



3405

Diag. Cat. No. 8201-2

See Hyd. 3493

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: *Alaska*

DESCRIPTIVE REPORT.

Hyd. Sheet No. *3405*

LOCALITY:

Sumner Strait

Off Pt. Baker & Strait Id.

Off Strait Id.

S. E. Alaska

1912

CHIEF OF PARTY:

R. S. Patton

11-4645

3405

H. 3405.

Small piece of hydrography between Point Baker and Strait
Island.--The work appears sufficient for the area it covers, a
few soundings in certain areas would increase the value of the
work.

Sheet examined in Div.
of Hyd'y & Top'y.

3405

HYDROGRAPHIC SHEET No. 3405.

Resurvey off Point Baker and Strait Id.

Sumner Strait, Alaska.

R. S. Patton, Assistant, Chief of Party.

Oct. 1912.

Scale 1/20000. + 1/5,000.

3405

REPORT.

Baker

Resurvey off Point Baker, Prince of Wales Island, Alaska,

Hydrographic Sheet No.

The instructions for this work were to make a hydrographic survey in the vicinity of Point Baker, out at least to the 50 fathom curve, from 1 1/2 miles east to 2 miles south of the point.

The work was begun on Oct 7th and completed on Oct. 12th, 1912.

Of the list of triangulation points furnished by the office only two were recovered. From these two stations as a base, hydrographic signals were cut in with the plane-table. In the course of this work it was found that the topography of the vicinity was somewhat in error, and therefore the shoreline in the immediate vicinity of the point, and of Straight Island, was rerun.

Meanwhile, the hydrography was begun. Unfortunately, this work was done during the period of spring tides, and at such times the current in this vicinity attains an estimated velocity of five miles per hour, and heavy tide rips and whirlpools occur in the entire area between Point Baker and Straight Island. This fact, together with the necessity of stopping and backing for soundings, made it impossible to run any evenly spaced system of sounding lines, over the area involved. The current boils over the irregular bottom, and is most erratic and confusing both as to direction and force, so that it was impossible either to run straight lines or to space the soundings evenly on the lines run. Particular note should be taken of this fact when plotting and verifying the hydrographic sheet. Position angles were taken on each sounding (after the first few

hours experience) and unusual care was exercised in observing and recording these angles. Neither the ship's course nor the time run can be used to check the position. It was a common practice to steer a course of from 8 to 10 points variance from the one desired to make good. So, also, due to these same irregularities in the current, very unequal distances over the ground were covered in equal intervals of time. Therefore the final method of work followed was to try to place the soundings at about equal distances apart over the area involved, without regard to the nature of the run necessary to do so. In some cases, in order to fill in gaps on the sheet, the angles at the point sought were taken from the sheet with the protractor and set on the sextants, and the ship then maneuvered to bring her into position by these angles.

The small cove to the eastward of Point Baker was developed on a scale of 1-5000. This cove is entirely too small to afford good anchorage, and the anchor at present shown on the chart should be removed. The anchorage used by the Explorer while engaged on this work was directly off the mouth of the cove with Twin and Pt. Baker on range. Here will be found about 18 fathoms of water and fair holding ground. !

The rock on which the Steamer Mariposa struck on Aug. 13, 1912 was located. This rock was well known to fishermen in the vicinity some of whom saw the vessel strike. An effort was made to develop the shoal with the whaleboat, but it was found impossible to run a system of lines in the strong current. The whaleboat therefore felt around until the rock was found and the least water on it

ascertained; the general development being made later by the launch.

A system of lines was run by both launch and ship in the vicinity of Helm Rock, for the purpose of verifying the depths given on the chart. In the course of half a day's work no depths were found as shoal as those shown, but it was deemed unnecessary to spend further time on a shoal area which had already been located and buoyed. In connection with this portion of the work it is important to note that less water had been found in this vicinity during the resurvey than is indicated by the soundings taken at this time. This latter work was done with the hand lead, and while the soundings were apparently up and down, the strong current undoubtedly caused a bight of at least two or three fathoms in the leadline. As the work was done, the lead should have found bottom in the six fathoms or less which covered the rock at the time, but would probably give no indication of depths of nine or ten fathoms.

As much of the inshore hydrography in the vicinity of Strait Island as was possible under prevailing conditions, was completed. A small area in this vicinity, however, is still undeveloped. The launch attempted work here, but after twice narrowly escaping swamping (on one occasion the seas broke entirely over her, flooding her and putting out the fires) she was compelled to desist.

It will doubtless be found when this sheet is plotted that some soundings give indications of shoal areas which require closer development. This can be done to advantage only during a period of neap tides with their correspondingly weak currents. During the present survey the ship was the only boat capable of working in the open waters off the point, and even the ship could not be handled with sufficient precision to properly develop such limited areas.

R. S. Patton.

3405

STATISTICS OF HYDROGRAPHIC SHEET *A*

Resurvey off Point Baker, Sumner Straits, Alaska.

Boat Ship.	Day	Miles	Angles	Soundings
	A	19.2	172	116
	B	6.8	80	38
	C	16.2	156	89
	D	12.2	160	90
	E	4.6	60	132
Whaleboat	a	0.5	18	27
	b	2.2	24	54
Launch	a	3.3	98	84
	b	5.0	178	86
	c	10.3	212	102
	d	10.0	234	214

Sheet *A*, insert.

Launch	a	1.0	40	38
Whaleboat	a	2.5	30	111
		<hr/>	<hr/>	<hr/>
Total		93.8	1462	1181

VEC
Feb. 3, 1913.

HYDROGRAPHIC SHEET 3405.

C. S. Patton
2/4/13

Sumner Strait, Alaska, by Assistant R.S. Patton
in 1912.

TIDES.

	Point Baker outer Gauge ft.
Mean lower low water, or plane of reference on staff	4.7
Lowest tide observed " "	3.4
Highest " " " "	21.1
Mean range of tide	11.5

~~United States Coast and Geodetic Survey~~
FEB 3 1913
TIDAL DIVISION

Department of Commerce and Labor

Hyd. Sheet #3405 work of 1912

The hydrography of this sheet consists of a hydrographic survey in the vicinity of Point Baker, Sumner Strait, S. E. Alaska.

Positions on this sheet were plotted by the Field party and as a rule have been accepted as correct. On some cases, however, where errors were suspected, the positions were checked, and if found erroneous, either replotted or rejected.

In a number of instances, the names of signals were confused, and in the sub sketch the name "Cliff" was used all through the day's work, instead of "Bluff".

All through the work the ship's bearings have not been recorded.

The party failed to establish the location of Helm Rock.

A number of shoal areas have not been sufficiently developed due, probably, to the unfavorable conditions with which the party had to contend.

Otherwise the work is fairly good.

Soundings plotted in fathoms.

The 3, 5, 10 & 20 fathom curves shown.

No. 205
Ed. 7-2-12-400,000

J. B. Shklar

Verified;

R. L. Johnston
Jan. 1916



3405

C. & G. SURVEY,
LIBRARY AND ARCHIVES
NOV 20 1913
Acc. No. _____

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: _____

DESCRIPTIVE REPORT.

Hyd. Sheet No. *3405*

LOCALITY:

1913

CHIEF OF PARTY:

3405

C. & G. SURVEY,
LIBRARY AND ARCHIVES
NOV 20 1913
Acc. No. _____

DEPARTMENT OF COMMERCE

Coast and Geodetic Survey

O. H. Tittmann, Sup't.

Hydrographic Sheet No. 3405

(Field Sheet No.)

Point Baker, Sumner Straits,

A L A S K A

Steamer EXPLORER

R. S. Patton, Assistant, Chief of Party.

Begun Oct. 10, 1913

Completed Oct. 11, 1913.

Additional work.

Scale 1-20,000

Boats... Launch No 46 and Ship.

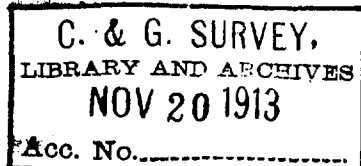
Ship hydrography in charge of R. S. Patton, Assistant.

Launch hydrography in charge of A. R. Hunter, W. O.

Projection sent out from Washington.

Positions plotted by A. R. Hunter, W. O.

3405



DESCRIPTIVE REPORT

To Accompany Hydrographic Sheet No. 3405

Additional Surveys of Point Baker, Sumner Straits,
ALASKA

Scale 1-20,000

The object of this work was to supplement the survey of 1912 by filling in some gaps left at that time, and examining certain shoal soundings.

This work was done by the ship and launch. The ship filled in the gaps in mid stream, and made the examination of the shoals, while the launch worked off Point Baker, putting as many soundings as possible in the shoal, irregular depths in that vicinity.

As during the previous year, it was found impossible, owing to the strong currents and rips, to run any regular system of lines. It was of course, necessary to stop and back for soundings, and thus the ship would be carried by the current far from her line before her way through the water could be checked sufficiently to get an up and down sounding. (It must be remembered that the ship could not run slow ahead between soundings, and thus have little way to be checked, as she had to make five or six knots through the water (against the current) to make any way over the ground). Position angles were therefore taken on each sounding.

In the examination of the shoal soundings, the first one was developed by running above the shoal, and allowing the ship

to drift down over it, soundings being taken as fast as the lead could be dropped and reeled in again. This method worked well on the first of the areas investigated, as the work was done just after the high water slack, when there was little current and no rips. By the time the second shoal was reached, however, the rips had increased to such an extent that this method did not work. The ship would not drift in a straight line over the shoal area, but was deflected to one side or the other of it. Therefore, after a few soundings had been placed in the immediate vicinity this method was abandoned and on the following day the area was covered by a series of lines with the sentry set to 20 and later to 25 fathoms. This method also failed to locate the shoal, and the attempt was finally given up.

I was reluctant to give up the search for this shoal until some more positive evidence of its existence had been obtained, but owing to the large amount of work remaining to be done, it seemed best to do so. There are three theories to account for this failure to find the shoal:

(1). The position angles may have been incorrect.

This is possible, but not probable, as the same mistake would scarcely have been made twice in succession, and at the same time be of such a character as to put the ship approximately on the line she was endeavoring to make good.

(2) The soundings may have been erroneous. For instance, a broken strand of the sounding wire, striking the brake which the leadsman holds in his hand to keep a strain on the wire and feel when it touches bottom, might have deceived him into thinking that the lead had struck.

(3) The shoal may be there, but be of so small an area, or of pinnacle formation, that the lead and sentry both missed it. In support of this last theory we have the fact that the ship would not drift over the area where the shoal was supposed to be, but passed on either side of it as though the current were deflected by some obstacle there. But whatever the explanation, I think the work with the sentry proves beyond all question that there is no shoal there, which could possibly endanger a vessel.

The work of the launch was confined to the area between Helm Rock and Pt. Baker, where the soundings of the previous year gave evidence of a shoal ridge or ridges. It was planned to fill this area as full of soundings as possible but owing to the rips the soundings as taken are very unevenly distributed.

The tide gauge established last year was still standing. It was again connected by levels with the bench marks. As no tidal data was furnished, however, the soundings have not been reduced.

In closing this report I wish to lay particular stress upon the difficulty of work in this vicinity. It can never be closely and systematically developed by soundings, without devoting to it an amount of work much greater than is possible at the end of the regular Alaska season. Indeed, in my opinion, we can never feel sure that this area is free from dangers until it has been swept with the wire drag. This could readily be done in a few days by a vessel equipped with two launches.

In considering this recommendation it should be remembered that Sumner Straits is now one of the main highways of Alaska, and that the vessels using it are the largest and best on the inside run.

The work is plotted on the 1912 hydrographic sheet, #3405. The launch work was so close, however, that it could not be plotted in its true position on the sheet without causing confusion. It was therefore plotted as an insert on a blank space of the sheet.

A tabular statement of statistics follows:

Statistics Sheet No. 3405

Date, 1913.	Letter	Vol.	Positions	Soundings.	Miles statute	Vessel
Oct. 10.	A	1	77	91	8.5	Ship
Oct. 10	a	1	127	127	9.5	Launch
Oct. 11	B	1	68	23	10	Ship
Oct. 11	b	1	142	142	7.5	Launch
Total.....			414	383	35.5	

Soundings in fathoms.

Tide gauge at Pt. Baker Anchorage.

R. S. Patton,
Chief of Party, U.S.G.S.

MKQ
Dec. 6, 1913.

HYDROGRAPHIC SHEET 3405

Vicinity of Point Baker, Sumner Strait, Alaska, by
Asst. R. S. Patton in 1913.

TIDES.

	Point Baker ft.
Mean lower low water, or plane of reference on staff	-1.7
Lowest tide observed " "	-3.0
Highest " " " "	14.7
Mean range of tide	11.5

Hyd. = 3405 (Work of 1913).

Sumner Strait.

The work of 1913 was intended to supplement the survey of 1912 by examining shoal spots, filling in gaps, locating Helm Rock, etc. Comparing the work of the two consecutive seasons (as combined on the Subsketch A) it appears that in examining the shoal indications of 1912, the party in every case succeeded in finding more water than during the previous season. To illustrate:—Near Helm Rock the least water found was 5 fms., while in 1912 a $3\frac{5}{6}$ fms. sounding was obtained; north of A Sumner, where a $3\frac{4}{6}$ fm. sounding was located in 1912, the least water found in 1913 is 7 fms.

It seems, that the number of shoals requiring additional development, the irregular depths, and the importance of Sumner Strait would demand a final and careful wire-drag examination.

Positions were plotted in the field. Contrary to §320 of Field Work Instructions each position was indicated by a heavy blue circle instead of a dot. The positions are so close to one another, and so numerous that the entire area represents a mass of heavy blue circles with no open space for the soundings. This area had to be replotted as shown on Subsketch A.

The party failed to determine the lowest water on Helm Rock and to get additional information in regard to the 16 fm. shoal N of Helm Rock, the 17 fm. shoal W of same rock, and the 17 fm. shoal $\frac{3}{4}$ of a mile $E\frac{1}{2}S$ of Light.

On examining the records, one cannot help noticing the great number of corrections made in the recorded angles. Figures were changed so frequently, that during day "a", for example, out of the 125 positions recorded - 26 angles readings were altered.

J. B. Shklevin

Verified;

R. L. Johnston

Jan 11, 1916.

Soundings plotted in fathoms.

Jan. 5-1916