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Diag. Chart No. 9103

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

O. S. Tittmann
Superintendent.

State: Alaska

DESCRIPTIVE REPORT.

Hydrographic Sheet No. 3682

LOCALITY:

Kuskokwim Bay

1914

CHIEF OF PARTY:

R. R. Lubens

11-4045

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DESCRIPTIVE REPORT TO ACCOMPANY RECONNAISSANCE SHEET OF KUSKOKWIM BAY.

SCALE 1/200,000.

Shore line from Sta. Carter to Sta. Church was reduced from topographic sheet. An approximate position of the highest point of Warehouse Bluff and a little less reliable position of a tent on the beach were obtained from sextant cuts. Shore line was sketched in.

The position of Apigak is the mean position given by plotting traverse by compass and log while running up to and back from the village. However there is a discrepancy of about five miles in these two, due doubtless to strong river and tide currents which affected the log. On page 18 of Vol. 2 of the sketch book is shown a sketch of the shore line and mud flats as plotted from the traverse running up the river. Positions are plotted from Lat. and Dep. of compass courses corrected for deviation and variation. No account could be made of current. Cloudy weather made it impossible to get fixes from distant mountains, which could have been used under more favorable conditions.

Signals in the distant range of mountains were located by theodolite by observers from the parties of both the EXPLORER and YUKON. So some of them have two names. Points known as TIP, ROUND MT. and THUMB BY THE OBSERVERS FROM THE EXPLORER appear as MID, NOL and HILL in the hydrographic records.

The YUKON found good anchorage off Apigak and also anchored over night in the Warehouse Creek. However, as there is not sufficient room for swinging with a good scope of cable at the latter place, she lay moored bow and stern.

The country North of Jack Smith Bay is very flat, the shore being perhaps ten or fifteen feet high and when this has dropped below the horizon nothing more is visible but the low mountains about thirty miles inshore. And these mountains are generally hid in clouds.

Sounding was carried up to Apigak, but fixes could not be obtained beyond position 63 Y day as signals were obscured by clouds.

Tide and current observations were made at Apigak.

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Descriptive Report of Field Hydrographic Sheet "A"

This sheet embraces the development of the main river channels, through the estuary, and to the mouth of the Kuskokwim River. Distant mountain peaks were used as a control for the work. These peaks while not precisely determined, gave very good satisfaction in the plotting.

Both the Eek and West channels are deep and fairly straight, with steep banks. The bottom in the channel is usually soft, but the mud flats and bars are usually hard. The flats seem to be a mixture of quick sand and silt, for although they feel hard to the touch, a lead will soon bury itself by its own weight ~~alone~~.

The mud flats form the only landmarks for the navigator, and therefore vessels should only run at low water when they are bare, and also with a fair current, for it is impossible to steer a true course against the current.

Warehouse Bluff This is the only part of the river bank that can be seen any distance. It is a long black eroded bluff about 30 feet high, lying about 10 miles North of Quinhagak. It is intended to put a large signal on this bluff for navigational purposes.

Warehouse Creek This is a large creek about one mile North of Warehouse bluff. It has a very tortuous channel through the mud flats and is therefore hard to enter. Once within the creek, there is deep water and shelter for small vessels.

Kuskokwak Creek This is another large creek whose mouth is about four miles South of Beacon Point. This creek has a straight channel across the flats and is not difficult to enter. About five feet at low water can be carried into this creek, with four fathoms when well inside. There is swinging room for small vessels only.

Apokak This is a small summer village on one of the tidal sloughs of that name. The tide gauge and warehouse and coal supply for the past season was located here.

Popokamute A large summer village on the West bank of the river, opposite Beacon point.

Eek Channel This is the channel which has been most frequently used in the navigation of the river. It is the central channel and runs in about the middle of the river.

West Channel The West channel is the large river channel coming in on the West side of the river. As the entrance of this channel is so far off shore it has been very little used in the past. This was the first channel to be used during the survey, and it had always been supposed that it was a wide straight channel, and easy to navigate when once entered. The survey developed the fact that the West channel is not so good as the Eek for the use of the navigator

Warehouse channel This channel is wide and carries deep water ^{until} off the Warehouse Bluffs, where it comes to an end, and a cross over has to be found to get into the Kuskokwak channel, which can be carried close to Beacon Point. This is the usual route for small vessels bound into the river, but is not practicable for vessels of any size. It was a very difficult job to take the YUKON up this route.

Cross overs From a position off Carter, it is believed that there are no consistent cross overs from the Eek channel to the West channel, until Eek island is reached. It is probable that in some places about 2 fathoms could be carried over at high water.

From a position off Quinhagak, a cross over from the Warehouse to Eek channel can be made, carrying about 4 feet at low water. This cross over is often made by vessels having cargo for Quinhagak. They come up the Warehouse channel to a position near Quinhagak, where the cargo is lightered ashore, and then take the cross over to the Eek channel, which is used in ascending the river.

There is a local report of a cross over from Warehouse channel to Eek channel in the vicinity of Warehouse Bluffs, but no evidence of it was ever seen by the party on the YUKON.

Currents Currents were observed at five different stations, and the observations show that the flood current in the estuary flows in a direction parallel

to the axis of the channel with a velocity averaging from 1 1/2 to 2 knots per hour, and the ebb current flows in the direction of the axis of the channel with a velocity averaging from 2 1/2 to 3 knots per hour.

The strongest current observed was the ebb off Beacon Point, which registered 3 1/2 knots per hour on the patent log. In this particular channel off Beacon Point and Apokak the large tides produce a flood current which is stronger than the ebb. It is estimated that the flood current here at times attains the velocity of 4 1/2 knots per hour.

Industries At present there are no industries on the Kuskokwim river. The salmon business is confined to a few small camps putting up mild cured fish. Opinion seems to be divided as to whether there is enough fish to support a cannery.

There are a few white traders scattered along the river, and a large native population. The natives are typical eskimos and it is hard to imagine a more dirty and filthy race of people.

The country is badly infested with mosquitoes, and the protection of a net is needed at all times.

Statistics for field sheet " A "

Str. YUKON

Day	Statue miles	Positions	Soundings
A	36.5	71	676
B	43.0	84	635
C	3.5	5	28
D	12.2	12	108
E	69.8	105	611
G	59.8	123	815
H	32.3	67	395
M	89.0	151	1098
N	83.8	171	1163
P	53.0	100	850
Q	7.5	13	126
S	36.5	72	561
T	<u>25.0</u>	<u>58</u>	<u>358</u>
	551.9	1038	7425

Party, R.R.Lukens, Asst. & E.E.Smith, Asst, In charge and obs. Rt. Angle.

W.D. Sutcliffe, Aid, obs. left angle

H.H.Townsend, Chief Writer, recording and obs. left angle.

F.A.Paul, Qm. ; A. Anderson, C.B.M. & I. Berglund Sea., Leadsman.

Positions plotted by Mr. E.E.Smith and Mr. W.D.Sutcliffe.

Projection by Mr. E.E.Smith

Signals by Mr. E.E.Smith.

VEC
Jan. 16, 1915
L.P.J.

HYDROGRAPHIC SHEET 3682.

Kuskokwim Bay and River, Alaska, by Assistant
R.R. Lukens in 1914.

TIDES.

	Apokok ft.
Mean lower low water; or plane of reference on staff	2.7
Lowest tide observed " "	1.1
Highest " " " "	18.0
Mean range of tide	9.4

Allowance made for difference in tides at staff and
place of soundings.

VEC
Mar. 6, 1916

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HYDROGRAPHIC SHEET 3682a.

Kuskokwim Bay, Warehouse Channel, Alaska, by Aset.

R. R. Lukens in 1915.

TIDES.

	Kuskokwak creek ft.
Mean lower low water, or plane of reference on staff	2.2
Lowest tide observed " "	0.9
Highest " " " "	13.7
Mean range of tide	9.6

Allowance was made for difference in tide at tide gauge
and at place of soundings.

H. 3582.

Hawaiian Islands. General Survey. A few large areas were
left without soundings. Excellent coast sheet.

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