4160

Diag. Cht. No. 8102-2

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

U. S. & G. SURVEY
L. & A.
APR 4 - 1921
Acc. No.

State: S. E. Alaska

11—5613

DESCRIPTIVE REPORT.

Hy 1. Sheet No. 4160

LOCALITY:

Dixon Entrance -
Nichols Bay -
Cape Chacon

1920

CHIEF OF PARTY:

T. J. Maher.

4160

Form 537
11—5812

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.

Register No. 1 4160

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

General locality . Dixon Entrance, Prince of Wales Id.

Locality . . Nichols Bay, . Cape Chacon (Stone Rock) . . . . . .

Chief of party . . T. J. Maher, . H.& G.E. . . . . .

Surveyed by . F. L. Peacock, . G. L. Bean . . . . . .

Date of survey . July, ~~August~~ October, 1920 . . . . . .

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

Soundings in . . fathoms reduced to feet . . . . . .

Plane of reference . . M.L.L.W. . Staff, Nichols Bay . .

Protracted by G.L.B.-E.C.B.-C.E.C. Soundings in pencil by - E M Vincent F M Albert . . . .

Inked by ~~G.L.B.-E.C.B.-C.E.C.~~ Verified by . ~~F.L.P.~~ F M Albert . . . . . .

Records accompanying sheet (check those forwarded):

2 Des. report, 3 Tide books, ... Marigrams, 2 Boat sheets,

12 Sounding books, ... Wire-drag books, ... Photographs.

Data from other sources affecting sheet . Wire drag boat sheet

Remarks:

DEPARTMENT OF COMMERCE
U.S.Coast and Geodetic Survey

E. Lester Jones, Director.

SOUTHEASTERN ALASKA

Descriptive Report

to accompany

Inshore Hydrographic Sheet of Cape Chacon

and Vicinity

Prince of Wales Island

Hydrography Executed During June, July, August and September,

1 9 2 0

by

Fred. L. Peacock, H. & G. E.

Steamer WENONAH

T. J. MAHER, H. & G. E.,

Chief of Party.

DEPARTMENT OF COMMERCE
U.S.Coast and Geodetic Survey

E. Lester Jones, Director

Steamer Wenonah

T. J. Maher, H.& G.E.,
Chief of Party.

Season: 1920

DESCRIPTIVE REPORT TO ACCOMPANY INSHORE HYDROGRAPHIC SHEET OF CAPE CHACON AND VICINITY, PRINCE OF WALES ISLAND, S. E. ALASKA.

Extent:

The inshore area of Prince of Wales Island from the Longitude of Triangulation Station Surf eastward to Cape Chacon thence northward to Latitude 54° 45' N. the offshore limit being approx. the 54° 39' N. parallel on the south and just outside the 100 fathom curve rounding Cape Chacon and on the east. This includes a close development of Nichols Bay and development of the shoal area surrounding Nunez Rocks.

N.B. Such portions of the above hydrography as were executed by Mr. Geo. L. Bean, H. & G.E. are described in an accompanying report.

Method and Control:

The steam launches "#117"and"Delta" were used. All soundings are up and down. The launch #117 was equipped with a Ballauf hand sounding machine, the "Delta" with a Cosmos sounding machine operated by a small three-cylinder steam engine. 12 to 20 lb leads were used with the hand machine and 20-lb leads in connection with the Cosmos steam machine. Regulation stranded wire was used in all cases. A 16-lb lead was found to be effective for the greater depths with the hand machine and was the greatest weight which could be handled with facility. 12-lb leads were found to be too light for depths exceeding 60 fathoms. The Cosmos steam machine handled the 20-lb lead with 100% efficiency. The handlead was used only in seaching for the least depths on shoals and in close inshore development.

Positions were determined by the usual three-point method. Most of the signals used were located by a topographic party from triangulation control. Most of them were whitewashes on rocks. A few supplementary signals were located by means of sextant angles by the hydrographic party. The proposed general system was 200 meter-lines but it was found necessary to execute a large amount of close development on account of the irregularity of the

bottom. Practically all of the hydrography executed during the month of July was done enroute to wire drag work and in odd intervals in the prosecution of the wire dragging.

Bottom Characteristics:

The bottom of the inshore area is, in general, irregular and rocky. Most rocky areas having depths less than five fathoms are marked by kelp which, however, frequently tow under at the strength of the tidal current.

Tidal Currents:

Tidal currents are strong in this vicinity and are considerably influenced in strength and direction by local winds. Their general direction and strength is commented on in the report accompanying the wire drag sheet of this area as adequately as possible without a more extended study of them than was obtained during the progress of the hydrography. Inshore eddies are common. Tiderips are frequently encountered off triangulation station Surf, off the entrance to Nichols Bay, in the vicinity of Nunez Rocks, off Cape Chacon and in the vicinity of Stone Rock.

Anchorages:

The only anchorages in this area are in Nichols Bay. There are three which can be used by vessels up to 600 tons. These anchorages have excellent protection and their chief fault is limited swinging room.

The one used by the Wenonah during the 1920 season was in the first bight and is apparently the best.

The other two are in the second bight and at the head of the bay respectively. All furnish anchorage in about 15 fathoms, mud bottom with moderate swinging room.

Small fishing craft with local knowledge anchor in the two small bights between the three islands just within the entrance, access to which is by the south channel. These bights are not clear and should be entered with extreme caution and by small craft only.

The south channel is not recommended for any but small craft with local knowledge as hidden dangers are to be found close to the clear water on either hand.

Directions for use of the north channel are found in Mr. Geo. L. Bean's report accompanying the Wire Drag Sheet of this area.

Dangers:

Attention is directed to the sunken rock on the port hand side of the north channel entering Nichols Bay about 550 meters south of signal End, Position 24 d' day, with 15 feet of water over it. This rock is of particular menace to an attempt to make use of the south channel. Other dangers near the usual traffic routes are called attention to in Mr. Bean's report accompanying the wire drag sheet.

A new rock bare at extreme low waters was found about 250 meters NW x W of Stone Rock.

Traffic:

The traffic in these waters is principally fishing craft and small coastwise vessels.

It was noted that many of these vessels, even those of larger size, frequently passed inshore of Stone Rock, rounded Cape Chacon close to inside the rock awash to the southeastward and proceeded westward inside of Nunez Rocks.

Statistics Sheet "A"

Date 1920	Letter	Vol.	Positions	Soundings	Miles Statute	Vessel
July 3	a	1	62	62	8.6	Launch #117
Aug 23	a	1	50	87	10.1	" Delta
July 5	b	1	16	16	1.4	" #117
Aug 25	b	1	77	108	15.0	" Delta
July 6	c	1	7	7	.5	" #117
Aug 27	c	1	97	139	22.0	" Delta
July 8	d	1	93	134	12.5	" #117
Aug 28	d	1	37	47	8.3	" Delta
July 9	e	1	53	93	8.0	" #117
Sept 16	e	1	92	150	17.0	" Delta
July 10	f	1	40	61	4.8	" #117
Sept 17	f	1	37	58	8.8	" Delta
July 12	g	1	69	123	10.0	" #117
July 12	g	2	27	45	3.4	" "
Sept 21	g	2	53	85	8.8	" Delta
July 13	h	2	12	21	1.8	" #117
Sept 23	h	2	25	46	3.9	" Delta
July 14	i	2	72	110	9.9	" #117
Sept 24	j	2	78	144	10.6	" Delta
July 16	K	2	31	42	2.0	" #117
Oct 4	K	2	32	60	6.0	" Delta
July 28	l	2	6	13	1.0	" #117
Oct 5	l	2	139	255	16.2	" Delta
July 30	m	2	17	30	2.4	" #117
Oct 6	m	2	54	92	8.5	" Delta
July 31	n	2	3	4	0.0	" #117
Oct 7	n	3	74	117	8.8	" Delta
Oct 8	o	3	66	107	5.8	" "
Aug 2	P	2	1	1	0.0	" #117
Aug 3	q	2	39	63	4.5	" "
Aug 10	r	3	38	66	4.2	" "
Aug 11	s	3	65	125	6.6	" "
Aug 12	t	3	70	144	7.6	" "
Aug 21	u	3	10	19	1.0	" "
Aug 23	V	3	65	115	6.9	" "
Aug 23	V	4	74	128	8.2	" "
Aug 24	W	4	115	214	16.5	" "
Aug 25	x	4	115	181	15.0	" "
Aug 25	X	5	29	51	4.1	" "
Aug 26	y	5	104	197	11.6	" "
Aug 27	z	5	133	196	17.2	" "
Aug 28	a'	6	57	135	7.7	" "
Sept 15	b'	6	14	22	2.0	" "
Sept 16	c'	6	1	1	0.0	" "
Sept 17	d'	6 b	125	298	16.8	" "
Sept 18	e'	7	83	156	12.5	" "
Sept 20	f'	7	35	85	3.4	" "
Sept 21	g'	7	96	263	8.5	" "

Date 1920	Letter	Vol.	Positions	Soundings	Miles Statute	Vessel
Sept 22	h'	7	16	46	2.8	Launch #117
Sept 22	h'	8	93	182	12.2	" "
Sept 23	i'	8	65	114	5.5	" "
Sept 24	K'	8	142	266	12.8	" "
Sept 25	l'	8	3	3	0.0	" "
Oct 4	m'	9	66	120	12.8	" "
Oct 5	n'	9	96	162	12.3	" "
Oct 7	o'	9	90	164	9.5	" "
Totals			3259	5773	438.3	

AREA: 33 sq: stat. miles

The above stastics include the work of both the launch hydrographic parties.

Respectfully submitted,

Fred. L. Peacock

FRED. L. PEACOCK,
H. & G. Engr.

Approved,

T. J. MAHER, H. & G. E.,
Chief of Party.

DEPARTMENT OF COMMERCE
U.S.Coast and Geodetic Survey

Col. E. Lester Jones, Director.

S. E. ALASKA

Descriptive Report of Hydrography done by the

Str. Launch Delta

to accompany

Hydrographic Sheet of Cape Chacon and Vicinity,

Prince of Wales Id.

Hydrography covered by this report done during

August & Sept. 1920.

By. GEO. L. BEAN,
Jr.H.& G.Engr.
Steamer WENONAH.

T. J. MAHER,
H.& G.Engineer,
Chief of Party.

DESCRIPTIVE REPORT

HYDROGRAPHY

Cape Chacon and Vicinity, Prince of Wales Id. S.E.Alaska.

LIMITS. - The inshore area from 132° 04' W.Long. or two (2) statute miles West of Cape Chacon to 54° 44' N. Lat. or about three (3) statute miles North of Cape Chacon, it extends out to the 100-fathom curve except on the southern edge where it is limited by the parallel of 54° 38' N. Lat. A small area about 5 miles west of Cape Chacon bounded on the East by 132° 08' W. Long. on the West by 132° 10' W. Long. on the North by 54° 41' N/ Lat. and on the South by 54° 39' N. Lat. A small amount of hydrography in this area was also done by Mr. Fred. L. Peacock, H.& G. Engr. with another party.

METHOD OF CONTROL. - The steam launch Delta was used. On the first day a Lietz hand sounding machine was used with a 12-lb lead and stranded wire. After this a Cosmos power machine was used, driven by a three cylinder steam engine. A 20-lb lead and stranded wire were used. All soundings were up and down with the launch stopped.

The usual three-point method with sextant angles was used to determine positions. The signals used were located by a topographic party with triangulation control and several of the triangulation signals were used. Most of the signals were whitewashs but a few were tripod signals or banners, and one or two were natural objects. A great deal of this area was covered by wire drag, so that too close development was not considered necessary.

PHYSICAL CHARACTERISTICS. - The shore line is bold, very irregular, and made up entirely of rugged ledges and cliffs rising sharply from the waters edge. Altho there is good water up to the kelp line jagged rocks and reefs extend 500 meters offshore to the west of Cape Chacon. A large rock, bare at extreme low tide, lies 250 meters S.E.of Cape Chacon, while depths of from 10 to 20 fathoms were obtained between it and the Cape. North of Cape Chacon are several rocks, one to two hundred meters offshore. A large shoal is located about 2-1/2 miles north of the Cape and about 1200 meters offshore. Fish traps are located along the shore during the salmon season and extend as much as 500 meters offshore in some cases. Kelp grows plentifully along the shore and on the rocks, but it is often towed under by the strong tidal currents.

The bottom is uneven but slopes fairly regular to the westward of the Cape. For two miles north of the Cape it is fairly regular out to the 80-fathom curve where it drops abruptly to 100 fathoms and over. From two miles north of the Cape it is very uneven and for a mile offshore many small shoals and one of considerable extend were found. The bottom is hard and rocky with broken shell and in the vicinity of the Cape, white and pink coral was brought up.

Cape Chacon is prominently marked by three cones. The outer two are sharp, the inner flat topped - the outer one forming the extremity of the Cape.

CURRENTS. - Strong tidal currents are encountered over the entire area, especially near the Cape. Within 500 meters of the Cape the current was found to be always to the westward, altho, comparatively weak on the flood and reaching an estimated maximum of 3 to 4 knots on the ebb. This causes severe tide rips.

To the westward and south of the Cape the flood tide runs to the eastward, but at the Cape an eddy turns to the westward and close inshore to Nichols Bay. North of the Cape, on the flood tide, close inshore, an eddy acts to the southward while offshore it is to the northward but not very strong.

On the ebb tide the current is to the southward and westward except close inshore to the west of the Cape where it runs out of Nichols Bay to the eastward. The currents are strong except upon the neap tides, and large tide rips are likely to be found anywhere, but are stronger near the Cape. They are affected strongly by the storms and as no special observations were made, the above information is only general and is written principally from memory.

DANGERS. - Sixteen hundred meters W.by N. (true) from the Cape are some larger rocks, awash at half tide, and always breaking except in calm weather. They are 550 meters offshore. Two hundred meters further inshore is a large rock with an elevation of about 15 feet at high water; closer inshore and between it and the Cape are several rocks and reefs. These rocks are all surrounded by kelp. Westward from the Cape is a small island which with the shore line of the Cape forms a little bight. There are numerous rocks in this bight which is filled with kelp. It is rather shoal for a launch and was not developed. Very small and shallow fishing vessels might possibly find anchorage there, but local knowledge would be required.

About 1 mile north of the Cape a reef extends about 150 meters offshore but is awash at high water, and about three miles north of the Cape is a large rock about 70 meters offshore with an elevation of about 20 feet.

Two hundred meters S.E. x S. (true) from the extremity of Cape Chacon is a rock awash at extreme low water. In rough weather it breaks but the breakers can sometimes scarcely be distinguished from the tide rips.

A little over 2 miles N.N.E. (true) of the Cape is a large shoal about 1200 meters offshore. It is marked by kelp which is generally towed under by the strong tide. This shoal was developed closely and the least water found was 12 feet (M.L.L.W.). A ship is reported to have struck on this shoal but her draft is unknown.

About 2 miles north of the Cape and 700 meters offshore a shoal was closely developed but the least water found was 26 feet (M.L.L.W.). The bottom in this vicinity is irregular but no other shoals of importance were found.

ANCHORAGES. - There are no anchorages in this area, except that in calm weather small fishing craft may anchor in the bights.

TRAFFIC. - Large vessels passing the Cape keep from one to two miles offshore, and north of the Cape do not generally come closer than 2 miles. West of the Cape they pass from one to two miles off, either to clear Nunez Rocks or to make the entrance to Nichols Bay. An occassional freighter, lumber schooner, deep sea fisherman or cannery tender are the only large crafts frequenting these waters.

Many small fisherman use these waters and a considerable number of them pass inside the rock at Cape Chacon. To the north of Cape Chacon are several fish traps sites and trap tenders and fishermen pass close to shore and inside the shoals.

ROCKS AWASH AND SHOAL SOUNDINGS:

Rock 200 meters S.E.x S. (true) from Cape Chacon.	Lat. 54° 41' 512 m N. Long.132° 00' 909 " W.	
Shoal 2 miles N.N.E.(true) from Cape Chacon. Least water 12 ft.	Lat. 54° 43' 874 " N. Long.131° 59' 383 W.	
Shoal 2 miles of Cape Chacon 700 meters offshore. Least water 26 ft.	Lat. 54° 42' 1807 " N. Long.132° 00' 325 " W.	

HYDROGRAPHIC STATISTICS.

Launch DELTA.

Date 1920.	Letter day	No. of miles	No. of sdgs.	No. of positions	No. of angles
July 23	a	10.1	87	50	100
" 25	b	15.	108	77	154
" 27	c	22.	139	97	197
" 28	d	8.3	47	37	74
Aug. 16	e	17.	150	92	184
" 17	f	8.8	58	37	74
" 20	g	8.8	85	53	107
" 23	h	3.9	46	25	50
" 24	j	10.6	144	78	156
Sept. 4	k	6.	60	32	64
" 5	l	16.2	255	139	278
" 6	m	8.5	92	54	108
" 7	n	8.8	117	74	148
Totals		144.0	1288	845	1694

AREA: 16.5 Sq. miles (Statute)

TO THE DIRECTOR, Coast and Geodetic Survey
Washington, D.C.

Respectfully Submitted,

Geo. L. Bean

GEO. L. BEAN,
H.& G.E. Str. MENOMAH.

Approved.

T. J. MAHER,
Chief of Party.

ADDRESS THE ~~DIRECTOR~~ SUPERINTENDENT
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 41/VFB

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON May 6, 1921.

Division of Hydrography and Topography:

Division of Charts:

Tidal reductions are approved in
12 volumes of sounding records for

HYDROGRAPHIC SHEET 4160

Dixon Entrance, S.E. Alaska
T. J. Maher in 1920.

Plane of reference is
Mean lower low water, reading

4.7	ft.	on	tide	staff	at	Gardner Bay	
*10.6	"	"	"	"	"	Nichols Bay	(July 3-Aug. 3)
*10.9	"	"	"	"	"	" "	(Aug.3-Sept.1)
*11.2	"	"	"	"	"	" "	(Sept.1-25)
** 6.2	"	"	"	"	"	Ketchikan	

* Tide staff slipped

** Allowance made for difference in tide at place of soundings.
Used only for tide reducers on Sept. 15,1920.

Condition of records: Satisfactory.

G T Rude

Chief, Division of Tides and Currents.

Section of Field Records.

Report on Verifying and Inking Hyd. Sheet No. 4160.

In Vol. 5, p. 39 of Launch #117 Line begins at pos. 207 with a note of ~~running~~ ranging a range. The recorded angles, however, throw the line considerably to the N. and on pos. 21. It seems that there might be a discrepancy of 10° in the left angle but the position was accepted as plotted in the field. (E.P.E. agrees)

In Vol. 9, p. 39 of Launch #117 There is a note of passing thru shoal water (estimated 5 fms) No regular sounding is recorded but a sound of 4½ fms (reduced) was plotted between the last two sndgs of the line. (E.P.E. suggests).

General Remarks:

The records were in good condition but for the omission of courses. The protracting was very good although each position was not numbered according to the "Instructions".

At one point in the record there is a change of recorders. The second recorder noted the time of sounding and getting under way in a vague fashion. He should have used the form as in the other volumes giving time of stop, of sounding and of ahead.

Plotting of soundings was generally very good, though at times time interval was disregarded. The shapes of the members showed excellent drafting, rarely seen on pencilled sheets. The area appears to have been well covered.

This is the fourth sheet of this locality upon which the writer has been engaged and it is thought at least three of them could have been put on good quality paper. That which was used is of a poor grade.

Locations of sndgs referred to sounding volume (Vol 3):

Vol. 3, page 26, Launch #117
" 5 " 26, " #117
" 6 " 5, " #117
" 6 " 6, " #117 ⊙ SAC called SEC in record
" 6 " 7, " #117
" 6 " 10, " #117
" 6 " 34, " #117
" 6 " 38, " #117
" 7 " 48, " #117
" 7 " 49, " #117

Frank M. Albert

June 29, 1921.

DIRECTOR
ADDRESS THE SUPERINTENDENT
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS.

REPORT ON HYDROGRAPHIC SHEET No. 4160.

Surveyed in 1920.

Chief of Party: T. J. Maher. Surveyed by F. L. Peacock and G. L. Bean.

Protracted by G. Bean, E. C. Bennett and C. E. Cristophersen.

Soundings plotted by E. M. Vincent.

Inked and verified by F. M. Albert.

1. The records conform to the General Instructions except that the boat's courses were generally omitted.

2. The plan and character of development fulfill the requirements of the General Instructions. It should be noted however that the representation of rocks and reefs is unsatisfactory and misleading. Reefs that are covered all or a part of the time are shown by a line identical with the highwater line. Unless these discrepancies can be rectified by the cartographer from other sources than the hydrographic sheet the charts will contain serious errors. The different classes of rocks (dry, awash and sunken) should be clearly distinguished from each other. Also there should be no confusion between the reef symbol and highwater line. Nunez Rock, which is awash at half tide, is clearly shown on the sheet as an island 100 by 125 meters in size.

3. The plan and character of development is closer than called for in the specific instructions. In addition to the usual close development on shoals, the sounding lines are spaced only one-half the distance apart that the instructions directed.

4. The crossings of the sounding lines are adequate, as the differences that occur are probably due to the uneven bottom.

5. The development is sufficient for drawing the usual depth curves.

6. The plotting of the soundings, which should have been done in the field, was done by the office draftsman. Each position was

not numbered as directed by General Instructions. At times the time intervals were disregarded in plotting the soundings.

7. The office draftsman did not have to do over any part of the field drafting except the representation of rocks and ledges which required numerous corrections.

8. No additional leadline surveying is required within the area covered by this sheet.

9. This sheet, like the three other hydrographic sheets turned in by the WENONAH, is a poor grade of roll paper. This paper is unfit for smooth sheets and should never be used for that purpose if it can be avoided.

10. The surveying was good and protracting and plotting were also good, but the representation of rocks, which are important in the locality of this survey, was carelessly done. No effort appears to have been made to show them correctly.

11. Reviewed by E. P. Ellis, August, 1921.

12. Two copies of this report to be sent to the Division of Hydrography and Topography.