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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: *Alaska (S.P.)*

DESCRIPTIVE REPORT.

Hyd. Sheet No. *3539*

LOCALITY:

Prince of Wales Is.
West Coast
San Cristoval
Channel and Approaches

1913

CHIEF OF PARTY:

R. B. Derickson

11-4045

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Hydrographic Sheet No. 1

San Christoval Channel, S.E. Alaska.

S. E. Alaska.

Season: April to October 1913.

Scale 1:10,000

U.S.S. GEDNEY.

R.B. Derickson, Asst., Comdg.

Thos. Jamieson, Mate, Hydrographer

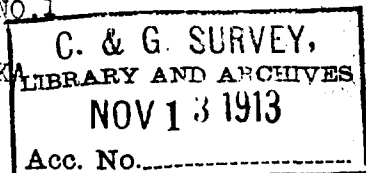
Chief of Party.

P.R. Bettison, Asst., "

3539

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET NO. 1

SAN CRISTOVAL CHANNEL AND APPROACHES, S.E. ALASKA



Survey Methods:

The work on this sheet was done by two separate hydrographic parties in the Launches COSMOS and No. 117. The regular development being carried on by the former with the exception of the passage north of the Rosary Ids adjoining the Prince of Wales Id shore, which was developed by the party in No. 117. This party also performed the work of examining the shoals and suspicious places found, besides running many of the inshore lines and those between the Rosary and Hermanos Ids. In general all soundings over 12 fathoms were taken with machine and wire.

The last five days work done on this sheet, viz: from f' to j' day inclusive, was drag work. The drag used was made up of 2½" galv pipe hung over the stern; the uprights were 12 ft apart and the lower cross piece projected beyond the upright 4 ft on each side, making the total width of the drag 20 ft. Light rope guys from the lower ends made fast on each bow, held the drag vertical while being towed. The depths at which the drag was operated varied from 4 to 6 fathoms, holes being bored at 3 ft intervals in the uprights. In practice it was found that a speed of about 2 knots per hour was the maximum obtainable. If pressed at a greater speed the pipe very soon parted near the lower joints. With a choppy sea and exercising the greatest care in taking the drag up, the upright pipes very often got badly bent and had to be straightened out before it could be used again. These defects may be attributable to the lightness of the pipe which was common galv water pipe and the only kind obtainable in Craig.

CHARACTER OF SHORELINE AND BOTTOM.

All the shoreline on this sheet is heavily timbered back of the H.W. line and of the same general appearance and the shores are rocky and rugged except around the mouths of streams or in narrows channels where the islands are grouped close together, where sand and gravel beaches may be found. The bottom also shows the same characteristics being extremely rough and uneven. In sounding over shoal spots many casts reported by the Leadsman as soft bottom turned out to be on inspection, rock covered with thick matting of kelp and other marine growth.

As described in the Alaska Coast Pilot, Part 1, page 93, the San Christoval Channel is one of the most difficult places in the entire passage for vessels of any size, owing to the narrowness of the passages and the strength of the currents.

KELP.

The dangers are mostly marked by kelp but this is by no means an invariable rule. For instance, the two kelp patches lying $1\frac{1}{8}$ miles N.W. $\frac{1}{2}$ W. of Parida Id, mentioned in the sailing directions under remarks and dangers p.94, did not show kelp at any time during the past summer, altho only covered by 2 and 3 feet at L.W. Springs.

The kelp mentioned on page 94, as extending 600 yds N. of Catalina Id. and $\frac{3}{8}$ mile N.&.E of the two bare rocks $\frac{5}{8}$ mile S.E. of Catalina, did not show on the surface at any time during the past summer, altho the depths are such that under favorable conditions a good growth of kelp will probably show in these locations at times.

The sunken rock which lies in the channel midway between Piedras Id. & the Hermanos Ids. is referred to in the Sailing Directions under "Hermanos"

as a heavy kelp patch 600 yds S.E. of the S. Hermanos and $\frac{1}{2}$ mile N.N.W. of Piedras Id. This rock is covered by about 4 ft at L.W. spring; was very well marked by kelp. during the later months of Summer, altho in April and May there was very little kelp there. This also applies to the patch extending N.W. of Piedras Id. and that on the $2\frac{1}{2}$ spot off the northern extremity of Cruz Id. During the strength of the current all kelp marking dangers in the channel is rode under and cannot be seen.

DANGERS.

Besides those mentioned in the Sailing Directions and the sunken rock mentioned above, the soundings developed the following dangers which must be carefully avoided by deep draught vessels. *3 7/8 fms placed*

1. A rocky patch covered by 18? ft at L.W. lying 300 meters E.x.N. from the bare rock (Signal Tuft) 350 yds E.S.E. of Larzatita Id.

2. A rocky patch covered by 24? ft at L.W. lying 500 meters N.E. $\frac{1}{2}$ N. from the above mentioned rock. *4 1/2 fms placed* This bare rock (signal Tuft) is mentioned in the Sailing Directions page 94, as 1 ft high. * On September 30th at 1:15 p.m. it was completely covered and not showing, altho there was quite a choppy sea at * the time. This may have been an unusually high tide.

The rock 300 yds N.W. of Larzatita is awash at $\frac{1}{2}$ tide and not "nearly awash at H.W." as mentioned in the Sailing Directions p. 94 under Larzatita Id.

No signs were found of the reef marked on Chart 8150 as lying $\frac{1}{2}$ mile N.W.x N. $\frac{1}{2}$ N. of Palisade Point altho it was searched for diligently. This reef is nowhere mentioned in the Sailing Directions and should be taken off the chart. *8 1/2 fms placed*

The kelp mentioned as possibly $\frac{1}{4}$ mile off the Point of San Fernando Lying S. from Larzatita Id. (Pt. Sta Lucia) is on a reef which bare at L.W. spring, and lies 400 yards N.E. of Pt Sta Lucia. *Placed 1 1/2 fms.* A narrow channel with a least depth of 12 fms. separates this reef from the Point.

SAILING DIRECTIONS FOR SAN CRISTOVAL CHANNEL

NORTH BOUND.

From a position $\frac{1}{2}$ mile north of Catalina Id. course West heading for White Beacon. Hold this course till Piedras is abaft port beam then change slowly to N.W.x W. $\frac{1}{4}$ W. On this course mid channel, the south tree line of Piedras Id., and the north tree line of Catalina Id., are barely open in range. Hold N.W.x W. $\frac{1}{4}$ W. till bare rock S.E. of Larzatita opens well from S.W. point of Larzatita Id. then change to W.x S. $\frac{1}{4}$ S. on range as shown on sketch; passing 100 meters south of bare rock. When bare rock is well past starboard beam change to W. $\frac{1}{8}$ S. to pass Larzatita.

Rock awash see Hyd. sheet

SOUTH BOUND.

From a position about 300 meters south of Larzatita, hold E. $\frac{1}{4}$ N. course till abeam of bare rock, distant 125 meters, pass south of bare rock and midway between the 3 and 2 $\frac{1}{2}$ fathom spots, heading on range indicated on sketch, course E.x N. $\frac{1}{4}$ N. Note: (The back range beacon is at the east end of a white shell beach; a prominent lone tree is located 25 meters N.W. of this back range beacon). When bare rock breaks well out from south point of Larzatita Id., change course to S.E.x E. $\frac{1}{4}$ E. with the south point of Piedras tree line just open from north tree line on Catalina. Hold this S.E.x E. $\frac{1}{4}$ E. course till the east point of the Hermanos Ids. are abeam then change slowly to East, bring White Beacon to bear directly over stern and south end of Alberto Id. directly ahead.

SAILING DIRECTIONS.

All the larger vessels navigating in this vicinity follow the directions as given in the Sailing Directions pp 93, 94 and pass to the south of Larzatita Id. when proceeding in either direction. The smaller craft on the other hand mostly use the channel north of the Rosary Ids. This channel offers

some advantages over that recommended in the Sailing Directions, being clear and offering good depths except at its western extremity where a $2\frac{1}{2}$ fm spot in the middle of the channel about 300 yards from shore must be carefully avoided. Most of the vessels using it follow the Prince of Wales Id. shore, passing the points at a distance of about 200 yards.

An alternative route may be taken by passing to the north of Larzatita Id. This route offers the following advantages (1) Fewer courses, only one change of course is necessary in the Narrows. (2) A vessel has the advantage of running directly with or against the main current in the channel. (3) A good leading range is available; viz, the south tree line of Piedras Id. just open with the north tree line of Catalina Id. The tree line on these islands is clean cut and abrupt and makes an excellent natural leading range for that part of the channel between a position 600 yards N.W. of Piedras Id. and a position 300 yards N. of the half tide rock off the N.W. end of Larzatita Id.

AIDS TO NAVIGATION.

As shown on the advance photographic chart of San Christoval Channel, two sets of ranges were constructed. The first on "Cruz Id range" is a prominent whitewashed pyramidal beacon at the S.E. point of the north half of Cruz Id. This beacon in range with two whitewashed boards 100 meters west of it composes the range for entering the south end of San Christoval Channel. The second set of ranges called the "Hermanos Ids range" consists of two whitewashed pyramidal beacons at the north end of the Hermanos Ids. The back range the larger of the two, is located at signal "Lone". The front range is at the high water mark on the north end of the small islet 400 meters W.N.W. from signal "Lone" W.x S. $\frac{1}{2}$ S. course past the black rock south of Larzatita Id. These ranges were constantly used by all vessels marking the passage.

The sailing directions were compiled for the courses thru San Christoval Channel using the advance sketch of the sailing route.

CURRENTS.

During Spring Tides the currents in the San Christoval Channel attain a velocity of from 2 to 3 knots per hour. Tide rips occur in the channel off Pasdras Id. No regular current observations were made. The time of slack water as ascertained from notes taken while sounding, occurs approximately 2 hours after high and low water. The last of the ebb and the first of the flood tide sets to the West. The last of the flood and the first of the ebb sets to the East.

Anchorage

There are only two anchorages on this sheet capable of affording shelter to vessels of moderate size and draft. (1) The bay lying south of Cruz Id, which affords good shelter from S.E.gales in 15 fms. near its head. During spring tides quite a strong current empties into this bay thru the narrow passage S.W. of Cruz Id. This current forms eddies and whirls in the natural anchorage area and causes a ship at anchor to range considerably. (2) In the bay north of the peninsula N. of Blanquizal Id. good anchorage may be found in moderate depths and protected from all winds. Anchorage may also be had in the passage north of St.Philip Id off some Indian rocks at the N.E.extremity, in 5 fathoms, sand bottom. This passage is used by the smaller craft when running between Klawak and places on Tonowek Bay or Sea Otter Sound, affording as it does a cut off and smooth water. The narrow gap north of Blanquizal Id. thru which they pass is not more than 25 yards in width at the narrowest part. Two fathoms can be carried thru it at low water.

All bearings are magnetic and approximate. Distances are approximate.

Respectfully submitted,

Respectfully approved and
forwarded.

B. B. Anderson
Asst., Comdg.

Thomas Jamieson,

Mate, C.& G.Survey,

In charge of Hydro.party.

ADDRESS ALL COMMUNICATIONS TO
"SUPERINTENDENT, U. S. COAST AND GEODETIC SURVEY
WASHINGTON, D. C."

VEC

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

March 2, 1914.

RECEIVED
MAR 2-1914
ASSISTANT IN CHARGE
ART CONSTRUCTION

Mr 1

Assistant in Charge:

In reply to a verbal request of this date from Mr. Geo. L. Flower, and referring to the descriptive report for Hydrographic Sheet 3539, I have to state that the approximate height of the tide in San Christoval Channel, Alaska, on September 30, 1913 at 1:15 p.m. was 12.3 feet above mean lower low water.

Descriptive report for Hydrographic Sheet 3539 is returned herewith.

L. P. Shidy

Chief of Tidal Division.

Enclosure.

*Show as bare rock but on
Chart add note "Covers at
extreme H W" JFT*

310

ASSISTANT IN CHARGE

POST-OFFICE ADDRESS: 200 Burke Building, Seattle, Wash.

TELEGRAPH ADDRESS: " " " " " "

EXPRESS OFFICE:

3539

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

U.S.S. GEDNEY

Seattle, Wash.

November 12, 1913

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NOV 17 1913
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*File with Descrip Report.
Hyd Sheets Nos 3539*

To the Superintendent,
Coast and Geodetic Survey,
Washington, D. C.

C. & G. SURVEY,
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Acc. No. _____

Sir:-

Enclosed herewith is a list of positions in connection with the channel sweep used along the West Coast Prince of Wales Id., vicinity of San Alberto Bay and San Christoval Channel.

These positions and sounding lines were not plotted on the smooth sheets as in many cases it confuses the positions already plotted in the course of the regular work.

I respectfully recommend that the depths on the smooth sheet be verified by plotting these lines after the soundings are inked.

Very respectfully,

R. B. Anderson

Asst. Comdg.

NOV 18 1913

3539

See Descriptive Report of Hydrographic Sheet No.1
for description of drag.

DRAG WORK ON SHEET NO 1

					<u>Angles.</u>
Sept. 23,	f'	Drag drawing 6 fms.			
		Sounding with machine while underway			1 - 94
"	24	g'	"	"	"
					1 - 129
"	25	h'	"	"	"
					1 - 107
"	30	i'	"	"	"
					1 - 64

MKQ
Dec. 1, 1913.

HYDROGRAPHIC SHEET 3539.

San Christoval Channel, Southeastern Alaska, by
Assistant R. B. Derickson in 1913.

TIDES.

	Cruz Bay ft.	Craig ft.
Mean lower low water, or plane of reference on staff	11.2	10.6
Lowest tide observed " "	8.6	8.0
Highest " " " "	23.9	23.0
Mean range of tide	8.1	8.0

Hyd. Sheet No. 3539.
"San Christoval Channel. S. E. Alaska"

The positions on this sheet, except where the pipe drag was used, were plotted by the "Field Party" but owing to the closeness of the, especially through the Channel, and the indefinite marking of the positions, much of the work had to be replotted in order to locate positions and lines. Outside the main Channel where the lines could be identified and followed the positions were taken as correct although verified in numerous cases as a matter of verification and safety.

The work is considered good throughout and would appear to be sufficient to properly develop all dangerous rocks and shoals especially through the main Channel.

The pipe drag work in addition to being plotted on the sheet and the sounding taken in connection therewith plotted is shown on 5 accompanying sheets of tracing cloth which should be made a part of the sheet.

Attention is especially invited to the fact that only in a very few instances is the Character of the bottom recorded.

J. D. Torrey
2/16/14.

Verified by J. B. ShKearin:

4/4-1914.