

5176

Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. PATTON, Director

U. S. COAST & GEODETIC SURVEY  
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APR 14 1932

State: ALASKA

Acc. No.

DESCRIPTIVE REPORT

~~Hydrographic~~  
Hydrographic

Sheet No. 7. 5176

LOCALITY

~~PRINCESS BAY~~

~~BEHM CANAL~~

~~S. T. ALASKA~~

Rudyerd I. to Candle I.

1931

CHIEF OF PARTY

FRED. L. PEACOCK

5176

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. 5176

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 7

REGISTER NO. 5176

State ~~S. F.~~ ALASKA

General locality ~~PRINCESS BAY - BEEM CANAL~~

Locality ALASKA Rudyerd I. to Candle I.

Scale 1:20,000 Date of survey SEPT. - OCTOBER, 19 31

Vessel U.S.C. & G.S.S. EXPLORER

Chief of Party FRED. L. PEACOCK

Surveyed by W. WEIDLICH & H. O. FORTIN

Protracted by W. WEIDLICH

Soundings penciled by W. WEIDLICH

Soundings in fathoms ~~feet~~ & fractions thereof.

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by PLG.

Verified by PLG.

Instructions dated MARCH 7th, 19 30

Remarks: \_\_\_\_\_

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET NO. 7

PRINCESS BAY - BEHM CANAL

S. E. ALASKA

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FRED. L. PEACOCK - CHIEF OF PARTY

SEASON OF 1931

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET NO. 7

BEHM CANAL - S. E. ALASKA

AUTHORITY:

The hydrography on this sheet was executed under instructions of the Director of the U. S. Coast and Geodetic Survey, dated March 7th, 1930.

SCALE:

1:20,000 and soundings are in fathoms and fractions thereof.

LIMITS:

The whole navigable area between Candle Island and the south tangent of Rudyerd Island is covered by this survey and connects and overlaps with hydrographic sheets No. 5<sup>5/5</sup> and No. 8. The area between Rudyerd Island and Revillagigedo Island is not completed.

METHODS:

The approved methods of the service were used throughout with a few modifications on account of the very irregular bottom.

A considerable amount of development was done in this locality especially in the vicinity of Stag Island and east of Rudyerd Island. Numerous new shoals were located and the depths of others reduced to much less.

All launch work was performed with excellent fixes and lines run generally on ranges. This explains the lack of compass headings in the sounding volumes.

The launch "Delta" was used for the greater part of the survey and letter days are shown in red with exception of one day when "Launch No. 69" was used for hydrography. The letter day is green.

A ten pound hand lead was used in depths of less than 15 fathoms and in greater depths a steam sounding machine with an eighteen pound lead and stranded wire.

The lines are spaced about 300 meters apart with splits near the shores and in areas where much closer development was required on account of the nature of the bottom.

The sounding lines were run in an easterly and westerly direction with exceptions behind the small islets and in the small bights.

Numerous shoals and banks were developed with the sounding machine. In this case the lead was lifted a few feet off the bottom, yet taking great care that all soundings are up and down.. Hundred of soundings were taken, although only least depths obtained were recorded and plotted.

In shallow waters the shoals were developed with two hand leads and on very critical spots with several hand leads.

The launch "Delta" surveyed the area east of Smeaton Island and south of Harris Point.

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The area west of Smeaton Island, including Princess Bay and part of Short Pass, was surveyed by "Tender No. 1" and connects and overlaps with the surveys of the launch "Delta". This work is indicated by blue lower case letters in records and on sheets.

The lines were run in an easterly and westerly direction with the exception of the small bights where the lines were run in various directions.

An eight pound hand lead was used in depths of less than 15 fathoms and in greater depths a motor driven sounding machine was used with fourteen pound lead and stranded wire.

The lines are spaced about 200 meters apart with splits near the shores and in areas which required much closer development.

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CONTROL:

Triangulation and topography furnish the necessary control.

TIDES:

An automatic portable tide gauge was in operation in Shoalwater Pass and all tide reducers were taken from its records covering the period during which the soundings were taken.

KELP:

Kelp was found in the vicinity of Stag Island and on the reef north east of the island.

CURRENTS:

No current observations were taken in this locality. The flood runs in a northerly direction and is strongest near the shores of the mainland. The ebb, which runs in the opposite direction is strongest near the east shores of Smeaton Island and then continues south of Point Nelson. The estimated velocity of the ebb is from one to one and one-half knots. A strong southerly set was experienced on "w" day south of Point Nelson and was noticed to be strongest near the shore, making it difficult to keep the launch on the line.

While working in Behm Canal it was noticed that the ship was making much better time by using Short Pass, irrespective of the direction of the current. While working near the east shores of Smeaton Island, a strong southerly set was experienced most of the time, especially between Whale Point and Stag Island, where the bottom is broken and very irregular.

BOTTOM:

The bottom is very irregular, especially in the vicinity of Stag Island, east of Rudyerd Island and north of Smeaton Island.

The bottom characteristics in general are rocky and muddy in deeper water.

The shoreline is rocky and very abrupt in many places.

Differences in depth of several fathoms were recorded on numerous occasions, and the most important are enumerated below.

1. Position 118 "r", forward, 4-1/6 fathoms; aft, 8-1/6 fathoms.
2. Position 4 "s", lead dropped from 135 fathoms to 151 fathoms. (Only least depth obtained was recorded).
3. Position 15 "v", forward, 13 fathoms; aft, 17 fathoms.
4. Position 34 "v" red, forward, 10 fathoms; aft, 13 fathoms.
5. Position 117 "a" green, forward, 11 fathoms; aft, 14-1/2 fathoms.
6. Position 20 "w" red, forward, 6-5/6 fathoms; aft, 19 fathoms.

DANGERS AND OBSTRUCTIONS:

This survey revealed numerous shoals and other obstructions. Depths of old charts were greatly reduced. The most important are enumerated below, beginning at the north end of the sheet at the east shore of the mainland.

1. The area north-east of a wooded island on which signal PAN is located is foul and studded with rocks which bare at low tides. *E. shore, 55° 21' 16.46" J.W.M.*
2. The area between a small wooded islet on which signal YES is located, and the mainland, is foul. *55° 20' 33.9"*
3. A shoal with a least depth found of 8-1/4 fathoms at M.L.L.W., lies about 175 meters, 231° from signal JOB. The area is well developed. Rocky bottom. *55° 19' 30"*

4. A rocky patch with a least depth found of 2-4/6 fathoms at M.L.L.W. lies about 190 meters north of signal NIX. (Positions 73, 75 and 76 "p" red). The bottom is visible with no indication of any kelp. *NW of Carps*

5. *+ 5 1/2 fms. pos 61 p. 62 p.* A shoal with a least depth found of 6-2/6 fathoms at M.L.L.W. lies about 320 meters, 272° from signal NIX. The area is well developed. The bottom is rocky with no indication of any kelp.

6. The passage between Carps Island and the mainland is not recommended on account of several obstructions which are enumerated in descriptive report for Sheet No. 8.

North Of Smeaton Island

7. A shoal with a least depth found of 26 fathoms at M.L.L.W., lies about 1020 meters, 336° from signal ZO. The area is well developed. Rocky bottom. (Positions 30 and 31 "a" green).

8. *+ 29 fms. pos 70 red g)* A shoal with a least depth found of 34 fathoms at M.L.L.W. lies about 1000 meters, 351° from signal ZO. (Positions 37 and 38 "a" green). Muddy bottom.

9. A shoal with a least depth found of 24 fathoms at M.L.L.W. lies about 750 meters, 358° from signal ZO. The area is well developed. (Positions 63 and 64 "a" green). Rocky bottom.

10. A shoal with a least depth found of 22 fathoms at M.L.L.W. lies about ~~600~~<sup>730</sup> meters, 32° from signal CON. (Position 103 to 106 "a" green). Rocky bottom.

11. A shoal with a least depth found of 21 fathoms at M.L.L.W. lies about 470 meters, 35° from signal CON. (Position 144 "a" green). Rocky bottom.



12.

A shoal with a least depth found of 11 fathoms at M.L.L.W. lies about 240 meters, north from signal CON. This area was well developed by Launch No. 69 and Tender No. 1. The bottom is rocky. (Position 117 "a" green). ✓

SOUTH OF WHALE POINT

13.

A shoal with a least depth found of 11 fathoms at M.L.L.W. lies about 460 meters, 165° from signal STY. Rocky bottom. (Position 146 "r" red). ✓

14.

A rocky patch with a least depth found of 3-1/2 fathoms at M.L.L.W. lies about 800 meters, 188° from signal STY. This area is marked by kelp, not visible at high tides. (Position 63 "r" red). ✓

15.

(plotted zero)  
A rock which bares about 1/2 foot at M.L.L.W. lies about 1050 meters, 194° from signal STY. This area is covered by thick kelp which is not visible at high tides. (Position 17 "n" red). ✓ \*

16.

A shoal with a least depth found 13 fathoms at M.L.L.W. lies about ~~260~~<sup>480</sup> meters, 75° from signal OF. Bottom is rocky. (Positions 105 and 109 "r" red). ✓

17.

A shoal area with a least depth found of 10 fathoms at M.L.L.W. lies about 280 meters, 109° from signal OF. Bottom is rocky. (Positions 17, 31 and 32 "r" red). ✓

18.

A foul area extends in a north-easterly direction for about 100 meters from a small wooded islet on which signal OF is located. Positions No. 5 and No. 9 "w", with depth of 4/6 and 1-4/6 fathoms, mark the extreme limits. The bottom is visible, with no indication of any kelp. Stagl. ✓

EAST AND NORTH-EAST OF RUDYERD ISLAND

19. A rocky patch with a least depth found of 2-5/6 fathoms at M.L.L.W. lies about 300 meters, ~~76°~~<sup>72°</sup> from signal NAB. (Position 200 "v" red). No indication of any kelp.
20. <sup>74°</sup> A <sup>2 5/6</sup> 2-2/6 fathom spot lies about 120 meters, ~~80°~~ from signal MOW. No indication of any kelp. (Position 224 "v" red). A 4-2/6 fathom spot lies about 100 meters north of the preceding position. (Position 102 "t"). Very irregular bottom.
21. A shoal with a least depth found of 16 fathoms at M.L.L.W. lies about 525 meters, 84° from signal BREW. (Position 139 "v" red). Rocky bottom. 81'
22. A 9-3/4 fathom spot lies about 510 meters, 56° from signal BREW. The bottom is rocky. (Position 16 "v" red).
23. A shoal with a least depth found of 9-3/4 fathoms at M.L.L.W. lies about ~~650~~<sup>550</sup> meters, 38° from signal BREW. This area is well developed, only least depth obtained recorded and plotted. The bottom is rocky. (Position 37 "v" red).
24. A shoal with a least depth found of 31 fathoms at M.L.L.W. lies about 390 meters, 110° from signal BLUE. Rocky bottom. (Position 101 "v" red). p 55° 18' 52.2"

SHARP POINT.

25. A shoal with a least depth found of 5-4/6 fathoms at M.L.L.W. lies about 410 meters, 859°<sub>251</sub> from signal SHARP. Bottom is rocky. (Position 57 "m" blue). This 5-4/6 fathom spot is surrounded by much deeper water.

ANCHORAGES:

There are none, except in the small bights, which may offer some shelter to small fishing vessels.

CHANNEL:

The main channel and Short Pass <sup>are</sup> is free from dangers.

WEATHER:

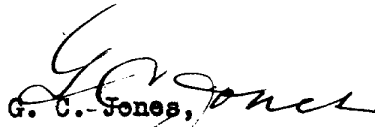
Heavy continuous rain, and strong south-easterly winds delayed the work a great deal. Fog prevented hydrography on September 24th for only an hour.

Respectfully submitted,



W. Weidlich

Approved and forwarded,



G. C. Jones,  
Commanding Officer,  
U.S.C. & G.S.S. EXPLORER.

LIST OF STATISTICS

HYDROGRAPHIC SHEET NO. 7

Date	Vol.	Day	Boat	Stat.	Miles	Pos.	Hand	Mach.	Naut.Miles To & From Wk.	Remarks
			Tender							
Sept.	23	1	a	#1	24.4	170	26	211	2.4	Mr. Fortin
"	24	1	b	"	23.3	158	30	240	4.6	
"	25	1	c	"	24.3	177	32	240	4.8	
"	28	2	d	"	23.4	161	79	232	5.4	
"	29	2	e	"	17.6	114	20	156	6.6	
Oct.	1	2	f	"	8.0	56	37	93	8.1	
"	2	2	g	"	4.1	41	71	52	10.6	
"	8	2&3	h	"	17.9	150	56	219	2.8	
"	9	3	j	"	16.6	161	40	165	12.5	
"	10	3	k	"	9.9	77	18	129	3.6	
"	13	3	l	"	19.0	138	65	196	4.5	
"	14	4	m	"	18.9	192	330	150	8.1	
"	15	4	n	"	6.1	63	10	61	4.9	
Total:					213.5	3793	814	2144	78.9	
-----										
Sept.	9	1	a	DELTA	1.2	8	1	8	6.0	Mr. Weidlich
"	10	1	b	"	12.7	102	29	109	6.0	
"	11	1	c	"	19.6	123	34	130	8.8	
"	12	1	d	"	10.3	67	14	84	14.5	
"	14	1	e	"	12.1	81	31	95	13.5	
"	15	1&2	f	"	17.6	149	96	178	12.1	
"	16	2	g	"	10.0	85	15	139	14.1	
"	18	2	h	"	11.0	72	19	86	3.5	
"	22	2	j	"	15.8	180	49	182	8.5	
"	23	2&3	k	"	16.8	174	162	193	6.8	
"	24	3	l	"	16.5	135	46	146	4.9	
"	25	3	m	"	21.4	163	60	191	3.4	
"	26	3	n	"	4.5	53	44	50	4.0	
Oct.	2	3	p	"	5.7	85	179	49	0.6	
"	6	4	q	"	22.0	136	43	147	1.7	
"	7	4	r	"	9.5	146	73	145	6.5	
"	8	4	s	"	20.8	145	28	196	6.4	
"	9	4&5	t	"	19.2	160	58	191	4.3	
"	10	5	u	"	6.5	55	6	79	9.4	
"	13	5	v	"	15.0	225	80	196	13.7	
"	14	5	w	"	16.5	181	104	169	5.9	
"	15	5	x	"	0.5	8	---	8	6.5	
Total:					285.2	2533	1171	2771	161.1	
Sept.	17	1	a	Launch #69	14.0	207	12	207	16.8	Mr. Weidlich

Section of Field Records  
Review of Hydrographic Sheet No. 5176.  
Rudyerd I. to Candle I., Behm Canal, Alaska.  
Surveyed in 1931  
Hand lead and machine soundings  
Instructions dated March 7, 1930.

Chief of Party - F. L. Peacock.  
Surveyed by - W. Weidlick and H. O. Fortin.  
Protracted and soundings penciled by W. Weidlick  
Verified and inked by R. L. Johnston.

1. The records conform to the requirements.
2. The plan, character and extent of the survey conform to the requirements of the general and specific instructions.
3. The sounding line crossings are generally very satisfactory except in the very broken areas where perfect crossings are not expected. One or two lines normal to the shore line and close inshore, do not agree well with the adjacent lines and cause irregularity in the curves. The line from pos. 100L to pos. 101L in Lat.  $55^{\circ}-19.5'$ , Long.  $130^{\circ}-58.2'$ , is the worst of these.
4. The information is sufficient for completely drawing the usual depth curves.
5. The junction on the north with H. 5175 is satisfactory and the junction at the entrance to Smeaton Bay with H. 5205 is also satisfactory. The sheet which joins this work on its southern limits is probably completed or nearly so but has not yet been sent in to the office.
6. The old topographic surveys T. 2056 and T. 2062 show no rocks or other features which are not on topo. sheets T. 4651 and T. 4652 and should be superseded.

Comparison with the old hydrographic survey of 1891 shows excellent agreement, but the new work is very much closer and more detailed and in all cases shoaler depths have been obtained over the shoals on the new work. It is therefore recommended that the recent hydrographic survey, H. 5176 shall supersede the previous work.

7. The usual amount of field plotting was very neatly and fairly accurately done by the field party.
8. The character and scope of the survey is thought to be excellent. The area is thoroughly covered and shoal development sufficient. In some areas the soundings were so close that a larger scale would be necessary to completely plot them.

9. No additional work within this area is believed to be necessary.

10. Reviewed by R. L. Johnston. - Jan. 17, 1933.

Inspected: E. P. Ellis -

*App. A. M. Sobieralski*

Aug. 10, 1932

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
10 volumes of sounding records for

HYDROGRAPHIC SHEET 5176

Locality **Rudyard Island to Candle Island, Southeast Alaska**

Chief of Party: **F. L. Peacock in 1931**

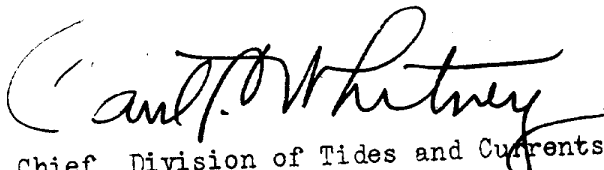
Plane of reference is **mean lower low water, reading**

**4.3** ft. on tide staff at **Shoalwater Pass**

**14.7** ft. below B. M. **1**

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

  
Chief, Division of Tides and Currents.

# NAUTICAL CHARTS BRANCH

SURVEY NO. *H-5176*

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
			Before After Verification and Review
<i>2-11-48</i>	<i>8078</i>	<i>PH Ambrose</i>	Before After Verification and Review <i>Rejected for critical changes only.</i>
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M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.