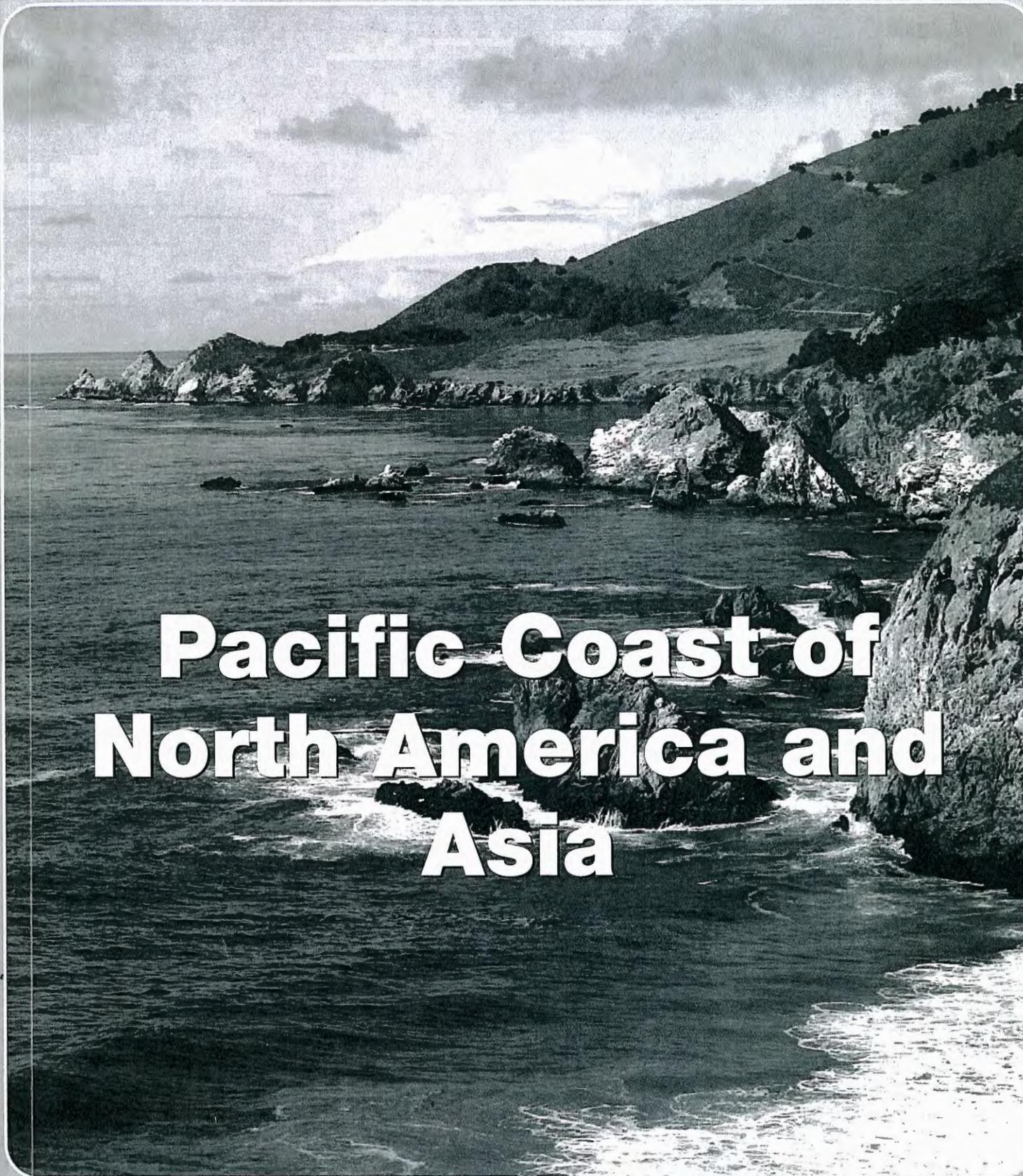


2016 Current Tables

SOUTHEAST ALASKA- DIXON ENTRANCE TO ICY BAY



Pacific Coast of North America and Asia

Approved by the U.S. Coast Guard

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IMPORTANT NOTICES

PUBLISHED CAUTIONARY NOTICES

Published in Local Notice to Mariners and United States Coast Pilot Notices

UPDATE TO THE 2012 EDITION OF THE NOS TIDAL CURRENT TABLES

The NOAA National Ocean Service's Center for Operational Oceanographic Products and Services (CO-OPS) is updating the tidal current predictions published for the Dutch Harbor region of Alaska within the 2012 Tidal Current Tables - Pacific Coast of North America and Asia. Reference stations in this area have been updated with new data; historic secondary stations have been updated; and a number of new stations have been added.

(Issued: October 1, 2011)

THE NARROWS, PUGET SOUND, WASHINGTON

Tidal current speeds at The Narrows, Puget Sound, Washington have been reported by the U.S. Coast Guard and other reliable sources as being significantly higher than predicted. Until such time as new tidal current data can be collected to update predictions at this location, extreme caution should be used while navigating the area.

(Issued October 1, 2008)

CHANGES TO 2004 AND FUTURE EDITIONS OF THE NOS TIDE TABLES

The National Ocean Service's, Center for Operational Oceanographic Products and Services (CO-OPS) is continuing to work on updating tidal data for the 1983-2001 Tidal Epoch. The updated information will begin to appear in the 2004 edition of the published Tide Tables and is expected to be completed for the 2005 Tide Tables. In conjunction with the 1983-2001 Tidal Epoch update, CO-OPS has started a comprehensive review of the secondary stations listed in the published Tide Tables. As a result of this review, there will be numerous changes to the stations listed in the "Table 2 - Tidal Differences and Other Constants" pages of the published Tide Tables and in the CO-OPS web products. These changes will include the addition of new stations, removal of obsolete stations, and updating information for other existing stations. These changes will begin to appear in the 2004 edition of the published Tide Tables and are expected to continue for several years.

Tables in which U.S. stations will be affected by the 1983-2001 Epoch and Table 2 station review include:

- Tide Tables - East Coast of North and South America, Including Greenland
- Tide Tables - West Coast of North and South America, Including the Hawaii Islands
- Tide Tables - Central and Western Pacific Ocean and Indian Ocean

(Issued October 1, 2003)

TIDAL CURRENT PREDICTIONS INSIDE U.S. ESTUARIES

At present there are several U.S. estuaries with operational Physical Oceanographic Real Time Systems (PORTS) installed. PORTS systems are presently being installed in several additional estuaries. Over the next ten years there are projected to be twenty or more additional systems installed. In the past, the tidal current reference station has always been located at the entrance to each estuary. All tidal current secondary stations both inside and outside (along the coast) have been referred to the reference station at the entrance to the estuary. This will no longer be the case in estuaries with an operational PORTS system.

IMPORTANT NOTICES

Estuaries with an operational PORTS system will have at least two reference stations. One will be the historic station at the entrance to the estuary. All secondary stations along the coast will continue to be referred to this station. The second tidal current reference station will be the primary PORTS station within the estuary. All secondary locations within the estuary itself will be referred to this location. Depending on the circulation dynamics of the estuary, daily tidal current predictions may be provided for one or more additional stations within the estuary.

(Issued October 1, 1999)

KUSKOKWIM BAY AND RIVER, ALASKA

The National Ocean Service's (NOS) official published time and height corrections for this area (Table 2 in the Tide Tables West Coast of North and South America) in recent years have been based on the daily predictions for Nushagak Bay, AK, the nearest NOS reference station. These published values, however, do not provide the most accurate corrections. The shape of the tide curves varies considerably along the Alaskan coast. The previously published corrections based on Matarani, Peru, provide more accurate results for this area because the shape of the tide curves closely match. The corrections based on Matarani are:

Location Name	Position		Differences			
	Lat.	Long.	Time		Height	
	N °	W °	High h. m.	Low h. m.	High ft.	Low ft.
Goodnews Bay entrance	59 03	161 49	+0 59	+0 51	*2.83	*2.00
Carter Spit	59 19	161 57	+1 19	+1 24	*3.63	*2.33
Eek Channel, off Quinhagak	59 45	162 15	+2 39	+3 05	*4.25	*1.67
Warehouse Creek entrance	59 56	162 05	+3 05	+3 50	*4.38	*1.67
Kuskokwak Creek entrance	60 02	162 10	+3 53	+4 40	*4.21	*1.67
Popokamute	60 04	162 25	+4 12	+5 05	*3.67	*1.67
Apokak Creek entrance	60 08	162 10	+4 13	+5 10	*4.13	*1.67
Bethel	60 48	161 45	+8 51	+11 11	+0.3	+0.1

(Issued May 30, 1997)

CHIGNIK, ALASKA

The US Army Corps of Engineers (USACOE) is planning the construction of a Small Boat Harbor in Chignik, AK. The construction will include dredging and the construction of a breakwater. Official published Tide and Tidal Current predictions will be degraded once the project begins. Tidal Currents will be effected the most. From the beginning of the project until a resurvey of the area can be completed, Tide and Tidal Current predictions should be used with caution. Tidal Current predictions should be used only with extreme caution. Therefore, until such time as a resurvey of the area is conducted, the National Oceanic and Atmospheric Administration, National Ocean Service will be unable to provide the accurate Tide and Tidal Current predictions necessary for marine safety and navigation in this area.

(Issued May 30, 1997)

NEPTUNE BEACH, WASHINGTON

Pudget Sound Pilots report that observed tidal currents in the vicinity of Neptune Beach, WA deviate significantly from official published predictions. Reliable sources report that the observed velocities are close to double the predicted values and that the times are up to 1 hour earlier than predicted. Extreme caution should be exercised in this vicinity by all vessels especially tankers passing through the area approaching oil refineries. Funding for a resurvey of the area and/or the installation of a real-time monitoring system is not presently available. Therefore, until such time as real-time system is installed or a resurvey of the area conducted, the National Oceanic and Atmospheric Administration, National

IMPORTANT NOTICES

Ocean Service will be unable to provide the accurate Tidal Current predictions necessary for marine safety and navigation in this area.

(Issued May 30, 1997)

GRAYS HARBOR, WASHINGTON

Tidal Currents in Grays Harbor have been significantly altered by dredging and construction activities. Tidal predictions for the Tidal Reference Station at Aberdeen have been updated to reflect these changes. Tidal Current predictions for this area should be considered questionable and potentially dangerous to rely upon. Funding for a real-time system to monitor the Tidal Currents or a resurvey of this area is not available at this time. Therefore, until such time as a real-time system is installed or a resurvey of the area conducted, the National Oceanic and Atmospheric Administration, National Ocean Service will be unable to provide accurate Tidal Current predictions necessary for marine safety and navigation in this area.

(Issued June 5, 1996)

SAN DIEGO, CALIFORNIA

The US Army Corps of Engineers (COE) is planning a dredging project for the US Navy in the area of the North Island Naval Base in San Diego Harbor. This project calls for both deepening and widening the channel to accommodate larger naval vessels. Such actions in the past in other areas have resulted in dramatic changes in the observed Tidal Currents of those areas. Once dredging operations commence, the Tidal Current predictions for this region should be considered questionable and potentially dangerous to rely upon. Tidal predictions will also be affected but to a lesser degree. Funding for a real-time system to monitor the Tidal Currents during the project and a resurvey of the area after COE operations are complete are presently not available. Therefore, once COE operations begin and until such time as a real-time system is installed or a resurvey of the area conducted, the National Oceanic and Atmospheric Administration, National Ocean Service will be unable to provide accurate Tidal Current predictions necessary for marine safety and navigation in this area.

(Issued June 5, 1996)

INTRODUCTION

Current tables for the use of mariners have been published by the National Ocean Service (formerly the Coast and Geodetic Survey) since 1890. Tables for the Pacific coast first appeared in 1898 as a part of the tide tables and consisted of brief directions for obtaining the times of slack water for a few locations from the times of high and low waters. Daily predictions of slack water for two stations were given for the year 1899, and by 1923 the tables had so expanded that they were then issued as a separate publication entitled *Current Tables, Pacific Coast*. A companion volume, *Current Tables, Atlantic Coast*, was also issued that year. In 1926 the predictions for the Pacific coast were extended to include the times and speeds of maximum current.

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 Assistant Administrator, National Ocean Service, 1305 East-West Highway, Silver Spring, Maryland 20910, U.S.A. The data for lightship stations are based on observations obtained through the cooperation of the U.S. Coast Guard. In accordance with cooperative arrangements full predictions for Race Rocks, Seymour Narrows, Burrard Inlet, and Active Pass were furnished by the Canadian Hydrographic Service. The Bureau of Coast and Geodetic Survey, Philippines, supplies the predictions for Iloilo, San Juanico and San Bernardino Straits, and Cebu Harbor. The Japanese Hydrographic Office furnished the predictions for Tokyo Wan entrance, Akashi Kaikyo, Naruto, Kurushima Kaikyo, Kanmon Kaikyo, and Tomogashima Suido. The Hydrographic Department, England furnished Basilan Strait.

Daily predicted times of slack water and predicted times and speeds of maximum current (flood and ebb) are presented in Table 1 for a number of reference stations. Similar predictions for many other locations may be obtained by applying the correction factors, listed in Table 2, to the predictions of the appropriate reference station. The speed of a current at times between slack water and maximum current may be approximated by the use of Table 3. The duration of weak current near the time of slack water may be computed by the use of Table 4.

LIST OF REFERENCE STATIONS

<i>Station Names</i>	<i>Page</i>	<i>Updated</i>	<i>Data Series</i>
Active Pass, British Columbia	72		
Admiralty Inlet, Washington.....	52	1948	123 days (12/11/1908 - 3/19/1943)
Akashi Kaikyo, Japan	166		
Akutan Pass, Aleutian Islands.....	138	2012	3 months (6/2 - 9/11/2010)
Basilan Strait, Philippines.....	186		
Benecla Bridge, Suisan Bay, California.....	32	2001	8 months (1/2/1996 - 9/3/1996)
Boca de Finas, Alaska	88	2009	1month (8/5/2006 - 9/11/2006)
Burrard Inlet (First Narrows), British Columbia.....	76		
Carquinez Strait, California	28	1989	224 days (4/3/1980 - 11/12/1980)
Cebu Harbor, Philippines**.....	194		
Changjiang Entrance, China	178		
Deception Pass, Washington	60	1933	29 days (9/9/1925 - 10/27/1925)
Golden Gate Bridge, California	12	2001	7 months (11/1/1997 - 5/31/1998)
Grays Harbor Entrance, Washington	40	1952	29 days beginning 3/25/1950
Humboldt Bay Entrance Channel, California.....	36	2006	2 months (7/21/2004-10/15/2004)
Iloilo Strait, Philippines**	190		
Isanotski Strait (False Pass Cannery), Alaska	128	1985	Form C&GS-444 (8/18/1925)
Kahuku Point, Kauai Island, Hawaii	150	2013	2 months (2/3/2011 - 4/1/2011)
Kalohi Channel, Molokai Island, Hawaii	146	2013	2 months (1/8/2011- 3/26/2011)
Kanmon Kaikyo, Japan	174		
Kennedy Entrance, Cook Inlet, Alaska.....	108	2007	1 month (6/22/2004 - 8/3/2004)
Knik Arm, Port of Anchorage, Alaska	120	2007	1 month (7/16/2003 - 8/20/2003)
Kodiak Harbor Narrows, Alaska	124	2011	3 months (5/29/2009 - 8/20/2009)
Kurushima Kaikyo, Japan	170		
Kvichak Bay (off Naknek River Entrance), Alaska....	142	1985	14 days beginning 9/16/1946
Montague Strait, Prince William Sound, Alaska	104	2010	3 months (5/4/2007 - 8/5/2007)
Naruto, Japan.....	162		
North Inian Pass, Alaska.....	100	1985	104 days (1901)
Oakland, Yerba Buena Island, California	16	2001	1 year (1999)
Race Rocks, British Columbia.....	48		
Richmond (Long Wharf), California	24	2001	1 year (1999)
Rosario Strait, Washington.....	64	1967	29 days beginning 3/10/1965
San Bernardino Strait, Philippines**.....	202		
San Diego Bay Entrance, California.....	4	1936	29 days beginning 8/24/1934
San Francisco Bay Entrance, California.....	8	1990	7 days beginning 10/19/1923
San Juan Channel (south entrance), Washington....	68	1966	29 days beginning 5/21/1964
San Juanico Strait, Philippines**	198		
San Mateo Bridge, California	20	2014	4 months (5/19/2013 - 9/9/2013)
Sergius Narrows, Alaska.....	96	2004	1 month (4/2/2002 - 5/7/2002)
Seymour Narrows, British Columbia	80		
Snow Passage Narrows, Alaska	84	2006	1 month (4/23/2004 - 5/22/2004)
Strait of Juan de Fuca Entrance.....	44	1945	Inferred from Admiralty Inlet station
Tesoro Pier, Cook Inlet, Alaska.....	112	2010	2 months (7/15/2008 - 9/17/2008)
The Forelands, Cook Inlet, Alaska	116	2007	2 months (5/18/2005 - 7/18/2005)
The Narrows, Puget Sound, Washington	56	1948	28 days beginning 1/19/1944
Tokyo Wan Entrance, Japan.....	154		
Tomogashima Suido, Japan.....	158		
Unimak Pass, Aleutian Islands.....	133*, 134	2012	3 months (6/11 - 9/11/2010)
Wrangell Narrows, Alaska.....	92	2004	1 month (5/17/2002 - 6/19/2002)
Wusong Kou, China	182		

* Explanation precedes the predictions.

** Daily predictions for this station were omitted.

*** New reference station.

TABLE 1.— DAILY CURRENT PREDICTIONS

EXPLANATION OF TABLE

This table gives the predicted times of slack water and the predicted times and speeds of maximum current-flood and ebb-for each day of the year at a number of stations on the Pacific coast of North America. The times are given in hours and minutes and the speeds in knots.

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. **Daylight-saving time is not used in this publication.** If daylight-saving time is required, add one (1) hour to the predicted time.

Slack water and maximum current.—The columns headed "Slack" contain the predicted times at which there is no current; or, in other words, the times at which the current has stopped setting in a given direction and is about to begin to set in the opposite direction. Offshore, where the current is rotary, slack water denotes the time of minimum current. Beginning with the slack water before flood the current increases in speed until the strength or maximum speed of the flood current is reached; it then decreases until the following slack water or slack before ebb. The ebb current now begins, increases to a maximum speed, and then decreases to the next slack. The predicted times and speeds of maximum current are given in the columns headed "Maximum." Flood speeds are marked with an "F," the ebb speeds with an "E." An entry in the "Slack" column will be slack, flood begins if the maximum current which follows it is marked "F." Otherwise the entry will be slack, ebb begins.

Direction of set.—The terms flood and ebb do not in all cases clearly indicate the direction of the current, the approximate direction toward which the currents flow are given at the top of each page to distinguish the two streams.

Number of slacks and strengths.—There are usually four slacks and four maximums each day. If one is missing in a given day, it will occur soon after midnight as the first slack or maximum of the following day. At some stations where the diurnal inequality is large, there may be on certain days a continuous flood or ebb current with varying speed throughout half the day giving only two slacks and two maximums on that particular day.

Current and tide.—It is important to note that the predicted slacks and strengths given in this table refer to the horizontal motion of the water and not to the vertical rise and fall of the tide. The relation of current to tide is not constant, but varies from place to place, and the time of slack water does not generally coincide with the time of high or low water, nor does the time of maximum speed of the current usually coincide with the time of most rapid change in the vertical height of the tide. At stations located on a tidal river or bay the time of slack water may differ from 1 to 3 hours from the time of high or low water. The times of high and low waters are given in the Tide Tables published by the National Ocean Service.

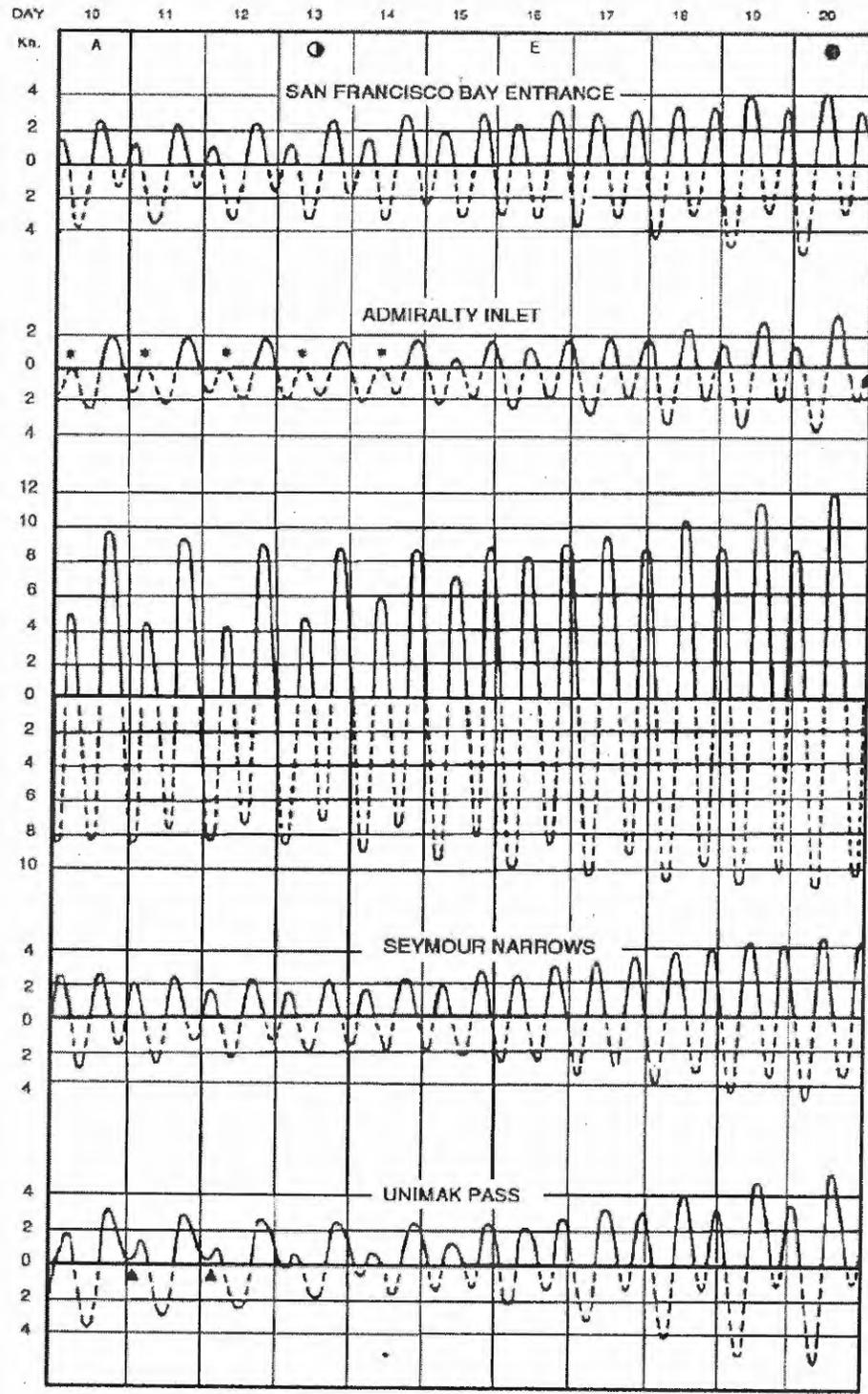
Variations from predictions.—In using this table, bear in mind that actual times of slack or maximum occasionally differ from the predicted times by as much as half an hour and in rare instances the difference may be as much as an hour. Comparisons of predicted with observed times of slack water indicate that more than 90 percent of the slack waters occurred within half an hour of the predicted times. To make sure, therefore, of getting the full advantage of a favorable current or slack water, the navigator should reach the entrance or strait at least half an hour before the predicted time of the desired condition of current. Currents are frequently disturbed by wind or variations in river discharge. On days when the current is affected by such disturbing influences the times and speeds will differ from those given in the table, but local knowledge will enable one to make proper allowance for these effects.

TABLE 1.—DAILY CURRENT PREDICTIONS

Typical current curves.—The variations in the tidal current from day to day and from place to place are illustrated on the opposite page by the current curves for representative ports. Flood current is represented by the solid line curve above the zero speed (slack water) line and the ebb current by the broken line curve below the slack water line. The outstanding feature of the currents in this region is the diurnal inequality, i.e., the differences in speed of two consecutive flood or two consecutive ebb maximums. This inequality varies directly with the Moon's declination; consequently it tends to disappear when the Moon is near the Equator. By reference to the curves it will be noted that at certain places the inequality is chiefly in the flood currents. At Seymour Narrows the two floods of a day sometimes differ by 5 knots. At other places the inequality is chiefly in the ebb currents, while at still other places there is a marked inequality in both flood and ebb currents. The effect of the inequality at some places is such that there are times when the current may be erratic (marked by an asterisk) or one flood or ebb current of the day may be quite weak. Therefore, in using the predictions of the current it is essential to carefully note the speeds as well as the times. A detailed explanation of the predictions for Unimak Pass is given on the page immediately preceding the predictions.

TYPICAL CURRENT CURVES FOR REFERENCE STATIONS

(Flood: Solid Line, Ebb: Broken Line)



* Current weak and variable
 ▲ Minimum flood. See explanation on page 93
 A discussion of these curves is given on the preceding page.

Lunar data:
 A - Moon in apogee
 ☾ - last quarter
 E - Moon on Equator
 ● - new moon

Snow Passage Narrows, Alaska, 2016

F—Flood, Dir. 153° True E—Ebb, Dir. 331° True

January				February				March																																
Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum																											
	h m	h m	knots		h m	h m	knots		h m	h m	knots		h m	h m	knots																									
1 F	0344	0724	1.8F	16 Sa	0344	0652	2.8E	1 M	0001	0201	1.3F	16 Tu	0030	0235	1.7F	1 Tu	0327	0716	1.2F	16 W	0010	0206	1.5F	0509	0829	2.4E														
2 Sa	1045	1313	1.5F	17 Su	1028	1337	2.4F	2 Tu	0442	0830	1.8E	17 W	0546	0857	2.6E	2 W	1106	1407	1.9F	17 Th	1224	1532	2.4F	1843	2128	2.5E	0124	0315	1.2F											
3 Su	1612	1948	1.7E	18 M	1640	1944	2.7E	3 W	1217	1440	1.7F	18 Th	1251	1612	2.6F	3 Th	1753	2058	1.6E	18 F	0629	0940	2.4E	1331	1717	2.6F	1945	2235	2.6E	0629	0940	2.4E								
4 M	2251	0138	1.6F	19 Tu	2306	0156	2.2F	4 Th	1832	2136	1.7E	19 F	1904	2153	2.8E	4 F	0050	0225	1.0F	19 Sa	1224	1532	2.4F	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E								
5 Tu	0445	0822	2.0E	20 W	0458	0810	2.7E	5 F	0120	0300	1.1F	20 Sa	0658	1010	2.7E	5 Sa	1231	1508	1.9F	20 Su	1331	1717	2.6F	1945	2235	2.6E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E					
6 W	1204	1412	1.4F	21 Th	1201	1443	2.4F	6 Sa	1320	1552	1.9F	21 Su	2006	2259	3.1E	6 Su	1902	2205	1.7E	21 M	0151	0326	1.0F	21 M	0614	0939	2.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
7 Th	1747	2057	1.7E	22 F	1806	2059	2.8E	7 Su	1937	2243	2.0E	22 M	0245	0543	1.9F	7 M	0327	0624	1.8E	22 Tu	1331	1621	2.1F	22 Tu	1953	2300	2.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
8 F	0032	0234	1.4F	23 Sa	0044	0301	2.0F	8 M	0221	0409	1.2F	23 Tu	0758	1110	3.0E	8 Tu	0151	0326	1.0F	23 W	1331	1621	2.1F	23 W	1953	2300	2.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
9 Sa	0600	0923	2.0E	24 Su	0617	0924	2.7E	9 Tu	0707	1038	2.2E	24 W	1451	1820	3.4F	9 W	0327	0624	1.8E	24 Th	1331	1621	2.1F	24 Th	1953	2300	2.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
10 Su	1308	1516	1.6F	25 M	1315	1626	2.7F	10 W	1411	1714	2.4F	25 Th	2059	2348	3.4E	10 Th	0151	0326	1.0F	25 F	1331	1621	2.1F	25 F	1953	2300	2.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
11 M	1903	2209	1.9E	26 Tu	1919	2214	3.0E	11 Th	2027	2331	2.4E	26 F	0245	0543	1.9F	11 F	0327	0624	1.8E	26 Sa	1331	1621	2.1F	26 Sa	1953	2300	2.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
12 Tu	0143	0340	1.3F	27 W	0157	0431	2.1F	12 F	0310	0513	1.5F	27 Sa	0849	1155	3.3E	12 Sa	0719	1043	2.4E	27 Su	1419	1720	2.5F	27 Su	2035	2337	2.5E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
13 W	0702	1027	2.2E	28 Th	0724	1035	3.0E	13 M	0756	1121	2.6E	28 Su	1539	1856	3.6F	13 Su	1419	1720	2.5F	28 M	2035	2337	2.5E	28 M	0319	0531	1.9F	28 M	0813	1125	2.9E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E
14 Th	1400	1654	2.0F	29 F	1417	1745	3.3F	14 Tu	1455	1752	2.8F	29 M	2143	0029	3.6E	14 M	0417	0646	2.5F	14 M	0934	1234	3.4E	29 Tu	1618	1922	3.5F	29 Tu	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E
15 F	2003	2309	2.3E	30 Sa	2022	2316	3.4E	15 W	2108	0006	2.7E	30 Tu	0417	0646	2.5F	15 W	0934	1234	3.4E	15 W	1618	1922	3.5F	30 W	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
				31 Su	0259	0547	2.4F	16 Th	0348	0556	2.0F	31 Tu	0417	0646	2.5F	16 Th	0934	1234	3.4E	16 Th	1618	1922	3.5F	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					0821	1130	3.4E	17 F	0839	1151	3.1E	17 F	0934	1234	3.4E	17 F	1618	1922	3.5F	17 F	2111	0007	3.0E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					1511	1830	3.7F	18 M	1530	1826	3.2F	18 M	1618	1922	3.5F	18 M	2111	0007	3.0E	18 M	2111	0007	3.0E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					2116	0005	3.7E	19 Tu	2143	0006	2.7E	19 Tu	2220	0029	3.6E	19 Tu	2111	0007	3.0E	19 Tu	2111	0007	3.0E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					0351	0627	2.7F	20 W	0419	0636	2.4F	20 W	0452	0714	2.6F	20 W	0901	1200	3.4E	20 W	0901	1200	3.4E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					0910	1213	3.7E	21 Th	0921	1219	3.4E	21 Th	1014	1311	3.4E	21 Th	1535	1836	3.4E	21 Th	1535	1836	3.4E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					1558	1909	3.9F	22 F	1601	1902	3.5F	22 F	1651	1944	3.4F	22 F	2146	0035	3.4E	22 F	2146	0035	3.4E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					2203	0048	3.9E	23 Sa	2216	0035	3.0E	23 Sa	2253	0108	3.6E	23 Sa	2146	0035	3.4E	23 Sa	2146	0035	3.4E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					0434	0700	2.8F	24 Su	0445	0717	2.8F	24 Su	0524	0749	2.7F	24 Su	0948	1236	3.8E	24 Su	0948	1236	3.8E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					0953	1252	3.8E	25 M	1002	1250	3.7E	25 M	1051	1349	3.3E	25 M	1610	1917	3.7E	25 M	1610	1917	3.7E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					1638	1943	3.9F	26 Tu	1630	1942	3.7F	26 Tu	1720	2015	3.3F	26 Tu	2221	0107	3.8E	26 Tu	2221	0107	3.8E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					2244	0131	3.8E	27 W	2248	0131	3.5E	27 W	2324	0227	3.5E	27 W	2221	0107	3.8E	27 W	2221	0107	3.8E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					0512	0736	2.8F	28 Th	0511	0802	3.1F	28 Th	0555	0829	2.8F	28 Th	0451	0742	3.4F	28 Th	0451	0742	3.4F	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					1032	1332	3.7E	29 F	1043	1331	3.9E	29 F	1127	1431	3.2E	29 F	1033	1318	4.0E	29 F	1033	1318	4.0E	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					1714	2015	3.7F	30 Sa	1704	2025	3.8F	30 Sa	1749	2050	3.2E	30 Sa	1649	2001	3.8F	30 Sa	1649	2001	3.8F	31 Th	2111	0007	3.0E	1945	2235	2.6E	0124	0315	1.2F	0629	0940	2.4E				
					2321	0215	3.6E	31 Su	2322	0209	3.7E	31 Su	2355	0305	3.4E																									

Snow Passage Narrows, Alaska, 2016

F—Flood, Dir. 153° True E—Ebb, Dir. 331° True

April				May				June															
Slack		Maximum																					
	h	m	knots																				
1 F	0110	0249	1.0F	16 Sa	0156	0517	1.2F	1 Su	0114	0322	1.5F	16 M	0209	0538	1.5F	1 W	0226	0523	2.9F	16 Th	0259	0557	2.5F
	0513	0834	2.0E		0708	1016	2.1E		0621	0916	2.2E		0741	1044	2.1E		0817	1116	3.4E		0856	1155	2.8E
	1240	1530	1.9F		1358	1742	2.3F		1259	1554	2.1F		1416	1744	1.9F		1445	1733	3.0F		1529	1752	2.2F
	1909	2214	1.8E		2002	2258	2.6E		1913	2221	2.4E		2005	2313	2.7E		2030	2336	3.7E		2050		
2 Sa	0201	0357	1.3F	17 Su	0246	0600	1.7F	2 M	0206	0437	2.0F	17 Tu	0254	0605	2.0F	2 Th	0317	0614	3.6F	17 F	0337	0623	3.0F
	0647	0956	2.2E		0806	1112	2.4E		0732	1035	2.7E		0833	1133	2.6E		0912	1205	4.0E		0939	1235	3.1E
	1339	1638	2.3F		1447	1814	2.5F		1401	1700	2.6F		1503	1752	2.2F		1541	1821	3.4F		1612	1828	2.5F
	1954	2303	2.4E		2043	2342	3.0E		2004	2312	3.1E		2045	2352	3.1E		2119				2127		
3 Su	0243	0505	1.9F	18 M	0327	0622	2.1F	3 Tu	0253	0538	2.8F	18 W	0332	0616	2.5F	3 F	0402	0019	4.1E	18 Sa	0411	0034	3.3E
	0751	1059	2.8E		0855	1154	2.8E		0924	1215	3.9E		0917	1213	3.0E		1003	1252	4.3E		1018	1312	3.2E
	1427	1730	2.8F		1529	1824	2.7F		1456	1752	3.2F		1546	1816	2.6F		1630	1906	3.6F		1650	1907	2.6F
	2036	2340	3.0E		2119				2052	2354	3.7E		2122				2205				2201		
4 M	0322	0555	2.6F	19 Tu	0402	0018	3.3E	4 W	0336	0625	3.5F	19 Th	0406	0027	3.4E	4 Sa	0445	0101	4.3E	19 Su	0442	0101	3.4E
	0845	1144	3.4E		0402	0635	2.5F		0924	1215	3.9E		0957	1252	3.2E		1051	1341	4.3E		1055	1350	3.2E
	1512	1813	3.3F		0937	1232	3.1E		1547	1836	3.6F		1626	1851	2.8F		1716	1953	3.5F		1724	1948	2.6F
	2117				1605	1843	2.9F		2138				2156				2248				2232		
5 Tu	0357	0013	3.6E	20 W	0052	035E	3.5E	5 Th	0033	041E	4.1E	20 F	0059	035E	3.5E	5 Su	0146	042E	4.2E	20 M	0127	035E	3.5E
	0751	0639	3.3F		0433	0703	2.9F		0417	0710	3.9F		0437	0719	3.3F		0526	0834	4.3F		0510	0818	3.6F
	0935	1225	3.9E		1016	1309	3.2E		1013	1301	4.3E		1036	1332	3.3E		1138	1433	4.2E		1130	1428	3.0E
	1556	1855	3.7F		1640	1915	3.0F		1635	1922	3.8F		1703	1930	2.8F		1802	2040	3.3F		1755	2031	2.6F
6 W	0433	0048	4.0E	21 Th	0126	036E	3.6E	6 F	0114	043E	4.3E	21 Sa	0129	035E	3.5E	6 M	0234	040E	4.0E	21 Tu	0200	035E	3.5E
	0751	0725	3.7F		0503	0741	3.2F		0458	0759	4.2F		0507	0800	3.5F		0609	0919	4.1F		0539	0900	3.8F
	1023	1309	4.2E		1053	1350	3.3E		1101	1351	4.3E		1114	1414	3.2E		1226	1523	3.9E		1204	1459	2.9E
	1640	1940	3.9F		1715	1955	3.0F		1721	2010	3.7F		1740	2013	2.8F		1849	2124	3.0F		1824	2114	2.6F
7 Th	0511	0129	4.3E	22 F	0200	035E	3.5E	7 Sa	0201	043E	4.3E	22 Su	0159	035E	3.5E	7 Tu	0321	038E	3.8E	22 W	0239	035E	3.5E
	1111	0814	4.0F		0532	0823	3.3F		0539	0848	4.3F		0536	0843	3.5F		0653	1000	3.7F		0611	0940	3.4F
	1726	2028	3.9F		1131	1435	3.2E		1150	1446	4.2E		1152	1456	3.1E		1315	1609	3.5E		1239	1527	2.9E
	2322				1753	2038	2.9F		1810	2059	3.5F		1817	2056	2.6F		1938	2206	2.6F		1855	2156	2.5F
8 F	0552	0217	4.3E	23 Sa	0234	034E	3.4E	8 Su	0251	041E	4.1E	23 M	0232	034E	3.4E	8 W	0402	034E	3.4E	23 Th	0320	035E	3.5E
	1200	0903	4.1F		0603	0906	3.4F		0623	0935	4.1F		0606	0925	3.5F		0738	1039	3.2F		0648	1019	3.2F
	1815	2117	3.7F		1211	1517	3.1E		1241	1538	4.0E		1232	1530	2.9E		1403	1653	3.0E		1314	1558	2.9E
					1834	2120	2.7F		1902	2144	3.2F		1853	2138	2.5F		2026	2247	2.2F		1931	2239	2.4F
9 Sa	0006	0306	4.2E	24 Su	0305	033E	3.3E	9 M	0337	039E	3.9E	24 Tu	0306	034E	3.4E	9 Th	0441	2.9E	2.9E	24 F	0403	3.3E	3.3E
	0638	0950	4.0F		0636	0948	3.3F		0712	1020	3.8F		0640	1005	3.3F		0822	1121	2.7F		0730	1101	2.9F
	1253	1548	4.0E		1255	1554	2.8E		1335	1627	3.6E		1311	1558	2.6E		1448	1744	2.6E		1353	1636	2.8E
	1910	2203	3.4F		1918	2202	2.5F		1957	2228	2.7F		1929	2219	2.2F		2113	2333	1.8F		2013	2327	2.2F
10 Su	0052	0353	3.9E	25 M	0335	032E	3.2E	10 Tu	0420	035E	3.5E	25 W	0343	033E	3.3E	10 F	0527	2.4E	2.4E	25 Sa	0449	3.1E	3.1E
	0728	1037	3.7F		0712	1030	3.1F		0802	1105	3.3F		0717	1046	3.0F		0906	1208	2.2F		0818	1150	2.6F
	1350	1640	3.6E		1340	1625	2.5E		1430	1719	3.0E		1351	1626	2.4E		1533	1845	2.2E		1436	1723	2.7E
	2009	2249	2.9F		2001	2243	2.1F		2051	2313	2.2F		2005	2302	2.0F		2208				2104		
11 M	0140	0438	3.5E	26 Tu	0408	3.0E	3.0E	11 W	0504	3.0E	3.0E	26 Th	0421	3.1E	3.1E	11 Sa	0027	1.4F	1.4F	26 Su	0024	2.1F	2.1F
	0822	1129	3.3F		0750	1114	2.8F		0852	1156	2.7F		0758	1131	2.7F		0318	0646	1.9E		0914	1248	2.3F
	1449	1740	3.1E		1425	1658	2.1E		1523	1822	2.5E		1430	1703	2.3E		0957	1300	1.8F		1528	1829	2.5E
	2109	2339	2.3F		2043	2329	1.7F		2148				2045	2352	1.8F		2319				2207		
12 Tu	0230	0530	3.0E	27 W	0445	2.8E	2.8E	12 Th	0505	1.7F	1.7F	27 F	0507	2.8E	2.8E	12 Su	0125	1.2F	1.2F	27 M	0126	2.0F	2.0F
	0918	1228	2.8F		0831	1204	2.4F		0252	0607	2.4E		0844	1223	2.3F		0430	0758	1.7E		0408	0712	2.5E
	1550	1852	2.6E		1510	1744	1.8E		0946	1252	2.2F		1620	1926	2.2E		1512	1756	2.1E		1026	1347	2.2F
	2218				2127				2259				2135				2338				2338		
13 W	0322	0037	1.7F	28 Th	0022	1.4F	1.4F	13 F	0102	1.3F	1.3F	28 Sa	0051	1.6F	1.6F	13 M	0222	1.2F	1.2F	28 Tu	0229	2.1F	2.1F
	1025	1331	2.4F		0217	0532	2.5E		0350	0727	2.0E		0259	0609	2.4E		0601	0904	1.7E		0540	0834	2.5E
	1659	1957	2.4E		0917	1258	2.1F		1058	1346	1.8F		0938	1319	2.1F		1242	1447	1.4F		1206	1449	2.1F
	2341				1601	1858	1.6E		1724	2023	2.1E		1607	1910	2.1E		1828	2139	2.1E		1800	2103	2.6E
14 Th	0428	0136	1.3F	29 F	0120	1.2F	1.2F	14 Sa	0159	1.1F	1.1F	29 Su	0151	1.6F	1.6F	14 Tu	0330	1.4F	1.4F	29 W	0343	2.4F	2.4F
	1149	1434	2.1F		0311	0640	2.2E		0514	0832	1.8E		0419	0730	2.2E		0712	1013	1.9E		0658	0954	2.8E
	1812	2057	2.2E		1015	1353	2.0F		1219	1439	1.6F		1052	1416	2.0F		1345	1556	1.5F		1330	1603	2.2F
					1707	2008	1.7E		1827	2121	2.1E		1721	2022	2.2E		1923	2239	2.4E		1910	2220	3.0E
15 F	0055	0235	1.1F	30 Sa	0218	1.2F	1.2F	15 Su	0301	1.0F	1.0F	30 M	0254	1.8F	1.8F	15 W	0540	1.9F	1.9F	30 Th	0512	3.0F	3.0F
	0554	0906	2.0E		0435	0756	2.1E		0638	0940	1.8E		0559	0851	2.3E		0808	1111	2.4E		0803	1102	3.4E
	1300	1651	2.1F		1138	1449	1.9F		1322	17													

Snow Passage Narrows, Alaska, 2016

F—Flood, Dir. 153° True E—Ebb, Dir. 331° True

July				August				September															
Slack	Maximum		knots																				
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								
1 F	0258	0607	3.7F	16 Sa	0308	0604	2.9F	1 M	0417	0724	4.1F	16 Tu	0352	0646	3.4F	1 Th	0513	0136	3.5E	16 F	0432	0058	3.7E
	0900	1154	3.9E		0919	1216	2.9E		1023	1310	4.0E		1004	1254	3.1E		1111	1409	3.6E		1037	1323	3.8E
	1533	1809	3.0F		1557	1806	2.1F		1654	1920	2.9F		1640	1900	2.6F		1743	2016	2.9F		1706	2008	3.5F
	2102				2057				2215				2148				2317				2258		
2 Sa	0347	0651	4.1F	17 Su	0346	0636	3.3F	2 Tu	0457	0800	3.9F	17 W	0421	0724	3.5F	2 F	0543	0218	3.3E	17 Sa	0510	0143	3.9E
	0952	1240	4.2E		0958	1251	3.1E		1103	1354	3.8E		1034	1319	3.3E		1142	1449	3.5E		1114	1404	4.0E
	1623	1853	3.2F		1633	1844	2.4F		1732	2000	2.9F		1704	1943	2.9F		1815	2056	2.9F		1741	2055	3.7F
	2149				2133				2256				2227				2355				2344		
3 Su	0432	0735	4.2E	18 M	0418	0712	3.5F	3 W	0533	0835	3.7F	18 Th	0451	0804	3.9F	3 Sa	0614	0301	3.1E	18 Su	0554	0235	4.0E
	1039	1327	4.2E		1032	1323	3.1E		1140	1439	3.7E		1104	1349	3.5E		1212	1524	3.4E		1154	1451	4.1E
	1707	1936	3.2F		1704	1923	2.6F		1808	2041	2.8F		1729	2028	3.1F		1847	2135	2.8F		1823	2142	3.8F
	2232				2208				2335				2309										
4 M	0513	0819	4.2F	19 Tu	0446	0751	3.6F	4 Th	0607	0908	3.3F	19 F	0525	0848	3.7E	4 Su	0036	0340	2.9E	19 M	0644	0956	3.5F
	1123	1416	4.0E		1104	1353	3.1E		1215	1519	3.4E		1137	1428	3.7E		1243	1555	3.2E		1240	1538	4.0E
	1749	2021	3.1F		1730	2006	2.7F		1844	2120	2.7F		1801	2114	3.3F		1923	2215	2.8F		1911	2229	3.7F
	2312				2243								2353										
5 Tu	0552	0859	3.9F	20 W	0514	0832	3.6F	5 F	0014	0322	3.1E	20 Sa	0605	0931	3.6F	5 M	0736	1030	2.5F	20 Tu	0741	1043	3.2F
	1206	1503	3.7E		1134	1423	3.1E		0641	0942	3.0F		1215	1511	3.8E		1317	1624	2.9E		1329	1624	3.8E
	1831	2103	2.9F		1755	2051	2.8F		1921	2159	2.6F		1841	2159	3.3F		2002	2256	2.6F		2004	2320	3.4F
	2352				2320																		
6 W	0631	0936	3.6F	21 Th	0546	0913	3.5F	6 Sa	0056	0359	2.8E	21 Su	0043	0336	3.7E	6 Tu	0208	0459	2.4E	21 W	0230	0516	3.4E
	1248	1546	3.4E		1206	1456	3.2E		0717	1018	2.7F		0654	1015	3.4F		0826	1114	2.1F		0843	1135	2.7F
	1913	2143	2.6F		1825	2134	2.9F		1323	1627	3.0E		1258	1554	3.8E		1351	1656	2.6E		1422	1716	3.3E
									1959	2239	2.4F		1928	2246	3.2F		2043	2348	2.3F		2101		
7 Th	0033	0342	3.2E	22 F	0002	0302	3.6E	7 Su	0141	0435	2.5E	22 M	0139	0426	3.6E	7 W	0301	0604	2.0E	22 Th	0333	0632	3.0E
	0710	1011	3.1F		0623	0954	3.4F		0759	1057	2.4F		0749	1102	3.1F		0923	1206	1.7F		0952	1235	2.2F
	1328	1625	3.1E		1241	1533	3.4E		1357	1659	2.7E		1348	1640	3.6E		1428	1740	2.3E		1518	1829	2.9E
	1955	2223	2.3F		1903	2218	2.9F		2039	2324	2.2F		2021	2339	3.0F		2130				2208		
8 F	0117	0419	2.8E	23 Sa	0051	0348	3.5E	8 M	0230	0521	2.1E	23 Tu	0240	0524	3.2E	8 Th	0403	0045	2.1F	23 F	0446	0747	2.7E
	0749	1048	2.7F		0708	1036	3.2F		0847	1143	2.0F		0850	1157	2.7F		1042	1304	1.8E		1122	1337	1.8F
	1406	1703	2.7E		1322	1613	3.4E		1432	1742	2.3E		1441	1736	3.2E		1508	1850	2.0E		1627	1951	2.6E
	2037	2305	2.0F		1949	2305	2.8F		2123				2119				2231				2337		
9 Sa	0203	0457	2.4E	24 Su	0146	0436	3.3E	9 Tu	0325	0618	1.9F	24 W	0346	0646	2.8F	9 F	0522	0143	2.0F	24 Sa	0604	0853	2.6E
	0829	1129	2.2F		0801	1124	2.9F		0947	1238	1.6F		1002	1259	2.9F		1220	1401	1.0F		1246	1440	1.5F
	1443	1750	2.4E		1409	1659	3.2E		1511	1856	2.0E		1541	1854	2.8E		1603	2006	1.8E		1751	2103	2.5E
	2120	2354	1.8F		2040				2220				2232				2358						
10 Su	0253	0555	2.0E	25 M	0001	0247	2.6F	10 W	0438	0801	1.7E	25 Th	0505	0804	2.7E	10 Sa	0639	0241	1.9F	25 Su	0713	1002	2.7E
	0915	1219	1.8F		0859	1221	2.5F		1121	1336	1.3F		1139	1401	1.9F		1330	1500	0.9E		1354	1656	1.5F
	1521	1855	2.1E		1502	1759	2.9E		1605	2004	1.9E		1658	2014	2.7E		1745	2118	1.9E		1905	2216	2.6E
	2214				2140				2340														
11 M	0354	0724	1.7E	26 Tu	0358	0658	2.7E	11 Th	0604	0907	1.7E	26 F	0005	0257	2.6F	11 Su	0109	0349	2.0F	26 M	0810	1103	2.9E
	1020	1313	1.5F		1011	1323	2.3F		1251	1433	1.1F		0625	0915	2.8E		0737	1044	1.9F		1451	1756	1.9F
	1611	1955	2.0E		1606	1920	2.7E		1731	2108	1.9E		1305	1508	1.7F		1425	1610	1.1E		2007	2315	2.9E
	2329				2300								1820	2129	2.7E		1900	2229	2.2E				
12 Tu	0518	0831	1.7E	27 W	0522	0819	2.7E	12 F	0052	0319	1.8F	27 Sa	0120	0455	2.9F	12 M	0203	0502	2.3F	27 Tu	0255	0622	3.1F
	1200	1409	1.3F		1152	1424	2.1F		0714	1018	2.0E		0733	1027	3.0F		0821	1127	2.3E		0857	1149	3.3E
	1724	2053	2.0E		1728	2036	2.7E		1358	1538	1.1F		1412	1659	1.8E		1509	1714	1.6F		1537	1830	2.3F
									1845	2216	2.1E		1927	2240	3.0E		1956	2316	2.6E		2059	2359	3.1E
13 W	0039	0248	1.5F	28 Th	0032	0319	2.5F	13 Sa	0149	0451	2.2F	28 Su	0221	0555	3.4F	13 Tu	0248	0544	2.8F	28 W	0341	0651	3.1F
	0640	0940	1.8E		0642	0935	2.8E		0809	1114	2.3E		0832	1124	3.3E		0858	1159	2.7E		0936	1227	3.5E
	1318	1509	1.2F		1318	1535	2.0F		1453	1651	1.3F		1510	1800	2.3F		1543	1759	2.2F		1614	1852	2.6F
	1835	2158	2.1E		1846	2154	2.9E		1939	2308	2.5E		2025	2334	3.3E		2045	2350	3.1E		2143		
14 Th	0136	0408	1.8F	29 F	0141	0505	3.0F	14 Su	0237	0540	2.7F	29 M	0315	0637	3.6F	14 W	0325	0620	3.1F	29 Th	0419	0707	3.1F
	0742	1047	2.2E		0749	1046	3.3E		0854	1155	2.6E		0921	1210	3								

Snow Passage Narrows, Alaska, 2016

F—Flood, Dir. 153° True E—Ebb, Dir. 331° True

October				November				December															
Slack		Maximum																					
	h	m	knots																				
1 Sa	0521	0156	3.2E	16 Su	0500	0132	4.1E	1 Tu	0618	0303	3.2E	16 W	0013	0310	4.2E	1 Th	0017	0321	3.0E	16 F	0049	0346	3.8E
	1110	0805	3.0F		1055	0802	3.7F		1142	0901	2.8F		0632	0921	3.4F		0642	0921	2.5F		0713	0947	3.0F
	1746	2031	3.1F		1725	1345	4.2E		1820	1453	3.4E		1206	1510	4.1E		1147	1455	3.4E		1235	1542	3.7E
	2337				2334	2038	4.0F		1820	2130	3.4E		1842	2156	4.1F		1827	2148	3.4F		1915	2221	3.6F
2 Su	0554	0240	3.2E	17 M	0546	0225	4.2E	2 W	0039	0343	3.0E	17 Th	0106	0400	3.9E	2 F	0057	0353	2.8E	17 Sa	0139	0431	3.4E
	1140	0845	3.0F		0546	0851	3.7F		0702	0943	2.6F		0726	1006	3.1F		0721	1002	2.3F		0803	1030	2.6F
	1816	2112	3.1F		1137	1435	4.3E		1213	1524	3.3E		1253	1556	3.8E		1220	1530	3.2E		1323	1625	3.2E
					1808	2126	4.1F		1856	2211	3.3F		1933	2242	3.7F		1904	2228	3.2F		2004	2303	3.0F
3 M	0016	0322	3.1E	18 Tu	0025	0319	4.1E	3 Th	0124	0418	2.7E	18 F	0201	0450	3.4E	3 Sa	0136	0418	2.5E	18 Su	0227	0519	2.9E
	0633	0925	2.8F		0638	0938	3.5F		0748	1025	2.2F		0822	1052	2.6F		0759	1044	2.1F		0853	1116	2.1F
	1211	1524	3.3E		1223	1524	4.1E		1245	1556	3.1E		1342	1642	3.4E		1257	1606	3.1E		1413	1711	2.7E
	1850	2152	3.1F		1855	2213	4.0F		1935	2254	3.0F		2026	2331	3.2F		1943	2311	2.8E		2052	2349	2.4F
4 Tu	0059	0401	2.9E	19 W	0120	0411	3.9E	4 F	0209	0451	2.3E	19 Sa	0256	0548	2.9E	4 Su	0214	0448	2.3E	19 M	0312	0617	2.5E
	0718	1006	2.6F		0735	1024	3.2F		0833	1109	1.9F		0919	1142	2.0F		0835	1131	1.8F		0945	1208	1.7F
	1243	1554	3.1E		1311	1610	3.8E		1320	1631	2.8E		1434	1736	2.8E		1342	1647	2.8E		1507	1820	2.1E
	1928	2234	3.0F		1948	2301	3.6F		2016	2341	2.6E		2121				2026	2359	2.4F		2144		
5 W	0147	0439	2.6E	20 Th	0218	0505	3.4E	5 Sa	0254	0530	1.9E	20 Su	0351	0656	2.5E	5 M	0251	0529	2.1E	20 Tu	0400	0718	2.2E
	0808	1049	2.2F		0835	1113	2.7F		0918	1200	1.5F		1024	1420	1.6F		0916	1226	1.6F		1048	1305	1.4F
	1316	1624	2.9E		1402	1658	3.4E		1400	1712	2.5E		1531	1857	2.3E		1434	1740	2.4E		1612	1937	1.8E
	2008	2320	2.7F		2044	2357	3.2F		2100				2227				2114				2257		
6 Th	0237	0525	2.2E	21 F	0317	0613	3.0E	6 Su	0341	0639	1.6E	21 M	0453	0757	2.2E	6 Tu	0334	0630	1.9E	21 W	0456	0814	2.0E
	0901	1137	1.7F		0939	1209	2.1F		1014	1257	1.2F		1142	1339	1.3F		1012	1325	1.5F		1202	1402	1.3F
	1351	1700	2.6E		1455	1803	2.8E		1448	1811	2.1E		1646	2008	2.0E		1541	1854	2.1E		1737	2040	1.7E
	2051				2145				2152				2353				2217				2347		
7 F		0013	2.4F	22 Sa		0100	2.7F	7 M	0438	0750	1.5E	22 Tu	0559	0854	2.1E	7 W	0434	0743	2.0E	22 Th	0601	0911	2.0E
	0330	0646	1.8E		0422	0725	2.6E		1145	1354	1.1F		1252	1440	1.2F		1143	1424	1.6F		1304	1504	1.3F
	1002	1232	1.3F		1057	1310	1.6F		1556	1928	1.9E		1814	2114	1.9E		1719	2015	2.1E		1853	2148	1.8E
	1429	1748	2.2E		1557	1927	2.4E		2306				2114				2347				2148		
8 Sa		0110	2.1F	23 Su		0203	2.3F	8 Tu	0546	0847	1.7E	23 W	0104	0446	1.5F	8 Th	0553	0853	2.2E	23 F	0659	1013	2.2E
	0434	0755	1.6E		1220	1411	1.3F		1255	1454	1.3F		1348	1722	1.5F		1300	1532	1.9F		1355	1735	1.8F
	1134	1329	1.0F		1720	2036	2.2E		1747	2044	2.0E		1924	2222	2.0E		1844	2137	2.4E		1952	2251	2.2E
	1515	1858	1.9E										2222				2137				2251		
9 Su		0205	1.9F	24 M		0303	2.1F	9 W	0035	0323	1.8F	24 Th	0201	0536	1.7F	9 F	0111	0352	2.0F	24 Sa	0223	0455	1.5F
	0548	0853	1.5E		0643	0931	2.4E		0646	0953	2.0E		0745	1052	2.6E		0700	1009	2.7E		0749	1106	2.6E
	1251	1426	0.9F		1328	1525	1.2E		1347	1605	1.7F		1435	1801	2.0F		1357	1650	2.5F		1440	1800	2.3F
	1631	2013	1.8E		1842	2147	2.2E		1907	2208	2.3E		2019	2317	2.4E		1949	2249	2.9E		2041	2338	2.7E
10 M	0017	0302	1.8F	25 Tu	0136	0520	2.2F	10 Th	0140	0430	2.2F	25 F	0251	0559	2.0F	10 Sa	0215	0501	2.5F	25 Su	0312	0538	1.9F
	0650	0956	1.7E		0739	1034	2.6E		0737	1049	2.6E		0827	1135	2.9E		0757	1108	3.3E		0832	1146	3.0E
	1347	1529	1.1F		1423	1743	1.7F		1432	1713	2.4F		1516	1821	2.4F		1448	1748	3.3F		1520	1815	2.8F
	1821	2133	2.0E		1947	2252	2.4E		2007	2309	2.9E		2104	2359	2.8E		2045	2341	3.6E		2124		
11 Tu	0123	0409	2.0F	26 W	0231	0603	2.4F	11 F	0234	0526	2.7F	26 Sa	0333	0607	2.3F	11 Su	0312	0554	3.1F	26 M		0019	3.1E
	0737	1049	2.1E		0825	1123	2.9E		0824	1131	3.3E		0905	1211	3.3E		0849	1153	3.9E		0911	1221	3.3E
	1431	1641	1.5F		1509	1819	2.1F		1513	1803	3.1F		1551	1835	2.9F		1535	1834	3.9F		1556	1843	3.3F
	1930	2243	2.4E		2041	2339	2.7E		2100	2354	3.5E		2145				2137				2203		
12 W	0214	0509	2.4F	27 Th	0317	0628	2.6F	12 Sa	0323	0612	3.2F	27 Su	0412	0636	3.2E	12 M		0027	4.1E	27 Tu	0435	0650	2.5F
	0818	1127	2.6E		0904	1202	3.2E		0910	1209	3.9E		0941	1244	3.5E		0403	0641	3.4F		0435	0650	2.5F
	1509	1736	2.2F		1547	1839	2.5F		1553	1847	3.7F		1623	1904	3.2F		0938	1234	4.2E		0947	1251	3.4E
	2026	2329	2.9E		2125				2149				2222				1618	1919	4.3F		1628	1919	3.6F
13 Th	0257	0553	2.9F	28 F	0356	0637	2.7F	13 Su	0409	0657	3.6F	28 M	0449	0712	2.8F	13 Tu		0113	4.3E	28 W	0512	0730	3.3E
	0856	1157	3.2E		0938	1237	3.5E		0955	1247	4.2E		1014	1316	3.5E		1023	1317	4.3E		1020	1319	3.5E
	1542	1820	2.9F		1620	1856	2.8F		1632	1933	4.1F		1652	1942	3.5F		1700	2007	4.4F		1658	2000	3.6F
	2115				2205				2237				2300				2313				2317		
14 F		0008	3.5E	29 Sa		0056	3.2E	14 M	0123	043E	4.3E	29 Tu	0158	033E	3.3E	14 W		0204	4.3E	29 Th	0217	032E	3.2E
	0338	0633	3.3F		0430	0702	2.8F		0455	0744	3.7F		0526	0754	2.8F		0536	0815	3.5F		0546	0813	2.6F
	0935	1228	3.7E		1010	1310	3.6E		1038	1330	4.3E		1045	1348	3.5E		1107	1406	4.2E		1052	1350	3.5E
	1614	1903	3.5F		1650	1927	3.1F		1712	2022	4.3F		1722	2024	3.6F		1743	2055	4.3F		1728	2042	3.6F
15 Sa		0047	3.9E	30 Su		0135	3.3E	15 Tu	0216	043E	4.3E	30 W	0242	032E	3.2E	15 Th		0257	4.1E	30 F	0253	030E	3.0E
	0418	0716	3.6F		0504	0737	2.9F		0541	0833	3.7F		0603	0838	2.7F		0623	0903	3.3F		0618	0857	2.6F
	1014	1303	4.1E		1041	1344	3.6E		1122	1420	4.3E		1116	1421	3.4E		1150	1456	4.0E		1125	1426	3.4E
	1648	1949	3.8F		1718	2006	3.3F		1755	2110	4.3F		175										

Boca de Finas, Alaska, 2016

F—Flood, Dir. 125° True E—Ebb, Dir. 315° True

January				February				March												
Slack		Maximum		Slack		Maximum		Slack		Maximum		Slack		Maximum						
	h m	h m	knots		h m	h m	knots		h m	h m	knots		h m	h m	knots					
1 F	0034	0427	0.4F	16 Sa	0425	0.5F	1 M	0501	0.3F	16 Tu	0933	1258	0.3E	1 Tu	0421	0.3F	16 W	0500	0.3F	
2 Sa		0505	0.4F	17 Su	0509	0.4F	2 Tu	0550	0.3F	17 W	1036	1422	0.3E	2 W	0504	0.3F	17 Th	0126	*	
3 Su		1223	*	18 M	1011	1338	0.3E	3 W	0658	0.3F	18 Th	1146	1532	0.3E	3 Th	0606	0.3F	18 F	0609	0.3F
4 M		1639	*	19 Tu	1104	1446	0.3E	4 Th	0309	*	19 F	1253	1639	0.3E	4 F	1132	*	19 Sa	1353	*
5 Tu		2232	*	20 W	1907	2239	0.4F	5 F	0803	0.3F	20 Sa	1932	2314	0.4F	5 Sa	1915	*	20 Su	1511	*
6 W		0552	0.3F	21 Th	0445	*	6 Sa	0458	*	21 Su	1438	1803	0.3E	6 Su	0418	*	21 M	2052	0.3F	
7 Th		1338	*	22 F	0541	*	7 Su	0854	0.3F	22 M	2051	0610	0.3E	7 M	0834	0.3F	22 Tu	0316	*	
8 F		2017	*	23 Sa	0617	0.4F	8 M	0803	0.3F	23 Tu	1601	1858	0.3E	8 Tu	1322	0.3F	23 W	0806	0.3F	
9 Sa		2351	*	24 Su	1106	0.4F	9 Tu	1432	0.3F	24 W	1521	1832	0.3E	9 W	2056	0.3F	24 Th	1511	*	
10 Su		0655	0.3F	25 M	0056	0.5F	10 W	1531	0.3F	25 Th	2125	0100	0.5F	10 Th	0237	*	25 F	2145	0.3F	
11 M		1436	*	26 Tu	0648	*	11 Th	1940	2329	0.4F	26 F	0121	0.5F	11 F	0729	*	26 Sa	0430	*	
12 Tu		2114	*	27 W	1157	0.4F	12 F	0309	*	27 Sa	0122	0.5F	12 Sa	0729	*	27 Su	0915	0.3F		
13 W		0233	*	28 Th	1354	0.4E	13 Sa	0803	0.3F	28 Su	0125	0.5F	13 Su	1447	0.3E	28 M	1621	*		
14 Th		0754	0.3F	29 F	1811	0.4E	14 Su	0945	0.3F	29 M	0126	0.5F	14 M	2148	0.3F	29 Tu	2237	0.4F		
15 F		1525	0.3F	30 Sa	0056	0.5F	15 M	1043	0.4F	30 Tu	0127	0.5F	15 Tu	0537	*	30 W	0418	*		
		2304	*	31 Su	0648	*		1239	1628	0.3E		1907	2239	0.4F		0834	0.3F		1019	0.3F
					1157	0.4F		1940	2329	0.4F		1907	2239	0.4F		1552	*		1714	*
					1811	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F
					2118	0.4E						1907	2239	0.4F		2241	0.3F		2322	0.4F

Boca de Finas, Alaska, 2016

F—Flood, Dir. 125° True E—Ebb, Dir. 315° True

April				May				June																
Slack	Maximum																							
	h	m	knots																					
1 F		0529	*	16 Sa		0257	*	1 Su		0138	*	16 M		0315	*	1 W		0301	*	16 Th		0352	*	
		1145	*			0810	*			0634	*			0858	*			0915	0.3F				1019	0.3F
		2003	0.3F			1436	*			1240	*			1454	*			1504	*				1615	*
						2105	0.3F			1958	0.3F			2053	0.3F			2043	0.4F				2059	0.3F
2 Sa		0212	*	17 Su		0359	*	2 M		0245	*	17 Tu		0402	*	2 Th	0028	0353	0.3E	17 F	0056	0435	0.3E	
		0659	*			0914	0.3F			0812	*			0951	0.3F		0707	1022	0.4F		0735	1115	0.3F	
		1356	*			1546	*			1429	*			1600	*			1616	*				1717	*
		2054	0.3F			2147	0.4F			2042	0.4F			2121	0.3F			2127	0.4F				2136	0.3F
3 Su		0325	*	18 M		0448	*	3 Tu		0337	*	18 W		0443	*	3 F	0109	0444	0.4E	18 Sa	0128	0512	0.3E	
		0821	0.3F			1011	0.3F			0918	0.3F			1047	0.3F		0756	1127	0.4F		0814	1200	0.4F	
		1511	*			1647	*			1539	*			1700	*			1719	*				1752	*
		2135	0.4F			2228	0.4F			2123	0.4F			2150	0.4F			2215	0.4F				2219	0.3F
4 M		0421	*	19 Tu		0522	*	4 W	0121	0426	0.3E	19 Th	0148	0514	0.3E	4 Sa	0150	0530	0.5E	19 Su	0200	0543	0.4E	
		0923	0.3F			1108	0.3F		0715	1026	0.4F		0757	1137	0.4F		0843	1217	0.5F		0851	1235	0.4F	
		1616	*			1730	*			1644	*			1739	*			1805	*				1820	*
		2217	0.4F			2304	0.4F			2207	0.4F			2224	0.4F		●	2308	0.4F				2306	0.3F
5 Tu		0503	*	20 W		0547	*	5 Th	0150	0510	0.4E	20 F	0211	0540	0.3E	5 Su	0232	0610	0.5E	20 M	0233	0611	0.4E	
		1029	0.4F			1152	0.4F		0805	1131	0.5F		0834	1215	0.4F		0930	1300	0.5F		0927	1304	0.4F	
		1711	*			1800	*			1735	*			1808	*			1845	*		○		1847	*
		2301	0.4F			2332	0.4F			2254	0.5F			2303	0.4F			2358	0.4F		○		2351	0.3F
6 W	0247	0539	0.3E	21 Th	0304	0609	0.3E	6 F	0224	0549	0.4E	21 Sa	0236	0605	0.4E	6 M	0316	0648	0.5E	21 Tu	0307	0636	0.4E	
	0810	1133	0.4F		0850	1226	0.4F		0853	1221	0.5F		0909	1246	0.4F		1015	1340	0.5F		1003	1330	0.5F	
		1753	*		○	1825	*		●	1817	*		○	1834	*			1926	*				1916	*
		2340	0.5F		○	2354	0.4F		●	2340	0.5F		○	2341	0.4F									
7 Th	0312	0612	0.3E	22 F	0324	0630	0.3E	7 Sa	0301	0626	0.5E	22 Su	0304	0629	0.4E	7 Tu	0401	0043	0.4F	22 W	0343	0032	0.3F	
	0900	1223	0.5F		0926	1253	0.4F		0941	1304	0.5F		0944	1312	0.4F		1058	0725	0.5E		1038	0701	0.4E	
		1831	*			1849	*			1855	*			1859	*			2015	0.5F				1948	0.5F
●																								
8 F		0017	0.5F	23 Sa	0347	0019	0.4F	8 Su	0341	0023	0.5F	23 M	0333	0017	0.4F	8 W	0446	0127	0.4F	23 Th	0421	0113	0.3F	
	0342	0646	0.4E		1000	0651	0.3E		1029	0702	0.5E		1019	0651	0.4E		1137	0807	0.4E		1110	0727	0.4E	
	0951	1307	0.5F			1318	0.4F			1346	0.5F			1339	0.5F			2118	*				2036	*
		1907	*			1912	*			1935	*			1924	*									
9 Sa		0053	0.5F	24 Su	0412	0048	0.4F	9 M	0423	0104	0.5F	24 Tu	0404	0053	0.4F	9 Th	0531	0214	0.4F	24 F	0502	0157	0.3F	
	0417	0722	0.4E		1034	0711	0.3E		1114	0742	0.5E		1053	0712	0.4E		1214	0858	0.3E		1141	0801	0.3E	
	1040	1351	0.5F			1348	0.4F			1432	0.5F			1411	0.5F			2215	*				2136	*
		1947	*			1934	*			2026	*			1953	*									
10 Su		0131	0.5F	25 M	0438	0120	0.4F	10 Tu	0506	0147	0.4E	25 W	0437	0130	0.3F	10 F	0620	0306	0.3F	25 Sa	0549	0249	0.3F	
	0454	0803	0.4E		1107	0731	0.3E		1158	0828	0.4E		1126	0737	0.4E		1248	0949	0.3E		1210	0848	0.3E	
	1128	1439	0.5F			1423	0.4F			1519	0.5F			1450	0.4F			2305	*				2226	*
		2036	*			1956	*			2131	*			2039	*									
11 M		0212	0.5F	26 Tu	0507	0155	0.4F	11 W	0552	0234	0.4F	26 Th	0512	0212	0.3F	11 Sa	0359	*	26 Su	0345	0345	0.3F		
	0535	0854	0.4E		1140	0757	0.3E		1241	0924	0.4E		1159	0813	0.3E		1034	*		0943	*		0943	*
	1216	1529	0.5F			1504	0.4F			1604	0.5F			1531	0.4F		1655	0.4F				1630	0.5F	
		2137	*			2031	*			2230	*			2148	*						○		2313	*
12 Tu		0258	0.4F	27 W	0538	0235	0.3F	12 Th	0644	0326	0.3F	27 F	0554	0301	0.3F	12 Su	0000	*	27 M	0443	*		0443	*
	0620	0950	0.4E		1215	0836	0.3E		1324	1017	0.3E		1233	0903	0.3E		0455	*		1033	*		1033	*
	1306	1618	0.4F			1548	0.4F			1648	0.4F			1614	0.4F			1116	*				1714	0.4F
		2234	*			2131	*			2327	*			2239	*			1739	0.4F		○			
13 W		0347	0.4F	28 Th	0617	0320	0.3F	13 F		0419	0.3F	28 Sa		0356	*	13 M		0117	*	28 Tu		0013	*	
	0715	1043	0.3E		1255	0926	0.3E		○	1107	*		○	0958	*			0631	*			0556	*	
	1400	1712	0.4F			1633	0.4F			1744	0.4F			1658	0.4F			1215	*			1125	*	
		2334	*			2228	*							2334	*			1843	0.3F			1809	0.4F	
14 Th		0438	0.3F	29 F		0410	*	14 Sa		0050	*	29 Su		0455	*	14 Tu		0222	*	29 W		0128	*	
		1141	*		○	1018	*			0521	*		○	1049	*			0831	*			0800	*	
		1904	0.3F			1726	0.3F			1209	*			1751	0.4F			1350	*			1303	*	
						2330	*			1924	0.3F							1946	0.3F			1914	0.4F	
15 F		0123	*	30 Sa		0508	*	15 Su		0221	*	30 M		0055	*	15 W		0308	*	30 Th		0231	0.3E	
		0544	*			1111	*			0754	*			0615	*			0924	*			0910	0.3F	
		1308	*			1840	0.3F			1341	*			1150	*			1501	*			1439	*	
		2018	0.3F							2017	0.3F			1858	0.4F			2024						

Boca de Finas, Alaska, 2016

F—Flood, Dir. 125° True E—Ebb, Dir. 315° True

July				August				September							
Slack		Maximum		Slack		Maximum		Slack		Maximum		Slack		Maximum	
h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m
1	F	0654	0327	16	Sa	0708	0353	1	M	0814	0508	16	Th	0902	0616
		1014	0.4E			1047	0.3E			1155	0.4E			1238	0.3E
		1557	0.4F			1657	0.3F			1756	0.4F			1842	0.5F
		2059	0.4F			2103	0.3F			2238	0.4F				
2	Sa	0744	0425	17	Su	0750	0442	2	Tu	0855	0551	17	W	0934	0644
		1119	0.4E			1139	0.4E			1234	0.5F			1302	0.3E
		1711	0.4F			1740	0.4F			1830	0.5F			1908	0.5F
		2149	0.4F			2148	0.3F			2338	0.4F				
3	Su	0831	0517	18	M	0829	0522	3	W	0934	0627	18	Th	1001	0712
		1209	0.5E			1217	0.4E			1308	0.5F			1321	0.3E
		1759	0.5F			1807	0.4F			1901	0.5F			1935	0.5F
		2246	0.4F			2240	0.3F								

Time meridian 135° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
 * Current weak and variable.

Boca de Finas, Alaska, 2016

F—Flood, Dir. 125° True E—Ebb, Dir. 315° True

October				November				December																					
Slack		Maximum		Slack		Maximum		Slack		Maximum		Slack		Maximum															
h	m	h	m	knots	h	m	h	m	knots	h	m	h	m	h	m	knots													
1	Sa	0021	0628	0.4F	16	Su	0001	0609	0.5F	1	Tu	0109	0701	0.4F	16	W	0123	0711	0.6F	1	Th	0128	0714	0.5F	16	F	0159	0748	0.5F
		1220	1554	0.4F			1147	1512	0.5F			1230	1552	0.4F			1239	1555	0.5F			1236	1549	0.4F			1307	1625	0.4F
2	Su	0050	0653	0.4F	17	M	0044	0644	0.5F	2	W	0135	0723	0.4F	17	Th	0207	0756	0.5F	2	F	0156	0740	0.5F	17	Sa	0241	0845	0.5F
		1240	1614	0.4F			1225	1546	0.5F			1301	1619	0.4F			1322	1639	0.4F			1313	1621	0.3F			1353	1711	0.4F
3	M	0117	0717	0.4F	18	Tu	0127	0721	0.5F	3	Th	0207	0743	0.4F	18	F	0254	0857	0.5F	3	Sa	0231	0814	0.4F	18	Su	0321	0948	0.5F
		1304	1637	0.4F			1303	1624	0.5F			1336	1648	0.3F			1409	1725	0.4F			1352	1655	0.3F			1445	1800	0.3F
4	Tu	0147	0739	0.4F	19	W	0213	0803	0.5F	4	F	0246	0810	0.4F	19	Sa	0342	1005	0.5F	4	Su	0310	0920	0.4F	19	M	0358	1041	0.5F
		1334	1702	0.4F			1344	1704	0.5F			1414	1719	0.3F			1501	1816	0.3F			1438	1733	0.3F			1539	1800	0.3F
5	W	0223	0758	0.4F	20	Th	0303	0904	0.5F	5	Sa	0329	0908	0.4F	20	Su	0427	1104	0.4F	5	M	0351	1017	0.4F	20	Tu	0434	1132	0.4F
		1408	1729	0.4F			1430	1749	0.4F			1458	1754	0.3F			1557	1816	0.3F			1531	1800	0.3F			1634	1800	0.3F
6	Th	0305	0827	0.4F	21	F	0355	1010	0.4F	6	Su	0413	1018	0.4F	21	M	0516	1214	0.4F	6	Tu	0433	1106	0.4F	21	W	0514	1240	0.4F
		1446	1729	0.3F			1521	1749	0.4F			1549	1754	0.3F			1658	1816	0.3F			1628	1800	0.3F			1744	1800	0.3F
7	F	0349	0915	0.3F	22	Sa	0448	1112	0.4F	7	M	0501	1119	0.3F	22	Tu	0638	1354	0.4F	7	W	0519	1212	0.4F	22	Th	0606	1358	0.4F
		1528	1702	0.3F			1615	1704	0.3F			1645	1719	0.3F			1926	1816	0.3F			1736	1733	0.3F			1736	1733	0.3F
8	Sa	0436	1010	0.3F	23	Su	0607	1243	0.3F	8	Tu	0603	1314	0.3F	23	W	0106	0754	0.4F	8	Th	0617	1335	0.4F	23	F	0120	0719	0.3F
		1614	1702	0.3F			1717	1704	0.3F			1801	1719	0.3F			1453	1816	0.3F			1927	1800	0.3F			1452	1800	0.3F
9	Su	0533	1105	0.3F	24	M	0028	0750	0.3F	9	W	0726	1428	0.3F	24	Th	0230	0835	0.4F	9	F	0033	0723	0.4F	24	Sa	0244	0809	0.3F
		1709	1709	0.3F			1430	1430	0.3F			1950	1950	0.3F			1541	2136	0.3F			1434	2052	0.3F			1539	2205	0.3F
10	M	0743	1409	0.3F	25	Tu	0204	0842	0.4F	10	Th	0156	0818	0.4F	25	F	0337	0907	0.4F	10	Sa	0229	0815	0.4F	25	Su	0403	0846	0.3F
		1832	1832	0.3F			2057	2057	0.3F			2101	2101	0.3F			1624	2230	0.3F			1624	2230	0.3F			1924	1924	0.3F
11	Tu	0126	0837	0.3F	26	W	0315	0923	0.4F	11	F	0308	0857	0.4F	26	Sa	0442	0935	0.4F	11	Su	0342	0901	0.4F	26	M	0513	0923	0.3F
		1514	1514	0.3F			2153	2153	0.3F			2201	2201	0.4F			1330	1945	0.3F			1617	1934	0.4F			1617	1934	0.4F
12	W	0247	0912	0.3F	27	Th	0419	1000	0.4F	12	Sa	0413	0937	0.4F	27	Su	0527	1006	0.4F	12	M	0452	0947	0.4F	27	Tu	0549	1005	0.3F
		1600	1600	0.3F			2248	2248	0.3F			1324	1945	0.4F			1355	2022	0.3E			1706	2021	0.5E			1706	2021	0.5E
13	Th	0349	0947	0.4F	28	F	0509	1036	0.4F	13	Su	0510	1022	0.4F	28	M	0003	0558	0.4F	13	Tu	0544	1039	0.4F	28	W	0026	0616	0.4F
		1640	1640	0.3F			2337	2337	0.4F			1357	2031	0.4E			1044	1421	0.4E			1044	1407	0.5E			1052	1424	0.3F
14	F	0446	1026	0.4F	29	Sa	0544	1107	0.4F	14	M	0554	1110	0.5F	29	Tu	0036	0624	0.4F	14	W	0039	0625	0.5F	29	Th	0056	0641	0.4F
		1419	1419	0.3E			2037	2037	0.3E			1433	2118	0.5E			1123	1449	0.4E			1133	1452	0.5E			1137	1458	0.3F
15	Sa	0531	1108	0.5F	30	Su	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		1442	1442	0.3E			2112	2112	0.3E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		2038	2038	0.3E			2147	2147	0.4E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		2038	2038	0.3E			2147	2147	0.4E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		2038	2038	0.3E			2147	2147	0.4E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		2038	2038	0.3E			2147	2147	0.4E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		2038	2038	0.3E			2147	2147	0.4E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0014	0612	0.4F	15	Tu	0042	0633	0.5F	30	W	0104	0649	0.4F	15	Th	0119	0704	0.5F	30	F	0121	0707	0.5F
		2038	2038	0.3E			2147	2147	0.4E			1515	2204	0.5E			1200	1519	0.4F			1221	1538	0.4F			1218	1533	0.3F
15	O	0531	1108	0.5F	31	M	0																						

Wrangell Narrows (off Petersburg), Alaska, 2016

F—Flood, Dir. 246° True E—Ebb, Dir. 062° True

January					February					March																			
Slack		Maximum		knots																									
h	m	h	m		h	m	h	m		h	m	h	m		h	m	h	m		h	m								
1 F		0557	0757	1.3E	16 Sa		0559	0901	2.1E	1 M		0652	0832	1.4E	16 Tu		0108	0443	2.7F	1 Tu		0607	0756	1.8E	16 W		0050	0418	2.5F
		1210	1527	2.1F			1210	1531	2.8F			1259	1645	2.0F			0726	1103	1.8E			1149	1551	2.1E			0657	1037	1.7E
		1810	1950	1.4E			1823	2025	1.8E			1927	2051	1.0E			1420	1736	2.7F			1848	2018	1.3E			2001	2323	1.1E
																	2023	2344	1.2E			2349							
2 Sa		0002	0356	2.5F	17 Su		0018	0401	3.1F	2 Tu		0042	0505	2.0F	17 W		0243	0559	2.6F	2 W		0415	1.9F	17 Th		0226	0538	2.3F	
		0649	1018	1.2E			0656	1021	1.9E			0749	0925	1.2E			0834	1218	1.8E			0704	0846		1.5E		0808	1153	1.6E
		1320	1637	2.0F			1328	1647	2.7F			1437	1759	2.0F			1538	1846	2.9F			1259	1708		2.0F		1512	1822	2.7F
		1910	2038	1.0E			1930	2251	1.5E			2036	2148	0.7E			2157					1955	2112		0.9E		2147		
3 Su		0102	0501	2.3F	18 M		0135	0512	2.9F	3 W		0226	0615	2.0F	18 Th		0402	0706	2.7F	3 Th		0103	0530	1.8F	18 F		0346	0646	2.5F
		0743	1120	1.2E			0757	1132	1.9E			0850	1236	1.2E			0946	1331	2.0E			0808	0944	1.2E			0927	1312	1.7E
		1436	1746	2.1F			1450	1800	2.8F			1553	1905	2.3F			1641	1946	3.2F			1456	1826	2.2F			1618	1923	3.0F
		2016	2345	0.8E			2045					2147					2325					2107	2218	0.6E			2311		
4 M		0229	0603	2.3F	19 Tu		0303	0621	2.9F	4 Th		0405	0719	2.3F	19 F		0504	0805	3.0F	4 F		0327	0645	2.0F	19 Sa		0448	0745	2.8F
		0840	1223	1.3E			0901	1242	2.1E			0950	1340	1.6E			1053	1432	2.4E			0915	1303	1.3E			1043	1419	2.1E
		1542	1846	2.3F			1600	1906	3.1F			1650	2002	2.7F			1735	2040	3.5F			1613	1930	2.6F			1713	2016	3.3F
		2124					2205					2252					2345					2217					2357		
5 Tu		0344	0700	2.4F	20 W		0416	0724	3.0F	5 F		0504	0814	2.6F	20 Sa		0016	0308	2.0E	5 Sa		0145	1.1E	20 Su		0257	2.0E		
		0936	1322	1.6E			1005	1347	2.4E			1046	1431	2.0E			1147	1517	2.7E			1018	1403		1.8E		1138	1501	2.4E
		1635	1942	2.6F			1659	2005	3.5F			1738	2051	3.2F			1822	2127	3.8F			1707	2022		3.1F		1759	2103	3.6F
		2229					2320					2345					2345					2314					2314		
6 W		0442	0753	2.6F	21 Th		0516	0821	3.3F	6 Sa		0553	0901	3.0F	21 Su		0051	0345	2.3E	6 Su		0237	1.7E	21 M		0327	2.3E		
		1028	1413	1.9E			1103	1442	2.7E			1137	1514	2.5E			1231	1555	2.9E			1114	1451		2.4E		1218	1536	2.6E
		1722	2031	3.0F			1751	2058	3.8F			1820	2134	3.7F			1903	2210	4.0F			1754	2108		3.7F		1839	2144	3.8F
		2323					2205					2252					2345					2314					2314		
7 Th		0530	0840	2.8F	22 F		0608	0912	3.5F	7 Su		0636	0944	3.4F	22 M		0721	1024	3.7F	7 M		0615	0923	3.5F	22 Tu		0700	1002	3.6F
		1116	1456	2.3E			1155	1528	3.0E			1224	1554	2.9E			1308	1631	3.0E			1204	1533	2.9E			1252	1610	2.7E
		1803	2115	3.3F			1838	2145	4.0F			1859	2215	4.1F			1939	2249	4.1F			1836	2150	4.1F			1915	2222	3.9F
							2205					2252					2345					2314					2314		
8 F		0009	0323	1.8E	23 Sa		0059	0357	2.4E	8 M		0110	0421	2.5E	23 Tu		0145	0455	2.6E	8 Tu		0044	0359	2.8E	23 W		0115	0429	2.7E
		0613	0922	3.1F			0655	0958	3.6F			0716	1025	3.7F			0757	1102	3.7F			0657	1005	4.0F			0734	1039	3.8F
		1200	1535	2.6E			1241	1609	3.1E			1309	1632	3.2E			1344	1706	2.9E			1251	1613	3.3E			1325	1643	2.7E
		1842	2156	3.7F			1920	2229	4.2F			1937	2254	4.4F			2012	2324	4.1F			1916	2230	4.5F			1946	2256	3.9F
9 Sa		0051	0402	2.0E	24 Su		0135	0437	2.5E	9 Tu		0149	0500	2.8E	24 W		0214	0529	2.6E	9 W		0124	0438	3.2E	24 Th		0144	0501	2.7E
		0652	1002	3.3F			0737	1041	3.7F			0755	1106	4.0F			0829	1136	3.7F			0737	1047	4.3F			0804	1113	3.8F
		1243	1611	2.8E			1322	1648	3.1E			1352	1710	3.3E			1419	1740	2.8E			1336	1653	3.5E			1358	1715	2.6E
		1918	2235	3.9F			1959	2310	4.2F			2014	2333	4.5F			2041	2356	4.0F			1955	2310	4.7F			2014	2327	3.8F
10 Su		0130	0440	2.2E	25 M		0208	0516	2.5E	10 W		0229	0538	2.9E	25 Th		0246	0601	2.5E	10 Th		0204	0517	3.4E	25 F		0214	0531	2.7E
		0730	1041	3.5F			0816	1121	3.7F			0834	1147	4.1F			0858	1209	3.6F			0817	1129	4.5F			0831	1144	3.7F
		1325	1646	3.0E			1401	1727	3.0E			1436	1747	3.3E			1455	1809	2.6E			1420	1734	3.5E			1433	1743	2.5E
		1953	2313	4.1F			2034	2348	4.2F			2052					2107					2035	2351	4.7F			2038	2357	3.7F
11 M		0210	0517	2.4E	26 Tu		0241	0554	2.5E	11 Th		0310	0617	3.0E	26 F		0319	0628	2.4E	11 F		0245	0557	3.4E	26 Sa		0247	0551	2.6E
		0807	1122	3.6F			0852	1158	3.6F			0915	1231	4.1F			0925	1243	3.4F			0858	1213	4.5F			0856	1217	3.6F
		1407	1717	3.1E			1439	1803	2.8E			1521	1824	3.2E			1533	1755	2.3E			1506	1815	3.3E			1509	1729	2.3E
		2028	2352	4.2F			2107					2132					2130					2115					2101		
12 Tu		0251	0553	2.5E	27 W		0316	0623	4.0F	12 F		0353	0656	2.9E	27 Sa		0355	0605	3.5F	12 Sa		0327	0637	3.3E	27 Su		0322	0532	2.5E
		0845	1203	3.6F			0925	1234	3.4F			0959	1316	3.9F			0952	1319	3.1F			0941	1257	4.3F			0921	1252	3.3F
		1450	1739	3.1E			1518	1836	2.5E			1610	1858	2.9E			1613	1812	2.2E			1553	1857	2.9E			1548	1746	2.2E
		2105					2136					2214					2156					2157					2126		
13 W		0333	0628	2.5E	28 Th		0352	0705	2.1E	13 Sa		0439	0737	2.7E	28 Su		0434	0633	2.2E	13 Su		0412	0719	3.0E	28 M		0359	0602	2.5E
		0927	1247	3.5F			0957	1311	3.1F			1048	1405	3.6F			1023	1400	2.8F			1028	1345	3.9F			0950	1331	3.0F
		1536	1805	2.9E			1558	1825	2.2E			1702	1																

Wrangell Narrows (off Petersburg), Alaska, 2016

F—Flood, Dir. 246° True E—Ebb, Dir. 062° True

April				May				June															
Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum										
	h	m	knots	h	m	knots	h	m	knots	h	m	knots	h	m	knots								
1 F	0031	0452	1.8F	16 Sa	0322	0620	2.3F	1 Su	0212	0537	2.1F	16 M	0349	0646	2.5F	1 W	0408	0715	3.2F	16 Th	0451	0753	2.8F
	0732	0912	1.4E		0900	1239	1.5E		0812	0958	1.4E		0934	1300	1.4E		0959	1324	2.0E		1047	1405	1.4E
	1340	1744	2.3F		1545	1852	2.9F		1435	1813	2.8F		1600	1908	2.9F		1618	1934	3.5F		1657	2006	2.8F
	2031	2150	0.8E		2229				2102				2209				2221				2245		
	2251†	0.7E			0143	1.5E		2 M	0338	0645	2.6F	17 Tu	0440	0738	2.8F	2 Th	0502	0811	3.7F	17 F	0534	0840	3.1F
2 Sa	0248	0610	2.0F	17 Su	0423	0719	2.6F		0920	1254	1.7E		1038	1356	1.6E		1101	1421	2.3E		1136	1450	1.6E
	0842	1057	1.2E		1020	1349	1.7E		1552	1913	3.2F		1650	1957	3.0F		1714	2027	3.8F		1741	2050	3.0F
	1527	1852	2.6F		1641	1945	3.1F		2201				2251				2312				2328		
	2139				2314				0132	2.0E		18 W	0525	0826	2.1E	3 F	0552	0902	4.1F	18 Sa	0614	0923	3.3F
3 Su	0410	0716	2.5F	18 M	0513	0810	3.0F	3 Tu	0436	0743	3.1F		1126	1440	1.8E		1157	1512	2.6E		1218	1530	1.8E
	0949	1330	1.7E		1118	1435	2.0E		1024	1354	2.2E		1734	2041	3.2F		1806	2116	4.0F		1822	2130	3.1F
	1632	1949	3.2F		1728	2032	3.3F		1650	2005	3.6F		2327				0245	3.1E		0305	0305	2.3E	
	2238				2345				2253				0258	2.3E			0552	0902	4.1F		0614	0923	3.3F
4 M	0505	0811	3.1F	19 Tu	0556	0856	3.3F	4 W	0526	0834	3.7F	19 Th	0604	0909	3.3F	4 Sa	0639	0950	4.4F	19 Su	0651	1003	3.5F
	1049	1423	2.3E		1157	1511	2.2E		1121	1445	2.6E		1205	1518	2.0E		1249	1558	2.8E		1257	1608	1.9E
	1723	2038	3.7F		1808	2114	3.5F		1740	2053	4.0F		1813	2121	3.3F		1854	2203	4.1F		1858	2208	3.1F
	2328				2345				2341				0003	0333	2.5E	5 Su	0725	1038	4.6F	20 M	0724	1040	3.7F
5 Tu	0551	0859	3.7F	20 W	0633	0937	3.5F	5 Th	0612	0922	4.2F	20 F	0641	0948	3.5F		1336	1644	2.8E		1335	1644	2.0E
	1143	1509	2.8E		1231	1545	2.4E		1214	1531	3.0E		1849	2157	3.3F		1941	2249	4.1F		1932	2245	3.2F
	1809	2122	4.1F		1845	2152	3.6F		1827	2138	4.3F		0003	0333	2.5E	5 Su	0725	1038	4.6F	20 M	0724	1040	3.7F
6 W	0013	0334	3.0E	21 Th	0040	0401	2.7E	6 F	0027	0351	3.5E	21 Sa	0038	0406	2.6E	6 M	0133	0459	3.6E	21 Tu	0128	0448	2.7E
	0634	0943	4.2F		0708	1014	3.7F		0656	1007	4.6F		0714	1025	3.7F		0810	1124	4.6F		0756	1117	3.7F
	1232	1552	3.2E		1304	1618	2.4E		1303	1615	3.2E		1317	1628	2.1E		1422	1731	2.7E		1413	1719	2.0E
	1852	2204	4.5F		1918	2226	3.6F		1912	2222	4.4F		1921	2231	3.3F		2027	2335	3.9F		2005	2323	3.2F
7 Th	0056	0414	3.4E	22 F	0111	0433	2.7E	7 Sa	0111	0433	3.7E	22 Su	0114	0438	2.7E	7 Tu	0218	0544	3.4E	22 W	0208	0504	2.7E
	0716	1027	4.6F		0738	1048	3.8F		0740	1053	4.8F		0744	1100	3.7F		0853	1209	4.4F		0827	1155	3.8F
	1319	1634	3.4E		1337	1651	2.4E		1349	1700	3.1E		1353	1701	2.1E		1507	1818	2.5E		1453	1749	2.0E
	1934	2246	4.6F		1947	2258	3.6F		1957	2307	4.3F		1950	2306	3.3F		2113				2039		
8 F	0137	0454	3.7E	23 Sa	0143	0503	2.7E	8 Su	0155	0516	3.7E	23 M	0151	0502	2.6E	8 W	0303	0621	3.7E	23 Th	0249	0603	3.1F
	0758	1111	4.8F		0806	1121	3.7F		0824	1139	4.7F		0812	1135	3.7F		0937	1254	4.1F		0900	1234	3.7F
	1404	1716	3.4E		1412	1721	2.3E		1435	1745	3.0E		1431	1728	2.0E		1552	1907	2.2E		1534	1742	2.0E
	2015	2328	4.6F		2012	2330	3.4F		2041	2352	4.1F		2017	2342	3.1F		2200				2117		
9 Sa	0219	0535	3.7E	24 Su	0217	0520	2.6E	9 M	0238	0600	3.5E	24 Tu	0228	0445	2.6E	9 Th	0349	0717	3.3F	24 F	0332	0544	2.7E
	0840	1155	4.7F		0831	1154	3.6F		0908	1224	4.5F		0840	1211	3.6F		1022	1340	3.8E		0937	1315	3.6F
	1450	1800	3.2E		1449	1720	2.1E		1522	1833	2.6E		1510	1709	1.9E		1640	1956	1.9E		1619	1819	2.0E
	2057				2036				2126				2048				2251				2201		
10 Su	0302	0618	3.5E	25 M	0253	0504	3.2F	10 Tu	0324	0646	3.1E	25 W	0307	0516	2.6E	10 F	0439	0806	2.9E	25 Sa	0420	0628	2.5E
	0924	1240	4.5F		0857	1230	3.5F		0954	1311	4.1F		0911	1251	3.4F		1108	1429	3.3F		1020	1401	3.4F
	1537	1846	2.8E		1528	1723	2.1E		1611	1924	2.2E		1553	1743	1.9E		1730	2050	1.6E		1708	1904	2.0E
	2140				2103				2215				2124				2347				2253		
11 M	0056	0405	4.0F	26 Tu	0041	0301	3.0F	11 W	0412	0736	2.6E	26 Th	0350	0557	2.7E	11 Sa	0532	0902	1.7E	26 Su	0514	0717	2.3E
	0347	0702	3.1F		0926	1308	3.2F		1043	1402	3.6F		0948	1334	3.2F		1159	1527	3.0F		1108	1454	3.2F
	1010	1327	4.1F		1610	1759	2.0E		1703	2019	1.8E		1640	1827	1.8E		1822	2148	1.4E		1800	1956	1.9E
	1628	1936	2.3E		2135				2311				2208				0251	2.5F			2354		
	2228				0122	2.6F		12 Th	0504	0833	2.1E	27 F	0439	0642	2.4E	12 Su	0051	0358	2.3F	27 M	0614	0810	2.6F
12 Tu	0435	0752	2.6E	27 W	0412	0616	2.5E		1138	1500	3.2F		1032	1423	3.0F		1257	1630	2.7F		1205	1556	3.0F
	1102	1421	3.5F		1002	1353	2.9F		1800	2121	1.5E		1731	1915	1.7E		1917	2248	1.4E		1855	2205	1.8E
	1723	2036	1.8E		1658	1842	1.8E		0018	0325	2.4F		2301				0200	0506	2.2F		0614	0810	2.6F
	2324				2215				0603	0939	1.6E		0244	2.3F			0733	1107	1.2E		0719	0914	1.6E
13 W	0529	0856	2.0E	28 Th	0501	0701	2.2E	13 F	0603	0939	1.6E	28 Sa	0534	0732	2.1E	13 M	1403	1730	2.6F	28 Tu	1314	1702	3.0F
	1203	1527	3.0F		1046	1445	2.6F		1241	1610	2.8F		1124	1522	2.8F		2013	2348	1.4E		1954	2321	1.9E
	1824	2145	1.3E		1753	1931	1.5E		1902	2228	1.3E		1827	2009	1.5E		0305	0606	2.3F		1314	1702	3.0F
14 Th	0037	0353	2.4F	29 F	0307	0701	2.0F	14 Sa	0134	0441	2.2F	29 Su	0010	0351	2.2F	14 Tu	0840	1209	1.1E	29 W	0232		

Wrangell Narrows (off Petersburg), Alaska, 2016

F—Flood, Dir. 246° True E—Ebb, Dir. 062° True

July					August					September																										
Slack		Maximum			Slack		Maximum			Slack		Maximum			Slack		Maximum																			
	h	m	h	m	knots		h	m	h	m	knots		h	m	h	m	knots		h	m	h	m	knots													
1 F		0442	0751	0130	2.5E	16 Sa		0503	0811	0152	1.8E	1 M		0612	0921	0303	2.9E	16 Tu		0603	0916	0257	2.3E	1 Th		0050	0412	0412	3.0E	16 F		0029	0352	0029	3.0E	
		1045	1403	0226	2.9E			1105	1423	0226	2.5E			1233	1534	0303	2.9E			1210	1525	0257	2.3E			0719	1027	0427	4.2F			0652	1006	0652	4.3F	
		1655	2006	0226	2.9E			1712	2022	0226	2.5E			1830	2135	0303	2.9E			1819	2126	0257	2.3E			1326	1635	0427	4.2F			1259	1615	1259	3.0E	
		2248						2256																			1938	2243	0427		4.2F		1913	2224	1913	4.2F
2 Sa		0536	0845	0226	2.9E	17 Su		0548	0858	0239	2.1E	2 Tu		0658	1007	0347	3.2E	17 W		0641	0956	0337	2.6E	2 F		0754	1105	0448	3.0E	17 Sa		0730	1045	0448	3.0E	
		1146	1457	0226	2.9E			1153	1508	0226	2.5E			1314	1616	0347	3.2E			1250	1603	0337	2.6E			1356	1744	0448	3.0E			1339	1651	1339	3.3E	
		1750	2059	0226	2.9E			1758	2106	0226	2.5E			1916	2220	0347	3.2E			1858	2206	0337	2.6E			2013	2319	0448	3.0E			1951	2305	1951	4.4F	
		2341						2342																												
3 Su		0625	0936	0315	3.2E	18 M		0628	0940	0320	2.4E	3 W		0740	1050	0429	3.2E	18 Th		0718	1034	0414	2.9E	3 Sa		0826	1139	0523	2.9E	18 Su		0808	1125	0523	2.9E	
		1239	1545	0315	3.2E			1153	1547	0315	3.2E			1350	1657	0429	3.2E			1328	1640	0414	2.9E			1428	1744	0523	2.9E			1419	1728	1419	3.4E	
		1841	2148	0315	3.2E			1839	2147	0315	3.2E			1958	2303	0429	3.2E			1934	2245	0414	2.9E			2044	2354	0523	2.9E			2030	2347	2030	4.4F	

Time meridian 135° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
 † See page 206 for the remaining currents on this day.

Wrangell Narrows (off Petersburg), Alaska, 2016

F—Flood, Dir. 246° True E—Ebb, Dir. 062° True

October				November				December															
Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum										
	h	m	knots		h	m	knots		h	m	knots		h	m	knots								
1 Sa	0108	0425	2.8E	16 Su	0054	0409	3.3E	1 Tu	0156	0506	2.3E	16 W	0211	0519	3.0E	1 Th	0215	0519	2.0E	16 F	0245	0554	2.7E
	0728	1036	4.0F		0706	1019	4.5F		0757	1112	3.5F		0814	1125	4.2F		0805	1125	3.2F		0849	1158	3.9F
	1324	1642	2.8E		1311	1628	3.6E		1359	1710	2.7E		1413	1733	3.6E		1411	1646	2.6E		1441	1807	3.3E
	1947	2255	3.9F		1931	2244	4.7F		2017	2337	3.7F		2042	2359	4.6F		2027	2355	3.6F		2115		
2 Su	0142	0458	2.7E	17 M	0140	0449	3.3E	2 W	0232	0528	2.1E	17 Th	0258	0606	2.8E	2 F	0253	0506	1.9E	17 Sa	0330	0642	4.4F
	0757	1108	3.8F		0747	1101	4.5F		0821	1146	3.2F		0859	1212	3.9F		0833	1203	3.0F		0937	1244	3.6F
	1355	1713	2.8E		1352	1706	3.7E		1434	1649	2.6E		1459	1818	3.3E		1449	1658	2.6E		1528	1853	2.9E
	2016	2328	3.8F		2012	2328	4.7F		2042				2128				2055				2200		
3 M	0216	0528	2.5E	18 Tu	0225	0532	3.2E	3 Th	0310	0013	3.5F	18 F	0346	0046	4.3F	3 Sa	0333	0032	3.5F	18 Su	0417	0732	2.2E
	0823	1139	3.6F		0747	1144	4.3F		0847	0506	2.0E		0948	0657	2.4E		0906	0524	1.9E		1026	1332	3.2F
	1428	1738	2.6E		1435	1746	3.5E		1511	1222	3.0F		1547	1300	3.5F		1529	1243	2.8F		1616	1942	2.5E
	2041				2055				2110	1716	2.6E		2217	1908	2.8E		2128	1735	2.6E		2246		
4 Tu	0253	0000	3.6F	19 W	0312	0014	4.5F	4 F	0352	0051	3.2F	19 Sa	0438	0136	3.9F	4 Su	0417	0113	3.2F	19 M	0506	0824	1.9E
	0846	1212	3.4F		0911	0616	2.8E		0917	0539	1.9E		1044	0752	2.0E		0944	0604	1.8E		1121	1424	2.8F
	1503	1716	2.5E		1520	1229	4.0F		1551	1302	2.6F		1639	1352	3.0F		1615	1326	2.5F		1709	2036	2.0E
	2106				2141	1828	3.2E		2143	1755	2.4E		2311	2005	2.3E		2207	1819	2.4E		2335		
5 W	0331	0035	3.4F	20 Th	0402	0101	4.2F	5 Sa	0438	0133	2.9F	20 Su	0535	0232	3.4F	5 M	0506	0158	3.0F	20 Tu	0557	0921	1.6E
	0911	0528	2.1E		0959	0706	2.4E		0955	0621	1.7E		1149	0854	1.6E		1032	0650	1.7E		1223	1528	2.4F
	1540	1248	3.0F		1608	1317	3.5F		1638	1348	2.2F		1737	1455	2.6F		1707	1417	2.3F		1806	2137	1.5E
	2134				2232	1917	2.8E		2224	1838	2.2E		2311	2111	1.8E		2253	1906	2.2E				
6 Th	0414	0114	3.0F	21 F	0456	0153	3.7F	6 Su	0531	0223	2.6F	21 M	0636	0340	3.0F	6 Tu	0559	0252	2.8F	21 W	0652	1022	1.4E
	0940	0602	1.9E		1055	0806	1.9E		1043	0707	1.5E		1305	1001	1.4E		1132	0740	1.6E		1332	1639	2.2F
	1621	1328	2.6F		1702	1412	3.0F		1733	1443	1.9F		1842	1612	2.3F		1807	1518	2.1F		1809	2242	1.2E
	2209				2332	2023	2.2E		2315	1927	1.9E			2221	1.5E		2349	1958	1.9E				
7 F	0502	0158	2.7F	22 Sa	0558	0256	3.2F	7 M	0630	0325	2.4F	22 Tu	0743	0450	2.8F	7 W	0657	0355	2.7F	22 Th	0749	1124	1.4E
	1016	0643	1.7E		1207	0917	1.5E		1151	0759	1.2E		1421	1109	1.4E		1252	0837	1.4E		1442	1744	2.3F
	1709	1415	2.2F		1803	1521	2.5F		1837	1553	1.8F		1955	1723	2.3F		1912	1631	2.1F		2018	2347	1.1E
	2251				2332	2140	1.8E			2021	1.6E			2329	1.4E			2057	1.5E				
8 Sa	0558	0253	2.3F	23 Su	0046	0414	2.9F	8 Tu	0022	0439	2.4F	23 W	0236	0552	2.8F	8 Th	0101	0503	2.7F	23 F	0247	0605	2.6F
	1102	0730	1.3E		0708	1031	1.3E		0733	0900	1.0E		0853	1217	1.5E		0756	1121	1.5E		0847	1226	1.5E
	1806	1515	1.8F		1335	1645	2.3F			1013	0.9E		1527	1824	2.5F		1427	1743	2.4F		1543	1843	2.4F
	2347				1913	2256	1.5E			1054	0.9E		2114				2021	2342	1.4E		2132		
9 Su	0701	0404	2.1F	24 M	0207	0526	2.8F	9 W	0157	0549	2.6F	24 Th	0338	0037	1.4E	9 F	0230	0607	2.9F	24 Sa	0349	0700	2.6F
	1212	0822	1.0E		0831	1147	1.3E		0836	1207	1.3E		0952	0647	2.9F		0856	1228	1.9E		0942	1324	1.7E
	1911	1633	1.7F		1456	1756	2.4F		1514	1821	2.3F		1622	1319	1.8E		1539	1847	2.9F		1636	1936	2.7F
	2251				2033				2054				2227	2.8F		2129					2241		
10 M	0113	0525	2.2F	25 Tu	0009	0009	1.6E	10 Th	0323	0027	1.4E	25 F	0431	0139	1.6E	10 Sa	0346	0054	1.7E	25 Su	0443	0750	2.8F
	0810	1139	0.7E		0319	0628	3.0F		0935	0648	3.0F		1036	0737	3.1F		0952	0706	3.2F		1031	1413	2.0E
	1433	1753	1.9F		0956	1306	1.6E		1614	1919	2.9F		1708	1406	2.1E		1636	1327	2.4E		1721	2025	3.0F
	2020	2155	1.1E		1600	1856	2.7F		2158				2318	3.1F		2233	1945	3.4F		2332			
	2250				2156					0128	1.9E			2.1E									
11 Tu	0304	0000	1.1E	26 W	0417	0722	3.2F	11 F	0423	0740	3.4F	26 Sa	0517	0225	1.8E	11 Su	0447	0155	2.1E	26 M	0530	0837	2.9F
	0917	0632	2.5F		1049	1405	2.0E		1027	1359	2.4E		1113	0823	3.2F		0445	0800	3.6F		1115	1454	2.3E
	1552	1248	1.1E		1652	1949	3.0F		1703	2010	3.5F		1749	1444	2.4E		1727	1420	2.9E		1803	2110	3.3F
	2127				2259				2256				2356	3.4F		2331							
12 W	0409	0107	1.5E	27 Th	0506	0811	3.4F	12 Sa	0514	0220	2.4E	27 Su	0558	0304	2.0E	12 M	0540	0248	2.4E	27 Tu	0612	0319	1.7E
	1014	0727	3.0F		1124	1440	2.3E		1115	0828	3.8F		1148	0904	3.3F		1136	0851	3.9F		1156	0919	3.0F
	1645	1344	1.7E		1736	2036	3.4F		1748	1444	3.0E		1826	1518	2.6E		1815	1507	3.3E		1841	2151	3.5F
	2227				2342				2348					3.6F				4.4F					
13 Th	0459	0201	2.1E	28 F	0548	0253	2.3E	13 Su	0600	0307	2.8E	28 M	0635	0339	2.1E	13 Tu	0024	0336	2.7E	28 W	0048	0356	1.9E
	1103	0814	3.5F		1153	0854	3.6F		1201	0912	4.1F		1223	0942	3.4F		0629	0938	4.1F		0650	0957	3.1F
	1730	1430	2.3E		1815	1512	2.6E		1831	1526	3.4E		1901	1552	2.7E		1224	1552	3.6E		1236	1607	2.6E
	2320				2342	2118	3.6F		2348	2143	4.5F		2356	2210	3.7F		1901	2214	4.6F		1915	2229	3.7F
14 F	0544	0247	2.6E	29 Sa	0016	0328	2.																

Sergius Narrows, Peril Strait, Alaska, 2016

F—Flood, Dir. 059° True E—Ebb, Dir. 241° True

January				February				March									
Slack		Maximum		Slack		Maximum		Slack		Maximum		Slack		Maximum			
	h m	h m	knots		h m	h m	knots		h m	h m	knots		h m	h m	knots		
1	0333	0549	3.5E	16	0332	0602	5.1E	1	0012	0012	4.9F	16	0115	0115	5.2F		
F	0947	1218	4.7F	Sa	0949	1229	6.4F	M	0429	0645	3.1E	Tu	0337	0601	3.6E		
○	1557	1811	3.1E	○	1603	1831	4.6E	○	1049	1323	4.3F	○	0952	1242	4.6F		
	2209				2215				1706	1914	2.6E		1615	1828	2.9E		
									2314				2218				
2		0044	4.8F	17		0058	6.3F	2		0149	4.3F	2		0108	4.3F		
Sa	0428	0645	3.0E	Su	0435	0711	4.6E	Tu	0534	0750	2.8E	W	0441	0700	3.0E		
	1045	1314	4.3F		1055	1334	5.9F		1156	1424	4.1F		1104	1342	4.2F		
	1658	1912	2.6E		1712	1950	4.0E		1817	2024	2.4E		1728	1935	2.5E		
	2308				2323								2336				
3		0140	4.4F	18		0204	5.8F	3		0022	0251	4.2F	3		0210	4.1F	
Su	0529	0755	2.8E	M	0544	0848	4.4E	W	0641	0903	2.8E	Th	0555	0811	2.8E		
	1146	1414	4.1F		1203	1446	5.7F		1259	1530	3.4E		1217	1448	4.2E		
	1804	2029	2.5E		1825	2151	4.0E		1922	2148	2.6E		1842	2052	2.5E		
4	0009	0240	4.3F	19	0031	0319	5.7F	4	0124	0357	4.4F	4	0048	0318	4.3F		
M	0630	1022	2.9E	Tu	0652	1034	4.7E	Th	0740	1109	3.3E	F	0705	0932	3.1E		
	1245	1517	4.3F		1309	1612	5.8F		1356	1640	4.9F		1322	1558	4.8F		
	1906	2255	2.8E		1933	2313	4.6E		2017	2350	3.3E		1944	2239	3.2E		
5	0107	0342	4.5F	20	0135	0443	6.0F	5	0219	0503	5.2F	5	0149	0429	5.0F		
Tu	0725	1118	3.4E	W	0755	1140	5.4E	F	0832	1153	4.2E	Sa	0803	1112	4.0E		
	1339	1625	4.7F		1409	1727	6.4F		1447	1737	5.8F		1418	1707	5.7F		
	2000	2344	3.3E		2033				2105				2036	2350	4.3E		
6	0200	0444	4.9F	21		0011	5.2E	6		0018	4.2E	6	0242	0530	6.1F		
W	0815	1156	4.0E	Th	0233	0548	6.5F	Sa	0309	0555	6.1F	Su	0854	1202	5.1E		
	1429	1721	5.4F		0851	1232	5.9E		0919	1223	5.1E		1507	1759	6.9F		
	2047				1503	1820	7.0F		1534	1822	6.8F		2123				
					2126				2149								
7		0017	3.8E	22		0059	5.7E	7		0045	5.1E	7		0026	5.4E		
Th	0248	0535	5.6F	F	0325	0637	7.0F	Su	0354	0639	7.0F	M	0330	0618	7.3F		
	0900	1217	4.5E		0941	1318	6.3E		1003	1257	5.9E		0941	1240	6.2E		
	1515	1804	6.1F		1552	1903	7.4F		1617	1903	7.7F		1553	1842	8.0F		
	2131				2212				2231				2207				
8		0034	4.3E	23		0142	6.0E	8		0119	5.9E	8		0102	6.4E		
F	0333	0617	6.2F	Sa	0413	0716	7.3F	M	0437	0720	7.8F	Tu	0415	0702	8.3F		
	0942	1238	5.2E		1026	1358	6.4E		1046	1334	6.7E		1026	1319	7.0E		
	1557	1842	6.8F	○	1636	1939	7.6F	●	1659	1944	8.4F	●	1637	1924	8.9F		
	2212				2255				2313				2250				
9		0058	4.9E	24		0220	6.0E	9		0156	6.6E	9		0140	7.3E		
Sa	0416	0656	6.9F	Su	0456	0751	7.4F	Tu	0519	0803	8.4F	W	0459	0745	9.0F		
●	1023	1309	5.8E		1107	1432	6.3E		1128	1413	7.2E		1110	1358	7.6E		
	1638	1921	7.4F		1717	2012	7.6F		1740	2027	8.9F		1720	2007	9.3F		
	2252				2334				2354				2333				
10		0130	5.5E	25		0251	5.9E	10		0236	7.1E	10		0220	7.7E		
Su	0456	0737	7.4F	M	0536	0824	7.3F	W	0602	0848	8.7F	Th	0542	0829	9.4F		
	1103	1345	6.3E		1146	1455	6.1E		1212	1455	7.4E		1154	1440	7.8E		
	1717	2001	7.9F		1756	2044	7.5F		1823	2111	9.0F		1803	2051	9.4F		
	2332																
11		0208	6.0E	26		0310	5.7E	11		0308	0318	7.2E	11		0302	7.8E	
M	0536	0820	7.8F	Tu	0615	0857	7.1F	Th	0646	0934	8.7F	F	0627	0915	9.3F		
	1145	1425	6.6E		1223	1514	5.8E		1257	1538	7.2E		1240	1523	7.6E		
	1757	2044	8.2F		1833	2117	7.3F		1907	2157	8.7F		1848	2137	9.1F		
12		0014	6.3E	27		0048	5.4E	12		0123	0402	7.0E	12		0102	0345	7.5E
Tu	0618	0904	7.9F	W	0652	0933	6.9F	F	0733	1021	8.3F	Sa	0714	1001	8.8F		
	1228	1508	6.7E		1301	1538	5.5E		1346	1623	6.7E		1328	1606	6.9E		
	1839	2129	8.2F		1910	2153	7.0F		1956	2245	8.2F		1936	2224	8.4F		
13		0057	6.4E	28		0125	6.5F	13		0212	0448	6.4E	13		0150	0429	6.8E
W	0703	0951	7.8F	Th	0731	1011	6.5F	Sa	0826	1111	7.6F	Su	0805	1050	7.9F		
	1314	1552	6.6E		1340	1609	5.0E		1440	1711	5.8E		1420	1653	5.9E		
	1925	2216	8.0F		1948	2232	6.5F		2050	2336	7.3F		2029	2313	7.4F		
14		0144	6.2E	29		0204	4.8E	14		0307	0539	5.6E	14		0244	0518	5.7E
Th	0752	1040	7.5F	F	0812	1052	6.0F	Su	0924	1205	6.7F	M	0902	1143	6.8F		
	1404	1638	6.1E		1422	1645	4.5E		1540	1807	4.8E		1519	1746	4.7E		
	2015	2305	7.6F		2028	2313	5.9F	○	2151				2129				
15		0235	5.8E	30		0246	4.2E	15		0033	6.3F	15		0009	6.2F		
F	0847	1132	7.0F	Sa	0857	1137	5.4F	M	0408	0643	4.6E	Tu	0345	0618	4.5E		
	1500	1730	5.4E		1508	1726	3.8E		1029	1308	5.8F	○	1005	1244	5.8F		
	2112	2359	6.9F		2114				1648	1925	3.8E		1626	1905	3.6E		
									2259				2237				
31		0000	5.3F	31		0000	5.3F	31		0000	5.3F	31		0000	5.3F		
Su	0333	0551	3.7E	Th	0333	0551	3.7E	Th	0333	0551	3.7E	Th	0333	0551	3.7E		
○	0949	1227	4.8F	○	0949	1227	4.8F	○	0949	1227	4.8F	○	0949	1227	4.8F		
	1602	1815	3.2E		1602	1815	3.2E		1602	1815	3.2E		1602	1815	3.2E		
	2209				2209				2209				2209				

Time meridian 135° W, 0000 is midnight, 1200 is noon. Times are not adjusted for Daylight Saving Time.

Sergius Narrows, Peril Strait, Alaska, 2016

F—Flood, Dir. 059° True E—Ebb, Dir. 241° True

July				August				September											
Slack		Maximum		Slack		Maximum		Slack		Maximum		Slack		Maximum					
h	m	h	m	knots	h	m	h	m	knots	h	m	h	m	h	m	knots			
1	0153	0449	6.8F		16	0210	0504	5.0F		1	0436	0200	6.4E	16	0413	0053	6.5E		
F	0813	1132	5.2E		Sa	0830	1212	3.5E		●	1052	1417	6.2E	F	1025	1313	6.8E		
	1417	1713	7.0F			1430	1719	5.1F		○	1656	1950	7.5F	○	1635	1920	8.6F		
	2032	2358	6.1E			2043					2307				2245				
2	0249	0550	7.4F		17		0021	4.2E		2	0514	0226	6.2E	17	0455	0131	7.2E		
Sa	0908	1229	5.8E		Su	0257	0550	5.6F		F	1128	1438	6.0E	Sa	1107	1351	7.4E		
	1512	1810	7.5F			0915	1240	4.0E			1733	2018	7.4F		1717	2002	9.1F		
	2125					1517	1802	5.7F			2343				2328				
3		0049	6.6E		18		0038	4.7E		3	0550	0241	5.9E	18	0537	0211	7.5E		
Su	0341	0641	7.9F		M	0341	0628	6.3F		Sa	1202	1451	5.8E	Su	1149	1432	7.7E		
	0959	1317	6.2E			0957	1254	4.4E			1808	2050	7.3F		1800	2047	9.2F		
	1603	1857	7.8F			1600	1841	6.3F											
	2215					2208													
4		0135	6.8E		19		0059	5.2E		4	0018	0259	5.7E	19	0013	0254	7.5E		
M	0429	0726	8.2F		Tu	0422	0705	6.9F		Su	0624	0907	7.2F	M	0620	0909	9.0F		
●	1047	1402	6.4E		○	1037	1318	5.0E			1236	1512	5.6E		1233	1515	7.5E		
	1651	1942	7.9F			1640	1920	6.9F			1843	2125	7.0F		1845	2134	8.8F		
	2302					2248													
5		0217	6.8E		20		0130	5.7E		5	0054	0325	5.3E	20	0100	0338	7.0E		
Tu	0515	0808	8.2F		W	0501	0743	7.4F		M	0659	0943	6.8F	Tu	0707	0956	8.5F		
	1133	1443	6.3E			1116	1351	5.5E			1312	1542	5.3E		1321	1600	6.9E		
	1737	2025	7.8F			1720	2000	7.3F			1919	2203	6.5F		1935	2222	8.1F		
	2347					2327													
6		0256	6.6E		21		0207	6.1E		6	0132	0358	4.9E	21	0151	0424	6.2E		
W	0600	0850	7.9F		Th	0540	0824	7.7F		Tu	0735	1022	6.3F	W	0759	1046	7.6F		
	1217	1520	6.0E			1155	1429	5.9E			1350	1616	4.8E		1414	1649	6.0E		
	1821	2107	7.4F			1759	2043	7.5F			1958	2245	5.9F		2031	2315	7.2F		
7		0330	6.1E		22		0247	6.4E		7	0213	0435	4.3E	22	0249	0516	5.1E		
Th	0643	0931	7.5F		F	0619	0908	7.9F		W	0815	1105	5.6F	Th	0859	1140	6.6F		
	1301	1552	5.6E			1236	1510	6.1E			1432	1656	4.2E		1514	1745	4.9E		
	1906	2149	7.0F			1841	2128	7.6F			2043	2331	5.2F		2134				
8		0402	5.6E		23		0329	6.4E		8	0302	0518	3.6E	23		0014	6.2F		
F	0727	1012	7.0F		Sa	0701	0953	7.9F		Th	0903	1153	4.9F	F	0354	0622	4.0E		
	1344	1623	5.0E			1320	1553	6.2E			1523	1742	3.5E	○	1006	1244	5.6F		
	1951	2231	6.4F			1926	2215	7.5F			2139			○	1622	1911	4.0E		
															2244				
9		0435	4.9E		24		0413	6.2E		9		0023	4.6F	24		0126	5.4F		
Sa	0812	1053	6.4F		Su	0748	1040	7.6F		F	0400	0609	2.8E	Sa	0509	0854	3.6E		
	1430	1658	4.5E			1407	1639	5.9E		○	1006	1249	4.2F		1118	1404	5.0F		
	2039	2314	5.8F			2017	2305	7.2F			1625	1840	2.9E		1739	2134	4.0E		
											2248				2355				
10		0513	4.2E		25		0501	5.7E		10		0122	4.1F	25		0304	5.1F		
Su	0900	1137	5.7F		M	0840	1130	7.2F		Sa	0511	0715	2.3E	Su	0626	1015	4.1E		
	1517	1739	3.9E			1500	1730	5.5E			1120	1351	3.9F		1229	1547	5.1F		
	2130					2114	2358	6.7F			1738	1952	2.6E		1854	2244	4.6E		
											2359								
11		0002	5.2F		26		0556	5.0E		11		0228	4.1F	26		0101	0430	5.6F	
○	0340	0558	3.5E		Tu	0939	1226	6.6F		Su	0624	0835	2.3E	M	0733	1115	4.8E		
	0951	1226	5.1F		○	1558	1829	4.9E			1230	1458	4.1F		1331	1700	5.7F		
	1609	1830	3.3E			2218					1847	2116	2.9E		1956	2339	5.3E		
	2225																		
12		0055	4.6F		27		0058	6.2F		12		0102	0337	4.5F	27		0159	0529	6.2F
Tu	0437	0654	2.9E		W	0433	0702	4.4E		M	0726	1107	3.0E	Tu	0827	1205	5.5E		
	1046	1320	4.7F			1045	1327	6.1F			1330	1607	4.7F		1425	1751	6.3F		
	1706	1936	3.0E			1704	1943	4.5E			1945	2314	3.7E		2047				
	2323					2325													
13		0152	4.3F		28		0205	5.9F		13		0157	0445	5.4F	28		0026	5.8E	
W	0540	0808	2.6E		Th	0545	0826	4.0E		Tu	0817	1142	3.9E	W	0249	0613	6.8F		
	1145	1417	4.4F			1154	1435	5.8F			1422	1709	5.7F		0912	1248	5.9E		
	1806	2155	2.9E			1813	2121	4.5E			2034	2347	4.7E		1512	1831	6.9F		
															2130				
14		0253	4.2F		29		0318	5.8F		14		0246	0537	6.4F	29		0106	6.1E	
Th	0643	1033	2.7E		F	0656	1022	4.2E		W	0902	1208	5.0E	Th	0332	0648	7.1F		
	1244	1518	4.4F			1300	1550	5.9F			1509	1757	6.8F		0951	1324	6.1E		
	1904	2300	3.3E			1920	2259	5.0E			2119				1553	1903	7.2F		
															2208				
15		0400	4.5F		30		0442	6.2F		15		0019	5.7E	30		0139	6.1E		
F	0740	1129	3.1E		Sa	0759	1136	4.9E		Th	0331	0620	7.5F	F	0412	0715	7.3F		
	1339	1622	4.6F			1402	1709	6.3F			0944	1238	6.0E	●	1026	1354	6.1E		
	1956	2347	3.7E			2019					1552	1839	7.9F		1631	1927	7.3F		
											2203				2243				
					31		0000	5.7E		15		0124	6.3E						
					Su	0233	0548	6.9F		W	0355	0707	7.5F						
						0856	1230	5.5E			1014	1345	6.2E						
						1458	1807	6.9F			1616	1921	7.4F						
						2113					2229								

Time meridian 135° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.

Sergius Narrows, Peril Strait, Alaska, 2016

F—Flood, Dir. 059° True E—Ebb, Dir. 241° True

October				November				December							
Slack		Maximum		Slack		Maximum		Slack		Maximum		Slack		Maximum	
h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m
1				16		1		16		1		16		16	
Sa	0448	0737	7.3F	Su	0432	0719	9.2F	Tu	0529	0808	7.0F	W	0544	0830	8.9F
	1059	1409	5.9E		1043	1331	7.8E		1136	1412	5.6E		1155	1445	7.6E
	1706	1951	7.3F		1655	1942	9.5F		1747	2028	7.0F		1810	2058	9.0F
	2317				2308										
2				17		2		17		2		17		2	
Su	0522	0804	7.3F	M	0516	0802	9.4F	W	0601	0844	6.7F	Th	0633	0918	8.4F
	1131	1417	5.8E		1127	1414	8.0E		1210	1443	5.5E		1244	1531	7.0E
	1740	2020	7.3F		1740	2027	9.5F		1819	2106	6.8F		1859	2147	8.3F
	2350				2354										
3				18		3		18		3		18		3	
M	0555	0835	7.1F	Tu	0601	0848	9.1F	Th	0634	0924	6.4F	F	0724	1008	7.5F
	1204	1439	5.7E		1212	1458	7.7E		1245	1518	5.2E		1336	1618	6.1E
	1813	2055	7.1F		1826	2114	9.0F		1853	2147	6.4F		1952	2237	7.4F
4				19		4		19		4		19		4	
Tu	0024	0254	5.3E	W	0042	0322	7.0E	F	0114	0340	4.6E	Sa	0212	0447	5.2E
	0627	0911	6.8F		0649	0936	8.5F		0709	1007	5.9F		0821	1100	6.5F
	1237	1509	5.4E		1301	1544	7.1E		1325	1558	4.8E		1433	1710	5.0E
	1845	2132	6.7F		1916	2203	8.3F		1931	2232	5.9F		2049	2331	6.4F
5				20		5		20		5		20		5	
W	0100	0327	5.0E	Th	0134	0409	6.2E	Sa	0158	0421	4.2E	Su	0311	0548	4.2E
	0700	0951	6.3F		0741	1026	7.5F		0751	1053	5.3F		0922	1159	5.6F
	1313	1544	5.1E		1354	1632	6.1E		1411	1642	4.3E		1535	1822	4.0E
	1920	2213	6.1F		2011	2255	7.2F		2018	2321	5.3F	☉	2151		
6				21		6		21		6		21		6	
Th	0139	0404	4.5E	F	0231	0501	5.1E	Su	0250	0509	3.7E	M	0415	0802	3.7E
	0735	1033	5.7F		0840	1120	6.5F		0849	1145	4.8F		1026	1310	4.9F
	1353	1623	4.5E		1454	1727	4.9E		1508	1733	3.7E		1643	2038	3.7E
	2000	2258	5.5F		2113	2354	6.2F		2121				2255		
7				22		7		22		7		22		7	
F	0225	0446	3.9E	Sa	0335	0608	4.0E	M	0351	0606	3.2E	Tu	0523	0918	3.8E
	0820	1120	5.0F		0946	1223	5.4F		1000	1245	4.5F		1131	1439	4.6F
	1442	1708	3.8E	☉	1601	1902	3.9E	☉	1615	1836	3.3E		1754	2147	3.8E
	2052	2349	4.8F		2220				2233				2358		
8				23		8		23		8		23		8	
Sa	0320	0535	3.2E	Su	0446	0838	3.6E	Tu	0500	0716	3.1E	W	0629	1019	4.2E
	0921	1214	4.4F		1056	1346	4.8F		1114	1349	4.6F		1233	1556	4.8F
	1542	1802	3.2E		1716	2113	3.9E		1729	1951	3.3E		1859	2245	4.1E
☉	2200				2329				2344						
9				24		9		24		9		24		9	
Su	0428	0636	2.6E	M	0601	0952	4.1E	W	0608	0834	3.5E	Th	0725	1111	4.6E
	1038	1316	4.1F		1205	1525	4.9F		1221	1456	5.1F		1327	1655	5.3F
	1655	1910	2.8E		1831	2220	4.3E		1836	2108	3.8E		1953	2335	4.5E
	2316														
10				25		10		25		10		25		10	
M	0542	0753	2.6E	Tu	0708	1051	4.7E	Th	0707	0951	4.4E	F	0811	1156	5.0E
	1153	1423	4.2F		1307	1636	5.3F		1320	1601	6.0F		1415	1740	5.7F
	1809	2030	2.9E		1934	2316	4.9E		1935	2223	4.7E		2038		
11				26		11		26		11		26		11	
Tu	0025	0259	4.7F	W	0132	0503	5.8F	F	0143	0430	6.6F	Sa	0234	0553	5.9F
	0648	0919	3.1E		0801	1141	5.2E		0759	1057	5.4E		0852	1235	5.2E
	1257	1531	4.8F		1400	1729	5.9F		1412	1702	7.1F		1459	1814	6.1F
	1912	2156	3.7E		2024				2027	2323	5.7E		2118		
12				27		12		27		12		27		12	
W	0123	0406	5.5F	Th	0221	0548	6.3F	Sa	0235	0525	7.6F	Su	0316	0621	6.2F
	0743	1045	4.1E		0845	1224	5.6E		0848	1147	6.5E		0929	1306	5.3E
	1351	1636	5.9F		1446	1809	6.4F		1502	1753	8.2F		1539	1840	6.4F
	2005	2306	4.7E		2107				2116				2155		
13				28		13		28		13		28		13	
Th	0215	0504	6.6F	F	0305	0623	6.6F	Su	0323	0613	8.5F	M	0355	0645	6.4F
	0831	1133	5.3E		0923	1300	5.8E		0935	1232	7.3E		1005	1323	5.3E
	1441	1730	7.1F		1527	1840	6.8F		1550	1839	9.0F		1616	1903	6.7F
	2053	2351	5.8E		2144				2204				2230		
14				29		14		29		14		29		14	
F	0302	0553	7.7F	Sa	0344	0649	6.8F	M	0411	0659	9.1F	Tu	0432	0713	6.6F
	0915	1212	6.4E		0958	1329	5.8E		1021	1315	7.8E		1040	1329	5.3E
	1527	1816	8.2F		1605	1903	7.0F	☉	1636	1924	9.4F		1652	1933	6.9F
	2139				2219				2251				2305		
15				30		15		30		15		30		15	
Sa	0348	0636	8.7F	Su	0421	0710	7.0F	Tu	0458	0744	9.2F	W	0508	0745	6.7F
	0959	1251	7.3E		1031	1342	5.6E		1108	1359	7.9E		1114	1351	5.4E
☉	1611	1859	9.0F	☉	1640	1926	7.1F		1723	2010	9.4F		1727	2007	6.9F
	2223				2253				2338				2341		
16				31		16		31		16		31		16	
				M	0456	0736	7.0F								
					1104	1349	5.6E								
					1714	1954	7.1F								
					2326										

Time meridian 135° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.

North Inian Pass (east end), Cross Sound, Alaska, 2016

F—Flood, Dir. 070° True E—Ebb, Dir. 261° True

January				February				March																																																																																																																																																																			
Slack	Maximum	Slack	Maximum	Slack	Maximum	Slack	Maximum	Slack	Maximum	Slack	Maximum	Slack	Maximum																																																																																																																																																														
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																																																																																																																																																														
knots	knots	knots	knots	knots	knots	knots	knots	knots	knots	knots	knots	knots	knots																																																																																																																																																														
1 F	0047 0232 1.1F 0540 0913 1.9E 1331 1504 0.9F 1750 2119 1.7E	16 Sa	0025 0228 1.3F 0508 0920 2.0E 1326 1506 1.0F 1813 2142 1.9E	1 M	0144 0341 1.0F 0629 1018 1.7E 1447 1618 0.7F 1931 2239 1.3E	16 Tu	0214 0400 1.0F 0752 1112 1.8E 1518 1647 0.7F 1816 0.6F 1924† 0.7F	1 Tu	0105 0311 1.1F 0555 0941 1.8E 1406 1542 0.8F 1847 2207 1.2E	16 W	0156 0339 1.1F 0733 1047 1.8E 1449 1618 0.7F 1747 0.6F 1901† 0.7F	2 Sa	0134 0320 1.0F 0621 1005 1.7E 1425 1557 0.8F 1854 2215 1.5E	17 Su	0125 0323 1.1F 0629 1026 1.9E 1433 1607 0.9F 1952 2252 1.6E	2 Tu	0252 0440 0.9F 0753 1116 1.7E 1552 1719 0.7F 2059 2339 1.2E	17 W	0329 0508 1.0F 0911 1223 1.9E 1625 2020 0.9F 2213	2 W	0212 0408 0.9F 0718 1042 1.7E 1513 1641 0.8F 2029 2312 1.2E	17 Th	0307 0445 0.9F 0851 1159 1.7E 1556 1959 0.9F 2149	3 Su	0232 0415 0.9F 0724 1100 1.7E 1526 1655 0.8F 2014 2313 1.4E	18 M	0238 0425 1.0F 0809 1134 1.9E 1544 1715 0.8F 2119	3 W	0402 0542 0.9F 0906 1210 1.8E 1651 1819 0.7F 2201	18 Th	0437 0618 1.0F 1011 1418 2.0E 1721 2102 1.1F 2303	3 Th	0329 0511 0.8F 0840 1139 1.7E 1618 1743 0.6F 2138	18 F	0415 0130 1.6E 0556 0.9F 0713 0.9F 0749 0.9F 0952 1352† 1.8E	4 M	0337 0515 0.8F 0835 1152 1.8E 1626 1755 0.8F 2124	19 Tu	0352 0531 1.0F 0926 1242 2.0E 1648 1857 0.8F 2225	4 Th	0502 0641 1.0F 0958 1305 2.0E 1740 1912 0.9F 2244	19 F	0534 0721 1.1F 1057 1518 2.3E 1809 2013 1.1F 2344	4 F	0436 0613 0.9F 0938 1234 1.8E 1711 1840 0.7F 2224	19 Sa	0513 0702 1.0F 1036 1459 2.1E 1744 2111 1.0F 2315	5 Tu	0437 0614 0.9F 0931 1243 1.9E 1719 1851 0.9F 2216	20 W	0457 0637 1.1F 1023 1417 2.2E 1742 1957 1.0F 2317	5 F	0553 0733 1.1F 1037 1405 2.2E 1824 1957 1.0F 2317	20 Sa	0625 0808 1.3F 1135 1553 2.5E 1853 2033 1.2F	5 Sa	0530 0709 1.0F 1020 1331 2.1E 1756 1929 0.9F 2256	20 Su	0603 0748 1.2F 1111 1533 2.3E 1827 2007 1.1F 2344	6 W	0529 0708 1.0F 1014 1340 2.1E 1805 1940 1.0F 2257	21 Th	0553 0735 1.2F 1110 1525 2.5E 1830 2017 1.2F	6 Sa	0640 0818 1.2F 1106 1501 2.4E 1904 2037 1.1F 2340	21 Su	0019 0425 2.6E 0711 0847 1.3F 1207 1618 2.7E 1934 2106 1.2F	6 Su	0618 0756 1.1F 1052 1430 2.4E 1838 2011 1.1F 2317	21 M	0648 0825 1.3F 1138 1550 2.5E 1908 2041 1.2F	7 Th	0616 0756 1.2F 1048 1438 2.3E 1848 2022 1.1F 2330	22 F	0003 0358 2.3E 0644 0824 1.3F 1151 1605 2.7E 1915 2052 1.2F	7 Su	0724 0859 1.2F 1129 1550 2.7E 1943 2116 1.2F 2349	22 M	0051 0456 2.7E 0756 0926 1.3F 1235 1644 2.7E 2015 2142 1.2F	7 M	0702 0838 1.2F 1116 1524 2.6E 1917 2052 1.2F 2326	22 Tu	0006 0429 2.6E 0730 0902 1.3F 1200 1613 2.6E 1947 2117 1.2F	8 F	0701 0839 1.3F 1116 1529 2.5E 1928 2101 1.2F 2355	23 Sa	0046 0439 2.6E 0732 0906 1.3F 1230 1639 2.8E 1959 2129 1.2F	8 M	0807 0940 1.2F 1155 1635 2.9E 2021 2156 1.2F	23 Tu	0120 0523 2.7E 0840 1005 1.2F 1302 1714 2.8E 2055 2222 1.1F	8 Tu	0744 0918 1.3F 1141 1612 2.9E 1957 2132 1.3F 2347	23 W	0022 0449 2.7E 0812 0940 1.3F 1221 1643 2.7E 2026 2155 1.2F	9 Sa	0745 0920 1.2F 1142 1615 2.7E 2007 2139 1.2F	24 Su	0127 0516 2.7E 0819 0947 1.2F 1309 1712 2.8E 2041 2208 1.1F	9 Tu	0012 0513 2.6E 0850 1023 1.2F 1234 1720 3.0E 2101 2239 1.2F	9 W	0148 0550 2.7E 0923 1048 1.1F 1335 1747 2.8E 2136 2306 1.1F	9 W	0450 2.7E 1000 1.2F 1217 1659 3.0E 2038 2215 1.3F	24 Th	0035 0516 2.8E 0853 1020 1.2F 1252 1718 2.7E 2106 2237 1.1F	10 Su	0012 0451 2.3E 0829 1002 1.2F 1214 1659 2.8E 2046 2220 1.1F	25 M	0058 0555 2.7E 0935 1110 1.1F 1331 1805 3.0E 2142 2328 1.2F	25 Th	0218 0620 2.7E 1007 1136 1.0F 1419 1822 2.7E 2216 2355 1.1F	10 Th	0029 0533 2.8E 0913 1046 1.2F 1315 1746 3.0E 2122 2303 1.3F	25 F	0106 0547 2.8E 0935 1105 1.1F 1339 1756 2.7E 2145 2324 1.1F	11 M	0043 0534 2.4E 0913 1047 1.1F 1300 1742 2.9E 2125 2305 1.1F	26 Tu	0202 0637 2.7E 1023 1203 1.1F 1439 1849 2.9E 2226	26 F	0252 0651 2.7E 1051 1226 1.0F 1504 1857 2.6E 2255	11 F	0131 0617 2.9E 1001 1138 1.1F 1434 1833 2.9E 2208 2356 1.3F	26 Sa	0158 0621 2.8E 1018 1154 1.0F 1434 1834 2.5E 2225	12 Tu	0139 0616 2.5E 0958 1137 1.0F 1400 1825 2.9E 2205 2355 1.1F	27 W	0318 0651 2.8E 1040 1209 1.0F 1506 1850 2.6E 2248	27 Sa	0330 0725 2.5E 1135 1316 1.1F 1549 1935 2.3E 2335	12 Sa	0247 0701 2.8E 1053 1234 1.1F 1545 1919 2.6E 2258	27 Su	0253 0657 2.7E 1102 1245 1.0F 1525 1913 2.3E 2306	13 W	0239 0657 2.5E 1046 1230 1.0F 1459 1908 2.8E 2247	28 Th	0028 1.0F 0348 0722 2.5E 1125 1259 1.0F 1543 1924 2.5E 2329	28 Su	0114 1.3F 0400 0804 2.5E 1206 1350 1.1F 1649 2023 2.3E	13 Su	0354 0745 2.6E 1147 1329 1.1F 1653 2007 2.3E 2352	28 M	0106 1.2F 0344 0736 2.5E 1146 1333 1.0F 1612 1954 2.0E 2349	14 Th	0047 1.2F 0328 0739 2.4E 1135 1323 1.1F 1554 1952 2.6E 2333	29 F	0116 1.1F 0416 0755 2.3E 1209 1346 1.0F 1621 2001 2.2E	29 M	0206 1.3F 0501 0856 2.2E 1303 1443 1.0F 1808 2121 1.8E	14 M	0146 1.3F 0500 0835 2.3E 1243 1421 1.0F 1804 2104 1.8E	29 Tu	0155 1.2F 0434 0818 2.2E 1232 1420 1.0F 1658 2040 1.6E	15 F	0138 1.3F 0415 0825 2.3E 1227 1413 1.1F 1653 2042 2.2E	30 Sa	0009 2.1F 0447 0833 2.1E 1254 1432 1.0F 1705 2044 1.9E	30 M	0105 1.2F 0621 1000 2.0E 1408 1541 0.9F 1939 2233 1.5E	15 Tu	0050 1.2F 0613 0935 2.0E 1343 1516 0.9F 1922 2216 1.5E	30 W	0038 0244 1.1F 0529 0909 1.9E 1324 1509 0.8F 1758 2139 1.3E	31 Su	0052 1.1F 0529 0921 1.9E 1346 1522 0.9F 1802 2137 1.5E	31 Th	0141 0338 0.9F 0641 1008 1.7E 1427 1604 0.7F 1943 2245 1.2E

Time meridian 135° W. 0000 is midnight. 1200 is noon. Times are not adjusted for Daylight Saving Time.
 † See page 206 for the remaining currents on this day.

North Inian Pass (east end), Cross Sound, Alaska, 2016

F—Flood, Dir. 070° True E—Ebb, Dir. 261° True

July				August				September																							
Day	Slack		Maximum		Day	Slack		Maximum		Day	Slack		Maximum																		
	h	m	h	m		h	m	h	m		h	m	h	m	h	m															
1 F	0535	0131	0714	2.2E	16 Sa	0545	0116	0721	2.0E	1 M	0653	0339	0834	2.6E																	
	1057	1410	1925	1.0F		1046	0721	1352	1.0F		1225	1617	2047	1.2F	16 Tu	0646	0237	0820	2.3E												
	1744	1925	2250	1.9E		1758	1352	1938	1.6E		1909	2047	2324	2.0E		1131	1528	2043	1.1F												
	2250	0248	0806	1.2F		2237	1758	1938	1.2F		2324	0328	0859	1.2F		1907	2043	2324	2.0E												
0624	0806	1148	2.2E	2310	0215	0805	1.1F	1957	2129	2345	2.6E	1144	1611	2324		1.3F															
2 Sa	1836	2016	2335	1.4F	17 Su	0629	0805	1122	1.8E	2 Tu	0014	0419	0738	2.8E	17 W	0726	0859	1144	2.3E												
	2335	0345	0849	1.3F		1843	2023	2310	1.3F		1307	1657	1928	2.7E		1144	1611	1950	2.3E												
	0711	0849	1238	2.5E		2310	0309	0845	1.2F		2045	2212	0056	0456		0822	2.9E	1155	1652	2033	2.2E										
	1926	2102	2338	1.4F		2338	1151	1551	2.1E		2045	2212	0822	0950		1349	1734	2033	2.2E	1155	1652	2033	2.2E								
3 Su	0711	0849	1238	2.5E	18 M	0711	0845	1151	2.1E	3 W	0056	0456	0822	2.9E	18 Th	0804	0938	1155	2.5E												
	1238	1621	1926	1.4F		1928	2104	2338	1.3F		2045	2212	0822	0950		1349	1734	2033	2.2E	1155	1652	2033	2.2E								
	1926	2102	2338	1.4F		2338	0356	0845	1.2F		2045	2212	0822	0950		1349	1734	2033	2.2E	1155	1652	2033	2.2E								
	0021	0431	0758	1.3F		2338	0751	0923	1212		2.3E	2133	2809	0138		0531	0905	1031	1114	1256	1.1F	1228	1733	2116	2.4E						
4 M	2015	2147	2347	1.3F	19 O	2012	2145	2347	1.0F	4 Th	0138	0531	0905	1.1F	19 F	0842	1018	1228	2.7E												
	0114	0513	0844	1.2F		2056	2228	2347	1.1F		1428	1809	2133	2809		0138	0531	0905	1.1F	1228	1733	2116	2.4E								
	0844	1012	1419	2.8E		2056	2228	2347	1.1F		2133	2809	0138	0531		0905	1.1F	1228	1733	2116	2.4E	0013	0458	0842	1.2F						
	2105	2233	2347	1.2F		2056	2228	2347	1.1F		2133	2809	0138	0531		0905	1.1F	1228	1733	2116	2.4E	0842	1018	1228	2.7E						
5 Tu	0114	0513	0844	1.2F	20 W	0006	0439	0830	1.2F	5 F	0219	0605	0949	1.1F	20 Sa	0056	0542	0921	1.2F												
	0844	1012	1419	2.8E		1231	1715	2056	2.4E		1505	1841	2222	2347		0.9F	0921	1104	1320	1814	2.7E	0056	0542	0921	1.2F						
	1419	1750	2105	2.2E		2056	2228	2347	1.1F		2222	2347	0219	0605		0949	1.1F	2200	2337	0056	0542	0921	1.2F	0921	1104	1320	1814	2.7E			
	2105	2233	2347	1.2F		2056	2228	2347	1.1F		2222	2347	0219	0605		0949	1.1F	2200	2337	0056	0542	0921	1.2F	0921	1104	1320	1814	2.7E			
6 W	0209	0554	0930	1.0F	21 Th	0043	0522	0908	1.1F	6 Sa	0258	0639	1032	1.0F	21 Su	0155	0626	1002	1.2F												
	0930	1057	1505	2.8E		1310	1756	2140	2.5E		1537	1911	2308	0258		0639	1032	1.0F	1422	1856	0155	0626	1002	1.2F							
	1505	1830	2157	2.8E		2140	2315	2315	1.0F		2308	0258	0639	1032		1.0F	1422	1856	0155	0626	1002	1.2F	1422	1856	0155	0626	1002	1.2F			
	2157	2324	2347	1.0F		2140	2315	2315	1.0F		2308	0258	0639	1032		1.0F	1422	1856	0155	0626	1002	1.2F	1422	1856	0155	0626	1002	1.2F			
7 Th	0258	0631	1017	1.1F	22 F	0133	0605	0946	1.1F	7 Su	0038	0933	1114	2.5E	22 M	0031	0710	1045	2.7E												
	1017	1148	1547	2.7E		1405	1837	2226	2.5E		1114	1256	1607	1943		2353	0258	0710	1045	2.7E	1045	1248	1520	1938	2.6E						
	1547	1907	2249	2.7E		2226	0006	0522	0908		1.1F	1607	1943	2353		0258	0710	1045	2.7E	1520	1938	1520	1938	2.6E	1520	1938	2.6E				
	0258	0631	1017	1.1F		2226	0006	0522	0908		1.1F	1607	1943	2353		0258	0710	1045	2.7E	1520	1938	1520	1938	2.6E	1520	1938	2.6E				
8 F	0341	0706	1103	1.2F	23 Sa	0227	0647	1025	1.2F	8 M	0409	0747	1155	2.2E	23 Tu	0401	0756	1134	2.4E												
	1103	1239	1624	2.5E		1455	1917	2312	2.5E		1636	2018	2337	0401		0756	1134	2.4E	0401	0756	1134	2.4E	0401	0756	1134	2.4E					
	1624	1942	2339	1.0F		2312	0058	0522	0908		1.1F	1636	2018	2337		0401	0756	1134	2.4E	0401	0756	1134	2.4E	0401	0756	1134	2.4E				
	0341	0706	1103	1.2F		2312	0058	0522	0908		1.1F	1636	2018	2337		0401	0756	1134	2.4E	0401	0756	1134	2.4E	0401	0756	1134	2.4E				
9 Sa	0420	0741	1147	1.1F	24 Su	0318	0729	1107	1.3F	9 Tu	0037	0212	0449	1.9E	24 W	0030	0215	0516	2.0E												
	1147	1327	1658	2.2E		1541	1959	2312	2.5E		1712	2100	0037	0212		0449	1.9E	0516	0849	1229	1432	1725	2122	2.0E							
	1658	2017	2339	1.0F		2312	0058	0522	0908		1.1F	1712	2100	0037		0212	0449	1.9E	1229	1432	1725	2122	2.0E	0030	0215	0516	2.0E				
	0420	0741	1147	1.1F		2312	0058	0522	0908		1.1F	1712	2100	0037		0212	0449	1.9E	1229	1432	1725	2122	2.0E	0030	0215	0516	2.0E				
10 Su	0026	0158	0455	2.1E	25 M	0001	0148	0409	2.3E	10 W	0124	0300	0540	1.6E	25 Th	0131	0309	0650	1.6E												
	0455	0818	1230	1.1F		1153	1402	1628	2.1E		1325	1519	1805	2153		1.7E	1335	1529	1901	2232	1.9E	0131	0309	0650	1.6E						
	1230	1412	1729	2.0E		1628	2047	2312	2.5E		1805	2153	1805	2153		1.7E	1901	2232	1901	2232	1.9E	0650	0955	1335	1529	1.1F					
	0026	0158	0455	2.1E		1628	2047	2312	2.5E		1805	2153	1805	2153		1.7E	1901	2232	1901	2232	1.9E	1335	1529	1901	2232	1.9E					
11 M	0113	0244	0535	0.9F	26 Tu	0054	0238	0509	2.0E	11 Th	0220	0353	0700	1.3E	26 F	0239	0411	0612	0.5F												
	0535	0901	1315	1.4E		1247	1454	1727	1.9E		1427	1616	1923	2252		1.7E	0612	0.5F	0651	0.5F	0825	1111	1451	1635†	1.0F						
	1315	1459	1805	1.7E		1727	2147	2312	2.5E		1923	2252	0220	0353		0700	1.3E	0825	1111	1451	1635†	1.0F	0651	0.5F	0825	1111	1451	1635†	1.0F		
	0113	0244	0535	0.9F		1727	2147	2312	2.5E		1923	2252	0220	0353		0700	1.3E	0825	1111	1451	1635†	1.0F	0651	0.5F	0825	1111	1451	1635†	1.0F		
12 Tu	0204	0333	0629	0.9F	27 W	0156	0334	0653	1.1F	12 F	0324	0453	0833	1.1E	27 Sa	0350	0522	0633	0.7F												
	0629	0954	1409	1.5E		1355	1552	1907	2.25E		1537	1718	2042	2347		1.7E	0757	0.8F	0942	1229	1605	1745†	1.0F								
	1409	1551	1859	2.23E		1907	2255	2312	2.5E		2042	2347	0324	0453		0833	1.1E	0942	1229	1605	1745†	1.0F	0633	0.7F	0757	0.8F	0942	1229	1605	1745†	1.0F
	0204	0333	0629	0.9F		1355	1552	1907	2.25E		1537	1718	2042	2347		1.7E	0757	0.8F	0942	1229	1605	1745†	1.0F	0633	0.7F	0757	0.8F	0942	1229	1605	1745†
13 W	0302	0429	0747	1.0F	28 Th	0307	0438	0838	1.1E	13 Sa	0426	0554	0942	1.3E	28 Su	0453	0843	1039	1.4E												
	0747	1053	1511	1.64E		1514	1658	2047	2.1E		1640	1819	2141	0426		0554	0942	1.3E	1707	1854	2237	0453	0843	1039	1.4E						
	1511	1649	2010	2.33E		2047	0307	0438	0838		1.1E	2141	0426	0554		0942	1.3E	1707	1854	2237	0453	0843	1039	1.4E	1707	1854	2237	0453	0843	1039	1.4E
	0302	0429	0747	1.0F		2047	0307	0438	0838		1.1E	2141	0426	0554		0942	1.3E	1707	1854	2237	0453	0843	1039	1.4E	1707						

North Inian Pass (east end), Cross Sound, Alaska, 2016

F—Flood, Dir. 070° True E—Ebb, Dir. 261° True

October				November				December															
Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum		Slack	Maximum										
	h	m	knots		h	m	knots		h	m	knots		h	m	knots								
1 Sa	0020	0436	2.6E	16 Su	0755	0932	1.3F	1 Tu	0058	0520	2.5E	16 W	0210	0545	2.7E	1 Th	0138	0540	2.3E	16 F	0305	0624	2.7E
	0811	0938	1.2F		1140	1647	2.8E		0903	1036	1.2F		0911	1047	1.3F		0922	1059	1.1F		0950	1122	1.2F
	1232	1707	2.8E		2029	2201	1.3F		1255	1739	2.8E		1349	1803	3.0E		1331	1752	2.8E		1459	1832	2.9E
	2037	2203	1.2F						2130	2303	1.1F		2145	2319	1.1F		2144	2323	1.1F		2217	2351	1.0F
2 Su	0045	0508	2.7E	17 M	0029	0506	2.8E	2 W	0157	0559	2.4E	17 Th	0316	0634	2.6E	2 F	0236	0621	2.3E	17 Sa	0355	0708	2.7E
	0850	1018	1.1F		0839	1016	1.3F		0945	1125	1.1F		1003	1142	1.2F		1007	1151	1.1F		1045	1221	1.1F
	1250	1736	2.8E		1228	1733	2.9E		1358	1816	2.8E		1509	1848	2.9E		1435	1833	2.8E		1554	1914	2.7E
	2118	2245	1.1F		2114	2248	1.2F		2212	2353	1.1F		2238				2226				2308		
3 M	0124	0544	2.6E	18 Tu	0152	0555	2.8E	3 Th	0257	0639	2.3E	18 F	0413	0016	1.1F	3 Sa	0323	0013	1.1F	18 Su	0441	0046	1.0F
	0931	1103	1.1F		0925	1106	1.3F		1029	1218	1.1F		1100	0720	2.5E		1055	0701	2.3E		1140	0750	2.5E
	1335	1808	2.7E		1341	1819	2.9E		1501	1855	2.6E		1612	1242	1.2F		1528	1244	1.1F		1643	1317	1.1F
	2200	2332	1.0F		2204	2341	1.1F		2256				2331	1933	2.7E		2307	1913	2.6E		2357	1954	2.4E
4 Tu	0219	0621	2.5E	19 W	0314	0643	2.6E	4 F	0347	0044	1.1F	19 Sa	0507	0111	1.1F	4 Su	0359	0103	1.1F	19 M	0525	0136	1.1F
	1011	1153	1.1F		1016	1202	1.2F		1115	0719	2.1E		1157	0808	2.3E		1144	0741	2.1E		1233	0834	2.2E
	1432	1843	2.7E		1509	1904	2.8E		1555	1311	1.1F		1710	1338	1.2F		1612	1334	1.1F		1730	1407	1.0F
	2243				2257				2339	1936	2.5E			2018	2.3E		2347	1954	2.4E		2306	2036	2.1E
5 W	0313	0023	1.0F	20 Th	0420	0038	1.1F	5 Sa	0429	0132	1.1F	20 Su	0023	0202	1.1F	5 M	0427	0149	1.1F	20 Tu	0044	0222	1.0F
	1053	0659	2.3E		1111	0731	2.4E		1501	0801	1.9E		0559	0901	2.0E		1233	0824	1.9E		0608	0924	2.0E
	1525	1246	1.1F		1620	1301	1.3F		1646	1400	1.1F		1253	1431	1.1F		1653	1422	1.0F		1325	1455	0.9F
	2327				2351					2019	2.2E		1806	2109	2.0E		1653	2040	2.1E		1818	2125	1.7E
6 Th	0403	0113	1.1F	21 F	0522	0133	1.1F	6 Su	0023	0218	1.0F	21 M	0115	0251	1.0F	6 Tu	0030	0234	1.1F	21 W	0135	0310	0.9F
	1136	0738	2.0E		1209	0822	2.1E		0508	0849	1.7E		0653	1006	1.8E		0459	0915	1.7E		0655	1022	1.7E
	1617	1336	1.2F		1726	1356	1.3E		1257	1450	1.0F		1351	1525	1.0F		1328	1511	0.9F		1421	1547	0.8F
					1726	2040	2.2E		1738	2110	1.9E		1906	2209	1.7E		1738	2134	1.9E		1914	2222	1.5E
7 F	0012	0201	1.0F	22 Sa	0046	0225	1.0F	7 M	0112	0306	0.9F	22 Tu	0212	0344	0.8F	7 W	0122	0325	0.9F	22 Th	0231	0404	0.8F
	0451	0822	1.7E		0625	0922	1.8E		0552	0947	1.5E		0752	1118	1.7E		0544	1016	1.6E		0750	1118	1.6E
	1224	1425	1.1F		1309	1451	1.2F		1359	1543	0.9E		1453	1623	0.8F		1432	1607	0.7E		1520	1644	0.7F
	1711	2046	2.0E		1834	2141	1.9E		1842	2208	1.7E		2010	2311	1.5E		1851	2235	1.7E		2020	2318	1.4E
8 Sa	0100	0248	0.9F	23 Su	0145	0319	0.9F	8 Tu	0214	0400	0.8F	23 W	0314	0443	0.7F	8 Th	0231	0422	0.8F	23 F	0332	0502	0.8F
	0546	0914	1.4E		0733	1038	1.6E		0715	1050	1.4E		0851	1226	1.7E		0702	1118	1.7E		0847	1206	1.7E
	1320	1517	1.0F		1413	1551	1.0F		1509	1643	0.7E		1555	1725	0.8F		1540	1708	0.7F		1618	1743	0.7F
	1816	2141	1.8E		1946	2250	1.7E		1958	2307	1.7E		2110				2028	2334	1.7E		2121		
9 Su	0158	0340	0.8F	24 M	0249	0419	0.8F	9 W	0323	0459	0.7F	24 Th	0414	0006	1.5E	9 F	0344	0523	0.8F	24 Sa	0430	0010	1.4E
	0706	1019	1.3E		0550	0650	0.6F		0837	1148	1.6E		0542	0718	0.8F		0848	1213	1.8E		0934	0600	0.8F
	1430	1616	0.9E		0659	0.7F		1614	1743	0.7F		0718	0.8F		1640	1809	0.8F		1708	1839	0.9F		
	1934	2242	1.7E		0841	1159	1.7E		2105				0756	0.6F		2138				2210			
10 M	0306	0438	0.7F	25 Tu	0353	0753	0.8F	10 Th	0426	0002	1.8E	25 F	0507	0100	1.6E	10 Sa	0446	0033	1.8E	25 Su	0521	0106	1.5E
	0829	1122	1.3E		0939	1335	1.8E		0930	0558	0.8E		1014	0638	0.8F		0944	0623	0.9F		1011	0655	1.0F
	1542	1718	0.8E		1624	1805	0.9F		1709	1244	1.8E		1738	1453	2.0E		1732	1313	2.0E		1753	1345	2.0E
	2045	2339	1.7E		2149				2155	1840	0.9F		2235	1913	1.0F		2232	1906	1.0F		2250	1929	1.0F
11 Tu	0410	0538	0.7F	26 W	0450	0102	1.7E	11 Th	0518	0059	2.0E	26 Sa	0552	0205	1.8E	11 Su	0540	0140	1.9E	26 M	0607	0215	1.7E
	0928	1219	1.5E		1022	0657	0.8F		1006	0652	0.9F		1041	0726	1.0F		1026	0718	1.1F		1042	0744	1.1F
	1644	1818	0.8F		1718	1440	2.1E		1756	1344	2.1E		1821	1513	2.2E		1819	1421	2.3E		1836	1438	2.2E
	2138				2230	1902	1.0F		2236	1931	1.0F		2307	1956	1.1F		2320	1956	1.2F		2325	2012	1.2F
12 W	0504	0033	1.9E	27 Th	0539	0249	1.9E	12 Sa	0605	0202	2.2E	27 Su	0635	0301	2.0E	12 M	0629	0252	2.2E	27 Tu	0650	0315	1.9E
	1008	0634	0.8F		1054	0716	0.9F		1033	0742	1.1F		1103	0809	1.2F		1104	0808	1.3F		1110	0827	1.3F
	1735	1318	1.7E		1805	1523	2.3E		1840	1447	2.4E		1901	1526	2.4E		1905	1523	2.6E		1917	1523	2.5E
	2218				2302	1945	1.1F		2314	2016	1.2F		2336	2035	1.2F		2320	2041	1.3F		2357	2052	1.3F
13 Th	0550	0129	2.1E	28 F	0622	0318	2.1E	13 Su	0650	0305	2.4E	28 M	0716	0340	2.1E	13 Tu	0717	0354	2.4E	28 W	0733	0358	2.1E
	1035	0723	1.0F		1118	0757	1.1F		1059	0828	1.3F		1123	0849	1.3F		1145	0855	1.4F		1140	0909	1.3F
	1821	1421	2.0E		1848	1552	2.5E		1924	1540	2.7E		1941	1556	2.6E		1951	1614	2.9E		1957	1604	2.7E
	2249				2329	2022	1.2F		2355	2059	1.3F			2114	1.3F			2125	1.3F			2131	1.3F
14 F	0632	0229	2.4E	29 Sa	0703	0338	2.3E	<															

TABLE 2. — CURRENT DIFFERENCES AND OTHER CONSTANTS AND ROTARY TIDAL CURRENTS

EXPLANATION OF TABLE

In this publication, reference stations are those for which daily predictions are listed in Table 1. Those stations appearing in Table 2 are called subordinate stations. The principal purpose of Table 2 is to present data that will enable one to determine the approximate times of minimum currents (slack waters) and the times and speeds of maximum currents at numerous subordinate stations on the Pacific Coast of North America and Asia. By applying the specific corrections given in Table 2 to the predicted times and speeds of the current at the appropriate reference station, reasonable approximations of the current at the subordinate station may be compiled.

Locations and Depths

Because the latitude and longitude are listed according to the exactness recorded in the original survey records, the locations of the subordinate stations are presented in varying degrees of accuracy. Since a minute of latitude is nearly equivalent to a mile, a location given to the nearest minute may not indicate the exact position of the station. This should be noted, especially in the case of a narrow stream, where the nearest minute of latitude or longitude may locate a station inland. In such cases, unless the description locates the station elsewhere, reference is made to the current in the center of the channel. In some instances, the charts may not present a convenient name for locating a station. In those cases, the position may be described by a bearing from some prominent place on the chart.

Although current measurements may have been recorded at various depths in the past, the data listed here for most of the subordinate stations are mean values determined to have been representative of the current at each location. For that reason, no specific current meter depths for those stations are given in Table 2. In recent years, however, new data from individual meter depths at a given location have been published and subsequent new data also may be presented in a similar manner.

Since most of the current data in Table 2 came from meters suspended from survey vessels or anchored buoys, the listed depths are those measured downward from the surface. Some later data have come from meters anchored at fixed depths from the bottom. Those meter positions were defined as depths below chart datum. Such defined depths in this and subsequent editions will be accompanied by the small letter "d."

Minimum Currents

Between the maximum flood and maximum ebb phases, the current may or may not diminish to a true slack water or zero speed stage. For that reason, the all-inclusive terms, "minimum before flood" and "minimum before ebb" are used in the Table 2 heading rather than "slack water." Average speeds and directions of the minimums are given where they are known. Dashes are used where the values are unknown or unreliable and should not be interpreted as zero speed values.

Maximum Currents

Near the coast and in inland tidal waters, the current increases from minimum current (slack water) for a period of about 3 hours until the maximum speed or the strength of the current is reached. The speed then decreases for another period of about 3 hours when minimum current is again reached and the current begins a similar cycle in the opposite direction. The current that flows toward the coast or up a stream is known as the flood current; the opposite flow is known as the ebb current. Table 2 lists the average speeds and directions of the maximum floods and maximum ebbs. The directions are given in degrees, true, reading clockwise from 000° at north to 359° and are the directions toward which the current flow.

Differences and Speed Ratios

Table 2 contains mean time differences by which the reader can compile approximate times for the minimum and maximum current phases at the subordinate stations. Time differences for those phases should be applied to the corresponding phases at the reference station. It will be seen upon inspection that some subordinate stations exhibit either a double flood or a double ebb stage, or both. Explanations

TABLE 2. — CURRENT DIFFERENCES AND OTHER CONSTANTS AND ROTARY TIDAL CURRENTS

of these stages can be found in the glossary located elsewhere in this publication. In those cases, a separate time difference is listed for each of the three flood (or ebb) phases and these should be applied only to the daily maximum flood (or ebb) phase at the reference station. The results obtained by the application of the time differences will be based upon the time meridian shown above the name of the subordinate station. Differences of time meridians between a subordinate station and its reference station have been accounted for and no further adjustment by the reader is needed. Summer or daylight-saving time is not used in this publication.

The speed ratios are used to compile approximations of the daily current speeds at the subordinate stations and refer only to the maximum floods and ebbs. No attempt is made to predict the speeds of the minimum currents. Normally, these ratios should be applied to the corresponding maximum current phases at the reference station. As mentioned above, however, some subordinate stations may exhibit either a double flood or a double ebb or both. As with the time differences, separate ratios are listed for each of the three flood (or ebb phases) and should be applied only to the daily maximum flood (or ebb) speed at the reference station. It should be noted that although the speed of a given current phase at a subordinate station is obtained by reference to the corresponding phase at the reference station, the directions of the current at the two places may differ considerably. Table 2 lists the average directions of the various current phases at the subordinate stations.

Rotary Tidal Currents

Table 5 contains listings of data for those stations which exhibited rotary current patterns. Briefly, a rotary current can be described as one which flows continually with the direction of flow changing through all points of the compass during the tidal period. A more complete description can be found in the glossary located elsewhere in this publication. The average speeds and directions are listed in hour increments as referred to the predicted times of a particular current phase at a reference station in Table 1. The Moon, at times of new, full, or perigee may increase speeds 15 to 20 percent above average; or 30 to 40 percent if perigee occurs at or near the time of new or full Moon. Conversely, the Moon at times of quadrature or apogee may decrease the speeds 15 to 20 percent or 30 to 40 percent if they occur together. Near average speeds may be expected when apogee occurs near or at new or full Moon, or when perigee occurs at or near quadrature. The directions of the currents are given in degrees true, reading clockwise from 000° at north to 359° and are the directions toward which the current flows.

Example of the use of Table 2.—Suppose we wish to calculate the approximate times of the minimum currents and the times and speeds of the maximum currents on a particular morning at the location listed as Cordova, Orca Inlet. From Table 2 we learn that the reference station is Wrangell Narrows whose predicted currents for the morning are listed below. Currents for Cordova can be approximated by using the Table 2 corrections as shown below.

	<i>Minimum Before Flood h.m.</i>	<i>Maximum flood h.m.</i>	<i>kn.</i>	<i>Minimum before ebb h.m.</i>	<i>Maximum ebb h.m.</i>	<i>kn.</i>
Wrangell Narrows	0011	0243	2.8	0613	0912	2.8
Table 2 corrections	-023	+019	x0.5 ratio	+023	+016	x0.3 ratio
Cordova	2348*	0302	1.4	0636	0928	0.8

* this minimum current phase is seen to occur just before midnight of the previous day.

Table 2 list the mean values of the minimum current phases as 0.0 knots; therefore, no directions are given. The average directions of the maximum flood and maximum ebb are 212° true and 026° true, respectively.

NOTE.—subordinate locations referencing Iloilo, San Bernardino Strait, San Juanico, and Cebu Harbor were included only for future consideration. See IMPORTANT NOTICE on page VII.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											h	m	h	m	knots	Dir.	knots	Dir.
	HECATE STRAIT and CHATHAM SOUND Time meridian, 120° W	ft	North	West	h	m	h	m	h	m								
			on Wrangell Narrows, p.92															
2571	Meyers Narrows, Meyers Passage		52° 37'	128° 39'	-1 00	-0 56	-0 54	-0 35	0.9	1.1	--	--	2.2	090°	--	--	2.2	270°
2576	Otter Passage, Nepean Sound		53° 08'	129° 45'	-0 19	-0 22	-0 26	-0 01	--	2.1	--	--	--	050°	--	--	4.4	230°
2581	Grenville Channel (narrow portion) <46>		53° 36'	129° 41'	+1 23	+1 17	+1 09	+1 38	0.4	1.6	--	--	1.4	320°	--	--	3.4	140°
2586	Skeena River, Middle Passage		54° 06'	130° 13'	+1 39	+1 31	+1 21	+1 52	0.7	1.1	--	--	2.2	120°	--	--	2.2	310°
2591	Casey Point, Prince Rupert Harbor		54° 16'	130° 22'	+1 37	+1 29	+1 19	+1 50	--	1.0	--	--	--	340°	--	--	2.1	160°
2596	Tuck Narrows, Prince Rupert Harbor		54° 24'	130° 15'	+0 24	+0 28	+0 30	+0 49	1.6	2.3	--	--	5.2	325°	--	--	4.8	145°
2601	Between Rose Spit and Overfall Shoal		54° 14'	131° 35'	+0 14	+0 18	+0 20	+0 39	0.9	1.3	--	--	2.8	145°	--	--	2.8	325°
	DIXON ENTRANCE																	
2606	Naden Harbor, Alexandria Narrows		54° 02.19'	132° 34.44'	+0 33	+0 30	+0 26	+0 51	0.4	0.9	--	--	1.3	205°	--	--	1.8	025°
2611	Masset Harbor, 5 miles Inside		54° 01'	132° 10'	+3 09	+2 59	+2 47	+3 20	1.3	2.1	--	--	4.0	145°	--	--	4.5	335°
	Time meridian, 135° W																	
2616	Cape Muzon, 4 miles south from		54° 36'	132° 41'	-0 39	-0 47	-0 57	-0 26	0.8	1.2	--	--	2.4	045°	--	--	2.4	225°
2621	Point Marsh, 5 miles south from		54° 38'	132° 18'	-0 39	-0 47	-0 57	-0 26	0.7	1.1	--	--	2.3	035°	--	--	2.3	215°
2626	Cape Chacon, south of	42d	54° 37.53'	132° 03.42'	-0 21	-2 44	-3 18	-0 53	0.1	0.7	0.3	185°	0.3	156°	0.2	186°	1.4	254°
	do.	200d	54° 37.53'	132° 03.42'	-0 35	-1 20	-1 43	-0 55	0.3	0.6	--	--	0.8	076°	0.1	354°	1.2	261°
	do.	357d	54° 37.53'	132° 03.42'	-0 53	-0 46	-1 01	-1 17	0.5	0.7	--	--	1.7	088°	0.3	184°	1.5	264°
2631	West Devil Rock, 2 miles north of		54° 42'	131° 36'	-0 34	-0 42	-0 52	-0 21	0.8	1.2	--	--	2.4	035°	--	--	2.4	215°
2636	Barren Island Light, 2 miles south from		54° 42'	131° 21'	-0 29	-0 37	-0 47	-0 16	0.7	1.1	--	--	2.3	040°	--	--	2.3	220°
	Time meridian, 120° W																	
2641	East Devil Rock, 1 mile north of		54° 42'	131° 05'	+0 31	+0 23	+0 13	+0 44	0.7	1.1	--	--	2.2	085°	--	--	2.2	265°
2646	Between Dundas Island and Cape Fox		54° 42'	130° 50'	+0 14	+0 18	+0 20	+0 39	0.6	1.4	--	--	2.0	090°	--	--	3.0	270°
2651	Tongass Islands, east of, Nakat Bay		54° 46.94'	130° 44.23'	-1 31	-2 40	-1 38	-1 31	0.3	0.6	--	--	0.8	326°	--	--	1.2	157°
2656	Boston Islands, 1 mile south from		54° 41'	130° 34'	-0 29	-0 37	-0 47	-0 16	0.7	1.1	--	--	2.0	085°	--	--	2.0	265°
2661	Portland Inlet, 2 miles S. of Wales Pt		54° 40'	130° 29'	+0 36	+0 28	+0 18	+0 49	0.8	1.2	--	--	2.4	040°	--	--	2.4	220°
	PEARSE CANAL																	
2666	Haystack Island, Tongass Passage		54° 43'	130° 37'	+0 31	+0 23	+0 13	+0 44	0.8	1.2	--	--	2.5	340°	--	--	2.5	160°
2671	Point Phipp		54° 47'	130° 38'	+0 31	+0 23	+0 13	+0 44	0.9	1.3	--	--	2.8	065°	--	--	2.8	245°
2676	Narrows		54° 50.08'	130° 29.13'	+0 34	+0 26	+0 31	+0 47	0.9	1.3	--	--	2.8	045°	--	--	2.8	225°
	Time meridian, 135° W																	
2681	Blaine Point		55° 02'	130° 13'	-0 19	-0 27	-0 37	-0 06	0.6	1.0	--	--	2.0	025°	--	--	2.0	205°
	PORTLAND CANAL Time meridian, 120° W																	
2686	Wales Point, 2 miles south from		54° 40'	130° 29'	+0 36	+0 28	+0 18	+0 49	0.8	1.2	--	--	2.4	040°	--	--	2.4	220°
2691	Cliff Point, 1 mile east from		54° 48'	130° 19'	+0 36	+0 28	+0 18	+0 49	0.7	1.1	--	--	2.2	045°	--	--	2.2	225°
2696	Flat Point, 1 mile east of		54° 55'	130° 10'	+0 41	+0 33	+0 23	+0 54	0.6	1.0	--	--	2.0	030°	--	--	2.0	210°
2701	Tree Point, 1 mile east of		55° 02'	130° 10'	+0 41	+0 33	+0 23	+0 54	0.6	0.9	--	--	1.8	345°	--	--	1.8	165°
2706	Dickens Point		55° 09'	130° 09'	+0 41	+0 33	+0 23	+0 54	0.5	0.7	--	--	1.5	020°	--	--	1.5	200°
2711	White Point		55° 34'	130° 07'	+0 46	+0 38	+0 28	+0 59	0.3	0.5	--	--	1.0	350°	--	--	1.0	170°
	Time meridian, 135° W																	
2716	Camp Point		55° 17'	129° 59'	-0 14	-0 22	-0 32	-0 01	0.4	0.6	--	--	1.3	000°	--	--	1.3	180°
2721	Miners Point		55° 43'	130° 09'	-0 09	-0 17	-0 27	+0 04	0.3	0.4	--	--	0.8	350°	--	--	0.8	170°
2726	Lion Point		55° 53'	130° 02'	-0 09	-0 17	-0 27	+0 04	0.2	0.2	--	--	0.5	025°	--	--	0.5	205°

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS										
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb				
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.			
	REVILLAGIGEDO CHANNEL Time meridian, 135° W	ft	North	West	h	m	h	m	h	m			knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.	
					on Wrangell Narrows, p.92																
2731	Duke Point, 3.5 miles northeast of		54° 57'	131° 06'									--	--	0.5	353°	--	--	0.4	168°	
2736	Middy Point, 2.9 miles ENE of		55° 11'	131° 15'									--	--	0.3	265°	--	--	0.2	115°	
2741	Walker Island, 1.1 miles north of		55° 12'	131° 20'									--	--	0.3	320°	--	--	0.2	105°	
2746	Angle Point, 0.5 mile southwest of <47>		55° 14'	131° 26'								0.1	--	--	0.3	290°	--	--	--	--	
2751	Reef Point, 0.7 mile northeast of		55° 15'	131° 28'									--	--			--	--			
2756	Race Point, 0.7 mile ENE of		55° 17.15'	131° 32.76'	+0 49	+0 22	+0 10	+0 18			0.2	0.2	--	--	0.5	145°	--	--	0.4	300°	
	CARROLL INLET																				
2761	Carroll Point, 0.7 mile northwest of		55° 18'	131° 30'																	
	TONGASS NARROWS <48>																				
2766	Pennock Island, East Channel	16d	55° 18.74'	131° 35.78'	-1 13	-1 01	-0 13	-0 29	0.3	0.4	0.1	228°	1.0	302°	--	--	0.9	139°			
	do.	62d	55° 18.74'	131° 35.78'	-1 27	-0 27	-0 11	-0 44	0.1	0.2	--	--	0.4	313°	--	--	0.4	132°			
	do.	101d	55° 18.74'	131° 35.78'	Current weak and variable																
2771	Pennock Island, West Channel	14d	55° 18.09'	131° 36.96'	-1 08	-1 27	-0 53	-0 26	0.2	0.3	--	--	0.6	296°	--	--	0.6	149°			
	do.	41d	55° 18.09'	131° 36.96'	+0 24	-0 41	-0 47	+0 54	0.2	0.2	--	--	0.5	291°	--	--	0.4	145°			
	do.	80d	55° 18.09'	131° 36.96'	Current weak and variable																
2776	Saxman Spire, 0.2 mile south of		55° 18.93'	131° 36.16'	-0 32	-2 00	-2 02	-0 12	0.2	0.3	--	--	0.6	320°	--	--	0.7	110°			
2781	Ketchikan		55° 20.17'	131° 38.65'	-0 50	+0 08	+0 04	-0 41	0.3	0.1	--	--	0.8	310°	--	--	0.2	120°			
2786	east of the airport	15d	55° 21.24'	131° 41.98'	-1 58	-0 38	-0 23	-1 11	0.4	0.5	--	--	1.2	317°	--	--	0.9	133°			
	do.	55d	55° 21.24'	131° 41.98'	-1 32	-1 17	-1 08	-1 17	0.3	0.8	--	--	0.9	321°	--	--	1.6	128°			
	do.	87d	55° 21.24'	131° 41.98'	-1 26	-2 08	-1 53	-1 26	0.2	0.8	--	--	0.6	319°	--	--	1.8	117°			
2791	Rosa Reef, 0.5 mile north of <50>		55° 25'	131° 48'	Current weak and variable																
2796	Point Higgins, 1 mile west of <51>		55° 27'	131° 52'	--	+2 02	--	+0 11	0.1	0.1	--	--	0.1	150°	--	--	0.1	325°			
	FELICE STRAIT																				
2801	Hotspur Island, 0.5 mile southeast of		54° 58'	131° 29'	-0 53	-1 29	-1 06	-0 56	0.3	0.4	--	--	1.0	040°	--	--	0.9	220°			
2806	Point Davidson, 1 mile south of		54° 59'	131° 36'	-0 29	-0 37	-0 47	-0 16	0.6	1.0	--	--	2.0	060°	--	--	2.0	240°			
2811	Harris Island		55° 00'	131° 32'	-0 29	-0 37	-0 47	-0 16	1.3	1.8	--	--	4.2	055°	--	--	3.8	235°			
2816	Ajax Reef		55° 00'	131° 28'	-0 24	-0 32	-0 42	-0 11	0.9	1.4	--	--	3.0	095°	--	--	3.0	275°			
2821	Snipe Island Light, 1.2 miles SW of <52>		55° 00'	131° 25'	--	--	--	-0 22	--	0.5	--	--	--	--	--	--	1.1	250°			
2826	Snipe Island		55° 00'	131° 23'	-0 19	-0 27	-0 37	-0 06	1.3	1.8	--	--	4.2	070°	--	--	3.8	250°			
2831	Grass Rock, Tamgas Harbor entrance		55° 01.30'	131° 31.34'	-0 24	-0 32	-0 42	-0 11	0.8	1.2	--	--	2.5	015°	--	--	2.5	195°			
2836	Indian Reef		55° 02'	131° 21'	-0 19	-0 27	-0 37	-0 06	1.1	1.6	--	--	3.6	030°	--	--	3.4	210°			
2841	Indian Rock Buoy, 1.3 miles east of <53>		55° 02'	131° 18'	--	--	--	-0 53	--	0.3	--	--	--	--	--	--	0.5	195°			
2846	Indian Rock Buoy, 0.3 miles NW of <53>		55° 02'	131° 21'	--	--	--	-1 37	--	0.5	--	--	--	--	--	--	0.9	195°			
2851	Kwain Bay, 2.0 miles east of		55° 05'	131° 19'	Current weak and variable																
2856	Beaver Creek, Mary Island, 0.6 mile W of		55° 05'	131° 15'	Current weak and variable																
2861	Customhouse Cove, 1 mile west of		55° 06'	131° 16'	-0 19	-0 27	-0 37	-0 06	0.6	1.0	--	--	2.0	020°	--	--	2.0	200°			
	NICHOLS PASSAGE																				
2866	Hid Reef, 2.7 miles south of		55° 02'	131° 40'	-0 18	-0 54	-0 40	+0 12	0.2	0.2	--	--	0.7	000°	--	--	0.4	190°			
2871	Point McCarty Light		55° 07'	131° 42'	-0 24	-0 32	-0 42	-0 11	0.6	1.0	--	--	2.0	040°	--	--	2.0	220°			
2876	Point McCarty Light, 1.5 miles east of		55° 07'	131° 40'	Current weak and variable																
2881	Village Point, Metlakatla, 0.2 mile N of		55° 08'	131° 34'	Current weak and variable																
2886	Wharburton Island		55° 08.01'	131° 37.72'	-0 24	-0 32	-0 42	-0 11	0.7	1.1	--	--	2.2	025°	--	--	2.2	205°			
2891	Driest Point		55° 11'	131° 36'	-0 19	-0 27	-0 37	-0 06	0.6	0.9	--	--	1.9	355°	--	--	1.9	175°			

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.
	NICHOLS PASSAGE-cont. Time meridian, 135° W	ft	North	West	h	m	h	m	h	m	h	m						
					on Wrangell Narrows, p.92													
2896	Bostwick Point, 0.6 mile southeast of		55° 13'	131° 41'	Current weak and variable													
2901	Bostwick Point, 2.1 miles east of		55° 13'	131° 38'	Current weak and variable													
2906	Blank Point		55° 14.92'	131° 40.16'	-0 14	-0 22	-0 32	-0 01	0.7	1.1	--	--	2.3	010°	--	--	2.3	190°
2911	Walden Rocks, 0.4 mile north of	23d	55° 16.71'	131° 36.69'	-1 25	-2 03	-1 36	-0 40	0.4	0.5	0.3	120°	1.1	039°	--	--	1.0	207°
	do.	76d	55° 16.71'	131° 36.69'	-1 23	-1 27	-0 50	-1 01	0.5	0.4	--	--	1.5	047°	--	--	0.8	233°
	do.	115d	55° 16.71'	131° 36.69'	-1 34	-1 14	-0 57	-1 19	0.4	0.4	0.1	140°	1.4	052°	--	--	0.8	231°
	BEHM CANAL																	
2916	Point Sykes		55° 12'	131° 07'	-0 19	-0 27	-0 37	-0 06	0.3	0.5	--	--	1.0	040°	--	--	1.0	220°
2921	Point Nelson		55° 18'	130° 57'	Current weak and variable													
2926	Short Pass		55° 22.88'	130° 58.55'	Current weak and variable													
2931	Behm Narrows		55° 54.82'	131° 31.92'	-1 41	-3 07	-3 41	-2 58	0.1	0.6	--	--	0.3	047°	--	--	0.5	222°
2936	Helm Point		55° 36'	131° 50'	-0 19	-0 27	-0 37	-0 06	0.4	0.6	--	--	0.2	062°	--	--	1.2	264°
2941	Guard Islands, 2 miles northwest of		55° 28'	131° 54'	-0 19	-0 27	-0 37	-0 06	0.4	0.7	--	--	1.2	030°	--	--	1.2	210°
	CLARENCE STRAIT																	
2946	Duke Island, 2.8 miles WSW of <54>		54° 55'	131° 34'	--	-0 58	--	+0 18	0.2	0.6	0.1	000°	0.7	088°	0.3	155°	1.2	238°
2951	Point Davison, 0.8 mile south of <55>		54° 59'	131° 36'	+1 16	-0 31	+0 02	--	0.2	--	--	--	0.7	045°	--	--	--	240°
2956	Grass Rock, 1 mile south of		55° 00'	131° 33'	-0 24	-0 29	-0 02	-0 22	0.2	0.6	--	--	0.8	025°	--	--	1.3	235°
2961	Moira Rock, 2 miles east of		55° 05'	131° 56'	-0 24	-0 32	-0 42	-0 11	0.5	0.7	--	--	1.5	005°	--	--	1.5	185°
2966	Moira Sound entrance		55° 05.64'	132° 00.14'	Current weak and variable													
2971	Halibut Creek, 1 mile east of		55° 15'	131° 58'	Current weak and variable													
2976	Halibut Creek, 4.5 miles east of		55° 14'	131° 52'	--	-0 06	--	+0 17	0.2	0.2	--	--	0.3	350°	--	--	0.6	160°
2981	Cholmondeley Sound entrance		55° 17'	132° 04'	Current weak and variable													
2986	Skin Island, 3 miles east from		55° 18'	131° 59'	-0 19	-0 27	-0 37	-0 06	0.5	0.7	--	--	1.5	350°	--	--	1.5	170°
2991	Grindall Island, south of	24d	55° 24.66'	132° 07.59'	-1 52	-1 30	-0 39	-1 08	0.1	0.2	0.1	282°	0.4	013°	0.1	092°	0.4	183°
	do.	122d	55° 24.66'	132° 07.59'	-0 13	+0 08	+0 16	+0 04	0.1	0.2	0.1	044°	0.4	318°	--	--	0.4	108°
	do.	220d	55° 24.66'	132° 07.59'	+0 27	+0 23	+1 26	+1 02	0.1	0.2	--	--	0.4	280°	0.1	159°	0.5	075°
2996	Skowl Arm, Kasaan Bay		55° 26'	132° 19'	Current weak and variable													
3001	Happy Harbor, Kasaan Island, Kasaan Bay	39d	55° 30.22'	132° 18.97'	+0 51	+0 16	+0 02	+0 33	0.1	0.2	--	--	0.3	255°	--	--	0.2	045°
	do.	176d	55° 30.22'	132° 18.97'	+1 12	+0 42	+0 19	+0 38	0.1	0.3	--	--	0.4	302°	--	--	0.4	118°
	do.	295d	55° 30.22'	132° 18.97'	Current weak and variable													
3006	Guard Island Lighthouse, 5.1 miles SW of		55° 24'	132° 00'	+0 06	-0 03	-0 12	+0 20	0.2	0.3	--	--	0.7	006°	--	--	0.7	164°
3011	Guard Islands, 2 miles west of		55° 27'	131° 57'	-0 19	-0 27	-0 37	-0 06	0.4	0.7	--	--	1.5	010°	--	--	1.5	190°
3016	Ship Island		55° 36'	132° 15'	-0 14	-0 22	-0 32	-0 01	0.5	0.7	--	--	1.5	335°	--	--	1.5	155°
3021	Narrow Point		55° 47'	132° 25'	-0 09	-0 17	-0 27	+0 04	0.5	0.7	--	--	1.5	330°	--	--	1.5	150°
3026	Mabel Island, 3 miles west from		55° 55'	132° 30'	+0 01	-0 07	-0 17	+0 14	0.5	0.7	--	--	1.5	330°	--	--	1.5	150°
3031	Lincoln Rock Light, 1 mile west from		56° 03'	132° 43'	+0 11	+0 03	-0 07	+0 24	0.5	0.7	--	--	1.5	335°	--	--	1.5	155°
	ERNEST SOUND																	
3036	McHenry Ledge, 1 mile north of		55° 48'	132° 18'	-0 09	-0 17	-0 27	+0 04	0.6	1.0	--	--	2.0	045°	--	--	2.0	225°
3041	Vixen Point, 3 miles west of		55° 51'	132° 11'	-0 04	-0 12	-0 22	+0 09	0.5	0.8	--	--	1.7	065°	--	--	1.7	245°
3046	Eaton Point		55° 57.17'	132° 05.40'	+0 01	-0 07	-0 17	+0 14	0.7	1.0	--	--	2.1	015°	--	--	2.1	195°
3051	Niblack Islands		56° 02'	132° 05'	+0 06	-0 02	-0 12	+0 19	0.7	1.0	--	--	2.1	005°	--	--	2.1	185°
3056	Blanche Rock		56° 05'	132° 05'	+0 11	+0 03	-0 07	+0 24	0.6	1.0	--	--	2.0	035°	--	--	2.0	215°
3061	Point Warde		56° 11'	131° 58'	+0 16	+0 08	-0 02	+0 29	0.6	1.0	--	--	2.0	045°	--	--	2.0	225°

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TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS								
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb		
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.	
	BLAKE CHANNEL and EASTERN PASSAGE Time meridian, 135° W	ft	North	West	h m	h m	h m	h m			knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.	
					on Wrangell Narrows, p.92														
3066	Blake Island		56° 13.38'	131° 54.53'	+0 21	+0 13	+0 03	+0 34	0.8	1.2	--	--	2.5	330°	--	--	2.5	150°	
3071	Berg Bay		56° 20.62'	132° 00.46'	+0 26	+0 18	+0 08	+0 39	0.7	1.1	--	--	2.2	335°	--	--	2.2	155°	
3076	The Narrows		56° 22.07'	132° 06.16'	+0 31	+0 23	+0 13	+0 44	0.9	1.4	--	--	3.0	225°	--	--	3.0	045°	
3081	Channel Island, north of		56° 22.51'	132° 10.18'	+0 31	+0 23	+0 13	+0 44	0.6	1.0	--	--	2.0	140°	--	--	2.0	320°	
3086	Mill Creek		56° 27'	132° 13'	+0 31	+0 23	+0 13	+0 44	0.6	0.9	--	--	1.8	150°	--	--	1.8	330°	
3091	Point Highfield		56° 30'	132° 23'	+0 06	-0 02	-0 12	+0 19	0.5	0.7	--	--	1.5	095°	--	--	1.5	275°	
	ZIMOVIA STRAIT																		
3096	Found Island, 1 mile northwest of		56° 07'	132° 06'	+0 11	+0 03	-0 07	+0 24	0.5	0.8	--	--	1.7	320°	--	--	1.7	140°	
3101	No Name Island, near Thoms Place		56° 09'	132° 09'	+0 16	+0 08	-0 02	+0 29	0.5	0.8	--	--	1.6	330°	--	--	1.6	150°	
3106	Village Islands		56° 13'	132° 19'	+0 16	+0 08	-0 02	+0 29	0.5	0.7	--	--	1.5	315°	--	--	1.5	135°	
3111	Young Rock, 2 miles south of		56° 20'	132° 23'	+0 21	+0 13	+0 03	+0 34	0.5	0.8	--	--	1.6	165°	--	--	1.6	345°	
3116	East Point, east of		56° 23'	132° 24'	+0 06	-0 02	-0 12	+0 19	0.5	0.8	--	--	1.7	010°	--	--	1.7	190°	
3121	Wrangell Harbor entrance		56° 28'	132° 24'	Current weak and variable														
3126	Wrangell Harbor, 1.6 miles west of		56° 28'	132° 27'	+2 28	+3 36	+2 16	+0 33	0.3	0.4	0.1	290°	0.8	050°	0.2	125°	0.8	235°	
3131	Point Shekesti, 2.3 miles west of		56° 28'	132° 26'	Current weak and variable														
	CLARENCE STRAIT-cont.																		
					on Snow Passage Narrows, p.84														
3136	Key Reef		56° 10'	132° 50'	+1 58	+2 19	+2 08	+2 33	0.6	0.5	--	--	1.5	010°	--	--	1.5	190°	
3141	Round Island Light	19d	56° 18.85'	133° 05.64'	+0 22	+0 22	+0 41	+0 51	0.9	0.7	0.3	230°	2.2	148°	--	--	2.0	318°	
	do.	32d	56° 18.85'	133° 05.64'	+0 15	+0 19	+0 42	+0 49	0.9	0.7	0.2	229°	2.2	146°	--	--	1.9	318°	
	do.	104d	56° 18.85'	133° 05.64'	-0 01	+0 20	+0 45	+0 42	0.8	0.6	0.2	227°	2.0	144°	0.1	233°	1.7	315°	
3146	Snow Passage, north entrance		56° 18'	133° 02'	+0 08	-0 50	+0 08	+0 40	0.6	1.1	--	--	1.4	122°	--	--	3.1	282°	
3151	SNOW PASSAGE NARROWS	23d	56° 16.74'	132° 57.18'	Daily predictions						0.1	063°	2.5	153°	0.1	065°	2.9	331°	
	do.	43d	56° 16.74'	132° 57.18'	-0 08	-0 12	+0 05	+0 16	1.2	1.1	--	--	2.9	153°	0.1	064°	3.3	333°	
	do.	299d	56° 16.74'	132° 57.18'	-0 10	-0 11	+0 16	+0 11	1.1	1.2	0.1	069°	2.8	154°	--	--	3.6	337°	
3156	Kashevarof Passage, north entrance		56° 15'	133° 03'	+0 10	-0 03	+0 35	+0 23	0.6	0.7	--	--	1.5	155°	--	--	1.9	335°	
3161	Snow Passage, southern approach	14d	56° 15.38'	132° 56.43'	+0 03	-0 12	+0 12	+0 44	0.8	0.5	0.1	064°	1.9	163°	--	--	1.4	328°	
	do.	44d	56° 15.38'	132° 56.43'	-0 03	-0 15	+0 29	+0 46	1.0	0.6	--	--	2.5	162°	--	--	1.6	329°	
	do.	260d	56° 15.38'	132° 56.43'	-0 26	+0 16	+0 21	-0 21	1.4	0.7	--	--	3.4	159°	0.1	249°	2.0	336°	
3166	Shrubby Island, east of	61d	56° 13.60'	132° 54.52'	+1 07	+1 33	+1 15	+1 28	0.3	0.3	0.1	068°	0.8	149°	--	--	1.0	326°	
	do.	72d	56° 13.60'	132° 54.52'	+0 58	+1 13	+1 19	+1 37	0.4	0.3	0.1	065°	1.0	149°	--	--	1.0	327°	
	do.	308d	56° 13.60'	132° 54.52'	-1 11	-0 10	-0 14	-0 40	0.5	0.4	--	--	1.3	151°	0.1	233°	1.2	314°	
	STIKINE STRAIT																		
3171	Steamer Point, 1 mile west of		56° 13'	132° 44'	+1 58	+2 19	+2 08	+2 33	0.8	0.7	--	--	2.0	040°	--	--	2.0	220°	
3176	Round Point		56° 17'	132° 37'	+1 58	+2 19	+2 08	+2 33	0.6	0.5	--	--	1.5	015°	--	--	1.5	195°	
3181	South Craig Point		56° 23'	132° 36'	+2 03	+2 24	+2 13	+2 38	0.8	0.7	--	--	2.0	010°	--	--	2.0	190°	
3186	Vank Island, off Neal Point		56° 26.55'	132° 35.51'	+2 03	+2 24	+2 13	+2 38	0.8	0.7	--	--	2.0	035°	--	--	2.0	215°	
	CORDOVA BAY																		
					on Wrangell Narrows, p.92														
3191	Cape Muzon, 5 miles east of		54° 40'	132° 32'	-0 39	-0 47	-0 57	-0 26	0.4	0.6	--	--	1.2	005°	--	--	1.2	185°	
3196	Dewey Rocks, 2 miles west of		54° 45'	132° 32'	-0 34	-0 42	-0 52	-0 21	0.3	0.5	--	--	1.0	005°	--	--	1.0	185°	
3201	Eureka Channel, off Leading Point		54° 49'	132° 23'	--	--	--	--	--	--	--	--	0.3	028°	--	--	0.6	235°	
3206	Boat Rocks, 2 miles west of		54° 49'	132° 34'	-0 34	-0 42	-0 52	-0 21	0.3	0.5	--	--	1.1	005°	--	--	1.1	185°	
3211	Ship Islands, 2 miles southwest of		54° 53'	132° 33'	--	--	--	--	--	--	--	--	0.4	358°	--	--	0.2	177°	
3216	Webster Point, 1 mile west of		54° 58'	132° 38'	-0 29	-0 37	-0 47	-0 16	0.5	0.8	--	--	1.7	005°	--	--	1.7	185°	
3221	Mellen Rock, 1 mile east of	7d	55° 02'	132° 39'	-0 24	-0 32	-0 42	-0 11	0.6	1.0	--	--	2.0	010°	--	--	2.0	190°	

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No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.
	TLEVAK STRAIT Time meridian, 135° W	ft	North	West	h m	h m	h m	h m										
					on Wrangell Narrows, p.92													
3226	Shoe Rock, 1 mile north of		54° 58'	132° 44'	-0 29	-0 37	-0 47	-0 16	0.5	0.8	--	--	1.7	285°	--	--	1.7	105°
3231	Grand Island, 2 miles north of		55° 00'	132° 52'	-0 24	-0 32	-0 42	-0 11	0.5	0.7	--	--	1.5	295°	--	--	1.5	115°
3236	High Point, 1 mile east of		55° 01'	132° 56'	-0 24	-0 32	-0 42	-0 11	0.6	0.9	--	--	1.8	340°	--	--	1.8	160°
3241	McFarland Islands		55° 04'	132° 57'	-0 19	-0 27	-0 37	-0 06	0.5	0.8	--	--	1.7	340°	--	--	1.7	160°
3246	Corlies Islands		55° 08'	132° 58'	-0 19	-0 27	-0 37	-0 06	0.5	0.7	--	--	1.5	345°	--	--	1.5	165°
3251	Sukkwan Narrows		55° 11.90'	132° 49.44'	-0 29	-0 45	-0 20	-0 09	0.4	0.6	--	--	1.4	323°	--	--	1.2	130°
3256	The Sentinels, 1 mile west of		55° 11'	133° 01'	-0 19	-0 27	-0 37	-0 06	0.5	0.8	--	--	1.6	335°	--	--	1.6	155°
					on Sergius Narrows, p.96													
3261	Halibut Nose		55° 13'	133° 04'	+0 08	-0 06	+0 01	-0 05	0.2	0.3	--	--	1.5	170°	--	--	1.5	350°
3266	Lively Islands, west of <59>		55° 13.99'	133° 05.54'	-0 07	-0 21	-0 14	-0 20	0.5	0.7	--	--	3.2	175°	--	--	3.2	355°
3271	Tlevak Narrows, Turn Point, east of	14d	55° 15.89'	133° 07.34'	-0 18	-0 31	-0 34	-0 37	0.6	1.1	0.3	042°	3.6	120°	0.3	047°	5.6	330°
	do.	44d	55° 15.89'	133° 07.34'	-0 20	-0 32	-0 34	-0 36	0.6	1.1	0.3	043°	3.5	120°	0.3	047°	5.5	333°
	do.	77d	55° 15.89'	133° 07.34'	-0 20	-0 34	-0 33	-0 32	0.5	0.8	0.1	043°	3.2	127°	0.2	043°	3.9	327°
	MEARES PASSAGE				on Wrangell Narrows, p.92													
3276	Meares Island, south of		55° 15.47'	133° 10.97'	-0 19	-0 27	-0 37	-0 06	0.7	1.0	--	--	2.1	090°	--	--	2.1	270°
3281	Eagle Point	30d	55° 13.21'	133° 14.47'	-1 27	-1 39	-1 59	-1 50	0.1	0.3	--	--	0.3	019°	--	--	0.6	283°
	do.	148d	55° 13.21'	133° 14.47'	-1 58	-1 53	-1 54	-1 37	0.1	0.1	--	--	0.3	004°	--	--	0.3	184°
	do.	246d	55° 13.21'	133° 14.47'	Current Weak and Variable													
3286	Millar Rocks		55° 12'	133° 15'	-0 29	-0 37	-0 47	-0 16	0.4	0.6	--	--	1.2	030°	--	--	1.2	210°
3291	Diver Islands		55° 11'	133° 17'	-0 29	-0 37	-0 47	-0 16	0.3	0.5	--	--	1.0	025°	--	--	1.0	205°
	ULLOA CHANNEL																	
3296	Cape Flores		55° 21'	133° 19'	-0 19	-0 27	-0 37	-0 06	0.7	1.1	--	--	2.2	150°	--	--	2.2	330°
3301	Point Verde	14d	55° 17.95'	133° 16.06'	--	--	--	-0 44	--	0.1	--	--	--	--	--	--	0.3	343°
	do.	54d	55° 17.95'	133° 16.06'	Current weak and variable													
	do.	93d	55° 17.95'	133° 16.06'	-2 18	-1 46	-2 06	-1 46	0.1	0.1	--	--	0.3	134°	--	--	0.3	315°
3306	Waterfall Cannery		55° 18'	133° 15'	-0 19	-0 27	-0 37	-0 06	0.6	1.0	--	--	2.0	155°	--	--	2.0	335°
	BUGARELLI BAY to DAVIDSON INLET																	
3311	Cape Bartolome, 2 miles east of		55° 14'	133° 33'	-0 29	-0 37	-0 47	-0 16	0.4	0.6	--	--	1.2	020°	--	--	1.2	200°
3316	Point Rosary, west of	48d	55° 16.22'	133° 31.34'	-1 03	-1 06	-1 07	-0 48	0.1	0.1	0.1	288°	0.3	013°	--	--	0.3	199°
	do.	196d	55° 16.22'	133° 31.34'	Current weak and variable													
3321	Point Arboleda, 1 mile west of		55° 19'	133° 29'	-0 24	-0 32	-0 42	-0 11	0.4	0.7	--	--	1.4	020°	--	--	1.4	200°
3326	Cabras Islands, 1 mile west of		55° 21'	133° 25'	-0 24	-0 32	-0 42	-0 11	0.4	0.6	--	--	1.2	045°	--	--	1.2	225°
3331	Cape Flores, 1 mile north of		55° 22'	133° 18'	-0 19	-0 27	-0 37	-0 06	0.5	0.7	--	--	1.5	055°	--	--	1.5	235°
3336	San Juanito Islands, 1 mile south of		55° 23.58'	133° 15.94'	Current weak and variable													
3341	Toti Island, 1.1 miles west of		55° 25'	133° 09'	-0 19	-0 27	-0 37	-0 06	0.3	0.5	--	--	1.1	070°	--	--	1.1	250°
3346	Coronados Islands, 2 miles west of		55° 26'	133° 10'	-0 14	-0 22	-0 32	-0 01	0.3	0.5	--	--	1.0	025°	--	--	1.0	205°
3351	Craig Cannery		55° 29'	133° 09'	-0 14	-0 22	-0 32	-0 01	0.3	0.5	--	--	1.0	010°	--	--	1.0	190°
3356	Klawock Narrows, north of Fish Egg Island	15d	55° 30.44'	133° 10.80'	-0 18	-0 36	+0 14	+0 02	0.2	0.4	--	--	0.5	100°	--	--	0.8	269°
	do.	35d	55° 30.44'	133° 10.80'	-0 18	-0 15	+0 28	+0 08	0.2	0.3	--	--	0.5	102°	--	--	0.6	281°
	do.	55d	55° 30.44'	133° 10.80'	-0 33	-0 31	+0 31	+0 12	0.2	0.3	--	--	0.5	102°	--	--	0.5	281°
3361	Saint Nicholas Channel, south end	28d	55° 27.30'	133° 37.85'	-1 47	-1 48	-1 27	-1 35	0.5	0.7	0.1	286°	1.4	022°	--	--	1.4	211°
	do.	87d	55° 27.30'	133° 37.85'	-1 50	-1 59	-1 46	-1 39	0.5	0.6	--	--	1.4	018°	--	--	1.3	209°
	do.	146d	55° 27.30'	133° 37.85'	-1 59	-2 02	-1 56	-1 41	0.4	0.6	0.1	304°	1.3	017°	0.2	295°	1.2	216°
3366	Portillo Channel	15d	55° 29.55'	133° 25.54'	-4 41	-4 06	-3 56	-4 16	0.1	0.2	--	--	0.4	345°	--	--	0.3	170°
	do.	47d	55° 29.55'	133° 25.54'	-4 28	-5 06	-4 59	-4 10	0.1	0.2	--	--	0.3	338°	--	--	0.4	155°
	do.	74d	55° 29.55'	133° 25.54'	-4 53	-6 00	-6 01	-4 47	0.1	0.2	--	--	0.3	331°	--	--	0.4	159°
3371	Ursua Channel		55° 27.49'	133° 18.97'	Current weak and variable													

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS								
			Latitude	Longitude	Min. before Flood	Flood		Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
						h	m					h	m	knots	Dir.	knots	Dir.	knots	Dir.
	BUCARELLI BAY to DAVIDSON INLET-cont. Time meridian, 135° W	ft	North	West	h	m	h	m	h	m									
			on Wrangell Narrows, p.92																
3376	Saint Nicholas Channel, north	22d	55° 31.77'	133° 33.76'	-2 09	-1 51	-1 49	-2 02	0.2	0.2	--	--	0.6	016°	0.1	098°	0.5	184°	
	do.	81d	55° 31.77'	133° 33.76'	-1 57	-2 14	-1 38	-1 38	0.1	0.2	0.1	291°	0.5	017°	0.1	102°	0.4	198°	
	do.	121d	55° 31.77'	133° 33.76'	-1 26	-2 09	-2 00	-1 19	0.1	0.2	--	--	0.3	009°	--	--	0.4	196°	
3381	San Christoval Rock	15d	55° 33.76'	133° 17.95'	-4 36	-4 58	-4 38	-4 23	0.4	0.6	--	--	1.4	308°	--	--	1.3	126°	
	do.	29d	55° 33.76'	133° 17.95'	-4 36	-5 00	-4 46	-4 28	0.4	0.6	--	--	1.3	309°	0.1	040°	1.2	126°	
	do.	42d	55° 33.76'	133° 17.95'	-4 37	-5 02	-4 47	-4 27	0.4	0.6	--	--	1.3	307°	--	--	1.2	124°	
3386	Arriaga Passage, west end	29d	55° 34.31'	133° 43.98'	+0 09	-0 33	-0 08	+0 17	0.2	0.3	--	--	0.7	062°	--	--	0.7	265°	
	do.	62d	55° 34.31'	133° 43.98'	+0 10	-0 24	-0 05	+0 10	0.2	0.3	0.1	334°	0.7	065°	0.1	350°	0.7	267°	
	do.	95d	55° 34.31'	133° 43.98'	+0 08	-0 19	-0 05	+0 09	0.2	0.3	0.2	345°	0.7	068°	--	--	0.7	274°	
3391	San Christoval Chanel, Larz Lt., 0.25nm N of	16d	55° 35.29'	133° 19.83'	-4 34	-5 02	-4 07	-4 19	0.2	0.2	0.1	029°	0.7	315°	0.1	027°	0.5	106°	
	do.	65d	55° 35.29'	133° 19.83'	-4 40	-5 02	-4 50	-4 38	0.2	0.2	--	--	0.7	305°	0.1	023°	0.5	107°	
	do.	104d	55° 35.29'	133° 19.83'	-5 06	-5 38	-6 03	-5 20	0.2	0.2	--	--	0.5	307°	0.1	020°	0.4	100°	
3396	Sonora Passage		55° 36.31'	133° 40.59'	See Table 5.														
3401	Timbered Island	14d	55° 41.63'	133° 47.06'	-1 22	-1 24	-0 44	-0 53	0.3	0.4	0.1	297°	0.9	028°	0.1	117°	0.8	203°	
	do.	53d	55° 41.63'	133° 47.06'	-1 21	-1 38	-0 59	-0 56	0.2	0.3	0.1	300°	0.7	032°	--	--	0.7	209°	
	do.	79d	55° 41.63'	133° 47.06'	-1 24	-1 44	-1 07	-1 10	0.2	0.3	--	--	0.6	025°	--	--	0.6	202°	
3406	BOCA DE FINAS	60d	55° 41.86'	133° 35.24'	Daily Predictions, p.88						0.1	033°	0.4	125°	--	--	0.4	315°	
3411	Dead Tree Point	23d	55° 44.74'	133° 40.24'	+4 00	+3 34	+3 30	+3 46	0.2	0.4	0.1	071°	0.6	154°	--	--	0.9	347°	
	do.	62d	55° 44.74'	133° 40.24'	+3 54	+3 30	+3 45	+3 44	0.2	0.4	--	--	0.5	154°	--	--	0.7	352°	
	do.	102d	55° 44.74'	133° 40.24'	+4 00	+3 14	+3 00	+3 48	0.2	0.3	--	--	0.5	156°	--	--	0.6	332°	
3416	Tonowek Bay		55° 43.13'	133° 26.79'	Current weak and variable														
3421	Davidson Inlet		55° 54.29'	133° 32.08'	Current weak and variable														
3426	Whale Rock, 1.0 nm SE of	42d	55° 50.01'	133° 40.50'	+0 18	-0 39	-0 07	+0 17	0.1	0.3	0.2	149°	0.4	080°	--	--	0.6	236°	
	do.	147d	55° 50.01'	133° 40.50'	-0 15	-0 39	-0 30	+0 01	0.3	0.3	0.1	148°	0.7	081°	--	--	0.7	234°	
	do.	252d	55° 50.01'	133° 40.50'	-0 57	-0 52	-0 44	-0 45	0.2	0.4	--	--	0.7	071°	--	--	0.8	242°	
3431	Sea Otter Sound	82d	55° 50.55'	133° 30.81'	-0 12	-0 19	-0 17	-0 11	0.1	0.2	0.1	028°	0.3	128°	0.1	216°	0.3	305°	
	do.	147d	55° 50.55'	133° 30.81'	+0 13	-0 11	+0 02	+0 36	0.1	0.2	0.1	032°	0.3	118°	--	--	0.4	307°	
	do.	266d	55° 50.55'	133° 30.81'	+0 07	+0 04	+0 11	+0 26	0.1	0.1	--	--	0.3	127°	--	--	0.3	304°	
3436	Tonowek Narrows	16d	55° 45.55'	133° 20.13'	-1 34	-2 06	-1 29	-1 40	0.8	1.1	--	--	2.5	037°	0.1	130°	2.3	224°	
	do.	62d	55° 45.55'	133° 20.13'	-1 36	-2 14	-1 32	-1 41	0.7	1.1	0.1	306°	2.2	024°	--	--	2.2	219°	
	do.	108d	55° 45.55'	133° 20.13'	-1 38	-2 16	-1 28	-1 37	0.5	0.8	0.1	295°	1.7	008°	0.1	292°	1.7	214°	
3441	Karheen Passage, west of Cob Island	14d	55° 47.81'	133° 18.57'	+0 36	+0 01	+0 32	+0 30	0.4	0.8	0.1	249°	1.3	161°	--	--	1.6	333°	
	do.	46d	55° 47.81'	133° 18.57'	+0 33	-0 06	+0 29	+0 29	0.4	0.8	0.1	250°	1.3	166°	0.1	251°	1.6	335°	
	do.	76d	55° 47.81'	133° 18.57'	+0 29	-0 03	+0 33	+0 29	0.4	0.7	--	--	1.2	173°	0.1	255°	1.4	337°	
3446	Tuxekan Passage, south entrance		55° 46'	133° 15'	--	-0 30	--	-0 40	0.1	0.2	--	--	0.4	060°	--	--	0.4	225°	
3451	Tuxekan Passage, 0.2 mile S of Tuxekan		55° 52.96'	133° 14.54'	-3 34	-3 32	-1 42	-3 05	0.3	0.2	--	--	0.8	323°	--	--	0.4	137°	
3456	Tuxekan Passage, north of Kutegi Point	17d	55° 54.48'	133° 16.24'	-5 27	-5 44	-5 45	-5 50	0.1	0.2	--	--	0.4	322°	--	--	0.4	155°	
	do.	38d	55° 54.48'	133° 16.24'	-5 19	-5 39	-5 46	-5 47	0.1	0.2	--	--	0.4	324°	--	--	0.4	163°	
	do.	64d	55° 54.48'	133° 16.24'	-5 27	-5 56	-5 49	-5 53	0.1	0.2	--	--	0.4	333°	--	--	0.3	167°	
3461	Token Bay	12d	56° 00.16'	133° 27.41'	-0 22	-0 09	-0 09	-0 24	0.2	0.2	--	--	0.6	064°	0.1	339°	0.5	260°	
	do.	38d	56° 00.16'	133° 27.41'	-0 38	-0 11	-0 07	-0 27	0.2	0.2	--	--	0.5	070°	0.1	349°	0.5	268°	
	do.	58d	56° 00.16'	133° 27.41'	-0 36	-0 30	-0 13	-0 18	0.2	0.2	--	--	0.5	075°	--	--	0.4	274°	
	EL CAPITAN PASSAGE																		
3466	South entrance	41d	55° 53.80'	133° 21.92'	+1 08	+1 10	+0 41	+0 36	0.1	0.3	--	--	0.3	018°	--	--	0.6	204°	
	do.	159d	55° 53.80'	133° 21.92'	-0 59	-0 21	-0 17	-0 43	0.2	0.2	--	--	0.5	005°	0.1	279°	0.4	187°	
	do.	278d	55° 53.80'	133° 21.92'	-1 35	-1 11	-0 35	-1 09	0.2	0.2	--	--	0.6	009°	--	--	0.4	194°	
3471	Skookumchuck Pass		55° 54.88'	133° 18.74'	-0 06	-0 19	-0 11	+0 03	0.7	1.0	--	--	2.2	025°	--	--	2.1	207°	
3476	Brockman Island, east of		55° 58.01'	133° 18.29'	+0 28	+0 43	-0 13	+0 31	0.1	0.2	--	--	0.3	351°	--	--	0.5	182°	
3481	Off Tonga Inlet		55° 58.35'	133° 15.96'	Current weak and variable														
3486	Tenass Island, 0.3 mile SSW of Aneskett Point		55° 59.20'	133° 18.29'	+0 06	-0 48	-1 18	+0 05	0.2	0.3	--	--	0.5	039°	--	--	0.6	220°	
3491	1.2 miles south of		56° 08'	133° 17'	Current weak and variable														
3496	1 mile WNW of		56° 09.21'	133° 18.04'	Current weak and variable														
3501	The Narrows, west of		56° 09.61'	133° 20.28'	+4 57	+5 37	+5 54	+5 37	0.2	0.1	--	--	0.5	065°	--	--	0.3	248°	

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No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS								
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb		
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.	
	EL CAPITAN PASSAGE-cont. Time meridian, 135° W	ft	North	West	h m	h m	h m	h m			knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.	
					on Wrangell Narrows, p.92														
3506	El Capitan Strait, northwest entrance	14d	56° 09.21'	133° 27.42'	-0 17	-0 28	+0 05	+0 05	0.3	0.4	--	--	0.9	073°	--	--	0.9	235°	
	do.	20d	56° 09.21'	133° 27.42'	-0 35	-0 32	+0 08	+0 01	0.3	0.4	--	--	0.9	075°	--	--	0.8	246°	
	SUMNER STRAIT																		
3511	Warren Channel	23d	55° 56.01'	133° 50.12'	-1 33	-2 00	-1 36	-1 11	0.6	1.3	0.2	264°	2.0	349°	0.1	078°	2.7	171°	
	do.	52d	55° 56.01'	133° 50.12'	-1 36	-2 09	-1 42	-1 20	0.6	1.2	0.2	255°	1.8	350°	0.2	079°	2.5	164°	
	do.	92d	55° 56.01'	133° 50.12'	-1 33	-2 21	-1 50	-1 24	0.5	1.1	0.1	247°	1.6	344°	0.1	079°	2.2	160°	
3516	Cora Point, 2 miles east of		55° 55'	134° 03'	-0 34	-0 42	-0 52	-0 21	0.1	1.0	--	--	0.2	020°	--	--	2.0	200°	
3521	Coronation Island - Spanish Island, between	37d	55° 55.53'	134° 07.69'	-2 06	-1 58	-2 24	-2 45	0.4	0.6	0.1	183°	1.2	275°	0.1	186°	1.2	099°	
	do.	83d	55° 55.53'	134° 07.69'	-1 55	-1 56	-2 23	-2 44	0.4	0.6	0.1	186°	1.2	264°	0.1	179°	1.2	097°	
	do.	129d	55° 55.53'	134° 07.69'	-1 34	-1 55	-2 27	-2 37	0.4	0.5	--	--	1.2	259°	--	--	1.1	091°	
3526	Decision Passage		55° 59.51'	134° 07.38'	+0 08	-0 24	-0 24	-0 08	0.3	0.6	--	--	0.9	055°	--	--	1.2	245°	
3531	Affleck Canal	124d	56° 06.21'	134° 03.97'	+0 10	+0 02	+0 26	+0 17	0.1	0.1	--	--	0.2	347°	--	--	0.2	175°	
	do.	229d	56° 06.21'	134° 03.97'	+0 51	+0 30	+1 31	+1 11	0.1	0.1	--	--	0.1	352°	--	--	0.1	179°	
3536	Fairway Island, SW of	38d	56° 02.21'	134° 04.52'	-3 05	-2 21	-0 44	-1 38	0.2	0.2	0.2	115°	0.5	025°	0.2	286°	0.3	197°	
	do.	117d	56° 02.21'	134° 04.52'	-2 18	-1 48	-0 17	-1 05	0.2	0.2	0.1	105°	0.7	007°	0.1	279°	0.4	189°	
	do.	182d	56° 02.21'	134° 04.52'	-2 02	-1 30	-0 53	-1 20	0.2	0.3	0.1	274°	0.7	001°	0.1	280°	0.5	206°	
3541	Fairway Island, 2nm east of	25d	56° 02.98'	133° 59.38'	-1 03	-1 25	-1 16	-1 56	0.3	0.6	0.2	155°	0.8	089°	0.5	174°	1.1	257°	
	do.	64d	56° 02.98'	133° 59.38'	-1 31	-2 01	-1 11	-1 48	0.2	0.6	0.3	171°	0.8	091°	0.4	168°	1.2	153°	
	do.	110d	56° 02.98'	133° 59.38'	-2 25	-3 03	-1 13	-1 41	0.3	0.6	0.3	182°	0.8	109°	0.2	158°	1.1	240°	
3546	Point St. Albans, 3 miles SSE of		56° 02'	133° 57'	-0 05	-1 14	-1 05	+0 28	0.2	0.4	--	--	0.7	078°	--	--	0.9	232°	
3551	Point St. Albans, 4 miles east of		56° 05'	133° 51'	-0 29	-0 37	-0 46	-0 16	0.1	1.0	--	--	0.2	025°	--	--	2.0	205°	
3556	Ruins Point, 2 miles west of		56° 04'	133° 45'	+0 15	+0 38	-0 48	-0 49	0.2	0.3	--	--	0.5	350°	--	--	0.6	175°	
3561	Shipley Bay Entrance	35d	56° 05.42'	133° 41.37'	-1 13	-1 40	+0 10	-0 26	0.1	0.1	--	--	0.4	071°	--	--	0.2	238°	
	do.	94d	56° 05.42'	133° 42.37'	-1 18	-1 36	+0 08	-0 28	0.1	0.1	--	--	0.4	076°	--	--	0.2	233°	
	do.	153d	56° 05.42'	133° 42.37'	-1 33	-1 36	-0 11	-0 47	0.1	0.1	--	--	0.4	079°	0.1	159°	0.3	235°	
3566	Shakan Light, 2.4 miles west of <122>	25d	56° 08.73'	133° 41.83'	-2 06	-2 44	+0 25	-0 05	0.2	0.1	0.1	286°	0.5	033°	--	--	0.2	212°	
	do.	114d	56° 08.73'	133° 41.83'	-1 49	-2 12	+0 30	-0 25	0.1	0.1	--	--	0.3	021°	--	--	0.2	256°	
	do.		56° 08.73'	133° 41.83'	Current weak and variable														
3571	Shakan Light, 2.8 miles WNW of		56° 10'	133° 42'	-1 21	-1 48	-1 34	-0 36	0.2	0.3	--	--	0.6	019°	--	--	0.6	182°	
3576	Shakan Bay entrance		56° 09.83'	133° 37.90'	Current weak and variable														
3581	The Quarries, Shakan Bay		56° 10.39'	133° 29.05'	Current weak and variable														
3586	Shakan Strait, west end	15d	56° 07.80'	133° 34.50'	-0 31	-0 44	-0 19	-0 13	0.3	0.4	0.1	235°	0.9	152°	--	--	0.9	314°	
	do.	28d	56° 07.80'	133° 34.50'	-0 38	-0 47	-0 08	-0 13	0.3	0.4	0.1	232°	0.8	146°	--	--	0.9	316°	
	do.	41d	56° 07.80'	133° 34.50'	-0 41	-0 52	-0 02	-0 12	0.2	0.4	0.1	231°	0.7	143°	--	--	0.7	320°	
3591	Shakan Strait Rock	17d	56° 07.65'	133° 29.93'	-0 12	-0 20	-0 14	-0 14	0.1	0.2	--	--	0.4	062°	--	--	0.4	241°	
	do.	44d	56° 07.65'	133° 29.93'	-0 24	-0 29	+0 01	-0 09	0.1	0.2	--	--	0.3	054°	--	--	0.4	237°	
	do.	70d	56° 07.65'	133° 29.93'	-0 17	-0 37	-0 02	-0 04	0.1	0.2	--	--	0.3	052°	--	--	0.4	233°	
3596	Dry Pass	6d	56° 09.67'	133° 23.97'	+3 29	+2 31	+2 34	+4 03	0.1	0.1	--	--	0.3	115°	--	--	0.2	275°	
	do.	16d	56° 09.67'	133° 23.97'	+3 29	+2 36	+2 41	+2 02	0.1	0.1	--	--	0.3	120°	--	--	0.1	286°	
3601	Amelius Island, 1 mile east of	16d	56° 10.67'	133° 50.51'	See Table 5.														
	do.	66d	56° 10.67'	133° 50.51'	See Table 5.														
	do.	105d	56° 10.67'	133° 50.51'	-2 04	-2 32	-2 41	-1 31	0.2	0.5	0.2	148°	0.6	078°	0.2	155°	0.9	228°	
3606	Calder Rocks		56° 14.39'	133° 44.40'	See Table 5.														
	do.	107d	56° 14.39'	133° 44.40'	-2 06	-1 27	-1 41	-1 28	0.1	0.2	0.1	122°	0.4	009°	--	--	0.5	198°	
	do.	186d	56° 14.39'	133° 44.40'	-1 38	-2 14	-2 04	-1 00	0.1	0.3	--	--	0.4	014°	--	--	0.6	176°	
3611	Beauclerc Island Light, 1 mile east of		56° 15'	133° 49'	+0 09	-0 41	-1 30	-1 28	0.1	0.4	--	--	0.4	070°	--	--	0.9	205°	
3616	Port Beauclerc		56° 16.39'	133° 53.81'	Current weak and variable														
3621	Labouchere Island, 2.2 miles W of <61>		56° 17'	133° 44'	--	--	--	-0 16	--	0.4	--	--	--	--	--	--	0.8	160°	
3626	Mariposa Reef, 3 miles south of	46d	56° 19.90'	133° 43.55'	See Table 5.														
	do.	184d	56° 19.90'	133° 43.55'	+0 54	-0 57	-1 29	+0 02	0.1	0.7	0.1	296°	0.2	000°	--	--	1.5	222°	
	do.	322d	56° 19.90'	133° 43.55'	+0 06	-1 33	-2 34	+0 09	0.1	0.4	0.1	321°	0.3	042°	--	--	0.9	229°	
3631	Sumner Island, 1.8 miles south of		56° 22'	133° 49'	-2 39	-3 33	-0 54	-1 16	0.3	0.3	--	--	0.8	010°	--	--	0.6	240°	

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.
			North West		h m h m h m h m						knots Dir.		knots Dir.		knots Dir.		knots Dir.	
			SUMNER STRAIT—cont. Time meridian, 135° W		on Wrangell Narrows, p.92													
3636	Helm Rock	30d	56° 22.52'	133° 40.07'	-0 54	-2 27	-2 44	-1 16	0.5	1.4	0.5	346°	1.6	074°	0.2	160°	3.0	240°
	do.	80d	56° 22.52'	133° 40.07'	-1 11	-2 06	-1 51	-1 15	0.7	1.3	0.3	333°	2.1	054°	--	--	2.8	234°
	do.	128d	56° 22.52'	133° 40.07'	-1 21	-2 06	-1 27	-1 16	0.6	1.2	--	--	2.0	049°	0.1	321°	2.6	233°
3641	Sumner Island, east of	150d	56° 24.33'	133° 44.86'	-1 40	-0 38	-0 39	-0 56	0.4	0.5	0.1	312°	1.3	352°	0.2	270°	1.1	226°
	do.	229d	56° 24.33'	133° 44.86'	-1 36	-1 15	-0 09	-0 55	0.4	0.6	0.2	312°	1.4	345°	0.3	264°	1.2	213°
	do.	328d	56° 24.33'	133° 44.86'	-1 04	-0 52	-0 10	-0 36	0.5	0.5	0.3	302°	1.4	330°	0.1	262°	1.1	191°
3646	Strait Island, 1 mile southeast of <62>		56° 23'	133° 39'	--	-0 43	--	-0 51	0.2	1.4	--	--	0.5	095°	--	--	3.0	250°
3651	Port Protection		56° 19.89'	133° 38.44'	Current weak and variable													
3656	Red Bay Entrance	17d	56° 19.75'	133° 18.17'	-0 08	-0 57	-0 23	+0 09	0.1	0.3	0.1	294°	0.4	210°	--	--	0.5	020°
	do.	63d	56° 19.75'	133° 18.17'	-0 38	-0 49	+0 17	+0 01	0.1	0.1	0.1	173°	0.3	238°	--	--	0.3	100°
	do.	95d	56° 19.75'	133° 18.17'	-0 14	-0 39	+0 28	+0 18	0.1	0.2	0.1	210°	0.3	251°	--	--	0.3	126°
3661	The Eye Opener	16d	56° 22.57'	133° 14.75'	+0 21	-0 35	-1 35	-0 47	0.2	1.0	0.1	010°	0.7	103°	0.1	177°	2.2	272°
	do.	62d	56° 22.57'	133° 14.75'	-0 29	-1 04	-1 19	-0 41	0.4	0.9	0.1	012°	1.2	100°	0.1	187°	1.9	276°
	do.	108	56° 22.57'	133° 14.75'	-0 45	-1 08	-1 13	-0 29	0.4	0.7	--	--	1.1	089°	--	--	1.5	283°
3666	Vichnefski Rock Light	35d	56° 26.76'	133° 01.17'	-0 32	-0 58	-1 00	-0 47	0.6	1.1	0.1	131°	1.9	050°	--	--	2.2	226°
	do.	54d	56° 26.76'	133° 01.17'	-0 39	-0 57	-0 53	-0 44	0.6	1.0	--	--	1.9	049°	0.1	319°	2.2	227°
	do.	289d	56° 26.76'	133° 01.17'	-1 00	-1 14	-0 30	-0 38	0.7	1.1	0.2	315°	2.2	029°	0.1	317°	2.2	237°
3671	Station Island, 1 mile south of <62>		56° 28'	132° 46'	--	--	--	+1 22	--	1.0	--	--	0.1	090°	--	--	2.0	251°
3676	Blaquiere Point, 1 mile SSW of <63>		56° 33'	132° 34'	-0 08	+0 23	-0 20	+0 23	0.3	0.5	--	--	1.1	045°	--	--	1.0	240°
			KEKU STRAIT															
3681	Conclusion Island, west of		56° 28'	133° 50'	Current weak and variable													
3686	Conclusion Island, east of		56° 29'	133° 46'	Current weak and variable													
3691	Skiff Island, 2.1 miles northwest of		56° 32'	133° 44'	Current weak and variable													
3696	Southern entrance to Keku Strait		56° 34'	133° 43'	+0 57	+0 13	-0 25	-0 32	0.3	0.6	--	--	0.9	005°	--	--	1.2	184°
3701	Eagle Island, 0.5 mile southeast of		56° 36.44'	133° 40.93'	-0 04	-0 24	-0 49	+0 43	0.5	1.0	--	--	1.6	000°	--	--	2.0	130°
3706	Devils Elbow		56° 38.17'	133° 41.37'	-0 18	-0 09	-0 41	+0 13	0.8	0.8	--	--	2.4	285°	--	--	1.8	090°
3711	Summit Island, west of		56° 40.59'	133° 43.95'	+1 48	+1 43	+2 10	+1 46	0.7	1.2	--	--	2.2	185°	--	--	2.6	010°
3716	High Island, 1.1 miles south of		56° 42.14'	133° 43.98'	+0 40	+0 40	+0 28	+0 30	0.3	0.5	--	--	1.1	150°	--	--	1.1	010°
3721	High Island, northwest of		56° 45'	133° 44'	+0 07	+0 49	+0 34	+0 18	0.3	0.4	--	--	0.9	210°	--	--	0.7	325°
3726	Cucumber Reef, 0.2 mile northwest of		56° 47.40'	133° 46.02'	+0 11	+0 16	+0 04	+0 11	0.4	0.8	--	--	1.4	110°	--	--	1.9	325°
3731	Kake Harbor	19d	56° 57.94'	133° 57.13'	-0 21	-1 05	-0 40	+0 08	0.1	0.1	--	--	0.3	122°	--	--	0.3	304°
	do.	45d	56° 57.94'	133° 57.13'	-0 05	-0 08	-0 05	-0 11	0.1	0.1	0.1	211°	0.3	110°	--	--	0.3	300°
	do.	98d	56° 57.94'	133° 57.13'	-0 09	-0 33	-0 24	-0 17	0.1	0.1	--	--	0.3	115°	--	--	0.3	296°
			WRANGELL NARROWS															
3736	Point Alexander		56° 30.62'	132° 57.50'	+0 06	-0 02	-0 12	+0 19	0.3	0.5	--	--	1.0	005°	--	--	1.0	185°
3741	Point Deception		56° 32'	132° 58'	+0 06	-0 02	-0 12	+0 19	0.3	0.5	--	--	1.0	000°	--	--	1.0	180°
3746	Point Lockwood		56° 33.35'	132° 57.71'	+0 06	-0 02	-0 12	+0 19	0.9	1.4	--	--	3.0	000°	--	--	3.0	180°
3751	Spike Rock		56° 36.06'	132° 58.56'	+0 06	-0 02	-0 12	+0 19	1.5	2.1	--	--	4.7	005°	--	--	4.3	185°
3756	South Ledge	7d	56° 37.23'	132° 57.81'	+0 07	-0 30	-0 05	+0 27	0.5	1.4	--	--	1.7	037°	--	--	2.9	218°
	do.	16d	56° 37.23'	132° 57.81'	+0 09	-0 30	-0 05	+0 29	0.5	1.3	--	--	1.6	036°	--	--	2.6	218°
	do.	33d	56° 37.23'	132° 57.81'	+0 10	-0 32	-0 07	+0 29	0.4	1.2	--	--	1.4	035°	--	--	2.4	218°
3761	Anchor Point		56° 38.37'	132° 55.87'	+0 06	-0 02	-0 12	+0 19	1.1	1.6	--	--	3.6	045°	--	--	3.4	225°
3766	Vexation Point, Woody Island		56° 39.47'	132° 55.62'	+0 06	-0 02	-0 12	+0 19	0.8	1.2	--	--	2.5	005°	--	--	2.5	185°
3771	Rock Point		56° 40.53'	132° 56.35'	+0 06	-0 02	-0 12	+0 19	0.3	0.5	--	--	1.0	335°	--	--	1.0	155°
3776	Green Point		56° 42'	132° 57'	+0 11	+0 03	-0 07	+0 24	0.3	0.5	--	--	1.0	185°	--	--	1.0	005°
3781	Mountain Point		56° 44'	132° 57'	+0 21	+0 13	+0 03	+0 34	0.6	1.0	--	--	2.0	165°	--	--	2.0	345°
3786	Blunt Point		56° 46.70'	132° 58.76'	+0 31	+0 23	+0 13	+0 44	1.1	1.6	--	--	3.6	160°	--	--	3.4	340°
3791	Turn Point		56° 48.47'	132° 59.01'	+0 31	+0 23	+0 13	+0 44	1.4	1.8	--	--	4.3	220°	--	--	3.8	040°
3796	WRANGELL NARROWS (off Petersburg)	6d	56° 48.98'	132° 57.84'	Daily predictions													
	do.	15d	56° 48.98'	132° 57.84'	+0 09	+0 03	+0 01	+0 12	0.9	1.0	--	--	2.8	247°	0.2	333°	2.0	056°
	do.	25d	56° 48.98'	132° 57.84'	+0 12	+0 06	+0 00	+0 16	0.7	0.8	0.1	321°	2.4	247°	0.2	331°	1.8	051°
3801	Prolewy Rocks		56° 49.34'	132° 56.90'	+0 31	+0 23	+0 13	+0 44	1.1	1.6	--	--	3.6	240°	--	--	3.4	060°

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TABLE 2 – CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.
	FREDERICK SOUND <64> Time meridian, 135° W	ft	North	West	h	m	h	m	h	m								
			on Wrangell Narrows, p.92															
3806	Cosmos Point, 0.5 mile east of		56° 40'	132° 36'	+1 55	+1 15	+0 25	+0 42	0.1	0.2	--	--	0.4	180°	--	--	0.5	305°
3811	Turnabout Island		57° 06.96'	133° 55.49'	-1 01	-0 59	-0 47	-0 51	0.4	0.5	0.1	001°	1.4	080°	0.1	164°	0.9	260°
	do.		57° 06.96'	133° 55.49'	-0 47	-1 06	-0 24	-0 25	0.4	0.5	0.3	349°	1.3	077°	0.1	164°	1.1	252°
	do.		57° 06.96'	133° 55.49'	-0 26	-1 26	-0 59	-0 21	0.3	0.5	0.1	333°	0.9	071°	0.1	162°	1.1	244°
	STEPHENS PASSAGE																	
3816	The Five Fingers	40d	57° 15.98'	133° 36.21'	-0 20	-0 44	-0 37	-0 18	0.2	0.3	0.1	308°	0.5	043°	--	--	0.6	215°
	do.	158d	57° 15.98'	133° 36.21'	-0 02	-0 27	-0 41	-0 04	0.2	0.3	--	--	0.5	024°	0.1	302°	0.5	208°
	do.	250d	57° 15.98'	133° 36.21'	+0 15	-0 25	-0 36	-0 18	0.2	0.2	0.1	073°	0.5	006°	--	--	0.5	164°
3821	The Brothers, 2 miles east of		57° 18'	133° 43'	+0 11	+0 03	-0 07	+0 24	0.3	0.5	--	--	1.0	025°	--	--	1.0	205°
3826	The Brother, east of	68d	57° 19.35'	133° 44.00'	See Table 5.													
	do.	173d	57° 19.35'	133° 44.00'	-0 45	-0 55	-0 06	-0 20	0.1	0.2	--	--	0.4	030°	--	--	0.3	207°
	do.	488d	57° 19.35'	133° 44.00'	+1 25	+0 40	+0 17	+0 42	0.1	0.3	0.1	064°	0.4	337°	0.1	249°	0.6	164°
3831	The Brothers, west of		57° 18.27'	133° 54.52'	See Table 5.													
3836	Point Gambier, 2 miles east of		57° 26'	133° 46'	+0 16	+0 08	-0 02	+0 29	0.2	0.2	--	--	0.5	005°	--	--	0.5	185°
3841	Point Hugh		57° 37'	133° 46'	+0 21	+0 13	+0 03	+0 34	0.3	0.5	--	--	1.0	355°	--	--	1.0	175°
3846	Point Astley, NE of, Tracy Arm	33d	57° 43.80'	133° 37.87'	+0 48	+0 42	+0 30	+0 13	0.1	0.3	--	--	0.4	115°	0.1	176°	0.5	218°
	do.	170d	57° 43.80'	133° 37.87'	+0 03	--	-0 02	+0 10	--	0.1	0.1	139°	--	--	0.1	167°	0.3	209°
	do.	289d	57° 43.80'	133° 37.87'	--	--	--	+0 18	--	0.1	--	--	--	--	--	--	0.3	291°
3851	Tracy Arm Bar	32d	57° 46.78'	133° 37.89'	+0 26	-0 17	-0 12	+0 32	0.3	1.2	0.3	320°	1.0	060°	0.4	145°	2.4	226°
3856	Point Coke, SE of, Tracy Arm	33d	57° 46.56'	133° 39.98'	+1 08	+0 50	+0 58	+0 55	0.2	0.9	--	--	0.8	085°	--	--	1.9	262°
	do.	170d	57° 46.56'	133° 39.98'	-0 17	-0 55	-0 01	+0 38	0.2	0.4	--	--	0.6	072°	--	--	0.7	260°
	do.	289d	57° 46.56'	133° 39.98'	-2 19	-2 35	-2 08	-2 06	0.1	0.2	--	--	0.3	090°	--	--	0.3	277°
3861	Midway Island		57° 50'	133° 50'	+0 21	+0 13	+0 03	+0 34	0.3	0.5	--	--	1.0	335°	--	--	1.0	155°
3866	Taku Harbor Entrance		58° 03.62'	134° 02.16'	Current weak and variable													
3871	Point Arden		58° 09'	134° 08'	+0 26	+0 18	+0 08	+0 39	0.3	0.5	--	--	1.0	355°	--	--	1.0	175°
	Taku Inlet																	
3876	SE of Bishop Point		58° 11.63'	134° 07.96'	Current weak and variable													
3881	SE of Cooper Point		58° 14.20'	134° 04.58'	Current weak and variable													
3886	WNW of Jaw Point		58° 17.57'	134° 05.93'	Current weak and variable													
3891	0.2 mile off Flat Point		58° 20'	134° 03'	+0 48	+0 11	-0 12	+0 07	0.2	0.5	--	--	0.7	039°	--	--	1.0	200°
3896	0.2 mile off Taku Point		58° 24'	134° 01'	+0 53	+0 34	+0 10	-0 08	0.4	0.4	--	--	1.2	357°	--	--	0.9	203°
	Gastineau Channel																	
3901	Point Salisbury, west of	21d	58° 12.55'	134° 14.98'	+0 22	+0 43	+0 44	+0 18	0.1	0.1	--	--	0.3	318°	--	--	0.3	149°
	do.	67d	58° 12.55'	134° 14.98'	Current weak and variable													
3906	N of Ship Creek	15d	58° 15.45'	134° 20.16'	+1 22	+0 32	+0 29	+0 59	0.1	0.2	--	--	0.4	326°	--	--	0.3	144°
	do.	54d	58° 15.45'	134° 20.16'	-0 35	+0 07	+0 15	-0 21	0.1	0.1	--	--	0.3	331°	--	--	0.2	136°
	do.	81d	58° 15.45'	134° 20.16'	-1 21	-1 09	-0 47	-0 46	0.1	0.2	--	--	0.3	324°	--	--	0.3	131°
3911	Douglas, north of	15d	58° 16.98'	134° 23.62'	+2 12	+0 44	+0 11	+1 32	0.1	0.2	--	--	0.3	305°	--	--	0.5	144°
	do.	25d	58° 16.98'	134° 23.62'	+1 33	+0 41	+0 27	+1 08	0.1	0.3	--	--	0.4	302°	--	--	0.5	136°
3916	Juneau Harbor, S of	13d	58° 17.09'	134° 23.86'	+1 33	+0 37	+0 20	+1 02	0.1	0.3	--	--	0.3	315°	--	--	0.6	150°
	do.	33d	58° 17.09'	134° 23.86'	+0 06	-0 14	-0 30	-0 13	0.1	0.3	0.1	244°	0.4	314°	--	--	0.5	145°
	do.	53d	58° 17.09'	134° 23.86'	-1 10	-0 39	-0 37	-1 03	0.2	0.3	--	--	0.5	314°	--	--	0.5	138°
	do.	25d	58° 17.47'	134° 24.42'	+3 19	+2 03	+0 34	+1 05	0.1	0.3	--	--	0.2	334°	0.1	031°	0.6	102°
3921	Juneau Harbor	15d	58° 17.62'	134° 24.40'	Current weak and variable													
3926	Juneau Harbor, N of	10d	58° 17.78'	134° 25.48'	+0 11	+0 22	-0 04	-0 04	0.2	0.5	0.1	229°	0.5	319°	--	--	1.0	147°
	do.	50d	58° 17.78'	134° 25.48'	-0 30	+0 18	-0 37	-1 02	0.1	0.3	--	--	0.3	317°	--	--	0.6	150°
	do.	79d	58° 17.78'	134° 25.48'	Current weak and variable													
3931	West Juneau, NE of	25d	58° 17.78'	134° 25.47'	+0 24	+0 49	+0 32	+1 21	0.1	0.2	--	--	0.3	314°	--	--	0.4	137°
3936	Juneau Harbor, NW of Ferry Pier	13d	58° 17.81'	134° 24.44'	Current weak and variable													
3941	Aurora Basin, SW of	15d	58° 18.30'	134° 26.45'	+1 01	+0 34	+0 10	+0 51	0.2	0.4	0.1	218°	0.5	289°	0.2	233°	0.8	163°
3946	Tantallon Point, SW of <116>	37d	58° 10.37'	134° 17.29'	--	--	--	-0 13	--	0.1	--	--	--	--	--	--	0.3	096°
	do.	116d	58° 10.37'	134° 17.29'	--	--	--	+0 45	--	0.2	--	--	--	--	--	--	0.5	095°
	do.	184d	58° 10.37'	134° 17.29'	--	--	--	+1 03	--	0.2	--	--	--	--	--	--	0.4	096°

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.
	STEPHENS PASSAGE-cont. Time meridian, 135° W	ft	North	West	h	m	h	m	h	m								
					on Wrangell Narrows, p.92													
3951	Point Young	16d	58° 12.54'	134° 33.52'	-0 12	+0 15	+1 56	+0 51	0.1	0.2	0.1	013°	0.3	308°	0.1	355°	0.4	080°
	... do. <116>	55d	58° 12.54'	134° 33.52'	---	---	---	+2 02	---	0.3	---	---	---	---	---	---	0.6	089°
	... do. <116>	81d	58° 12.54'	134° 33.52'	---	---	---	+1 43	---	0.3	---	---	---	---	---	---	0.6	084°
3956	Coghland Island, east of, Auke Bay	25d	58° 21.33'	134° 40.75'	Current weak and variable													
3961	Horse Island, east of	25d	58° 15.38'	134° 42.58'	Current weak and variable													
3966	Portland Island, SW of	24d	58° 19.16'	134° 42.71'	Current weak and variable													
	... do.	175d	58° 19.16'	134° 42.71'	-2 09	-2 52	-3 18	-2 20	0.1	0.1	---	---	0.3	212°	---	---	0.3	015°
3971	Piling Point, east of	20d	58° 19.69'	134° 47.00'	-0 33	-0 26	+0 15	+0 11	0.1	0.2	---	---	0.4	140°	---	---	0.3	321°
	... do.	79d	58° 19.69'	134° 47.00'	---	+0 31	---	---	0.2	---	---	---	0.5	151°	---	---	---	---
	... do.	138d	58° 19.69'	134° 47.00'	---	+0 18	---	---	0.1	---	---	---	0.4	---	---	---	0.1	326°
					on North Inian Pass, p.100													
3976	Saginaw Channel, 2 miles E of Point Retreat	15d	58° 24.30'	134° 53.10'	-0 57	+0 08	+0 17	-0 56	0.8	0.3	---	---	0.8	148°	---	---	0.6	345°
	... do.	67d	58° 24.30'	134° 53.10'	-1 28	-0 04	+0 18	-0 35	0.6	0.2	---	---	0.6	146°	---	---	0.5	347°
	... do.	107d	58° 24.30'	134° 53.10'	-1 22	-0 04	-0 13	-0 28	0.4	0.2	0.1	078°	0.4	151°	---	---	0.5	355°
3981	Sentinel Island, south of	25d	58° 32.17'	134° 56.03'	Current weak and variable													
					LYNN CANAL													
3986	Clear Point, WNW of	25d	58° 14.94'	134° 57.79'	Current weak and variable													
3991	Point Lena, Favorite Channel <123>	20d	58° 23.56'	134° 48.03'	Current weak and variable													
3996	Point Retreat, 1 mile west of	52d	58° 25.01'	134° 58.00'	-1 55	-1 23	-0 27	-1 17	0.8	0.4	0.1	312°	0.7	031°	0.1	318°	0.8	243°
	... do.	232d	58° 25.01'	134° 58.00'	-2 44	-2 00	-0 31	-1 33	0.8	0.2	0.1	279°	0.8	017°	0.1	291°	0.4	213°
4001	North Pass, Lincoln Island	33d	58° 28.48'	134° 55.94'	-2 39	-1 10	-1 03	-1 40	1.5	0.6	0.1	075°	1.5	007°	0.1	082°	1.2	161°
	... do.	131d	58° 28.48'	134° 55.94'	-2 21	-1 14	-1 10	-1 47	1.7	0.7	---	---	1.7	003°	0.1	091°	1.5	166°
	... do.	230d	58° 28.48'	134° 55.94'	-2 17	-1 16	-1 10	-2 15	1.5	0.7	0.1	083°	1.4	354°	---	---	1.4	169°
4006	Vanderbilt Reef, 2 miles west of	88d	58° 36.21'	135° 02.59'	-1 47	-0 06	+0 43	-0 23	0.4	0.1	---	---	0.4	011°	---	---	0.3	176°
	... do.	298d	58° 36.21'	135° 02.59'	Current weak and variable													
4011	Point Bridget, NW of	70d	58° 41.95'	135° 02.00'	Current weak and variable													
4016	Berners Bay	52d	58° 42.66'	134° 59.56'	Current weak and variable													
4021	Point Sherman, WSW of	70d	58° 50.80'	135° 11.82'	-1 20	-0 07	+0 35	-0 26	0.3	0.1	---	---	0.3	341°	---	---	0.2	175°
4026	Eldred Rock	14d	58° 57.92'	135° 12.75'	Current weak and variable													
4031	Glacier Point, Chilkat Inlet	46d	59° 06.26'	135° 22.39'	-2 36	-0 37	-0 40	-2 00	0.4	0.2	---	---	0.4	328°	---	---	0.3	146°
	... do.	194d	59° 06.26'	135° 22.39'	-1 18	+0 21	+0 18	-0 35	0.4	0.2	---	---	0.3	331°	---	---	0.4	147°
	... do.	341d	59° 06.26'	135° 22.39'	-0 42	+0 52	+1 09	+0 16	0.4	0.2	---	---	0.4	329°	---	---	0.4	153°
4036	Seduction Pt., NE of, Chilkoot Inlet	25d	59° 06.40'	135° 14.60'	Current weak and variable													
4041	Battery Point, Chilkoot Inlet	35d	59° 13.01'	135° 21.03'	-1 26	+0 07	+0 49	-0 18	0.4	0.2	---	---	0.4	359°	---	---	0.4	177°
	... do.	133d	59° 13.01'	135° 21.03'	-0 45	+1 19	+1 20	+0 01	0.5	0.2	---	---	0.5	009°	---	---	0.4	181°
	... do.	241d	59° 13.01'	135° 21.03'	-1 20	+0 39	+0 38	-0 24	0.4	0.2	---	---	0.4	008°	---	---	0.4	186°
4046	Low Point, taiya Inlet entrance	37d	59° 16.03'	135° 22.85'	+0 27	+2 02	+1 56	+0 39	0.4	0.1	---	---	0.4	354°	---	---	0.2	186°
	... do.	106d	59° 16.03'	135° 22.85'	Current weak and variable													
4051	Tanani Point, Lutak Inlet	70d	59° 16.92'	135° 26.98'	Current weak and variable													
4056	Skagway Harbor	22d	49° 26.83'	135° 19.88'	Current weak and variable													
					on Wrangell Narrows, p.92													
4061	Hazy Islands		55° 53'	134° 36'	-0 19	-0 27	-0 37	-0 06	0.3	0.5	---	---	1.0	025°	---	---	1.0	205°
4066	Cape Ommaney Light, 5 miles east of		56° 10'	134° 31'	-0 14	-0 22	-0 32	-0 01	0.3	0.5	---	---	1.0	005°	---	---	1.0	185°
4071	Port Walter Light, 3 miles east of		56° 23'	134° 32'	-0 09	-0 17	-0 27	+0 04	0.5	0.7	---	---	1.5	005°	---	---	1.5	185°
4076	Point Ellis, 4 miles west of		56° 34'	134° 27'	-0 04	-0 12	-0 22	+0 09	0.5	0.7	---	---	1.5	350°	---	---	1.5	170°
4081	Kingsmill Point Light, 3 miles west of		56° 50'	134° 31'	+0 01	-0 07	-0 17	+0 14	0.6	1.0	---	---	2.0	355°	---	---	2.0	175°
4086	Point Gardner Light, 2 miles west of		57° 01'	134° 40'	+0 06	-0 02	-0 12	+0 19	0.6	1.0	---	---	2.0	350°	---	---	2.0	170°
4091	Point Caution, 3 miles west of		57° 15'	134° 44'	+0 11	+0 03	-0 07	+0 24	0.6	1.0	---	---	2.0	355°	---	---	2.0	175°
4096	Point Thatcher, 3 miles east of		57° 25'	134° 44'	+0 11	+0 03	-0 07	+0 24	0.5	0.7	---	---	1.5	340°	---	---	1.5	160°

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TABLE 2 – CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS								
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb		
											North	West	h	m	h	m	h	m	h
			CHATHAM STRAIT—cont. Time meridian, 135° W																
					on Wrangell Narrows, p.92														
4101	Killisnoo Harbor	12d	57° 27.79'	134° 33.88'	+3 25	+3 13	+1 50	+0 48	0.1	0.2	--	--	0.3	142°	--	--	0.3	321°	
	do.	90d	57° 27.79'	134° 33.88'	+1 34	+2 40	+2 11	+1 18	0.1	0.1	--	--	0.4	152°	--	--	0.3	321°	
4106	Danger Point Light, 3 miles west of		57° 31'	134° 42'	+0 16	+0 08	-0 02	+0 29	0.5	0.7	--	--	1.5	350°	--	--	1.5	170°	
4111	Turn Point, Kootznahoo Inlet		57° 30'	134° 35'	+0 56	+0 48	+0 38	+1 09	2.2	2.9	--	--	6.9	105°	--	--	6.1	285°	
4116	South Passage Point, 3 miles east of		57° 46'	134° 50'	+0 16	+0 08	-0 02	+0 29	0.5	0.7	--	--	1.5	175°	--	--	1.5	355°	
4121	Point Augusta, ESE of	70d	58° 01.50'	134° 52.40'	-0 02	-0 04	+0 01	+0 54	0.2	0.3	--	--	0.5	344°	--	--	0.6	164°	
4126	Hawk Inlet Entrance		58° 05.28'	134° 47.62'	See Table 5.														
4131	Hawk Inlet, Hawk Point	13d	58° 05.84'	134° 46.51'	+0 18	-0 20	-0 17	+0 28	0.2	0.9	0.1	272°	0.8	355°	0.1	268°	1.9	178°	
	do.	59d	58° 05.84'	134° 46.51'	+0 13	-0 17	+0 07	+0 48	0.2	0.6	0.1	266°	0.7	346°	--	--	1.2	181°	
	do.	78d	58° 05.84'	134° 46.51'	+0 13	-0 19	+0 19	+0 52	0.2	0.4	0.1	264°	0.7	335°	--	--	0.9	182°	
			SITKA SOUND																
4136	Biorka Channel		56° 50'	135° 30'	+0 47	+0 20	+0 15	+0 13	0.1	0.2	--	--	0.4	045°	--	--	0.4	232°	
4141	Entrance		56° 58'	135° 37'	Current weak and variable								0.2	057°	--	--	0.2	247°	
4146	Eastern Channel		57° 00.87'	135° 21.55'	Current weak and variable								--	--	--	--	--	--	
4151	Middle Channel		57° 01.64'	135° 23.50'	Current weak and variable								--	--	--	--	--	--	
4156	Vitskari Island, 3 miles northeast of		57° 02'	135° 29'	Current weak and variable								0.2	107°	--	--	0.1	306°	
4161	Silver Bay Entrance		57° 02'	135° 14'	Current weak and variable								0.1	055°	--	--	0.1	240°	
4166	Western Channel	18d	57° 03.02'	135° 23.75'	+0 10	-0 20	-0 09	+0 09	0.1	0.2	--	--	0.3	029°	--	--	0.4	210°	
	do.	64d	57° 03.02'	135° 23.75'	+0 09	-0 26	-0 12	+0 02	0.1	0.2	--	--	0.3	018°	--	--	0.4	193°	
	do.	110d	57° 03.02'	135° 23.75'	-0 07	-0 40	-0 05	+0 15	0.1	0.2	--	--	0.4	005°	--	--	0.4	193°	
4171	Sitka Harbor, channel off Harbor Island		57° 03'	135° 20'	-0 58	-1 17	-2 02	-1 16	0.1	0.2	--	--	0.3	333°	--	--	0.4	156°	
			KRESTOF SOUND																
4176	West Channel (narrows)		57° 09'	135° 35'	-0 43	-0 51	-1 01	-0 30	0.4	0.5	--	--	1.3	242°	--	--	1.1	064°	
4181	East Channel (narrows)		57° 10'	135° 33'	-0 30	-0 32	-0 48	-0 23	0.4	0.7	--	--	1.3	051°	--	--	1.4	323°	
4186	East Channel north entrance <67>		57° 11'	135° 33'	--	-0 50	--	-0 48	0.3	0.4	--	--	0.8	340°	--	--	0.8	160°	
			NAKWASINA SOUND AND PASSAGE																
4191	Nakwasina Sound, South entrance		57° 11'	135° 25'	Current weak and variable														
4196	Allan Pt., 1.5 mile W of, Nakwasina Passage <66>		57° 15'	135° 26'	-1 06	-1 06	-0 59	-0 40	0.6	0.8	--	--	2.0	260°	--	--	1.6	082°	
			OLGA STRAIT																
4201	South end <67>		57° 11'	135° 28'	--	+0 09	--	+0 52	0.3	0.5	--	--	1.0	324°	--	--	1.0	130°	
4206	Creek Point, 0.44 n.mi. SE of	15d	57° 12.61'	135° 29.70'	+0 12	-0 24	+0 02	+0 27	0.4	0.6	--	--	1.3	319°	0.1	229°	1.2	141°	
			NEVA STRAIT																
4211	Whitestone Narrows, S of Whitestone Point	16d	57° 14.7'	135° 33.83'	-0 24	-0 30	-0 07	-0 04	0.3	0.4	--	--	1.0	161°	--	--	0.8	338°	
	do.	43d	57° 14.7'	135° 33.83'	-0 25	-0 30	-0 03	+0 06	0.3	0.3	0.1	250°	1.0	163°	--	--	0.7	339°	
4216	Wyvill Reef		57° 16'	135° 35'	-0 27	-0 30	-0 04	-0 13	0.5	0.7	--	--	1.6	150°	--	--	1.4	323°	
4221	Highwater Island, west of		57° 17'	135° 36'	-0 15	-0 29	-0 11	-0 34	0.3	0.7	--	--	1.0	144°	--	--	1.4	330°	
4226	Zeal Point, 0.34 n.mi. SSW of	16d	57° 17.22'	135° 36.47'	+0 09	-0 14	-0 02	+0 02	0.2	0.3	--	--	0.5	163°	--	--	0.6	346°	
	do.	29d	57° 17.22'	135° 36.47'	-0 12	-0 27	-0 07	-0 02	0.2	0.3	--	--	0.5	165°	--	--	0.6	347°	
	do.	48d	57° 17.22'	135° 36.47'	-0 57	-1 02	-0 26	-0 14	0.1	0.2	--	--	0.4	170°	--	--	0.5	345°	
4231	Kane Island, 0.29 n.mi. East of		57° 19.33'	135° 39.21'	Current weak and variable														
4236	North of Kane Islands		57° 20'	135° 40'	Current weak and variable														

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No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS											
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb					
											h	m	h	m	h	m	knots	Dir.	knots	Dir.	knots	Dir.
	SALISBURY SOUND Time meridian, 135° W	ft	North	West	h	m	h	m	h	m												
			on Wrangell Narrows, p.92																			
4241	Sea Rock, 1 mile north of		57° 21'	135° 53'	-0	19	-0	27	-0	37	-0	06	0.3	0.5	--	--	1.0	065°	--	--	1.0	245°
4246	Kalinin Point, 1 mile north of		57° 21'	135° 48'	-0	19	-0	27	-0	37	-0	06	0.3	0.5	--	--	1.0	080°	--	--	1.0	260°
4251	Sinitin Island		57° 21'	135° 46'	-0	19	-0	27	-0	37	-0	06	0.5	0.7	--	--	1.5	095°	--	--	1.5	275°
	PERIL STRAIT		on Sergius Narrows, p.96																			
4256	Kakul Narrows	19d	57° 22.19'	135° 41.55'	+0	55	+1	05	+0	12	+0	18	0.1	0.3	0.1	299°	0.9	025°	--	--	1.3	211°
	do.	58d	57° 22.19'	135° 41.55'	+0	51	+0	59	+0	12	+0	27	0.2	0.3	0.1	298°	0.9	027°	--	--	1.3	209°
4261	Suloia Point, 0.32 n.mi. ENE of	26d	57° 23.51'	135° 38.46'	+1	47	+0	43	-0	31	-0	14	0.1	0.2	0.3	035°	0.3	346°	0.1	052°	1.0	113°
	do.	65d	57° 23.51'	135° 38.46'	+1	40	+0	11	-0	15	-0	01	0.1	0.2	0.4	044°	0.5	004°	0.1	057°	1.0	114°
	do.	92d	57° 23.51'	135° 38.46'	+1	33	+0	13	-0	02	+0	58	0.1	0.2	0.4	045°	0.5	004°	--	--	1.0	113°
4266	SERGIUS NARROWS	18d	57° 24.42'	135° 37.87'													6.3	059°	0.1	154°	4.9	241°
	do.	31d	57° 24.42'	135° 37.87'	+0	00	+0	00	+0	00	+0	00	1.0	1.0	0.1	331°	6.3	058°	--	--	4.9	241°
	do.	44d	57° 24.42'	135° 37.87'	+0	00	-0	01	+0	00	+0	00	1.0	1.0	0.1	331°	6.3	058°	--	--	4.9	242°
4271	Point Siroi		57° 25'	135° 35'	+0	31	+0	11	+0	23	+0	15	0.3	0.4	--	--	1.7	059°	--	--	1.9	283°
4276	Middle Point		57° 26'	135° 35'	-0	09	-0	37	-0	35	-0	06	0.2	0.4	--	--	1.4	010°	--	--	2.1	187°
4281	Big Rose Island, 0.2 n.mi. SE of	12d	57° 27.18'	135° 32.24'	+0	02	+0	11	-0	02	-0	24	0.3	0.4	0.1	308°	1.9	042°	0.2	126°	2.2	212°
	do.	32d	57° 27.18'	135° 32.24'	-0	01	-0	11	-0	01	-0	20	0.4	0.4	0.1	307°	2.3	041°	0.2	128°	2.2	212°
	do.	92d	57° 27.18'	135° 32.24'	+0	01	-0	19	-0	01	-0	17	0.3	0.4	0.1	303°	1.9	030°	0.1	129°	1.8	221°
4286	Povorotni Island, 0.23 n.mi. WSW of	10d	58° 30.63'	135° 33.70'	-0	17	+0	15	+0	09	-0	37	0.2	0.2	--	--	0.9	323°	--	--	1.1	159°
	do.	50d	58° 30.63'	135° 33.70'	-0	15	+0	05	+0	00	-0	39	0.2	0.2	--	--	0.9	325°	--	--	1.2	158°
	do.	89d	58° 30.63'	135° 33.70'	+0	06	-0	15	-0	32	-0	30	0.1	0.3	--	--	0.8	328°	--	--	1.3	156°
			on Wrangell Narrows, p.92																			
4291	Otsoia Island Light, 1 mile north of		57° 35'	135° 27'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	280°	--	--	2.0	100°
4296	Nismeni Point, 1 mile north of		57° 35'	135° 25'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	285°	--	--	2.0	105°
4301	Peschani Point, 1 mile east of		57° 32'	135° 18'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	325°	--	--	2.0	145°
4306	Point Elizabeth, 1 mile northeast of		57° 31'	135° 16'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	315°	--	--	2.0	135°
4311	Point Benham, 1 mile east of		57° 29'	135° 11'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	310°	--	--	2.0	130°
4316	False Linderberg Head, 1 mile south of		57° 27'	135° 05'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	305°	--	--	2.0	125°
4321	Lindenberg Head		57° 27'	135° 02'	+0	06	-0	02	-0	12	+0	19	0.6	1.0	--	--	2.0	280°	--	--	2.0	100°
4326	Eva Islands		57° 27'	134° 56'	+0	11	+0	03	-0	07	+0	24	0.4	0.6	--	--	1.3	275°	--	--	1.3	095°
4331	Fairway Island		57° 27'	134° 53'	+0	11	+0	03	-0	07	+0	24	0.6	1.0	--	--	2.0	265°	--	--	2.0	085°
4336	Morris Reef, south of		57° 27'	134° 49'	+0	11	+0	03	-0	07	+0	24	0.5	0.7	--	--	1.5	275°	--	--	1.5	095°
	KHAZ BAY to CAPE CROSS																					
4341	Elbow Passage, south of Klag Island	14d	57° 36.83'	136° 05.97'	+0	29	+0	08	+0	44	+0	54	0.5	0.4	0.1	340°	1.7	042°	--	--	0.9	269°
	do.	47d	57° 36.83'	136° 05.97'	+0	27	+0	18	+0	29	+0	15	0.4	0.3	--	--	1.3	056°	--	--	0.7	263°
	do.	83d	57° 36.83'	136° 05.97'	+0	05	+0	25	+0	38	+0	15	0.3	0.2	--	--	1.0	061°	0.1	330°	0.4	223°
4346	Ogden Passage	33d	57° 37.93'	136° 09.85'																		
4351	Point Hogan, South Passage	20d	57° 41.29'	136° 15.26'	+0	09	-0	45	+0	33	+0	55	0.1	0.2	--	--	0.4	058°	--	--	0.5	241°
	do.	79d	57° 41.29'	136° 15.26'	-0	59	-0	56	-0	31	+0	24	0.1	0.2	--	--	0.3	057°	--	--	0.4	243°
	do.	138d	57° 41.29'	136° 15.26'																		
4356	Point Theodore, southwest of		57° 48.79'	136° 28.51'																		
	CROSS SOUND		on North Inian Pass, p.100																			
4361	Yakobi Rock, 1 mile west of	77d	58° 04.96'	136° 35.95'	-1	57	-0	43	+0	09	-0	50	0.9	0.4	0.1	308°	0.9	036°	--	--	1.0	219°
	do.	235d	58° 04.96'	136° 35.95'	-1	27	-0	29	+0	18	-0	47	0.7	0.5	0.1	311°	0.7	036°	--	--	1.0	217°
4366	Cross Sound Entrance, NW of Cape Bingham	106d	58° 07.35'	136° 34.04'	-0	56	+0	27	+0	58	+0	12	0.7	0.3	0.1	157°	0.7	073°	0.2	176°	0.7	218°
4371	Cross Sound Entrance, midchannel	119d	58° 09.19'	136° 35.25'	+1	18	+1	41	+1	20	+1	03	0.6	0.5	0.3	127°	0.6	072°	--	--	1.1	225°
4376	Cross Sound Entrance, SE of Cape Spencer Lt.	34d	58° 10.63'	136° 36.99'	-0	18	-0	21	-0	29	+0	33	1.2	0.8	0.2	149°	1.2	089°	0.1	195°	1.7	231°
	do.	142d	58° 10.63'	136° 36.99'	-0	44	-0	32	-0	39	-0	11	1.1	0.6	0.1	142°	1.1	072°	0.2	171°	1.3	232°
	do.	250d	58° 10.63'	136° 36.99'	-1	06	-0	34	-0	52	-0	57	1.0	0.5	0.2	135°	1.0	053°	0.2	144°	1.0	219°

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS									
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb			
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.		
	CROSS SOUND-cont. Time meridian, 135° W	ft	North	West	h m	h m	h m	h m			knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.		
					on North Inian Pass, p.100															
4381	Cape Spencer, 3 miles south of	39d	58° 09.02'	136° 37.96'	+0 28	+0 10	-0 09	+1 13	0.7	0.7	0.4	140°	0.7	088°	0.2	172°	1.6	228°		
	do.	137d	58° 09.02'	136° 37.96'	+0 11	+0 21	-0 10	+0 17	0.7	0.6	0.3	137°	0.7	069°	0.1	158°	1.3	242°		
	do.	236d	58° 09.02'	136° 37.96'	-0 12	+0 33	+0 17	+0 29	0.8	0.5	0.4	138°	0.8	073°	--	--	1.0	227°		
4386	Column Point, west of	74d	58° 07.03'	136° 28.18'	See Table 5.															
4391	Lisianski Strait, north of Rock Point	14d	58° 00.34'	136° 21.12'	-4 12	-2 41	-1 37	-3 07	1.3	0.2	0.1	333°	1.3	064°	0.1	183°	0.5	268°		
	do.	67d	58° 00.34'	136° 21.12'	-4 17	-2 41	-2 06	-3 35	1.0	0.2	--	--	0.9	058°	--	--	0.4	275°		
	do.	119d	58° 00.34'	136° 21.12'	-4 52	-4 02	-3 26	-3 28	0.4	0.2	--	--	0.4	060°	0.1	348°	0.4	284°		
4396	Port Althrop entr, east of George Island	29d	58° 12.10'	136° 21.78'	-5 23	-2 15	-0 39	-3 03	1.4	0.3	0.2	078°	1.4	002°	0.1	083°	0.7	159°		
	do.	134d	58° 12.10'	136° 21.78'	-4 30	-2 12	-0 41	-2 50	1.3	0.4	--	--	1.3	002°	0.1	079°	0.8	161°		
	do.	239d	58° 12.10'	136° 21.78'	-5 17	-2 01	-0 43	-3 12	0.9	0.2	0.1	289°	0.9	001°	0.1	097°	0.5	195°		
4401	NORTH INIAN PASS, east end		58° 17.04'	136° 22.20'	Daily predictions															
	North Inian Pass, middle		58° 17'	136° 23'	-0 22	+0 15	-0 37	-0 51	2.9	2.3	--	--	1.0	069°	--	--	2.2	131°		
4406	North Inian Pass, west end		58° 17.00'	136° 23.08'	-0 03	+0 17	+0 04	+0 04	0.9	1.0	0.4	167°	0.9	078°	0.2	345°	2.1	232°		
4411	South Inian Pass, east end	28d	58° 13.45'	136° 18.51'	-2 05	-0 51	-0 52	-1 58	2.4	1.4	0.1	156°	2.4	076°	0.5	162°	3.0	246°		
	do.	113d	58° 13.45'	136° 18.51'	-2 09	-1 12	-0 48	-1 51	2.7	1.4	0.1	152°	2.7	072°	0.3	158°	3.0	239°		
	do.	199d	58° 13.45'	136° 18.51'	-2 09	-1 19	-0 48	-1 46	2.4	1.3	0.1	143°	2.4	061°	--	--	2.8	229°		
4416	South Inian Pass, west end	21d	58° 13.67'	136° 21.27'	-2 17	-1 25	-0 57	-1 54	3.7	1.8	0.3	352°	3.7	068°	0.1	348°	4.0	270°		
	do.	80d	58° 13.67'	136° 21.27'	-2 18	-1 27	-0 58	-1 51	3.7	1.8	0.3	353°	3.7	073°	0.1	348°	4.0	270°		
	do.	139d	58° 13.67'	136° 21.27'	-2 21	-1 27	-1 00	-1 50	3.6	1.8	0.2	351°	3.6	073°	0.1	347°	3.8	266°		
	GLACIER BAY and ICY STRAIT																			
4421	North Passage	34d	58° 19.09'	136° 07.07'	-2 19	-1 26	-0 39	-1 41	1.0	0.9	0.2	335°	1.0	082°	0.1	356°	2.0	239°		
	do.	133d	58° 19.09'	136° 07.07'	-3 08	-1 56	-0 17	-1 44	1.3	0.7	0.1	318°	1.3	072°	0.1	337°	1.6	236°		
	do.	238d	58° 19.09'	136° 07.07'	-3 47	-1 11	-0 13	-2 01	1.5	0.6	0.2	139°	1.5	069°	--	--	1.3	232°		
4426	South Passage	32d	58° 14.13'	136° 05.94'	-0 28	+0 11	-0 09	-0 16	1.4	1.1	--	--	1.4	092°	--	--	2.2	274°		
	do.	131d	58° 14.13'	136° 05.94'	-1 01	-0 02	+0 01	-0 22	1.6	0.9	0.1	191°	1.6	105°	--	--	2.0	275°		
	do.	229d	58° 14.13'	136° 05.94'	-1 26	-0 18	-0 04	-0 40	1.6	0.8	0.1	192°	1.6	109°	0.2	196°	1.8	273°		
4431	Glacier Bay entrance, off Point Carolus	17d	58° 22.97'	136° 00.93'	+2 03	+1 11	-1 11	+1 07	0.2	0.7	0.1	150°	0.2	036°	0.2	061°	1.6	174°		
	do.	89d	58° 22.97'	136° 00.93'	-0 21	-1 04	-2 39	-2 51	0.5	0.8	0.1	226°	0.5	288°	0.1	199°	1.7	172°		
	do.	161d	58° 22.97'	136° 00.93'	-0 36	-0 46	-2 26	-2 30	0.5	0.6	0.1	057°	0.5	312°	--	--	1.4	166°		
4436	Glacier Bay entrance, midchannel	28d	58° 22.93'	135° 58.60'	-0 35	+0 12	+1 23	+0 56	3.5	0.9	0.9	091°	3.5	023°	0.1	275°	2.0	158°		
	do.	113d	58° 22.93'	135° 58.60'	-0 46	+0 07	+1 29	+0 46	3.3	0.8	1.0	088°	3.3	016°	0.1	095°	1.7	160°		
	do.	192d	58° 22.93'	135° 58.60'	-1 18	+0 07	+1 27	+0 30	2.8	0.6	0.9	092°	2.8	007°	0.2	092°	1.2	159°		
4441	Glacier Bay entrance, off Point Gustavus	23d	58° 22.95'	135° 56.77'	-1 19	+0 57	+1 05	-0 28	2.8	0.6	0.6	094°	2.9	358°	0.4	273°	1.4	187°		
	do.	101d	58° 22.95'	135° 56.77'	-1 46	+0 50	+1 12	-0 42	3.0	0.6	0.5	112°	2.9	001°	0.1	276°	1.4	187°		
	do.	174d	58° 22.95'	135° 56.77'	-2 01	+0 48	+1 12	-0 46	2.6	0.6	0.2	107°	2.6	359°	--	--	1.3	185°		
4446	Beardslee Island, West of, Glacier Bay	20d	58° 28.02'	136° 02.07'	-0 30	+0 34	+0 48	-0 05	4.3	2.0	--	--	4.3	346°	0.2	252°	4.3	159°		
	do.	86d	58° 28.02'	136° 02.07'	-0 37	+0 23	+0 52	+0 06	4.3	1.9	0.2	252°	4.3	344°	--	--	4.2	155°		
	do.	156d	58° 28.02'	136° 02.07'	-0 32	+0 27	+0 52	+0 06	3.6	1.6	0.1	068°	3.6	344°	0.1	060°	3.6	149°		
4451	Drake Island, west of, Glacier Bay		58° 40.58'	136° 17.17'	Current weak and variable															
4456	Muir Inlet mouth, Glacier Bay	48d	58° 43.56'	136° 06.80'	Current weak and variable															
4461	Hugh Miller Inlet, Glacier Bay	25d	58° 44.96'	136° 22.40'	-0 40	+1 01	+1 18	+0 12	0.3	0.2	--	--	0.3	307°	--	--	0.3	128°		
	do.	117d	58° 44.96'	136° 22.40'	Current weak and variable															
4466	Pleasant Island, southwest of	48d	58° 18.58'	135° 44.29'	-1 13	+0 38	+0 39	-0 22	0.7	0.4	0.1	049°	0.7	093°	0.1	029°	0.8	323°		
	do.	205d	59° 18.58'	135° 44.29'	-1 12	+0 29	+1 13	+0 15	1.0	0.3	0.2	034°	1.0	092°	--	--	0.8	309°		
	do.	336d	59° 18.58'	135° 44.29'	-1 01	-0 08	-0 10	-0 40	0.9	0.5	--	--	0.9	087°	0.1	015°	1.0	318°		
4471	Porpoise Island	93d	59° 20.41'	135° 25.96'	Current weak and variable															
4476	Sisters Reef	47d	59° 11.06'	135° 19.49'	-2 32	-0 40	-0 01	-1 31	0.4	0.2	0.1	027°	0.4	130°	0.1	214°	0.4	296°		
	do.	195d	59° 11.06'	135° 19.49'	-3 31	-2 09	-2 26	-2 28	0.3	0.2	0.1	245°	0.3	158°	0.1	081°	0.3	331°		
	LITUYA BAY																			
					on Wrangell Narrows, p.92															
4481	Lituya Bay Entrance	6d	58° 36.86'	137° 39.61'	+0 00	-0 15	-0 02	+0 09	0.9	0.7	--	--	2.9	031°	0.1	124°	1.5	207°		
	do.	16d	58° 36.86'	137° 39.61'	-0 08	-0 21	+0 00	+0 08	1.0	0.7	--	--	3.3	031°	0.1	124°	1.5	207°		
	do.	29d	58° 36.86'	137° 39.61'	-0 15	-0 29	+0 04	+0 14	1.1	0.7	--	--	3.4	029°	0.1	120°	1.5	205°		

Endnotes can be found at the end of table 2.

TABLE 2 - CURRENT DIFFERENCES AND OTHER CONSTANTS

No.	PLACE	Meter Depth	POSITION		TIME DIFFERENCES				SPEED RATIOS		AVERAGE SPEEDS AND DIRECTIONS							
			Latitude	Longitude	Min. before Flood	Flood	Min. before Ebb	Ebb	Flood	Ebb	Minimum before Flood		Maximum Flood		Minimum before Ebb		Maximum Ebb	
											knots	Dir.	knots	Dir.	knots	Dir.	knots	Dir.
	ICY BAY Time meridian, 135° W	ft	North	West	h	m	h	m	h	m								
					on Kvichak Bay, p.142													
4486	Point Riou, 2.6 nautical miles SW of	13	59° 51.3'	141° 30.2'	See Table 5.													
4491	Claybluff Point Light, 5.2 nmi. SSW of	14	59° 33.5'	141° 40.2'	See Table 5.													
4496	Claybluff Point Light, 3.5 nmi. south of	75	59° 54.6'	141° 35.7'	-3 02	-2 09	-3 14	-3 20	0.2	0.2	0.2	132°	0.5	104°	0.3	142°	0.5	209°
4501	Claybluff Point Light, 2.3 nmi. SE of	206	59° 56.8'	141° 31.2'	-3 10	-2 44	-3 17	-3 14	0.1	0.1	0.1	154°	0.2	030°	0.1	325°	0.3	215°
4506	Carson Creek Entrance, 1.4 nmi. ESE of	15	59° 59.0'	141° 28.2'	-4 48	-0 36	-0 20	-2 09	0.2	0.0	0.1	154°	0.4	071°	--	--	0.1	164°
4511	Carson Creek Entrance, 3.3 nmi. SE of	78	59° 58.2'	141° 24.8'	-2 49	-1 45	-1 03	-2 03	0.3	0.2	--	--	0.9	067°	0.1	135°	0.4	232°
4516	Carson Creek Entrance, 2.4 nmi. ESE of	50	59° 59.2'	141° 26.2'	-3 00	-1 38	-2 24	-2 06	0.2	0.3	--	--	0.6	054°	0.1	138°	0.7	244°
4521	Kichyatt Point, 1.3 nautical miles NE of	378	60° 14'	19.° cCur	rent we	ak and	variabl	e										
	CONTROLLER BAY				on Wrangell Narrows, p.92													
4526	Wingham Island, off northeast corner		60° 03'	144° 23'	+0 42	+1 11	+0 46	+1 06	0.5	0.6	--	--	1.5	068°	--	--	1.2	288°
4531	Kanak Island, southeast of		60° 05'	144° 18'	+0 58	+0 37	+0 38	+0 53	0.5	1.0	--	--	1.7	067°	--	--	2.0	255°
	COOPER RIVER DELTA				on Montague Strait, p.104													
4536	Cottonwood Point		60° 07.86'	145° 04.78'	See Table 5													
	PRINCE WILLIAM SOUND																	
	Hinchinbrook Entrance																	
4541	Hinchinbrook Entrance		60° 04.05'	146° 23.67'	See Table 5.													
4546	Cape Hinchinbrook Approach	37d	60° 13.49'	146° 13.57'	See Table 5.													
	do.	115d	60° 13.49'	146° 13.57'	-0 39	-0 37	--	--	0.4	--	--	--	0.3	280°	--	--	--	--
	do.	181d	60° 13.49'	146° 13.57'	+0 08	-0 03	+0 42	+0 52	0.4	0.5	0.1	182°	0.3	267°	0.1	352°	0.3	084°
4551	Wooded Island	25d	59° 52.10'	147° 16.87'	+2 24	+0 35	-1 35	-0 10	0.5	2.4	0.1	139°	0.4	081°	0.3	132°	1.4	204°
	do.	97d	59° 52.10'	147° 16.87'	+1 07	+0 03	-0 58	+0 16	0.5	1.8	0.1	135°	0.4	065°	0.1	131°	1.1	208°
	do.	156d	59° 52.10'	147° 16.87'	-0 02	-0 54	-0 31	-0 04	0.6	1.3	0.1	322°	0.5	041°	--	--	0.7	231°
4556	Cape Hinchinbrook, SW of, Hinchinbrook I	20d	60° 11.20'	146° 44.90'	+0 10	-1 12	-0 58	+0 33	0.6	1.4	0.3	219°	0.5	317°	0.3	243°	0.8	180°
4561	Bear Cape and Zaikof Point, between	70d	60° 18.70'	146° 48.80'	+1 30	+0 39	-1 01	-0 30	0.6	1.8	--	--	0.4	352°	0.1	080°	1.1	162°
4566	Bear Cape	251d	60° 21.11'	146° 44.77'	+0 27	+0 05	-0 17	-0 06	1.0	1.4	--	--	0.8	355°	--	--	0.8	176°
	do.	566d	60° 21.11'	146° 44.77'	+0 01	-0 39	-0 33	-0 09	1.2	1.4	--	--	1.0	001°	0.1	264°	0.8	171°
4571	Montague Point, 4.5 miles northeast of	71d	60° 24.65'	146° 58.10'	See Table 5.													
4576	Montague Point	40d	60° 23.90'	147° 05.63'	+4 04	+5 55	+5 49	+4 57	0.9	0.5	0.2	020°	0.7	092°	0.1	039°	0.3	323°
	do.	158d	60° 23.90'	147° 05.63'	+5 48	+5 40	+5 17	+5 23	0.5	0.6	0.1	186°	0.4	099°	--	--	0.4	279°
	do.	277d	60° 23.90'	147° 05.63'	+5 10	+4 47	+4 39	+4 54	0.4	0.6	--	--	0.3	088°	--	--	0.4	261°
	Montague Strait and Knight Island Passage																	
4581	Cape Clare		59° 44.86'	148° 00.69'	See Table 5.													
4586	Point Elrington		59° 55.51'	148° 19.39'	See Table 5.													
4591	Cape Puget, east of, Port Bainbridge	69d	59° 57.22'	148° 19.45'	Current weak and variable						0.1	307°	0.2	333°	--	--	0.3	226°
4596	Montague Strait, NW of Pt. Woodcock	70d	59° 56.87'	147° 51.67'	+0 53	-0 17	-0 40	+0 35	0.5	0.9	--	--	0.4	038°	0.1	326°	0.5	223°
4601	MONTAGUE STRAIT	54d	59° 54.88'	147° 57.64'	Daily predictions						--	--	0.8	047°	--	--	0.6	236°
	do.	172d	59° 54.88'	147° 57.64'	+0 19	-0 24	-0 30	+0 00	1.0	1.3	--	--	0.8	052°	0.1	150°	0.8	236°
	do.	290d	59° 54.88'	147° 57.64'	+0 33	-0 18	-0 12	+0 18	0.9	1.5	0.1	317°	0.8	045°	0.1	136°	0.9	228°
4606	Latouche Pass	23d	59° 58.60'	148° 02.79'	-0 02	-1 31	-2 11	-0 46	1.1	2.8	0.1	309°	0.9	039°	0.1	306°	1.6	217°
	do.	62d	59° 58.60'	148° 02.79'	-0 08	-1 36	-1 58	-0 39	1.1	2.6	0.1	307°	0.9	030°	--	--	1.5	220°
	do.	108d	59° 58.60'	148° 02.79'	-0 08	-1 44	-2 16	-0 36	1.1	2.2	0.1	311°	0.9	027°	--	--	1.3	223°
4611	Sawmill Bay Entr., Evans Island	14d	60° 03.55'	147° 58.45'	-0 03	-1 58	-1 54	+0 06	0.5	1.3	0.1	141°	0.4	057°	--	--	0.8	234°
	do.	79d	60° 03.55'	147° 58.45'	-0 21	-1 59	-2 48	-0 25	0.5	0.8	0.1	143°	0.4	055°	--	--	0.5	235°
	do.	158d	60° 03.55'	147° 58.45'	-1 26	-2 16	-3 09	-2 31	0.6	0.5	--	--	0.5	050°	0.1	145°	0.3	243°
4616	Elrington Passage	49d	59° 58.77'	148° 07.00'	+0 17	-0 30	-0 35	-0 07	0.6	1.4	0.2	125°	0.5	059°	0.1	156°	0.8	232°
	do.	180d	59° 58.77'	148° 07.00'	-0 14	-1 10	-0 54	-0 12	0.8	1.0	0.2	136°	0.6	051°	--	--	0.6	229°
	do.	295d	59° 58.77'	148° 07.00'	-0 18	-0 43	-0 48	-0 21	0.9	0.9	0.1	139°	0.8	055°	--	--	0.5	231°
4621	Prince of Wales Pass	30d	60° 02.17'	148° 08.06'	+0 14	-0 51	-1 16	-0 34	1.3	2.7	--	--	1.0	021°	--	--	1.6	202°
	do.	138d	60° 02.17'	148° 08.06'	-0 06	-1 10	-1 08	-0 16	1.4	2.3	--	--	1.2	017°	--	--	1.4	202°
	do.	237d	60° 02.17'	148° 08.06'	-0 18	-1 16	-1 10	-0 22	1.5	2.2	--	--	1.2	025°	--	--	1.3	203°

Endnotes can be found at the end of table 2.

ENDNOTES

- <1> It is reported that an eddy is usually encountered along the ends of the municipal piers which makes docking difficult.
- <2> San Pedro Channel, 7 miles south of Los Angeles Harbor Breakwater. There are two periodic currents here both of which are rotary, turning clockwise, and rather weak. The tidal current has a speed at strength of about 0.2 knot. The other current, due apparently to daily land and sea breezes, has a period of 24 hours and an average speed of about 0.2 knot. The greatest speed during 5 months of observations was 1.5 knots. Currents greater than 1 knot occur infrequently.
- <3> In Los Angeles and Long Beach Harbors, the tidal current is weak. Currents can exceed 1 knot in the outer harbor at San Pedro, under strong wind conditions. Also, it is reported that three minute surge waves are responsible for major ship movements and damage.
- <4> Observations indicate ebb is very weak.
- <5> Large current eddies which cause ships to sheer off course are reported near the foundation piers of Golden Gate Bridge and San Francisco—Oakland Bay Bridge.
- <6> See "Coastal Tidal Currents," (Table of Contents).
- <7> Current is somewhat rotary, turning clockwise.
- <8> SLACK WATER TIME DIFFERENCES FOR PLACES ALONG SAN FRANCISCO PIERS:

STATION or LOCALITY Time meridian, 120° W	Latitude N	Longitude W	Beginning of			
			flood		ebb	
	on SAN FRANCISCO BAY ENTRANCE, p.8					
			h.	m.	h.	m.
St. Francis Yacht Club breakwater....	37° 48.5'	122° 26.5'	-0	10	-1	50
Aquatic Park, 0.2 mile west of.....	37° 48.6'	122° 25.7'	-0	35	-2	05
Pier 37.....	37° 48.6'	122° 24.5'	-1	35	-2	20
Pier 29.....	37° 48.4'	122° 24.0'	-1	10	-2	20
Pier 7.....	37° 48.0'	122° 23.6'	-0	55	-2	05
Pier 14.....	37° 47.7'	122° 23.3'	-0	55	-3	00
Pier 26.....	37° 47.4'	122° 23.0'	-1	40	-1	50
Pier 38.....	37° 47.0'	122° 23.0'	-0	25	-2	25
Pier 50.....	37° 46.4'	122° 22.8'	-1	40	-2	20
Bethlehem Pier No. 8.....	37° 45.6'	122° 22.7'	-1	20	-1	55
Pier 90, 0.5 mile SE. of.....	37° 44.5'	122° 22.4'	-1	50	-2	05
Point Avisadero.....	37° 43.7'	122° 21.3'	-1	25	-0	40
Point Avisadero, 0.8 mile south of.....	37° 43.0'	122° 21.5'	-1	30	-3	25

- <9> Current is somewhat rotary, turning counterclockwise.
- <10> Current is somewhat rotary, turning counterclockwise. 4h 25m prior to computed maximum flood the current flows southward with a speed 0.6 of the flood speed at the reference station.
- <11> Data do not apply during freshets.
- <12> Data do not apply during freshets.
- <13> Data approximate.
- <14> See "Coastal Tidal Currents," (Table of Contents).
- <15> The Columbia River bar can be very dangerous because of sudden and unpredictable current changes accompanied by breakers. It is reported that ebb currents on the north side of the bar attain speeds of 6 to 8 knots and that strong NW winds sometimes cause currents that set north in the area outside the jetties. In the entrance, the currents are variable and may reach a speed of more than 5 knots on the ebb while the flood speed seldom exceeds 4 knots. The tidal current in the river is always modified by the river discharge, sometimes to the extent that the flood current is indiscernible and the current ebbs continuously.
- <16> Flood and minimum current data indeterminate.
- <17> Observations indicate that the current ebbs continuously at this location. Data are given for the smallest and largest mean ebb values expected. The time differences and speed ratios should be applied to the predicted times of maximum ebb at the reference station.
- <18> During period of observations (February) flood was weak, and current was ebbing most of the time with a speed of about 2 knots at times of maximum.

ENDNOTES

- <19> Along the west coast of Vancouver Island the current is reported to set always northwestward. It is weakest during westerly winds and strongest with easterly winds, being about a knot in moderate weather.
- <20> When predicted flood at Admiralty Inlet, Race Rocks, or Strait of Juan de Fuca Entrance is marked with an (*) the flood speed and the preceding and following slacks at stations referred to them cannot be predicted. The current at most of these stations, however, will be weak at such times. Exceptions are the stations whose speed ratios are footnote reference <27>
- <21> Current is rotary, turning clockwise.
- <22> Time of minimum before flood is indefinite.
- <23> Observations indicate that current is weak with direction variable for the greater part of the tidal cycle. A maximum flood speed of 1 knot in a southerly direction has been observed.
- <24> Time of minimum before ebb is indefinite.
- <25> Slacks are indefinite. The flood current is weak and variable, possibly ebbing at times.
- <26> Current ebbs continuously. Maximum ebb, +5h 15m; minimum ebb, -1h 20m.
- <27> Flood speed at strength probably does not become less than a knot.
- <28> Current is rotary and erratic. Speeds of 3 knots may be encountered.
- <29> Current ebbs most of the time. Time difference is for maximum ebb only. Weak current, flood or ebb, usually occurs about 0.8 hour after maximum flood at The Narrows.
- <30> Current floods most of the time. Time difference is for maximum flood only. Weak ebb or slack water usually occurs about 1 hour before maximum ebb at The Narrows.
- <31> Current ebbs most of the time. Time difference is for maximum ebb only. Weak flood or slack water usually occurs about 1 1/2 hours before maximum flood at The Narrows.
- <32> Current floods most of the time. Time of minimum before flood is indefinite.
- <33> Close to the east shore the flood speed is reduced about 1/2 but the ebb speed is only slightly less than at Point Evans.
- <34> On the west side the speed of the flood current is 0.6 that of midstream and the ebb begins about 1 hour and 15 minutes earlier. On the east side the current is about the same as in midstream.
- <35> Current ebbs most of the time. Time difference is for maximum ebb only. Weak flood or slack water usually occurs about 1 hour after maximum flood at The Narrows.
- <36> Current ebbs most of the time. Time difference is for maximum ebb only. Weak flood or slack water usually occurs about the time of maximum flood at the Narrows.
- <38> Current ebbs most of the time. Time difference is for maximum ebb only. Weak flood or slack water usually occurs about 1/2 hour after maximum flood at The Narrows.
- <40> When predicted flood at Admiralty Inlet or Rosario Strait is marked with an (*) the flood speed and the preceding and following slacks at stations referred to them cannot be predicted. The current at most of these stations, however, will be weak at such times.
- <41> Ebb current is irregular at times.
- <42> Current is predominantly non-tidal, flowing in a northwesterly direction with a maximum speed of 1 knot.
- <43> Current ebbs most of the time. Time difference is for maximum ebb only; slack times are indefinite and flood current is weak and variable.
- <44> Time difference is for maximum flood only; slack times are indefinite and ebb current is too variable to be predicted.
- <45> Dangerous eddy current and tide rips are reported to occur between Helmcken Island and Ripple Shoal around the time of ebb strength.

ENDNOTES

- <46> On the flood, the streams coming from the sea through the north and south entrances meet off Evening Point (Lat. 53° 39' N) and separate on the falling tide about a mile farther northward.
- <47> Observations indicate that current usually flows WNW, speed varying from zero to an average strength of 0.3 knot which occurs about 1 hour after time of maximum flood at Wrangell Narrows.
- <48> Lewis Point to Guard Island—current too weak to be predicted.
- <49> Observations indicate that current usually flows NW, speed varying from zero to an average strength of 1.2 knots which occurs about 45 minutes before time of maximum flood at Wrangell Narrows.
- <50> Observations indicate that current usually flows NW, speed varying from zero to an average strength of 0.7 knot which occurs about 2 1/2 hours after time of maximum flood at Wrangell Narrows.
- <51> Slacks occurs for a period of several hours before maximum current.
- <52> Current usually flows WSW; speed varies from zero to an average of 1.1 knots occurring about 1h 05m earlier than time of maximum ebb at Wrangell Narrows.
- <53> Slacks are indefinite. Flood current is too weak or variable to be predicted.
- <54> Minimum before flood, 2h 41m before maximum flood; minimum before ebb, 3h 46m before maximum ebb.
- <55> Lesser ebb, +0h 50m. The greater ebb may reach a maximum speed then decrease slightly for about 1 1/2 hours before increasing to a second maximum. These time differences are: 1st. maximum, -0h 42m; minimum, +0h 43m; second maximum, +1h 32m; and are referred only to the greater ebb phase at the reference station.
- <56> Current too weak and variable to be predicted.
- <57> Observations indicate that the current usually flows WNW with a non-tidal current of 0.6 knot.
- <58> Currents are materially affected by winds.
- <59> Northeast of Lively Island, it is reported that the current sets constantly northwestward, being stronger when the main stream west of the island sets northwestward.
- <60> In the section of El Capitan Passage west of Dry Pass the current turns westward about the time of strength of eastward current in Dry Pass, and turns eastward about 1 hour before the time of strength of westward current in Dry Pass.
- <61> Time difference is for maximum ebb only. Flood current is very erratic.
- <62> Current frequently ebbs throughout the day, especially when moon is in quadrature.
- <63> Slacks before flood may be variable.
- <64> Observations in Frederick Sound during summer months indicate that the current usually flows northwestward, the speed varying with the tide. It apparently flows southeastward only on large tides.
- <66> The currents in Nakwasina Passage, except at the location 1 1/2 miles west of Allan Point, are too weak and variable to be predicted.
- <67> Slacks are undetermined.
- <68> Current is erratic in direction and strength at times.
- <69> It is reported that currents are strong and passage is navigable only near time of slack water.
- <70> Observations indicate that current usually flows northward, speed varying from zero to an average strength of 2 knots which occurs about 2.3 hours before time of maximum flood at North Inian Pass.
- <71> A weak ebb probably occurs at this station when flood speed at North Inian Pass is less than 2 knots.
- <72> It is reported that currents are strong and passage is navigable only near time of slack water.
- <73> Observations indicate that current usually flows eastward with an average speed of 0.8 knot.
- <74> It is reported that close inshore at Anchorage an eddy current flows up Knik Arm during the ebb.

ENDNOTES

- <75> The tidal currents in this strait are weak except at the Slough and the Narrows where the speed at strength may amount to 2 or 3 knots on large tides.
- <76> Current is rotary, turning clockwise. Minimum current about 0.1 knot, setting 160° true.
- <77> Off Whirl Point, the speed of the current is about twice that off the Cannery.
- <78> Dangerous tide rips occur in most of the passes in the Aleutian Islands when sea and swell oppose strong currents.
- <79> Tidal current is weak and rotary, turning clockwise. Observations indicate a 0.2 knot westerly set.
- <80> Ebb speed may not exceed 5.5 knots.
- <81> When predicted ebb speed at Akutan Pass is less than 2 knots the current at this station is weak and variable.
- <82> When predicted ebb speed at Unimak Pass is less than 1 knot the current at this station is weak and variable.
- <83> Flood begins 1 hour before maximum ebb at Unimak Pass.
- <85> Ratios are for greater flood and greater ebb only. The flood and ebb inequalities are small when the moon is near the equator. At other times there is considerable difference between the two floods and also the two ebbs in a day. The lesser flood may even become a small ebb at extreme declinations.
- <86> Time difference for greater ebb and slack before greater ebb. Slack before greater flood and greater flood occur 7 hours and 12 hours respectively after greater ebb. Current floods for about 8 hours after greater flood.
- <87> Flood speed ratio is for the 1st flood after greater ebb; the ebb speed ratio is for greater ebb.
- <88> For greater flood and greater ebb only. The current is rotary, turning clockwise. At the predicted time of slack before greater flood, the current will run westward with speed of about 1.5 knots. At the predicted times of all other slacks and also lesser flood and lesser ebb (or minimum flood), the current will run northward with speed of about one knot.
- <89> Current is rotary, turning clockwise. About 5 hours after time of greater ebb at Unimak Pass, current flows NW, speed ratio 0.4 and about 13 hours after greater ebb at Unimak Pass, current flows SE, speed ratio 0.5.
- <90> Current is somewhat rotary, turning clockwise and is too variable to be predicted.
- <91> Current is somewhat rotary, turning clockwise and is subject to considerable fluctuation. Approximate predictions are obtained through the following relations to the greater ebb at Unimak Pass: +1 1/2 hours, sets SSW, ratio 0.8; +9 hours, probably weak northerly set; + 18 hours, sets NNE, ratio 0.6.
- <92> Current is relatively weak and rotary, turning clockwise. Data is for the greater ebb which is the most consistent phase.
- <93> Current is somewhat rotary turning clockwise. At times given for slack, flood begins and slack, ebb begins the current probably flows WNW and ESE respectively, with speed of about 1.5 knot.
- <94> The current changes from ebb to flood abruptly and predictions for beginning of flood are approximate only.
- <95> Maximum flood 1 knot greater and maximum ebb 0.5 knot greater than corresponding speed at Kvichak Bay.
- <96> Current is rotary turning clockwise. At the predicted times of slack before flood or ebb the current will run westward or eastward respectively with speed about 0.2 knot.
- <97> Current is rotary turning clockwise. Difference and ratio are for maximum flood current only.
- <98> Current is rotary turning clockwise. Midway between flood and ebb current is minimum (about 0.2 knot).
- <99> Current is rotary turning clockwise. An average maximum speed of about 0.7 knot occurs in a SSW direction.

ENDNOTES

- <100> Current flows in an ENE direction with an average speed of 1.1 knots. All values appearing in the ebb columns are actually those for a minimum flood.
- <101> Time differences are for slack before greater flood, slack before greater ebb, and greater ebb. Maximum flood occurs about halfway between the times of the slacks obtained through differences. Speed ratios are for greater flood and greater ebb.
- <102> Observations indicate that the current usually flows NNE with an average speed of 0.3 knot. Values in the ebb column are actually those for a minimum flood.
- <103> Observations indicate that the current flows in a northerly direction with an average speed of 0.6 knot. Values in the ebb columns are actually those for a minimum flood.
- <104> Observations indicate that the current flows in a NNE direction with an average speed of 0.9 knot. Values in the ebb columns are actually those for a minimum flood.
- <105> Observations indicate the existence of a permanent current setting north with an average speed of 0.7 knot. Combined with the tidal current, the northward current may have an average speed varying from slack to 1.4 knots. The greatest observed speed off Maui Island was 2.7 knots.
- <106> Observations indicate the current usually flows northwest on the west side of the channel near Kahoolawe Island with a maximum speed of 0.7 knot.
- <107> Observations indicate that current usually flows SSE on east side of channel near Maui Island with a maximum speed of 0.4 knot.
- <108> Current seldom floods. It decreases from maximum ebb to a minimum ebb or slack, then increases to maximum ebb again with no significant flow in the flood direction.
- <109> Current sets to northeast with an average speed of about 0.3 knot.
- <110> The general pattern of the flow into the Naikai is as follows. From the Kii Suido the flood current flows northward through Tomogashima Suido, Izumi Nada, Naruto and Muyano Seto, and westward through Akashi Kaikyo, Harima Nada and Bisan Seto to Bingo Nada. From the Bungo Suido the flood current flows northward through Hayasui Seto and then divides, one branch flowing westward to Shimonoseki Kaikyo and the other branch northeastward through Iyo Nada, Kudako Suido and environs, and Aki Nada. Continuing, the flood current then flows southward through Kurushima Kaikyo and northeastward through Mihara Seto to Bingo Nada. On the ebb the direction of flow is reversed. Bingo Nada is the area where the currents meet on the flood and separate on the ebb.
- <111> The ratios and average speeds and directions are those of spring speeds.
- <112> It is reported that the current at the pier at Zamboanga usually sets in a westerly direction.
- <113> Current flows continuously in a westerly direction. Differences are for mean maximum speed.
- <114> Current ebbs continuously. Differences are for mean maximum ebb only.
- <115> Current floods continuously. Differences are for mean maximum flood only.
- <116> Slacks are indefinite. Flood current is weak and variable. Differences are for mean maximum ebb only.
- <117> Minimum before flood is indefinite. Flood current is weak and variable.
- <118> Weak and variable current ebbs continuously in a southeasterly direction.
- <119> Slacks are indefinite. Flood current is weak and variable. Differences are for a small ebb current.
- <120> Current ebbs continuously with speeds varying from 0.7 knot (shown in the maximum flood column) to 1.5 knots.
- <121> Due to disturbances caused by the structure, observed currents within 50 feet of the pier can be significantly different from the predictions.
- <122> There is a weak secondary flood current which sets northward 3-5 hours after the maximum flood current.

TABLE 3.—SPEED OF CURRENT AT ANY TIME

EXPLANATION OF TABLE

Though the predictions in this publication give only the slacks and maximum currents, the speed of the current at any intermediate time can be obtained approximately by the use of this table. Directions for its use are given below the table.

Before using the table for a place listed in Table 2, the predictions for the day in question should first be obtained by means of the differences and ratios given in Table 2.

The examples below follow the numbered steps in the directions.

Example 1.—Find the speed of the current in San Francisco Bay Entrance (Golden Gate) at 4:00 on a day when the predictions which immediately precede and follow 4:00 are as follows:

(1)	Slack; flood begins	Maximum (Flood)	
	Time	Time	Speed
	2:19	5:25	3.2 knots

Directions under the table indicate Table A is to be used for this station.

(2) Interval between slack and maximum flood is $5:25 - 2:19 = 3^h 06^m$. Column heading nearest $3^h 06^m$ is $3^h 00^m$.

(3) Interval between slack and desired time is $4:00 - 2:19 = 1^h 41^m$. Line labeled $1^h 40^m$ is nearest $1^h 41^m$.

(4) Factor in column $3^h 00^m$ and on line $1^h 40^m$ is 0.8. The above flood speed of 3.2 knots multiplied by 0.8 gives a flood speed of 2.56 knots (or 2.6 knots, since one decimal is sufficient) for the time desired.

Example 2.—Find the speed of the current in Peril Strait at Kakul Narrows at 15:30 on a day when the predictions (obtained through the difference and ratio in Table 2) which immediately precede and follow 15:30 are as follows:

(1)	Maximum (Ebb)		Slack; flood begins
	Time	Speed	Time
	13:59	2.8 knots	16:56

Directions under the table indicate Table B is to be used, since this station in Table 2 is referred to Sergius Narrows.

(2) Interval between slack and maximum ebb is $16:56 - 13:59 = 3^h 17^m$. Hence, use column labeled $3^h 20^m$.

(3) Interval between slack and time desired is $16:56 - 15:30 = 1^h 26^m$. Hence, use line labeled $1^h 20^m$.

(4) Factor in column $3^h 20^m$ and on line $1^h 20^m$ is 0.7. The above ebb speed of 2.8 knots multiplied by 0.7 gives an ebb speed of 2.0 knots for the desired time.

When the interval between slack and maximum current is greater than $5^h 40^m$, enter the table with one-half the interval between slack and maximum current and one-half the interval between slack and the desired time and use the factor thus found.

TABLE 3.—SPEED OF CURRENT AT ANY TIME

TABLE A														
Interval between slack and maximum current														
	<i>h. m.</i> 1 20	<i>h. m.</i> 1 40	<i>h. m.</i> 2 00	<i>h. m.</i> 2 20	<i>h. m.</i> 2 40	<i>h. m.</i> 3 00	<i>h. m.</i> 3 20	<i>h. m.</i> 3 40	<i>h. m.</i> 4 00	<i>h. m.</i> 4 20	<i>h. m.</i> 4 40	<i>h. m.</i> 5 00	<i>h. m.</i> 5 20	<i>h. m.</i> 5 40
<i>Interval between slack and desired time</i>	<i>knots</i>													
<i>h. m.</i> 0 20	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0 40	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
1 00	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3
1 20	1.0	1.0	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4
1 40	----	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4
2 00	----	----	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5
2 20	----	----	----	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6
2 40	----	----	----	----	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7
3 00	----	----	----	----	----	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.7
3 20	----	----	----	----	----	----	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.8
3 40	----	----	----	----	----	----	----	1.0	1.0	1.0	0.9	0.9	0.9	0.9
4 00	----	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0	0.9	0.9
4 20	----	----	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0	0.9
4 40	----	----	----	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0
5 00	----	----	----	----	----	----	----	----	----	----	----	1.0	1.0	1.0
5 20	----	----	----	----	----	----	----	----	----	----	----	----	1.0	1.0
5 40	----	----	----	----	----	----	----	----	----	----	----	----	----	1.0

TABLE B														
Interval between slack and maximum current														
	<i>h. m.</i> 1 20	<i>h. m.</i> 1 40	<i>h. m.</i> 2 00	<i>h. m.</i> 2 20	<i>h. m.</i> 2 40	<i>h. m.</i> 3 00	<i>h. m.</i> 3 20	<i>h. m.</i> 3 40	<i>h. m.</i> 4 00	<i>h. m.</i> 4 20	<i>h. m.</i> 4 40	<i>h. m.</i> 5 00	<i>h. m.</i> 5 20	<i>h. m.</i> 5 40
<i>Interval between slack and desired time</i>	<i>knots</i>													
<i>h. m.</i> 0 20	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
0 40	0.8	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
1 00	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4
1 20	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5
1 40	----	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6
2 00	----	----	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.6
2 20	----	----	----	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7
2 40	----	----	----	----	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.7
3 00	----	----	----	----	----	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.8
3 20	----	----	----	----	----	----	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9
3 40	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0	0.9	0.9	0.9
4 00	----	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0	0.9	0.9
4 20	----	----	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0	0.9
4 40	----	----	----	----	----	----	----	----	----	----	1.0	1.0	1.0	1.0
5 00	----	----	----	----	----	----	----	----	----	----	----	1.0	1.0	1.0
5 20	----	----	----	----	----	----	----	----	----	----	----	----	1.0	1.0
5 40	----	----	----	----	----	----	----	----	----	----	----	----	----	1.0

Use table A for all places except those listed below for table B.

Use table B for Deception Pass, Seymour Narrows, Sergius Narrows, Isanotski Strait, and all stations in table 2 which are referred to these points.

1. From predictions find the time of slack water and the time and velocity of maximum current (flood or ebb), one of which is immediately before and the other after the time for which the velocity is desired.
2. Find the interval of time between the above slack and maximum current, and enter the top of table A or B with the interval which most nearly agrees with this value.
3. Find the interval of time between the above slack and the time desired, and enter the side of table A or B with the interval which most nearly agrees with this value.
4. Find, in the table, the factor corresponding to the above two intervals, and multiply the maximum velocity by this factor. The result will be the approximate velocity at the time desired.

TABLE 4.—DURATION OF SLACK

The predicted times of slack water given in this publication indicate the instant of zero speed, which is only momentary. There is a period on each side of the slack water, however, during which the current is so weak that for practical purposes it may be considered negligible.

The following tables give, for various maximum currents, the approximate period of time during which weak currents not exceeding 0.1 to 0.5 knot will be encountered. This duration includes the last of the flood or ebb and the beginning of the following ebb or flood, that is, half of the duration will be before and half after the time of slack water.

Table A should be used for all places except those listed below for Table B.

Table B should be used for Deception Pass, Seymour Narrows, Sergius Narrows, Isanotski Strait and all stations in table 2 which are referred to them.

Duration of weak current near time of slack water

TABLE A

Maximum current	Period with a speed not more than -				
	0.1 knot	0.2 knot	0.3 knot	0.4 knot	0.5 knot
Knots	Minutes	Minutes	Minutes	Minutes	Minutes
1.0	23	46	70	94	120
1.5	15	31	46	62	78
2.0	11	23	35	46	58
3.0	8	15	23	31	38
4.0	6	11	17	23	29
5.0	5	9	14	18	23
6.0	4	8	11	15	19
7.0	3	7	10	13	16
8.0	3	6	9	11	14
9.0	3	5	8	10	13
10.0	2	5	7	9	11

TABLE B

Maximum current	Period with a speed not more than -				
	0.1 knot	0.2 knot	0.3 knot	0.4 knot	0.5 knot
Knots	Minutes	Minutes	Minutes	Minutes	Minutes
1.0	13	28	46	66	89
1.5	8	18	28	39	52
2.0	6	13	20	28	36
3.0	4	8	13	18	22
4.0	3	6	9	13	17
5.0	3	5	8	10	13
6.0	2	4	6	8	11
7.0	2	4	5	7	9
8.0	2	3	5	6	8

When there is a difference between the speeds of the maximum flood and ebb preceding and following the slack for which the duration is desired, it will be sufficiently accurate for practical purposes to find a separate duration for each maximum speed and take the average of the two as the duration of the weak current.

TABLE 5.—ROTARY TIDAL CURRENTS

EXPLANATION

Offshore and in some of the wider indentations of the coast, the tidal current is quite different from that found in the more protected bays and rivers. In these inside waters the tidal current is of the reversing type. The current sets in one direction for a period of 6 hours after which it ceases to flow momentarily and then sets in the opposite direction during the following 6 hours. The offshore tidal current, not being confined to a definite channel, changes its direction continually and never slows to a true slack water. Thus in a tidal cycle of 12 ½ hours it will have set in all directions of the compass. This type of current is referred to as a rotary current.

A characteristic feature of the rotary current is the absence of slack water. Although the current generally varies from hour to hour, this variation from greatest current to least current and back again to greatest does not give rise to a period of slack water. When the speed of the rotary tidal current is least, it is known as the minimum current, and when it is greatest it is known as the maximum current. The minimum and maximum speeds of the rotary current are related to each other in the same way as slack and strength of current. A minimum speed of the current follows a maximum speed by an interval of approximately 3 hours and followed in turn by another maximum after a further interval of 3 hours.

The following table provides the direction and speed of the rotary current for each hour at a number of offshore stations. The times and speeds are referred to predictions for a reference station in Table 1. All times are in local standard time for the secondary station.

The speeds given in the table are the average speeds for the station. The Moon when new, full, or at perigee tends to increase the speeds 15 to 20 percent above average. When perigee occurs at or near the time of new or full Moon, the current speeds will be 30 to 40 percent above average. The Moon when at first and third quarter or at apogee tend to decrease the current speeds below average by 15 to 20 percent. When apogee occurs at or near the first or third quarter Moon, the currents will be 30 to 40 percent below average. The speeds will be about average when apogee occurs at or near the time of the new or full Moon and also when perigee occurs at or near quadrature. (See table of astronomical data.)

The direction of the current is given in degrees, true, reading clockwise from 0° at north, and is the direction toward which the water is flowing.

The speeds and directions are for tidal current only and do not include the effect of the wind. When a wind is blowing, a wind-driven current will be set up as is superimposed on the normal tidal current. The actual current encountered will thus be a combination of the wind-driven current and the tidal current. See the chapters on "Wind-Driven Currents" and "The Combination of Currents".

As an example, in the following table the current at Montague Point is given for each hour after maximum flood at Sergius Narrows. Suppose it is desired to find the direction and speed of the current at Montague Point at 3:15 p.m. (15:15) on a day when the maximum flood at Sergius Narrows is predicted in Table 1 to occur at 13:20. The desired time is therefore 2 hours after the maximum flood at Sergius Narrows. From the table the tidal current at Montague Point at 2 hours is setting 285° true with an average speed of 0.58 knots. If this day is near the time of new Moon and about half way between apogee and perigee, then the distance effect of the moon will be nil and the phase effect alone will increase the speed by about 15 percent, to 0.66 knots.

TABLE 5.—ROTARY TIDAL CURRENTS

Station Name	Depth	Hourly time increments												
		0	1	2	3	4	5	6	7	8	9	10	11	
After Maximum Flood at KVICHAK BAY														
Point Riou, 2.6 nm SW	13	0.58 007	0.42 006	0.21 005	0.12 289	0.23 269	0.26 262	0.37 295	0.56 314	0.65 337	0.74 349	0.74 348	0.71 352	knots degrees
Claybluff Point Light, 5.2nm SSW	14	0.05 141	0.35 225	0.73 237	0.90 251	1.01 257	1.06 261	1.04 272	0.87 291	0.82 306	0.70 332	0.58 002	0.41 037	knots degrees
Kichyatt Point, 1.3nm NE	378	0.12 289	0.12 280	0.08 278	0.03 261	0.00 237	0.00 105	0.01 068	0.01 066	0.03 357	0.06 333	0.09 323	0.11 310	knots degrees
After Maximum Flood at SERGIUS NARROWS														
Montague Point, 4.5 miles NE	71	0.45 276	0.55 288	0.58 285	0.58 286	0.57 287	0.45 285	0.26 276	0.12 245	0.16 192	0.24 187	0.24 209	0.27 247	knots degrees
Ship Channel, east of Smith Island	69	0.17 261	0.20 303	0.30 326	0.32 356	0.29 028	0.25 059	0.25 094	0.31 123	0.35 142	0.37 157	0.33 176	0.22 203	knots degrees
Johnston Point, 4 miles N	20	0.27 002	0.35 022	0.35 035	0.36 046	0.37 053	0.25 054	0.17 063	0.05 075	0.04 222	0.05 306	0.13 308	0.20 328	knots degrees
Gravina Point and Makaka Point, between	20	0.07 077	0.12 090	0.18 104	0.16 112	0.13 120	0.10 133	0.06 169	0.06 231	0.09 260	0.12 264	0.11 273	0.04 308	knots degrees
After Maximum Flood at WRANGELL NARROWS														
The Brothers West SEA0501 Bin 1	272	0.65 016	0.33 007	0.24 340	0.29 287	0.33 241	0.44 197	0.50 177	0.44 154	0.37 140	0.14 104	0.26 028	0.56 011	knots degrees
The Brothers West SEA0501 Bin 9	167	0.73 026	0.45 015	0.23 352	0.30 294	0.39 274	0.41 229	0.53 200	0.55 194	0.34 202	0.05 285	0.27 031	0.54 039	knots degrees
The Brothers West SEA0501 Bin 918	48	0.80 025	0.58 015	0.17 332	0.22 242	0.44 215	0.64 207	0.74 208	0.69 209	0.35 209	0.08 082	0.63 063	0.91 048	knots degrees

TABLE 5.—ROTARY TIDAL CURRENTS

Station Name	Depth	Hourly time increments												
		0	1	2	3	4	5	6	7	8	9	10	11	
After Maximum Flood at WRANGELL NARROWS														
Hawk Inlet Entrance SEA0506 Bin 1	108	0.08 030	0.06 066	0.03 143	0.08 160	0.15 157	0.16 161	0.21 162	0.20 163	0.19 165	0.15 161	0.01 111	0.19 356	knots degrees
Hawk Inlet Entrance SEA0506 Bin 6	59	0.33 049	0.32 054	0.20 062	0.09 094	0.10 159	0.12 182	0.13 180	0.18 176	0.17 166	0.17 156	0.11 132	0.17 031	knots degrees
Hawk Inlet Entrance SEA0506 Bin 11	9	0.27 053	0.20 069	0.12 078	0.07 150	0.15 209	0.31 242	0.30 254	0.17 226	0.11 200	0.08 187	0.11 102	0.23 049	knots degrees
The Brothers, East SEA0502 Bin 17	68	0.45 061	0.44 085	0.28 123	0.25 159	0.36 184	0.43 207	0.45 220	0.41 233	0.29 249	0.14 318	0.26 022	0.40 042	knots degrees
Calder Rocks, SEA0608 Bin 16	28	0.28 030	0.06 066	0.25 143	0.47 160	0.51 157	0.33 161	0.05 162	0.30 163	0.33 165	0.23 161	0.24 111	0.33 116	knots degrees
Sonora Passage, SEA0640 Bin 1	152.8	0.40 129	0.44 141	0.37 154	0.27 163	0.16 173	0.07 202	0.05 264	0.07 280	0.06 279	0.03 282	0.02 095	0.14 116	knots degrees
Sonora Passage, SEA0640 Bin 8	83.9	0.09 159	0.11 163	0.12 175	0.09 205	0.06 277	0.15 329	0.25 340	0.28 346	0.22 348	0.12 347	0.02 049	0.16 141	knots degrees
Sonora Passage, SEA0640 Bin 14	24.8	0.11 110	0.10 137	0.08 165	0.06 255	0.17 304	0.32 319	0.42 329	0.43 337	0.37 349	0.27 007	0.18 040	0.15 079	knots degrees
Summer Strait SEA0605 Bin 15	46	0.20 305	0.45 286	0.62 244	1.08 224	1.49 224	1.59 227	1.46 220	1.36 203	1.30 187	1.06 177	0.63 171	0.20 159	knots degrees
Amelius Island, 1 Mi E of, SEA0609 Bin 5	65.5	0.23 202	0.52 230	0.70 229	0.88 222	0.96 221	0.77 221	0.37 198	0.40 154	0.50 148	0.43 138	0.32 123	0.22 126	knots degrees
Amelius Island, 1 Mi E of SEA0609 Bin 5	16.3	0.35 205	0.53 222	0.67 221	0.83 214	0.93 211	0.84 210	0.61 199	0.50 173	0.51 158	0.40 147	0.29 149	0.23 163	knots degrees
After Maximum Flood at KENNEDY ENTRANCE														
Barabara Point CI0421 Bin 11	82	0.25 019	0.24 344	0.27 300	0.33 276	0.40 260	0.41 248	0.34 236	0.16 220	0.07 140	0.15 077	0.24 057	0.29 044	knots degrees
Barabara Point CI0421 Bin 20	23	0.37 006	0.36 354	0.29 327	0.28 294	0.32 263	0.34 243	0.32 227	0.25 208	0.11 180	0.04 073	0.16 023	0.30 014	knots degrees

TABLE 5.—ROTARY TIDAL CURRENTS

Station Name	Depth	Hourly time increments												
		0	1	2	3	4	5	6	7	8	9	10	11	
After Maximum Flood at CHARLESTON HARBOR														
Iliamna Bay COI0512 Bin 1	20	0.36 335	0.32 014	0.35 055	0.42 083	0.44 107	0.44 135	0.46 163	0.46 194	0.51 232	0.61 260	0.61 278	0.51 298	knots degrees
Iliamna Bay COI0512 Bin 2	10	0.44 334	0.37 013	0.40 054	0.47 084	0.49 111	0.51 139	0.53 165	0.53 193	0.56 228	0.65 256	0.68 277	0.59 297	knots degrees
Cape Douglas, NE Bin 1	452	0.83 330	0.66 345	0.43 010	0.35 076	0.51 118	0.65 134	0.66 144	0.52 157	0.32 188	0.27 264	0.53 299	0.76 312	knots degrees
Cape Douglas, NE Bin 8	314	0.65 320	0.52 326	0.27 338	0.08 049	0.29 125	0.46 132	0.51 135	0.42 139	0.18 159	0.11 262	0.37 300	0.58 310	knots degrees
After Maximum Flood at MONTAGUE STRAIT														
Bainbridge Pass North, PWS0712, Bin 1	331	0.03 223	0.09 207	0.13 208	0.15 207	0.15 207	0.12 209	0.06 218	0.03 321	0.11 000	0.14 000	0.14 359	0.08 357	knots degrees
Cape Cleare, PWS0720, Bin 1	40	0.87 348	0.47 005	0.30 078	0.64 129	1.10 147	1.32 161	1.22 177	0.76 208	0.67 279	1.28 324	1.57 333	1.50 340	knots degrees
Cape Cleare, PWS0720, Bin 3	26	1.14 345	0.76 359	0.43 051	0.62 114	1.13 145	1.44 163	1.38 182	0.89 217	0.88 283	1.56 323	1.89 333	1.82 339	knots degrees
Cape Cleare, PWS0720, Bin 5	13	1.48 340	1.01 352	0.56 030	0.55 099	1.12 144	1.48 164	1.48 184	1.00 221	1.08 286	1.87 321	2.29 331	2.24 335	knots degrees
Cape Hinchinbrook Approach, PWS0729, Bin 12	37	0.54 301	0.47 307	0.33 314	0.15 321	0.02 271	0.10 186	0.17 202	0.25 226	0.39 256	0.49 269	0.60 280	0.65 289	knots degrees
Cottonwood Point, PWS0730, Bin 1	124	0.20 282	0.14 279	0.11 258	0.12 237	0.15 230	0.16 236	0.18 249	0.20 266	0.24 282	0.24 289	0.24 292	0.23 292	knots degrees
Cottonwood Point, PWS0730, Bin 6	59	0.31 285	0.24 286	0.19 277	0.18 264	0.21 252	0.25 246	0.29 250	0.32 258	0.35 268	0.37 275	0.38 281	0.37 284	knots degrees
Cottonwood Point, PWS0730, Bin 8	32	0.40 287	0.31 289	0.24 286	0.20 277	0.20 262	0.24 250	0.29 248	0.35 253	0.40 260	0.43 267	0.44 274	0.45 279	knots degrees
Crafton Is, Knight Is Passage, PWS0708, Bin 15	97	0.05 047	0.03 091	0.04 149	0.10 171	0.14 177	0.17 179	0.17 177	0.14 171	0.09 162	0.04 135	0.03 076	0.05 044	knots degrees

TABLE 5.—ROTARY TIDAL CURRENTS

Station Name	Depth	Hourly time increments												
		0	1	2	3	4	5	6	7	8	9	10	11	
		After Maximum Flood at MONTAGUE STRAIT												
Gravina Pt. and Makaka Pt., between	20	0.16 112	0.13 120	0.10 133	0.06 169	0.06 231	0.09 260	0.12 264	0.11 273	0.04 308	0.07 077	0.12 090	0.18 104	knots degrees
Hinchinbrook Entrance, PWS0728, Bin 1	138	0.33 348	0.30 008	0.25 039	0.25 080	0.30 107	0.34 122	0.34 133	0.26 143	0.09 170	0.11 297	0.26 319	0.36 330	knots degrees
Hinchinbrook Entrance, PWS0728, Bin 5	85	0.43 330	0.42 350	0.38 019	0.39 055	0.44 086	0.51 107	0.52 124	0.45 139	0.28 165	0.18 228	0.27 278	0.41 304	knots degrees
Hinchinbrook Entrance PWS0728, Bin 10	20	0.54 347	0.53 007	0.49 035	0.49 067	0.54 094	0.58 114	0.54 131	0.42 151	0.23 194	0.24 257	0.38 295	0.51 315	knots degrees
Johnston Point, 4 miles north	20	0.36 046	0.37 053	0.25 054	0.17 063	0.05 075	0.04 222	0.05 306	0.13 308	0.20 328	0.27 002	0.35 022	0.35 035	knots degrees
Knowles Head, PWS0737 Bin 8	151	0.12 331	0.06 321	0.03 272	0.04 214	0.07 223	0.11 251	0.17 273	0.22 287	0.24 303	0.25 317	0.24 328	0.22 335	knots degrees
Knowles Head, PWS0737 Bin 16	46	0.19 345	0.13 349	0.08 324	0.11 297	0.19 288	0.26 293	0.32 300	0.35 308	0.37 317	0.36 324	0.34 330	0.30 334	knots degrees
Montague Point, 4.5 miles east	71	0.58 286	0.57 287	0.45 285	0.26 276	0.12 245	0.16 192	0.24 187	0.24 209	0.27 247	0.45 276	0.55 288	0.58 285	knots degrees
Point Elrington, PWS0718 Bin 1	151	0.35 014	0.25 014	0.16 024	0.06 058	0.08 152	0.18 176	0.28 185	0.31 192	0.24 202	0.13 225	0.10 310	0.22 343	knots degrees
Point Elrington, PWS0718 Bin 5	98	0.27 020	0.19 026	0.10 048	0.07 107	0.14 164	0.29 193	0.39 207	0.44 221	0.41 239	0.29 282	0.29 326	0.38 356	knots degrees
Point Elrington, PWS0718 Bin 10	33	0.20 032	0.13 060	0.04 137	0.15 228	0.34 236	0.56 240	0.69 248	0.76 263	0.76 283	0.72 306	0.64 332	0.57 357	knots degrees
Ship Channel, east of Smith Island	69	0.32 356	0.29 028	0.25 059	0.25 094	0.31 123	0.35 142	0.37 157	0.33 176	0.22 203	0.17 261	0.20 303	0.30 326	knots degrees
Snug Harbor, PWS0723, Bin 1	280	0.03 060	0.03 055	0.01 073	0.02 168	0.06 186	0.14 187	0.21 187	0.24 188	0.22 190	0.15 193	0.07 190	0.02 134	knots degrees
Snug Harbor, PWS0723, Bin 18	57	0.44 018	0.44 022	0.39 024	0.33 025	0.25 026	0.18 027	0.12 029	0.07 029	0.08 012	0.16 006	0.25 006	0.35 010	knots degrees

TABLE 5.—ROTARY TIDAL CURRENTS

Station Name	Depth	Hourly time increments												
		0	1	2	3	4	5	6	7	8	9	10	11	
		After Maximum Flood at SAN FRANCISCO BAY												
Column Point, W of Cross Sound SEA0844, Bin 17	74.4	0.42 91	0.23 132	0.32 187	0.52 204	0.56 208	0.47 215	0.34 232	0.19 292	0.33 353	0.42 28	0.51 62	0.59 80	knots degrees
Richardson Bay Entrance, CA	4	0.19 313	0.35 250	0.45 236	0.49 228	0.41 221	0.25 175	0.32 120	0.27 113	0.12 97	0.16 27	0.34 16	0.39 11	knots degrees

COASTAL TIDAL CURRENTS

EXPLANATION

The term coastal tidal current is used here to designate the tidal current found offshore from 5 to 20 miles from the coast. The data were based upon observations made through the cooperation of the U.S. Coast Guard at a number of lightship stations along the Pacific coast from San Francisco to Swiftsure Bank, off the coast of Washington.

Rotary current.—Offshore, away from the immediate influence of the coast, the tidal current is quite different from the current found in inland tidal waters. Instead of setting in one direction for a period of 6 hours and in the opposite direction during the following period of 6 hours, the tidal current offshore changes its direction continually, so that in a period of about $12\frac{1}{2}$ hours it will have set in all directions of the compass. The type of current is therefore called a rotary current.

Minimum current.—Characteristic feature of the rotary current is the absence of slack water. Although the current generally varies from hour to hour, this variation from greatest current to least current and back again to greater current does not give rise to a period of slack water. When the speed of the rotary tidal current is least, it is known as the minimum current, and when it is greatest it is known as the maximum current. The minimum and maximum speeds of the rotary current are thus related to each other in the same way as slack and strength of current, a minimum speed of the current following a maximum speed by an interval of about 3 hours and being followed in turn by another maximum after a further interval of 3 hours.

Changes in the tidal current.—The speeds of the tidal current given here are average speeds. Near the times when the Moon is full or new the speeds of the tidal current will be about 20 percent, or one-fifth greater than the average, and near the times of the Moon's first and third quarter the speeds will be smaller than the average by one-fifth.

Effect of wind.—It is to be carefully noted that, when a wind is blowing, the current a vessel will encounter is the resultant of the tidal and wind currents. Only the tidal currents together with the greatest observed speed of the current at each light vessel are given here, and the mariner is cautioned to combine with the tidal current the current brought about by any wind that may be blowing. Wind currents are given under the heading, "Wind-driven Currents".

Direction and speed of currents.—The direction of the current is true, not magnetic, and is the direction toward which the current is setting, while the wind when given is in the direction from which it is blowing. The speed of the current is given in knots or nautical miles per hour.

Reference to tides.—The tidal currents on the Pacific coast, like the tides, exhibit the feature known as diurnal inequality; that is, the two floods of a day are unequal and likewise the two ebbs. In the case of the tide the higher of the two high waters of a day is known as higher high water, while the lower of the two is known as lower high water. For the two low waters of a day there are likewise distinctive names, the lower one being known as lower low water while the higher one is known as higher low water. In certain instances it is convenient to refer the currents to the tides, and where this is done the following symbols are used to designate the different tides: HH for higher high water, LH for lower high water, LL for lower low water, and HL for higher low water.

COASTAL TIDAL CURRENTS

OBSERVATION STATIONS

Cape Mendocino Light, 4.6 miles west of (former location of Blunts Reef Lightship), Calif.—The tidal current here is rotary, but quite weak, being on the average less than 0.1 knot. At strength of flood the current sets north, and at strength of ebb it sets south. Since the tidal current is weak, it is generally masked by wind currents or other nontidal currents. The observations indicated the existence of a nontidal current setting southwesterly with an average speed of 0.2 knot from March to November and northwesterly with a like average speed from November to March. The greatest observed speed was 3 knots.

Columbia River Approach Lighted Horn Buoy R"C" (former location of the Columbia River Lightship), coast of Oregon.—The tidal current here is rotary, turning clockwise, but rather weak. The speed of the current at strength being about 0.3 knots setting 020° on the flood and 200° on the ebb.

The current from the Columbia River completely masks the flood current; observations showing that there is a nontidal current at the buoy location with an average speed of 0.4 knots setting 235° from February to October; and 295° from October to February. When there is considerable runoff from the river, the combined tidal and nontidal current at the buoy frequently attains a speed of 2 knots or more in a southwesterly direction. The greatest observed speed here is 3.5 knots.

Cape Alava, 4.4 miles west of (former location of Umatilla Reef Lightship), Wash.—The tidal current here is only slightly rotary. Strength of flood comes about one-fourth hour after the strength of flood in the entrance to the Strait of Juan de Fuca, setting 345° with a speed of 0.3 knot. Strength of ebb comes about one-fourth hour after the strength of ebb in the strait and sets 165° with a speed of 0.3 knot.

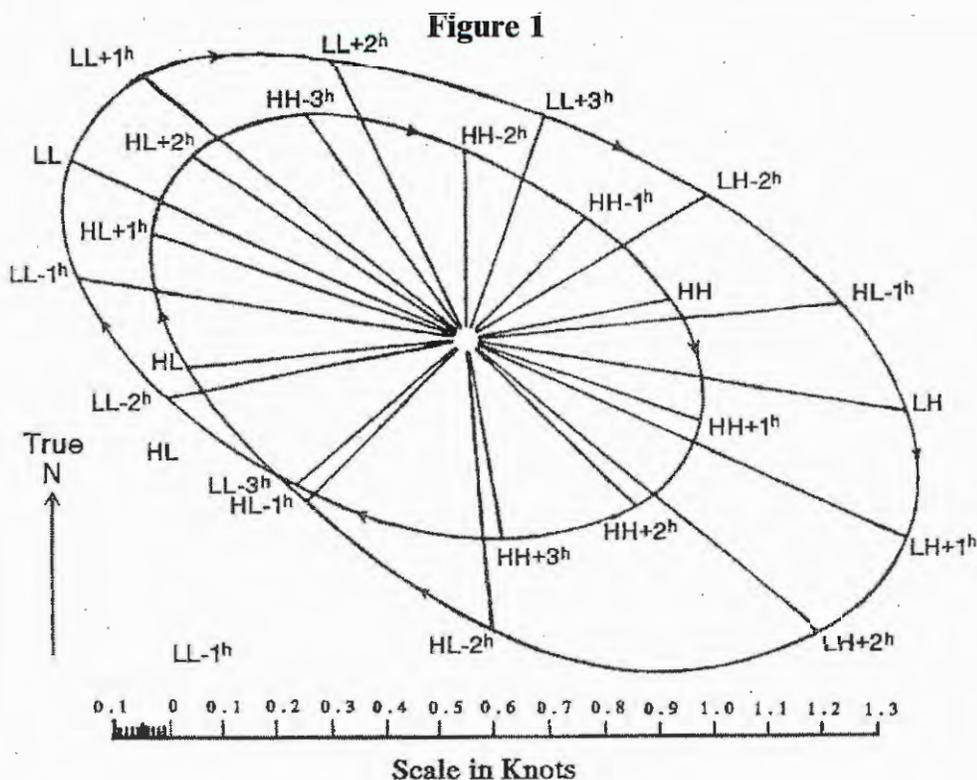
The tidal current here is generally masked by nontidal currents brought about by winds or other causes. Observations indicated the existence of a nontidal current, setting about 350° with a speed of 0.7 knot from November to April, with the greatest speed during the month of December, when it averaged about 1 knot. From April to November the nontidal current was variable, averaging 0.4 knot, generally in a southeasterly direction. With strong southeasterly winds the combined tidal and nontidal current attains a speed of 2 to 3 knots in a northerly direction. The greatest observed speed was 3.3 knots.

Swiftsure Bank (Latitude 48° 32'N.; Longitude 125° 00'W.)—The tidal current is distinctly rotary, turning clockwise twice each day, as shown in figure 1, in which the average currents have been referred to every hour of the tides at Astoria, Oregon. The predicted tides for this port will be found in the Tide Tables, West Coast of North and South America, issued annually in advance, by the National Ocean service. As there is considerable difference between the speeds of the two revolutions which the tidal currents make each day, there are two distinct values for the flood and for the ebb currents, corresponding to the diurnal inequality of the tides.

The speed of the tidal currents here is generally small, being less than 1 knot, as shown in the following table, which represents the average conditions of figure 1.

Time	Speed	Direction	Time	Speed	Direction
<i>Tide Hrs.</i>	<i>Knot</i>	<i>True</i>	<i>Tide Hrs.</i>	<i>Knot</i>	<i>True</i>
HH-3	0.5	325°	LL-3	0.4	230°
HH-2	0.4	000°	LL-2	0.6	260°
HH-1	0.3	045°	LL-1	0.7	280°
HH	0.4	080°	LL	0.8	295°
HH+1	0.5	110°	LL+1	0.8	310°
HH+2	0.4	135°	LL+2	0.6	335°
HH+3	0.4	170°	LL+3	0.4	020°
LH-2	0.5	060°	HL-2	0.5	175°
LH-1	0.7	085°	HL-1	0.4	225°
LH	0.8	100°	HL	0.5	265°
LH+1	0.9	115°	HL+1	0.6	290°
LH+2	0.8	130°	HL+2	0.6	305°

COASTAL TIDAL CURRENTS



Tidal Current Curve, Swiftsure Bank. Referred to predicted time of tide at Astoria, Oregon

In the first column of the table the letters under "Tide" refer to the different tides of the day, HH standing for higher high water, LH for lower high water, LL for lower low water, and HL for higher low water. The corresponding letters on figure 1 have a similar meaning. The minus (-) sign before the hours indicates that the time referred to is earlier than the particular tide, while the plus (+) sign indicates that the time is after the tide. Thus, HH-3 means 3 hours before higher high water, and LL+1 means 1 hour after lower low water at Astoria, Oregon.

It is to be noted that the speeds and directions of the current given in the table refer only to the tidal current. Observations indicate the existence of a permanent current setting 315° with an average speed of 0.5 knot. This makes the northwesterly currents considerably stronger than the southeasterly. A southeasterly current of as much as $1\frac{1}{2}$ knots does not occur except with strong westerly or northwesterly winds, while northwesterly currents of 2 knots or more occur frequently. The greatest observed speed at Swiftsure Bank is 3 knots.

WIND-DRIVEN CURRENTS

A wind continuing for some time will produce a current the speed of which depends on the speed of the wind, and unless the current is deflected by some other cause, the deflective force of the earth's rotation will cause it to set to the right of the direction of the wind in the northern hemisphere and to the left in the southern hemisphere.

The current produced at off-shore locations by local winds of various strengths and directions was investigated from observations made at five lightships from San Francisco to Swiftsure Bank. The observations were made hourly for periods varying from 3.5 years to 9 years. The average given below and on the next page may prove helpful in estimating the probable current that may result from various winds at the several locations.

Caution.—There were of course many departures from these averages of speed and direction, for the wind-driven current often depends not only on the length of time the wind blows but also on factors other than the local wind at the time and place of the current. The mariner must not, therefore, assume that the given wind will always produce the indicated current.

It should be remembered, too, that the current which a vessel experiences at any time is the resultant of the combined actions of the tidal current, the wind-driven current, and any other currents such as the California Current or currents due to river discharge.

Speed.—The table below shows the average speed of current due to winds of various strengths.

<i>Wind speed (miles per hour)</i>	10	20	30	40	50
<i>Average current speed (knots) due to wind at following lightship stations:*</i>					
<i>San Francisco</i>	0.3	0.3	0.5	0.6	0.7
<i>Blunts Reef</i>	0.2	0.3	0.4	0.7	0.8
<i>Columbia River</i>	0.4	0.5	0.6	0.8	0.8
<i>Umatilla Reef</i>	0.2	0.6	0.9	1.0	0.9
<i>Swiftsure Bank</i>	0.5	0.5	0.5	0.7	0.8

*All of these lightships have since been removed.

Direction.—The position of the shoreline with respect to the station influences considerably the direction of the currents due to certain winds. The following table shows for each station the average number of degrees by which the wind-driven current is deflected to the right or left of the wind. Thus at the former location of the San Francisco Lightship the table indicates that with a north wind the wind-driven current flows on the average 061° west of south, and with an east wind it flows 023° north of west.

WIND-DRIVEN CURRENTS

AVERAGE DEVIATION OF CURRENT TO RIGHT OR LEFT OF WIND DIRECTION										
Lightship Station*	San Francisco		Blunts Reef		Columbia River		Umatilla Reef		Swiftsure Bank	
	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
Wind from—	*	*	*	*	*	*	*	*	*	*
N	---	061	---	020	---	035	---	044	---	100
NNE	---	027	---	006	---	027	---	018	---	054
NE	---	030	---	010	---	009	---	034	---	048
ENE	---	031	---	032	---	029	---	048	---	033
E	---	023	---	028	---	017	---	052	---	027
ESE	---	029	---	007	---	002	---	038	---	018
SE	---	021	011	---	008	---	---	025	---	009
SSE	---	005	---	013	007	---	---	006	---	001
S	020	---	---	001	019	---	006	---	015	---
SSW	030	---	011	---	044	---	013	---	021	---
SW	049	---	018	---	074	---	032	---	068	---
WSW	040	---	028	---	121	---	052	---	088	---
W	051	---	060	---	---	145	077	---	090	---
WNW	---	033	---	002	---	105	006	---	---	082
NW	---	016	---	031	---	078	---	037	---	130
NNW	---	017	---	043	---	053	---	025	---	111

*All of these lightships have since been removed.

THE COMBINATION OF CURRENTS

In determining from the current tables the speed and direction of the current at any time, it is frequently necessary to combine the tidal current with the wind-driven current. The following methods indicate how the resultant of two or more currents may be easily determined.

Currents in the same direction.—When two or more currents set in the same direction it is a simple matter to combine them. The resultant current will have a speed which is equal to the sum of all the currents and it will set in the same direction.

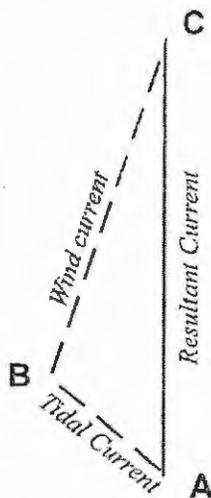
For example, a vessel is near the former location of the San Francisco Lightship at a time when the tidal current is setting 345° with a speed of 0.5 knot, and at the same time a wind of 50 miles per hour is blowing from 150° ; What current will the vessel be subject to at that time? Since a wind of 50 from 150° will give rise to a current setting 345° with a speed of 0.7 knot, the combined tidal and wind-driven currents will set in the same direction (345°) with a speed of $0.5 + 0.7 = 1.2$ knots.

Currents in opposite directions.—The combination of currents setting in opposite directions is likewise a simple matter. The speed of the smaller current is subtracted from the speed of the greater current, which gives speed of the resultant current; the direction of the resultant current is the same as that of the greater current.

As an example, let it be required to determine the speed of the current at the former location of the San Francisco Lightship when the tidal current is setting 331° with a speed of 0.5 knot, and when a wind of 45 miles per hour is blowing from the northwest. The current produced by a wind of 45 miles per hour from northwest would set 151° with a speed of 0.6 knot. The tidal and wind currents, therefore, set in opposite directions, the wind current being the stronger. Hence, the resultant current will set in the direction of the wind current (151°) with a speed of $0.6 - 0.5 = 0.1$ knot.

Currents in different directions.—The combination of currents setting at arbitrary angles is shown by a graphical method. Taking the combination of two currents as the simplest case, draw a line whose direction and length (to scale) represent the direction and speed of one of the currents to be combined. From the end of this line draw another line (to the same scale) representing the direction and speed of the second current. A line joining the beginning of the first line with the end of the second line represents the direction and speed of the combined current.

As an example, take the former location of the Umatilla Reef Lightship at a time when the tidal current is 0.4 knot setting 315° and a wind of 50 miles per hour is blowing from 273° . The wind-driven current, according to the preceding section, would be about 0.9 knot setting 025° .



Combination of tidal current and wind-driven current

Using a scale of 2 inches to represent 1 knot draw from point A in the diagram above, the line AB 0.8 inches in length directed 315° to represent the tidal current. from B draw the line BC 1.8 inches in length

THE COMBINATION OF CURRENTS

directed 025° to represent the wind-current. The line AC represents the resultant current, which on being measured, is found to be about 2.2 inches in length directed 005° . Therefore, the combined current sets 005° with a speed of 1.1 knots.

The combination of three or more currents is made in the same way as above, for example, the third current to be combined being drawn from point C. The resultant current is given by joining the origin with the end of the last line. For drawing the lines, a parallel rule and compass rose is convenient. A protractor or polar coordinate paper may also be used.

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

GLOSSARY OF TERMS

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 meridian. The relation in hours between Greenwich and local intervals may be expressed by the formula:

$$\text{Greenwich interval} = \text{local interval} + 0.069 L$$

where L is the west longitude of the local meridian 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*.

GLOSSARY OF TERMS

- 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.

GLOSSARY OF TERMS

- 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.

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For other ranges, see great diurnal, spring, neap, perigeon, 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* (S_g) 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

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- 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* (G_c), or *tropic range*, is the difference in height between tropic higher high water and tropic lower low water. The *small tropic range* (S_c) is the difference in height between tropic lower high water and tropic higher low water. The *mean tropic range* (M_c) 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* (T_cHHW), *tropic lower high water* (T_cLHW), *tropic higher low water* (T_cHLW), and *tropic lower low water* (T_cLLW).
- 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.