

4209

U. S. COAST AND GEODETIC SURVEY
JUN 1 - 1922

Diag. Cht. No. 8152-1

4209

Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: *S. E. Alaska*

11-5613

DESCRIPTIVE REPORT.

Hyd. Sheet No. *4209*

LOCALITY:

W. Coast Prince of Wales I.
Gulf of Esquibel

1921

CHIEF OF PARTY:

T. J. Maher.

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. 4209

State . . . **ALASKA**

General locality . **WEST COAST PRINCE OF WALES ISLAND**

Locality **GULF OF ESQUIBEL**

Chief of party . . **THOS. J. MAHER**

Surveyed by . . **R. W. HEALY. A. G. KATZ**

Date of survey . . **JUNE - SEPTEMBER. 1921**

Scale **1 : 20,000**

Soundings in . . . **FATHOMS**

Plane of reference . **MEAN LOWER LOW WATER**

Protracted by **M. WEISMAN** . Soundings in pencil by **J. A. BOND**.

Inked by *J. T. Torrey*. Verified by *J. T. Torrey*

Records accompanying sheet (check those forwarded):

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

21 Sounding books, Wire-drag books, Photographs.

Data from other sources affecting sheet

Remarks:

DESCRIPTIVE REPORT

To Accompany Hydrographic Sheet
of the

GULF OF ESQUIBEL

S. E. ALASKA

June 18 to October 20, 1921

T.J. Maher, Chief of Party

Descriptive Report
To Accompany Hydrographic Sheet No.
of the
Gulf of Esquibel

Limits of Sheet.

The hydrographic survey of the Gulf of Esquibel, done on a 1:20,00 scale, with the exception of Steamboat Bay and Garcia Cove where a 1:10,000 scale was used, includes the Gulf of Esquibel, and the coastline of Noyes and San Pedro Islands out to about 1-1/2 miles from shore, where the hydrography done by the Surveyor this season begins. It joins on the Northeast the hydrography of Bocas de Finas (Sheet No. 3540) done in 1913 by R. B. Derickson, on the East the hydrography of San Christoval Channel (Sheet No. 3539), also done in 1913 by R. B. Derickson; on the Southeast the hydrography of St. Nicholas Canal executed this season by a launch party from the Surveyor; and on the West, as mentioned above, the ship hydrography done this season by the Surveyor.

General Description of the Coast.

The coast in general is very bold with the land rising rapidly back from the shore line. The North and West coasts of Noyes and San Pedro Islands and the North coast of San

Lorenzo Island are very irregular and rocky, for the most part a rocky shelf dropping off rapidly into deep water with numerous detached rocks and large boulders extending for various distances out from the shore line. The East and South coasts of San Pedro Island and the East, South, and West coasts of San Lorenzo Island are also rocky shelves dropping rapidly off into deep water, but with few outlying rocks. The North coast of San Fernando Island, on the other hand, is low and flat to a distance well back from shore, where there is a series of peaks, ranging from 480' to 885' in elevation, none of which are prominent. On approaching this island from the direction of Noyes Island, the Hermagos Islands appear as a single island and well off shore.

Character of Bottom and Depths.

Except for a small area in the middle of the Gulf, the bottom is very irregular, rocky and sand bottom prevailing. In the center of the Gulf, mud bottom is the rule, and it is here that the maximum depth obtained (130 fathoms) occur. At the West entrance, between Noyes and San Pedro Islands, 50 fathoms is the general ^{depth, the} following shoal spots being exceptions. A 35 fathom shoal spot 0.8 miles S. (true) of ○ With, a 20 fathom shoal 0.7 miles SSE (true) of ○ With, and a 13

fathom shoal 0.7 miles NxW of Δ Shine. At the East entrance, North of Δ palisade, 25 fathoms is the general depth that can be carried there. In Arriaga Passage, the mean effective depth is 20 fathoms, with a 13 fathom shoal spot 0.9 mile ENE (true) of \odot Rab. Hard bottom is found thruout the entire passage. On the outside coasts of Noyes and San Pedro Islands, the bottom is rocky close to shore, but on leaving the shore changes to gravel and sand, with a small amount of shell and rock.

Shoal Areas.

The following shoal spots are included on this sheet, the directions given being true with North as the initial:

- ✓ A 10 fathom shoal 700 meters 222 degrees from Δ Pedro. ✓
- ✓ A 21 fathom shoal 908 meters 70 degrees from Δ Rip. ✓
- ✓ A 34 fathom shoal 1583 meters 179 degrees from \odot With. ✓
- ✓ A ¹⁹20 fathom shoal 1403 meters 150 degrees from \odot With. ✓
- ✓ A ¹⁴16 fathom shoal 1215 meters 117 degrees from \odot With. ✓
- ✓ A 12 fathom shoal 1190 meters 343 degrees from Δ Shine. ✓
- ✓ An 11 fathom shoal 1526 meters 71 degrees from \odot Rab. ✓
- ✓ A 23 fathom shoal 960 meters 259 degrees from Δ No. ✓
- ✓ A 10 fathom shoal ⁴⁰⁴778 meters 198 degrees from Δ No. ✓
- ✓ A 4 fathom shoal 600 meters 149 degrees from Δ No. ✓
- ✓ An 11 fathom shoal 728 meters 299 degrees from Δ Chi. ✓
- ✓ A 22 fathom shoal 793 meters 2³6 degrees from Δ Chi. ✓
- ✓ A 26 fathom shoal 1490 meters 218 degrees from Δ Chi. ✓

- A 49 fathom shoal about 2610 meters about 273° from ☉ Cor ✓
- A 44 fathom shoal about 2410 meters about 269° from ☉ Cor ✓
- A 42 fathoms shoal about 2520 meters about 264° from ☉ Cor ✓
- A 10 fathom shoal about 850 meters about 269° from ☉ Cor ✓
- An ~~8~~^{ft} fathom shoal about 390 meters about 270° from ☉ Cor ✓
- A 12 fathom shoal about 1035 meters about 257° from ☉ Cor ✓
- A ^{7 1/2} fathom shoal about 1070 meters about 243° from ☉ Cor ✓
- A ^{7 1/4} fathom shoal about 443 meters about 310° from ☉ Lax ✓
- A 10 fathom shoal about 1170 meters about 280° from ☉ Lax ✓
- A 72 fathom shoal about 650 meters about 272° from ☉ Lax ✓
- An 18 fathom shoal about 1025 meters about 261° from ☉ Lax ✓
- A 17 fathom shoal about 1290 meters about 265° from ☉ Lax ✓
- A 53 fathom shoal about 2560 meters about 263° from ☉ Lax ✓
- A 17 fathom shoal about 700 meters about 238° from ☉ Lax ✓
- An 18 fathom shoal about 1025 meters about 289° from ☉ Fit ✓
- A 28 fathom shoal about 1475 meters about 286° from ☉ Fit ✓
- ^{61 Shoaler further out.}
A 51 fathom shoal about 2680 meters about 276° from ☉ Fit ✓
- A 39 fathom shoal about 2900 meters about 270° from ☉ Fit ✓
- A 20 fathom shoal about 1585 meters about 267° from ☉ Fit ✓
- A 22 fathom shoal about 1055 meters about 279° from ☉ Fit ✓
- A 19 fathom shoal about 680 meters about 283° from ☉ Fit ✓
- A 19 fathoms shoal about 890 meters about 269° from ☉ Fit ✓
- An 8 fathom shoal about 320 meters about 196° from ☉ Fit ✓
- A 9 fathom shoal about 655 meters about 244° from ☉ Fit ✓
- A 20 fathom shoal about 1345 meters about 258° from ☉ Fit ✓
- A 68 fathom shoal about 3040 meters about 264° from ☉ Fit ✓

An 18 fathom shoal about 910 meters about 253 from \odot Fit ✓
 A 22 fathom shoal about 1170 meters about 272 from \triangle Pedro ✓
 A ¹⁷ 19 fathom shoal about 520 meters about 234 from \triangle Pedro ✓
 near
 A ^{22 near} 25 fathom shoal about 650 meters about 257 from \triangle Pedro ✓
 A 25 fathom shoal about 1070 meters about 262 from \triangle Pedro ✓
 A 26 fathom shoal about 1790 meters about 265 from \triangle Pedro ✓
 An 80 fathom shoal about 3780 meters about 257 from \triangle Pedro ✓
 shoulder close
 probably the 23 close.
 A 24 fathom shoal about 1650 meters about 257 from \triangle Pedro ✓
 19-17 close.
 A 23 fathom shoal about 635 meters about 236 from \triangle Pedro ✓
 15 close.
 An 18 fathom shoal about 725 meters about 220 from \triangle Pedro ✓
 A 35 fathom shoal about 1815 meters about 251 from \triangle Pedro ✓
 no soundings this far out.
 A 72 fathom shoal about 4200 meters about 262 from \triangle Pedro ✓
 A ³¹ 32 fathom shoal about 1660 meters about 234 from \triangle Pedro ✓
 A ²⁴ 78 fathom shoal about 3020 meters about 288 from \triangle Rip ✓
 A 20 fathom shoal about 590 meters about 339 from \triangle Rip ✓
 A ¹⁵ 16 fathom shoal about 415 meters about 309 from \triangle Rip ✓
 A 17 fathom shoal about 700 meters about 269 from \odot Quinby ✓
 A ¹⁴ 5 fathom shoal about 550 meters about 252 from \odot Quinby ✓
 A 19 fathom shoal about 1110 meters about 277 from \odot Tack ✓
 A 15 fathom shoal about 490 meters about 339 from \odot Large ✓
 An ¹⁷ 18 fathom shoal about 550 meters about 308 from \odot Large ✓
 A 29 fathom shoal about 1540 meters about 281 from \triangle Supple ✓
 A 16 fathom shoal about 550 meters about 279 from \triangle Supple ✓
 A 23 fathom shoal about 900 meters about 92 from \triangle Rip ✓
 A [?] 7 fathom shoal about 190 meters about 0 from \triangle Rip ✓
 does not develop.

- ✓ A 24 fathom shoal 1940 meters 16 degrees from Δ Shine. ✓
- ✓ A 30 fathom shoal 1917 meters 41 degrees from Δ Shine. ✓
- ✓ A ^{4 $\frac{1}{2}$} 4 fathom shoal 346 meters 347 degrees from Δ Shine. ✓
- ✓ An 8 fathom shoal 750 meters 4 degrees from Δ Camp. ✓
- ✓ A ^{3 $\frac{1}{2}$ close} 38 fathom shoal 2838 meters 310 degrees from \odot Garcia. ✓
- ✓ A ^{6 $\frac{1}{2}$} 6 fathom shoal 1094 meters 259 degrees from \odot Garcia. ✓
- ✓ A ^{4 $\frac{1}{2}$} 4 fathom shoal 900 meters 270 degrees from \odot Garcia. ✓
- ✓ An 8 fathom shoal 945 meters 298 degrees from \odot Garcia. ✓
- ✓ A ^{2 $\frac{1}{2}$ close} 25 fathom shoal 2155 meters 322 degrees from \odot Garcia. ✓
- ✓ A 30 fathom shoal 2005 meters 336 degrees from \odot Garcia. ✓
- ✓ A 17 fathom shoal 1763 meters 353 degrees from \odot Garcia. ✓
- ✓ A 12 fathom shoal 773 meters 15 degrees from \odot Garcia. ✓
- ✓ A 30 fathom shoal 1806 meters 311 degrees from Δ Pasqual. ✓
- ✓ A 28 fathom shoal 2044 meters 323 degrees from Δ Pasqual. ✓
- ✓ A ^{2 $\frac{1}{2}$ shoal} 22 fathom shoal 1484 meters 317 degrees from Δ Pasqual. ✓
- ✓ A 12 fathom shoal 1260 meters 341 degrees from Δ Pasqual. ✓
- ✓ A 17 fathom shoal 682 meters 0 degrees from Δ Pasqual. ✓
- ✓ A 19 fathom shoal 1754 meters 52 degrees from Δ Pasqual. ✓
- ✓ A 10 fathom shoal 753 meters 324 degrees from Δ Palisade. ✓

Dangers.

(Directions noted are true, with north as the initial).

The South, East, and Northeast coasts of San Pedro Islands

are almost entirely free from outlying dangers. There are two small outlying rock islands, ^{one} on which \odot Ham is situated, 246 meters 142 degrees from Δ Pass, and the other, 15 meters in diameter, 144 meters 155 degrees from Δ Pass. The West and Northwest coasts of San Pedro Island are very foul, numerous rocks and breakers extending for a distance of 400 meters off the prominent North point of San Pedro Island and for a distance of about 450 meters off the west coast. There is a rock which bares at low tide 170 meters 232 degrees from Δ Pedro and a breaker 205 meters 234 degrees from Δ Pedro off the North coast of Noyes Island. There is a rock island about 40 meters in diameter, 223 meters 327 degrees from \odot Nit, a rock 15 meters in diameter 360 meters 270 degrees from \odot Nit and a rock 10 meters in diameter 512 meters 267 degrees from \odot Nit. Off Δ Shine there are two rocks which bare at extreme low water; one, 170 meters 308 degrees from Δ Shine; the other, 288 meters 271 degrees from Δ Shine. In Steamboat Bay there is a rock that is awash at extreme high tide, distant 84 meters and 149 degrees from \odot End. There is a rock which bares at half tide, 130 meters 0 degrees from Δ Camp, and a rock about 10 meters in diameter visible at all stages of the tide, 95 meters 334 degrees from Δ Camp. A rock which bares only at extreme low water is situated 10 meters 341 degrees from \odot Jes. There is

a small rock island, about 20 meters in diameter, 205 meters 300 degrees from \odot Jes. Off the West coast of the Anguilla Islands are masses of rocks bare at various stages of the tide, and situated so closely together that it is impossible for boats to navigate in these areas. Near Δ No, the outermost one of a mass of rocks is 240 meters 257 degrees from Δ No, the outermost rock near Δ Hump is 178 meters 315 degrees from Δ Hump. On the West coast of the Anguillas, about a half mile Southwest from Δ Moke are several rocks, awash at various stages of the tide, the outermost of which is 700 meters 222 degrees from Δ Moke. There are two rock islands north of Δ Moke, one 210 meters 340 $^{\circ}$ from Δ Moke; the other 193 meters 357 degrees from Δ Moke.

In Garcia Cove and vicinity, the following dangers are noted:

2 rocks Bare at half tide 1100 meters 240 $^{\circ}$ from \odot Garcia.

3 rocks bare at half tide 587 meters 241 $^{\circ}$ from \odot Garcia.
 559 " 243 $^{\circ}$ from \odot Garcia.
 514 " 244 $^{\circ}$ from \odot Garcia.
 respectively.

A rock awash at low water 412 meters 292 $^{\circ}$ from \odot Garcia.

A rock bare at 3/4 tide 883 meters 313 $^{\circ}$ from \odot Garcia.

A rock awash at some stage of tide 78 meters 143 $^{\circ}$ from \odot Garcia.

2 rocks bare at 3/4 tide 250 meters 322 $^{\circ}$ from Δ Rock.

A rock bare at all stages of tide 184 meters 337° from
△Rock.

A rock bare at all stages of tide 40 meters 152° from
○Bon.

A rock bare at all stages of tide 125 meters 61° from
○Bon.

A rock bare at all stages of tide 240 meters 275° from
○Lone.

A rock awash at high tide 421 meters 257° from ○Bert.

A rock awash at high tide 294 meters 232° from ○Bert.

3 rocks, awash at some stage of tide, outermost of which
is 128 meters 1° from ○Bert.

A rock awash at some stage of tide, 104 meters 270° from
△Palisade.

A rock awash at some stage of tide, 86 meters 359° from
△Palisade.

A rock awash at some stage of tide, 110 meters 1° from
△Palisade.

Anchorage:

There are two good anchorages in the area covered by this sheet, one Steamboat Bay, and the other Garcia Cove. In Steamboat Bay, which is open from the North and Northeast, anchorage can be found at a depth of 15 fathoms, with fine sand bottom and fairly good holding ground. In this bay there is a small dock, 100 feet long and with a depth of 25 feet at low tide. In Garcia Cove, South of the rock upon which △Rock is located,

a good anchorage is afforded for small vessels. Anchorage can be made in about 10 fathoms of water with sand bottom. To come into anchorage in Garcia Cove, keep to the East side of the islands in the middle of the cove, passing 100 meters off Bon and the island South of this signal, and well off the two rocks on the West side of the entrance. Pass between the two rocks upon which A Mid and A Rock are located and after passing the latter, swing West to anchorage about 150 meters south of this rock and midway between the East and West shores. For small boats anchorage is afforded during fair weather in the small bay just south and east of Snail Point. This is open both to the Northwest and Northeast, and during severe Southwesterly weather, heavy seas roll around Snail Point, making this place impossible as anchorage.

Tidal Currents

In general the tide floods Eastward into the gulf and ebbs to the West. Thru Arriaga Passage the tide floods Southward and ebbs Northward. Only at the West entrance of the gulf does the tidal current have much strength, and in the gulf proper, but little effect of the tide is felt.

Survey Methods

The hydrography was controlled by triangulation stations distant only a few miles from each other, and by topographic stations located by plane table traverse. Strong fixes were

obtained at practically all positions and as shifting from one set of signals to another had no apparent effect on the positions, the hydrography is considered to be well controlled.

Four boat sheets on 1:20,00 scale were used; one of the entire Gulf of Esquibel; one of the outside coast of San Pedro Island; one of the outside coast of Noyes Island; and one of Arriaga Passage. Two boat sheets on a 1:10,000 scale were used, one of Steamboat Bay and the other of Garcia Cove. The data on these boat sheets was combined on the one single sheet which this report accompanies. Part of the gulf and the shoal area found in Steamboat Bay were later wire-dragged, the work being shown on a separate smooth sheet, with a descriptive report to cover it.

M. Weisman, U.S.

June 22, 1922.



Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
21 volumes of sounding records for

HYDROGRAPHIC SHEET 4209

Locality: Gulf of Esquibel, S. E. Alaska

Chief of Party: T. J. Maher in 1921

Plane of reference is mean lower low water, reading
3.4 ft. on tide staff at Steamboat Bay, Noyes Island

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. D day, July 6.
 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. In Vol. 1 (p. 21), work of Oct. 12, 1921 not given an alphabetical letter by field party.
- * Assumed to be P.M.

A handwritten signature in cursive script, appearing to read "G. W. Rude".

Chief, Division of Tides and Currents.

Hydrographic Sheet No. 4209

The work of this sheet develops the Gulf of Esquibel and the entrance thereto including also Steamboat Bay and Garcia Cone, the two latter being developed on a scale of 1:10,000 on sub sketches

The areas surveyed are well and closely sounded and indicates great care to sound and develop all shoals and critical locations

The work on the sheet up to and including soundings in pencil was developed by the Field Party. The protracting by Mr. Weisman was found to be carefully done and but few errors were found.

The pencil plotting by Mr. Bond was not so good as many errors were picked, this especially in fractional soundings.

There are several questionable soundings which have been left in pencil for consideration and are as follows. About 270 meters 318² from A out a 12 fath. sounding appears between a 3 and 6 $\frac{1}{2}$ fathoms sounding. This is questioned by the Field Party and could ^{well} be rejected. About 470 meters 317² from A Sole a 14 fath.

Hydrographic Sheet 4209

(2)

sounding between a 23 + a 26 fathom sounding. This is also questioned by the Field Party.

In Garcia Cone about ¹³⁰~~260~~ meters $\sqrt{308^2}$ from
A Mid between 6 and 12 fathom soundings

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4209.

Surveyed in 1921.

Instructions dated Feb. 12, 1921.

Chief of Party: T. J. Maher.

Surveyed by R. W. Healy.

Protracted by M. Weisman.

Soundings plotted by J. A. Bond.

Verified and inked by J. D. Torrey.

1. The records conform to the requirements of the General Instructions except that the character of the sounding apparatus and the boats' courses were generally omitted. The boat sheet should have been forwarded to the office.
2. The plan and character of development fulfill the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions. It is suggested however, that a system of 300 meter lines over the entire area with split lines out to the 50 fathom curve and in some places an additional development of 75 meter lines would have given a more complete development with no increase in cost.
4. The sounding line crossings are adequate.
5. The information is sufficient for drawing the usual depth curves, with the exception of the inshore curves which are omitted except in Steamboat Bay and Garcia Cove.
6. The field plotting was completed to the extent prescribed in the General Instructions and none of it had to be done over. /

7. The junctions with adjacent sheets are satisfactory.
8. No further lead line surveying is required within the limits of this sheet. There are numerous indications of possible dangers, some of which were dragged over (see W. D. Sheet 4210). Those shoals that were not investigated on Sheet 4210 should be dragged when opportunity affords.
9. The paper used for this sheet is very poor. Ink works almost like on blotting paper making erasures almost impossible and causing a waste of the draftsman's time to make it legible. It will probably deteriorate so rapidly that the sheet will be worthless in the not very distant future.
10. The character and scope of the surveying is good, the protracting is excellent and the plotting of the soundings fair. Numerous errors in the latter were discovered and the regulations regarding the use of fractional soundings were not adhered to.
11. Reviewed by E. P. Ellis, December, 1922.