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Diag. Cht. No. 8252-1

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC - TOPOGRAPHIC  
H-2333, 2334 & 2336  
Field No. .... Office No. T-2298 & 2303

LOCALITY

State SOUTHEAST ALASKA  
General locality CHATHAM STRAIT AND FREDERICK SOUND  
Locality .....

1897

CHIEF OF PARTY

E. K. Moore

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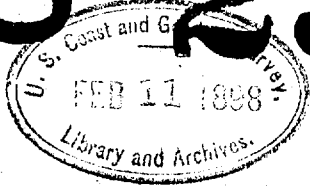
DATE FEBRUARY 11, 1898

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U.S.C. & G.S. Str Patterson.

S.F. Alaska. Season of 1897.

Descriptive Report.

Chatham Strait and Frederick Sound.

E. K. Moore,

Lieut. Comdr., U.S.N.,

Chief of Party.

Hydro charts # 2333, 2334 + 2336  
" " # 2298, 2303

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2334

Diag. Cht. No. 8252-1

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. W. Duffield*  
Superintendent.

State: *Alaska*

DESCRIPTIVE REPORT.

*Hyd<sup>c</sup>* Sheet No. *2334*

LOCALITY:

*See*

*2333*

*1897*  
*190*

CHIEF OF PARTY:

*E. K. Moore*

2334

2336

Diag. Lht. No. 8252-1

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. W. Duffield*  
Superintendent.

State: *Alaska.*

DESCRIPTIVE REPORT.

*Hyd C* Sheet No *2336*

LOCALITY:

*See*

*2333*

*1897*  
*190*

CHIEF OF PARTY:

*E. K. Moore*

2336

U.S.C. & G.S. Str. Patterson.

S.E. Alaska. Season of 1897.

Descriptive Report.

Chatham Strait and Frederick Sound.

E. K. Moore,

Lieut. Comdr., U.S.N.,

Chief of Party.

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U.S.C. & G.S. Str. Patterson.

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Descriptive Report, 1897.

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Chatham Strait and Frederick Sound.

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Topographic Sheet 1/80000.

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Hydrographic Sheet 1/80000, with Sub Sheets.

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It covers Chatham Strait from Pt. Ellis to Pt Gardner on the east side, and the corresponding shore on the west side, with all bays and bights between them. Also Frederick Sound from Pts Gardner and Kingsmill to Chapin Bay and Pt McCartney.

All bearings and distances are approximate.

The mouth of Chatham Strait is 17 miles wide between Cape Ommany and Coronation Id, and 12 miles wide between the cape and the west shore of Kuiu Id, with a length of 152 miles N.W.  $7/8$  N. from Coronation Id. to Pt Retreat, which course should be steered from end to end were there no currents to interfere. The width decreases to 11 miles at Pt. Harris, 10 miles at Pt Ellis, 8 miles near Pt Sullivan, 4 miles at Pt Gardner, and ranges between 4 and 6 miles to Pts Augusta and Marsden, except at and about Killisnoo, where it is 8 miles from Pt Samuel and Distant Pt. to Pts Hayes and Thatcher.

The body of the strait is a very clear, open, and deep sheet of water from end to end, while some of the bays and bights are foul.

The west shore as far as Pt Augusta is high, bluff, and rugged, and free from hidden dangers in the way of navigation from point to point, except from Pt Hayes to Kelp Bay. From off Pt Lull to Pt. Thatcher the shore is not bold, and off Pt Hayes is the dangerous Morris Reef marked

with a black can buoy. The hills are high, moderately wooded up to 1500 or 2000 ft, but bare and rugged above that, some of them reaching the dignity of mountains, with perpetual snow, and here and there glaciers. There are a number of bays and bights on this side where anchorages can be found, some of them so completely hidden that their entrances would not be observed in passing a mile distant, without previous knowledge. The lead is of little use, and there is no anchoring along the shore, for 200 yds off in most places 100 fms are found.

The eastern shore south of Danger head is inclined to be low close to the beach, but rises more gradually back to 1500 and 3000 ft. It is thickly wooded from the waters edge to or near the top, but the tops are frequently bald near the south end. The water is shoaler on this side and the reefs extend out farther, but in most cases they are in the bights and bays, and in no case do they extend out beyond a line drawn  $1/2$  mile off from point to point. The most prominent are: the reef extending  $5/8$  mile W.N.W. from Pt Ellis; those close to Pt. Sullivan, Yasha Id, and Pt Gardner; the one across the mouth of Wilson Cove, N.W.  $3/8$  mile from Pt Caution; Russian reef in line between Pt Caution and Distant Pt,  $2\ 1/3$  miles from Pt Caution and 7 miles from Distant Pt; those in the mouth of Hoots Bay; and between Kenasnow Id. and Danger Pt. Heavy tide rips dangerous for small open boats may be found in various parts of the strait, especially around the points mentioned. Sometimes, however, they will be met with well off shore without apparent cause. The flood tides meet between Pts Hayes and Augusta.

The wind generally draws through the strait parallel to its axis, but if from the N.E. will come down Frederick Sound and be felt in heavy squalls through the divides in the mountains on the east side. It some-

-times draws through Tenakee Inlet and Peril Strait if blowing strong N.W. outside. The S.W. wind draws around Cape Ommany, usually bringing fog and rain as far as Pt Gardner.

POINT HARRIS, the N.W. point of Port Malmsbury and the S.E. point of Tebienkof Bay, is 23 1/2 miles N.N.W. from the west end of Coronation Id. It ends in a bare rock 40 to 50 ft high, which is an island at high water, 200 or 300 yds from the tree line. The land rises back of this to 1500 ft or more. No sounding has been done in this vicinity.

POINT ELLIS, the N.W. point of Tebienkof Bay and the S.E. point of the Bay of Pillars, is 39 miles N.N.W. 1/4 W. from the west end of Coronation Id, and 16 miles N.N.W. 5/8 W. from Pt Harris. The immediate point is low and rocky, with a high wooded ridge rising steep and bluff back of it, having a very prominent landslide on its N.W. face. There is a reef, the top of which always shows, W.N.W. distant 5/8 miles from the point. It is 3/8 mile long N.W. by N. and 1/8 mile wide, with a low water rock in line between it and the point. There is a boat passage between them.

BAY of PILLARS is 7 miles wide at its mouth between Pts Ellis and Sullivan, and 2 1/2 miles deep in its main part, with two Arms extending, one from the N. corner, about 3 1/2 miles N.N.E. then N., called North Arm; the other from the east corner to the N. and E. about 7 miles, called South Arm. There are many islands, rocks and reefs in this bay, from which it takes its name, but a good channel leads into each Arm, with a boat channel back of the islands connecting the mouths of the two Arms. The Patterson passed through this boat channel, but it is not recommended. The bay is open to the S.E. and S.W. and the wind and sea come home strong. A temporary anchorage can be had under Pt Ellis, N.E. of the reef, in 10 to 12 fms, but the bottom is rocky and it is exposed to the S'ly



wind and sea. Temporary anchorages can be had amongst the islands and reefs, but in S'y weather the sea sets in heavy and the wind blows strong and they are not recommended.

SOUTH ARM extends about N.N.E.  $\frac{1}{2}$  E. 10 miles from Pt Ellis and is comparatively clear for navigation for 5 miles, where there is a good anchorage in a bight formed by a little chain of islands and a bend in the south shore, in 10 to 12 fms, beyond which only small craft should go. The channel is parallel to the south shore which is comparatively straight until near these islands forming the anchorage, where it bends a little to the E, and the channel passes around to the N of the islands between them and some bare rocks and ledges off their N.W. end. The anchorage is about E.N.E. from the S. end of these islands and S. by W. from the S. end of the next and larger island beyond, and to the S. of a sunken rock marked with kelp about half way between the islands. Beyond this anchorage  $1\frac{1}{2}$  miles, the Arm narrows to about 100 yds for 1 mile, then opens into a bay  $2\frac{1}{2}$  miles long with an average width of  $\frac{3}{4}$  mile. Near the head of this bay an Arm extends to the S.E. for 1 mile, into the head of which empties a large stream fed by a lake 1 mile distant. An abandoned saltery stands near the head of this stream. Only small craft should enter this bay and then only at or about slack water which occurs at or near H. & L.W. Aside from the current in this neck there are sunken rocks in the channel, which may be seen at low water slack. An anchorage can also be had near the south shore 4 miles from Pt Ellis, off the flat and just beyond the old cannery, in 10 to 12 fms, but the bottom drops off close outside and care should be taken at high water to keep off the flat. There are many kelp patches in all parts of this bay, and they should be avoided on the principle that

**NORTH ARM.** There is a good anchorage near the head of this arm in 5 to 8 fms, and a fair one for a small vessel in the S.W. corner, between a small island and a low water rock on the east side, and a bight made by a high water island on the west side, in 10 to 13 fms. This is somewhat contracted but well protected from the sea and S'ly wind. In fact an anchorage can be had any place in this arm and the neck connecting it with the main bay, but the two described are the best. Two large streams empty into the head of this barm, one at the N.E. and the other at the N.W. corner. Near the latter is a saltery, the only one being operated in this vicinity.

kelp indicates rocks or shall water, though in many of them no dangers were found.

POINT SULLIVAN, the N.W. point of the Bay of Pillars, appears from any direction as long, low, and thickly wooded. The point is rocky at the extremity with a high water rock about 200 yds off shore, and kelp all about for  $\frac{1}{4}$  Mile, but outside of this the water is good. The land rises gradually back into a bald topped ridge about 2800 ft high, with the tree line 500 to 800 ft below the top. S.E. from the point are numerous islands and rocks, with kelp all about them, which appear to be a continuation of the point, but they are inside the Bay of Pillars. To the E. of these islands is a bight  $\frac{3}{4}$  mile long and  $\frac{3}{8}$  mile wide, where an anchorage can be had in 10 to 20 fms, with nearly  $\frac{3}{8}$  mile swinging room. This is a good N.W. lee but is open to the S.W. wind and sea. North of Pt Sullivan is a sand or gravel beach about  $\frac{1}{2}$  mile long, and from the north end of this to Pt Kingsmill the land rises more abruptly into a series of ridges with bald peaks 2500 to 3000 ft high. North of this sand beach 1 mile is a small bay about  $\frac{1}{4}$  mile square with 4 to 6 fms, affording fair protection to small craft.

WASHINGTON BAY,  $2\frac{1}{2}$  miles to the N. of Pt Sullivan, is an arm forming a right angle with the shore line, 2 miles long and  $\frac{1}{4}$  mile wide, with deep water and high steep sides. The entrance is not visible far from the shore, but some high water rocks mark its north side, and the channel is clear south of them, with a good anchorage at the head in 12 to 20 fms. There is the usual stream and flat at the head.

POINT KINGSMILL is the junction of Frederick Sound with Chatham Strait. It is so rounding that coming from any direction it is hard to determine a point. The furthest point to the W., or where it begins to



Entrance to Gut Bay from Chatham Strait abreast of it.

1 pinn  
Bathurst Strait, Abroad of it.

AS



Entrance to Owl Bay from Chatham Strait, a little to the northward

Chatham Strait, S. E. Alaska.  
Belongs to Gunt Bay from  
Chatham Strait, a little to the N. E.



break away to the Nd, is N.N.W.  $5/8$  W.,  $55' / 2$  miles from the west end of Coronation Id, and N.W.  $' / 2$  N.,  $9 \ 5/8$  miles from Pt Sullivan, but the two are not intervisible, while the extreme N.W. point is  $1' / 2$  miles further around.

One half mile beyond this point is a cove, about  $1/2$  mile deep in which a small vessel can anchor, but it is not clear, while one mile further on is the excellent harbor of Security Bay, so that the cove is not recommended.

The immediate shore is low and rocky, with kelp extending in places  $1/4$  mile off, and trees down to the high water mark. It rises, however, from near the shore on all three sides in a dome-like curve to a bald topped mountain about two miles back.

For description east of this point see Pacific Coast Pilot, Alaska, Part 1; and Report of Lieut. Comdr. W. I. Moore, U. S. N., 1892.

POINT PATTERSON is on the west side of the strait and forms the north entrance point to Patterson Bay, not yet surveyed, but said to extend 8 miles back into Baranof Id. It is high, bluff, and bold with a ridge extending up to a rugged peak, one of the highest of the Patterson Mountains, immediately back of it. It is ~~S.W.~~<sup>S.</sup> by W.  $3/4$ ,  $11' / 4$  miles from Pt Sullivan, and S.W. by W.  $1/2$  W. 10 miles from Pt Ellis.

GUT BAY is on the west side,  $10' / 2$  miles to the Nd of Pt Patterson and the shore between them is very bold and bluff with rugged mountains immediately back. There are many small bights and bays along this coast, some of them  $' / 2$  mile deep, but no anchorages. It bears from Pt Ellis W.N.W.  $5/8$  W. 15 miles, from Pt Sullivan W. by S.  $9' / 2$  miles, and from Pt Kingsmill S. by W.  $' / 2$  W. 10 miles. The entrance is about 100 yds wide between the points, which are bold, but it immediately opens out to  $' / 4$





Gut Bay, inside, looking out across Chatham Strait.

23<sup>rd</sup> Shelburne Street, S. E. Alaska.  
Tut Bay, from inside looking  
out and across Shelburne Street.



*Gut Bay, inside, showing one of the walled sides.*

22 3 Ketchikan Strait, S. E. Alaska.  
View East Bay, inside, showing one  
of the walled sides.



Entrance to Hoggott Bay from Chatham Strait abreast of it.

6d

61

16

Beltham Strait, S. E. Alaska.  
Hogwart Bay, entrance, from  
Beltham Strait, above of it.

X



68  
Chatham Strait, S.E. Alaska. Jagged mountains and glaciers 2 miles south of  
Red Bluff Bay

75

Annals of the Society of Friends



6f



Entrance to Red Bluff Bay from Chatham Strait abreast of it

x x Entrance

10 Chatham Strait, S. S. Alaska.  
Entrance to Red Bluff Bay from  
Chatham Strait, ahead of it.  
x x *See map.*

V

mile, and ranges from  $\frac{1}{4}$  to  $\frac{3}{4}$  mile wide for a length of  $4\frac{1}{4}$  miles. Its first general direction is about W.S.W. for 1 mile, then S. by W. for  $1\frac{1}{2}$  miles, and the main body S.W. 2 miles. The sides are very bluff, bold, and rocky, in some places almost perpendicular for 1000 ft or more. Two and one half miles from the entrance, on the south side are some <sup>small</sup> islands, and just past these is the opening of a little bay between high ridges, with a small stream, fed by glaciers, emptying into its head. A small craft can enter this bay at high water and anchor in about 3 fms. The water in the main bay is deep, but a temporary anchorage can be had in the first bend on the south side after entering, off a rocky ledge and a small stream, in about 20 fms, but it is not good as the bottom is rocky and the wind draws in through the mouth with increasing force as it caroms against the steep sides. A fair anchorage can be had near the head in 10 to 20 fms, near where a small stream enters the bay. See photographs of the entrance and the bay inside.

HOGGATT BAY is 2 miles north of Gut Bay and extends back into the mountains of Baranof Id. 3 miles S.W. by S. with an average width of  $\frac{1}{2}$  mile. The sides are steep and bold and the water is deep, over 100 fms through the middle and 40 fms 100 yds from the head, leaving no room for an anchorage. There is a small gorge filled with ice near its head, but no stream. See photograph of the entrance.

RED BLUFF BAY is on the west side and is named from the prominent rocky red hills to the north of it which come down to a low point on the north side of the entrance, and with some small islands in the mouth almost close it. They are lower than the rest of the coast and their color is very marked. It bears from Pt Kingsmill about S.W. by W.  $\frac{1}{2}$  W., 9 miles; from Yasha Id. S.,  $8\frac{1}{2}$  miles. It extends back into the mountains

4 miles in a general S.W. direction, with an average width of  $1/2$  mile, though about the middle it chokes to less than 100 yds between high cliffs, but the channel is good. The shore on the south side is bold and bluff, with high cliffs, almost perpendicular, while that on the north side is low near the entrance, but  $3/4$  mile inside becomes very bold and bluff also. The upper end is almost surrounded with rugged rocky hills 1000 to 3000 ft high, covered with vegetation where it is level enough for the soil to stick, and near the head is a very prominent water fall several hundred feet high. At the head is a very large stream, one of the largest along this coast. The scenery in this and Cut Bay is very grand. The entrance is close around the south shore, south of all of the islands, and is about 100 yds wide, though the channel is less. It is crooked, but clear between the lines of kelp which are quite close to the shore. There is a boat passage among the islands but there are kelp patches and sunken rocks in it. A small vessel may anchor just inside the entrance in the channel between the islands and the south shore.  $1\ 3/4$  miles from the entrance, where the bay begins to narrow, an anchorage can be had in 8 to 12 fms nearly in mid channel, but it is not recommended for the bottom is rocky and the wind sucks through strong when blowing in the strait. At the head is a good anchorage in 12 to 16 fms with soft bottom and perfect protection. See photographs. South of the entrance to this bay about  $1\ 1/2$  miles is a large stream draining an extensive watershed of jagged mountains and mountain glaciers. See photograph.

Between Red Bluff Bay and Cascade Bay, 11 miles to the N, are four small bays the largest being  $1\ 1/4$  miles long and  $1/2$  mile wide, where small craft may find anchorages in smooth weather, but only one, Nelson



Gut Bay, inside. "Patterson" and "Cosmos" at anchor.

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Handwritten text, possibly a signature or name, written vertically on the right side of the page.



72  
Red Bluff Bay, Chatham Strait, S. E. Alaska. Walled Cliffs at Head of  
Anchorage

Red Sea & Bay, the Malacca Straits  
Near its head, around the anchorage.

1872





Pt. Gardner from Frederick Sound bearing N.W.

Mr. D. O. STANLEY.  
at London, from  
Lewick Sound, Harving, N.Y.

T



Point Gardner from Chatham Strait, Bearing S.S.E.

~~170~~ 8  
Whittam Street, S. E. Alaska.  
Print Gardner, from  
Whittam Street, bearing S. S. E.

X

Bay, has protection, and they are unimportant.

CASCADE BAY is 11 miles to the N. of Red Bluff Bay and  $4\frac{1}{2}$  miles W.S.W.  $\frac{1}{4}$  W. from Pt Gardner. It is about 1 mile deep and  $\frac{1}{3}$  mile wide, with deep water, rocky bottom, and no good anchorage. At its head is a prominent cascade, seen from a distance in Frederick Sound. South of this bay  $1\frac{3}{4}$  miles is a very conspicuous waterfall, about 300 ft high, which also shows well into Frederick Sound.

YASHA ISLAND is directly in line between the western point of Kingsmill and Pt Gardner. It bears N.W. by W.  $\frac{1}{2}$  W. dist. 9 miles from the former and S.E. by E.  $\frac{1}{2}$  E. dist.  $3\frac{1}{2}$  miles from the latter. It is 400 yds long by 200 yds wide, with a rock a little over 100 yds off the N.W. end and a ledge extending about 100 yds from the S.E. end, and kelp for 200 yds all around it. The island is low, not reaching 100 ft, wooded at the south end, with some scattering trees, some dead, over the north end, and the whole covered with thick underbrush. The water is good  $\frac{1}{4}$  mile from the shore, though shall for a mile towards Gardner, over which heavy tide rips will be found. In fact sometimes the tide rips extend clear across to Pt Gardner, and along that shore to the E. as far as Carroll Id., in a manner dangerous to small boats.

POINT GARDNER, the south extremity of Admiralty Id, is long, low, and thickly wooded, with two rocks, 20 to 30 ft high, lying in continuation of the point, 600 yds from the tree line, and kelp extending about 200 yds further. There is a mound  $\frac{1}{4}$  mile back from the point, 400 ft high, which marks it prominently from all directions, and 1 mile back of this, and  $1\frac{1}{4}$  miles from the point is a very prominent round hill 800 ft high, which is seen from the mouth of Peril Strait and from Pt Ellis. About  $2\frac{1}{2}$  miles back from the point the elevation reaches 1000 ft. The water is good  $\frac{1}{4}$  mile from the rocks off the point, but  $\frac{1}{2}$  mile should

be given in turning on account of the tide rips frequently encountered here. See photographs.

The rocks off Pt Gardner are in Lat.  $57^{\circ}00'34.6''$  N. Long.  $134^{\circ}36'20''$  W. They are N.  $W\frac{3}{4}$  N. 67 miles from the west end of Coronation Id. and N.W. by W.  $\frac{1}{2}$  W,  $12\frac{3}{8}$  miles from the west point of Kingsmill, and are the turning point going from Frederick Sound into Chatham Strait and the reverse.

SURPRISE HARBOR is fairly well described in the Pacific Coast Pilot, Alaska, Part 1, p. 141. It is N. of Pt Gardner,  $1\frac{1}{4}$  miles wide and 2 miles deep, open to the S. winds and seas, disturbed by tide rips, has kelp patches and sunken rocks along its shores on the north and east sides, rocky bottom, and is not a good anchorage. A kelp patch extends half way across the mouth from Pt Bartlett and there is another near the middle. It is, however, a good lee when the wind is blowing strong down the strait and a sailing vessel may hold on here, but as soon as the wind goes down she should get out before it comes from the Sd.

BARTLETT <sup>Point</sup> BAY,  $1\frac{3}{8}$  miles N.E. by E. from Pt Gardner, is the end of a long, low, and narrow wooded strip, which separates Surprise Harbor from Murder Cove. At high water it is an island which appears wall sided from all directions and is a guide to Murder Cove. A ledge with a small island in the middle of it extends 300 yds south from the point, and a kelp patch extends from S. to S.W.  $\frac{3}{4}$  mile off, and half way across Surprise Harbor. It is foul for  $\frac{1}{4}$  mile all around this point, shown by kelp.

WALKER POINT, 1 mile N.E. by N. from Bartlett Point, is the end of a rounded, wooded peninsula which separates Murder Cove from a foul bight to the E. of it, which almost dries at extreme low water. There are ledges all about the point which bare 200 yds off at extreme low water,

and the kelp extends 300 yds further, making 500 yds from the point.

MURDER COVE is so named because of a double murder committed here in the spring of 1869 by the keku Indians. It is  $2\frac{1}{4}$  miles long from Bartlett Pt and 1 mile wide between that and Walker Pt. At 1 mile from Bartlett Pt it is contracted to 300 yds by a small high water island on each side, and some ledges extending to the N. from them. Inside of these it opens again to  $\frac{1}{4}$  mile, forming the outer anchorage. At  $\frac{3}{4}$  mile further in there are some ledges on each side, contracting the channel to about 100 yds, when it again expands to about 250 yds, forming the inner anchorage. Beyond this is a flat  $\frac{1}{2}$  mile square, at the head of which is a meadow  $\frac{1}{2}$  mile long, with a large stream flowing through it. The outer anchorage is fair in about 17 fms, with some soft bottom, but a small vessel will find the inner anchorage good in about 7 fms, with soft bottom and over 200 yds swinging room. There is an Indian Shack beyond the narrow neck on the east side of the inner anchorage. The Patterson used this anchorage for about six weeks with convenience. It is open nearly south, down Chatham Strait, to the prevailing wind and sea, but they do not "come home" until very heavy, being broken by the outside points, then by the islands half way in, and finally by the ledges forming the inner anchorages. The channel is clear but it is better to enter at low water when all dangers show. The tide rips are sometimes heavy across the mouth when the wind is strong against the current.

CARROLL ISLAND is a square lump of land separated from the point by a good boat passage, but has the appearance of being the continuation of the point. It is  $4\frac{3}{4}$  miles N.E.  $\frac{1}{4}$  E. from the rocks off Pt Gardner, and  $4\frac{5}{8}$  miles N.  $\frac{3}{4}$  E. from Yasha Id. It is prominent in coming through Frederick Sound and is the turning point if coming down Frederick

and going up Chatham, or the reverse. The water is good close to the S. end, and there is a passage on the west side into an anchorage suitable for <sup>very</sup> small craft, behind the island, which is a good S.E. lee, but it should be entered with caution. There is a passage north of this island but all such places should be entered the first time at low water when the dangers show or are marked with kelp. Between Walker Pt and Carroll Id the shore is broken and immediately to the E. of Walker Pt is a bay about 1 mile square, with an island in the middle, which almost fills it. Around the back of the islands are rocks, ledges and kelp, which make it fit only for small boats. N.E. of Carroll Id the coast breaks away to the N.W. for 1 $\frac{1}{4}$  miles, when it assumes a N.N.E. direction for 5 miles to Herring Bay. This Coast is bold and bluff reaching 2000 ft  $\frac{1}{2}$  mile from the shore.

HERRING BAY is about 2 miles wide and the same in depth, with a tongue of land prolonged by rocks and reefs, projecting half way through the middle from the west shore, and a shoal place with kelp near the middle of the mouth in continuation of the tongue. It is open to the S.E. from whence come the strong winds, but surrounded by high hills on the other three sides, which give a good N.W. and N.E. protection. There is a fair anchorage in the N.E. corner for small craft, in 3 to 5 fms, rocky bottom, and another in the N.W. corner for larger vessels, in 8 to 15 fms, with sand and gravel bottom. North east of this bay is a high ridge separating it from Chapin Bay, which terminates in a sharp and rather bluff point. The end of this point is a bare rock about 40 ft high which bears from the S.E. end of Carroll Id N.  $\frac{7}{8}$  E.  $\frac{7}{2}$  miles, but they are not intervisible.

POINT TOWNSHEND, described in the Pacific Coast Pilot, Alaska, Part 1,



p.142, bears from the S.E. end of Carroll Id. N. by E.  $1/8$  E. dist.  $9\frac{1}{2}$  miles.  
It appears from the Wd to be the end of a high ridge which rounds down  
to a low sharp point.

For continuation up Chatham Strait, see Bulletin No. 35 of 1896.

All bearings and distances are approximate and should be verified  
as soon as a proof sheet is struck off.

Very respectfully,



Lieut. Comdr., U. S. N.,

Chief of Party.

HYDROGRAPHIC SHEET NO. 2333.

Part of Chatham Strait and Frederick Sound, Alaska, by  
E. K. Moore, U. S. N., Assistant, Coast and Geodetic Survey, 1897.

The soundings on hydrographic sheet No. 2333 were reduced to the harmonic tide plane. The correction to reduce these soundings to the plane of mean lower low water is +0.5 fathom.

The soundings in red by F. B. T. Siems, in 1925, were reduced to the plane of mean lower low water and require no correction.

*Harri*

Acting Chief, Division of Tides and Currents.

HYDROGRAPHIC SHEET NO. 2334

Bay of Pillars, Chatham Strait, and Murder Cove, Frederick Sound, Alaska, by E. K. Moore, U. S. N., and Assistant, Coast and Geodetic Survey, 1897.

Tides were observed at each of the above places, and the soundings were reduced to the harmonic tide plane. The correction to reduce these soundings to the plane of mean lower low water is +0.5 fathom.

*G. H. R. V.*

HYDROGRAPHIC SHEET NO. 2336.

Washington Bay, Red Bluff Bay, Hoggatt Bay, and Gut Bay,  
Harbors in Chatham Strait, Alaska, by E. K. Moore, U. S. N.,  
and Assistant, Coast and Geodetic Survey, 1897.

Tides were observed at Red Bluff Bay and Gut Bay. The soundings were reduced to the harmonic tide plane. The correction to reduce these soundings to the plane of mean lower low water is +0.5 fathom.

*E. K. Moore*

2333  
2298

2334  
2303

T-2298  
T-2303  
T-2333

Diag. Cht. No. 8252-1

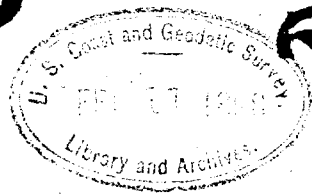
Form 504	
U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	HYDROGRAPHIC TOPOGRAPHIC
	T-2298 & 2303
Field No.	Office No. H-2333 & 2334
LOCALITY	
State	SOUTHEAST ALASKA
General locality	CHALTHAM STRAIT
Locality	
<u>194</u> 1897	
CHIEF OF PARTY	
E. K. Moore	
LIBRARY & ARCHIVES	
DATE	FEBRUARY 11, 1898

333 20

33-35

2298

20



U.S.C. & G.S. Str. Patterson.

S.E. Alaska. Season of 1897.

Sailing directions.

Chatham Strait.

E. K. Moore,  
Lieut. Comdr., U.S.N.,  
Chief of Party.

Hydro. Sheets \* 2333, 2334 ~~and 2335~~

Topo. " \* 2298, 2303 -

By William Tucker

Vertical stamp: 2303 2303 2303 2303 2303 2303 2303 2303 2303 2303

U. S. C. & G. S. Str. Patterson.

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S. E. Alaska. Season of 1897.

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Sailing directions.

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H. K. Moore,

Lieut. Comdr., U. S. N.,

Chief of Party.

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U.S.C. & G.S. Str. Patterson.

Sailing Directions, 1897.

Chatham Strait.

The courses and distances are approximate.

The mouth of Chatham Strait has not yet been surveyed, but the triangulation has been completed to Pt Harris and to a point on the opposite shore west (mag.) from Pt. Harris. The shoreline and hydrography have been completed to Pt Ellis and to Pt Patterson W.S.W. from Pt. Ellis, so that, Having Coronation Id. and the vicinity of Cape Decision completed, comparatively good directions can be given. Cape Ommany is reported by the Comdg. Officer of the "Albatross" to be correct in Lat. but 5 miles west of where it is shown on Chart #8050. Thirteen miles north of the cape the shore line was found 3 miles west of the line laid down, and from that point continuing north 33 miles, the shore is from 2 to 3 miles west of that shown on the same chart. Pt Harris was found to be practically correct in both Lat. and Long., while Pts. Ellis and Sullivan are both about 1 mile west and 3 miles north of the positions laid down. In coming from the Sd. it is suggested to make Coronation Id, which is established and is high and bold, as described in the Pacific Coast Pilot, Part 1, pp. 122 & 123. There is much fog in this vicinity and should Coronation Id. not be sighted, a sharp look out should be kept for the Hazy Ids, which are not well located. The counter current is to the N.W. in this vicinity, and should Coronation Id. not be sighted a vessel will be carried on towards Cape Ommany, and if the flood current is running, into the strait also, but if it is ebb to the contrary.

The shores from Pt Harris south are not surveyed and it is well to



give them a good berth until they are.

Once into Chatham Strait the navigation is easy, for it is a wide, open, and comparatively clear sheet of water, with fair steamer anchorages at short distances. Nearly all hidden dangers lie close to the shore or in the bights between the prominent points, so that a line drawn  $1/2$  mile off from one prominent point to the next will clear everything as far as Pts. Augusta and Marsden, except Morris reef, off Pt Hayes, which is marked by a black can buoy. A reef extends W.N.W. from Pt Ellis  $3/4$  mile but less than  $1/2$  mile into mid channel. The west shore from Cape Ommany to Pt. Augusta, is very bold and the water deep, except between Pts. Lull and Hayes, so that it can be approached within 200 yds except in some of the bights as before mentioned. The east shore is not so bold and bluff close to the beach, and the water deepens more gradually, with some reefs off the points but inside of the  $1/2$  mile line from point to point. Nowhere can an anchorage be had off the open shore with room enough to swing. There is plenty of room for beating, 10 miles at the entrance, 8 miles at Pt Sullivan, 4 miles at Pt Gardner, and nothing less than that at Pts. Augusta and Marsden. The wind generally draws through the strait parallel to its axis, but if from N.E. will come through Frederick Sound and be felt in squalls drawing down through the divides in the mountains on the east side. It sometimes sucks down through Peril Strait and Tenakee Inlet if blowing strong N.W. outside, but most of the west shore is so high and bluff that the strong S.W. winds can not blow down into the strait, but draw around Cape Ommany and through, with fog and rain as far as Pt Gardner.

The mid channel course up the strait from 1 mile west of the west end of Coronation Id. is N.N.W.  $3/4$  W. for 46 miles, to Pt Sullivan abeam N.E. by E.  $1/4$  E. dist 4 miles. Then N.W.  $1/8$  N. for 20 miles, to Pt Gardner,

1/2 pt. abaft the beam, N.E. 5/8 E. dist. 2 miles. Then N.W. by N. for 64 miles to Pt. Marsden abeam, N.E. by E. dist. 2 1/2 miles. Then N.W. 1/4 W. for 11 miles to Station Id. abeam, N.E. 1/4 N. dist. 1 1/2 Miles. Then N.W. 3/4 N. for 11 miles to Pt. Retreat abeam, N.E. 3/4 E. dist. 1 1/2 miles. In fair weather, or even in foul, the first two courses can be lumped into one, N.W. by N. for 66 miles, and pass close to the bluff and bold coast off Gut Bay, where the water is good to 100 yds from the shore. If from Sumner Strait, and desiring to take a mid channel course, when Cape Decision bears N. by E. dist 1 mile, head W. by N. for 12 miles, when steer N.N.W. 3/4 W. for 33 miles to Pt Sullivan. Port Malmsbury and Tebienkof Bay are unsurveyed, but anchorages can be had in both of them as also in Port Conclusion.

BAY of Pillars is 7 miles wide at the mouth between Pts. Ellis and Sullivan, and has one good anchorage in each of its two Arms and several indifferent ones.

To enter the South Arm from the southward, bring Pt Ellis to bear E.S.E. dist. a little over 1 mile; with the reef low water rock and point in line, when round into the bay until heading about N.N.E. 1/2 E., which is the course for 5 miles, keeping about the middle and varying it as necessary to keep clear of the kelp. This course follows the S.E. shore, leaving all of the islands on the port hand, and carries to the N.W. end of a little group of four small islands, making off from the S.E. shore, behind which is the anchorage. When up to the islands haul close around the N.W. end of the larger island, between it and a cluster of bare rocks showing much larger at low water than at high. There is a sunken rock, well marked with kelp, about half way between this island and the next one to the N.E., which, leave on the port hand, and anchor between it and the main shore in 10 to 12 fms, soft bottom. This anchorage has good

protection from wind and sea in all directions. Only small craft should pass beyond this anchorage and they should keep clear of kelp. To go through the neck into the upper bay, pass on either side of the larger island to the Nd. of the anchorage, and head about N. by E. for 1 mile to the neck, and go through the narrow strait channel at slack water, which occurs about the time of high and low. If passing at slack low, look out for sunken rocks and avoid them, but there will be 12 ft or more over them at mean high. The bay is clear inside.

To anchor off the old cannery pursue the same course for  $3\frac{1}{2}$  miles from Pt. Ellis, when the old buildings will be abeam, then haul in to about E. by N. keeping to the Nd. of the end of the flat and anchor in 10 to 12 fms, soft bottom, with the buildings S.  $\frac{1}{2}$  E. about  $\frac{3}{8}$  mile .

If coming down Chatham Strait, head for Pt. Ellis until two miles away, when haul gradually to the Ed. around the islands to the course indicated above.

North Arm. With Pt Ellis N.E. dist 1 mile head N.N.W.  $\frac{1}{2}$  W. for  $3\frac{1}{2}$  miles, keeping  $\frac{1}{2}$  mile outside the islands, when the narrow entrance will open about North, then head for it, keeping in the middle between the islands. When the neck is reached, keep in the middle of it for 1 mile, when haul to the Ed. around an island lying in the mouth of the bay, leaving the island on the port hand and keeping close to it to avoid a low water rock marked with kelp, 250 yds off its S.E. end. The channel to the Wd. of this island has kelp across it, and although there is water enough, there are probably sunken rocks in it. When inside of the bay an anchorage can be had any place, but the best is in the N.W. corner near the saltery, in 5 to 7 fms, keeping clear of the extensive flats

which show at low water. There is a good anchorage for small and medium sized craft, which the Patterson used, in the S.E. corner of this arm, to enter which, in hauling to the Ed. around the island in the mouth of the bay, continue to the Sd. of E. and anchor about midway between the low water rock and a small grass island on the N.E. side, and abreast of a bend in the shore on the S.W. side, in 10 to 13 fms, soft bottom. This is entirely protected from S'ly wind and the sea, with about 300 yds swinging room. Anchor anywhere in the narrow part, but avoid a sunken rock 300 yds off the N.W. shore, about  $2/3$  of the way in, and just past the cove in which stands the buildings of an old saltery.

If coming down Chatham Strait pass Pt. Sullivan about  $1/2$  mile and keep the same distance from the furthest out islands, heading about S.E. by E. until the channell opens, when head as before.

To anchor <sup>under</sup> off Pt. Sullivan, haul around the chain of islands and reefs extending 1 mile S.E. by E. from the point at a distance of about  $3/8$  mile until the anchorage opens N.W. by N., when head for it, and anchor near the middle of the upper end in 13 to 15 fms, rocky bottom.

WASHINGTON BAY is  $2\frac{1}{2}$  miles to the Nd of Pt Sullivan. Bring the mouth wide open bearing N.E. by N. and head into it, favoring the S.E. side on account of some rocky islets on the N.W. side of the entrance. Anchor near the head in 12 to 20 fms, soft bottom, clear of the flat, with good protection from every direction.

Gut Bay is  $10\frac{1}{2}$  miles to the Nd. of Pt Patterson,  $9\frac{1}{2}$  miles W. by S. from Pt. Sullivan, and 10 miles S. by W.  $\frac{1}{2}$  W. from Pt. Kingsmill. Bring the narrow entrance open about S.W. and head straight through the middle of it. Follow the windings  $4\frac{1}{2}$  miles and anchor near the head where a small stream empties, in 6 to 20 fms, soft bottom. A temporary anchorage can be had  $1/2$  mile inside the entrance, off a ledge and small

stream on the south shore in 9 to ~~20~~ 20 fms, but the bottom is rocky and the wind sucks in strong, causing a vessel to sheer and drag.

HOGGATT BAY is 2 miles to the Nd of Gut Bay. It requires no directions. It is wide open W.S.W. and has no anchorage, but a vessel with fenders out could tie up to its sides in many places.

RED BLUFF BAY is 7 miles to the Nd of Gut Bay and  $8\frac{1}{2}$  miles south from Yasha Id. No courses can be given for entering this bay, but pass the southern entrance point close to and follow around the shore keeping about the middle between it and all of the islands, clear of the kelp. The last island may be left on the port hand, though the narrow channel south of it is good. Continue through mid channel about 4 miles to the head, and anchor in 8 to 16 fms, soft bottom, clear of the flat and near a large stream. A small vessel may anchor in the channel and carry lines to trees if necessary.

SURPRISE HARBOR should only be used to hold on against a strong N.W. wind, and then a vessel should get out before it shifts to S.E. Stand in about N.W., keeping from  $\frac{1}{4}$  to  $\frac{1}{2}$  mile from the west shore and anchor about half way between that shore and the first island to the Sd. in 7 fms, rocky bottom. Keep clear of the extensive kelp on the S.E. side, for though there is water enough, there are probably sunken rocks in it.

MURDER COVE is N.E. of Pt Bartlett, which is the first point to the Ed of Pt Gardner, dist  $1\frac{1}{2}$  miles from it. Keep  $\frac{1}{2}$  mile clear of Pt Bartlett to the Sd. and  $\frac{3}{8}$  mile from it to the Ed. and head in N.N.W. or about the middle between it and Pt Walker, and midway between two small islands 1 mile inside of Pt Bartlett. When up to the islands change the course to the Nd. and anchor in the middle of the outer

anchorage in 17 fms, soft bottom; or if a small vessel stand on to about the middle between two reefs, bare at low water,  $3/4$  mile past the two small islands, and anchor in the inner anchorage, in 17 fms, soft and sticky bottom, with 250 yds swinging room.

HERRING BAY is 11 miles to the Nd and Ed of Pt Gardner and is open to the S.E. but affords good protection from the N.W. and N.E. Round the south point and stand in about west until about midway between a small island in the middle and the south shore, when anchor in 8 to 15 fms, depending on the swinging room required, with sand and gravel bottom.

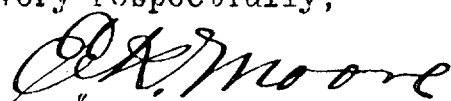
In the N.E. corner a small craft can anchor in 3 to 5 fms, rocky bottom, with 200 yds swinging room.

For continuation up Chatham Strait see Bulletin #35, 1896.

The current runs in Chatham Strait from 1 to 3 knots with the tide. The flood comes in from the Sd and flows to the Nd, entering Frederick sound and Peril Strait. It meets the flood coming from Icy Strait and Cross Sound between Pts Hayes and Augusta.

Strong tide rips are found around the various points, sometimes extending a mile or more into the strait when the current is strong.

Very respectfully,



Lieut. Comdr., U. S. N.,

Chief of Party.

# 2333-Additional Work

Diag. Cht. No. 8252-1

2333-Additional Work

Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
....., Director	
State: S.E. Alaska	
DESCRIPTIVE REPORT	
<del>Topographic</del> Hydrographic	Sheet No. 2333
LOCALITY	
Chatham Strait	
Yasha I.	
1925	
CHIEF OF PARTY	
F. B. T. Siems	

ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 11-DM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON September 28, 1926.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 2333 - Additional Work  
Examination for rocks off Yasha Island, Frederick Sound, Alaska.

Surveyed in 1925.

Telegraphic Instructions dated August 19, 1925 (Inspector, Seattle)

Chief of Party, F. B. T. Siems.

Surveyed by R. D. Home.

Soundings plotted and inked by H. R. Edmonston.

Verified by A. L. Shalowitz.

1. The survey comprises an examination of an uncharted rock reported to have been struck by the Steamer CORDOVA on August 1, 1925. (See letter 366--1925, Chart Division.)
2. The examination confirms the existence of a rock with a depth of 1 5/6 fathoms in a slightly different position from that reported. The original survey (H. 2333) shows 4 3/4 fathoms here surrounded by deeper water, which indicates the importance of following up marked shoalings.
3. The examination discloses an additional rock with a depth of 2 1/2 fathoms about 880 meters south of the 11 ft. spot. The original survey shows approximately 16 fathoms at this point.
4. In plotting the soundings, the signals were first located on Topo. 2298 on account of the hydrographic sheet not having any projection. The soundings were then plotted on tracing paper and transferred to the hydrographic sheet. For information regarding the signals used see Siems' letter of July 17, 1926, filed as descriptive report for this sheet.
5. The 1 5/6 and 2 1/2 fathom soundings are the only ones plotted on the sheet as the others fall either close by or else have no cartographic value.



6. Attention is called to the fact that a careful replotting in the office of the two rocks changes the position of the  $1 \frac{5}{6}$  fathom sounding (reported as 2 fathoms by the field party) from lat.  $56^{\circ} 58' 35''$  to lat.  $56^{\circ} 58' 28''$  and from long.  $134^{\circ} 34' 40''$  to long.  $134^{\circ} 34' 18''$ , or approximately 400 meters in an east south-easterly direction. The change in the  $2 \frac{1}{2}$  fathom sounding is inappreciable for charting purposes.
7. It would be desirable to drag over the area, but as explained by the Chief of Party, it is impossible on account of the streamer kelp.
8. No additional work is necessary.
9. Reviewed by A. L. Shalowitz, September, 1926.

WNB  
MAR 18 1926

~~Division of Hydrography and Topography:~~

Division of Charts:

Tide reducers are approved in  
1 add'l volumes of sounding records for

HYDROGRAPHIC SHEET NO. 2333

Locality: S. E. Alaska

Chief of Party: F. B. T. Siems in 1925

Plane of reference is M. L. L. W. based on predictions.  
ft. on tide staff at

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.
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.

*G. V. Rude*

Chief, Division of Tides and Currents.

POST-OFFICE ADDRESS: 202 Burke Building, Seattle, Washington

TELEGRAM ADDRESS:

EXPRESS OFFICE:

*Correction made  
in orig. records - P*

*file*  
Rec'd *Journal*  
AUG 11 1945  
*PHH*  
3

*GTZ 81833  
945*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
U.S.C. & G.S.S. EXPLORER.

Juneau, Alaska,  
July 17th, 1926.

To: Director, Coast & Geodetic Survey,  
Washington, D. C.

Through: Inspector, Coast & Geodetic Survey,  
Seattle, Washington. *Return to H. & T. Div. for filing*

From: Commanding Officer, U. S. S. EXPLORER,  
Juneau, Alaska.

Subject: Examination of sunken rock - Yasha Island.

Receipt of your letter of June 12th, reference  
16-LM concerning above subject is acknowledged.

2. Before making the examination, I obtained  
positions of triangulation stations in the vicinity of Yasha  
Island from Lieut. J. M. Smock - of these CARROLL and YASHA were  
used in some of the fixes. The stations were plotted on Chart 8250  
which is forwarded herewith. CARROLL is located on the southeast  
tangent of Carrell Island.

3. The signals built for triangulation by Lieut.  
Smock in 1925 were not easily visible for our purpose, so it was  
necessary to resort to the use of the outer tangent of Carrell Island,  
(which is at or near triangulation station CARROLL) in positions 3  
and 4. The right object in both positions is the outer or S. E.  
tangent to Carrell Island. It will be seen from the chart that the  
point inshore from Carrell Island is not visible from the shoals,  
and it was not used. Lieut. R. B. Horne who was in charge of the  
Scandinavia at the time states that outer part of Carrell Island  
appeared to him as a point and he termed it Carrell point in position  
3. No signal was built in the center of Carrell Island, nor was the  
center of the island used as a signal.


4. Positions 1,2, and 3, obtained aboard the Scandinavia, and position 7 obtained aboard the EXPLORER are essentially the same position.

5. No special report was made of the examination as it was considered at the time that little if any information could be furnished in addition to that given in the record and telegraphic report of September 29th.

6. The character of the bottom is rocky and the shoals are marked by what I would call streamer kelp in contradistinction to the ordinary bulb and leaf kelp. The streamer kelp does not become visible until in the immediate vicinity, and in the strong currents off Yasha Island it probably seldom gets to the surface.

7. It was originally intended to drag this area, but as it is impossible to cut the long streamers of kelp, the least water was obtained by sounding.

8. Notes in accordance with the above are indicated on photostats of the sounding record returned herewith.

  
F. B. T. Siems,  
Commanding Officer.

FBTS  
HMT.

WIRE-DRAG RECORD SE Alaska

Yasha Id. - Chatham Strait

Year 19 25 Month Sept Day of Month 29

Boat used { Guiding } Scandinavia - day  
End

TIME			DEPTH TO BE VERIFIED	SOUNDING OF WEIGHT	PULL	DRAG DEPTH	RED'N FOR TIDE	Reduced	
HR.	MIN.	SEC.						EFFECTIVE DEPTH	Surf
3	30		3.1	Rky	3	24			

BOAT'S HEAD BY COMPASS ANGLES AND RANGES COURSE END OF DRAG, REMARKS

sounding for shoal on which Cordova went aground.  
Fathoms Feet

Carroll 1925 = Carroll  
Yasha, 1925 = Yasha

1 3:30 3.1 Rky 3 24

1 Carroll 35-15  
Tyee Lt.  
Gardner Lt. 43-38

2 3:31 2.2 Rky 1 5

2 Carroll 35-20  
Tyee Lt  
Gardner Lt 43-39 104-33  
From Yasha To Carroll

3 3:35 2.2 Rky 1 5

3 SE Carroll I  
Tang. to Carroll Pt 35-35  
Tyee Lt.  
Gardner Lt. 43-40

4 3:42 5.0 Rky 2 44

4 SE  
Tang. to Carroll Island  
(High water line 33-57)  
Tyee Lt.  
Gardner Lt 43-10

5 3:55 3.2 Rky 3 0

5 Kingsmill Lt. 14-20  
Yasha  
Tyee Lt 123-53  
Kingsmill to Carroll 104-08  
Carroll to Gardner Lt. 71-16

6 4:00 2.5 Rky 2 3

6 Kingsmill Lt 14-06  
Yasha  
Tyee Lt. 123-50

Kingsmill 104-27  
Carroll  
Gardner Lt. 71-11

## WIRE-DRAW RECORD

S.E. Alaska

Yashold. Chatham Strait.

Year 1925 Month Sept. Day of Month 29

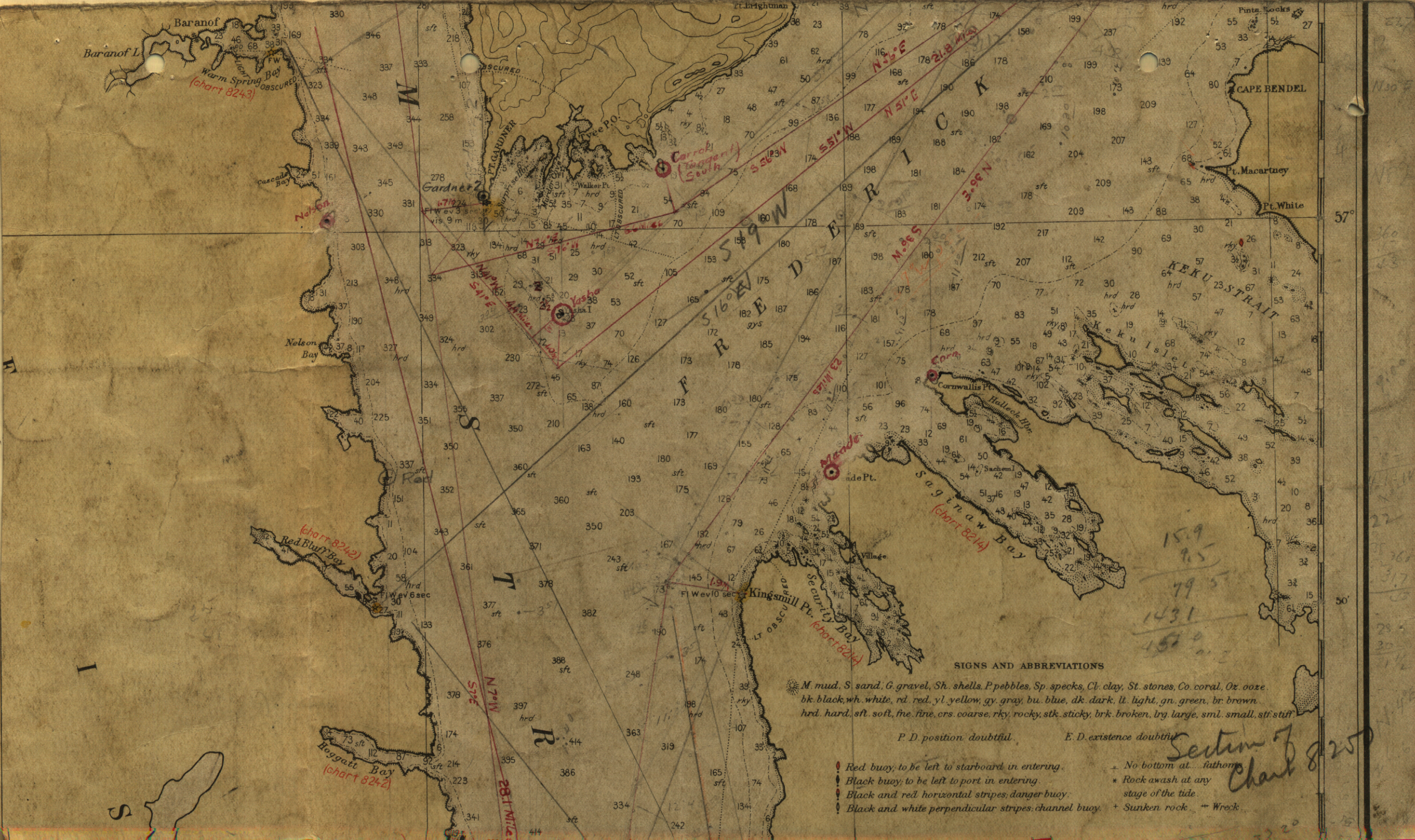
11-817

Boat used { Guiding } Explorer.

— day

TIME			DEPTH TO BE VERIFIED	LENGTH OF CABLE	FULL	DRAG DEPTH	READ'G FOR TIDE	REDUCED EFFECTIVE DEPTH	BOAT'S HEAD BY COMPASS	ANGLES AND RANGES	COURSE END OF DRAG, REMARKS
Mo.	Da.	P. M.									
			ft	ft	Lbs.	Feet	Feet	ft			
Sounding from Explorer -											
17		26	33	Rky	3	3	0'			Carol	35-20
										Tyce Lt.	
										Gardner Lt.	43-50

P.M. M.L.L.W.  
 W.W.B.  
 G.L.A.  
 W.W.B.  
 G.L.A.



**SIGNS AND ABBREVIATIONS**

M. mud, S. sand, G. gravel, Sh. shells, P. pebbles, Sp. specks, Cl. clay, St. stones, Co. coral, Oz. ooze  
 bk black, wh. white, rd. red, yl. yellow, gy. gray, bu. blue, dk. dark, lt. light, gn. green, br. brown  
 hrd. hard, sft. soft, fine. fine, crs. coarse, rky. rocky, stk. sticky, brk. broken, lrg. large, sml. small, sft. stiff

P. D. position doubtful. E. D. existence doubtful.

- Red buoy, to be left to starboard in entering.
- Black buoy, to be left to port in entering.
- Black and red horizontal stripes, danger buoy.
- Black and white perpendicular stripes, channel buoy.
- No bottom at... fathoms.
- \* Rock awash at any stage of the tide.
- + Sunken rock. + Wreck.

*Section of Chart 825*

15.9  
 9.5  
 49.5  
 1431  
 450