

4482

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DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
R. S. PATTON *Director*

C. & G. SURVEY  
L. & I.  
FEB 17 1930  
Acc. No.

State: ALASKA

DESCRIPTIVE REPORT

Topographic | Sheet No. #L 4482  
~~Hydrographic~~

LOCALITY

WEST COAST KODIAK ISLAND  
STURGEON RIVER TO HALIBUT BAY

SEPT  
19 29

CHIEF OF PARTY

R. R. LUKENS

DESCRIPTIVE REPORT TO ACCOMPANY TOPOGRAPHIC SHEET "L".

WEST COAST KODIAK ISLAND--STURGEON RIVER TO HALIBUT BAY

STR. SURVEYOR

R.R. LUKENS, COMMANDING

INSTRUCTIONS DATED MARCH 14, 1929.

4487

GENERAL DESCRIPTION

This is a mountainous region except for the broad valleys in which Sturgeon River, Grant Lagoon, and Halibut River are located. The trend of the mountain ridges is in an easterly and westerly direction, with smaller ridges branching off in a northerly and southerly direction. These ridges are moderate in slope and grass covered, except where they terminate in steep, eroded cliffs at the shoreline. The valleys are filled with heavy growths of grass.

STURGEON RIVER is a broad, shoal river, with tide water reaching one or two miles upstream. Its banks are about ten feet high. At low water extensive mud flats and sand bars are exposed, and the average depth in the channels is about two feet. Although Sturgeon River is over a mile broad near its mouth, a sand spit at its mouth constricts the water flow to a narrow channel about 100 meters wide. When the tide is at full strength the current has an estimated velocity of about five knots through this channel. The barrier sand spit is covered with grass and quantities of drift wood. The beach consists of smooth, round, granite boulders, about one foot in diameter.

From Sturgeon River to Cape Sturgeon the coast is bold and precipitous, with light gray cliffs about a thousand feet high at the terminations of the ridges. Large blocks of rocks and rocky ledges lie at the base of these cliffs.

Sturgeon Head CAPE STURGEON is a bold, jagged, headland of light gray rock.

A number of inshore reefs lie at the base of the cape.  $57^{\circ} 30'$   $154^{\circ} 38'$

A broad, sand beach  $\frac{3}{4}$  mile long extends south of Cape Sturgeon.

A small valley lies inshore of this beach.

South of this beach is another bold and precipitous cliff, similar in character to Cape Sturgeon. Large boulders and blocks of rock lie at its base.

A broad sand spit over a mile long extends south from this cliff. The spit is about fifteen feet high with steep banks scoured by the action of the sea at high water mark.

GRANT LAGOON lies behind this sand bar. It is shoal, with mud flats and sand spits exposed at low tide. The banks of the lagoon are about twenty feet high. The entrance to Grant Lagoon is constricted by the long sand spit to a narrow entrance channel, where the current flows with a velocity of about five knots at full strength of tide. A trapper's cabin is situated south of the entrance to Grant Lagoon in the protection of the beach barrier ridge.

Rugged, bold cliffs extend southward from Grant Lagoon to Cape Grant. Rocks and rocky ledges fringe the base of these cliffs.

CAPE GRANT is a grass covered headland bound by bold and rugged cliffs. A sharp pinnacle rock (O Pin) is situated near the summit of the ridge back of Cape Grant. Rocky ledges fringe the base of Cape Grant. A reef covered two feet at low tide lies  $\frac{1}{4}$  mile southwest of Cape Grant. Extensive beds of giant kelp surround the cape at a distance of about  $\frac{1}{4}$  mile offshore.

A broad sand beach lies inside the bight of Cape Grant and extends southward in Halibut Bay. Back of this beach are eroded banks about 80 feet high at the north end gradually diminishing to about 10 feet high at the southern end of the sheet. Grass plains extend back of these banks. A small fresh water lagoon lies about  $1\frac{1}{2}$  miles south of Cape Grant. Several old cabins, half buried in the earth banks, are situated at the north end of this lagoon.

Conspicuous eroded yellow banks along the shore lie south of this little lagoon.

#### ROCKS AND REEFS

A conspicuous, spire like, pinnacle rock, 170 feet high lies close to shore about midway between Sturgeon River and Cape Sturgeon. Signal Tip marks the seaward face of this rock.

There are a group of rocks around  $\Delta$  Stur. Most are covered at high tide, but two are between 20 and 30 feet high.

There are a number of reefs at the base of Cape Sturgeon. oBrick is a reef which bares about 12 feet at MLLW. oSto, the middle of three reefs, bares 13 feet at MLLW.

There is a group of reefs about 300 meters off the cliff south of Grant Lagoon. Signal oGoat marks the highest of these. It is covered about one foot at high water.

A submerged reef covered about two feet at low water lies approximately  $\frac{1}{4}$  mile W. by S. of Cape Grant. This was determined by the hydrographic party and is shown on the hydrographic sheet (sheet #19).

#### S C RECOURSES

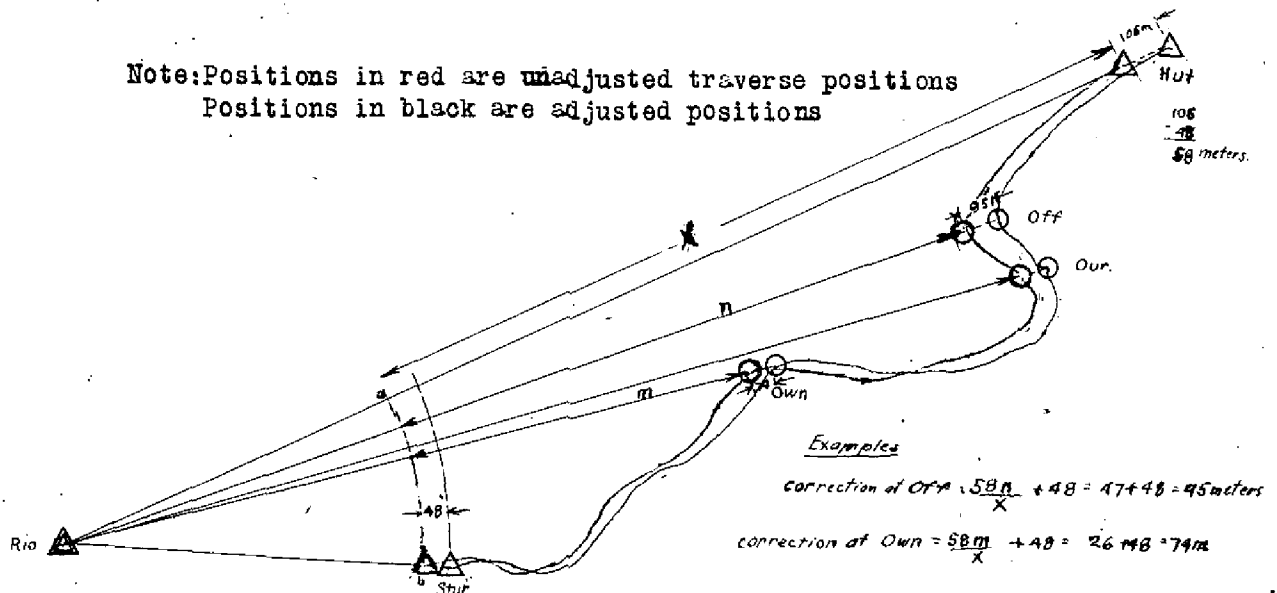
There is little activity in this region. Good duck hunting and salmon fishing exist up Sturgeon River and up Halibut River. Some trapping has been done in the vicinity of Halibut Bay.

#### SURVEY METHODS

The shoreline was surveyed by traverse. A traverse was run from  $\Delta$ Rio to  $\Delta$ Hut with a closure of 106 meters in a 13 mile traverse. Subsequent to the running of this traverse  $\Delta$ Stur was located, breaking this distance into two traverses, one  $3\frac{1}{2}$  miles long, the other  $9\frac{1}{2}$  miles

long. The traverse from  $\Delta$  Rio to  $\Delta$  Stur,  $3\frac{1}{2}$  miles long, closed with an error of 48 meters. This was excessive. It was suspected that most of this error was along the beach between  $\Delta$  Rio and  $\odot$  Old, because when this section was originally run the heat waves were excessive. The traverse was rerun therefore from  $\Delta$  Rio to  $\odot$  Old. At  $\odot$  Old the error was reduced to zero. The remaining shoreline to  $\Delta$  Stur was shifted the constant distance of 48 meters. The error remaining between  $\Delta$  Stur and  $\Delta$  Hut was 56 meters. This traverse being  $9\frac{1}{2}$  miles long made the closing error 6.1 meters per mile. This closing error was distributed proportional to the distance from the triangulation station, Stur. The following diagram shows the method used in shifting the shoreline and distributing the error.

Note: Positions in red are unadjusted traverse positions  
Positions in black are adjusted positions



**Note:**

The azimuths from  $\Delta$  Rio to each point shifted was maintained. The distances were shifted the constant distance 48 meters plus the factor,  $\Delta$ 500, measured from the arc, ab.

A subordinate traverse was run along the western bank of Sturgeon River for a distance of  $1\frac{1}{2}$  miles, and along the eastern bank for a distance of one mile. This was run in order to secure contours as well as to determine the shoreline of Sturgeon River. A subordinate traverse was run along the southwestern bank of Grant Lagoon in order to secure contours as well as to determine the shoreline of Grant Lagoon. The northeast bank was determined by cuts to logs on the beach of this shore.

CONTOURS. Most of the contours and elevations were determined by sextant cuts from a launch laying-to at positions about

one mile offshore.

**DISTORTION.** During the later part of the survey while the traverses along Grant Lagoon and Sturgeon River were run and while the contours were being determined, the sheet was in a distorted condition, being contracted on an average of 7.4 meters per mile in a north and south direction, and 9.3 meters per mile in an east and west direction. This distortion was not quite uniform over the sheet.

#### COMPARISON WITH OLD SURVEY

The shoreline of Cape Grant and Halibut Bay from  $\odot$  Or to  $\odot$  End is a resurvey, executed principally to locate hydrographic signals. The shoreline of the two surveys around Cape Grant and of Halibut Bay to  $\odot$  Mom, coincided well. From  $\odot$  Mom to  $\odot$  End the shoreline of the present survey is about 10 meters east of the old survey. This may be due to beach erosion or a difference in judgement as to where the high water line came.

#### PHOTOGRAPHS

Two photographs are attached to this report.

#### NEW PLACE NAMES

NAME SUGGESTED	REASON FOR NAME
Cape Sturgeon ✓ $57^{\circ}30' - 154^{\circ}38'$ <i>To GB Capt Lukens says this is locally known as Sturgeon Head. This name may be used without referring to Reg. Board. H.B.</i>	Named from $\Delta$ Sturgeon on summit of cape. (Name suggested by field party)
Grant Lagoon $57^{\circ}28' - 154^{\circ}39'$ <i>To GB</i>	Named from Cape Grant which is southwest of lagoon (Name suggested by field party)

*Approved  
A. P. Lukens*

*L. S. Hubbard*  
 L. S. Hubbard, Topographer

PLANETABLE POSITIONS

OBJECT AND DESCRIPTION	LATITUDE	D.M. meters	LONGITUDE	D.P. meters	HEIGHT feet
TIP, whitewash on seaward face of spirelike, pinnacle rock, 170 feet high.	57-31	79 (1777)	154-35	954 (45)	
AM, bronze disk in double headed rock 20' high	57-30	1575 (281)	154-36	798 (201)	
BRICK, black reef baring about 12' at MLLW.	57-30	835 (1021)	154-38	24 (975)	
STO, middle reef in group of three: bares 13' MLLW.	57-30	367 (1489)	154-38	371 (628)	
NIL, whitewash on tip of rocky projection--on vertical face above HW.	57-29	228 (1628)	154-38	426 (573)	6
CONE, top of cliff, one mile north of Grant Lagoon	57-28	1544 (312)	154-38	667 (332)	1515
GOAT, middle and highest reef in group of three-- covers about 1' at high water	57-26	1643 (213)	154-41	539 (461)	
OUR, black islet 50 meters S.W. of high, grass capped pinnacle rock	57-25	71 (1785)	154-43	163 (838)	
HUT, old hut, half buried in side of earth bank	57-23	902 (954)	154-42	177 (825)	
BAN, bronze disk set in 4"x4" concrete block projecting 4" above ground. South of huts on edge of grass line on sand spit.	57-23	850	154-42	200	



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REG. NO. 4482

## TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field Letter #1REGISTER NO. **4482**State ALASKAGeneral locality ~~WEST COAST~~ KODIAK ISLANDLocality STURGEON RIVER TO HALIBUT BAYScale 1-20,000 Date of survey Sept 1929, 19Vessel STR. SURVEYORChief of Party R.R.LUKENSSurveyed by L.S.HUBBARDInked by L.S.HUBBARDHeights in feet above M.H.W. to ground to tops of treesContour Approximate contour Form line interval 100 feetInstructions dated MARCH 14 1929, 19

Remarks: \_\_\_\_\_