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Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*O. C. Pittman*  
Superintendent.

State: *Alaska*

DESCRIPTIVE REPORT.

*Top* Sheet No. *3461*

LOCALITY:

*Knik Arm, Cook  
Inlet, Alaska.*

*1914*

CHIEF OF PARTY:

*V. C. S. Patton*

11-4645

3461

DESCRIPTIVE REPORT

to accompany

TOPOGRAPHIC SHEET NO. 3461

KNIK ARM, COOK INLET, ALASKA.

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This topographic sheet covers the upper section of Knik Arm, Cook Inlet, Alaska, the same being that portion included between the mouth of the Matanuska River on the north to a point approximately 19 miles to the southward on either shore, which points are the northern limits of the topographic sheet of a former survey.

SHORE LINE: (EASTERN SHORE)

Triangulation station Finis marks the southern limit of the work on the eastern shore. From this point north, with the exception of two very small stretches of marsh, the first five miles of shore-line is formed by a narrow sandy shingle beach, backed by an eroding earthen bank, to the foot of which nearly every high tide reaches. This bank averages about 40 feet in height, the protruding points being higher, and consists of light sand and loose gravel. At points light brush covers the eroding surface and beyond the crest the bank is wooded with a mixed evergreen and deciduous growth, the former predominating. As the undergrowth is here light, passage is easy.

Scarcely a mile beyond triangulation station Lake the high land recedes from the shore, giving place to a marsh which surrounds the mouth of Fire Creek and, with one exception,

marsh land forms the eastern shore from this point to the head of the Arm. This exception is a point about half way between Fire Creek and Peter's Creek, where the fast land again extends to westward, and the shore line is a steep shingle beach under a steep eroding gravel bank, the same being about 15 feet high and a half mile in extent. The light timber growth on the high land from this point to Fire Creek is strictly deciduous, a fact which applies to very few localities in this region, and the growth is accordingly quite conspicuous in the proper season.

As stated above, marsh land forms the remainder of the eastern shore. At Peter's Creek, Old Knik, and at the 400-ft butte shown in the north-west corner of the work, the fast land reaches almost to the water. Between these points the strip of marsh averages from one half to three-fourths of a mile in width. With one or two exceptions, the outer edge of this whole stretch of marsh is being cut away by the waters of Knik Arm, the exceptions being a stretch of nearly two miles just north of the mouth of Peter's Creek and a small stretch just south of the mouth of Eklutna Creek; here land is making.

Between Peter's Creek and Eklutna Creek the fast land forming the eastern limit of the marsh varies in height from 50 to 100 feet, and at places rises to this elevation quite steeply. From here to Old Knik the said fast land is mostly only a few feet above the plane of the marsh, rising gradually to the foot-hills to the eastward; from Old Knik to the butte the marsh reaches to the foot of the mountains, several peaks

of which (height about 1700 feet) are only about a mile from shore along here, and at one point a steep rocky bluff marks the junction of the marsh and mountains.

(WESTERN SHORE):

On the western shore the beginning of fast land is marked by a steep earthen bank similar in every way to the one described along the lower portion of the opposite shore, except that the only eroded sections are a stretch of about a quarter of a mile from triangulation signal Knik northward and of about two miles from triangulation station Rose northward.

Along this whole extent of shore a large flat reaches out from the foot of the bank, the same being about two miles wide opposite  $\Delta$  Marsh and gradually diminishing to a width of about a quarter of a mile just north of  $\Delta$  Knik, where it terminates.

About two miles above Cottonwood, Cottonwood Creek breaks through the fast land, and after flowing close to the bank till opposite Cottonwood, makes its way through the mud flats to the deeper waters of the Arm. Just off  $\Delta$  Knik a mud slough makes through the flats, follows the bank rather closely till about two miles below Cottonwood and gradually disappears, being that close to the bank for about a mile above  $\Delta$  Rose that there is scarcely room for a trail between the two.

At the widest part of the above flat its inner portion is a large grassy meadow, with a scattering growth of brush and

light timber, but gradually changing to marsh and then to mud flats which extend for from a mile to a mile and a half beyond the limits of the marsh shown on the sheet. These mud flats are slowly extending themselves further out into the arm, except at a point on the southern side of the mouth of Palmer's Slough, where they are being cut away so rapidly that the sound of the earth falling into the water resembles light thunder and can be heard a number of miles. South of Cottonwood Creek the flat is nothing more than a marsh, excepting that portion inside the mud slough, which is hard and dry and affords easy travel. This portion has a width of about 100 metres between ~~As~~Knik and Rose, and afforded an excellent site for a base measurement.

The tongue of land between Palmer's Slough and the Matanuska River is a large marsh with many mud sloughs and large salt ponds. To the north of the southern point of this tongue the marsh is making out in either direction, but with this exception the whole shore line is being slowly worn away.

#### HEAD OF THE ARM:

Outside of the small channels through which the waters of the Matanuska River flow, most of that portion of the Arm north of Palmer's Slough is dry at low water. These channels follow close to the western shore till north-east of Old Knik, thence cross toward the eastern shore, and after following this for scarcely a mile again cross toward the mouth of Palmer's Slough.

Off the river mouth there are a number of small low marshy islands which are slowly being cut away, especially the western

ones; at many points along the shore of the eastern islands it is difficult to determine just how far high water reaches. Along the tongues of land reaching out into the head of the Arm, the marsh quickly gives place to fast land covered with underbrush, and this to timber, the timber line being nowhere over half a mile from the water. The different water courses shown on the sheet besides the Matanuska River are all dead ends leading from one to five miles to the northward.

SURROUNDING COUNTRY:

A high mountain range lies about six to eight miles inland from the southern portion of the eastern shore, gradually approaching the shore, and just behind the 400-ft butte the lower peaks of the range are less than a mile from the water. About eight miles northeast of the butte these mountains break away to form the valley of the Knik River, which river flows into the Matanuska River a quarter of a mile above the topographic signal Camp. From the opening of the Knik River valley, the mountains extend in a northwesterly direction until they again break away to form the valley of the Matanuska River, which valley commences from 15 to 20 miles north of Old Knik. From here the mountains, in a general direction, parallel the Matanuska River and Knik Arm for about 15 miles, where they recede to the westward. The Little Susitna River follows the foot of these mountains.

Along the eastern shore and also between the Matanuska and Knik Rivers, the rolling country rises gradually to the foot-hills and the mountains, and is generally wooded with a

small mixed growth of evergreens and deciduous timber, the former predominating. The upper portion of the strip of land between the Matanuska and the Little Susitna Rivers is reported to be swampy and full of large lakes, a favorite gunning ground for ducks and geese. The lower portion of this strip is a rolling wooded country, for the agricultural advantages of which much is claimed.

Land-Marks:

The most conspicuous land-mark in the region is a butte about six miles E. N. E. (true) from topographic signal Camp, having an estimated elevation of 700-800 feet; it stands alone in a wide stretch of rather flat country, and in clear weather can be seen from almost any portion of the arm. The Matanuska River, after leaving its valley, flows southeasterly by this butte and thence into Knik Arm.

The 400-ft butte shown on the sheet can also be seen from almost any portion of the Arm, and the two small knolls shown just south of Old Knik, show quite prominently from the southward, and the above butte kept well inside of these forms a good range for keeping in good water from off  $\Delta$  Crow till past the mouth of Peter's Creek. Peter's Creek can be located by the aid of the above-mentioned deciduous growth just south of it and the warehouse at its mouth. Mud Island can be easily picked up at three miles, and although not exactly conspicuous, makes a good landmark for keeping in deep water from just beyond the mouth of Peter's Creek till off the mouth of Palmer's Slough, where the channels of the river water

follow the general directions before mentioned.

A large canvas-covered barn at Cottonwood (topographic signal Cot), is a good mark for entering Cottonwood Creek, the mouth of which is rather difficult to locate. From a position in deep water off A Lake, make for a point about two miles below this barn till about half a mile from the marsh grass, and thence toward the barn and into the creek.

TRANSPORTATION: (WATER):

Regular small boat service is maintained between Knik and Ship Creek, the terminus of two steamship lines. A draught of 4 to 5 feet is all that is ever attempted into Knik, the slough leading along shore from Goose Bay Point to Knik being dry at low water.

Small boats of a draught of 5 to 6 feet can be taken into Matanuska River about as far as the limits of the sheet (topographic signal Camp) where there is a depth of about 12 feet at low water. At the height of high water there is slack water about a quarter of a mile below this position, but above here the strong current of the river is entered, which makes it impossible to ascend further. This current has an estimated velocity of from 4 to 7 knots, depending on the season, making it extremely difficult to even line an open boat further up the river. At this point there is a range of tide of about 8 feet; the water is fresh but heavily laden with silt which, however, entirely settles in twelve hours.

The settlers having ranches along the north bank above Knik, have water access to the same through both Cottonwood



Creek and Palmer's Slough, both of these waterways having a depth of one or two feet at low water. It is reported that a cross-over exists from Palmer's Slough to the Matanuska river, the location of same being about 15 miles up the river as nearly as could be learned, but this is very uncertain.

Both the Eklutna and Peter's Creek are rapid glacier streams, impossible of navigation. Fire Creek is nothing more than a mud slough for a mile above its mouth.

All navigation in upper Knik Arm is done on high water and with the current, it being impossible to proceed under other conditions. As the wind is nearly always opposed to the current, sail boats are never used.

(LAND):

The main wagon road out of Knik leads inland in a northerly direction to a gold mine about 20 miles distant, and it is reported that a continuation of the same leads up the Matanuska River valley as far as Chickaloon, but this is said to be in very poor condition.

A wagon road over the flat connects Knik and Cottonwood, but that portion of it between  $\Delta$  Rose and Cottonwood is difficult to travel even on horseback, and during 1914 the settlers about Cottonwood were clearing a road between these points along the top of the bank, so that at the present time there is most likely a good road all the way from Cottonwood to Knik. From Cottonwood a trail leads over high land as far as Chickaloon, and most of the travel into the Matanuska River valley takes place over this route.

The government winter mail trail into this whole region follows the southern shore of the arm. At Ship Creek this trail is about five miles inland; it crosses Fire Creek at the edge of the swamp and from here northward follows the marsh close to fast land till about four miles above Old Knik, where it crosses the river delta, then the large flat to Cottonwood, and thence to Knik. In the winter this trail is perfectly safe and is kept well marked by the keepers of roadhouses along the route, but during the approach and departure of cold weather, those portions of it leading over marsh, mud sloughs, and deep waters, are very dangerous, and during the summer the trail is not open, there being only portions of it that can be followed. Ordinarily it is about 23 miles from Old Knik to Knik over the trail, but under bad conditions this may be as far as 35 to 40 miles. There are road houses at both Eklutna Creek and Old Knik, where food and shelter can be procured for both men, horses and dogs. The house at Old Knik is often open during the summer months.

In localities where the shore-line is marked by a high bank, the beach offers easy travel, except that it is often difficult to pass the steeper points; as the underbrush growth is rather light over the whole region, it is possible to travel most of the timbered sections.

#### INDUSTRIES:

There are several ranches scattered along the western shore of the arm from Knik northward, a group of these

being about Cottonwood; topographic signals White and Ranch are buildings on other ranches and there are still more further to the northward. Although up to the present time none of these ranches have raised anything more than limited quantities of truck on small patches of ground, yet the settlers are clearing large areas in the hope of soon being able to produce staple crops. While the survey was under way there were reports of many new settlers coming into the country.

The placer mines, in which this region abounds, commence about five miles behind Knik. These claims are scattered far back into the mountains but Knik is the headquarters for the most of them, and the larger portion of the population of Knik derive their income more or less directly from these mines. Among the mining interests several good-sized companies are operating growing plants.

There is a small warehouse at the mouth of Peter's Creek on the eastern shore, which is used by parties prospecting up the creek, this being about the only locality on this side of the arm which has been prospected.

Old Knik is an Indian settlement of 50 or more persons; The natives hunt and fish for a living; bear, mountain sheep and moose being found in the mountains and salmon in the Arm.

KNIK:

As the town of Knik has grown considerably since the last Coast Survey operations in Knik Arm, the following information may be in place:-

There are three large general stores which carry a full line of provisions and outfitting supplies,

and in addition a couple of small trading companies. There is a new hotel, two fair-sized roadhouses and a couple of restaurants. A lawyer, a dentist, and two physicians have located here, one of the latter conducting a small hospital. The town also has a barber shop and a saloon. There are a couple of concerns which offer facilities for the transportation of freight into the interior.

SURVEY METHODS:

The plane table was used as far north as Cottonwood on the west shore and Fire Creek on the east shore, From Old Knik to the 400-ft butte a transit traverse was run, checking the same with sextant fixes at both ends of the line. The remainder of the shore line was run by sextant fixes with the aid of a sketch book, this method being resorted to at the direction of the Commanding Officer on account of the extreme difficulty experienced in transportation. The topographic signals beyond triangulation stations Marsh and Knik were located by sextant triangulation.

The main difficulty experienced during the work was due to the fact of being compelled to use keel boats throughout. The open boats of the Explorer were most likely the only ones of such a character ever seen in Knik Arm, dories and skiffs being used exclusively by the inhabitants of this section and these offer the only means of getting around handily in such a region as Knik Arm. The above fact made it necessary to spend more time and labor on the mud flats than in the actual survey work.

A list of Plane Table Positions is attached hereto.

Respectfully submitted,

*Harold a Cotton*

Assistant, C. & G. Survey.

PLANE TABLE POSITIONS.

	<u>Latitude</u>	<u>D. M.</u>	<u>Longitude</u>	<u>D. P.</u>	<u>Remarks.</u>
Prominent lone ranch house on north shore 1-1/2 miles above Knik, (Cul)	61	28	186	149 41	695 South gable.
Small ranch house just south of Cottonwood (Extra)	61	29	955	149 36	598 Chimney.
Large canvas-covered barn at Cottonwood, (Cot)	61	29	1475	149 35	776 South gable.
Ranch house on north shore almost in range with $\Delta$ Nitak & $\Delta$ Marsh, (White)	61	31	1515	149 28	142 " "
Next ranch house about 1 mile north of the above, (Ranch)	61	32	884	149 26	338 " "
Largest tent of old Navy coal camp, (Camp)	61	30	600	149 14	826 " "