

3912

See Topo. 2746a

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Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. Office No. H-3912

LOCALITY

State ALASKA (SOUTHEAST)

General locality CLARENCE STRAIT

Locality NORTHERN PART OF KASHEVAROF PASS-
AGE

194 16

CHIEF OF PARTY

C. G. Quillian

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DATE JANUARY 6, 1917.

B-1870-1 (1)

3912

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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. _____

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

General locality . . **Clarence Strait**

Locality . **Northern Part of Kashevarof Passage**

Chief of party . **C. G. Quillian**

Surveyed by . . **C. T. Bussell**

Date of survey . **June 20 to August 12, 1916.**

Scale **1-20,000**

Soundings in . **Fathoms**

Plane of reference **(M. of L.L.W.)**
4.3 at Exchange Cove, . . . Bushy Id. Anchorage

Protracted by **C. T. B.** . Soundings in pencil by

Inked by Verified by

Records accompanying sheet (check those forwarded):

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

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

Data from other sources affecting sheet

Remarks:

C. & G. SURVEY
L. & A.
JAN 6 1917
Acc. No.

Descriptive Report to accompany sheet No. 3912

Northern Part of Kashevarof Passage

S. E. Alaska

GENERAL DESCRIPTION. The general aspect of this region is that of medium sized, low, rolling tree clad hills. One half mile west true of Exchange Cove is the only prominent mountain adjacent to the shoreline. This mountain rises to a height of 1880 feet and is tree clad nearly to the summit, which is covered with snow throughout most of the summer. This mountain is in the shape of a ridge running north and south.

Trees, mostly evergreens, cover in dense profusion all the islands and practically all the land above high water line. Although the soil is evidently fertile the great number of standing dead trees would indicate that it is not very deep in many places. The trees within a hundred meters of the shore will average about seventy-five feet high and two to three feet in diameter.

The shores of Kashevarof Passage are lined with driftwood in great profusion. This drift does not enter the coves and small bays to any great extent and is composed mostly of fallen timber. A very large percentage of the driftwood is in an excellent state of preservation and appears to be merely well seasoned instead of decayed.

The water supply is dependent mainly upon the rain fall although in the comparatively dry summer of 1916 there were always numerous small streams of a sufficient size to enable small craft to replenish their water supply. Within twenty-four hours of a heavy rain drinking water may be obtained from innumerable temporary streams. Water may be always obtained at the head of Exchange Cove with a light skiff at high water but the streams there are probably infested with salmon during the salmon season.

OUTLYING ISLANDS AND DANGERS. The islands are all wooded above extreme high water and have an average height of about a hundred and thirty feet to the tree tops. A peculiar feature of four of the small islands in Kashevarof Passage is a small knoll or rock on the southern end of the island. Fire Island and Echo Island each have at the southern end a grassy knoll connected with the mainland by a narrow stretch of low land about three hundred and fifty meters long. Tide Island has an uncovering rock ^fifty meters in diameter at low water about fifty meters to the south of it. The small island lying fifteen hundred meters to the east of the southern end of Exchange Island has a small rock five hundred meters south of it. It is bare at all tides. This peculiar formation, in connection with the fact that the prevailing direction of the major axes of the submerged shoals in this region is north and south, would seem to indicate considerable glacial action. The islands in this locality are in most cases groups of from two to four smaller islands separated by shoal or very foul water.

There are a number of detached rocks which cover at high water and are dangers to navigation. These occur at places not apt to be suspected of being foul although they may be roughly said to lie in two main groups. One group is in the northern end of the narrow part of the Passage and extends from west of the northern end of West Island to Fire Island and Echo Island. The other group lies between Point Colpoys and the vicinity of Rookery Islands.

The nature of the rocks in this locality is such that a survey by lead line is very apt to miss a great many rocks. It is impossible to pronounce an area clear of rocks until after it has been dragged.

Kelp occurs in many places in Kashevarof Passage but it is not to be considered as permanent. It was much more profuse at the end of the summer than in the spring when first arriving in this locality. In many places it is run under by the tide and does not show except at slack current. Owing to the fact that a great part of this kelp disappears in the winter it was not thought advisable to ink in the kelp but a note should go on the chart indicating the seasons in which kelp may be encountered. Practically all kelp observed from the sounding launch is shown on the boat^{sheet} or is entered as a note in the sounding record. Kelp may be considered a certain indication of a rock although it may have been eight to ten fathoms of water on it or less. BUT KELP DOES NOT SHOW AROUND ALL DANGEROUS ROCKS.

A ROCK bare 7 feet at M. L. L. W. lies 540 yards 297 degrees true from signal LEDGE.

A ROCK bare 9 feet at M. L. L. W. lies two thirds of a nautical mile 318 degrees true from signal LEDGE.

A ROCK with one foot of water on it at M. L. L. W. lies two thirds of a nautical 337 degrees true from signal LEDGE.

A ROCK bare ten feet at M. L. L. W. lies four hundred and eighty yards 96 degrees true from signal TOY.

TWO ROCKS with about one foot of water on them at M. L. L. W. lie five ninths of a nautical mile 149 degrees true from signal IRE.

A ROCK with about two feet of water on it at M. L. L. W. lies 600 yards 84 degrees true from signal IRE.

A ROCK just awash at M. L. L. W. lies 340 yards 85 degrees true from signal IRE.

A ROCK with about one or two fathoms on it at M. L. L. W. lies 780 meters north true of signal GLAD. This rock was located by a rod reading with a plane table but the depth of water was not determined. Sounding lines were run in this immediate vicinity but the least depth of water was not determined as the area was not fully developed, the sounding party not knowing at the time the hydrography was executed that a rock had been seen in this locality.

Signal NU is located on a ROCK bare 12 to 15 feet at M. L. L. W.

A GROUP OF ROCKS five hundred yards in diameter, bare 8 feet, lies $\frac{1}{2}$ a nautical mile 145 degrees true from signal NU. These rocks were covered with kelp in July.

A SUNKEN ROCK WITH SIX FEET OF WATER ON IT at M. L. L. W. lies 700 yards 10 degrees true from signal HERB.

A SUNKEN ROCK with about two fathoms on it at M. L. L. W. lies 275 yards 315 degrees true from signal NU.

A DOUBLE ROCK lies 800 yards 355 degrees true from signal NU. This rock bares about seven feet at M. L. L. W.

A SUNKEN ROCK with about two fathoms of water on it lies 775 yards 324 degrees true from signal NU.

A SUNKEN ROCK with about 18 feet at M. L. L. W. lies 530 yards 313 degrees true from signal TED.

Tide rips occur chiefly in the narrow part of Kashevarof Passage and at the northern entrance of Snow Passage. There are also a number of places in Snow Passage itself where the tide rips occur. In neither Kashevarof nor Snow Passage were tide rips observed having a maximum height of over two feet. These would not be dangerous to anything but very small open boats. The effect of no very heavy wind was observed.

Owing to the variable direction of the currents in the narrow part of Kashevarof Passage the wind does not increase the height of the sea as much as would be expected. When the wind is blowing against the current at the northern entrance of Snow Passage a considerable sea sometimes makes up.

CURRENTS. The currents are tidal but are increased in velocity as would be expected by the hour-glass configuration of the shore line of the Passage. The narrow part is also the shallowest thus tending to increase the velocity of the current.

The strongest current was observed just east of Fire Island. About 5.30 p.m., July 17, a gas launch making between five and six knots was unable to make any headway going south while trying to pass three hundred meters east of this island. H. W. was at 2.40 p.m. on this date at Exchange Cove. There was no wind at the time and the sea was smooth with the exception of the tide rips and whirls caused by the motion of the water over the uneven bottom.

Except at slack water there are always whirls of current on either side of Fire Island, off the mouth of Exchange Cove, and from Exchange Cove to a point half a mile south of the small island lying 1500 meters east of the southern end of Exchange Island. The strongest and biggest whirls occur at about half tide three hundred and fifty meters east of Fire Island. These are caused by the two rocks which were found in this locality uncovering at extreme low tide.

The current does not set fair with the channel except where it is not obstructed by the islands. As a general rule the current takes a streamline direction around the islands in the narrow part of Kashevarof Passage. The current running south through the passage east of Fire Island bends into the mouth of Exchange Cove about two hundred and fifty meters and continues on again.

The current sets fair with the channel in Snow Passage and is very swift. There are numerous whirls along the sides of

The channel but nothing dangerous was found. The current is very strong close inshore at Point Colpoys and has a streamline direction, bending east around the point into Summer Strait or south into Kashevarof Passage when ~~running~~ the other way.

The current sets fair with the channel in Ossipee Channel and has the same general direction as the current in Snow Passage. That is, when the current is running north in Snow Passage it runs ~~east~~^{west} in Ossipee Channel and vice versa.

In Kashevarof Passage the first of the flood and last of the ebb run south and the last of the flood and the first of the ebb run north.

INSHORE DANGERS. The general nature of the inshore dangers is that of rocky ledges which extend from the shore in unexpected places or else are covered at high water so as to be invisible then.

A LEDGE or group of rocks awash at half tide extends 150 yards from shore at a point on the east side of and a little north of the middle of Exchange Island. This ledge is just east of the point forming the east side of the biggest cove on this side of the Island.

A LEDGE extends 220 yards in a N. W. direction from the north west corner of Fire Island. The outer end of this ledge is three feet above the plane of reference.

A LEDGE and group of rocks runs from triangulation station LAVA south to signal LE. This ledge extends 150 yards north of triangulation station LAVA and 425 yards east from the shore

between signal LAVA and LE. This LEDGE is about awash at H. W.

A LEDGE extends 300 yards north true from the small point just north of signal SORE. This ledge bares 3 feet at the outer end at L. W.

A GROUP OF ROCKS bare 8 feet at M. L. L. W. is located 530 yards 335 degrees true from signal ARM. This group of ROCKS is about 340 yards in diameter and was covered with kelp in July.

A GROUP OF ROCKS is located 235 yards 25 degrees true from signal PIN. These ROCKS are bare 8 feet at M. L. L. W. and were covered with kelp in July.

A GROUP OF ROCKS bare 9 feet at M. L. L. W. extends 200 yards north true from signal COLPOYS. These rocks were covered with kelp in July.

A ROCK bare at L. W. is located 520 yards and 190 degrees true from Signal MAC

A ROCK bare at L. W. is located 225 yards 180 degrees true from signal MAC.

FOR INFORMATION CONCERNING OTHER ROCKS in the vicinity of MacNamara Point and the shore line of Zarembo Island in the neighborhood of Snow Passage see Topographic sheet of that locality. There are numerous ledges and rocks along ^{the} Zarembo Island shore of Snow Passage.

A GROUP OF ROCKS bare from 1 to 5 feet at M. L. L. W. extends 600 meters 225 degrees true from signal BLUE. These ROCKS were covered with kelp in August.

A LEDGE OF ROCKS bare from 8 to 12 feet at M. L. L. W. extends 2/3 of a nautical mile 160 degrees true from Snow Passage Lighthouse (Signal SNOW). These ROCKS were fringed by kelp in August.

A GROUP OF ROCKS surrounds signal TART within a radius of 400 yards. These ROCKS are not all bare at low water but some of them bare 4 to 7 feet. These ROCKS were surrounded by heavy kelp in August.

A GROUP OF ROCKS extends 625 yards 145 degrees true from signal LAD. These rocks bare 1 to 3 feet at M. L. L. W. and were surrounded by kelp in August.

A ROCK 600 yards 225 degrees true from signal DOVE bares 15 feet at M. L. L. W. and lies 450 yards off shore.

A ROCK bare 1 foot at M. L. L. W. lies 450 yards 335 degrees true from signal DOVE This rock was surrounded by kelp in August.

Two ROCKS with about fifteen feet of water over them at M. L. L. W. lie 575 yards north true from signal LOT. These rocks were covered with kelp in July.

THE AREA between signal LEDGE and Echo Island and half a nautical mile ^{west} from Shrubby Island is foul with rocks.

A ROCK bare two Feet at M. L. L.W. lies 580 yards 285 degrees true from signal CHANGE.

CHANNELS. Snow Passage is clear for any sized vessels, this channel having been dragged in the summer of 1916.

Ossipee Channel has not been dragged but given every evidence as far as ^a survey with lead line alone can give, of being ~~clear for navigation.~~ This survey shows a clear channel of 5 Fath. Through Ossipee Channel.

The narrow or most dangerous part of Kashevaruf Passage has not been dragged yet and the channel can not be guaranteed. Owing to the fact that it was expected to supplement this survey with the wire drag, very little development of shoals or indications of shoals was done. Taking these things into consideration, this survey shows a clear channel with $1\frac{3}{4}$ fathoms of water in it, running west of Fire Island, about midway between ^{Prince} P. of ~~Wales~~ ^{Wales} Island and Fire Island, thence midway between the entrance to Exchange Cove and the double island lying three fifths of a nautical mile west of Exchange Cove, thence one fifth of a nautical mile east of the rocky wooded island lying seven eighths of a nautical mile east of the southern end of Exchange Island, thence midway between West Island and the small Sparsely wooded rocky islet on which triangulation station MID is located, and thence on keeping at least one third of a nautical mile west of the southern end of West Island.

When running north or south, bound to or coming from Point Colpoys, keep within three hundred and fifty yards of ^{Prince Wales} P. of ~~W~~ ^{Wales} Island to clear the dangerous rocks farther off shore in this locality. To clear these rocks going east of them, keep the second island from the east of the Rookery group on range with the south tangent of Tide Islands until Point Colpoys bears two Points and a half north of the beam. Going from Salmon Bay around ^{the} north end of Zarembo Island, hold a range on the first point on Zarembo Island north of MacNamara Pt. until abreast of Rookery Island.

The channel east of Echo Island is foul and choked up with heavy kelp during the summer months. It is impassable except at slack water.

ANCHORAGES. Exchange Cove is the largest sheltered anchorage in the vicinity of Kashevarof Passage. This anchorage was used frequently by the Str PATTERSON during the summer of 1916 and although no heavy gales were encountered while lying in this harbor it proved to be a satisfactory anchorage. The bottom is mixed sand and mud, also sticky in places. There is not very ^{much} swinging room for a vessel of ^{the} Patterson's size but it is well protected from all directions. The depth gradually varies from ten or eleven fathoms to nothing at the head of the cove. Shelter may be found in this cove for a great number of vessels of the fisherman's type. At the head of the anchorage is ample room and a fine soft bottom free from rocks suitable for beaching smaller vessels in need of repairs to their bottoms etc.

At the northern end of Bushy Island is anchorage for medium sized vessels well sheltered from all winds except west and north west winds. This anchorage was closely surveyed and was used several times by the Str. PATTERSON but not in any severe blows. The bottom is sticky in places with sand, shell and hard bottom in other places with a depth of about ten fathoms. This anchorage will accommodate a number of medium sized vessels of the fisherman class and close up in shore is good protection for small craft except from west and north west winds. There are TWO ROCKS

with about fifteen feet at M. L. L. W. lying three hundred and sixty yards west of the island in the northeast corner of this little bight or anchorage.

Salmon Bay affords good shelter from all winds for small boats drawing six or eight feet and sixty or seventy feet long. There is not much swinging room for vessels larger than the above size. This harbor is much used by natives and fishermen during the salmon season. The head of the bay bares at low water.

SURVEY METHODS. The work was controlled by signals located by the plane table and tertiary triangulation.

Owing to the fact that it was expected to supplement this survey with the wire drag very little development was done. Therefore all suspicious spots should be developed unless it is intended to drag them later.

This work was done in accordance with the Superintendent's instructions dated February 4, 1916.

Respectfully submitted

A. B. Bussell

Aid. Geog. Survey

Statistics sheet No.

Northern Part of Kashevarof Passage.

Date, 1916	Letter	Volume	Positions	Soundings	Miles Statute	Vessel
May 18	aa	2	3	3	0.0	Dinghy
June 20	a	1	195	420	9.2	Launch "Delta"
June 21	b	1	141	308	6.9	"Delta"
" 22	c	1&2	166	444	9.4	"
" 23	d	2	45	133	2.9	"
" 26	e	2	128	364	7.5	"
" 27	f	3	157	460	10.2	"
" 28	g	3	72	207	5.0	"
" 29	h	3&4	104	308	8.5	"
" 30	j	4	140	434	13.0	"
July 1	k	4	86	239	4.1	"
" 8	l	5	40	122	4.6	"
" 10	m	5	34	133	4.0	"
" 11	n	5	101	324	14.2	"
" 12	p	5&6	84	288	10.9	"
" 14	q	6	70	298	7.5	"
" 15	r	6	59	294	4.6	"
" 17	s	6	57	208	6.1	"
" 19	t	6&7	94	314	15.8	"
" 20	u	7	31	104	6.0	"
" 21	v	7	106	357	23.5	"

Statistics sheet No.

Northern Part of Kashevarof Passage.

Date, 1916	Letter	Volume	Positions	Soundings	Miles Statute	Vessel
July 25	w	7&8	93	355	17.6	Launch "Delta"
" 26	x	8	66	245	14.5	"
" 27	y	8	96	537	14.8	"
" 31	z	8&9	38	161	5.0	"
August 1	a'	9	27	83	2.2	"
" 2	b'	9	57	271	8.5	"
" 3	c'	9	38	154	3.2	"
" 8	d'	9	71	319	10.6	"
" 9	e'	9 & 10	99	494	15.9	"
" 10	f'	10	75	330	11.3	"
" 11	g'	10	90	514	23.5	"
" 12	h'	10	61	352	9.5	"
Totals,	33	10	2724	9577	310.2	

U.S.S.A.
L.P.A.

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WASHINGTON, D. C.

REFER TO NO. 5-VEC

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

October 12, 1917

LIBRARY
Place with descriptive report
of hydrographic sheet No. 3912
Drawing Section.

Division of Hydrography and Topography: *W*

Division of Charts:

Tidal reductions are approved in
10 volumes of Sounding records for

HYDROGRAPHIC SHEET 3912

Kashevarof Passage, Clarence Strait, Alaska
C.G. Quillian in 1916

Plane of reference is
Mean lower low water, reading

4.3 ft. on tide staff at Exchange Cove
3.0 " " " " " Lake Bay.

L. P. Shidy

Acting Chief, Section of
Tides and Currents.

Draftsman's

Criticism - Hyd - 3912.

Development

The sheet is not developed well especially in spots. On the Zarembo I. shore it is practically impossible to draw any curves except the 20 fathom. A 26 foot spot, one eighth mile distant from the steamer track along the western side of Zarembo I. was not developed at all. In Snow Passage, practically no work was done. The Prince of Wales I. shore was better developed so that it was possible to draw depth curves nearly continuously. The area was covered by the wire drag the same season the hydrography was done. Soundings from the drag sheets were put on in pencil because the drag sheets had not, at that time, been verified.

The records were well kept and
all legible.

EK Ellis,
Driftman.