

3954

C. & G. SURVEY  
L. & A.  
MAY 7 1917  
No.

Diag. Chart No. 8551-2

NO. 3954

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

State: *Alaska*

11-5613

DESCRIPTIVE REPORT.

*Hyd.* Sheet No. *3954*

LOCALITY:

*Copper River Delta*  
*Egg Island to*  
*Point Barstwick*

1916

CHIEF OF PARTY:  
*E. E. Smith*

3954

Copper River Delta, Alaska.

Egg Island to Point Bentinck.

The most prominent characteristic of this sheet is the immense amount of mud and sand which the Copper River has deposited.

For a distance of about five miles off the main shore this deposit is filled in approximately to the level of mean tide and makes coasting impossible except for light draft vessels.

The prevailing wind are easterly. Clouds frequently obscure the best landmarks and peaks. Tidal currents attain 2 to 3.5 knots velocity in all channels during spring tides. See report on Currents in Orca Inlet and the Copper River Delta.

One may anchor anywhere in the channels in good weather. There is no protection from the prevailing wind ~~but~~ shelter from the sea is afforded to small craft in Boswell Bay. See report on Boswell Bay.

Point Bentinck is a low sandy point, grass covered, with sand dunes and brush half a mile back. At low tide sand flats are bare for two miles off the point. Part of this area is above ordinary high tide, offering a footing for sparse grass and a lodging place for drift wood. Shoals conforming in outline to the flats continue off the point, a reduced sounding of nine feet having been found in the closely developed spot four miles southeast of Station Beach at position 134D. a short distance further out the shoal drops off into deeper water. This long shoal is the home of ground swells, chopping seas and breakers, The limits of the breakers as found in the weather in which the Taku could work there are shown on the boat sheet. The bare flats are also shown.

Outside of the sand bars to the eastward of Point Bentinck the bottom drops to three fathoms within the first half mile, then slopes off to the ten fathom curve three or four miles away. The best water is found approaching from the eastward following the low water line of breakers about half a mile off. This will lead over nineteen feet at low water although eighteen feet may be carried straight up the axis of the channel. After crossing the three fathom bar the bottom drops off to ten to twelve fathoms in the narrow entrance. Low water is the best time for entering as the flats are bare and of some aid. In the entrance they may be approached close to at low tide. It is much safer to pick up the flats and follow along from the eastward than than to make the entrance from the westward as a craft of any draft would have to go far around the shoals and having no landmark for several miles and no ranges or aids might find itself on the shoal with a heavy ground swell running. No stranger should attempt this entrance. During the past season no vessel or boat of any size was seen to enter or leave this inlet.

The features which might be made out on approaching this coast from the open sea are the generally sharp and bare topped

peaks on Point Whitshed and Hinchinbrook Island, the bluff at Point Steele with a ridge back of it and lower land on each side of it, the rounded wooded knoll on Mummy Island and a higher knoll (798 feet) in the northeast part of Hinchinbrook Island, the rolling foot hills near the wireless station, the flat sandy Point Bentinck and the surf along the outer sand bars. There is a small group of trees, of which signal Dub is the highest, near the eastern part of Egg Island. These are the most prominent of any objects on the outer bars and should be charted. (See list of landmarks.) Otherwise the bars are featureless.

There is a rock, submerged three feet at low tide, in mid channel just inside the entrance. The officer in charge of the sounding boat felt around this rock, with the lead in his own hands, when there was about a fathom of water over it. It is about a foot across the top and stands a few feet above the rest of the shoal. It seems to be a large rock covered with sand. It may be passed close to on either side but constitutes a menace to any who do not know definitely where it is. As it stands squarely in a swift current it is often indicated by ripples on the surface.

There is a small rock in the edge of the mud at the low water line on the south side of the entrance to Boswell Bay. It stands two or three feet above low water and the surrounding mud. No other rocks which might be sources of danger are known. Mud flats were sketched on the boat sheet where they were seen bare.

From the entrance the channel runs in a straight line past Station Girl at the northeast point of Hinchinbrook Island. A vessel in the middle of the entrance can pick up a range on this northeast point and run in on it passing the middle ground shoal close to on his starboard side. On approaching the point of the island hold off to pass the point 200 meters away. Abreast of Station Girl the channel is 400 meters wide; in the entrance, 800 meters wide. 20 Feet can be carried over the range mentioned but 40 feet can be carried around the other side of the shoal.

An arm of this channel carries twelve to fourteen feet of water past Pinnacle Rock and to the eastward around Mummy Island, thence leading across the mud flats to the west side of Orca Inlet north of Conoe Pass becoming very narrow and shoal. From the east end of Mummy Island three feet of water can be carried to the wireless station.

From Mummy Island to Point Whitshed there is very little water. It gets shoaler and shoaler till there is only one foot about half a mile south of Government Rock (Station Whitshed). On this stretch the two rocks three quarters of a mile south of the wireless station are avoided by bringing the highest point on Mummy Island in range with Peak 50. The rocks (Twin Rks.) are bare when there is about five feet of tide. When they are just covered there is about six feet of water over the shoalest part of this passage. There are no other dangers along this route.

Beginning half a mile south of Point Whitshed and increasing in size toward the entrance east of Egg Island. A large slough drains this part of the flats. At its lower end it is about 300 meters wide and two to five fathoms deep. The fishermen follow the slough by means of trees annually placed in the mud at the turns. The slough very much resembles the original survey. Each year trees are placed perhaps on the inner point of a turn so a boat must go around it and the next year on the opposite side so the turn is made inside of the tree. This may account to some extent for the idea that the channel is very changeable. It no doubt changes some but I believe the conception of it changes more. The river and glacier ice does not pile up here.

Surrounding the Egg Islands there is a large area of mud flats bare at low water. In these flats there are many narrow, crooked ditches with steep banks which accounts for an occasional deep sounding (four or five feet more than those preceding or following). The ~~sta~~ ditches leading seaward past Station Ben and Station Mock have no connection with the inshore channels but serve only to drain the flats locally.

To the westward of Point Steele there are many large rocks along the foot of the bluffs. Of these signal Rock and the large one shown on the 1/80,000 scale sheet near Lat. 60-20, Long. 146-16 are the largest and lay <sup>at</sup> furthest off shore.

This territory was previously surveyed in 1899 on hydrographic sheet No. 2438. The general trend of the principal channels and bars is similar but the details have changed considerably.

Respectfully submitted,

(Signed) P. F. Benedict.

## Hydrographic signals on B sheet.

Copper River Delta, Alaska; E. E. Smith, Assistant, Chief of party;  
Season of 1916, Valdes datum.

SPY

60 24 (1254) Station is the very pointed peak of a rock about 15 ft.  
146 06 (0522)  
(570) in diameter and 15 ft. high. It is the first rock at this  
point on the right hand entering Boswell Bay.

\* \* \* \* \*

Fall

60 26 (1675) Station is the top of a very prominent waterfall on  
145 50 (0800) the south shore of Cape Whithed. Easily identified.

The fall carried plenty of water during the dryest part of the 1916 season.

## Hydrographic signals on B sheet

Copper River Delta, Alaska; E.E. Smith, Assistant, Chief of party,  
Season of 1916, Valdez datum.

Lost (not  $\Delta$  Lost)

60 27 (1595) Station is a rock about 15 ft. in diameter and  
146 03 (0049) 20 ft. high, standing alone a short distance  
south of Lost Id. Prominent and easily identified.

\* \* \* \* \*

Moon

60 27 (0768) Station is a white wash on a bluff.

146 01 (0420)

*Not recoverable*

\* \* \* \* \*

Gin

60 27 (1027) Station is the highest tree in the center of

146 00 (0744)

the highest part of Mummy Id. *Probably recoverable*

\* \* \* \* \*

Less

60 27 (0151) Station is a tree stuck up in the mud at a

145 59 (0092)

turning point in the channel. Endures only

a few months.

\* \* \* \* \*

Wire

60 27 (1360)

145 58 (0410)

~~Same as Less.~~*A tree similar to Less*

\* \* \* \* \*

Tree 1 Egg Id. Channel

60 26 (0188)

145 53 (0522)

~~Same as Less.~~*A tree similar to Less*

\* \* \* \* \*

Description of the hydrographic signals which were located by triangulation.

Copper River Delta, Alaska; Season of 1916; E. E. Smith, Asst. C. of P.

Cat A pole with banners erected about 15 ft. above H. W. on the extreme southern point of a small island. Not enduring.

Ben A pole with banners erected on the sand bar. Not enduring.

Dub The highest of three or four dead trees. Probably will endure a few years. These are the only trees on any of the outer sand bars within miles of this point.

Tree 7 Egg I. Channel A tree stuck up in the mud at a turning point in the channel. Endures only a few months.

Nab The pointed peak of a large rock 90 ft. high on the right hand side entering Boswell Bay. It is narrow in an east and west direction and stands alone adjoining the south face of Ban which is a still larger rock.

Ban The top of a large rock 156 ft. high standing in the water on the right hand side entering Boswell Bay. Favorable for use as a hydrographic signal for considerable distances to the eastward.

Rock entrance Boswell Bay A large rock 140 ft. high standing in the water near Nab and Ban. It is the first rock of this kind at the entrance.

Highest tree Pt. Steele The highest of several trees near the edge of the top of the bluff at Pt. Steele.

## Hydrographic Signals on B sheet.

Copper River Delta, Alaska; E. F. Smith, Assistant, Chief of party.  
Season of 1916, Valdez datum:

Tree 2 Egg Id. Channel

60 25 (1383)                    Station is a tree stuck up in the mud at a turning  
145 52 (0365)                    point in the channel. Endures only a few months.  
\* \* \* \* \*

Tree 3 Egg Id. Channel

60 25 (0898)                    A tree similar to Tree 2.  
145 51 (0826)

\* \* \* \* \*

Tree 4 Egg Id. Channel

60 25 (0443)                    Tree similar to Tree 2.  
145 50 (0578)

\* \* \* \* \*

Tree 5 Egg Id. Channel

60 25 (0708)                    A tree similar to Tree 2.  
145 49 (0500)

\* \* \* \* \*

Tree 6 Egg Id. Channel

60 25 (0385)                    A tree similar to Tree 2.  
145 47 (0914)

\* \* \* \* \*

Mound

60 22 (0764)                    Station is a sandy mound covered with grass about  
145 48 (0075)                    40 m. in diameter, sufficiently separated as to make  
a satisfactory signal. Probably recoverable within a year or two.

Rock

60 20 (0843)                    Station is the peak of a rock about  $\frac{1}{2}$  mile south-  
146 13 (0135)                    ward off Pt. Steele. It is considerably larger than  
other rocks nearby, and could probably be identified.

STATISTICS SHEET NO. 3954.

Date 1916	Letter	Volume	Positions	Soundings	Miles- Statute	Vessels
May 29	a	1	83	454	11.2	Whaleboat
June 2	b	1	20	106	4.0	Launch & Whale.
" 3	c	1	34	175	6.2	" "
" 5	d	1	25	216	5.4	whaleboat
" 6	e	1	30	227	5.9	"
" 6	e	2	14	83	2.9	"
" 7	f	2	75	476	10.6	"
" 8	g	2	99	679	19.3	"
" 14	h	3	26	197	5.4	Taku
" 14	h	3	25	152	5.5	"
" 21	j	3	28	188	10.3	"
" 22	k	3	42	411	9.4	Whaleboat
" 23	l	3	96	908	19.8	"
" 23	l	4	11	102	2.0	"
" 26	m	4	75	524	11.5	Dingy
" 28	n	4	44	301	10.4	Taku
" 29	p	4	85	603	17.7	"
" 29	p	5	18	126	3.5	"
" 30	q	5	81	489	16.0	"
July 3	r	5	78	484	15.5	"
" 6	s	5	45	423	8.0	Whaleboat
" 7	t	6	101	789	14.3	"
" 8	u	6	41	256	5.5	<del>Exp</del> Taku & Whale
" 10	v	6	30	246	7.4	Taku
" 11	w	6	13	120	2.0	Whaleboat
" 11	w	7	4	12	.1	"
" 12	x	7	54	483	11.5	"
" 13	y	7	24	106	3.5	Taku
" 26	z	7	102	1072	18.1	whaleboat
" 26	z	8	14	108	2.3	"
Sept. 2	a'	8	18	125	3.0	"
" 7	b'	8	59	487	9.1	"
" 19	c'	8	35	323	6.0	"
" 21	d'	8	22	185	2.1	"
" 26	e'	9	48	451	10.3	"
" 27	A	10	148	895	33.0	Taku
" 28	B	10	87	368	17.4	"
Aug. 29	C	10	50	160	11.0	"
" 29	C	11	19	115	6.3	Taku
" 30	D	11	180	584	37.3	"
" 31	E	11	107	402	32.9	"
Sept. 1	F	11	56	209	13.5	"
" 1	F	12	148	590	35.5	"
" 2	G	12	174	750	38.5	"
" 7	H	13	111	458	30.3	"
" 8	J	13	10	35	2.5	"
" 21	K	13	2	6	.3	"
" 28	L	13	165	832	29.0	"
TOTALS		2856		16491	583.2	

ADDRESS  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON, D. C.

REFER TO NO. 5-VEC

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

LIBRARY

Place with descriptive report  
of hydrographic sheet No. 3954

*GPA*  
Drawing Section.

October 5, 1917.

Division of Hydrography and Topography:

Division of Charts:

Tidal reductions are approved in  
13 volumes of Soundings for

HYDROGRAPHIC SHEET 3954.

Orca Inlet and vicinity, Alaska  
E.E. Smith in 1916

Plane of reference is  
Mean lower low water, reading

4.3 ft. on tide staff at Cape Whitshed.

*L. P. Shady*

Acting Chief, Section of  
Tides and Currents.