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G. & G. SURVEY  
L. & A.  
MAR 31 1916  
Acc. No.

Form 504  
DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

11-5613

State: *Alaska*

DESCRIPTIVE REPORT.

*Hyd* Sheet No. *3802*

LOCALITY:

*Cook Inlet*  
*and approaches*

1915

CHIEF OF PARTY:

*R. S. Patton*

3802

DESCRIPTIVE REPORT

To accompany  
Hydrographic Sheet No. 3802.  
Port Graham to (Gore Point.)

Surveyed .  
By and under the direction of  
R. S. Patton, Asst.  
Steamer Explorer.  
1915.

DESCRIPTIVE REPORT.

Hydrographic Sheet No. 3802.

Approaches to Cook Inlet, Alaska.

As originally planned, this sheet was intended to be used in a special development of the usual steamer tracks through the region, the main sheet being on too small a scale (1:120 000) to show advantageously the close development, which it was hoped to give this track. The work was to be done by taking advantage of trips from various parts of the working ground to Port Graham, for coal and supplies.

As the season advanced, however, the inshore launch hydrography was found to be falling farther and farther behind the ship-work, because of the necessity, in the prevailing strong currents, of using the launch for both topographic and hydrographic work, and it finally became apparent that if some of the most important areas in the entire region were to be sounded during the season, the work must be done by the ship. These areas were the passes between the various islands of the Chugach group, and between these islands and the main shore. The objection to doing this work with the ship was that she was too large to handle readily in the strong currents and eddies, and therefore, that any even moderately systematic development would be extremely difficult. However, since the choice was not between doing the work with the ship or the launch, but between doing it with the ship or not at all, the ship was used. I do not consider the present development adequate, particularly in the region northward and eastward of East Chugach

Island, but it is sufficient to indicate what special examinations should be made later by a launch party, or to serve as a basis for dragging the tracks from Point Gore inside and between the islands, which should by all means be done in the near future.

The soundings were made with the Bassnett sounders. Personally, I have never found any form of pressure tube which gave satisfaction, and have always been reluctant to use them; in fact, this season was the first on which I had used such tubes. The exceptional conditions which justified their use in this case, are discussed in detail in my annual report, dated June 30, 1915.

In order that there might be as little uncertainty as possible in connection with the use of these tubes, a check up-and-down cast was taken about every fifth position. From these check casts, arbitrary corrections to the soundings as recorded by the sounders were derived. These corrections have been applied to all soundings, and are recorded in red in the sounding records. The significant fact developed by the use of these tubes is that no systematic correction to the registered depths could be developed. The errors were the result of conditions not only uncertain in their nature, but also which varied from day to day.

Fairly complete information regarding this region is contained in the current coast pilot publication. The following information, therefore, is limited to matter on which no previous reports have been made.

## GENERAL DESCRIPTION OF COAST.

In general, the coast embraced by this sheet is high, and drops off quickly into deep water. With the exceptions shown hereafter in this report, and the inshore reefs described in the descriptive reports of the launch sheets from East Chugach Island to Port Graham, it may be safely navigated to within  $1\frac{1}{2}$  miles of the shore, and closer in the passages between the Chugach Islands and the mainland.

## DANGERS AND BANKS LOCATED.

Gore Rock,  $3\frac{1}{2}$  miles offshore is in the approximate position as shown (unnamed) on the chart. It is about midway between Point Gore and the southeast point of East Chugach Island, and  $\frac{1}{2}$  mile south of this range. It was found to be covered 9' at low water and its shoal area to be about 50 meters in diameter. It is in deep water and completely removed from any other danger, although the twenty fathom curve tends to work offshore at this point and the fifty fathom curve reaches beyond the shoal.

N.  $10^{\circ}$  W. true and  $2\frac{1}{2}$  miles distant from Gore Rock is a rock awash at half tide. The channel is clear between the two.

Inside of East Chugach Island from Port Dick to Chugach Bay the bottom is very broken, ranging from 10 to 110 fathoms in depth.

An extensive bank, upon which the least depth found is 10 fathoms, makes off from the north shore about three miles eastward of the east entrance point of Rocky Bay. This least depth is 4 miles N.  $55^{\circ}$  E. true from northeast point of East Chugach Island, but the bank continues a mile farther to the southward then drops off steeply from about 15 to 70 fathoms.

The extensive shoal water area charted as making out from the northeast point of East Chugach Island is much smaller than shown on the chart, although its actual extent was not determined.

There is a reef making northward from about  $\frac{1}{2}$  mile east of the northwest point of East Chugach Island, upon which a sounding of 38' was obtained 1 mile from shore. There is however a clear channel in the middle of this passage, over one mile wide, and with a least *found* depth of 11 fathoms. The tide floods to westward through this pass.

The channel was found to be clear and with an average depth of over 30 fathoms between Pearl and East Chugach Islands.

About  $1\frac{1}{2}$  miles S.  $20^{\circ}$  E. true from Point Adam is a 13 fathom bank. This bottom is, however, not abrupt and development showed no indication of lesser depth.

From Point Adam to Port Graham the 20 fathom curve is very regular and no danger was found in the path of vessels between these points. At times very heavy tide rips are found well off this shore.

#### THE TIDE.

The tide floods to westward and northward past the Chugach Islands and up the inlet, probably reaching its greatest velocity off Pt. Adam.

#### CURRENTS.

Current observations for one day off the eastern shore of Elizabeth Island showed a flood current of  $3\frac{1}{2}$  knots in a W by N direction, and an ebb in a SE by E  $\frac{1}{2}$  E direction.

#### ANCHORAGES.

Excellent holding ground (sticky, black mud) with about 25 fathoms

of water was found in the first unnamed bay to the east of Rocky Bay. The entrance to this bay is narrow enough to afford fair protection but it is exposed to the prevailing winds.

Windy Bay and Chugach Bay both afford protection for any but easterly winds, and both have good holding grounds, with about 12 fathoms of water. In the absence of surveys, they should be entered with caution, as broken ground was found in the entrance to each.

#### MARINE SENTRY LINE.

A line in the path of vessels was dragged with the marine sentry from Port Chatham to Point Gore. The kite was carried at 8 fathoms to the pass between Pearl Island and the mainland at which point it set to an effective depth of 13 fathoms. Between East Chugach Island and the mainland it was set to an effective depth of 11 fathoms. On this line the kite tripped near a 13 fathom sounding. A moderately heavy swell was running at the time. 9 fathoms was then successfully carried over the remainder of this passage, after which 17 fathoms was carried to a point 2 miles N. 65° E. true from Gore Rock, where the kite tripped. This point was then gone over with twelve fathoms, which was carried to the end of the line off Point Gore.

#### NEW NAMES.

The only name in common use and not shown on the chart is Gore Rock which is charted as a break in the position previously described in this report.

There are two bays between Port Dick and Rocky Bay besides several points both on the mainland and on the Chugach Islands which are of importance to navigation and should be named.

Respectfully submitted.

A handwritten signature in cursive script, appearing to read "P. S. Patton". The signature is written in dark ink and is centered below the typed name.

Chief of Party.



STATISTICS SHEET NO. 3802.

1-60 000

Date, 1915	Letter Angles	Vols.	Positions	Soundings	Miles Statute	Vessels.
July 7	A 74	1	30	78	25 3/4	Ship
13	B 158	1	78	145	53 1/2	"
22	C 192	1	96	180	58	"
24	D 128	1	64	114	34 1/2	"
24	D 56	2	28	55	14	"
Aug. 9	E 97	2	48	100	31	"
11	F 28	2	14	27	8	"
16	G 100	2	50	59	16	"
17	H 350	2	175	249	75	"
25	J 58	2	29	50	13 1/2	"
26	K 158	3	75	78	21	"
28	L 313	3	152	152	45	"
Sept. 8	M 24	3	12	22	7 1/2	"
9	N 178	3	89	124	42	"
10	P 138	3	65	90	34	"
15	Q 216	3	108	133	51	"
16	R 249	4	124	183	64	"
17	S 310	4	155	215	54	"
20	T 325	4	163	283	43	"
21	U 156	4	78	57	18	"
22	V 166	5	83	97	25	"
23	W 196	5	98	28	40	"
Sept. 17	a 200	1	100	202	13 1/2	Launch
Total	3870		1914	2721	737 1/4	

VEC  
April 21, 1916

P.S.  
B.P.  
H.C.

HYDROGRAPHIC SHEET 3802.

Approaches to Cook Inlet, Alaska, by Assistant  
R. S. Patton in 1915.

TIDES.

	Port Chatham ft.
Mean lower low water, or plane of reference on staff	4.1
Lowest tide observed " "	0.2
Highest " " " "	21.1
Mean range of tide	12.1

Hydrographic Sheet 3802.

Positions protracted and soundings plotted by Field Party,  
Verified and inked by S. L. R.

It was assumed that the positions were correctly protracted and only those that appeared doubtful were checked and corrected when found in error.

The records as a whole were well kept, but the recorder neglected to fill in the column of the sounding book headed "Boat's Head by Compass", and in several instances overlooked recording a change in course.

The Tidal Division reduced the soundings to feet, although they were plotted in fathoms, thereby necessitating another reduction.

The comparison of this sheet with the overlapping sheets 3803, 3804, and 3805 was made by the draftsman who <sup>inked</sup> ~~did~~ the latter sheets.

S. L. Rosenberg.

Soundings in fathoms.