

# 4510

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

## DESCRIPTIVE REPORT

Type of Survey *Hydrographic*  
Field No. \_\_\_\_\_ Office No. *4510*

### LOCALITY

State *S.W. Alaska*  
General locality *Sitkum Bay*  
Locality *Alaska Ten P*

1925

CHIEF OF PARTY

*G. S. Garner*

LIBRARY & ARCHIVES

DATE \_\_\_\_\_

# 4510

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 4.

Sitkum Bay

S. W. Alaska.

Clem L. Garner, Chief of Party.

Instructions dated March 25, 1925.

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**LIMITS:** The hydrography of this sheet comprises the whole of Sitkum Bay and that portion of its approaches bounded by Cape Kumlik on the north, longitude  $157^{\circ} 43'$  on the east and latitude  $56^{\circ} 33'$  on the south. A wedge shaped area of the Bay between longitude  $157^{\circ} 48\frac{1}{2}'$  and longitude  $157^{\circ} 52'$  was omitted on this sheet and included in the hydrography on sheet "A". This latter area was accomplished first, as at that time there was not sufficient control on sheet No.4 for the Anne W. to work.

**COAST LINE AND LANDMARKS:** The coast line at the entrance of the bay is a series of rock and gravel bluffs from 20 to 90 feet in height, with an occasional stretch of sandy beach. Rising beyond the shore line are low rolling hills, grass and alder covered. Some distance back from the beach these hills give place to barren and rugged mountains, rising in elevation to three thousand feet or more.

There are no very distinctive landmarks on this sheet. These are, however, several groups of rocky islets that may be used as landmarks by approaching vessels.

The first of these is a group of rocky islets of an elevation of 30 to 50 feet in the vicinity of latitude  $56^{\circ} 36'$ , longitude  $157^{\circ} 41\frac{1}{2}'$ . These islands rise almost vertically from the sea and have flat grass covered tops.

Several rocky pinnacles, sparsely covered with grass lay in the vicinity of latitude  $56^{\circ} 35\frac{1}{2}'$ , longitude  $157^{\circ} 50\frac{3}{4}'$ . The highest of these is about thirty five feet in elevation and bears triangulation station ANCH.

In the bay itself there are several rocky pinnacles and small islets, none of which are very distinct - except in fair weather.

**DANGERS:** In the entrance to Sitkum Bay are two dangerous obstructions. The first of these is a reef, well marked by growing kelp, making out from the first group of islets mentioned under LANDMARKS. This reef extends in a southwesterly direction for two miles and ends in latitude  $56^{\circ} 34\frac{1}{4}'$ , longitude  $157^{\circ} 43\frac{1}{2}'$ . It breaks in a heavy swell and bears only at lower low water. The second obstruction in the entrance is a series of reefs in the vicinity of latitude  $56^{\circ} 32\frac{1}{8}'$ , longitude  $157^{\circ} 48'$ . This reef is more fully developed on hydrographic sheet "A". In entering the bay from the west or south it is necessary to keep slightly to the east of a line drawn from signal "Fox" (in the vicinity of Unavikshak Island) to triangulation station ANCH in order to avoid this reef.

Several small reefs surround station ANCH.

A kelp-marked reef lays a mile off shore in latitude  $56^{\circ} 35'$  from longitude  $157^{\circ} 53'$  to longitude  $157^{\circ} 50\frac{1}{2}'$ .

A foul area exists for a mile eastward of station SQUAB in latitude  $56^{\circ} 34\frac{1}{2}'$ , longitude  $157^{\circ} 56\frac{1}{2}'$ . This section is about one square mile in area, extending from station SQUAB on the east to line normal to the shore at station BOLD and from latitude  $56^{\circ} 35'$  on the north to the beach on the south. It is not sounded because of the failure of the motor sailers to properly function.

A detached pinnacle, triangulation station IOWA, 36 feet in height lays one half mile off shore in latitude  $56^{\circ} 36\frac{1}{2}'$ , longitude  $157^{\circ} 57\frac{1}{2}'$ . A reef 500 meters in extent lies a quarter mile due west off this station.

In latitude  $56^{\circ} 35\frac{1}{2}'$ , longitude  $157^{\circ} 54\frac{1}{2}'$  are a group of rocks, the highest twenty-five feet in height. Several small reefs, 20 to 30 meters in length, and bearing at low water, extend out from these rocks.

An isolated reef bearing at a two-four<sup>(2.4)</sup> minus tide lays in latitude  $56^{\circ} 37\frac{1}{2}'$ , longitude  $157^{\circ} 53\frac{3}{4}'$ . It is not marked by kelp.

Station ME is situated on a rocky islet in latitude  $56^{\circ} 39\frac{1}{2}'$ , longitude  $157^{\circ} 46\frac{1}{2}'$ . A series of reefs extend from this islet northwesterly toward the beach. An isolated reef is a quarter mile west of ME.

North and northwest of signal PA, a rocky islet in latitude  $56^{\circ} 36\frac{3}{4}'$ , longitude  $157^{\circ} 42'$  are several dense kelp patches extending to the beach.

Sitkum Bay west of longitude  $157^{\circ} 59'$  is very shoal, with frequent sand bars and according to the local fisherman, large boulders in an area east of the headland. It cannot be navigated except by shallow draft launches.

SURVEY METHODS: (The hydrography of Sitkum Bay) The western end of the Bay from a line south of triangulation station Julik is quite shallow and after running several sounding lines across the bay at irregular intervals the depths were found to be so shallow that further development did not seem worth while. This is especially true when it is considered that this part of the Bay is of very little commercial importance and it would have been necessary to do the greater part of it at high water.

The hydrography east of longitude  $157^{\circ} 59'$  was done by the steamer Anne W. Wherever practicable a twelve pound hand lead was used. Where the depth was too great to permit of this method a steam sounding machine was used with stranded wire and a twenty pound lead. Lines were run normal to the general trend of the coast and spaced in accordance with paragraph #22 of the Field Instructions. The lines were split in several areas where a sudden shoaling indicated a possible existence of dangers to navigation. In the majority of cases compass courses were steered, but ranges were used wherever available.

Signals were chiefly triangulation stations and natural objects located first by sextant cuts and later corrected to correspond with the location as determined by the topography of the area.

In sounding about the extensive reef making out from the group of islands in latitude  $56^{\circ} 36'$ , longitude  $157^{\circ} 41\frac{1}{2}'$ , care was taken to locate definitely the limits of the kelp. As the reef bares only at lower low water there was only opportunity to locate any of the individual rocks. More extensive work was done on this reef on hydrographic sheets "A" and "5". The three sheets combined give a good location of the reef.

TIDES AND CURRENTS: A portable automatic tide gauge was installed on a fish trap off station Julik in Sitkam Bay. A continuous record was kept from the middle of July to the end of August. All soundings on this sheet were reduced from this data. No current observations were made, but slight drift of the launches while sounding indicates there is no marked current in this vicinity.

CHARACTER OF BOTTOM: The bottom is chiefly sandy and soft. Nearby reefs and at times close by the shore a rocky bottom was found. The head of the bay is sandy and in places cover with broken shell. There are also large areas on the bottom in the head of the Bay that are covered with eel grass. This grass does not reach to the surface of the water. As a whole the bottom of the bay is fairly regular. In two instances only was it considered necessary to run splits between the regular sounding lines.

ANCHORAGES: Several anchorages were used by the DISCOVERER and Anne W. while working in this vicinity. An anchorage satisfactory in north-westerly weather with 3 to 6 fathoms of water and soft bottom may be had  $\frac{3}{4}$  mile off shore in the vicinity of stations Julik and Iowa.

Another anchorage is in 6 to 10 fathoms of water, soft bottom, and  $1\frac{1}{4}$  miles due south of signal WATER. The isolated reef before mentioned in latitude  $56^{\circ} 37\frac{1}{2}'$ , longitude  $157^{\circ} 53\frac{1}{2}'$ , which bears only at a minus tide, renders the approach to anchorage rather hazardous.

A splendid anchorage, about  $1\frac{1}{4}$  miles northeast of station KUJU, for northerly weather, was made use of by the Anne W. The water is from 6 to 8 fathoms deep, and the bottom sandy. It was found that a wind pocket caused almost dead calm in this anchorage while northerly winds blew up to force "8" a mile either side.

An anchorage for southerly weather may be had by small boats to the west of the group of small islands in latitude  $56^{\circ} 34\frac{1}{2}'$ , longitude  $157^{\circ} 58\frac{1}{2}'$ . The depth is two fathoms for a very limited space and the bottom soft.

Respectfully submitted:

*Robert W. Knox*

Robert W. Knox,  
Jr. H. & G. Eng'r.

Approved and forwarded:

*Clem L. Garner*

Clem L. Garner,  
H. & G. Eng'r.  
Chief of Party.

*Records stamped and approved*

*July 25-31 and Aug 5-1925*

*Clem L. Garner*  
*Chief of Party.*

STATISTICS SHEET  
to accompany

Hydrographic Sheet No. 4

SITKUM BAY

Date	Letter	Volume	Positions	Soundings	Miles statute	Vessel
1925						
Jul 21	a	1	50	53	11.6	Anne W.
" 23	b	1	125	257	35.3	" "
" 24	c	1	138	258	29.3	" "
" 24	a	4	99	580	17.0	Port M.S.
" 25	d	1	80	136	14.4	Anne W.
" 25	b	4	155	622	25.0	Port M.S.
" 27	e	2	38	71	12.0	Anne W.
" 28	f	2	67	136	28.3	" "
" 29	g	2	64	119	26.7	" "
" 30	h	2	21	39	8.7	" "
Aug. 5	j	2	84	165	26.5	" "
" 6	k	3	77	109	19.0	" "
Totals	12	4	996	2545	253.8	Totals

Area in sq. statute miles - - 34

~~Division of Hydrography and Topography:~~

Division of Charts:

Tide reducers are approved in  
4 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4510

Locality: SW Alaska

Chief of Party: CL Garner in 1925

Plane of reference is MLLW  
5.4 ft. on tide staff at Sitka Bay  
6.3 " " " " ChignikFor 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 in 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.

*G. W. Rust*  
Chief, Division of Tides and Currents.

*Montgomery*  
~~P.C.M.~~

~~2 copies Alaska~~  
11

C to 7 days verified by H. W. Woodman

These days were in the  
sounding records with 4506

T-4510

The following names were approved by the U.S.G.B. and added to the sheet --

BIG SALTERY ISLAND	in Beecher Pass	Lat $56^{\circ} - 36'$	Long $133^{\circ} - 01'$
LITTLE SALTERY ISLAND	" " "	Lat $56^{\circ} - 35.7'$	Long $133^{\circ} - 01.6'$
PEARL ISLAND	" " "	Lat $56^{\circ} - 36.0'$	Long $133^{\circ} - 02.7'$

CRB

10-15-34



DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

October 11, 1926.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4510

Sitkum Bay, Alaska Peninsula

Surveyed in 1925

Instructions dated March 25, 1925 (DISCOVERER)

Chief of Party, C. L. Garner.

Surveyed by R. W. Knox, T. T. Davey.

Protracted and soundings plotted by T. T. Davey.

Verified and inked by H. E. MacEwen.

1. The records conform to the requirements of the General Instructions except that cuts to important breakers shown on the boat sheet were not always recorded in the sounding records. Further, a different color day letter should have been used in the records for the motor sailer work. This was changed in the office to blue, ~~to conform to the smooth sheet.~~
2. The plan and character of development conform to the requirements of the General Instructions.
3. The plan and extent of the survey satisfy the specific instructions except that the work was not carried close enough inshore and also certain shoal indications were not developed. These will be mentioned in subsequent paragraphs.
4. A comparison of adjacent sounding lines and at intersections of cross lines shows a generally good agreement.
5. The information is insufficient for drawing the usual depth curves. The 20 and 50 fathom curves are practically the only ones that were completely developed in the outer part of the bay. The development of the shoal area at the head of the bay was sufficient to completely draw the 1, 2 and 3 fathom curves <sup>except</sup> in the area east of  $\odot$  Squab.  
A

6. The usual field plotting was done by the field party. The protracting was well done, but the penciled soundings were too large and were not always correctly spaced. The position numbers and day letters were also too large and were carelessly made. The work on C', D', and F' days (red) was plotted on this sheet in the office from the records for H. 4506, on which sheet it was originally intended to be included. This work is filed with the records for H. 4506 (Vol. 7).

7. The junctions with H. 4506 and H. 4495 will be taken up in the reviews for those sheets.

8. Additional work will be needed as follows:

- adequate*  
a. The limits of the large flat in Sitkum Bay should be determined.
- OK*  
b. A closer development of the small boat channel leading into the head of Sitkum Bay in the vicinity of lat.  $56^{\circ} 34'$ , long.  $157^{\circ} 59'$ .
- OK*  
c. A development of the area east of  $\odot$  Squab (lat.  $56^{\circ} 34 \frac{1}{2}'$ , long.  $157^{\circ} 58 \frac{1}{2}'$ ) with particular attention to defining the 2 fathom curve.
- OK*  
d. The important 9 and 10 fathom soundings in the vicinity of lat.  $56^{\circ} 36'$ , long.  $157^{\circ} 52'$  indicating possibilities of a shoal should be investigated.
- OK*  
e. The area around  $\Delta$  Anch (lat.  $56^{\circ} 35 \frac{1}{2}'$ , long.  $157^{\circ} 51'$ ) as well as the area surrounding the reef about  $\frac{1}{2}$  mile to the southwestward should have additional soundings.
- OK*  
f. A development of the area in the vicinity of the 14 and 20 fathom soundings in lat.  $56^{\circ} 33 \frac{1}{2}'$ , long.  $157^{\circ} 47'$ .
- OK*  
g. The 21 fathom sounding in lat.  $56^{\circ} 33'$ , long.  $157^{\circ} 45 \frac{1}{2}'$  is checked by other soundings shown on H. 4506, but additional soundings are nevertheless needed. If much shoaler water is disclosed the area should be wire dragged.
- OK*  
h. The 10 and 12 fathom shoals in lat.  $56^{\circ} 34'$ , long.  $157^{\circ} 46 \frac{1}{2}'$  and lat.  $56^{\circ} 33 \frac{1}{2}'$ , long.  $157^{\circ} 45'$  respectively should be wire dragged to determine the least water since they lie close to the best range for entering the bay.

*Off L. entrance  
point along N.  
shore E. of 157° 57'*

1. An extension of the work closer inshore, along the entire sheet except where hampered by too much kelp or dangerous reefs.

9. Attention is called to the following:

a. The 2/6 fathom sounding shown in lat. 56° 37' 920 m., long. 157° 53' 680 m. will not be found in the sounding records for this sheet. The only authority for the location of this is a rock awash symbol on the boat sheet and which was also plotted on the smooth sheet by the field party. The verifier found no mention made of this rock in the sounding records and no cuts have been recorded. The rock awash symbol was changed to a 2/6 fathom sounding in the office in consequence of a note in the descriptive report that the rock bares at a 2.4 ft. minus tide.

b. The sunken rock in lat. 56° 36' 620 m., long. 157° 43' 380 m. was transferred from the boat sheet where several cuts are shown to breakers and marked with a rock awash symbol. This symbol was changed to conform to office practice. The field party had plotted this work on the smooth sheet about 300 meters to the northeastward of the boat sheet position. This was assumed to be an error and not the existence of another rock.

It is to be noted that no reference was made in the records relative to these two important rocks, although the boat sheet clearly indicates that cuts were taken. This seems to be generally characteristic of the sheet and many of the less important rocks were also transferred from the boat sheet. Where a topographic location for a rock was shown that was usually accepted.

10. Character and scope of surveying - good.  
Field drafting - good.

11. Reviewed by A. L. Shalowitz, October, 1926.

Note: C', D' and F' (red) days on this sheet are taken from the sounding records of H. 4506, where they are recorded as C, D, and F days (red).

*ASB  
LSP*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

4510

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.

Register No. (4) 4510

State . . . South West Alaska . . . . .

General locality . . . Alaska Peninsula . . . . .

Locality . . . Sitka Bay . . . . .

Chief of party . . . Clem L. Garner . . . . .

Surveyed by . . . Robert W. Knox, T.T. Davey . . . . .

Date of survey <sup>July 24 to</sup> August 6, 1925 . . . . .

Scale . . . 1 : 20,000 . . . . .

Soundings in . . . Fathoms . . . . .

Plane of reference . . . Mean Lower Low Water . . . . .

Protracted by T.T. Davey. Soundings in pencil by T.T. Davey

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

Records accompanying sheet (check those forwarded):

Des. report, 0 Tide books, \* Marigrams, 2 Boat sheets,

4 Sounding books, 0 Wire-drag books, 0 Photographs.

Data from other sources affecting sheet none . . . . .

Remarks: