

# 2919

Diag. Ch. No. 8551-1

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

## DESCRIPTIVE REPORT

Type of Survey *Hydrographic*  
Field No. .... Office No. *2919*

### LOCALITY

State *Alaska*  
General locality *Liear Bay*  
Locality *Knight Island*

1907

CHIEF OF PARTY

*R. B. Decker*

LIBRARY & ARCHIVES

DATE .....

6-1870-1 (1)+

2919

33  
47A  
2919  
1907

RECEIVED  
COAST AND  
GEODETIC SURVEY

2919

Hyd. 2919

DEC 25 1 08 AM '08

2899

FILE  
RECORDED

U. S. C. & G. SURVEY  
LIBRARY AND ARCHIVES  
JAN 8 1908  
ACC. NO.  
CLASS

HYDROGRAPHIC REPORT AND SAILING DIRECTIONS

OF

DRIER BAY, -KNIGHT ISLAND

ALASKA

1907

R.B. Derickson,  
Asst. C. & G. Survey,  
Comdg. U.S.C. & G.S.S. TAKU.

2919

To accompany  
Hydrographic Boat Sheet.

2919

HYDROGRAPHIC REPORT AND SAILING DIRECTIONS TO ACCOMPANY THE  
BOAT SHEET OF DRIER BAY, KNIGHT ISLAND, ALASKA.

On arrival at the working-grounds, Drier Bay was found to be the most important point, commercially, on Knight Island, and the distributing centre for the mining camps in this vicinity. It has several copper mining development companies along its shores, and many wharfs projected. One wharf at the head of the bay was completed.

The hydrography of Drier Bay was commenced while the signal building was in progress, the first sounding lines being run in the vicinity where signals were established.

In order to construct a Boat Sheet, a short telemeter base was measured, and sextant cuts taken to the newly erected signals, and plotted to Scale 1:10000. This was extended over the entire bay, and the sheet is forwarded herewith in order to give an idea of the area covered. The correct location of all points used was subsequently made on the plane table sheet, which was to the Scale of 1:20000. A tracing from this sheet accompanies the Boat Sheet.

The sounding lines were plotted as the work progressed, and the soundings shown without reduction for tide.

Tides were observed from the staff at the head of the bay.

The soundings in general were too deep for the hand lead, and the wire with a 12 pound lead was used from the TAKU. The vessel stopped at each cast with the wire vertical in the water, the number of fathoms being read from a dial recording the number of turns, the dial reading zero when the bottom of the lead was at the surface of the water. Each sounding was located by sextant angles

## 2 Hyd.Rpt.

taken from the deck of the TAKU. At places in the bay where a sunken ledge or shoal water was indicated the hand lead was used from a pulling boat, and the least depth obtained. Also over areas having depths of less than 20 fathoms, the hand lead was used.

On taking up the work in this bay, it was reported by an Indian that he had seen a sunken rock in the channel at the entrance, midway between the signals "First"⊙ and "Mate"⊙, shown on this sheet. The work was begun at this point and a search was made, but no such rock could be found. An Indian living in this vicinity, to whom the report was originally given, was taken out with a sounding party, but could give no information other than that he did not believe such a rock existed. It was also stated by two white men named Solbrick and Johnson who have lived and fished in the neighborhood for a number of years, that to their knowledge no such rock exists. The launch UNION belonging to a copper mining company in the bay assisted the TAKU in the search. During the entire summer at extreme low water a careful lookout was kept when entering and leaving the bay.

DRIER BAY, entering from the east side of Knight Island Passage and approximately in the centre of Knight Island, has an area of about 6 sq. miles, extending in a N.E. and S.W. direction. There are three entrances to this bay, the main entrance a mile in width, and the two narrower entrances, one from Knight Island Passage just north of the main entrance, and the other from the channel extending to the south end of Knight Island. The main entrance is the one generally used. It is free from known dangers, the ledges extending off the points of the islands forming the entrance being easily

### 3 Hyd. Rpt.

avoided, and a straight course from Knight Island Passage leads well into the bay.

The N.W. entrance which lies between the small islands extending 1 mile out from the main shoreline, is about  $\frac{2}{3}$  of a mile in width. There is a ledge 25 meters in diameter awash at low water, at its entrance, narrowing the channel down to  $\frac{1}{2}$  mile. An iron pipe, with a painted oil-can was placed on this ledge, so that it could be avoided at high water. Deep water was found on all sides of this ledge. Off the S.E. end of this channel, and  $\frac{1}{2}$  mile out into Drier Bay, bearing S. by E. from "Wood" @, a ledge with 4 to 5 fathoms of water was found. Otherwise the soundings taken indicate deep water through this entrance, ranging in depths from 10 to 60 fathoms. The waters surrounding the small islands lying between this entrance and the main shoreline, are foul. In general the shoreline of these islands bares at low water for a considerable distance.

The entrance from the channel described in the report of Knight Island Passage, as "Cut Off Channel", is apparently free, with the exception of a ledge of rocks 10 meters in diameter, covered at high water, bearing N. x W.  $\frac{1}{2}$  W. from the Narrows; and N.E. x E.  $\frac{1}{2}$  E. from the north end of Mummy Island, distant  $\frac{1}{3}$  of a mile. On this ledge was placed in a crevice and securely fastened in a vertical position, a 1- $\frac{1}{2}$  inch galv. iron pipe, 16 ft. long, with a flag at the upper end, which was used as a hydrographic signal, and called "Pipe". Although the channel in this entrance was not extensively developed, the soundings taken show a depth of 10 to 40 fathoms. Launches use this and the N.W. entrance en route from the south end of Knight Island to the north end, shortening the distance considerably, and having a smoother passage, when the outer channel is choppy.

with northerly winds. These two entrances should only be used by persons with local knowledge, especially the N.W. entrance, as it passes through a foul area. The main entrance itself passes through the foul area, which extends along the east side of Knight Island Passage. Many soundings were taken in this part of the channel, but nothing was discovered that would prevent the deepest draft vessel from entering the bay. One mile off the entrance the water shoals up rapidly from 100 fathoms to <sup>22</sup>25 fathoms, on the centre of a ledge which extends lengthwise with the coast. This ledge bears west from the north end of Mummy Island, and 1 mile N.N.W. from the small islands which are directly off Mummy Island. Between this ledge and the entrance there are depths ranging from 45 to 65 fathoms. Foul areas extend on both the north and south sides of this channel at the entrance, and neither point should be approached within 200 meters, although deep water was found directly off the high ledges on the north side. In mid-channel between the two islands forming the entrance, a bank with 34 fathoms over it was found. For a distance of 2 miles from the entrance, numerous small islands form the north and south sides of the bay.  $\frac{3}{4}$  of a mile from the entrance and to the northward of mid-channel, is the 4 fathom ledge before mentioned. This ledge is in the track of vessels using the N.W. entrance.

Solbrick's Cove, a small fishing station just north of the N.W. entrance, is choked with reefs. The TAKU used this cove as an anchorage, only entering it in daylight, coming to anchor in 4 fathoms of water in the centre of the cove. The entrance is cut down to 30 meters at low water. Launches use this cove during bad weather in the passage.

2-1/4 miles from the entrance to Drier Bay on the north shore, is the small island locally known as Range Island, upon which is situated the signal "Root". This island is separated from the main shoreline by a channel 50 meters in width. There is a depth of 6 to 8 fathoms off this island.

The small bays along the south shore in the vicinity of the entrance to Cut Off Channel, have numerous ledges in them, and can only be entered by small boats and launches. To the eastward of these bays, and 1-3/4 miles from the entrance, there is a large bay locally known as Cathead Bay, 1 mile deep and 1/3 of a mile wide, extending in a southerly direction. There are two small islands near the head, and a small stream enters in the S.E. corner. This bay has only a few sounding lines run in it, but the depths in and out range from 5 to 40 fathoms. At the entrance, 150 meters off the west point and nearly in range with the two headlands forming its entrance, there is a sunken rock with 2 fathoms over it. Also, off the entrance of Cathead Bay, and well into Drier Bay, there was found a small ledge with 3 to 4 fathoms on it. This ledge is the only unmarked danger known in Drier Bay. It lies about 1/8 of a mile outside of a line between the first two headlands on the south shore, bearing N.E. 1/2 N. from the first headland on the starboard hand on entering,; and S. x E. 1/4 E. from Range Island, 5/8 of a mile distant. There is a depth of 26 and 30 fathoms around this ledge, and 40 fathoms between it and the headland. These two headlands are steep-to.

The second bay on the south side, locally known as Mallard Bay, is about 1/2 mile wide and 1 mile deep. It extends parallel to the first bay in a southerly direction. The head of the bay is foul, the rocks uncovering for 1/4 of a mile at low water. The soundings

show a general depth of 20 to 30 fathoms.

The water along the coastline from the second bay to the small bay 1-1/2 miles farther east, is deep, averaging 25 fathoms, 200 meters off shore. The small bay has an entrance 150 meters wide. It is 1/3 of a mile deep with 5 and 10 fathoms of water. There are several ledges at its entrance, and it is only entered by small boats and launches.

The headland just east of this bay is very prominent, with rocky barren sides; and boulders lie along the beach at the foot of the bluff. There is a depth of 20 and 25 fathoms of water 200 meters off its N.W. point.

At this headland the channel in the bay is narrowed down to 1/2 mile by the small island bearing west from it. This island has the signals "East" and "West" located on it, and is locally known as Hinky-Dink Island. On the north and west sides, the channel has a width of 1/3 of a mile.

From a point opposite this island on the north shore, the water to the south and west has an average depth of 25 fathoms, 200 meters off. There is a place midway between the island and Range Island where 8 fathoms is shown 200 meters off the shoreline. It is possible that shoaler exists, but as it is so close to the shore and out of the track of all vessels, it was not deemed necessary to investigate it further. From this small island to the entrance, the bay has a general width of 1 mile, with depths ranging from 50 to 90 fathoms. The channel north and west of this island has a depth of 25 fathoms.; on the south and east sides a depth of 13 to 30 fathoms. The coastline of the island is rugged, the rocks bare in places for a distance of 100 meters off its shore. Bearing . . .



N.N.E.  $1/4$  E. from the east point of the island distant  $3/8$  of a mile, there is a rock awash at half tide. It is about 16 feet in diameter and has 5 to 20 fathoms around it. From this rock the narrow entrance <sup>of NW Lagoon</sup> opens up nearly in range with the prominent point on the north shore,  $3/5$  of a mile south of the entrance to the lagoon. This rock is marked at high water by a large iron gasoline tank, chained to the rock. 300 meters from this rock bearing N.N.E.  $1/4$  E. and on range from the island, there is a patch with 9 fathoms on it. Bearing N.E.  $1/2$  E.  $1/2$  mile distant from the east point of the island, and 300 meters off the N.E. point of the rocky headland, there is a patch of rocks with 8 fathoms of water over them. The average depth of water between the buoyed rock and these patches is 20 to 30 fathoms; and between the rock and the island 10 to 18 fathoms. Between the rock and the point on range with the lagoon there is a depth of 20 to 30 fathoms.

The north point of the rocky headland which bears east from the island is foul, and should not be approached within 200 meters. Rounding the headland to the eastward into the S.E. lagoon, the water in general shoals up from 9 fathoms, 150 meters off shore..

The S.E. lagoon has an entrance less than 100 meters wide at low water. It extends inland about 500 meters, a width of 200 to 300 meters, and depth ranging from 3 to 9 fathoms. The ledges at the entrance, shown on the topographic sheet, prevent other than small craft entering the bay. Off the entrance, there is a considerable area with depth ranging from 18 to 25 fathoms, shoaling gradually towards the shoreline. The shoreline carries 8 to 10 fathoms of water 150 meters off, around to the head of the bay.

The point bearing north from the rock marked with the gasoline tank, is free from outlying dangers, and the shoreline to the northward is free, with 10 to 20 fathoms 100 meters off shore.

Drier Bay across its head, is 500 meters wide, with irregular rocky shoreline. In the extreme N.W. corner, there is a bight 300 meters wide, and 250 meters deep, from which the entrance to the N.W. lagoon extends. This bight has 5 fathoms in the centre, and a sunken rock near the N.E. corner. The point on the S.E. side of the bight is bluff and steep-to, with 3 fathoms directly off the shoreline. Around this point to the eastward, is the wharf of the Hubbard-Elliott Mining Co. This wharf has an area of 50 x 150 feet, its face extending in a N.W. and S.E. direction. Vessels over 200 feet in length would have some difficulty in coming alongside owing to the point aforementioned, which lies directly west of the wharf, extending some distance beyond its face. The wharf is built out from the bluff shoreline, the S.E. corner being less than 50 meters from the bluff. There is a depth of 24 feet off its face, and a clear space 150 meters directly to the S.E.

Beyond this the shoreline has a number of rocks lying 40 meters out, and uncovering at low water. The vessels PORTLAND, BERTHA and JEANIE of the A.C.Co. have discharged freight at this wharf, making the S.E. corner of the wharf with the port bow, and warping alongside. It is about 190 feet from the S.E. corner along the face of the wharf to the shoreline of the point.

The N.W. lagoon has an entrance 50 meters wide, 1 fathom deep at low water. The lagoon is 200 meters wide, extending in a N.W. and S.E. direction. The south end has 10 and 12 fathoms, directly

inside the entrance, shoaling up to the mud-flats at the north end, which bare at low water 150 meters off shore. There are two small fresh water streams entering at the north end. The saw-mill and electric power plant of the H.-E.Co. is located at the head of the lagoon.

#### SAILING DIRECTIONS AND DESCRIPTIONS OF ANCHORAGES.

Vessels unacquainted with the west coast of Knight Island and desiring to make Drier Bay, will have to keep a sharp watch in order to distinguish the entrance, as the coastline is one series of out-lying islands and bays opening from the main passage.

1st. Bound for Drier Bay from the southward, having passed the Sister Islands, and changed course to N.x W. at the point 1-1/4 miles N.x W. of the N. Sister, where the islets off Chenega village and the extreme south end of Chenega Island come in range, proceed 1-3/8 miles. When the S.E. point of Chenega Island bears S.W.3/4 S. change course to N.E.3/4 N. leaving the point directly astern. You will then be heading directly for the entrance to Drier Bay, and a distance of 2-1/4 miles will bring you mid-channel at its entrance on a course well clear of all known dangers. When nearing the entrance, and the bay begins opening up around the north point of Mummy Island, keep a watch for Range Island which lies close to the north shore of the bay, 2-1/8 miles from its entrance. When Range Island opens just clear from the main shoreline, you will be approximately in mid-channel. (The course N.E.1/4 E. from mid-channel in Knight Island Pass opens Range Island from the shoreline, and is sometimes used on entering.) When at the point in the entrance to Drier Bay, Range Island stands just clear of the coastline, and the north end

10 Hyd. Rpt.

of Mummy Island bears E.S.E., distant  $1/2$  mile, change course to N.E.x E. and stand into the bay.

2nd. Bound for Drier Bay from the northward, and standing down Knight Island Passage on the S.x E. course, heading for the Sisters, and having run  $6-1/4$  miles from the point where you changed course abreast of Pt. Nowell, you will be abreast of a short sand beach midway of the coastline on the east side of Chenega Island. When the south end of this sand beach is just passed the beam, change course to east, heading inside of the north end of Mummy Island. Hold this course till Range Island nearly closes in with the main shoreline. At this point the south end of the nearest island on your port hand will bear N.x W. $3/4$  W. distant  $1/2$  mile. This point is the junction of the courses used on coming up from the southward.

Continuing on into the bay, the course N.E.x E. is to be held for  $3-1/10$  miles, heading for a conspicuous number of tents belonging to Ball's Copper Mining Co. These tents are on a bluff, and will be replaced by houses, below which a wharf is shortly to be built.

In  $3-1/10$  miles, the island called Hinky-Dink appearing in mid-channel of the bay, will close in with the prominent point bearing north from it on the north side of the bay. You will have passed the centre of Mallard Bay, and will be on range with a line extending along its eastern shore. At this point change course to N.N.E. $3/4$  E. heading between the small island and the bluff, rocky headland. On this course,  $1-1/8$  miles, the east end of the island will be abeam, and the small bay on the starboard hand is well open, the house at its head showing in range over the low, sandy islet at the east side of its entrance. Change course to N.N.E. passing 400 meters S.E.

of the rock buoyed by the gasoline tank. When the buoy is passed you are practically at the head of Drier Bay. If desiring to go to the wharf at the H-E. Mining Co's. camp, after passing the buoy, head N.x W.  $1/2$  W. going alongside or anchoring in 15 fathoms 200 meters off the wharf. If desiring to anchor off the S.E. lagoon, hold the N.N.E. course till the south side of the small island you have just left on the port hand, and Range Island have come in range. Then change course to east, anchoring in 18 fathoms of water 200 meters off the entrance to the lagoon.

If desiring to enter Cathead Bay from the first course coming into Drier Bay, bring Range Island abeam, then change course to S.E.x S. leaving it directly astern. Favor the east side of the entrance to the bay, and proceed with caution on either side of the small islands, to its head, anchoring in 5 to 10 fathoms of water.

To enter Mallard Bay from the N.E.x E. course, when Range Island is abeam, change course to E.  $1/4$  N. Running  $3/4$  of a mile will bring you mid-channel at the entrance. Change course to S.E.x S into the bay, anchoring in 17 fathoms of water,  $1/2$  mile from its head. This anchorage should be approached with caution.

To anchor on the south side of Drier Bay off the small bay  $1-1/2$  miles east of Mallard Bay, hold the N.N.E.  $3/4$  E. course till the small bay opens up, its entrance bearing E.  $1/2$  N. Then change course, heading directly for the entrance, coming to anchor when the N.W. point of the high, rocky headland bears north, in 15 to 20 fathoms of water, 300 meters off the entrance.

The anchorages herein given are about the only available places where good holding ground can be had with a reasonable depth of water

In anchoring in these waters vessels should be given good clearance from the shoreline and known dangers, as willi-waws come over the mountain-sides, sweeping the bay with great force.

There is very little tidal current in this bay. For the rise and fall of tides see tidal records of Drier Bay wharf, 1907.

The shoreline of Drier Bay is bluff, and the objects herein mentioned as aids to navigation are easily distinguished.

In writing these directions, preference has been given to the deepest water, with the least change of courses. The turning points chosen are where some prominent, natural object close at hand, will aid in locating the ship's position.

Respectfully submitted,



Asst. C. & G. Survey,  
Comdg. U.S.C. & G.S.S. TAKU

Exp Sheet No 2919

Jan 25 1908

The ground is apparently well covered. There  
there is an indication of shoal water the spot has  
been carefully developed.

The sounding records were kept in a satisfactory  
manner. The angle book was sent in with  
the sheet.

H. L. Simon

"~~Prohibited~~ <sup>avoided</sup> ~~anchors~~ <sup>anchors</sup> should be  
avoided as much as possible;  
especially in coves bights or other  
available anchorage areas —

Dec

1-28-08