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Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

Superintendent.

State: ALASKA.

*General*  
DESCRIPTIVE REPORT.

Hydro Sheet No. H-3568

LOCALITY:

*Chitina Point to  
Augustine Island.*

1913

CHIEF OF PARTY:

*C. J. Sullivan*

11-4647

3568

Hydrographic Sheet # 3568

KAMISHAK BAY

COOK INLET

ALASKA

Party of Str. McArthur

C.G. Quillian, Asst., Com'd'g. Chief of Party.

August - September

1913

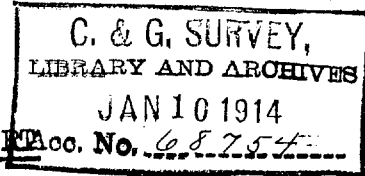
Hydrography by

C.G. Quillian, Assistant

F.G. Engle, Assistant

W.R. Marks, Asst. Surg.

Scale 1:80 000



GENERAL DESCRIPTIVE REPORT

OF

WEST SIDE COOK INLET,

FROM CHINITNA POINT TO AUGUSTINE ISLAND,

FROM SURVEY OF U. S. S. McARTHUR,

COMMANDED BY C. G. QUILLIAN,

IN SUMMER OF 1913.

As to whether the name Kamishak Bay should be applied to the whole of the bight between Pt. Chinitna and Cape Douglass, and in the middle of which Augustine Island is situated, or the name should be applied only to that part of the bay southward of Augustine Island, the authorities differ.

Davidson, in 1869, described Kamishak Bay as limited on the north by Augustine Island. The Geographic Dictionary of Alaska, 2d edition says the name is now generally applied to the whole bight in the middle of which Augustine Island is situated. I believe that shipping men incline toward the latter usage and certainly some name more distinctive than Cook Inlet

should be applied to the bight southward of Point Chinitna.

A satisfactory naming would be to call the entire bight on the western side of Cook Inlet, Kamishak Bay, and to apply the name given by Vancouver's Atlas, viz: Bourdieus Bay to that portion of Kamishak Bay southward and southwest of Augustine Island. See Geographic Dictionary of Alaska, pages 146 and 347.

Approaching the bight in clear weather the most prominent features are the snow covered peak of Iliamna Volcano with the slightly lower but snow covered North and South Twin peaks ~~and~~ a little to the S.E.; the snow and glacier covered summits of Mounts Douglass and Four Peaks; and in the center of the bight the apparently perfect cone of Augustine Volcano.

On a nearer approach to the shore, Iliamna Volcano is sometimes shut in behind the lower peaks near the coast while Augustine Volcano becomes the most prominent feature.

AUGUSTINE VOLCANO AND ISLAND:

Is situated about the center of Kamishak Bay. The island is nearly circular and has a greatest elevation of about 4,000 feet. As seen from the east the volcano appears as a symmetrical cone. From S.E., as a cone with a prominent southern shoulder; and from north and northeast the conical slope is altered decidedly and the old scars of the explosion of the crater show while the whole summit is flattened toward the westward.

The last eruption tore away the north and west side of the mountain leaving a sharp corner on the southeast side of the crater. Since this eruption the cone has been building up, and the active part of the volcano or crater now consists of a truncated cone some 700 to 1,000 feet high and about 400 yards across the summit, which is flat. Smoke and steam are usually issuing from the crater. On the south and southeast side the outer rim of the old crater rises above the new crater; the highest point being some 500 feet above the crater.

None of our party scaled the volcano. It appeared to offer no difficulties other than being rather steep and the rock around the crater being subject to slides.

On the sides of the volcano from east through north to west are large boulders apparently lying where they caught when tumbled out of the crater. These boulders vary from 4 feet square to some 10 feet square, and are nearly all of flat faced and sharp edged though not symmetrically built. They lie mostly between the 300 or 400 foot level and the 1,500 foot level.

The most remarkable features of the shoreline are the mounds at the north end and at the western end of the island. At both places a large area is covered with mounds of sixty to one hundred feet in height, oval shape, and about 200 feet long. At highest tides these mounds become islands. On the north end these mounds are covered with large boulders as though bubbled up from some spring, or the entire mound was thrown from the volcano. On the north end a number of these mounds are islands at all times and there is some six to ten feet of water at

lowest tides, forming fine shelter for small vessels. The channels are choked with boulders and great care would be necessary in entering. This part of the island should be surveyed in detail on a large scale for small vessels. The passage shown on the chart near the western end of the island is bare at half tides and is so filled with boulders as to render its entry difficult for a dinghy.

Boulders are supposed to extend about one-half mile off the northern and northeastern sides of Augustine Island. In the absence of a survey, vessels should not approach the island. Boulders; both rocky reefs and isolated boulders, lie from one-half to one mile off the shore between signals Burr and West Augustine. On each side of the western extremity numerous large boulders are exposed at low water and extend approximately 3/4 mile off shore. Anchorages off Augustine Island will be discussed later.

POINT CHINITNA:

Point Chinitna is about 75 feet high and is covered with spruce trees about 50 feet high. The ground is level for about 1/2 mile inshore from the point whence it rises steeply to the coast range. The point itself is a vertical bluff. The foot of this bluff is impassable at high water; but may be passed at lowest tides. The rock wall is crumbling and small pieces are falling at frequent intervals. Mr. Arey, Aid, was struck by a falling rock near this place and suffered a fractured collar bone. A reef extends about 1/4 mile off Point Chinitna. A small bight makes in just south of the

point; but offers no shelter whatsoever. Landing may be made in calm weather on either side of Point Chinitna and the bluff can be scaled at a stream on either side.

From Point Chinitna to Dry Bay the coast curves slowly in a general southwesterly direction. The summits of the hills are around 2,000 feet high, and lie about 1-1/2 miles from the shore. The formation is a conglomerate formation with the gentler slope from south to north, or from the water, and with precipices at the north side of the hills and along the east and west sides. Summits are bare or covered with brown moss. Alders are thick to elevation of about 1,000 feet.

DRY BAY:

is a shallow indentation in the shore line which offers no shelter as an anchorage or landing. A cobble beach is at the head of the bay, and steep cliffs meet the cobble beach at <sup>each end.</sup> A stream enters on the right side of the bay, and a small vessel drawing 3 to 5 feet might be able to enter on the high water and lay on the bottom. A valley extends toward Chinitna Bay and from what could be seen probably extends through to that bay.

From Dry Bay the coast trends southwest for 4 miles to Oil Bay. The shore line is passable at low water; but impassable at half tide--the shoreline consists of boulder strewn beaches interposed with cliffs. At  $\Delta$  Dry are a number of large boulders which extend from low water mark to about 500 feet up the hill. Signal Dry is located among these boulders. A rock was seen about 100 yards off shore off signal Dry and shoal soundings extend about 1/2 mile off shore.

A valley some 2 miles deep is midway between Dry and Oil Bays, and leads toward a peak which falls as a sheer precipice on the north side. The hills west of Dry Bay and east of Oil Bay, rise at about 1 to 6 slope from the water and break at the summit with precipices on the north and west sides.

OIL BAY:

is an indentation extending nearly true north and south, and is 2 miles deep by 1 mile in width. The head is shallow with a cobble beach. Three fathoms may be carried just inside the bay. A heavy swell makes in with any easterly weather, making it a useless harbor, especially with so comfortable a harbor as Iniskin Bay so near. There are rocks and reefs 1/2 mile off the western head of entrance to Oil Bay, and a stream at the western end of the cobbled beach. Small craft may enter at high water. There are numerous signs of petroleum. Several cabins and a few oil prospecting wells are at the head of the bay. Some of the crew claim to have found an inflammable gas escaping from one of the wells. There are no inhabitants at the bay.

A valley leads through to Chinitna Bay and a low valley and good trail follows close to the north side of Mt. Pomeroy into Iniskin Bay. There is also a good trail from about the center of Iniskin Bay to Oil Bay. With northerly breezes a strong, cold, squally breeze sweeps down from Iliamna Volcano and out of Oil Bay.



The hills on either side of Oil Bay are very steep, in places being almost sheer cliffs. From Oil Bay to Iniskin Bay, for three miles the coast line trends west. A line of rocks, reefs and islets, lie from 1 mile to 1-1/2 miles off shore. The shoreline is similar to the previous sections-- a conglomerate cliff with here and there sand beaches and is impassable only at low water. The hills rise with an easy (about 1 to 5) slope from the water, and descend abruptly on both the Oil and Iniskin Bay side. The north edge of Mt. Pomeroy is a cliff apparently broken off when the mountain was raised from the water. Strata runs from water edge to summit at about the same angle as the surface. One could almost toss a pebble from the summit of Mt. Pomeroy to the trail to Oil Bay, at the foot of the hill. Mt. Pomeroy has alders to about 1,000 ft., elevation and grass and moss above; and at summit is bare or covered with a brown moss.

✓  
INISKIN BAY:

Iniskin Bay extends true north and south almost at right angles to the coast to the eastward, and is about 9 miles deep by 1-1/2 to 2-1/2 miles in width. The entrance is narrowed to about three-fourths of a mile in width by islands on the eastern side. The bay is of glacial origin. The hills on the western side and each side of the river at the head bear witness to the glacial action.

There is a marked difference in the character of the country on the east and western side of Iniskin Bay. The western side is of older formation; steep granite rocks with

deep cuts and below the summit numerous rounded knobs showing effect of glaciers.

The eastern shore is more recent upheaval. Is a conglomerate formation carrying numerous fossils and is tilted as though the center of the upheaval was some 5 miles true west of Iliamna Vol. The same formation seems to lie east of a line from Iniskin Bay to Iliamna Volcano, and extends to and includes Chisik Island. There is a row of hills with the summits some 2,000 to 4,000 feet high and about 2 to 3 miles from the shore. The slope from the shore side toward summits is even and moderate. At the inshore side and also on the sides normal to a line toward Iliamna Volcano, the slope is steep consisting of abrupt precipices where there has been an abrupt breakage in upheaval. There are deep valleys every few miles leading through the shore range to the inner valley. Beyond this inner valley there is another row of hills usually presenting the same appearance of an even slope on side toward sea and an abrupt drop on other side.

Several valleys lead from Iniskin Bay, viz: One from the right arm toward Chinitna Bay along the east side of Mt. Eleanor, one from the back of Mt. Pomeroy to Oil Bay, and one from the bay south of Right Arm toward Oil Bay. These valleys contain high grass, alders and spruce, with here and there chains of small lakes and marshes.

Iniskin Bay is a great mud bank with a moderate width of channel carrying good water. Mud banks bare from 1/2 to 1 mile off shore and are cut here and there with slues. The

mud banks on the western shore are strewn with boulders apparently left by ice, and there may be some such boulders in the channel itself. Boulders were not seen on the eastern shore, and such reefs as were located on the eastern shore are of some extent and of native rock. Several isolated boulders were located in the bay by being seen at low water.

The Right Arm of Iniskin Bay is practically useless being very shoal. A launch drawing several feet might get into Iniskin River at high tide. The motor cutter of the "McArthur", drawing two feet, was able to proceed about 1 mile in the river itself at low water. The stream is about 50 feet wide at L.W., and winds about midway between the hills. The valley is about 1/2 mile wide and a flat of some extent lies on each side of the river just about the extreme high water line. This flat is covered with a heavy growth of grass and is cut by numerous slues and ponds. A number of Mallard ducks were seen here and we were so fortunate as to secure a few. Bear tracks were seen all along the mud at low water and well worn bear trails are close along the edge of the flats near the hills. In the late fall a few salmon were seen in the stream. During the summer a few salmon were taken in gillnets by the camping party.

On the north side of the Sugar Loaf Mt., is a slue which runs fully a mile inland. At the head of the slue is a low embankment. I went up one evening intending to go some distance into the interior; but was so delayed that I could only get up to the embankment mentioned. Local reports are

that a low divide, probably not over 500 feet in height, connects with the Iliamna River and to the Iliamna Lake. This is ~~probably~~ <sup>possibly</sup> a feasible route for a railroad from Iliamna Lake and is ~~probably~~ <sup>possibly</sup> a more desirable route than from the lake to Iliamna Bay; while Iniskin Bay is a splendid harbor against Iliamna Bay being an open roadstead.

There ~~is~~ ample room for wharves and dock houses along the mud flats, and open ground for a small town just south of Sugar Loaf Mt., or at most any place on the eastern side of the Bay.

The vegetation of Iniskin Bay is spruce, cottonwood, alder, heavy bushes and grasses on the eastern side; alders, and cottonwoods on the western side. The hills are very steep on the western side.

Sailing directions are given later.

A series of mountainous ridges separates Iniskin Bay from Iliamna Bay with a considerable valley between.

#### ILIAMNA BAY:

Iliamna Bay was not surveyed by this party as it had been previously surveyed. The "McArthur" entered a couple of times and on one occasion I went up near the landing for the trail in a motor boat. The entrance is about 3/4 of a mile wide to 1/2 mile wide between Gull Island and North Head. Thirty feet can be carried inside the Head. The bay is open to all easterly weather, and during moderate westerly weather the wind draws through the bay with forces of fresh breezes and in a moderate westerly gale must blow a hurricane. All reports

are to the effect that westerly winds are exceedingly violent at the head of Iliamna Bay. The shores are in general steep with some surf at all times. A tide staff was set up off Gull Island and a few comparative readings made with Seldovia and Iniskin Bay. The staff was not exactly plumb and corrections to readings are given in the record. At the time of setting the staff a heavy sea was running which with strong breezes made the work very difficult.

The village of Iliamna is about 4 miles from the lake and some twelve miles from Iliamna Bay, and is the only settlement in Kamishak Bay. A trail goes from the right arm of Iliamna Bay to the village, and horses or natives may be obtained at the village for packing. Supplies in small quantities may be had at the village. Some 250 people reside there-- mostly natives and squawmen, though there are possibly half a dozen decent people there. There is communication with Nushagak and Bristol Bay points by sled in winter and boat in summer, following Iliamna Lake and Kvichak River. In 1913 the "Floating Court" made the trip to and from Bristol Bay over this passage. The Revenue Cutter landing the party at Iliamna and picking them up on the other side and later reversing this order.

No one lives nearer Iliamna Bay than the village. Outside communication is uncertain and irregular. During the past summer the S. S. Admiral Sampson, of the Alaska Coast Company, called there once every two months. Cabins are built on a bight on the left side of the right arm near its head and

there is a cabin and old warehouse on A. C. Point. The custom is for outgoing passengers to proceed to the first mentioned cabins, or else to A. C. Point, some four or five days before the vessel is due and camp until her arrival. Incoming passengers are landed at A. C. Point, and make their way as best they may to the village.

The coast from Iliamna Bay to Ursus Cove or Big Bear Bay, as sometimes called, trends S. SW., true for 3 miles. The shoreline is a boulder strewn beach at L.W., at ~~H.~~ H.W. a cliff, and is impassable when the tide is more than half in. Just south of Iliamna Bay are large rocks which have fallen from the cliff. Midway between the two bays the cliff is lower and might be scaled. Here it is some 50 feet high and increases in height rapidly on each side. At Ursus Point. (  $\Delta$  Ursus ) the cliff is some 500 feet high and nearly vertical. There is a continuous rattle of small stones falling from its sides and it is impassable at H. W., and dangerous at all times.  $\Delta$  Ursus is on an outlying slate rock which covers at the highest tides. Reefs extend half a mile out and irregular soundings extend a mile off shore.

URSUS COVE:

Ursus Cove is an open bay and is five miles wide at mouth, and five miles deep and funnel shaped. The north coast runs almost true west while the south side is about S. SE. true, It should be called Funnel Bay for it catches every easterly sea that comes and multiplies its swell.

The north shore consists of rocky crumbling cliffs with breaks at the mouth of streams. A few trout and salmon were seen in these streams, and a divide leads from the second stream to Cottonwood Bay. At the head of the Cove is a large lagoon into which a pulling boat may ascend at high water. At the head of Ursus Cove is a conical peak 2,935 feet high with sides covered with sliding gravel, which we called "The Cone." The southern shore of the bay is a vertical cliff from 30 to 50 feet high of a decomposing rock with the foot of the cliff overhanging the water and unscalable. Here and there is a small short beach and a number of reefs lie about a mile off shore. The ground is turf covered at the top of the cliff and rises gradually to the foot of the hills. The beach is impassable at all times.

ROCKY BAY:

Rocky Bay, as the next small bight is called, is all that its name implies. There are reefs all around its entrance and to a mile and a half off shore and at low tide it bares until there is difficulty in getting a dory into the bay. A small creek empties here and drains the right valley for about four miles.

The shore line around the cove is a vertical cliff 50 feet high except at the very head (O Creek) where the bluff is grass covered and can be climbed. The ascent to  $\Delta$  Step was made from this bay.

A valley extends to the right of Step Mt., from Rocky Cove to the stream just east of Bruin Bay, and the pass

is low.

TURF POINT:

Turf Point is the southern point of Rocky Cove and is a vertical cliff about 50 feet high, with its face of a yellow soil and its top covered with turf.  $\triangle$ Turf is on the outer point and is reached from Rocky Bay.

Turf Point marks the southern limit of the topographic work of the party and the inshore hydrography did not complete Ursus Cove or locate any of the dangers known to exist along the southern shore of Ursus Cove.

From Turf Point the shoreline trends nearly due west for 5 miles and then curves to southwest for 3 miles to the entrance of Bruin Bay.

This stretch of shore presents several unusual features. The Step Mountain, 1,410 feet high, rises in three distinct steps and on the south side it becomes a vertical precipice. A divide through which a stream runs extends northwest from the south side of Step Mt. Immediately west of this stream is a remarkable cliff and hill. This cliff the face of which is over three miles long overhangs the shoreline and is 1,200 feet high where it extends over the water. The slope from the summit toward the north is easy, an elevation of only a few hundred feet being about 1-1/2 miles inshore. The whole hill resembles a quarter of a melon with one of the faces as the south side. The western end of the bluff resembled a tower with turrets and we called it Fortification Bluff.

Fortification  
Bluff



Two miles below Fortification Bluff is a beautiful Cascade. A sparkling white stream, some 30 feet across, falls about 50 feet directly into the water. From this point to Bruin Bay is a sheer cliff 100 to 500 feet high.

The "McArthur" steamed at slow speed along this coast with the submarine sentry set at five fathoms and at a distance of 1 mile off shore with soundings of 6 fathoms, sand. One and a half miles off Bruin Bay there was an abrupt jump to 4 fathoms, rocky, and the vessel was backed off and anchored.

BRUIN BAY:

Bruin Bay, or Little Bear Bay, was entered by a signal building party in the cutter. Rocky reefs extend off each point apparently closing up the entrance. Boulders could be seen at low water <sup>with the sun</sup> 1/3 of way off each point and no channel could be seen from signals Bruin and Bay, which are 500 feet high, though numerous boulders were seen in the entrance.

In July, Captain Ellicott, U.S.N., entered in a picket boat from the U.S.S. Maryland, and he informed me that the upper end of Bruin Bay would bare at low water, and there were numerous boulders throughout the bay and no evidence of an anchorage.

There are several islands in Bruin Bay, and the tidal current is strong, especially on the south side of the islands. On the south side of the entrance is a pillar island about 200 feet in diameter and about 200 feet high with vertical sides. A low point lies on the south side of entrance and rises gradually to an elevation of about 500 feet, while the hill drops off as a steep bluff on the Cook Inlet side.

There is a high hill about 4,000 feet high a little northwest of Bruin Bay. I understand that low land extends inland to the lakes.

The work of the McArthur did not carry us farther to the southward, and as local reports are not worthy of trust, I will say very little of the section south of Augustine Island.

The "McArthur" made one trip from Augustine Island to Cape Douglass passing inside Shaw Island. After getting some three miles off Augustine, the submarine sentry was set at 15 fathoms and did not trip. On return trip the sentry tripped at 15 fathoms some three miles off and carried 6 fathoms to an anchorage off South Augustine.

The weather was so <sup>at this time</sup> thick, that little of the Kamishak River mouth could be seen. I have good reason to believe that shoal water extends well off shore off Kamishak River; that there are numerous boulders; that high seas run at times and that it is a very dangerous place for vessels. Various reports have stated that there is an anchorage in a passage way into the mouth of the Kamishak River and that sea otter schooners formerly anchored there. None of these rumors mention draft of vessels or indicate depth of water and I have no faith in them.

For the present I can see no advantage in a farther survey of Kamishak Bay. No vessels call there and there is no commerce to be developed unless possibly a small fishing business, or some mining developments. There are certain copper claims located on the west side of the Kamishak River which are reported to be very rich; but there has not been sufficient

development work done to justify a survey. The survey can easily follow a proved value of the claims and when there is reasonable expectation of actual traffic.

I will now take up the methods of executing the work, and conclude with descriptions of anchorages and sailing directions:

TRIANGULATION:

In previous years triangulation had been extended to Point Chinitna and the east side of Augustine Island. The triangulation this year was extended from this line and all of the work is thoroughly controlled by the triangulation. Triangulation was extended over the northern part of the bay and a series of figures carried into Iniskin Bay and connected to a topographic base measured there. A connection was also made with the triangulation of Iliamna Bay, which was an independent survey executed in 1907. Stations North Head and South Head <sup>were</sup> ~~where~~ the stations tied in. The original distance and azimuth of the two points checked closely; but there is a slight change in longitude and a change of about 1/4 mile in latitude from the independent determination.

The triangulation was extended for one figure beyond the remainder of the work, the last line being from the southwest corner of Augustine Island to the south side of Bruin Bay. This line will give good figures for continuing the triangulation over the southwestern part of Kamishak Bay, and can be joined on to the previous triangulation by way of  $\triangle$  Augustine and  $\triangle$  N. Douglass, stations of 1908.

Also, from these figures the triangulation can be extended westward into Bristol Bay when desirable.

TOPOGRAPHY:

A base was measured in Iniskin Bay and triangle sides computed, points plotted on sheet by distances, and the topography of this sheet controlled thus. Later these triangulation points were tied into the general scheme.

The work outside of Iniskin Bay is controlled by triangulation, all of the computed points being plotted on the sheet. Of course, it was frequently necessary to traverse between signals, in fact there were very few places where any other method of getting a fix was available to the topographer. The general coast was charted on scale of 1-40,000 this being the scale used in the survey of the other parts of Cook Inlet.

HYDROGRAPHY:

The hydrography of Iniskin Bay was on a 1-20,000 scale and was executed by Aid O. J. Bond Jr., with the launch "Delta." All soundings were with handlead. I instructed that leadline be compared and the comparison entered in sounding record at beginning and end of each day. No drag work was done in this section. The "McArthur" towed the submarine sentry into the harbor on the entering range several times, set at five fathoms. The positions on the smooth sheet were plotted by Aid Arey.

Inshore hydrography is by launch "Delta" in charge of Aid Bond, sounding with handlead, and no shoals were dragged.

Ship work is practically all with leadline using a 25# lead and a trolley and running from 5 to 8 knots per hour. Leadline was each day compared with standard and same recorded at beginning and end of day, and at other times if there appeared need for same. The trolley was rigged on port side. A wire rope extended from the after whaleboat davit to a boom on the guard abreast the forward end of the bridge. The leadman stood on a platform at the whaleboat davit. The lead was carried in a runner and tripped when striking the boom and leadline was read when up and down. In water under 10 fathoms the lead was tripped by a check line and reading taken when up and down. In over 10 fathoms the lead tripped at the boom and the reading was taken when supposedly over the spot where dropped. Angles were taken in all cases when the lead was tripped. In depths of over 10 fathoms the angle is presumed to be exactly where the leadline was read. In depths under 10 fathoms the position was taken when the lead tripped and the observers were from 15 to 30 feet forward of the lead and the fix would be that distance ahead of the sounding. The line was reeled in on the submarine sentry drum and consequently the sentry was not towed while sounding. In depths of 17 fathoms, and over, it was necessary to stop the engine and allow the ship to lose some headway before sounding. However, she was not entirely stopped and remained headed on the line. All soundings were up and down and are good. In some places the speed was so great as to space the soundings rather far for shoal water; but there are not many instances of this. Lines were run close together,

four to the mile and joined with the area covered by the launch. I believe that the development is as good as the lead alone will yield; but it should be remembered that this is a country of isolated glacial boulders and the lead gives no indication of boulders; and nothing short of dragging will make the chart of this section absolutely reliable.

My survey will show the depth of water at any place; but I cannot say I located all the boulders. Every indication of a shoal was developed, but off Augustine Island I saw boulders 15 feet high, which could lie inside of a square of soundings 5 meters apart without indicating same. I do not believe there is any danger outside the 10 fathom curve; but there is constant danger to a vessel which has her keel within twelve feet of the bottom. This danger can only be guarded against by dragging. Vessels traversing these waters should slow down when within fifteen feet of the bottom.

Off Augustine Island the lead revealed boulders only twice, yet they were in plain sight a mile inshore of the vessel, and there is no reason to suppose that this was the outer limit of their existence.

NAMES APPLIED:

As a definite name for islands and points add to a sheets completeness and is of great aid to navigation the names on Chart 8554 are supplemented by names applied by this party as follows:

We did not come in contact with any natives or "old timers" and hence names are usually directly by the party.

All names with ✓ following have been approved by the Bay Board 9/16/11

✓  
CHINITNA POINT: ✓

Name from chart 8554, a level projection terminating in a 75 foot cliff at water, surmounted by 50 foot spruce trees.

✓  
DRY BAY: ✓

Name from chart 8554, A shallow indentation with cobble stone beach at head.

NUB HILL: (no) *Knub* ✓

A 1,840 foot hill, prominent, bare, just west of Dry Bay-- name by party from nub on summit.

BALD HILL: ✓

2,178 feet high, just west of Oil Bay, a bare summit, rather indefinite--name by this party.

*shown on original sheet No 3420 as on East side of Oil Bay*

SHARK TOOTH: ✓

2,750 feet, highest hill in vicinity--name by this party from appearance like a tooth from southeast.

OIL POINT: ✓

Eastern side of Oil Bay, a 50 foot, wooded point, marked by a white cliff just west of point--name by this party from proximity to Oil Bay.

✓  
OIL BAY: ✓

From Chart 8554, so called from indication of petroleum at head.

OIL REEF: ✓

Bares at low water 1/2 mile off western entrance to Oil Bay--name by this party from proximity to Oil Bay.

✓  
MT. POMEROY: ✓

Chart 8554, name by Martin of Geological Survey. Is.

2,323 feet high, is the outer hill between Oil Bay and Iniskin Bay, summit bare and indefinite.

BIG ROCK: ✓

Bare rock, covers on H.W., springs, largest outside rock in vicinity--name by this party.

POMEROY ISLAND: ✓

Brown, grassy island, one-half mile off shore, about 50 feet high--name by this party from Mt. Pomeroy.

INISKIN BAY: ✓

Ten miles deep, on north shore Kamishak Bay--name by Martin, Geological Survey.

INISKIN ISLAND: ✓

Brown, grassy island, 50 feet high, slopes to north and cliff on north side--name from proximity to Iniskin Bay.

INISKIN ROCK: ✓

Bares at low water, about one mile west of Iniskin Island.

INISKIN SHOAL: ✓

A sand shoal with 3 feet on it, 1-1/8 miles, S. 75° W. true, from Iniskin Island.

VERT ISLAND: ✓

Small, green island about 30 feet high--descriptive name.

SCOTT ISLAND: ✓

After illfated <sup>bank</sup> Arctic explorer, Partly wooded (on east side) about 88 feet to tree tops. On east side of entrance to Iniskin Bay.



MUSHROOM ISLETS: ✓

Five islets in entrance to Iniskin Bay--descriptive name.

WEST MUSHROOM: - *unnecessary* ✓

Western of above islets.

THE TOADSTOOLS: ✓

A group of islets close to eastern shore of Iniskin Bay--descriptive name.

KNOLL HEAD: ✓

Western entrance to Iniskin Bay, 500 foot knoll, prominent when entering.

BACK RANGE HEAD: ✓

On western shore of Iniskin Bay, so called as it is the back range for entering the bay.

RIGHT ARM: ✓

Name by this party as it is right arm of Iniskin Bay; a shallow, shoal bight.

RANGE PEAK: ✓

1941 ft., a rounded peak which being in range with Iliamna Volcano, leads midchannel into Iniskin Bay.

Mt. ELEANOR: ✓

3,926 ft., a sharp black peak--named by Martin, of Geological Survey. Very prominent from Chinitna Bay and Iniskin Bay.

SUGAR LOAF Mt: ✓ *one word (yes AG)*

2,931 feet, on western side of Iniskin Bay--descriptive name by Martin of Geological Survey. Prominent from Iniskin and Oil Bays.

ROSCOE PEAK: ✓

3,765 ft., a prominent, red peak at head of Iniskin Bay--  
name by this party.

INISKIN RIVER: ✓

At head of Iniskin Bay, from the bay of same name--  
name by this party.

BLACK REEF: ✓

From chart. A reef off north entrance to Iliamna Bay.

FARALLON REEF:

Reef bare at low water north<sup>east</sup>~~west~~ of Black Reef--name  
suggested from wreck of S. S. Farallon in this vicinity  
(in 1910).

N. HEAD: ✓

North entrance to Iliamna Bay--descriptive name by  
Rhodes, C. & G. S.

S. HEAD: ✓

South entrance to Iliamna Bay--descriptive name by  
Rhodes, C. & G. S.

WHITE GULL ISLAND: ✓

Chart 8554, a small, grassy island in entrance to  
Iliamna Bay.

TURTLE REEF: ✓

Group of rocks covered only at H. W., springs; off  
South Head, Iliamna Bay--descriptive name by Rhodes, C. & G. S.

URSUS HEAD: ✓

A crumbling cliff about 300 feet high at entrance to  
Ursus Cove--name by this party from Ursus Cove.

BROWN PEAK: ✓

2,768 feet--descriptive name by this party of a crumbling peak.

URSUS COVE: ✓

Sometimes locally called Big Bear Bay--name from Chart.

ROCKY COVE: ✓

Descriptive name of shoal bay south of Ursus Cove--name by Martin, of Geological Survey.

SUNDAY CREEK: ✓

Empties into Rocky Cove--name by this party.

~~BLUFF POINT:~~ *Tignavik Pt, as on Chart 8554 is correct*

Descriptive name by this party of point south of Rocky Cove. *This point is called Tignavik Pt. on chart 8554. The name is not given Geog. Dict. of Alaska.*

STEP MOUNTAIN: ✓

Descriptive name by this party; near Rocky Cove, Kamishak Bay. *Top of about 3400 gives elevation of 1410 feet. Why called mountain? Big Hill below is 4000 ft high and called a hill.*

THE CONE: ✓

Head of Ursus Cove--descriptive name by this party.

FORTIFICATION BLUFF: ✓

A notable bluff about 12 miles W. NW., from Augustine summit, is about 1,200 feet high at the water edge--descriptive name by this party.

BIG HILL: ✓ ~~Not a suitable name~~

4,000 feet--descriptive name of prominent hill NW. of Bruin Bay.

BURR POINT: ✓

The north end of Augustine Island, so called from the

appearance of the mounds forming the end of the island.

CURRENTS:

There is<sup>only</sup> a moderate current after getting west of Chinitna Point and inside Augustine Island. The main current of Cook Inlet runs about two miles off Augustine and a strong current runs off Pt. Chinitna.

The currents in the northern part of Kamishak Bay follow the coast flooding from southwest to northeast at rate of about 1 knot and ebbing from east to west at rate of about 1 knot maximum. The usual current observed was about 1/2 knot. The current seemed to flood inside<sup>west of</sup> Augustine Island and then flow toward Chinitna Point. A slight set toward north was observed on the flood and a set to west on the ebb. The current was more noticeable near the shore. A heavy tide rip was seen about 2 to 4 miles north of Point Chinitna on two days when a strong westerly breeze was blowing.

A very slight current was observed at anchor off Rocky Bay, though at low water a small rip was seen near the reefs off Rocky Bay.

No rips were northward of Augustine Island though with either an easterly or westerly breeze there is a heavy tidal sea between Ursus Cove and Augustine Island, and this tidal sea makes into Ursus Cove.

In Iniskin Bay the current floods and ebbs with the channel and turns at high and low water by the shore.

The maximum flood ran 1-1/4 knots, and the maximum ebb observed was 1-1/2 knots, average rate of flood about 6/10 knot, and of ebb about 3/4 knot. Isolated current observations were made at a number of stations over night and should be analyzed and plotted on the sheet after study by the tidal section.

WEATHER:

The season was one of the finest I have seen during seven seasons in Alaska. A good percentage of clear weather with strong westerly breezes. A cloud around the summit of Augustine Volcano and Iliamna Volcano usually foretold rain and easterly weather. Easterly breezes were moderate, as a rule, though we experienced two gales from northeast.

With clear weather we had strong to stiff southwest to westerly breezes. During June and July, westerly winds predominated with clear weather. August was rather cloudy, easterly breezes predominating. The early part of September was a real Indian Summer with fine clear weather and westerly breezes. Fog was experienced at various times, usually continuing until about noon for several consecutive days. We experienced only two gales both from northeast, wind force 7 to 8, and lasting about 12 to 18 hours.

Weather during this year was exceptionally fine and is not to be taken as the usual kind. The summer of 1912 brought as bad weather to this section as the summer of 1913 brought good, and was a continuous succession of easterly gales.

LAND MARKS:

After Augustine Volcano the most prominent land marks

are Step Mountain, Ursus Head, Point Chinitna, islands off Iniskin Bay, North Head and White Gull Island. All are unmistakable if at all clearly seen.

DANGERS:

1. A rocky reef which bares, extends a short distance off Point Chinitna.

2. A sounding of three fathoms was had about a mile off the eastern side of Dry Bay. A closer examination did not disclose a shoal rock; but a bank with less than 3 fathoms continues in to the shore.

3. A bank with 5 fathoms 1-1/2 miles off shore lies along the shore from  $\triangle$  Dry to Oil Bay. As uncharted boulders may be on these banks, vessels are cautioned to remain outside the 10 fathom curve.

4. Oil Rock: a rock which bares lies about 1/2 mile off the west entrance to Oil Bay, and a shoal with 3 fathoms lies 1/2 mile outside of Oil Rock; and a chain of reefs and islands extend between Oil and Iniskin Bays. Vessels are cautioned to keep one mile off Pomeroy and Iniskin Islands.

5. Iniskin Shoal: A dangerous sand bar with 3 feet at low water lying 1-1/4 miles S. 35° W. true, from Scott Island. Vessels clearing this shoal will clear the other dangers on the east side of Iniskin Bay.

6. Farallon Reef: Bare at low water and covers at half tide, lies between Knoll Head and Black Reef.

7. Vessels should keep a mile off shore southward of Iniskin Bay and 1-1/2 miles off Ursus Head. A reef makes out

1/2 mile off Ursus Head and the 5 fathom curve extends a mile off the Head. No pinnacles were located, though the soundings are irregular off Ursus Head.

No dangers were found off the north side of Ursus Cove, and a vessel might anchor a mile off the north shore.

The inshore hydrography did not develop the south shore of Ursus Cove and I believe it to be dangerous. Irregular soundings with rocky bottom were found just inshore of the ship sounding lines.

7 A dangerous reef, which bares at low water springs, lies 1-1/2 miles east (true) of Turf Point. This reef is composed of gravel boulders and is about 300 yards in diameter and has 6 to 10 fathoms just outside of it. The shoalest point is a smooth white boulder projecting about 3 feet above the reef. Other reefs which bare are scattered inshore toward Rocky Cove.

1 Dangerous boulders lie off the north and west shores of Augustine Island and vessels are cautioned not to approach within 1-1/2 miles of the northeast end of the island, or 2-1/2 miles of the north or northwest shore except as directed to the north anchorage.

0 An unsurveyed bank extends over 3 miles west of Augustine Island. Soundings of 4 fathoms were had on this bank. Owing to the probability of boulders, vessels should not pass westward of Augustine Island; also, the greatest caution should be exercised if entering south of Augustine Island.

ANCHORAGES:

In fine weather vessels may anchor at any point in the

bay as the depths are nowhere excessive. Anchorages giving any shelter are limited, viz: Iliamna Bay; Iniskin Bay; North Anchorage, Augustine Island; Southwest anchorage, Augustine Island. Of these only Iniskin Bay is secure.

Iliamna Bay:

See Coast Pilot for sailing directions. A swell makes in in any easterly weather. Heavy squalls and williwaws in westerly weather. A very uneasy and uncomfortable anchorage. Very small vessels may obtain fair shelter well up in arms of the bay.

Ursus Cove:

Too open and too heavy swell makes ~~in~~<sup>it</sup> in easterly weather to be a good anchorage.

If desirable to enter bay, lay a course to keep about 2 to 3 miles off Ursus Head. When Augustine Vol., summit bears  $145^{\circ}$  (S. 35 E., true; S. 60 E. Mag.) put the summit directly astern and steer  $325^{\circ}$  (N. 35 W., true; N. 60 W. Mag.) and take anchorage about a mile off shore in 5-1/2 fathoms, soft bottom. At the anchorage Ursus Head should bear  $63^{\circ}$  (N. 63 E. true; N. 38 E. Mag.); and South Entrance Ursus Cove bear  $195^{\circ}$  (S. 15 W. true; S. 10 E. Mag.).

The McArthur did not anchor here and does not recommend the anchorage.

North Anchorage, Augustine Island:

Is about 1 mile off the north side Augustine Island. It is open from E. NE., to W. NW., Was not here during any strong north to west winds. A heavy sea makes in when the



breeze gets north of E. NE. Care should be used not to get nearer the island as there are numerous boulders; also, approach the anchorage on bearing given, as survey is incomplete. The anchorage has not been carefully sounded. Was used a number of times by McArthur.

To approach, keep at least 2 miles off Augustine Island until the summit of the volcano bears  $135^{\circ}$  (S 45 E. true; S. 70 E. Mag.). Then steer  $135^{\circ}$  (S. 45 E. true; S. 70 E. Mag.) heading for the peak until about 1 mile off shore, anchoring in 7 fathoms water, sand bottom, with the north tangent of island bearing  $75^{\circ}$  (N. 75 E. true; N. 50 E. Mag.) and the southwest tangent bearing  $230^{\circ}$  (S. 50 W. true; S. 25 W. Mag.). At half tide a prominent sharp point boulder will bear S. 14 E. true; distant  $3/4$  mile. This covers at highest tides.

Southwest Anchorage, Augustine Island:

Anchorage was not sounded. No boulders are on beach opposite anchorage and it seemed clear--affords good shelter in north to east breezes. Is open to southeast; but I did not lay here during any southeast blows. Anchorage was approached on a bearing of Augustine Volcano, of about  $165^{\circ}$  (N  $65^{\circ}$  E true) and anchorage taken in 6 fathoms, sandy bottom, about  $3/4$  mile off shore.

Iniskin Bay:

This is a secure harbor, is perfectly sheltered from all save south winds, and no heavy sea can enter from that direction. It is the only secure harbor in Kamishak Bay. During the summer of 1913, there were no violent winds in this

bay. During the two northeast gales experienced the camp party reported that they did not notice any gale. Westerly and northwesterly breezes williwaw with a force of four to six and if against the tide, raise a small chop which would inconvenience a dinghy. The harbor is easy of access and I believe is the most secure harbor in Cook Inlet.

Sailing Directions for Iniskin Bay:

If approaching from Seldovia, pass 1 mile off Pomeroy Island. From a position 1 mile,  $180^{\circ}$  (S. true; S. 25 W. Mag.), from Pomeroy Island, steer  $278^{\circ}$  (N. 82 W. true; S. 73 W., Mag.) for 3-1/2 miles heading for White Gull Island, Iliamna Bay, until the tangents of Knoll Head and Back Range Head, on the western side of Iniskin Bay, are in range, then steer this range on a  $13^{\circ}$  (N. 13 E. true; N. 12 W. Mag.) course for 2-1/4 miles until Entrance Rock, a flat rock 20 feet high, 40 feet wide with 3 foot crevice north and south, and separated from mainland by a 30 foot crevice, is on the quarter, distant 1/2 mile. Then head for Range Mountain in range with Iliamna Volcano, bearing  $25^{\circ}$  (N. 25 E. true; North, Mag.) and run this course one to two miles passing 300 meters off the rocky shore line at Knoll Head and anchoring in 7 to 8 fathoms, sand, to sticky bottom. The McArthur usually anchored off the prominent divide at top of mountain range about 1-1/8 miles beyond Knoll Head.

Three boulders projecting about 3 feet above mud were seen on the outer edge of the broad mud flat on the west shore (see sheet).

SAILING DIRECTIONS:

Sailing directions for each anchorage are given above under the respective descriptions of anchorages. The following notes apply to general Sailing Directions.

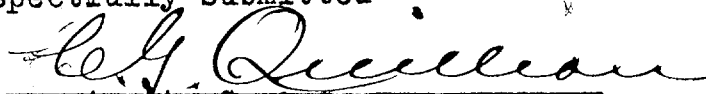
Approaching Iliamna or Iniskin Bays<sup>or</sup> in general the northern part of Kamishak Bay, allow for the current into and out of Cook Inlet. This current turns 1 to 2 hours after tide turns, and floods north, magnetic, and ebbs south fair with the channel at rate of 1 to 2-1/2 knots southward of Anchor Point.

After passing the line between Augustine Island and Chinitna Point, the allowance for north and south flow should not exceed 1/2 knot; BUT, allow for a current east or west or along the shore of 3/4 to 1-1/2 knots.

In conclusion I suggest that all charts of this vicinity and of Cook Inlet bear in prominent letters and in a prominent place on the soundings, a legend to the following effect: "These areas have not been dragged. Glacial deposits of boulders are along shore, and on the flats glacial boulders of heights of 25 feet have been seen, and hence vessels are cautioned to use extra care and slow speed when inside the 10 fathom curve as shown on chart at low water, or the 6 fathom curve as shown on chart at high water."

The Coast Pilot notes as in the second edition 1910, on page 49 and 50, are accurate and very good.

Respectfully submitted

  
Ass't. C. & G. Survey,  
Chief of Party.

CGQ/MDG.

STATISTICS FOR HYDROGRAPHIC SHEET #

Date	letter	miles	sds. angles	angles	positions	verticals
Aug 14	A	55.2	299	253	103	
" 15	B	63.6	292	305	120	
" 16	C	24.0	148	128	65	
" 21	D	6.5	64	32	17	
" 22	E	21.7	135	207	43	
" 23	F	33.8	151	196	78	53
" 29	G	23.5	89	108	54	
" 30	H	41.0	208	178	86	1
" 31	I	51.4	261	238	112	6
Sep 1	K	44.2	250	178	89	1
" 2	L	53.7	266	379	166	44
" 3	M	61.1	273	195	148	
" 4	N	63.0	293	378	182	7
" 5	O	53.0	336	289	144	
" 6	P	47.6	331	188	140	
" 9	Q	42.0	270	299	135	6
" 10	R	38.2	365	299	131	1
" 11	S	45.5	317	303	148	2
" 12	T	52.4	300	331	161	1
" 20	U	48.7	240	251	124	
" 21	V	62.0	338	249	174	
Totals	21	932.1	5226	4984	2420	122

VEC  
Feb. 9, 1914.

HYDROGRAPHIC SHEET 3568.

Augustine Island to Chinitna Point, Cook Inlet, Alaska,  
by Assistant C. G. Quillian in 1913.

TIDES.

	Iniskin Bay ft.
Mean lower low water, or plane of reference on staff	6.8
Lowest tide observed " "	2.0
Highest " " " "	25.0
Mean range of tide	12.3

PLOTTING NOTE

Hyd - 3568

Plotted with a steel protractor. Tracing cloth with holes cut out over the signals used for covering.

*Harry Seyboldt*

Aid, C. & G. S.

VERIFICATION NOTE.

Verified by replotting every 50th position and noting numbering and appearance in vicinity. Found correct.

*O. J. Bond, Jr.*

Aid, C. & G. S.

Cuts were not plotted on this sheet. Shore line of Augustine Island traced from boat sheet, which was drawn in between tangent cuts to Island on boat sheet. Remainder of shoreline is drawn in between topographic signals, plotted by D.M's., and D. P's., as scaled from topographic sheet.

H. 3568.

Chinitna Point to Augustine Is. Scale 1:80000. An excellent descriptive report accompanies this sheet. Positions marked by small circles contrary to regulations. The development appears excellent.

In continuing the work south from Augustine Island, careful development should be made off the small indentation north of triangulation station "Augustine." Additional soundings in the vicinity of the 10-fm spot shown on chart 8502 and 8854 two miles north northeast of signal Burn should have been taken to be of use as an emergency anchorage, also in the vicinity of the 6-fm spot four miles east of signal Burn additional soundings should be taken.

68  
Sheet examined in Div.  
of Hyd'y & Top'y.

Hydrographic Sheet 3568.

Cook Inlet.

Augustine Inlet to Chineta Pt. " Alaska

Positions plotted in field and taken as Cor  
but with an occasional Check.

The work is considered good and records clear.  
The positions are defined with small circles; This should  
be discontinued.

John D. Tomney  
6/17/14.

Verified; April 8, 1915  
P. L. Johnston



Department of Commerce and Labor