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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: Alaska

DESCRIPTIVE REPORT.

Hyd Sheet No. 3303 + a + b

LOCALITY:

3303 Bering Sea - Goodnews Bay
3303a Bering Sea - Security Bay to Goodnews Bay
3303b Bering Sea - Passage from Unalaska to Cape Newenham

1911

CHIEF OF PARTY:

A. H. Rhodes

3303a-b

FIELD SHEET A

3303

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COAST & GEODETIC SURVEY

O.H. TITTMANN SUPERINTENDENT

HYDROGRAPHY
OF
APPROACH AND ENTRANCE
TO

GOODNEWS BAY ALASKA

Scale — 1-10.000

Surveyed by party on board the Str. EXPLORER

September,
1911

H.W. Rhodes Ass't.
Chief of Party

Soundings plotted by J.P.L. Simmons

3303 &a&b

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET "A"

"ENTRANCE TO GOODNEWS BAY"

The hydrography on this sheet covers the entrance to, and a small area within, Goodnews Bay, Alaska. It includes four days work with motor launch No.38, and one line run by the Str. Explorer. The currents near the entrance seemed very complex, making launch ~~land~~ work rather difficult. Some of the work in the entrance was done in a short, moderate tide rip, and allowance should be made when lines are crossed.

APPROACH: Baluka Hill, a rugged, conical shaped mountain 886 feet high, situated on the N'ly side of the bay, is the prominent land mark for this locality. It bears N17E (Mag.) from the entrance. Both spits at the entrance are low and covered with tundra. In approaching the bay from the southward, the hydrography shows two bars to be crossed; the inner, with a least depth of eleven (11) feet, lies about one half mile off shore. This bar was well developed, but the outer bar was crossed with only one line, which showed a least depth of fourteen feet about one and one-eighth miles off shore.

SHOALS: The bay is full of shoals, the greater extent of the good water being shown by the hydrography. It is not known how far the channel continues to the northward. A bar which bares at low water lies about one mile south of the north spit, and three-fourths of a mile west of the south spit. It is a narrow sand bar about forty meters and about three-eighths of a mile long. When not bare it usually breaks in a moderate swell.

TIDES AND CURRENTS: The tides in Goodnews Bay are not large. Twelve feet is estimated as the extreme range while the party was there. The currents are strongest at the entrance, the maximum observed being an ebb current of 2.5 knots per hour. During the large tides the ebb tide overran the flood by as much as two and one-half hours.

The strength of the current follows the channel towards Baluka Hill, causing a strong eddy to sweep around the N.E. shore of the south spit. Here, near N.E.Base, the current nearly always runs ebb and sweeps with great force during the run-out. Tide rips were observed in and off the entrance, but they are dangerous for small boats only.

SAILING DIRECTIONS AND ANCHORAGES: These are given in the general report submitted by Capt. Rhodes.

R.R. Lukens
Asst C&GS

3303 & a & b

Assistant in Charge

DESCRIPTIVE REPORT

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To accompany preliminary work on the Survey of the Approach to the Kuskokwim River, Alaska - by the party on board the Steamer "Explorer" - from August 4th to September 22nd, 1911.

XXXXXXXXXXXXXXXXXXXXXX

The party on board the steamer Explorer was delayed at San Francisco by extensive and complicated repairs to the vessel and did not arrive at the working ground until Aug. 4th.

It had been impossible to make any satisfactory arrangements for the delivery of coal or supplies on the working ground and it was necessary to make two trips with the vessel to Nushagak Bay, the first Aug.5th - 11th, for mess and ship stores and the second one Aug. [redacted] Sept.7th for coal and to transfer the remainder of the ship stores then stored ashore at Nushagak Bay.

ON ORIGINAL DOCUMENT

Aug.29th to

The poor facilities for handling any supplies at Nushagak Bay, and the necessity of obtaining coal from shore in small boats and at high tide only made both of these trips tedious and irksome and resulted in the loss of nearly two week's time in the field for all of the force excepting one camping party.

The Cannery people in Nushagak Bay were leaving for San Francisco when the party arrived there, and reported that up to that time the weather had been exceptionally fine. Following the party's arrival on the working ground the weather was only average Bering Sea weather, with considerable rain and thick misty weather which obscured the hills and interferred seriously with the reconnaissance and with triangulation, on which all other operations depended. During the latter part of the season fresh winds and gales with heavy rain were frequent and very little work could be done.

The instructions for the work were to begin at Cape Newenham and carry the Triangulation and Topography along the shore toward the mouth of the river proper and in the hydrography to develop the channel from the vicinity of Cape Newenham to the entrance of the River proper abreast of Kwinak.

The peninsula of which Cape Newenham is the end, is composed of rough jagged mountains and no suitable place for a base line was found below Goodnews Bay; here the conditions were favorable and a base line 2329 meters long was measured on the south spit at the Entrance to the Bay.

Twelve triangulation stations were established and nine of them occupied for the measure of horizontal and vertical angles. Continuous foggy and thick weather prevented the extension of the triangulation over the mountains to the Southward in the direction of Cape Newenham. These mountains are about 1900 feet in elevation and it will require clear weather (no low-hanging clouds) for carrying the triangulation over them.

No instrumental observations could be had in the reconnaissance south of stations "Hump" and "Red Mt." , but two hills on the north side of Chagvan Bay and two on the South side were selected tentatively to carry around in the direction of Cape Newenham.

Cape Newenham peninsula curves around sharply to the westward near its end, is narrow and very steep and jagged, so that it will be necessary to determine a number of single points to cover the last five or six miles of its length.

To the northward of stations "Head" and "Late" the country apparently offers no obstacles to the triangulation other than that the inshore stations are hard to reach, as the ground is rocky tundra cut up by numerous ponds, swamps and streams. The party building signal "Late" were twelve hours in reaching it from the shores of Goodnews Bay, and for similar stations to the northward it will probably be necessary to establish

temporary camps inshore.

Observations for Time, Latitude, and Azimuth, were made at station N.E.Base in Goodnews Bay, but as the instruments on board were found to be very unsuitable for this work, the results are not satisfatory, and it will be necessary to strengthen these values by further observations next season.

The vessel was taken into Goodnews Bay and an anchorage maintained in mid-channel just inside the entrance. While waiting for favorable weather to continue the main work, a hydrographic survey was made of the approach and entrance and of a portion of the Bay proper. There is a double bar outside the entrance with about 14 ft. on the outer one and 11 ft. on the inner one at Low water. There is deep water in the entrance but in general the whole Bay is shoal inside with a navigable channel extending in a N.E'ly direction toward Baluka Mt.. The survey of this channel extended about two miles inside the entrance at which point it was 1/3 mile wide with a depth of 3 fathoms at Low water.

Many shoals show at Low water throughout the bay; the bight N.W'ly from the entrance has depths of about 1 fathom at low water; aside from this area the Bay is simply a shoal lagoon with the river channel running through it.

The ship anchored in about 8 fathoms hard sand and fairly good holding ground. The tidal currents at the anchorage were somewhat confused at times but were not particularly strong. The maximum velocity observed at the anchorage was 2.5 knots and the vessel rode comfortably most of the time. The swell makes in the entrance with heavy S.W'ly weather but it is not heavy, being somewhat reduced by the outside shoals. With fresh breezes the tide rips make it troublesome for small boats.

Fresh water can be had by small boats at H.W. from streams on the North and South sides of the Bay, but it is not accessible for ship's use.

Magnetic observations with Magnetometer and Dip Circle were made at station N. E. Base, but there was no opportunity to swing ship as there is no room inside the harbor and there was no favorable weather when the vessel was outside.

Continuous Soundings were taken on all trips of the vessel between Cape Newenham and Goodnews Bay for navigation purposes, but for most of the lines no fixes could be had on account of unfavorable weather. The usual course of the vessel was to pass 3/4 mile off Cape Newenham and Seal Rk.(a small Island about 150 ft. high) and then follow the shore line at a distance of about 1 1/2 miles until past Chagvan Bay from which point it is best to keep a little closer inshore.

Dangerous shoals lie about one mile off Cape Newenham, and extend apparently in a North (Mag.) direction from that point to the vicinity of Goodnews Bay. Depths of 15 ft. at low water were found by the Explorer 1 mile off shore between Cape Newenham and Seal Rock but from the violence with which the sea was observed to break on it in a S. E. gale it is estimated that there spots with as little as 2 fathoms or even less.

A N.E.x N.mag. course passing 3/4 of a mile or even less off of Cape Newenham and Seal Rock, is apparently the best course for a vessel going up inside of the shoals. On this course the depths shoal rather rapidly from about 20 fathoms with Cape Newenham abeam, to 4 fathoms at a distance about 1/3 mile North of Cape where there is apparently a bar connecting with the south side of the shoal, the water deepening from there to 11 fathoms abreast Seal Rock and then shoaling gradually to the northward.

The shoal area mentioned above appears to be about 1/2 mile wide 1/3 mile North of Cape Newenham. No estimate can be given of its width to the northward but breakers were observed on it about four or five miles off shore bearing West (mag.) from Pinnacle Rock the point 3 miles S.W. of Entrance to Chagvan Bay.

Security Cove is a deep indentation in the shore line about 9 mi. inside of Cape Newenham; there is good anchorage in about 3 1/2 fathoms mud bottom with "Castle Rock" (the rocky Promontory at the S.W'ly point of the Cove) bearing W 3/4 S mag. distant about 3/4 mile and in range with the first rock promontory beyond it.

This Cove is shown on the reconnaissance sheet submitted herewith. There is good shelter except from West around to N.W. but it is probable that the outlying shoals would break up any dangerous sea. Depths of 5 fathoms can be had about 1 mile N.W'ly from the anchorage indicated above. The depths in Security Cove shoal gradually toward the shore to the South and East. No information was obtained of the depths in the North side of the Cove. Work was begun by a topographic party in this cove late in the season, but owing to unfavorable weather very little progress had been made when the work was closed.

From Security Cove northward towards Goodnews Bay the depths shoal gradually from between 5 and 6 fathoms to about 4 fathoms with a shoaler area of about 3 fathoms off Flat Cape (about 10 miles below the Entrance to Goodnews Bay).

The launch entered Chagvan Bay in connection with the reconnaissance and found about 6 ft. on the bar at low water. Inside, the bay is apparently very shoal and cut up by numerous shoals bare at low water.

The outer bar at Goodnews Bay lies about 3 miles south of the entrance and has about 14 ft. on it and the inner bar 1 mile further

north, has about 11 ft. To cross the bars bring the wreck of an old schooner on the outer shore line of the spit to bear N.mag. and steer for it until the shore is about 400 meters distant abeam, then follow the shore line at a distance varying from 400 to 200 meters until up to the entrance when a straight course toward the inner point of the North spit leads to a good anchorage. - or - Bring the inner point of the North spit just open of the shore line of the South spit and steer for it, course N 1/4 W (mag) and when approaching the entrance haul over slowly and favor the south shore. No exact hydrographic information concerning the offshore territory was obtained by the party on board the Steamer Explorer but the following information obtained from Captain Noren of the Str.Arcata which made two trips to Bethel during the past season, may be of interest.

" From a position 4 miles off Cape Newenham steer N x W 1/2 W mag. to a position 4 miles off Long Island with Carter Spit Beacon abeam. The depth here should be 5 fathoms and the least depth on the course will be 5 fathoms if made good. From this position steer "W x N 3/4 N" until figure four mountain bears East (mag) and Baluka Peak S.E.(mag) which will make this course about 18 miles, until across the shoals, then haul up to the northward "in the channel", no other guide. This course crosses a number of channels and bars, or shoals, and should be held until up to "Eek" channel, the only one leading into the river; the other channels run out in the shoals to the northward. If the best course is followed in the crossover the least depth found on the bars will be about 16 ft. at low water.

In coming out of the river when the ship's position is known, it is best to pass outside of the long shoal, i. e. between it and the 1 1/2 fathom shoal shown on the chart. The course from the Eek channel

out between these shoals is S 3/4 W (mag). The 1 1/2 fathom shoal exists about where indicated on the chart, but is much longer than shown, extending northward to a position nearly abreast Carter."

All present information indicates that in the work to the northward, close inshore and across the flats, a small vessel, more seaworthy than the launch, and capable of housing a party on board for several days at a time, is required, and it is recommended that if the Steamer Yukon can be put in first class condition this winter, she be assigned to this work another season in conjunction with the Explorer. The Yukon could be convoyed to False Pass, and then again across the Bering sea, by the Explorer.

Respectfully submitted,

H. W. Rhodes.

Ass't., C.& G.Survey,
Commanding.

VEC
Dec.19,1911

HYDROGRAPHIC SHEET 3303.

Goodnews Bay, Bering Sea, Alaska, by

Asst. H. W. Rhodes in 1911.

TIDES.

	South Spit ft.
Mean lower low water, or plane of reference on staff	1.0
Lowest tide observed " "	2.8
Highest " " " "	13.6
Mean range of tide	10.4

Coast and Geodetic Survey
DEC 19 191
TIDAL DIVISION

VEC
Dec. 19, 1911.

HYDROGRAPHIC SHEET 3303a.

Goodnews Bay to Security Cove, Bering Sea, Alaska, by Asst. H. W. Rhodes in 1911.

TIDES.

	South Spit ft.
Mean lower low water, or plane of reference on staff	1.0
Lowest tide observed " "	2.8
Highest " " " "	13.6
Mean range of tide	10.4

Note: The datum of the soundings already plotted on the sheet correspond to 3.0 ft. on South Spit tide staff. To reduce to mean lower low water subtract 2 feet from each sounding.

This correction made on hyd. sheet

Coast and Geodetic Survey
DEC 19 1911
TIDAL DIVISION.

VEC
Dec.19,1911.

HYDROGRAPHIC SHEET 3303b.

Passage from Unalaska to Cape Newenham, Bering Sea, Alaska, by Assistant H. W. Rhodes in 1911.

TIDES.

No reduction of Tides.

Mean range of tide = 2 ft. to 9 ft.

Coast and Geodetic Survey
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H/yd[c] 3303, 3303[a+7] June 29, 1912.

The channel, at a point about 600 meters southwest of O Bat, is not fully developed as the soundings taken do not show the depths that can be carried across the bar.

Soundings on sheets 3303[a] + 3303[b] were plotted by the field party and the positions as plotted were accepted as correct.

H L Simmons