	07 09	16 29	07 15	16 23	07 22	16 16	07 29	16 09	07 38	16 01	07 46	15 52
7	07 14	16 28	07 20	16 22	07 28	16 15	07 35	16 07	07 44	15 59	07 53	15 49
12	07 18	16 29	07 25	16 22	07 32	16 15	07 40	16 07	07 49	15 58	07 59	15 48
17	07 22	16 30	07 29	16 23	07 36	16 16	07 44	16 08	07 53	15 59	08 03	15 49
22	07 25	16 32	07 32	16 25	07 39	16 18	07 47	16 10	07 56	16 01	08 06	15 51
27	07 27	16 35	07 34	16 28	07 41	16 21	07 49	16 13	07 58	16 04	08 08	15 54

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	54°N.		56°N.		58°N.		60°N.		62°N.		64°N.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	08 19	15 48	08 31	15 36	08 45	15 22	09 02	15 05	09 23	14 44	09 50	14 18
6	08 17	15 54	08 29	15 43	08 43	15 29	08 59	15 13	09 19	14 53	09 43	14 28
11	08 14	16 02	08 26	15 51	08 39	15 38	08 54	15 22	09 12	15 04	09 35	14 42
16	08 10	16 10	08 20	15 59	08 32	15 47	08 47	15 33	09 03	15 17	09 24	14 56
21	08 04	16 19	08 14	16 09	08 25	15 58	08 38	15 45	08 53	15 30	09 11	15 12
26	07 57	16 28	08 06	16 19	08 16	16 09	08 28	15 58	08 42	15 44	08 58	15 28
31	07 49	16 38	07 57	16 30	08 06	16 21	08 17	16 11	08 29	15 59	08 43	15 44
Feb. 5	07 40	16 48	07 48	16 41	07 56	16 33	08 05	16 24	08 16	16 13	08 28	16 01
10	07 31	16 58	07 37	16 52	07 44	16 45	07 52	16 37	08 01	16 28	08 12	16 17
15	07 21	17 09	07 26	17 03	07 32	16 57	07 39	16 50	07 47	16 43	07 56	16 34
20	07 10	17 19	07 14	17 14	07 19	17 09	07 25	17 03	07 32	16 57	07 39	16 50
25	06 59	17 29	07 02	17 25	07 06	17 21	07 11	17 16	07 16	17 11	07 22	17 05
Mar. 2	06 47	17 38	06 50	17 36	06 53	17 32	06 57	17 29	07 01	17 25	07 05	17 21
7	06 35	17 48	06 37	17 46	06 39	17 44	06 42	17 42	06 45	17 39	06 48	17 36
12	06 23	17 58	06 24	17 57	06 25	17 55	06 27	17 54	06 29	17 53	06 30	17 51
17	06 11	18 07	06 11	18 07	06 11	18 07	06 12	18 06	06 12	18 06	06 13	18 06
22	05 58	18 17	05 58	18 17	05 57	18 18	05 57	18 19	05 56	18 19	05 55	18 20
27	05 46	18 26	05 45	18 27	05 43	18 29	05 42	18 31	05 40	18 33	05 37	18 35
Apr. 1	05 34	18 35	05 32	18 38	05 29	18 40	05 26	18 43	05 23	18 46	05 20	18 50
6	05 22	18 45	05 19	18 48	05 15	18 51	05 11	18 55	05 07	19 00	05 02	19 05
11	05 10	18 54	05 06	18 58	05 01	19 02	04 56	19 07	04 51	19 13	04 44	19 20
16	04 58	19 03	04 53	19 08	04 48	19 14	04 42	19 20	04 35	19 27	04 27	19 35
21	04 46	19 13	04 41	19 18	04 34	19 25	04 27	19 32	04 19	19 41	04 09	19 50
26	04 35	19 22	04 29	19 29	04 21	19 36	04 13	19 45	04 03	19 54	03 52	20 06
May. 1	04 24	19 31	04 17	19 39	04 09	19 47	03 59	19 57	03 48	20 08	03 35	20 22
6	04 14	19 40	04 06	19 49	03 57	19 58	03 46	20 09	03 33	20 22	03 18	20 38
11	04 05	19 49	03 56	19 58	03 45	20 09	03 33	20 22	03 19	20 36	03 01	20 54
16	03 56	19 58	03 46	20 08	03 34	20 20	03 21	20 34	03 05	20 50	02 45	21 10
21	03 49	20 06	03 37	20 17	03 25	20 30	03 10	20 45	02 52	21 03	02 30	21 26
26	03 42	20 13	03 30	20 25	03 16	20 39	03 00	20 56	02 40	21 16	02 15	21 42
31	03 36	20 20	03 24	20 33	03 09	20 47	02 51	21 05	02 30	21 27	02 01	21 56
Jun. 5	03 32	20 26	03 19	20 39	03 03	20 55	02 45	21 14	02 21	21 37	01 50	22 09
10	03 29	20 30	03 15	20 44	02 59	21 00	02 39	21 20	02 15	21 45	01 40	22 20
15	03 27	20 34	03 13	20 48	02 57	21 05	02 36	21 25	02 11	21 51	01 34	22 28
20	03 27	20 36	03 13	20 50	02 56	21 07	02 36	21 27	02 09	21 54	01 31	22 32
25	03 29	20 36	03 14	20 51	02 58	21 07	02 37	21 28	02 11	21 54	01 33	22 32
30	03 31	20 36	03 17	20 49	03 01	21 06	02 41	21 26	02 15	21 51	01 39	22 27
Jul. 5	03 35	20 33	03 22	20 47	03 06	21 03	02 47	21 22	02 22	21 46	01 49	22 19
10	03 41	20 29	03 28	20 42	03 12	20 57	02 54	21 15	02 31	21 38	02 01	22 08
15	03 47	20 24	03 34	20 37	03 20	20 51	03 03	21 08	02 42	21 28	02 15	21 55
20	03 54	20 18	03 42	20 29	03 29	20 43	03 13	20 58	02 54	21 17	02 29	21 41
25	04 01	20 11	03 51	20 21	03 38	20 33	03 24	20 48	03 07	21 05	02 45	21 26
30	04 09	20 02	04 00	20 12	03 48	20 23	03 35	20 36	03 20	20 51	03 01	21 10
Aug. 4	04 18	19 53	04 09	20 02	03 59	20 12	03 47	20 24	03 33	20 37	03 17	20 53
9	04 27	19 43	04 19	19 51	04 09	20 00	03 59	20 10	03 47	20 22	03 32	20 37
14	04 35	19 33	04 28	19 40	04 20	19 48	04 11	19 57	04 00	20 07	03 48	20 19
19	04 44	19 22	04 38	19 28	04 31	19 35	04 23	19 43	04 14	19 52	04 03	20 02
24	04 53	19 10	04 48	19 16	04 42	19 22	04 35	19 28	04 27	19 36	04 18	19 45
29	05 02	18 59	04 58	19 03	04 53	19 08	04 47	19 13	04 40	19 20	04 33	19 27
Sep. 3	05 11	18 47	05 07	18 50	05 03	18 54	04 59	18 59	04 54	19 04	04 48	19 09
8	05 20	18 34	05 17	18 37	05 14	18 40	05 11	18 44	05 07	18 47	05 02	18 52
13	05 29	18 22	05 27	18 24	05 25	18 26	05 22	18 28	05 19	18 31	05 16	18 34
18	05 38	18 10	05 37	18 11	05 35	18 12	05 34	18 13	05 32	18 15	05 30	18 16
23	05 47	17 57	05 46	17 57	05 46	17 58	05 46	17 58	05 45	17 58	05 45	17 59
28	05 56	17 45	05 56	17 44	05 57	17 43	05 57	17 43	05 58	17 42	05 59	17 41
Oct. 3	06 05	17 32	06 06	17 31	06 08	17 29	06 09	17 28	06 11	17 26	06 13	17 23
8	06 14	17 20	06 16	17 18	06 19	17 15	06 21	17 13	06 24	17 10	06 28	17 06
13	06 23	17 08	06 26	17 05	06 30	17 02	06 33	16 58	06 38	16 54	06 43	16 49
18	06 33	16 57	06 37	16 53	06 41	16 48	06 46	16 43	06 51	16 38	06 58	16 31
23	06 42	16 46	06 47	16 41	06 52	16 35	06 58	16 29	07 05	16 22	07 13	16 15
28	06 52	16 35	06 58	16 29	07 04	16 23	07 11	16 16	07 19	16 07	07 28	15 58
Nov. 2	07 02	16 25	07 08	16 18	07 16	16 11	07 24	16 02	07 33	15 53	07 44	15 42
7	07 12	16 15	07 19	16 08	07 27	15 59	07 37	15 50	07 48	15 39	08 00	15 26
12	07 21	16 06	07 29	15 58	07 39	15 49	07 49	15 38	08 02	15 26	08 16	15 11
17	07 31	15 58	07 40	15 49	07 50	15 39	08 02	15 27	08 16	15 13	08 33	14 56
22	07 40	15 52	07 50	15 42	08 01	15 30	08 14	15 17	08 30	15 02	08 48	14 43
27	07 49	15 46	07 59	15 35	08 11	15 23	08 26	15 09	08 43	14 52	09 04	14 31
Dec. 2	07 56	15 42	08 08	15 30	08 21	15 17	08 36	15 02	08 55	14 43	09 18	14 20
7	08 03	15 39	08 15	15 27	08 29	15 13	08 45	14 57	09 05	14 37	09 30	14 12
12	08 09	15 38	08 22	15 25	08 36	15 11	08 53	14 54	09 14	14 33	09 41	14 06
17	08 14	15 38	08 27	15 25	08 41	15 10	08 59	14 53	09 20	14 32	09 48	14 04
22	08 17	15 40	08 30	15 27	08 45	15 12	09 02	14 55	09 24	14 33	09 52	14 05
27	08 19	15 43	08 31	15 30	08 46	15 16	09 03	14 58	09 25	14 37	09 53	14 09

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	66°N.		68°N.		70°N.		72°N.		74°N.		76°N.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	10 28	13 39	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
6	10 18	13 54	11 23	12 49	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
11	10 05	14 11	10 54	13 22	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
16	09 51	14 29	10 29	13 51	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
21	09 35	14 49	10 06	14 17	10 58	13 25	-- --	-- --	-- --	-- --	-- --	-- --
26	09 18	15 08	09 44	14 42	10 22	14 04	11 45	12 41	-- --	-- --	-- --	-- --
31	09 01	15 27	09 23	15 05	09 52	14 36	10 38	13 50	-- --	-- --	-- --	-- --
Feb. 5	08 43	15 46	09 01	15 28	09 25	15 04	09 59	14 31	10 55	13 35	-- --	-- --
10	08 25	16 05	08 40	15 49	09 00	15 30	09 25	15 05	10 02	14 28	11 13	13 17
15	08 06	16 23	08 19	16 10	08 35	15 55	08 55	15 35	09 23	15 07	10 04	14 26
20	07 48	16 41	07 58	16 31	08 11	16 18	08 27	16 02	08 48	15 42	09 16	15 13
25	07 29	16 58	07 37	16 50	07 47	16 40	08 00	16 28	08 15	16 13	08 36	15 52
Mar. 2	07 10	17 15	07 17	17 09	07 24	17 02	07 33	16 53	07 45	16 42	08 00	16 27
7	06 51	17 32	06 56	17 28	07 01	17 23	07 07	17 17	07 15	17 10	07 25	17 00
12	06 32	17 49	06 35	17 47	06 38	17 44	06 41	17 41	06 46	17 37	06 51	17 31
17	06 13	18 05	06 14	18 05	06 15	18 04	06 16	18 04	06 17	18 03	06 18	18 02
22	05 54	18 22	05 53	18 23	05 52	18 25	05 50	18 27	05 48	18 29	05 45	18 32
27	05 35	18 38	05 32	18 41	05 28	18 45	05 24	18 50	05 18	18 56	05 11	19 03
Apr. 1	05 16	18 54	05 11	18 59	05 05	19 06	04 58	19 13	04 49	19 23	04 37	19 35
6	04 56	19 11	04 49	19 18	04 41	19 27	04 31	19 37	04 18	19 51	04 01	20 08
11	04 37	19 28	04 28	19 37	04 17	19 48	04 04	20 02	03 46	20 20	03 23	20 45
16	04 17	19 45	04 06	19 56	03 53	20 10	03 35	20 28	03 12	20 52	02 40	21 27
21	03 58	20 02	03 44	20 16	03 27	20 34	03 05	20 57	02 35	21 29	01 46	22 23
26	03 38	20 20	03 22	20 37	03 01	20 59	02 33	21 28	01 50	22 15	** **	** **
May. 1	03 19	20 38	02 59	20 59	02 33	21 26	01 55	22 06	00 38		** **	** **
6	02 59	20 57	02 35	21 22	02 02	21 57	01 06	23 00	** **	** **	** **	** **
11	02 39	21 16	02 10	21 47	01 26	22 34	** **	** **	** **	** **	** **	** **
16	02 20	21 36	01 43	22 14	00 29		** **	** **	** **	** **	** **	** **
21	01 59	21 57	01 12	22 48	** **	** **	** **	** **	** **	** **	** **	** **
26	01 39	22 19	00 24		** **	** **	** **	** **	** **	** **	** **	** **
31	01 18	22 41	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
Jun. 5	00 56	23 05	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
10	00 31	23 34	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
15	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
20	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
25	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
30		23 50	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
Jul. 5	00 46	23 18	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
10	01 11	22 55	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
15	01 34	22 34	** **	** **	** **	** **	** **	** **	** **	** **	** **	** **
20	01 56	22 14	00 54	23 10	** **	** **	** **	** **	** **	** **	** **	** **
25	02 16	21 53	01 33	22 34	** **	** **	** **	** **	** **	** **	** **	** **
30	02 36	21 33	02 03	22 06	01 03	23 00	** **	** **	** **	** **	** **	** **
Aug. 4	02 56	21 14	02 29	21 40	01 48	22 18		23 46	** **	** **	** **	** **
9	03 15	20 54	02 52	21 16	02 21	21 45	01 32	22 30	** **	** **	** **	** **
14	03 33	20 34	03 14	20 52	02 49	21 16	02 15	21 49	01 13	22 43	** **	** **
19	03 50	20 15	03 35	20 30	03 15	20 49	02 48	21 14	02 10	21 50	00 48	22 58
24	04 07	19 55	03 54	20 08	03 38	20 23	03 18	20 43	02 50	21 10	02 06	21 50
29	04 24	19 36	04 14	19 46	04 01	19 58	03 45	20 14	03 23	20 34	02 53	21 02
Sep. 3	04 41	19 16	04 32	19 24	04 22	19 34	04 10	19 46	03 53	20 01	03 32	20 22
8	04 57	18 57	04 50	19 03	04 43	19 10	04 33	19 19	04 22	19 30	04 06	19 45
13	05 13	18 38	05 08	18 42	05 03	18 47	04 56	18 53	04 48	19 00	04 38	19 10
18	05 28	18 18	05 26	18 21	05 23	18 23	05 19	18 27	05 14	18 31	05 08	18 36
23	05 44	17 59	05 43	18 00	05 42	18 00	05 41	18 01	05 40	18 02	05 38	18 03
28	06 00	17 40	06 01	17 39	06 02	17 37	06 04	17 35	06 06	17 33	06 08	17 31
Oct. 3	06 16	17 21	06 19	17 18	06 22	17 14	06 26	17 10	06 31	17 04	06 38	16 58
8	06 32	17 02	06 37	16 57	06 42	16 51	06 49	16 44	06 58	16 35	07 09	16 24
13	06 48	16 43	06 55	16 36	07 03	16 28	07 13	16 18	07 25	16 05	07 41	15 49
18	07 05	16 24	07 14	16 15	07 24	16 05	07 37	15 51	07 54	15 34	08 17	15 11
23	07 22	16 05	07 33	15 54	07 46	15 41	08 03	15 24	08 25	15 02	08 57	14 30
28	07 40	15 47	07 53	15 33	08 09	15 17	08 31	14 55	09 00	14 26	09 46	13 40
Nov. 2	07 57	15 29	08 13	15 12	08 34	14 52	09 01	14 25	09 41	13 44	11 15	12 11
7	08 16	15 10	08 35	14 51	09 00	14 26	09 35	13 51	10 40	12 46	-- --	-- --
12	08 34	14 53	08 57	14 30	09 28	13 59	10 18	13 09	-- --	-- --	-- --	-- --
17	08 53	14 36	09 21	14 08	10 01	13 28	-- --	-- --	-- --	-- --	-- --	-- --
22	09 12	14 19	09 45	13 46	10 41	12 50	-- --	-- --	-- --	-- --	-- --	-- --
27	09 31	14 03	10 11	13 23	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Dec. 2	09 49	13 49	10 40	12 58	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
7	10 06	13 37	11 16	12 26	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
12	10 20	13 27	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
17	10 30	13 22	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
22	10 35	13 22	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
27	10 34	13 28	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	0° S.		5° S.		10° S.		15° S.		20° S.		25° S.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	06 00	18 07	05 51	18 16	05 42	18 24	05 33	18 33	05 24	18 43	05 13	18 53
6	06 02	18 09	05 54	18 18	05 45	18 26	05 36	18 35	05 27	18 44	05 17	18 54
11	06 04	18 12	05 56	18 20	05 48	18 28	05 39	18 36	05 30	18 45	05 21	18 55
16	06 06	18 13	05 58	18 21	05 50	18 29	05 42	18 37	05 34	18 46	05 24	18 55
21	06 08	18 15	06 00	18 22	05 53	18 30	05 45	18 37	05 37	18 45	05 28	18 54
26	06 09	18 16	06 02	18 23	05 55	18 30	05 48	18 37	05 40	18 45	05 32	18 53
31	06 10	18 17	06 04	18 23	05 57	18 30	05 50	18 36	05 43	18 43	05 36	18 51
Feb. 5	06 10	18 17	06 05	18 23	05 59	18 29	05 53	18 35	05 46	18 41	05 39	18 48
10	06 11	18 18	06 06	18 23	06 00	18 28	05 55	18 33	05 49	18 39	05 43	18 45
15	06 11	18 18	06 06	18 22	06 02	18 27	05 57	18 31	05 52	18 36	05 46	18 42
20	06 10	18 17	06 06	18 21	06 02	18 25	05 58	18 29	05 54	18 33	05 49	18 38
25	06 10	18 16	06 06	18 20	06 03	18 23	06 00	18 26	05 56	18 30	05 52	18 34
Mar. 2	06 09	18 15	06 06	18 18	06 04	18 21	06 01	18 23	05 58	18 26	05 55	18 29
7	06 08	18 14	06 06	18 16	06 04	18 18	06 02	18 20	06 00	18 22	05 57	18 24
12	06 07	18 13	06 05	18 14	06 04	18 15	06 03	18 17	06 01	18 18	06 00	18 19
17	06 05	18 12	06 05	18 12	06 04	18 13	06 04	18 13	06 03	18 14	06 02	18 14
22	06 04	18 10	06 04	18 10	06 04	18 10	06 04	18 10	06 04	18 09	06 04	18 09
27	06 02	18 09	06 03	18 08	06 04	18 07	06 05	18 06	06 06	18 05	06 07	18 04
Apr. 1	06 01	18 07	06 02	18 06	06 04	18 04	06 05	18 02	06 07	18 01	06 09	17 59
6	05 59	18 06	06 01	18 03	06 04	18 01	06 06	17 59	06 08	17 56	06 11	17 54
11	05 58	18 04	06 01	18 01	06 04	17 59	06 07	17 55	06 10	17 52	06 13	17 49
16	05 57	18 03	06 00	18 00	06 04	17 56	06 07	17 52	06 11	17 48	06 15	17 44
21	05 55	18 02	06 00	17 58	06 04	17 54	06 08	17 49	06 13	17 45	06 17	17 40
26	05 54	18 01	05 59	17 56	06 04	17 52	06 09	17 47	06 14	17 41	06 20	17 36
May. 1	05 54	18 01	05 59	17 55	06 05	17 50	06 10	17 44	06 16	17 38	06 22	17 32
6	05 53	18 00	05 59	17 54	06 05	17 48	06 11	17 42	06 18	17 35	06 25	17 29
11	05 53	18 00	05 59	17 53	06 06	17 47	06 13	17 40	06 20	17 33	06 27	17 26
16	05 53	18 00	06 00	17 53	06 07	17 46	06 14	17 39	06 21	17 31	06 30	17 23
21	05 53	18 00	06 00	17 53	06 08	17 45	06 15	17 38	06 23	17 30	06 32	17 21
26	05 53	18 01	06 01	17 53	06 09	17 45	06 17	17 37	06 25	17 28	06 34	17 19
31	05 54	18 01	06 02	17 53	06 10	17 45	06 19	17 37	06 27	17 28	06 37	17 18
Jun. 5	05 55	18 02	06 03	17 54	06 12	17 45	06 20	17 37	06 29	17 28	06 39	17 18
10	05 56	18 03	06 04	17 55	06 13	17 46	06 22	17 37	06 31	17 28	06 41	17 18
15	05 57	18 04	06 05	17 55	06 14	17 47	06 23	17 38	06 33	17 28	06 43	17 18
20	05 58	18 05	06 07	17 57	06 15	17 48	06 24	17 39	06 34	17 29	06 44	17 19
25	05 59	18 06	06 08	17 58	06 16	17 49	06 25	17 40	06 35	17 30	06 45	17 20
30	06 00	18 07	06 09	17 59	06 17	17 50	06 26	17 41	06 36	17 32	06 46	17 22
Jul. 5	06 01	18 08	06 09	18 00	06 18	17 51	06 27	17 43	06 36	17 33	06 46	17 24
10	06 02	18 09	06 10	18 01	06 18	17 53	06 27	17 44	06 36	17 35	06 45	17 26
15	06 02	18 10	06 10	18 02	06 18	17 54	06 27	17 45	06 35	17 37	06 44	17 28
20	06 03	18 10	06 10	18 02	06 18	17 55	06 26	17 47	06 34	17 39	06 43	17 30
25	06 03	18 10	06 10	18 03	06 17	17 56	06 25	17 48	06 33	17 41	06 41	17 32
30	06 03	18 10	06 10	18 03	06 17	17 57	06 24	17 50	06 31	17 42	06 39	17 35
Aug. 4	06 03	18 10	06 09	18 03	06 15	17 57	06 22	17 51	06 28	17 44	06 36	17 37
9	06 02	18 09	06 08	18 03	06 14	17 58	06 20	17 52	06 26	17 46	06 32	17 39
14	06 01	18 08	06 07	18 03	06 12	17 58	06 17	17 53	06 23	17 47	06 29	17 41
19	06 00	18 07	06 05	18 03	06 10	17 58	06 14	17 53	06 19	17 48	06 24	17 43
24	05 59	18 06	06 03	18 02	06 07	17 58	06 11	17 54	06 15	17 50	06 20	17 45
29	05 58	18 04	06 01	18 01	06 04	17 58	06 08	17 54	06 11	17 51	06 15	17 47
Sep. 3	05 56	18 03	05 59	18 00	06 02	17 57	06 04	17 55	06 07	17 52	06 10	17 49
8	05 55	18 01	05 57	17 59	05 59	17 57	06 01	17 55	06 03	17 53	06 05	17 51
13	05 53	17 59	05 54	17 58	05 55	17 57	05 57	17 55	05 58	17 54	06 00	17 53
18	05 51	17 57	05 52	17 57	05 52	17 56	05 53	17 56	05 54	17 55	05 54	17 54
23	05 49	17 56	05 49	17 56	05 49	17 56	05 49	17 56	05 49	17 56	05 49	17 56
28	05 47	17 54	05 47	17 55	05 46	17 56	05 45	17 56	05 45	17 57	05 44	17 58
Oct. 3	05 46	17 52	05 45	17 54	05 43	17 55	05 42	17 57	05 40	17 58	05 38	18 00
8	05 44	17 51	05 42	17 53	05 40	17 55	05 38	17 57	05 36	18 00	05 33	18 02
13	05 43	17 50	05 40	17 52	05 38	17 55	05 35	17 58	05 32	18 01	05 28	18 05
18	05 42	17 49	05 39	17 52	05 35	17 55	05 31	17 59	05 28	18 03	05 24	18 07
23	05 41	17 48	05 37	17 52	05 33	17 56	05 29	18 00	05 24	18 05	05 19	18 10
28	05 40	17 47	05 36	17 52	05 31	17 57	05 26	18 02	05 21	18 07	05 15	18 13
Nov. 2	05 40	17 47	05 35	17 52	05 30	17 58	05 24	18 03	05 18	18 09	05 12	18 16
7	05 40	17 47	05 34	17 53	05 28	17 59	05 22	18 05	05 16	18 12	05 09	18 19
12	05 41	17 48	05 34	17 54	05 28	18 01	05 21	18 07	05 14	18 15	05 06	18 22
17	05 41	17 48	05 34	17 55	05 27	18 02	05 20	18 10	05 12	18 18	05 04	18 26
22	05 42	17 50	05 35	17 57	05 28	18 05	05 20	18 12	05 12	18 21	05 03	18 30
27	05 44	17 51	05 36	17 59	05 28	18 07	05 20	18 15	05 11	18 24	05 02	18 33
Dec. 2	05 46	17 53	05 38	18 01	05 29	18 09	05 21	18 18	05 12	18 27	05 02	18 37
7	05 48	17 55	05 39	18 03	05 31	18 12	05 22	18 21	05 12	18 30	05 02	18 40
12	05 50	17 57	05 41	18 06	05 33	18 15	05 23	18 24	05 14	18 33	05 04	18 44
17	05 52	18 00	05 44	18 08	05 35	18 17	05 25	18 26	05 16	18 36	05 05	18 47
22	05 55	18 02	05 46	18 11	05 37	18 20	05 28	18 29	05 18	18 39	05 08	18 49
27	05 57	18 05	05 48	18 13	05 40	18 22	05 30	18 31	05 21	18 41	05 10	18 52

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	30° S.		32° S.		34° S.		36° S.		38° S.		40° S.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	05 02	19 05	04 57	19 09	04 52	19 15	04 47	19 20	04 41	19 26	04 35	19 32
6	05 06	19 05	05 01	19 10	04 56	19 15	04 51	19 20	04 45	19 26	04 39	19 32
11	05 10	19 06	05 05	19 10	05 00	19 15	04 55	19 20	04 50	19 25	04 44	19 31
16	05 14	19 05	05 10	19 09	05 05	19 14	05 00	19 19	04 55	19 24	04 50	19 29
21	05 19	19 04	05 14	19 08	05 10	19 12	05 05	19 17	05 00	19 21	04 55	19 27
26	05 23	19 02	05 19	19 05	05 15	19 09	05 11	19 14	05 06	19 18	05 01	19 23
31	05 27	18 59	05 24	19 03	05 20	19 06	05 16	19 10	05 12	19 14	05 07	19 19
Feb. 5	05 32	18 56	05 28	18 59	05 25	19 02	05 21	19 06	05 18	19 10	05 14	19 14
10	05 36	18 52	05 33	18 55	05 30	18 58	05 27	19 01	05 23	19 04	05 20	19 08
15	05 40	18 48	05 38	18 50	05 35	18 53	05 32	18 56	05 29	18 59	05 26	19 02
20	05 44	18 43	05 42	18 45	05 39	18 47	05 37	18 50	05 34	18 52	05 32	18 55
25	05 48	18 38	05 46	18 40	05 44	18 42	05 42	18 44	05 40	18 46	05 37	18 48
Mar. 2	05 51	18 33	05 50	18 34	05 48	18 35	05 47	18 37	05 45	18 39	05 43	18 41
7	05 55	18 27	05 54	18 28	05 53	18 29	05 51	18 30	05 50	18 32	05 49	18 33
12	05 58	18 21	05 57	18 22	05 57	18 22	05 56	18 23	05 55	18 24	05 54	18 25
17	06 01	18 15	06 01	18 15	06 01	18 16	06 00	18 16	06 00	18 16	05 59	18 17
22	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09
27	06 07	18 03	06 08	18 03	06 08	18 02	06 09	18 02	06 09	18 01	06 10	18 01
Apr. 1	06 10	17 57	06 11	17 56	06 12	17 55	06 13	17 55	06 14	17 54	06 15	17 53
6	06 13	17 51	06 15	17 50	06 16	17 49	06 17	17 47	06 18	17 46	06 20	17 45
11	06 16	17 45	06 18	17 44	06 20	17 42	06 21	17 41	06 23	17 39	06 25	17 37
16	06 19	17 40	06 21	17 38	06 23	17 36	06 25	17 34	06 27	17 32	06 30	17 30
21	06 23	17 35	06 25	17 32	06 27	17 30	06 29	17 28	06 32	17 25	06 35	17 22
26	06 26	17 30	06 28	17 27	06 31	17 24	06 34	17 22	06 37	17 19	06 40	17 16
May. 1	06 29	17 25	06 32	17 22	06 35	17 19	06 38	17 16	06 41	17 13	06 45	17 09
6	06 32	17 21	06 35	17 18	06 38	17 15	06 42	17 11	06 46	17 07	06 50	17 03
11	06 35	17 17	06 39	17 14	06 42	17 10	06 46	17 06	06 50	17 02	06 54	16 58
16	06 38	17 14	06 42	17 10	06 46	17 07	06 50	17 02	06 54	16 58	06 59	16 53
21	06 41	17 12	06 45	17 08	06 49	17 03	06 54	16 59	06 59	16 54	07 03	16 49
26	06 44	17 10	06 48	17 05	06 53	17 01	06 58	16 56	07 02	16 51	07 08	16 46
31	06 47	17 08	06 51	17 04	06 56	16 59	07 01	16 54	07 06	16 49	07 11	16 44
Jun. 5	06 50	17 07	06 54	17 03	06 59	16 58	07 04	16 53	07 09	16 48	07 15	16 42
10	06 52	17 07	06 57	17 02	07 01	16 57	07 07	16 52	07 12	16 47	07 18	16 41
15	06 54	17 07	06 58	17 02	07 03	16 57	07 09	16 52	07 14	16 47	07 20	16 41
20	06 55	17 08	07 00	17 03	07 05	16 58	07 10	16 53	07 16	16 47	07 22	16 41
25	06 56	17 09	07 01	17 04	07 06	16 59	07 11	16 54	07 17	16 49	07 23	16 43
30	06 57	17 11	07 01	17 06	07 06	17 01	07 11	16 56	07 17	16 50	07 23	16 45
Jul. 5	06 56	17 13	07 01	17 08	07 06	17 03	07 11	16 58	07 16	16 53	07 22	16 47
10	06 56	17 15	07 00	17 11	07 05	17 06	07 10	17 01	07 15	16 56	07 21	16 50
15	06 54	17 18	06 59	17 13	07 03	17 09	07 08	17 04	07 13	16 59	07 18	16 54
20	06 53	17 20	06 57	17 16	07 01	17 12	07 06	17 07	07 10	17 03	07 15	16 58
25	06 50	17 23	06 54	17 19	06 58	17 15	07 02	17 11	07 07	17 07	07 12	17 02
30	06 47	17 26	06 51	17 23	06 55	17 19	06 59	17 15	07 03	17 11	07 07	17 06
Aug. 4	06 44	17 29	06 47	17 26	06 50	17 22	06 54	17 19	06 58	17 15	07 02	17 11
9	06 39	17 32	06 43	17 29	06 46	17 26	06 49	17 22	06 53	17 19	06 56	17 15
14	06 35	17 35	06 38	17 32	06 41	17 29	06 44	17 26	06 47	17 23	06 50	17 20
19	06 30	17 38	06 32	17 35	06 35	17 33	06 38	17 30	06 40	17 27	06 43	17 25
24	06 25	17 40	06 27	17 38	06 29	17 36	06 31	17 34	06 34	17 32	06 36	17 29
29	06 19	17 43	06 21	17 42	06 23	17 40	06 25	17 38	06 27	17 36	06 29	17 34
Sep. 3	06 13	17 46	06 15	17 45	06 16	17 43	06 18	17 42	06 19	17 40	06 21	17 39
8	06 07	17 49	06 08	17 48	06 09	17 47	06 11	17 45	06 12	17 44	06 13	17 43
13	06 01	17 51	06 02	17 51	06 03	17 50	06 03	17 49	06 04	17 49	06 05	17 48
18	05 55	17 54	05 55	17 54	05 56	17 53	05 56	17 53	05 56	17 53	05 57	17 53
23	05 49	17 57	05 49	17 57	05 49	17 57	05 49	17 57	05 48	17 57	05 48	17 57
28	05 43	17 59	05 42	18 00	05 42	18 00	05 41	18 01	05 41	18 01	05 40	18 02
Oct. 3	05 36	18 02	05 36	18 03	05 35	18 04	05 34	18 05	05 33	18 06	05 32	18 07
8	05 30	18 05	05 29	18 06	05 28	18 08	05 27	18 09	05 25	18 11	05 24	18 12
13	05 25	18 08	05 23	18 10	05 21	18 12	05 20	18 13	05 18	18 15	05 16	18 17
18	05 19	18 12	05 17	18 14	05 15	18 16	05 13	18 18	05 11	18 20	05 08	18 23
23	05 14	18 15	05 12	18 18	05 09	18 20	05 07	18 23	05 04	18 25	05 01	18 28
28	05 09	18 19	05 07	18 22	05 04	18 24	05 01	18 27	04 58	18 30	04 55	18 34
Nov. 2	05 05	18 23	05 02	18 26	04 59	18 29	04 55	18 32	04 52	18 36	04 48	18 40
7	05 01	18 27	04 58	18 30	04 54	18 34	04 51	18 37	04 47	18 41	04 43	18 45
12	04 58	18 31	04 54	18 35	04 50	18 38	04 46	18 42	04 42	18 47	04 38	18 51
17	04 55	18 35	04 51	18 39	04 47	18 43	04 43	18 48	04 38	18 52	04 33	18 57
22	04 53	18 39	04 49	18 44	04 45	18 48	04 40	18 53	04 35	18 58	04 30	19 03
27	04 52	18 44	04 47	18 48	04 43	18 53	04 38	18 58	04 33	19 03	04 27	19 08
Dec. 2	04 51	18 48	04 47	18 52	04 42	18 57	04 37	19 02	04 31	19 08	04 25	19 14
7	04 51	18 51	04 47	18 56	04 42	19 01	04 36	19 07	04 31	19 12	04 24	19 18
12	04 52	18 55	04 47	19 00	04 42	19 05	04 37	19 11	04 31	19 16	04 25	19 23
17	04 54	18 58	04 49	19 03	04 44	19 08	04 38	19 14	04 32	19 20	04 26	19 26
22	04 56	19 01	04 51	19 06	04 46	19 11	04 40	19 17	04 34	19 23	04 28	19 29
27	04 59	19 03	04 54	19 08	04 48	19 13	04 43	19 19	04 37	19 25	04 31	19 31

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	42° S.		44° S.		46° S.		48° S.		50° S.		52° S.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	04 28	19 39	04 21	19 46	04 13	19 54	04 04	20 02	03 55	20 12	03 44	20 22
6	04 33	19 39	04 26	19 45	04 18	19 53	04 10	20 01	04 01	20 10	03 50	20 21
11	04 38	19 37	04 31	19 44	04 24	19 51	04 16	19 59	04 07	20 08	03 57	20 18
16	04 44	19 35	04 37	19 42	04 30	19 48	04 23	19 56	04 14	20 04	04 05	20 13
21	04 50	19 32	04 44	19 38	04 37	19 45	04 30	19 52	04 22	19 59	04 14	20 08
26	04 56	19 28	04 51	19 34	04 44	19 40	04 38	19 46	04 31	19 53	04 23	20 01
31	05 03	19 23	04 57	19 29	04 52	19 34	04 46	19 40	04 39	19 46	04 32	19 54
Feb. 5	05 09	19 18	05 05	19 23	05 00	19 28	04 54	19 33	04 48	19 39	04 42	19 45
10	05 16	19 12	05 12	19 16	05 07	19 20	05 02	19 25	04 57	19 30	04 51	19 36
15	05 22	19 05	05 19	19 09	05 15	19 13	05 10	19 17	05 06	19 21	05 01	19 26
20	05 29	18 58	05 26	19 01	05 22	19 04	05 19	19 08	05 15	19 12	05 10	19 16
25	05 35	18 50	05 32	18 53	05 30	18 56	05 27	18 59	05 23	19 02	05 20	19 05
Mar. 2	05 41	18 42	05 39	18 45	05 37	18 47	05 34	18 49	05 32	18 52	05 29	18 54
7	05 47	18 34	05 46	18 36	05 44	18 37	05 42	18 39	05 40	18 41	05 38	18 43
12	05 53	18 26	05 52	18 27	05 51	18 28	05 50	18 29	05 48	18 30	05 47	18 32
17	05 59	18 17	05 58	18 18	05 58	18 18	05 57	18 19	05 56	18 19	05 56	18 20
22	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09
27	06 10	18 00	06 11	18 00	06 11	17 59	06 12	17 58	06 12	17 58	06 13	17 57
Apr. 1	06 16	17 52	06 17	17 51	06 18	17 49	06 19	17 48	06 20	17 47	06 21	17 46
6	06 21	17 43	06 23	17 42	06 24	17 40	06 26	17 38	06 28	17 36	06 30	17 34
11	06 27	17 35	06 29	17 33	06 31	17 31	06 33	17 28	06 36	17 26	06 38	17 23
16	06 32	17 27	06 35	17 25	06 37	17 22	06 40	17 19	06 43	17 16	06 47	17 12
21	06 37	17 19	06 41	17 16	06 44	17 13	06 47	17 10	06 51	17 06	06 55	17 02
26	06 43	17 12	06 46	17 09	06 50	17 05	06 54	17 01	06 59	16 56	07 03	16 52
May. 1	06 48	17 05	06 52	17 01	06 57	16 57	07 01	16 53	07 06	16 48	07 12	16 42
6	06 54	16 59	06 58	16 55	07 03	16 50	07 08	16 45	07 13	16 39	07 20	16 33
11	06 59	16 54	07 04	16 49	07 09	16 43	07 15	16 38	07 21	16 32	07 27	16 25
16	07 04	16 49	07 09	16 43	07 15	16 38	07 21	16 31	07 28	16 25	07 35	16 17
21	07 09	16 44	07 14	16 39	07 20	16 32	07 27	16 26	07 34	16 19	07 42	16 11
26	07 13	16 41	07 19	16 35	07 26	16 28	07 33	16 21	07 40	16 13	07 49	16 05
31	07 17	16 38	07 24	16 31	07 30	16 25	07 38	16 17	07 46	16 09	07 55	16 00
Jun. 5	07 21	16 36	07 27	16 29	07 34	16 22	07 42	16 15	07 51	16 06	08 00	15 57
10	07 24	16 35	07 31	16 28	07 38	16 21	07 46	16 13	07 55	16 04	08 04	15 55
15	07 26	16 34	07 33	16 28	07 41	16 20	07 49	16 12	07 57	16 03	08 07	15 54
20	07 28	16 35	07 35	16 28	07 42	16 21	07 50	16 13	07 59	16 04	08 09	15 54
25	07 29	16 36	07 36	16 29	07 43	16 22	07 51	16 14	08 00	16 05	08 10	15 55
30	07 29	16 38	07 36	16 32	07 43	16 24	07 51	16 16	08 00	16 08	08 10	15 58
Jul. 5	07 28	16 41	07 35	16 34	07 42	16 27	07 50	16 20	07 58	16 11	08 08	16 01
10	07 27	16 44	07 33	16 38	07 40	16 31	07 48	16 23	07 56	16 15	08 05	16 06
15	07 24	16 48	07 30	16 42	07 37	16 35	07 44	16 28	07 52	16 20	08 01	16 12
20	07 21	16 52	07 27	16 46	07 33	16 40	07 40	16 33	07 47	16 26	07 55	16 18
25	07 17	16 57	07 22	16 51	07 28	16 45	07 35	16 39	07 42	16 32	07 49	16 24
30	07 12	17 01	07 17	16 56	07 22	16 51	07 28	16 45	07 35	16 39	07 42	16 32
Aug. 4	07 06	17 06	07 11	17 02	07 16	16 57	07 22	16 51	07 27	16 45	07 34	16 39
9	07 00	17 11	07 05	17 07	07 09	17 03	07 14	16 58	07 19	16 52	07 25	16 47
14	06 54	17 16	06 57	17 13	07 01	17 09	07 06	17 04	07 11	17 00	07 16	16 54
19	06 46	17 21	06 50	17 18	06 53	17 15	06 57	17 11	07 01	17 07	07 06	17 02
24	06 39	17 27	06 42	17 24	06 45	17 21	06 48	17 18	06 52	17 14	06 55	17 10
29	06 31	17 32	06 33	17 29	06 36	17 27	06 39	17 24	06 41	17 21	06 45	17 18
Sep. 3	06 23	17 37	06 25	17 35	06 27	17 33	06 29	17 31	06 31	17 29	06 34	17 26
8	06 14	17 42	06 16	17 41	06 17	17 39	06 19	17 38	06 20	17 36	06 22	17 34
13	06 06	17 47	06 07	17 46	06 07	17 45	06 08	17 44	06 09	17 43	06 11	17 42
18	05 57	17 52	05 57	17 52	05 58	17 52	05 58	17 51	05 59	17 51	05 59	17 50
23	05 48	17 57	05 48	17 58	05 48	17 58	05 48	17 58	05 48	17 58	05 47	17 59
28	05 39	18 03	05 39	18 03	05 38	18 04	05 37	18 05	05 37	18 06	05 36	18 07
Oct. 3	05 31	18 08	05 30	18 09	05 28	18 11	05 27	18 12	05 26	18 14	05 24	18 15
8	05 22	18 14	05 21	18 15	05 19	18 17	05 17	18 19	05 15	18 21	05 12	18 24
13	05 14	18 19	05 12	18 22	05 09	18 24	05 07	18 27	05 04	18 29	05 01	18 33
18	05 06	18 25	05 03	18 28	05 00	18 31	04 57	18 34	04 54	18 38	04 50	18 41
23	04 58	18 31	04 55	18 34	04 52	18 38	04 48	18 42	04 44	18 46	04 39	18 50
28	04 51	18 37	04 47	18 41	04 43	18 45	04 39	18 50	04 34	18 54	04 29	19 00
Nov. 2	04 44	18 44	04 40	18 48	04 36	18 52	04 31	18 57	04 25	19 03	04 19	19 09
7	04 38	18 50	04 34	18 55	04 28	19 00	04 23	19 05	04 17	19 11	04 10	19 18
12	04 33	18 56	04 28	19 01	04 22	19 07	04 16	19 13	04 09	19 20	04 02	19 27
17	04 28	19 02	04 22	19 08	04 16	19 14	04 10	19 21	04 02	19 28	03 55	19 36
22	04 24	19 08	04 18	19 15	04 12	19 21	04 04	19 28	03 57	19 36	03 48	19 45
27	04 21	19 14	04 15	19 21	04 08	19 28	04 00	19 36	03 52	19 44	03 43	19 53
Dec. 2	04 19	19 20	04 12	19 27	04 05	19 34	03 57	19 42	03 48	19 51	03 38	20 01
7	04 18	19 25	04 11	19 32	04 03	19 40	03 55	19 48	03 46	19 57	03 36	20 08
12	04 18	19 29	04 11	19 37	04 03	19 44	03 54	19 53	03 45	20 03	03 34	20 13
17	04 19	19 33	04 12	19 40	04 04	19 48	03 55	19 57	03 45	20 07	03 35	20 18
22	04 21	19 36	04 14	19 43	04 06	19 51	03 57	20 00	03 47	20 10	03 36	20 21
27	04 24	19 38	04 17	19 45	04 09	19 53	04 00	20 02	03 50	20 11	03 39	20 22

Local mean time. To obtain standard time of rise or set, see Table 5.

Date	54° S.		56° S.		58° S.		60° S.	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	03 32	20 34	03 19	20 48	03 02	21 04	02 43	21 24
6	03 39	20 32	03 25	20 45	03 10	21 01	02 51	21 19
11	03 46	20 29	03 34	20 41	03 19	20 56	03 01	21 13
16	03 55	20 24	03 43	20 35	03 29	20 49	03 13	21 05
21	04 04	20 17	03 53	20 28	03 40	20 41	03 26	20 55
26	04 14	20 10	04 04	20 20	03 52	20 31	03 39	20 44
31	04 24	20 02	04 15	20 10	04 05	20 21	03 53	20 32
Feb. 5	04 34	19 52	04 26	20 00	04 17	20 09	04 07	20 20
10	04 45	19 42	04 38	19 49	04 30	19 57	04 20	20 06
15	04 55	19 32	04 49	19 38	04 42	19 45	04 34	19 52
20	05 06	19 21	05 00	19 26	04 54	19 32	04 48	19 38
25	05 16	19 09	05 11	19 13	05 06	19 18	05 01	19 24
Mar. 2	05 26	18 57	05 22	19 01	05 18	19 05	05 14	19 09
7	05 36	18 45	05 33	18 48	05 30	18 51	05 27	18 54
12	05 45	18 33	05 44	18 35	05 42	18 37	05 39	18 39
17	05 55	18 21	05 54	18 22	05 53	18 23	05 52	18 24
22	06 04	18 09	06 04	18 09	06 04	18 09	06 04	18 09
27	06 14	17 56	06 14	17 55	06 15	17 54	06 16	17 53
Apr. 1	06 23	17 44	06 25	17 42	06 26	17 40	06 28	17 38
6	06 32	17 32	06 35	17 29	06 37	17 27	06 40	17 23
11	06 41	17 20	06 45	17 17	06 48	17 13	06 52	17 09
16	06 51	17 08	06 55	17 04	06 59	17 00	07 04	16 54
21	07 00	16 57	07 05	16 52	07 10	16 47	07 16	16 40
26	07 09	16 46	07 14	16 40	07 21	16 34	07 28	16 26
May. 1	07 18	16 36	07 24	16 29	07 32	16 22	07 40	16 13
6	07 26	16 26	07 34	16 19	07 42	16 10	07 52	16 00
11	07 35	16 17	07 43	16 09	07 53	15 59	08 04	15 49
16	07 43	16 09	07 52	16 00	08 03	15 49	08 15	15 37
21	07 51	16 02	08 01	15 52	08 12	15 40	08 25	15 27
26	07 58	15 55	08 09	15 45	08 21	15 32	08 35	15 18
31	08 05	15 50	08 16	15 39	08 29	15 26	08 44	15 11
Jun. 5	08 10	15 46	08 22	15 34	08 36	15 21	08 52	15 05
10	08 15	15 44	08 27	15 31	08 41	15 17	08 58	15 00
15	08 18	15 43	08 31	15 30	08 46	15 15	09 03	14 58
20	08 20	15 43	08 33	15 30	08 48	15 15	09 05	14 58
25	08 21	15 44	08 34	15 31	08 49	15 17	09 06	14 59
30	08 21	15 47	08 33	15 34	08 47	15 20	09 05	15 03
Jul. 5	08 19	15 51	08 31	15 39	08 45	15 25	09 01	15 08
10	08 15	15 56	08 27	15 44	08 40	15 31	08 56	15 15
15	08 10	16 02	08 21	15 51	08 34	15 38	08 49	15 23
20	08 05	16 09	08 15	15 58	08 27	15 46	08 41	15 33
25	07 58	16 16	08 07	16 06	08 18	15 55	08 31	15 43
30	07 50	16 24	07 59	16 15	08 09	16 05	08 20	15 54
Aug. 4	07 41	16 32	07 49	16 24	07 58	16 15	08 08	16 05
9	07 32	16 40	07 39	16 33	07 47	16 25	07 56	16 16
14	07 21	16 49	07 28	16 42	07 35	16 35	07 43	16 27
19	07 11	16 57	07 16	16 52	07 22	16 46	07 29	16 39
24	07 00	17 06	07 04	17 01	07 09	16 56	07 15	16 51
29	06 48	17 15	06 52	17 11	06 56	17 07	07 01	17 02
Sep. 3	06 36	17 24	06 39	17 21	06 43	17 17	06 46	17 14
8	06 24	17 32	06 26	17 30	06 29	17 28	06 31	17 25
13	06 12	17 41	06 13	17 40	06 15	17 38	06 16	17 37
18	06 00	17 50	06 00	17 50	06 01	17 49	06 01	17 48
23	05 47	17 59	05 47	17 59	05 47	18 00	05 46	18 00
28	05 35	18 08	05 34	18 09	05 32	18 10	05 31	18 12
Oct. 3	05 22	18 17	05 20	18 19	05 18	18 21	05 16	18 24
8	05 10	18 26	05 07	18 29	05 04	18 33	05 01	18 36
13	04 58	18 36	04 54	18 40	04 50	18 44	04 46	18 49
18	04 46	18 46	04 42	18 50	04 37	18 55	04 31	19 01
23	04 35	18 55	04 29	19 01	04 23	19 07	04 16	19 14
28	04 24	19 05	04 17	19 12	04 10	19 19	04 02	19 27
Nov. 2	04 13	19 15	04 06	19 23	03 58	19 31	03 48	19 41
7	04 03	19 25	03 55	19 34	03 46	19 43	03 35	19 54
12	03 54	19 36	03 45	19 45	03 34	19 55	03 22	20 08
17	03 46	19 45	03 36	19 56	03 24	20 07	03 11	20 21
22	03 38	19 55	03 27	20 06	03 15	20 19	03 00	20 34
27	03 32	20 04	03 20	20 16	03 07	20 30	02 50	20 46
Dec. 2	03 27	20 12	03 15	20 25	03 00	20 40	02 43	20 57
7	03 24	20 19	03 11	20 33	02 55	20 48	02 36	21 07
12	03 22	20 25	03 09	20 39	02 52	20 55	02 33	21 15
17	03 22	20 30	03 08	20 44	02 51	21 01	02 31	21 21
22	03 24	20 33	03 10	20 47	02 53	21 04	02 32	21 25
27	03 27	20 34	03 13	20 48	02 56	21 05	02 36	21 25

Local mean time. To obtain standard time of rise or set, see Table 5.

TABLE 5.—REDUCTION OF LOCAL MEAN TIME TO STANDARD TIME

Difference of longitude between local and standard meridian	*Correction to local mean time to obtain standard time*	*Difference of longitude between local and standard meridian*	*Correction to local mean time to obtain standard time*	*Difference of longitude between local and standard meridian*	*Correction to local mean time to obtain standard time*
° ′ ° ′	*Minutes*	° ′ ° ′	*Minutes*	°	*Hours*
0 00 to 0 07	0	7 23 to 7 37	30	15	1
0 08 to 0 22	1	7 38 to 7 52	31	30	2
0 23 to 0 37	2	7 53 to 8 07	32	45	3
0 38 to 0 52	3	8 08 to 8 22	33	60	4
0 53 to 1 07	4	8 23 to 8 37	34	75	5
1 08 to 1 22	5	8 38 to 8 52	35	90	6
1 23 to 1 37	6	8 53 to 9 07	36	105	7
1 38 to 1 52	7	9 08 to 9 22	37	120	8
1 53 to 2 07	8	9 23 to 9 37	38	135	9
2 08 to 2 22	9	9 38 to 9 52	39	150	10
2 23 to 2 37	10	9 53 to 10 07	40	165	11
2 38 to 2 52	11	10 08 to 10 22	41	180	12
2 53 to 3 07	12	10 23 to 10 37	42		
3 08 to 3 22	13	10 38 to 10 52	43		
3 23 to 3 37	14	10 53 to 11 07	44		
3 38 to 3 52	15	11 08 to 11 22	45		
3 53 to 4 07	16	11 23 to 11 37	46		
4 08 to 4 22	17	11 38 to 11 52	47		
4 23 to 4 37	18	11 53 to 12 07	48		
4 38 to 4 52	19	12 08 to 12 22	49		
4 53 to 5 07	20	12 23 to 12 37	50		
5 08 to 5 22	21	12 38 to 12 52	51		
5 23 to 5 37	22	12 53 to 13 07	52		
5 38 to 5 52	23	13 08 to 13 22	53		
5 53 to 6 07	24	13 23 to 13 37	54		
6 08 to 6 22	25	13 38 to 13 52	55		
6 23 to 6 37	26	13 53 to 14 07	56		
6 38 to 6 52	27	14 08 to 14 22	57		
6 53 to 7 07	28	14 23 to 14 37	58		
7 08 to 7 22	29	14 38 to 14 52	59		

If local meridian is east of standard meridian, subtract the correction from local time.

If local meridian is west of standard meridian, add the correction to local time.

For differences of longitude less than 15°, use the first part of the table. For greater differences use both parts thus: 47° 23' is equivalent to 45°+ 2° 23', the correction for 45° is 3 hours, the correction for 2° 23' is 10 minutes; therefore the total correction for the difference in longitude 47° 23' is 3 hours and 10 minutes.

TABLE 6.—CONVERSION OF FEET TO CENTIMETERS

Feet	Tenths of a Foot										Feet
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
0	0	3	6	9	12	15	18	21	24	27	0
1	30	34	37	40	43	46	49	52	55	58	1
2	61	64	67	70	73	76	79	82	85	88	2
3	91	94	98	101	104	107	110	113	116	119	3
4	122	125	128	131	134	137	140	143	146	149	4
5	152	155	158	162	165	168	171	174	177	180	5
6	183	186	189	192	195	198	201	204	207	210	6
7	213	216	219	223	226	229	232	235	238	241	7
8	244	247	250	253	256	259	262	265	268	271	8
9	274	277	280	283	287	290	293	296	299	302	9
10	305	308	311	314	317	320	323	326	329	332	10
11	335	338	341	344	347	351	354	357	360	363	11
12	366	369	372	375	378	381	384	387	390	393	12
13	396	399	402	405	408	411	415	418	421	424	13
14	427	430	433	436	439	442	445	448	451	454	14
15	457	460	463	466	469	472	475	479	482	485	15
16	488	491	494	497	500	503	506	509	512	515	16
17	518	521	524	527	530	533	536	539	543	546	17
18	549	552	555	558	561	564	567	570	573	576	18
19	579	582	585	588	591	594	597	600	604	607	19
20	610	613	616	619	622	625	628	631	634	637	20
21	640	643	646	649	652	655	658	661	664	668	21
22	671	674	677	680	683	686	689	692	695	698	22
23	701	704	707	710	713	716	719	722	725	728	23
24	732	735	738	741	744	747	750	753	756	759	24
25	762	765	768	771	774	777	780	783	786	789	25
26	792	796	799	802	805	808	811	814	817	820	26
27	823	826	829	832	835	838	841	844	847	850	27
28	853	856	860	863	866	869	872	875	878	881	28
29	884	887	890	893	896	899	902	905	908	911	29
30	914	917	920	924	927	930	933	936	939	942	30
31	945	948	951	954	957	960	963	966	969	972	31
32	975	978	981	985	988	991	994	997	1000	1003	32
33	1006	1009	1012	1015	1018	1021	1024	1027	1030	1033	33
34	1036	1039	1042	1045	1049	1052	1055	1058	1061	1064	34
35	1067	1070	1073	1076	1079	1082	1085	1088	1091	1094	35
36	1097	1100	1103	1106	1109	1113	1116	1119	1122	1125	36
37	1128	1131	1134	1137	1140	1143	1146	1149	1152	1155	37
38	1158	1161	1164	1167	1170	1173	1177	1180	1183	1186	38
39	1189	1192	1195	1198	1201	1204	1207	1210	1213	1216	39
40	1219	1222	1225	1228	1231	1234	1237	1241	1244	1247	40
41	1250	1253	1256	1259	1262	1265	1268	1271	1274	1277	41
42	1280	1283	1286	1289	1292	1295	1298	1301	1305	1308	42
43	1311	1314	1317	1320	1323	1326	1329	1332	1335	1338	43
44	1341	1344	1347	1350	1353	1356	1359	1362	1366	1369	44
45	1372	1375	1378	1381	1384	1387	1390	1393	1396	1399	45
46	1402	1405	1408	1411	1414	1417	1420	1423	1426	1430	46
47	1433	1436	1439	1442	1445	1448	1451	1454	1457	1460	47
48	1463	1466	1469	1472	1475	1478	1481	1484	1487	1490	48
49	1494	1497	1500	1503	1506	1509	1512	1515	1518	1521	49

Feet to Meters = Centimeters divided by 100 (from above table)
Example: 09.40 feet = (287 centimeters) / (100) = 02.87 meters.

1 Meter = 100 centimeters
1 Meter = 3.2808399 feet
1 Foot = 0.30480061 meters
1 Foot = 30.480061 centimeters

PUBLICATIONS RELATING TO TIDES AND TIDAL CURRENTS

TIDE TABLES

Advance information relative to the rise and fall of the tide is given in annual tide tables. These tables include the predicted times and heights of high and low waters for every day in the year for a number of reference stations and differences for obtaining similar predictions for numerous other places.

Tide Tables, Central and Western Pacific Ocean and Indian Ocean.

Tide Tables, East Coast of North and South America (Including Greenland).

Tide Tables, Europe and West Coast of Africa (Including the Mediterranean Sea).

Tide Tables, West Coast of North and South America (Including the Hawaiian Islands).

TIDAL CURRENT TABLES

Accompanying the rise and fall of the tide is a periodic horizontal flow of the water known as the tidal current. Advance information relative to these currents is made available in annual tidal current tables which include daily predictions of the times of slack water and the times and velocities of strength of flood and ebb currents for a number of waterways together with differences for obtaining predictions for numerous other places.

Tidal Current Tables, Atlantic Coast of North America.

Tidal Current Tables, Pacific Coast of North America and Asia.

GLOSSARY OF TERMS

ANNUAL INEQUALITY—Seasonal variation in the water level or current, more or less periodic, due chiefly to meteorological causes.

APOGEAN TIDES OR TIDAL CURRENTS—Tides of decreased range or currents of decreased speed occurring monthly as the result of the Moon being in apogee (farthest from the Earth).

AUTOMATIC TIDE GAGE—An instrument that automatically registers the rise and fall of the tide. In some instruments, the registration is accomplished by recording the heights at regular intervals in digital format, in others by a continuous graph in which the height versus corresponding time of the tide is recorded.

BENCH MARK (BM)—A fixed physical object or marks used as reference for a vertical datum. A *tidal bench mark is* one near a tide station to which the tide staff and tidal datums are referred. A *Geodetic bench mark* identifies a surveyed point in the National Geodetic Vertical Network.

CHART DATUM—The tidal datum to which soundings on a chart are referred. It is usually taken to correspond to low water elevation of the tide, and its depression below mean sea level is represented by the symbol Zo.

CURRENT—Generally, a horizontal movement of water. Currents may be classified as *tidal* and *nontidal*. Tidal currents are caused by gravitational interactions between the Sun, Moon, and Earth and are a part of the same general movement of the sea that is manifested in the vertical rise and fall, called *tide*. Nontidal currents include the permanent currents in the general circulatory systems of the sea as well as temporary currents arising from more pronounced meteorological variability.

CURRENT DIFFERENCE—Difference between the time of slack water (or minimum current) or strength of current in any locality and the time of the corresponding phase of the tidal current at a reference station, for which predictions are given in the *Tidal Current Tables*.

CURRENT ELLIPSE—A graphic representation of a rotary current in which the velocity of the current at different hours of the tidal cycle is represented by radius vectors and vectorial angles. A line joining the extremities of the radius vectors will form a curve roughly approximating an ellipse. The cycle is completed in one-half tidal day or in a whole tidal day according to whether the tidal current is of the semidiurnal or the diurnal type. A current of the mixed type will give a curve of two unequal loops each tidal day.

CURRENT METER—An instrument for measuring the speed and direction or just the speed of a current. The measurements are usually Eulerian since the meter is most often fixed or moored at a specific location.

DATUM (vertical)—For marine applications, a base elevation used as a reference from which to reckon heights or depths. It is called a *tidal datum* when defined by a certain phase of the tide. Tidal datums are local datums and should not be extended into areas which have differing topographic features without substantiating measurements. In order that they may be recovered when needed, such datums are referenced to fixed points known as *bench marks.*

DAYLIGHT SAVING TIME—A time used during the summer in some localities in which clocks are advanced 1 hour from the usual standard time.

DIURNAL—Having a period or cycle of approximately 1 tidal day. Thus, the tide is said to be diurnal when only one high water and one low water occur during a tidal day, and the tidal current is said to be diurnal when there is a single flood and single ebb period in the tidal day. A rotary current is diurnal if it changes its direction through all points of the compass once each tidal day.

DIURNAL INEQUALITY—The difference in height of the two high waters or of the two low waters of each day; also the difference in speed between the two flood tidal currents or the two ebb tidal currents of each day. The difference changes with the declination of the Moon and to a lesser extent with the declination of the Sun. In general, the inequality tends to increase with an increasing declination, either north or south, and to diminish as the Moon approaches the Equator. *Mean diurnal high water inequality* (DHQ) is one-half the average difference between the two high waters of each day observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). It is obtained by subtracting the mean of all high waters from the mean of the higher high waters. *Mean diurnal low water inequality* (DLQ) is one-half the average difference between the two low waters of each day observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). It is obtained by subtracting the mean of the lower low waters from the mean of all low waters. *Tropic high water inequality* (HWQ) is the average difference between the two high waters of the day at the times of the tropic tides. *Tropic low water inequality* (LWQ) is the average difference between the two low waters of the day at the times of the tropic tides. Mean and tropic inequalities as

defined above are applicable only when the type of tide is either semidiurnal or mixed. Diurnal inequality is sometimes called *declinational inequality.*

DOUBLE EBB—An ebb tidal current where, after ebb begins, the speed increases to a maximum called *first ebb*; it then decreases, reaching a *minimum ebb* near the middle of the ebb period (and at some places it may actually run in a flood direction for a short period); it then again ebbs to a maximum speed called second ebb after which it decreases to slack water.

DOUBLE FLOOD—A flood tidal current where, after flood begins, the speed increases to a maximum called first flood; it then decreases, reaching a minimum flood near the middle of the flood period (and at some places it may actually run in an ebb direction for a short period); it then again floods to a maximum speed called second flood after which it decreases to slack water.

DOUBLE TIDE—A double-headed tide, that is, a high water consisting of two maxima of nearly the same height separated by a relatively small depression, or a low water consisting of two minima separated by a relatively small elevation. Sometimes, it is called an agger.

DURATION OF FLOOD AND DURATION OF EBB—Duration of flood is the interval of time in which a tidal current is flooding, and the *duration of ebb* is the interval in which it is ebbing. Together they cover, on an average, a period of 12.42 hours for a semidiurnal tidal current or a period of 24.84 hours for a diurnal current. In a normal semidiurnal tidal current, the duration of flood and duration of ebb will each be approximately equal to 6.21 hours, but the times may be modified greatly by the presence of a nontidal flow. In a river the duration of ebb is usually longer than the duration of flood because of the freshwater discharge, especially during the spring when snow and ice melt are the predominant influences.

DURATION OF RISE AND DURATION OF FALL—*Duration of rise* is the interval from low water to high water, and *duration of fall* is the interval from high water to low water. Together they cover, on an average, a period of 12.42 hours for a semidiurnal tide or a period of 24.84 hours for a diurnal tide. In a normal semidiurnal tide, the duration of rise and duration of fall will each be approximately equal to 6.21 hours, but in shallow waters and in rivers there is a tendency for a decrease in the duration of rise and a corresponding increase in the duration of fall.

EBB CURRENT—The movement of a tidal current away from shore or down a tidal river or estuary. In the mixed type of reversing tidal current, the terms *greater ebb* and *lesser ebb* are applied respectively to the ebb tidal currents of greater and lesser speed of each day. The terms *maximum ebb* and *minimum ebb* are applied to the maximum and minimum speeds of a current running continuously ebb, the speed alternately increasing and decreasing without coming to a slack or reversing. The expression maximum ebb is also applicable to any ebb current at the time of greatest speed.

EQUATORIAL TIDAL CURRENTS—Tidal currents occurring semimonthly as a result of the Moon being over the Equator. At these times the tendency of the Moon to produce a diurnal inequality in the tidal current is at a minimum.

EQUATORIAL TIDES—Tides occurring semi monthly as the result of the Moon being over the Equator. At these times the tendency of the Moon to produce a diurnal inequality in the tide is at a minimum.

FLOOD CURRENT—The movement of a tidal current toward the shore or up a tidal river or estuary. In the mixed type of reversing current, the terms *greater flood* and *lesser flood* are applied respectively to the flood currents of greater and lesser speed of each day. The terms *maximum flood* and *minimum flood* are applied to the maximum and minimum speeds of a flood current, the speed of which alternately increases and decreases without coming to a slack or reversing. The expression maximum flood is also applicable to any flood current at the time of greatest speed.

GREAT DIURNAL RANGE (Gt)—The difference in height between mean higher high water and mean lower low water. The expression may also be used in its contracted form, *diurnal range*.

GREENWICH INTERVAL—An interval referred to the transit of the Moon over the meridian of Greenwich as distinguished from the local interval which is referred to the Moon's transit over the local meri-dian. The relation in hours between Greenwich and local intervals may be expressed by the formula:

Greenwich interval = local interval +0.069 L

where L is the west longitude of the local meridan in degrees. For east longitude, L is to be considered negative.

GULF COAST LOW WATER DATUM—A chart datum. Specifically, the tidal datum formerly designated for the coastal waters of the Gulf Coast of the United States. It was defined as *mean lower low water* when the type of tide was mixed and *mean low water* when the type of tide was diurnal.

HALF-TIDE LEVEL—See *mean tide level*.

HARMONIC ANALYSIS—The mathematical process by which the observed tide or tidal current at any place is separated into basic harmonic constituents.

HARMONIC CONSTANTS—The amplitudes and epochs of the harmonic constituents of the tide or tidal current at any place.

HARMONIC CONSTITUENT—One of the harmonic elements in a mathematical expression for the tide-producing force and in corresponding formulas for the tide or tidal current. Each constituent represents a periodic change or variation in the relative positions of the Earth, Moon, and Sun. A single constituent is usually written in the form $y=A \cos (at+\alpha)$, in which y is a function of time as expressed by the symbol t and is reckoned from a specific origin. The coefficient A is called the amplitude of the constituent and is a measure of its relative importance. The angle $(at+\alpha)$ changes uniformly and its value at any time is called the phase of the constituent. The speed of the constituent is the rate of change in its phase and is represented by the symbol a in the formula. The quantity α is the phase of the constituent at the initial instant from which the time is reckoned. The period of the constituent is the time required for the phase to change through 360° and is the cycle of the astronomical condition represented by the constituent.

HIGH WATER (HW)—The maximum height reached by a rising tide. The height may be due solely to the periodic tidal forces or it may have superimposed upon it the effects of prevailing meteorological conditions. Use of the synonymous term, *high tide*, is discouraged.

HIGHER HIGH WATER (HHW)—The higher of the two high waters of any tidal day.

HIGHER LOW WATER (HLW)—The higher of the two low waters of any tidal day.

HYDRAULIC CURRENT—A current in a channel caused by a difference in the surface level at the two ends. Such a current may be expected in a strait connecting two bodies of water in which the tides differ in time or range. The current in the East River, N.Y., connecting Long Island Sound and New York Harbor, is an example.

KNOT—A unit of speed, one international nautical mile (1,852.0 meters or 6,076.11549 international feet) per hour.

LOW WATER (LW)—The minimum height reached by a falling tide. The height may be due solely to the periodic tidal forces or it may have superimposed upon it the effects of meteorological conditions. Use of the synonymous term, *low tide*, is discouraged.

LOWER HIGH WATER (LHW)—The lower of the two high waters of any tidal day.

LOWER LOW WATER (LLW)—The lower of the two low waters of any tidal day.

LUNAR DAY—The time of the rotation of the Earth with respect to the Moon, or the interval between two successive upper transits of the Moon over the meridian of a place. The mean lunar day is approximately 24.84 solar hours long, or 1.035 times as long as the mean solar day.

LUNAR INTERVAL—The difference in time between the transit of the Moon over the meridian of Greenwich and over a local meridian. The average value of this interval expressed in hours is 0.069 L, in which L is the local longitude in degrees, positive for west longitude and negative for east longitude. The lunar interval equals the difference between the local and Greenwich interval of a tide or current phase.

LUNICURRENT INTERVAL—The interval between the Moon's transit (upper or lower) over the local or Greenwich meridian and a specified phase of the tidal current following the transit. Examples: *strength of flood interval and strength of ebb interval,* which may be abbreviated to *flood interval and ebb interval,* respectively. The interval is described as local or Greenwich according to whether the reference is to the Moon's transit over the local or Greenwich meridian. When not otherwise specified, the reference is assumed to be local.

LUNITIDAL INTERVAL—The interval between the Moon's transit (upper or lower) over the local or Greenwich meridian and the following high or low water. The average of all high water intervals for all phases of the Moon is known as *mean high water lunitidal interval* and is abbreviated to high water interval (HWI). Similarly the *mean low water lunitidal interval* is abbreviated to *low water interval* (LWI). The interval is described as local or Greenwich according to whether the reference is to the transit over the local or Greenwich meridian. When not otherwise specified, the reference is assumed to be local.

MEAN HIGH WATER (MHW)—A tidal datum. The arithmetic mean of the high water heights observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). For stations with shorter series, simultaneous observational comparisons are made with a primary control tide station in order to derive the equivalent of a 19-year value.

MEAN HIGHER HIGH WATER (MHHW)—A tidal datum. The arithmetic mean of the higher high water heights of a mixed tide observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). Only the higher high water of each pair of high waters, or the only high water of a tidal day is included in the mean.

MEAN HIGHER HIGH WATER LINE (MHHWL)—The intersection of the land with the water surface at the elevation of mean higher high water.

MEAN LOW WATER (MLW)—A tidal datum. The arithmetic mean of the low water heights observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). For stations with shorter series, simultaneous observational comparisons are made with a primary control tide station in order to derive the equivalent of a 19-year value.

MEAN LOW WATER SPRINGS (MLWS)—A tidal datum. Frequently abbreviated *spring low water.* The arithmetic mean of the low water heights occurring at the time of the spring tides observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch).

MEAN LOWER LOW WATER (MLLW)—A tidal datum. The arithmetic mean of the lower low water heights of a mixed tide observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). Only the lower low water of each pair of low waters, or the only low water of a tidal day is included in the mean.

MEAN RANGE OF TIDE (Mn)—The difference in height between mean high water and mean low water.

MEAN RIVER LEVEL—A tidal datum. The average height of the surface of a tidal river at any point for all stages of the tide observed over a 19-year Metonic cycle (the National Tidal Datum Epoch), usually determined from hourly height readings. In rivers subject to occasional freshets the river level may undergo wide variations, and for practical purposes certain months of the year may be excluded in the determination of tidal datums. For charting purposes, tidal datums for rivers are usually based on observations during selected periods when the river is at or near low water stage.

MEAN SEA LEVEL (MSL)—A tidal datum. The arithmetic mean of hourly water elevations observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). Shorter series are specified in the name; e.g., monthly mean sea level and yearly mean sea level.

MEAN TIDE LEVEL (MTL)—Also called half-tide level. A tidal datum midway between mean high water and mean low water.

MIXED TIDE—Type of tide with a large inequality in the high and/or low water heights, with two high waters and two low waters usually occurring each tidal day. In strictness, all tides are mixed but the name is usually applied to the tides intermediate to those predominantly semidiurnal and those predominantly diurnal.

NATIONAL TIDAL DATUM EPOCH—The specific 19-year period adopted by the National Ocean Service as the official time segment over which tide observations are taken and reduced to obtain mean values (e.g., mean lower low water, etc.) for tidal datums. It is necessary for standardization because of periodic and apparent secular trends in sea level. The present National Tidal Datum Epoch is 1960 through 1978. It is reviewed annually for possible revision and must be actively considered for revision every 25 years.

NEAP TIDES OR TIDAL CURRENTS—Tides of decreased range or tidal currents of decreased speed occurring semimonthly as the result of the Moon being in quadrature. The *neap range* (Np) of the tide is the average semidiurnal range occurring at the time of neap tides and is most conveniently computed from the harmonic constants. It is smaller than the mean range where the type of tide is either semidiurnal or mixed and is of no practical significance where the type of tide is diurnal. The average height of the high waters of the neap tides is called *neap high water* or *high water neaps* (MHWN) and the average height of the corresponding low waters is called neap low water or low water neaps (MLWN).

PERIGEAN TIDES OR TIDAL CURRENTS—Tides of increased range or tidal currents of increased speed occurring monthly as the result of the Moon being in perigee or nearest the Earth. The *perigean range* (Pn) of tide is the average semidiurnal range occurring at the time of perigean tides and is most conveniently computed from the harmonic constants. It is larger than the mean range where the type of tide is either semidiurnal or mixed, and is of no practical significance where the type of tide is diurnal.

RANGE OF TIDE—The difference in height between consecutive high and low waters, the *mean range* is the difference in height between mean high water and mean low water. Where the type of tide is diurnal the mean range is the same as the diurnal range.

For other ranges, see great diurnal, spring, neap, perigean, apogean, and tropic tides.

REFERENCE STATION—A tide or current station for which independent daily predictions are given in the *Tide Tables and Tidal Current Tables,* and from which corresponding predictions are obtained for subordinate stations by means of differences and ratios.

REVERSING CURRENT—A tidal current which flows alternately in approximately opposite directions with a slack water at each reversal of direction. Currents of this type usually occur in rivers and straits where the direction of flow is more or less restricted to certain channels. When the movement is towards the shore or up a stream, the current is said to be flooding, and when in the opposite direction it is said to be ebbing. The combined flood and ebb movement including the slack water covers, on an average, 12.42 hours for the semidiurnal current. If unaffected by a nontidal flow, the flood and ebb movements will each last about 6 hours, but when combined with such a flow, the durations of flood and ebb may be quite unequal. During the flow in each direction the speed of the current will vary from zero at the time of slack water to a maximum about midway between the slacks.

ROTARY CURRENT—A tidal current that flows continually with the direction of flow changing through all points of the compass during the tidal period. Rotary currents are usually found offshore where the direction of flow is not restricted by any barriers. The tendency for the rotation in direction has its origin in the Coriolis force and, unless modified by local conditions, the change is clockwise in the Northern Hemisphere and counterclockwise in the Southern. The speed of the current usually varies throughout the tidal cycle, passing through the two maxima in approximately opposite directions and the two minima with the direction of the current at approximately 90° from the direction at time of maximum speed.

SEMIDIURNAL—Having a period or cycle of approximately one-half of a tidal day. The predominating type of tide throughout the world is semidiurnal, with two high waters and two low waters each tidal day. The tidal current is said to be semidiurnal when there are two flood and two ebb periods each day.

SET (OF CURRENT)—The direction *towards* which the current flows.

SLACK WATER—The state of a tidal current when its speed is near zero, especially the moment when a reversing current changes direction and its speed is zero. The term is also applied to the entire period of low speed near the time of turning of the current when it is too weak to be of any practical importance in navigation. The relation of the time of slack water to the tidal phases varies in different localities. For standing tidal waves, slack water occurs near the times of high and low water, while for progressive tidal waves, slack water occurs midway between high and low water.

SPRING TIDES OR TIDAL CURRENTS—Tides of increased range or tidal currents of increased speed occurring semimonthly as the result of the Moon being new or full. The *spring range* (Sg) of tide is the average semidiurnal range occurring at the time of spring tides and is most conveniently computed from the harmonic constants. It is larger than the mean range where the type of tide is either semidiurnal or mixed, and is of no practical significance where the type of tide is diurnal. The mean of the high waters of the spring tide is called *spring high water or mean high water springs* (MHWS), and the average height of the corresponding low waters is called *spring low water or mean low water springs* (MLWS).

STAND OF TIDE—Sometimes called a platform tide. An interval at high or low water when there is no sensible change in the height of the tide. The water level is stationary at high and low water for only an instant, but the change in level near these times is so slow that it is not usually perceptible. In general, the duration of the apparent stand will depend upon the range of tide, being longer for a small range than for a large range, but where there is a tendency for a double tide the stand may last for several hours even with a large range of tide.

STANDARD TIME—A kind of time based upon the transit of the Sun over a certain specified meridian, called the *time meridian*, and adopted for use over a considerable area. With a few exceptions, standard time is based upon some meridian which differs by a multiple of 15° from the meridian of Greenwich.

STRENGTH OF CURRENT—Phase of tidal current in which the speed is a maximum; also the speed at this time. Beginning with slack before flood in the period of a reversing tidal current (or minimum before flood in a rotary current), the speed gradually increases to flood strength and then diminishes to slack before ebb (or minimum before ebb in a rotary current), after which the current turns in direction, the speed increases to ebb strength and then diminishes to slack before flood completing the cycle. If it is assumed that the speed throughout the cycle varies as the ordinates of a cosine curve, it can

be shown that the average speed for an entire flood or ebb period is equal to $2/\pi$ or 0.6366 of the speed of the corresponding strength of current.

SUBORDINATE CURRENT STATION—(1) A current station from which a relatively short series of observations is reduced by comparison with simultaneous observations from a control current station. (2) A station listed in the *Tidal Current Tables* for which predictions are to be obtained by means of differences and ratios applied to the full predictions at a reference station .

SUBORDINATE TIDE STATION—(1) A tide station from which a relatively short series of observations is reduced by comparison with simultaneous observations from a tide station with a relatively long series of observations. (2) A station listed in the *Tide Tables* for which predictions are to be obtained by means of differences and ratios applied to the full predictions at a reference station.

TIDAL CURRENT TABLES—Tables which give daily predictions of the times and speeds of the tidal currents. These predictions are usually supplemented by current differences and constants through which additional predictions can be obtained for numerous other places.

TIDAL DIFFERENCE—Difference in time or height of a high or low water at a subordinate station and at a reference station for which predictions are given in the *Tide Tables*. The difference, when applied according to sign to the prediction at the reference station, gives the corresponding time or height for the subordinate station .

TIDE—The periodic rise and fall of the water resulting from gravitational interactions between the Sun, Moon, and Earth. The vertical component of the particulate motion of a tidal wave. Although the accompanying horizontal movement of the water is part of the same phenomenon, it is preferable to designate the motion as tidal current.

TIDE TABLES—Tables which give daily predictions of the times and heights of high and low waters. These predictions are usually supplemented by tidal differences and constants through which additional predictions can be obtained for numerous other places.

TIME MERIDIAN—A meridian used as a reference for time.

TROPIC CURRENTS—Tidal currents occurring semimonthly when the effect of the Moon's maximum declination is greatest. At these times the tendency of the Moon to produce a diurnal inequality in the current is at a maximum.

TROPIC RANGES—The *great tropic range* (Gc), or *tropic range*, is the difference in height between tropic higher high water and tropic lower low water. The *small tropic range* (Sc) is the difference in height between tropic lower high water and tropic higher low water. The *mean tropic range* (Mc) is the mean between the great tropic range and the small tropic range. The small tropic range and the mean tropic range are applicable only when the type of tide is semidiurnal or mixed. Tropic ranges are most conveniently computed from the harmonic constants.

TROPIC TIDES—Tides occurring semimonthly when the effect of the Moon's maximum declination is greatest. At these times there is a tendency for an increase in the diurnal range. The tidal datums pertaining to the tropic tides are designated as *tropic higher high water* (TcHHW), *tropic lower high water* (TcLHW), *tropic higher low water* (TcHLW), and *tropic lower low water* (TcLLW).

TYPE OF TIDE—A classification based on characteristic forms of a tide curve. Qualitatively, when the two high waters and two low waters of each tidal day are approximately equal in height, the tide is said to be *semidiurnal*; when there is a relatively large diurnal inequality in the high or low waters or both, it is said to be *mixed*; and when there is only one high water and one low water in each tidal day, it is said to be *diurnal*.

VANISHING TIDE—In a mixed tide with very large diurnal inequality, the lower high water (or higher low water) frequently becomes indistinct (or vanishes) at time of extreme declinations. During these periods the diurnal tide has such overriding dominance that the semidiurnal tide, although still present, cannot be readily seen on the tide curve.

INDEX TO STATIONS
(Numbers refer to table 2)

[Stations marked with an asterisk (*) are reference stations for which daily predictions are given in table 1. Page numbers of reference stations are given in parentheses.]

ASTRONOMICAL DATA, 2019

January

	d	h	m
S	5	19	..
●	6	01	28
A	9	04	..
E	13	08	..
◐	14	06	46
N	20	00	..
○	21	05	16
P	21	20	..
E	26	01	..
◑	27	21	10

February

	d	h	m
S	2	01	..
●	4	21	04
A	5	09	..
E	9	15	..
◐	12	22	26
N	16	10	..
P	19	09	..
○	19	15	54
E	22	10	..
◑	26	11	28

March

	d	h	m
S	1	07	..
A	4	11	..
●	6	16	04
E	8	20	..
◐	14	10	27
N	15	19	..
P	19	20	..
⊖m	20	21	58
○	21	01	43
E	21	20	..
◑	28	04	10
S	28	13	..

April

	d	h	m
A	1	00	..
E	5	02	..
●	5	08	50
N	12	00	..
◐	12	19	06
P	16	22	..
E	18	07	..
○	19	11	12
S	24	22	..
◑	26	22	18
A	28	18	..

May

	d	h	m
E	2	10	..
●	4	22	45
N	9	06	..
◐	12	01	12
P	13	22	..
E	15	15	..
○	18	21	11
S	22	07	..
A	26	13	..
◑	26	16	34
E	29	19	..

June

	d	h	m
●	3	10	02
N	5	13	..
P	7	23	..
◐	10	05	59
E	11	22	..
○	17	08	31
S	18	16	..
⊖j	21	15	54
A	23	08	..
◑	25	09	46
E	26	04	..

July

	d	h	m
●	2	19	16
N	2	23	..
P	5	05	..
E	9	03	..
◐	9	10	55
S	15	23	..
○	16	21	38
A	21	00	..
E	23	11	..
◑	25	01	18
N	30	09	..

August

	d	h	m
●	1	03	12
P	2	07	..
E	5	10	..
◐	7	17	31
S	12	05	..
○	15	12	29
A	17	11	..
E	19	17	..
◑	23	14	56
N	26	18	..
●	30	10	37
P	30	16	..

September

	d	h	m
E	1	18	..
◐	6	03	10
S	8	10	..
A	13	14	..
○	14	04	33
E	15	23	..
◑	22	02	41
N	23	02	..
⊖s	23	07	50
P	28	02	..
●	28	18	26
E	29	05	..

October

	d	h	m
◐	5	16	47
S	5	17	..
A	10	18	..
E	13	05	..
○	13	21	08
N	20	09	..
◑	21	12	39
P	26	11	..
E	26	16	..
●	28	03	38

November

	d	h	m
S	2	01	..
◐	4	10	23
A	7	09	..
E	9	12	..
○	12	13	34
N	16	14	..
◑	19	21	11
E	23	01	..
P	23	08	..
●	26	15	06
S	29	11	..

December

	d	h	m
◐	4	06	58
A	5	04	..
E	6	21	..
○	12	05	12
N	13	21	..
P	18	20	..
◑	19	04	57
E	20	07	..
⊖d	22	04	19
●	26	05	13
S	26	21	..
P	31	23	..

● -- new Moon
◐ -- first quarter
○ -- full Moon
◑ -- last quarter

LUNAR DATA

A -- Moon in apogee
P -- Moon in perigee
N -- Moon farthest north of Equator
E -- Moon on Equator
S -- Moon farthest south of Equator

SOLAR DATA

⊖m -- March equinox
⊖j -- June solstice
⊖s -- September equinox
⊖d -- December solstice

Greenwich mean time (GMT) or universal time (UT) is the mean solar time on the Greenwich meridian reckoned in days of 24 mean solar hours written as 00^h at midnight and 12^h at noon. To convert the above times to those of other standard time meridians, add 1 hour for each 15° of east longitude of the desired meridian and subtract 1 hour for each 15° of west longitude. This table was compiled from data supplied by the Nautical Almanac Office, United States Naval Observatory.

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