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COAST AND GEODETIC SURVEY

H. Wittmann
Superintendent.

State *Alaska*

DESCRIPTIVE REPORT.

Sheet No. *223*

LOCALITY:

*Nukagak Bay, Ekuk
Pt Williams Island*

1909

CHIEF OF PARTY:

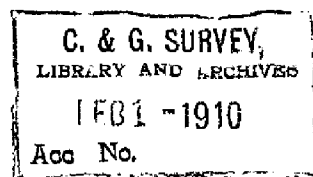
H. C. Dibble

For general report, see 9455X, 1909 II acc. No.

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DEPARTMENT OF COMMERCE AND LABOR



Coast and Geodetic Survey

O. H. Tittmann, Supt.

Topographic Sheet, Field No. 1.

N U S H A G A K . B . A . Y ,

ALASKA.

FROM WILLIAMS ISLAND TO EKUK POINT

Steamer "Explorer"

Walter C. Dibrell, Assistant, Chief of Party.

Topography with plane table by W. B. Dunning, Aid.

Begun: June 15, 1909.

Ended: Sept. 18, 1909.

Scale 1 : 20 000.

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STATISTICS.

Topographic Sheet No. 1.

Nushagak Bay, Alaska.

XXXXXXXXXXXXXXXXXX

No. of miles of Shoreline.....34.8
 " " " " Roads.....
 " " " " Creeks and Sloughs.... 7.5
 " " Square Statute Miles Area..... 30.0

POSITION ANGLES FOR SUBSKETCH.

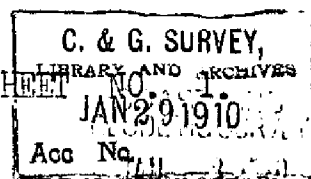
- ⊙ 1. Angles taken with 4" theodolite.
 △ Nushagak.....00°-00'
 ⊙ John44°-20' dist.(by stadia)
 253 ft
- ⊙ 2. △ Nushagak00°-00'
 △ Williams08°-40'
 ⊙ Court25°-34' 40° 49'
- ⊙ 3. at S. W. Corner School
 △ Nushagak00°-00'
 △ Williams09°-35'
 △ North Base38°-21'
 ⊙ Court40°-05' road

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DESCRIPTIVE REPORT TO ACCOMPANY TOPOGRAPHIC SHEET

NUSHGAK BAY, ALASKA.

FROM WILLIAMS ISLAND TO EKUK POINT.

GENERAL DESCRIPTION:*Scale 1-20,000*

The upper part of Nushagak Bay, the estuary of the Wood and Nushagak Rivers, lies between low rolling tundra-covered plains on either hand. The land on the west side gradually rises to the north and west from the Bay to where the Aklun Mountains rise abruptly and strike across in a general northeast southwesterly direction, the nearest peaks distant ten to twelve miles from the shore of the bay. On the east side the tundra country extends far inland; no elevated land is visible. The tundra however rises in ridges and knolls to elevations of several hundred feet, the valleys holding many small ponds. The tundra is in general a dense blanket of various kinds of mosses covering the upper parts of the country, often containing grassy meadows in the valleys near the shore and on the hillsides. Alder clumps and various kinds of shrubbery are scattered throughout the tundra, the alders standing ordinarily about 6 to 10 feet high, often lower. A timber line extends westerly from the bay at Dillingham, north of which the country is hilly and covered with scrubby open growth of spruce and birch.

DESCRIPTION OF THE SHORE:

From Ekuk village at a point 1100 ∇ north of \triangle Ekuk, the steep bare bluff along the shore turns sharply to the north west and is more sloping and overgrown with grass and alders. The shoreline however is continued northward by a gravel spit for a mile and a quarter presenting a steep beach of sandy gravel about 80 ∇ wide.

becoming narrower and changing to a coarse blue gravel at the north end. At the outer edge of this beach the mud flats, bare at L. W., extend out a considerable distance to L. W. mark. The mud here is a gray sandy clay that will bear walking well. Back of the spit a level meadow extends over to the bluff, becoming marshy at its north end, where the bluff again forms the shoreline.

Along the foot of the bluff up to Clark Point is a gravel beach about 40 μ wide fringing the mud which is here sloppy inshore and soft further out. About 1000 μ south of \triangle Clark the bluff becomes bare showing an eroded front of earthy gravel, and rises higher to the north until at \triangle Clark a height of 150 feet is reached. The bluff here presents a face of reddish brown gravel. The appearance of the bluff is shown on the sheet by words along the inside of the hachures as well as the height at places in feet, in black ink.

At \triangle Clark the bluff turns sharply eastward, and along the north face thus made is thickly overgrown with alders. At Clark Point the shoreline is continued in a smooth curve by a gravel spit for $3/4$ of a mile. Along the spit is a bit of ground several feet above extreme high tides, also back along the foot of the bluff. The intervening land inside the spit is a grassy marsh, which, while lying slightly above high tide level, and containing many fresh water ponds, is said to be flooded by the high tides when a strong southerly wind blows up the Bay.

The bluff continues up to Clark Slough, where it is low and slopes out south of the stream. The marsh between the bluff and the Bay is here bounded by no spit but has a definite edge. It is traversed by many small sloughs, practically dry at L. W. but ^{im}passable at H. W. North of Clark Slough the elevated tundra country lies

about one mile back from the stream, presenting an overgrown slope down to the marsh. The bluff is shown rising to the north inside of a broad marsh, which becomes a salt marsh about 1/2 mile north of the Columbia River Cannery. This marsh is submerged nearly up to the foot of the bluff at extreme tides and fades out into the mud flats with no definite edge, the grass becoming shorter until it is replaced by a green slime or moss at the outer edge. The mud here is soft and the broad flats and marsh are impassible. Sloughs traverse the marsh and the channels of some of the larger ones lead into small creeks draining the tundra. These sloughs, though only deep gullies in the mud at L. W., afford boat channels up to the tundra at H. W. The tundra is generally bounded by a bluff overgrown with alders, though occasionally sloping gradually down to the marsh. At \odot Mud the bluff rises to some height, and with its dark green growth of alders forms a prominent land mark.

One and one-half miles south of \triangle Nushagak a definite shoreline begins and follows the foot of the bluff. This bluff rises gradually from a valley extending up into the tundra, is densely overgrown for for the first few hundred meters, then becomes bare. The rise in height is very uniform up to a summit 167 feet high where the bluff is irregular forming benches grown thickly with alders, then perpendicular faces. Alders are shown to occur over the face of the bluff in places. North of this summit there are two noticeable low points in the bluff, then it rises again to a height of 149 feet. Here it is overgrown with alders, sloping, and may be climbed. The shoreline is bordered by a gravel beach sloping down to the mud and ending to the south at the valley before mentioned, south of which the position of the H. W. line is indefinite. The elevated ridge striking the

shore in the high bluff south of Nushagak extends far inland.

At Nushagak village the bluff turns back from the shore and parallels it distant about 80 μ , is sloping and grass covered. Elevations hereabouts are shown by contours. Just north of Nushagak Village is a grassy valley north of which the tundra is low and bordered by an eroded bluff varying from a few feet up to 50 feet high, the shoreline fringed by a sandy beach outside of which the mud flats continue. Knuluk is the northern limit of the planetable survey. From Knuluk northward the low bluff continues to follow the shoreline up to the native village shown, about 3 1/4 miles. There the tundra ends and the land around to the point around which the Nushagak River flows from the eastward (north of the edge of the sheet) is a low flat grass covered marsh.

Williams Island and the large island between it and the east shore are low flat and grass covered, and awash at extreme high tide, and are shown as salt marsh.

At Nushagak the mud is soft and sticky and can be crossed at L. W. only with difficulty, although the channel lies but a few hundred meters out. At low water a channel exists on either side of the large island off Knuluk. These join south of this island and continue as one stream to a point a half mile or so north of Nushagak. Here the channel is split by the north end of a long bar, one part forming the east channel of the Bay, deepening to the southward as it passes Nushagak. The other part flows across the north end of the bar and around the south end of Williams Island. At half tide I crossed from Dillingham over to Nushagak in a boat and sounded with a handlead across these channels from the south end of Williams Island to the beach. The greatest depth in the west channel which lies just east of the south end of Williams Island was

1 fathom 3 feet, shoaling up onto the bar, then deepening again to 3 fathoms greatest depth in the east channel, shoaling again to the mudflats which extend to the beach. (Soundings taken at 8:30 A. M. Sat, Sept. 18) The channels between the islands, and the eastern island and shore are reduced to narrow creeks at L. W. The west channel goes dry at L. W. up between the islands, but I think the east channel runs through to the river above.

On the west side of the Bay from Johnson's Cannery down to Dillingham the shore is bordered by a low flat meadow extending in about 1/2 mile where the country becomes hilly and covered with timber. At Dillingham a bluff borders the shore and the timber comes within a few hundred meters of the shore. At Δ N. Base the timber country ends, the timber here reaching out to the shore, and the country again becomes^a rolling tundra covered plain. Although the channel follows the shore closely from the north end of the sheet down to Coffee Ppoint, at L. W. a strip of fairly hard mud outside the H. W. line is bare all along this stretch. There is no gravel beach north of the end of the bluff at Dillingham but from there south to Coffee Point the shoreline is bordered by a sloping beach of gravel, 20 to 30 meters wide on the average. A bluff follows the shoreline along this stretch intersected by many valleys in the tundra, drained by little streams .

Bradford Point is rounded, the beach here is of coarse gravel, is steep, and extends down to L. W. On the east side of the wooded hill on the point the ground slopes to the shore while around to the southeast an eroded bluff borders the shore. The native village of Knaknak is built in the valley south of Bradford Point and on the top of the high eroded bluff south of this valley. To the south of this hill again the shoreline is low and a broad valley grown with

alders extends westward up the tundra. From this point southward the shoreline is bordered by a bluff to a point 1 1/2 miles north of Coffee Point. Elevations are shown and the steepness is also shown by the width given to the bluff. As a rule the bluff is bare, yellow in dry weather, and dark colored when wet, formed of sediment varying from coarse gravel to clay, with occasional layers of dirty peat. Just south of \triangle S. Base the bluff lies back some distance from the beach, and is low and overgrown with alders which also cover the ground at its foot. In a few places alders are shown to cover the face of the bluff to the southward. Where high the bluff is generally serrated at its top and gullied down its face. One and one half miles north of \triangle Coffee is a valley running up into the tundra north of which the bluff ends, sloping out into the valley. There is a native summer village here. To the south the land rises again along the shore, but presents a sloping face to the beach, overgrown with grass and alders, and rising to many small knolls. One mile north of \triangle Coffee a low bare bluff borders the shore running southward for a short distance, then falls back forming another valley running up into the tundra. From this valley to Coffee Point a steep bare bluff borders the shore gradually rising in height to 75 feet at \triangle Coffee, where the bluff is almost perpendicular. This bluff is cut by a few gullies, where it may be scaled, north of \triangle Coffee.

The bluff west of Coffee Point slopes down into a low meadow extending some distance up into the tundra, and at the west side of this meadow the gravel beach ends. For two miles to the westward the shoreline is formed by the edge of a marsh forming a drop of 2 or 3 feet down to the mud. This marsh contains a strip of fairly dry land near the shore back of which the tall reeds and grass are always

wet. Here, as across the Bay below Nushagak, the tundra country ends in a definite line, generally an overgrown sloping bluff, but often a valley bordered with a line of alders and willows. The elevations of this bluff are shown by contours. At Ⓒ Marsh the definite shoreline ends; the grass grows shoulder high out to the distance shown by the ends of the parallel ruled lines, but the H.W. line lies somewhere ⁱⁿ the marsh. Probably extremely high tides come nearly up to the foot of the tundra. The marsh may be travelled through afoot. To the north the tundra rises in knolls to elevations of about 100 feet, not exceeding this height for a mile or so inland. From Coffee Point where the channel lies close to the shore, a mud flat follows the channel to the southward for a long distance. At L. W. from the channel westward to the *marsh*, *extends a broad mudflat*, which is soft in places, and impassible.

SUBSKETCH:

The shoreline from Johnson's Cannery northward to Snag Point is shown on the sheet in a detached drawing. The shore continues low up to Choggiong village where a bare bluff borders the shore, increasing in height up to Snag Point. The bluff falls back from the shore north of the Point and a low grassy flat extends out to the shore. North of Snag Point the Wood River continues up in a northerly direction. A few miles north is the cannery of the Alaska Salmon Co. Inside the shoreline near Johnson's Cannery a low grassy meadow extends inland about 3/4 mile where the hilly country begins, covered with scattered timber and alders. The timber extends out to the shore at Snag Point and the country back of the school house becomes hilly and sparsely wooded.

STREAMS:

At the cannery north of Ekuk Point a stream draining the marsh back of the cannery forms a channel in the mud, dry at L. W., which is used by the cannery boats. It is shown by a dotted line. North of the Clark point cannery the marsh contains many sloughs, the largest of which has its source in a creek out of a valley in the tundra where is located a fresh water pumping plant for the cannery. Clark Slough is a small river entering the Bay through a winding channel through the mud south of the Columbia River Cannery. This stream is said to be navigable with motor boats at flood tide for 20 miles. At H. W. small boats and launches may cross the flats to the cannery by the north beacon. At L. W. the channel lies between mud banks and contains good water except at a bar across it near the south beacon over which 3 or 4 feet may be carried. Three beacons, each made by a beef barrel painted black and white, on a pile, mark the channel of the Slough during the summer season.

On the west side of the Bay just north of Johnson's cannery is a large slough crossed by a suspension foot bridge. All of these sloughs, (except Clark Slough) while they may be crossed with difficulty on account of the mud at L. W., are deep streams at H. W. The streams draining the tundra are small brooks. At the Dillingham cannery the stream there affords a good boat landing in rough weather at H. W.

TRAILS ETC:

A trail follows a little inside the beach from Ekuk village to the cannery to the north. A trail follows the beach from the Clark Point village to the cannery there. There is a trail from the Columbia River Cannery following the edge of the tundra to the beach south of Nushagak. Travelling along the beaches is good. The tundra

also affords fair going.

From the Clark Point Cannery a telephone line crosses the marsh to the east as shown on the sheet, there it follows the edge of the tundra up to Clark slough and on up to Nushagak where connections are made with the canneries etc, thence up to Knuluk and on up to the northward. The line crosses the rivers to the north and comes down on the west side of the Bay with connections at Johnson's Cannery, and at Dillingham with the Courthouse.

VILLAGES AND BUILDINGS:

The cannery of the North Alaska Salmon Company at Ekuk is a red wooden building with a steel stack on its southern most corner, used for ☉ Can. A wharf and wharf shed are built on the end of the spit a short distance out from H. W. line, bare at L. W. A pond back of the cannery is dammed up for a fire protection reservoir.


The native village at Clark Point is built at the foot of the bluff, near the beach, and is an irregular collection of huts, partly underground, with an equal number of storehouses about 6 feet square built on posts about five feet high. A grave yard, ~~is~~ marked by a collection of white wooden crosses lies back of the village.

The Clark Point Canneries of the Alaska Packers Association, two canneries together, form a collection of large red wooden buildings with a number of outlying shops, bunkhouses and mess buildings. Two piers extend out to a short distance above the L. W. mark, but after the summer season these are pulled up, leaving the wharves at H. W. line. The "White House" here is located west of the main cannery buildings and has a white flag pole about 5 ft from the center of its N. end. It is the only white building at the cannery. A large red water tank on a trestle about 75 ft. high on the beach east of the main buildings is a prominent object, (☉ Tank). A marine rail-

way lies to the east of the cannery along the spit.

At the Columbia River Packing Co's cannery the main building is a large unpainted wooden building, on the northwest wing of which is a high black steel stack (⊙ Lum.) The native village of Gushiak at this cannery is a few huts. The native name of a village covers all the territory within a mile or so each way from the village. At Nushagak are the canneries of the Alaska Fisherman's Co. and the Northwestern Fisheries Co., one at each end of the village. Between them near the beach ^{are} ~~is~~ the store and warehouses of A. H. Mittendorff, also the U.S. school, and native huts. On the hill back of the canneries is the native village and the Russian Church. There is also a large graveyard on the hill.

At Knuluk the cannery is no longer operated. The mission buildings and two white flag poles on the high land south of the cannery are prominent objects. The cannery buildings are large red wooden buildings.

The large building in the village several miles north of Knuluk was located by plane table cuts. At Johnson's cannery, (an A.P.A. cannery) the most prominent objects aside from the large red buildings are a high tank similar to the one at Clark's, located in the rear of the cannery, (⊙ John), and a white flag pole near the east end of the "White House", the only white building here. A wharf with shed is shown out a little way from H. W. line. The A.P.A. canneries are designated by the symbols used altogether by the A.P.A. Co., initials inscribed in a diamond, as 

At the cannery at Dillingham a pile bulkhead about 10 feet high protects the shoreline. The cannery buildings are red wooden buildings. The U. S. Courthouse is a white wooden building with a cupola

surmounted by a flagstaff. (☉ Court)

The new U. S. schoolhouse for Knaknak village is a green wooden building and is shown on the hill at Bradford's Point. Knaknak village is a collection of native huts and contains a store in the valley, and a chapel on the hill, also a graveyard. A native summer village is shown in the valley 1 1/2 miles north of Coffee Point, also a large mess house for the canneries. West of Coffee Point is a small native village where the bluff begins to fall back from the beach.

The cannery of the Alaska Portland Packing Ass'n is a large red wooden building. To the rear of it are several smaller red wooden buildings. Just to the north of the cannery is the native village of Choggiung the largest on the Bay. It lies on the gradually rising ground south of the ridge which strikes the shore in the bluff at Snag Point. Several of the houses are of squared logs. The new U.S. School is a ^{green} wooden building up the hill somewhat.

SURVEY METHODS:

The sheet takes in Nushagak Bay from Ekuk Point on the east side of the Bay in the south east corner of the sheet, up to Williams Island, including the shoreline up to Johnson's cannery on the west shore. The shoreline from Johnson's cannery north to Snag Point including the Portland cannery and native village of Choggiung is shown on a detached drawing on the south end of the sheet.

No projection is shown on this sheet owing to the absence of data at the time of making the sheet. The triangulation signals were plotted by the distances from the triangle computations. Other signals shown were plotted by intersections with protractor, from theodolite angles.

The shoreline from Dillingham north to the end of the sheet was surveyed by sextant method. The remainder of the work was done by the usual plane table method, working at intervals during the whole season. From Ekuk Point to the Columbia River Cannery along the east shore and from the end of the work near \triangle Hike up to the house (\odot House) north of \triangle S. Base, the plane table work was done before the triangulation was in shape to use, and was adjusted to fit the triangulation. The hydrographic signals along the bluff between \triangle Coffee and \triangle South Base shown on this sheet were located by a plane table traverse. Williams Island was determined by tangent cuts and rodding around its south end from \triangle Williams with the theodolite. The island to the east was determined by four tangent cuts to its four sides. The shoreline north of Knuluk was drawn to the Native village to the north, which was located by cuts, with the aid of a tangent cut at the back of the bight. By looking down

(13)

from \triangle Nushagak a good idea of the country was obtained. Low water lines, in pencil, hereabouts were sketched in a note book at L. W. from

\triangle Nushagak.

The topography shown in the Subsketch was surveyed with 4" theodolite and stadia.

Three points shown as small black circles, numbered 1 - position at West end of bridge over slough north of Johnson's Cannery, 2, position at S.W. corner Portland Cannery, 3, position at S.W. corner U.S. school, are located by angles taken with 4" theodolite, the angles given on Statistics Sheet. Position 1 is also shown the main part of the sheet at its north edge.

W.B. Dunning,
Aid, C. & G. S.

Approved;

Allen C. Jones

Assist. C. & G. Survey Comd'g.

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PLANE TABLE POSITIONS.

Object & Description	Lat.	D.M.	Long.	D.P.	Height	Remarks
Odd - - - - -					30 ft.	Tank on beach.
House - - - - -						800 ft N. of AS. Base.
Lge. wh. flag pole - -						At Knuluk
Smaller flag pole - -						At Knuluk
Cub, Pup, Dog, Cat, Kit, Sud, Pop, Fan, Jib, Pan, Tax, Lip, Ear, and Nose;- small hydrographic signals not permanently mark- ed, along the bluff on the beach, between O House and A Coffee.						