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C. & G. SURVEY  
L. & A.  
MAR 1 1925  
Acc. No.

Form 504

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

State: S.E. Alaska

11-5613

DESCRIPTIVE REPORT.

Hydrographic and ~~Chart~~ No. 3  
Wire-trag Sheet No. 4441

LOCALITY:

S.E. Alaska

~~Kasaan Bay, Clarence Strait~~

~~Twelvemile Arm~~

~~Hellie Anchorage to Head of Arm~~

Loy Is. to Head of Twelvemile Arm

1924

CHIEF OF PARTY:

F.B.T. Siems, H. & G. E.

4441

Descriptive Report

to accompany

Hydrographic-Wire drag sheet No. 3 of Twelvemile Arm.

General Remarks: The soundings and wire drag work of Twelvemile Arm were both accomplished in 1924 and the work has been plotted on one sheet field No. 3 from Hollis Anchorage to Head of Twelvemile Arm.

The datum indicated is that of the upper Kasaan Bay triangulation of 1906 and 1911 which was used for topographic and other field sheets of Kasaan Bay and Twelvemile Arm. Later in the season when the triangulation of upper Kasaan Bay was connected to the Clarence Straits triangulation of 1912-22, which is based on the Approximate S.E. Alaska datum, all the triangulation stations of Kasaan Bay and Twelvemile Arm were recomputed on the latter Standard datum.

The hydrographic signals were transferred by tracing paper from the topographic sheets with respect to the Kasaan Bay projection but principally with respect to their relations in position to the plotted triangulation signals of which there were relatively a considerable number.

Limits of Hydrography and Wire drag work: The hydrography off Hollis Anchorage forms a junction with that of hydrographic sheet No. 2 and a wire drag strip continues from wire drag sheet No. 2 to Hydrographic-Wire drag sheet No. 3. Hollis Anchorage was not dragged, but was closely developed by hand lead.

Inshore Dangers: A rock, awash at M.L.L.W., lies 85 meters, 290 degrees from  $\odot$  Fog. The area between this rock and the small island on which  $\odot$  Fog is located is foul.

A rocky ledge, bare at one-third tide, lies 175 meters, 130 degrees from  $\odot$  Tim.

A gravel and boulder ledge, baring at half tide, lies 375 meters, 160 degrees from  $\odot$  Seal. *probably  $\odot$  Tim R.L.G.* The ledge is composed of small rocks with isolated boulders rising approximately three feet.

A thirteen foot spot lies 250 meters, 270 degrees from  $\odot$  Ben.

A twelve foot spot, dropping off to deep water within 75 meters, lies 1300 meters, 47 degrees from  $\odot$  Hol. *640<sup>m</sup> R.L.G.*

Off the southern point of the entrance to Harris River are two rocks. The outermost one 125 meters, 135 degrees from  $\odot$  Fish, bares at one-half tide.

Two rocks, bearing at M.L.L.W. lie 320 meters, 145 degrees from  
 O Oh

225 meters south of O Rain a landslide has occurred, carrying  
 several large trees into the water. The debris projects 60 meters  
 offshore.

A rock <sup>awash on tide</sup> bares at three-fourths tide 100 meters, 252 degrees  
 from O Pie.

A rock, awash at M.L.L.W., lies 200 meters, 350 degrees from  
 O Low. The area between this rock and O Low is foul.

#### Grounds (wire-drag):

Position 6A, 660 meters N.E. from Hol, ground at N buoy.  
 Depth of drag 43 feet. Least water found by sounding 28 feet, how-  
 ever this sounding plots outside of drag strip. This ground was  
 caused by Guide Launch being too near the two fathom shoal which was  
 previously developed by hydrography.

Position 18 A, 810 meters, N.E. x N. from Sap. Depth of  
 drag 46 feet, least water found by sounding 42 feet. Later covered  
 this shoal with drag depth of 40 feet.

Position 25 A, 650 meters, S 1/2 W from Sap. Towline as well  
 as N buoy became grounded here. Depth of drag 45 feet, least water  
 found 18 feet. This shoal is well inshore and was not dragged over  
 at any depth.

Position 30 A, 330 meters, N 1/2 E from O Pan. Depth of drag  
 42 feet, least water found by sounding 37 feet. This shoal is also  
 very near shore and was not dragged over.

Position 25 B, drag grounded here on edge of shoal which bares at  
 L.W. and is 530 meters SW x S from O Oh. The dragging was ended at  
 this point because the Arm becomes very shoal and is very foul with  
 exposed rocks and rocks which bare at low tide.

#### Methods of survey and plotting.

Tender No. 1 was principally used for sounding in all of  
 the inshore work of Kasaan Bay and for the greater part of Twelvemile  
 Arm. To reduce the speed of this launch to a desired point, for  
 handlead sounding, canvas sea anchors were used along either side of  
 the launch.

On account of a greater amount of lift than usually experienced

a part of the dragging of Twelvemile Arm reduces to an effective depth of 39 feet. Positions and directions to large buoys were obtained from both launches. As the two original launch records will accompany the sheet it was not considered necessary to copy the end launch angles in the guide launch records. The position numbers of guide launch end of drag are indicated on the sheet, those of the end launch were not indicated, the numbers for simultaneous positions of end and guide launch do not necessarily correspond and in most cases two corresponding positions must be established by time relation.

Soundings on shoals are recorded in the Tender record which will also accompany the sheet. However all Tender records data was copied in the guide launch records.

The launch positions while dragging were plotted on the smooth sheet and towline connecting boat position and large buoy is indicated by light pencil line. This method of plotting is considered necessary for absolute accuracy and it also assists in shaping drag curves tangent to the towline. In this method it is not necessary to have metal buoy pretractor come in contact with sheet, a very transparent grade of tracing paper is used to protect the sheet.

Hollis Anchorage with 5 to 7 fathoms mud bottom off the abandoned town of Hollis is rather contracted on account of a 1 fathom rocky shoal of considerable area which extends about  $1/4$  the way across the bay from the opposite shore, and on account of the extensive tide flats in the west part of the bay. The north or steamer channel lies between the gravel bank in the middle of the entrance and a rock opposite lying 80 yards from the shore (north shore). The gravel bank bares at  $1/2$  tide and the rock at about  $1/3$  tide. A natural range marks this part of the channel between the two obstructions, namely, the tree line on the north entrance point kept slightly open in respect to the outer high water mark of the wooded islet 400 yards from the point.

#### Inshore Dangers (add.)

The eastern shore of the Arm southeast from Harris Creek Bay is foul for about a mile and should be avoided. From here to the head of the Arm the shores are generally clear. There are numerous rocky reefs on the points but in no case do they extend more than 50 meters from shore.

Two miles north from the first wooded tide islet at the head of the Arm, flats extend out 200 meters from the mouth of a stream on the western shore. From here to the head of the arm the shore line is more even and there are no rocky cliffs.

In the middle of the Arm one-half mile north (mag.) from the first wooded tide islet at the head of the Arm there is a small grass covered islet which is just awash at extreme high tides. Between this islet and the western shore there are numerous patches of rocks that bare at about one-fourth tide. A rocky shoal which bares at mean lower low water lies 450 meters north (mag) from this same islet.

Miscellaneous

Tracings of the shoreline and low water line are being forwarded with this sheet in order that they may be used in tracing the low water line onto the sheet, after soundings have been inked in.

*H. Williams*  
Chief of Party C. G. S.

Statistics for sheet No. 3 (field number) Hydrography.

Date, 1924	Letter	Vol.	Pos.	Soundings	Miles (statute)	Vessels
August 15	A	1	87	284	9.0	Scandinavia
August 25	a	1	143	391	19.0	Tender No.1
August 26	b	1	109	198	11.3	" "
August 27	c	1	44	98	6.5	" "
August 27	c	2	53	157	8.0	" "
August 28	d	2	135	191	17.0	" "
September 5	e	2	47	133	4.0	" "
September 12	f	2	38	74	2.5	" "

Sounding in FATHOMS

Plane of reference M.L.L.W.

Auto tide guage at Hollis Anchorage. M.L.L.W. reading on staff 6.6.

Highest tide recorded by guage, August 15, - 24.2

Lowest tide recorded by guage, August 16, - 3.5

Statistics for sheet No. 3 (field number) Wire-drag.

Date, 1924	Letter	Vol.	Pos.	Soundings	Miles (statute)	Vessels.
Sep. 3	A	1	45 46 4	4	8.0	Helianthus (G.L.) Scandinavia (E.L.) Tender No.1.
Sep. 4	B	1	25 25 2	0	5.0	Helianthus Scandinavia Tender No. 1.

Soundings in FATHOMS                      Plane of reference M.L.L.W.

Auto tide guage at Hollis Anchorage.    M.L.L.W. reading of staff 6.6

Highest tide recorded by guage,    September 3,    -    23.0

Lowest tide recorded by guage,    September 3,    -    6.5

April 2, 1925.

Section of Field Records

~~Division of Hydrography and Topography~~

Division of Charts:

Tide reducers are approved in  
volumes of sounding records for

HYDROGRAPHIC SHEET 4441


Locality: **Hollis Anchorage, S. E. Alaska**

Chief of Party: **F. B. T. Siams in 1924**

Plane of reference is **mean lower low water and is  
6.6 ft. on tide staff at Hollis Anchorage, S. E. Alaska.**

For reduction of soundings, condition of records satisfactory  
except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks



Chief, Division of Tides and Currents.



Hyd. Sheet No. 4441

The work on this sheet consists of a hydrographic and wire drag survey, both plotted on the same sheet.

The records are satisfactory, except that on "a" day in the sounding record, the bottom characteristics are recorded on the wrong page. ✓

The wire drag work has been well plotted, except that in the subdivision the color should conform to the deepest area. ✓ No splits occur in the drag work and the grounds of the drag are fully listed in the descriptive report. ✓

The soundings are not well spaced. When the time interval is irregular, the soundings are generally spaced uniformly, regardless of the time record. When converting from feet to quarters of a fathom, one foot was always dropped instead of being shown as one quarter of a fathom. When plotting in even fathoms, five feet was dropped instead of being expressed as the next whole fathom. ✓

The projection on this sheet is on the Kasaaan Bay datum and may have to be corrected later to the S. E. Alaska datum

R. L. Johnston

E. O. R.

ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 4-DEM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON September 11, 1925.

FIELD RECORDS SECTION

Report on Hydrographic Sheet H. 4441.

Hydrographic and Wire Drag Survey of Twelve Mile Arm, S. E. Alaska.

Surveyed in 1924.

Instructions dated April 19, 1924.

Chief of Party, F. B. T. Siems.

Surveyed by :  
: Wire drag - F. B. T. S., Charles Shaw.  
: Hydrography - J. A. Bond.

Protracted and plotted by F. E. Joekel.

Verified and inked and Area and Depth Sheet by R. L. Johnston.

1. This review covers both the hydrographic and wire drag surveys.
2. The records were defective in the following respects:
  - a. Beginnings and endings of sounding lines were seldom given.
  - b. Boats heading by compass was never given.
  - c. In Vol. 2 (consecutive) bottom characteristics were entered in the wrong column.
  - d. Failure to give bottom characteristics on shoals.
  - e. The end launch data was not transcribed into the guide launch records and moreover the guide launch angles were entered in both the angle columns leaving no room for the end launch angles. Inasmuch as the original end launch records are desired in the office only for the purpose of clearing up any doubtful points that may arise, they are destroyed after the final approval of the sheet. Therefore, the guide launch records should contain the complete wire drag data.
  - f. The tender data was unnecessarily entered in the guide launch records since the tender records are permanently retained.
  - g. The rule of surrounding deeper areas by their appropriate colors was not adhered to.
3. The methods and character of operations satisfy the General instructions.

4. The plan and extent of development satisfy the specific instructions except that in Twelvemile Arm where drag work was executed the sounding lines were spaced about 200 meters apart instead of 400 meters as called for. Also the sounding lines should have extended closer inshore just north of Althouse Point in the vicinity of  $\odot$  Seal. The limits of the mud flats at the head of Hollis Anchorage and at the northern and southern entrance to Harris River were not developed by the hydrographic party, but are clearly outlined on the topographic sheet.
5. The sounding line crossings are adequate.
6. The information is sufficient for drawing in the usual depth curves except in a few places alongshore.
7. The depth of dragging satisfies the specific instructions.
8. The extent of dragging satisfies the specific instructions except that in a number of places it appears that the drag could have been carried closer inshore. This is notably true of the area off Althouse Point and the area at the head of Twelvemile Arm. Although not specifically called for in the specific instructions the drag should have extended into Hollis Anchorage, as there are indications of possible dangers in the entrance.
9. The least water was found over all shoals discovered except the following:
  - a. The two fathom shoal in lat.  $55^{\circ}28'$ , long.  $132^{\circ}38 \frac{1}{2}'$  found on the hydrographic survey should have been cleared by a drag. The shoal lies about 250 meters offshore and is surrounded by much deeper water.
  - b. The 18 ft. sounding (drag) in lat.  $55^{\circ} 26 \frac{1}{2}'$ , long.  $132^{\circ}40'$  was not cleared. This may be the termination of a reef that lies about 150 meters to the southward.
10. The junctions with the adjacent sheets, both hydrographic and wire drag, are satisfactory.
11. The overlaps within the sheet are satisfactory and no splits were left.
12. Additional work is necessary when opportunity affords as mentioned in Paragraphs 8 and 9.
13. The field drafting was completed to the extent prescribed in the General Instructions except as follows:
  - a. The soundings were not plotted in conformity with the time intervals.

- b. When plotting in fathoms and quarters, one foot was always dropped instead of plotting it as one quarter fathom.
- c. When plotting in whole fathoms five feet was dropped instead of expressing it as the next whole fathom.

14. Rating of work (
- ( Surveying - very good.
  - ( Field drafting : Wire drag - excellent.
  - : Hydrography - good.

Reviewed by A. L. Shalowitz, September, 1925.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

## HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Hydrographic and Wire-drag field No. 3.  
Register No. 4441

State . . . S. E. Alaska . . . . .

General locality . . . ~~Kasaan Bay, Clarence Straits~~  
Loy Is. to Head of Twelvemile Arm

Locality . . . ~~Twelvemile Arm - Hollis Anchorage to Head of Arm~~

Chief of party . . F. B. T. Siems . . . . .

Surveyed by . . . F. B. T. Siems and Charles Shaw, Wire-drag.  
J. A. Bond, hydrography. . . . .

Date of survey . August 15 to September 12, 1924. . . . .

Scale . . . 1 : 10 000 . . . . .

Soundings in . Fathoms . . . . .

Plane of reference . M. L. L. W. - Hollis Anchorage . . . . .

Protracted by . F. E. J. . . Soundings in pencil by . F. E. J. . . . .

Inked by . . . . . Verified by . . . . .

Records accompanying sheet (check those forwarded):

Des. report, 1 Tide books, 4 Marigrams, 2 Boat sheets,  
3 Sounding books, 3 Wire-drag books,        Photographs.

Data from other sources affecting sheet Triangulation 1906, '12,  
'15, '21, '22, and '24. Topographic sheet 1924.

Remarks: Datum of projection is that of Upper Kasaan Bay based on triangulation and base measured 1906 - 1911.

" 1 Vol. "Scandinavia".  
" 2 Vol. "Tender No. 1".

# 1 Vol. - guide launch  
# 1 Vol. - end launch  
# 1 Vol. - soundings and Tender record.