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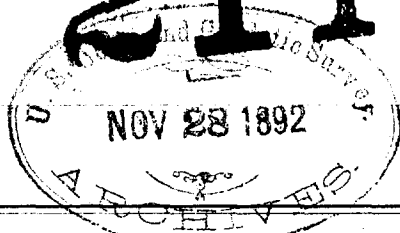
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Form 504	
U. S. COAST AND GEODETIC SURVEY	
DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i>
Field No.	Office No. <i>2113</i>
LOCALITY	
State	<i>Washington</i>
General locality	<i>Gulf of Georgia</i>
Locality	<i>President Channel</i>
<i>1891</i>	
194	
CHIEF OF PARTY	
<i>W. P. Ray U.S.N.</i>	
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U. S. COAST AND GEODETIC SURVEY.

T. C. Mendenhall, Superintendent.

State: *Washington.*

DESCRIPTIVE REPORT.

Hydrographic Sheet No. *2113.*

LOCALITY:

*Gulf of Georgia,
President Channel
and
Canal de Haro.*

1891.

CHIEF OF PARTY:

Lieut. W. P. Ray, U. S. N.

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Descriptive Report of Sheet No. 10.

Sec. XI. - Gulf of Georgia, President Channel and Canal de Haro.

Statistics of Field Work have been forwarded. - This survey includes the waters in the Gulf of Georgia adjacent to the Matia, Sucia, Potos, Waldron and S. Sturua Islands, and the N. shore of Orcas Island. It is included between Lat. $48^{\circ}40'$ and $48^{\circ}48'$ N. and Long. $122^{\circ}49'$ and $123^{\circ}09'$ W.

II.

The islands are high and wooded with abrupt shores and well defined outlines. To the E. lies the Matia islands, the E. & W. Matias. The E. Matia is covered with a circular clump of Fir and Manzanita trees. In the centre of this clump is a tall and rather remarkable umbrella tree which forms an excellent land mark by which to recognize the Matia Islands. Between the E. and W. Matia islets is a narrow channel. Its use by vessels is not recommended. The west Matia is hilly and with numerous ravines filled with stunted firs. From the seaward the areas without vegetation has a yellowish color, due to the mountain grass with which the rocks are covered. In the Sucia group the large Sucia Island is crescent shaped. The land is high, diversified and thickly timbered, with an abrupt shore line. On the S. face are numerous bluffs and landslides, particularly on a peninsula of peculiar shape making out from the S. face, where a remarkable stratified bluff exists. The strata of this bluff consists of fossilized remains, shell etc. The mouth of the crescent or horseshoe formed by the large Sucia Island, opens to the S. and E. and encloses a bay affording good anchorage, called Echo Bay, on account of the repeated reverberations of sounds in this locality. On the S. side of this bay and near its entrance are several long narrow islands with axes parallel

with general direction of crescent. In common with other islands in this locality the Sucas lie with their greatest lengths in a N. E. and S. W. direction. Potos Island lies to the N. and W. of the Sucas. It is high and wooded and generally resembles the other islands of the group. Along its shores and particularly at its E. & W. ends are small indentations affording anchorage for very light vessels. To the W. and about 3 miles from Potos Island is Saturna Island, B. C. with a lighthouse on its extreme E. end. This point is bare and the E. coast of the island is very abrupt with deep water close to. To the S. a high point runs to the E. terminating in a high bluff known as Java Head which is an excellent land and range mark for entering the Canal de Haro. Between President channel and the Canal de Haro lies Waldron Island, a wooded island rocky and abrupt on its E. shore and flat with sandy beach on the W. side. To the N. of Waldron lies Bare and Wood or Skip Jack Island. Wood island, the largest of the pair, is thickly wooded and is about 1 mile to the N. of Waldron Island. On the S. & W. face of Waldron Island is a shoal and semi-circular bay known as Cowley Bay affording good anchorage in fine weather. Waldron Island terminates to the S. in a high rocky bluff known as Point Disney. This bluff ends to the W. in a sharp profile resembling a North American Indian. To the S. and W. of Point Disney and 1/8 miles distant are the White Reefs running in a general N. E. and S. W. direction. In this reef lies the White Rock which is above water and nearly circular in form and forms an excellent land mark for avoiding the reef, which is covered by kelp, sometimes drawn under

by the strong current. On the N. and E. face of Waldron Island is a high yellow sand bluff terminating in an abrupt point called Point Hammond. The N. coast of Orcas Island is steep particularly on its N. face and thickly wooded. Mount Constitution, Orcas Knob and the Turtle Back may be readily recognized. Between Orcas Island and the Suca Islands and nearest the Orcas Island shore is the dangerous Parkers Reef, covered at the higher tides. To the S. of the reef the bottom is shoal and irregular and to the N. it is very deep. Point Doughty the N. W. point of Orcas Island is a well defined & easily recognized mark and consists of three hemispherical knobs connected in a N. W. direction. To the S. of Point Doughty on the Orcas Island side is a good anchorage where vessels may get fair protection when anchoring to the N. of Freeman Island at the S. end of this bay. The shore here is lower than that on the N. face, gradually rising as it trends to the S. until it becomes very high and abrupt with deep water close up to the rocky slopes.

There are no settlements on this sheet and no vessels regularly plying among these islands. Through the Canal de Haro, pass vessels bound from Victoria and the Straits of Fuca to Nanaimo, B. C. The Alaska steamers also pass through this channel. Occasionally small steamers visit a fishing station on W. coast of Waldron Island, to load fish for Puget Sound ports, principally salmon, halibut and herring.

III. Approaching these waters from the N. little difficulty will be experienced in distinguishing landmarks and the outlines of the points and islands. The prominent point on which Saturna light is situated, Patos Island, with the higher Suca and

Orcas Islands with Mount Constitution to the S^d, form excellent range marks for passing either into the Canal de Haro or the Rosario Straits. In passing into the Canal de Haro from the N^d, Saturna Point should be given a good offing on account of strong currents and whirls. Vessels to clear Tumbo Reef should stand down on range N. edge Pastos Island tang. N. edge Sucia Islands which leads well clear of buoy marking extremity of Tumbo Island Reef. Hold this course until the high and easily distinguished bluff at Java Head is open to the S^d of Saturna light when course should be changed to head down de Canal de Haro, passing to the W^d of Waldron Island. In passing to the N^d of Pastos, Sucia and Matia Ids to make the Rosario Straits, vessels should not approach the Sucia Islands nearer than $\frac{3}{4}$ mile to avoid a reef usually uncovered lying to the N^d of and parallel to the Sucias. To the W^d of Pastos Island the water is very deep close up to the shore. Vessels passing to the W^d of Pastos Island & making either President channel or the passage between the Sucia and Orcas Islands should keep well to the W^d to clear the West Banks outside of a line between W. end of Pastos Island and Point Doughty. This line runs about $\frac{1}{2}$ mile to W^d of shallowest spot of West Bank. Vessels will be to the S^d and clear of reef when the S. shore of the Matia islands opens out to S^d of Sucia islands. In passing to the E^d to the S^d of the Sucias, vessels should favor the Sucia island side to clear the Parker Reef and shoal water along the Orcas Island shore.

In President channel the water is deep

and there are no dangers to navigation. Off Point Disney S. end of Waldron Island the water is deep close up to the shore in from 50 to 60 fths. The White Reef to the S^d & W^d of Point Disney is easily distinguished and vessels should give it a good berth. To S^d and E^d of White Rock and forming the S^m extremity of White Reef lies Danger Rock, a sunken rock surrounded by kelp, which is frequently swept under by strong current, which runs in this vicinity with great velocity & with whirls and eddies. North of Waldron Island the water is shoal for some distance from shore and vessels are recommended to keep to the N^d of the Wood or Skip Jack Island and Bare island as the currents are very strong and small boats anchored between Waldron & Bare islands have been drawn under by the tide.

IV.

The channels are deep and contain few dangers. In the Canal de Haro the water is from 40 to 127 fths deep near mid-channel and contains no dangers. President channel is in general features similar to Canal de Haro. Near its S^m end and on the Waldron Island side it shoals suddenly from 80 to 24 fths, passing to 80 fths again as the Waldron Islands shore is approached. Work here failed to show any shoaler water. Vessels are not recommended to pass to the S^d of Parkers Reef as a rocky point projects out from Orcas island making the navigable channel for ships very narrow. To the N^d and E^d of East Point, Saturna Island, lies the Boiling Reef, usually uncovered, around which the currents run with great strength, with whirlpools & eddies and at certain stages of the tide fairly boils and can be heard for some distance. Between the Patos and Encia Islands

the water is deep with irregular bottom. The greatest depth is found on the Patos island side, shoaling as the Sucas are approached until the n. edge of extensive shoal is reached lying to the n^d and w^d of the Sucia islands and of which West Bank well marked by kelp has the shoalest water with 10 feet at its shoalest point. Between the Sucas and Matia islands the water is deep with about 70 fms midway them.

There are no pilots in this vicinity and the nearest tow boats are found at the Bellingham Bay Ports, Victoria or Port Townsend.

V.

Little or no change will probably take place on this sheet. Bottom is usually sandy with broken shells.

The best anchorages on the sheet are Echo Bay Sucia Islands, The Daugherty anchorage in first bight to S^d of Point Daugherty. Cowlitz Bay to S^d of Waldron Island. Anchorage may also be obtained in fine weather along the W. shore of Waldron island.

Small vessels and boats may find good anchorage in the bights on E. ends of Patos and large Matia islands, also in bay on W. shore of Sucia Island.

The best anchorage on the sheet, muddy bottom and offering good protection is found in Echo Bay, the large bay enclosed by the Sucia islands. Vessels entering this bay should keep close to the shore of the long narrow islands lying on the S^m side of this bay at its entrance to avoid kelp patches and reef lying to the N^d and inside of a parallel with the N. horn of the crescent. If blowing from the S^d and E^d vessels may get very fair protection by getting a lee under the group of

long narrow islands on S. side of bay in 5 fms of water. Echo Bay may also be entered through the narrow channels separating the islands lying near its entrance but vessels are recommended to pass to the N² on account of the strong currents found in the places. The head of Echo Bay is separated from small bay making in on W. side of Sucia island by a low neck of land partially wooded. Good range for entering Echo Bay passing well to the S² of the reefs lying to the N² near the N. horn of the Sucia island crescent is to bring East Point Light open through gap in vegetation on neck of land just referred to. This is an excellent range at night when vessels between Matia and Sucia islands intending to anchor in Echo Bay may safely enter by standing across this range until East Point Light is made out across centre of Sucia island, when course should be changed to head in on this range keeping the light visible. A slight variation from this line either to the N² or S² shuts the light out, as the gap in vegetation on neck of land above mentioned is very narrow. The small bay on W. side of Sucia island is very shoal with 3 fms in mid-channel, at its entrance shoaling to 8 or 10 feet in centre of bay. There are several fishermen's houses built on this small bay and the bay affords excellent anchorages for the small sloops engaged in halibut and salmon fishing. Vessels may anchor in bay to the S² of Point Doughty, called by this party the Doughty anchorage, in from 8 to 10 fms water. Good protection against S^{ly} weather may be found by anchoring to the N² and close to Freeman Island, a small island with patches of stunted vegetation, lying near S. end of Doughty Bay. The range S. end of Skip Jack or Wooded island just tang to Point

Hammond, Waldron Island leads into this anchorage. This anchorage was much used by the M^r: Arthur during the season of 1891. The anchorage in Cowlitz Bay may be used in fine weather, but being open to the S^d and W^d is not recommended with the wind blowing strong from this quarter.

- VI. The tides are very strong particularly in the vicinity of East Point and Tumbo Island, off the N. end of Waldron island, and in the channel between the Matia, Sucia, Patos and Orcas Islands. The ebb tide coming down the Gulf of Georgia turns to the S^d around East Point and flows down the Canal de Haro reaching a velocity of 4 to 5 knots. In President channel the velocity of the tidal currents is a little less than in the Canal de Haro. Among the islands the currents are very strong, particularly between Patos and the Sucia Islands. The ebb streams flow to the S^d through the passages between the Patos, Matia and Sucia islands. The tide is split by Orcas island into two streams. The Easterly passing down through the Rosario Straits and the Westerly through the Canal de Haro and Presidents Channel. - To thoroughly determine the velocity and strength of currents extended observations are necessary. A few observations were taken at various points on the sheet and the results have been forwarded to the office. Between Orcas and Sucia Islands the Ebb sets to the W^d and is of moderate strength.

- VII. No ice is formed and there is no drift ice in this vicinity. Fogs are of frequent occur-

ance during late autumn and the winter and in the early morning during the spring.

VIII. During the summer the winds are light and variable and rarely exceed a moderate breeze in strength. During the winter heavy gales occur from the S. E. and S. W. and at rare intervals heavy weather is experienced from the N. E. In bad weather Echo Bay, Sucia Island, forms the most comfortable anchorage on sheet.

IX. There are no life saving stations nor hospitals available for seamen, on sheet. The nearest U. S. Marine Hospital is at Port Townsend.

X. No Quarantine stations on sheet.

XI. Supplies and ship chandlery stores may be purchased at Victoria, Bellingham Bay or Port Townsend. No provisions can be obtained on sheet. Cordwood may be obtained from the settlers in the vicinity. It is rather expensive and supply uncertain. Fresh water is very scarce on the Matia, Pato and Sucia Islands. On the N. shore of Arcas Island excellent water may be got from a stream about $\frac{1}{2}$ mile to the E. of Raceoon Point and also from a good stream running into Doughty Bay.

XII. No wharves on sheet.

XIII. Nearest weather station Bellingham Bay and Time Ball, Seattle. Wash.

XIV. Nearest Dry Docks are at Esquimault, B. C. and at Seattle, Wash.

XV There are no passenger Steamers, railroads or telegraphic facilities. Nearest Post Office at East Sound, Orcas Island.

XVI. Nearest Custom House, Whatcom.

XVII. A few settlers on this sheet, a few fishermen inhabit the Sucia islands and West side of Waldron island. Potos island is uninhabited and there is one settler on the Matia islands.

There are several ranches with slight improvements on the N. shore of Orcas Id.

XVIII. There are no extensive kelp fields on this sheet. Scattered kelp is found fringing the shores of Orcas and Waldron and the other islands on the sheet, on the White Reef, Parkers Reef, West Bank and a reef to the N. of Sucia Island. The kelp patches on West Bank is thick with well defined outline and with difficulty can be crossed with boat or with light launch.

Very respectfully
W. P. Ray
Lieut. U. S. N.
Comdg. M. Arthur.

Hydrographic Sheet 2113.

This sheet includes Washington Sound between Orcas and Saturna Islands, by W. P. Ray, U. S. N., and J. N. Jordan, U. S. N., in 1891.

Two tide stations were used in reducing soundings on this sheet, and at each station the soundings were reduced to the mean of a few selected lowest low waters. The following table shows the correction to the soundings referred to each station in order to reduce them to the plane of mean lower low water.

Correction to reduce soundings
to mean lower low water.

Feet.

Sucia Island, 1891.....	+2.0
Doughty Bay (Freeman Island), 1891.	<u>+1.8</u>
Average correction.....	+1.9

L. P. Shidy,
Jan. 21, 1927.