

3199, 3200,  
3203, 3210,  
3211 and 3215

Diag. Cht. No. 8502-1

3199  
3200  
3203  
3210  
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3215

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT (HYDROGRAPHIC)	
Type of Survey .....	Hydrographic
Field No. ....	
Office No. ...	H-sheets #3199, #3200, #3203, #3210, #3211 & #3215
LOCALITY	
State .....	Alaska
General Locality .....	Cook Inlet
Locality .....	
19 10	
CHIEF OF PARTY Henry L. Beck	
LIBRARY & ARCHIVES	
DATE .....	January 28, 1911

83  
SHA  
1910  
B

# 3199

Diag. Chart No. B502-1

COAST AND GEODETIC SURVEY  
JAN 28 1911  
Area No.

# 3200

# 3203

# 3210

# 3211

# & 3215

Department of Commerce and Labor,  
COAST AND GEODETIC SURVEY

Superintendent.

State: *Alaska*

## DESCRIPTIVE REPORT.

Sheet No.

LOCALITY:

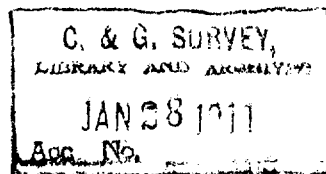
*Cook Inlet*

190

CHIEF OF PARTY:

*W. L. Beecher*

COAST AND  
GEOD. SURVEY  
JAN 28 1911  
RECEIVED



D E S C R I P T I V E R E P O R T

to accompany

Hydrographic Sheets

#3199, #3200, #3203, #3210, #3211 & #3215

Cook Inlet, Alaska,

Steamer McArthur,

Henry L. Beck, Assistant, Commanding.

DESCRIPTIVE REPORT to accompany Hydrographic Sheets # 3199,  
#3200, #3203, #3210, #3211 & #3215.

Cook Inlet, Alaska.-----Season of 1910.

Steamer McARTHUR, Henry L. Beck, Assistant, Commanding.

-----

The hydrography of Cook Inlet north of East Foreland and West Foreland was executed by the party attached to the Str. McARTHUR during the season of 1910.

The greater part of the hydrography (sheet 3199), comprising nearly all of the area which could be safely navigated by a vessel of the size of the McARTHUR, was executed from the ship. The inshore work, all of Knik Arm and a portion of Turnagain Arm were done by sub-parties (living in camp the greater part of the time) using the launch "Delta".

The almost exhaustive report of Assistant H. W. Rhodes, written after his hydrographic reconnaissance of 1909, leaves little to be said. During the season of 1910 only slight inaccuracies and very few omissions were noted in his ~~report~~ report. His party executed the greater part of the topography of the shoreline in this region and his reports should be consulted for a description of the general appearance of the coast.

It seems that no mention was made of the curious freaks of refraction which were observed at times. When the weather has been calm and the sun shining from a cloudless sky (as is not infrequently the case) from about eleven o'clock in the morning until nearly sunset the shoreline is often very much distorted in appearance and at times a perfect mirage is seen. When at a distance of 4 or 5 miles from Fire Island, for instance, the whole island has appeared to be inverted in the air above

the real island; or at times the whole or a portion of the island would disappear from view while the inverted image remained visible. The large boulders along the east shore, between Boulder Pt. and Moose Pt., under the influence of this abnormal refraction have at times appeared as enormous columns many times the actual height of the rocks. A prominent point or bluff will disappear as if by magic, later to reappear above its real position inverted and distorted in shape.

The hydrographic development may be said to be fairly complete except in Turnagain Arm, and little can be said supplementary to the information given on the hydrographic sheets.

Unfortunately the end of the working season in Cook Inlet ~~had~~ came before the hydrography in Turnagain Arm could be completed. No observations were made of the bore which exists at times in that body of water. My Season's Report contains all of the information which I was able to obtain in regard to the matter.

It will be noted that no hydrography was done close inshore between the mouth of the Beluga River and Point Mackenzie. The shoreline along this stretch is bordered by sand and mud flats, extending as far as 5 miles off shore, which are bare at low tide so the hydrography was confined to ~~determining~~ defining the outside limits of the flats. At low tide the channels of the Beluga, Susitna and Little Susitna Rivers are not well defined where they cross these flats and are not deep enough to be navigated by a launch or boat which draws as much as 3 feet. The statements in "Alaska Coast Pilot Notes from Yakutat Bay to Cook Inlet" in regard to the rivers of this region are believed to be essentially correct. It was not thought

expedient to spend any time in executing hydrography in these rivers where the channels are said to shift from year to year and where pilots would in any case be necessary to afford safe navigation.

Directions for entering Turnagain Arm cannot be given. It appears that above Gull Rock, in the narrow part of the Arm, there is no channel navigable at low tide. However, small vessels, some drawing as much as 6 or 7 feet, go as far as Hope and Sunrise or even farther at high tide and either return before the tide falls or remain there and rest on the bottom at low tide.

The sounding party on the launch "Delta" found about 7 fathoms at low tide between Burnt Island and Gull Rock, where ~~it~~ it would seem that a vessel can anchor and have some protection from the violent winds which blow out of the narrow part of the Arm when the wind is easterly.

It is probable that a channel, deep enough at low tide for ordinary navigation, exists from the entrance of the Arm to the anchorage mentioned above, although the hydrography was not sufficiently extended to develop it completely.

The channel from Fire Island to Knik Arm was developed. It shows a least depth of  $3\frac{1}{2}$  fathoms and a least width of 2 miles. No direct observations of current velocities were made in this channel but it is estimated that 4 1/2 or 5 miles per hour is the maximum current velocity.

Vessels, unless high powered and speedy, are recommended to anchor in the anchorage in the northern part of the bight on the western side of Fire Island and wait until the tide has

been flooding for about an hour before attempting to enter Knik Harbor. Little time will be lost by doing so and there will be much less danger of getting out of the channel (in thick or foggy weather) when running with the current.

These sailing directions for entering Knik Harbor were followed by the McARTHUR in 1910 and proved satisfactory. Round Race Point at a distance of about  $3/4$  mile and keep the same distance off shore until the northeast end of Fire Island is abeam then steer for Point Mackenzie keeping on a line between it and Race Point until Point Woronzof is a little forward of the starboard beam; then steer a mid-channel course between Point Mackenzie and Point Woronzof until Point Woronzof and the eastern tangent of Fire Island are in range; steer with this range over the stern until the vicinity of the anchorage is reached then anchor at discretion being careful not to have less than 6 or 7 fathoms at the anchorage at low tide in order to have swinging room.

Vessels may safely follow a mid-channel course for a distance of about 6 miles farther up Knik Arm from Knik Harbor and anchor in about 7 fathoms. The current is very swift in that part of the Arm however, a velocity of 6 knots per hour having been observed by the McARTHUR while at anchor there.

The town of Knik is situated 14 miles above the anchorage in Knik Harbor on the west side of the Arm. In 1910 vessels of about 8 ft. draft were running to Knik. At low tide they rested on the bottom at the foot of the wharves.

The most noticeable object in approaching the town is the white warehouse on the wharf. There are two small wharves about 100 feet long which run from high water mark to the edge of

the channel. In the town there are a post-office, a saloon, two hotels, two general stores, a drug store and about thirty or forty houses. A few natives live there. The total population is probably about 150. About half a mile south of the town is a small saw-mill.

CURRENT OBSERVATIONS were made at a number of stations in the Inlet both in 1909 and 1910 but few of the observations were made except at anchorages close inshore. The strongest current in the Inlet is probably about 2 miles east of West Foreland where the deepest water in this part of the Inlet is found. During the ebb of a large spring tide the McARTHUR, which has a speed of about 8 knots per hour, steamed full-speed for 1/2 hour against the current without making any headway.

In general it may be said that the direction of the current is approximately parallel to the trend of the nearest shoreline and after the flats have uncovered with a falling tide or before they have covered with a rising tide, parallel to the edge of the flats. The direction of the current is influenced to a great extent, however, by the orientation of the nearest shoreline in the general direction from which the current comes, the current maintaining the direction given to it by the said shoreline for a distance of several miles in places.

The "Coast Pilot Notes" should in general be revised, where referance is made to depths and distances, by consulting the finished hydrographic sheets.

Respectfully submitted,

*Henry L. Beck*

Assistant, C. & G. Survey



Statistics of Hydrographic Sheet 0.

U. S. & G. S. SURVEY  
LIBRARY AND RECORDS  
DEC 9 - 1910  
Acc. No.

Date, 1910	Letter	Vol.	Position	Soundings	Statute Miles	Vessel
						Sounding Line
May 23	A	1	10	42	2.3	USS McArthur.
24	B	1	65	132	39.1	" "
25	C	1	83	130	35.7	" "
27	D	1	23	39	11.5	" "
30	E	1	92	228	47.2	" "
31	F	1	82	243	43.1	" "
June 1	G	1	15	37	8.1	" "
3	H	1	74	237	36.8	" "
4	I	2	82	289	36.8	" "
6	J	2	11	51	4.6	" "
7	K	2	111	329	59.8	" "
8	L	2	100	267	60.9	" "
9	M	2	67	143	37.4	" "
10	N	2	102	279	36.8	" "
18	O	3	86	315	35.1	" "
20	P	3	57	282	19.0	" "
21	Q	3	48	281	29.2	" "
22	R	3	95	359	51.8	" "
24	S	3	68	200	36.6	" "
25	T	3	14	44	11.5	" "
28	U	3	97	308	49.7	" "
29	V	4	49	104	28.8	" "
30	W	4	86	246	46.9	" "
July 1	X	4	104	180	42.0	" "
2	Y	4	45	73	20.0	" "
3	Z	4	45	73	20.0	" "
11	A'	4	69	247	46.0	" "
12	B'	4	107	485	66.1	" "
13	C'	5	102	400	65.0	" "
14	D'	5	52	268	29.9	" "
18	E'	5	55	134	25.3	" "
19	F'	5	14	51	9.3	" "
21	G'	5	31	115	17.3	" "
22	H'	5	102	430	47.2	" "
23	I'	5	78	278	55.2	" "
25	J'	5	62	296	42.2	" "
25	K'	6	12	38	5.5	" "
28	L'	6	135	542	62.1	" "
29	M'	6	100	298	46.0	" "
Aug. 1	N'	6	17661	176	29.3	" "
2	O'	6	8	23	8.1	" "
3	P'	6	23	111	10.4	" "
19	Q'	6	61	195	27.6	" "
20	R'	6	131	436	64.4	" "
22	S'	7	118	310	59.2	" "
24	T'	7	107	443	41.4	" "
27	U'	7	129	335	57.3	" "
28	V'	7	104	210	38.5	" "
29	W'	7	131	287	53.1	" "
30	X'	8	88	118	32.0	" "
Sept. 1	Y'	8	61	245	17.0	" "
8	Z'	8	112	384	51.0	" "
9	A''	8	156	769	53.3	" "
<i>Total</i>			3937	12153	1893.5	

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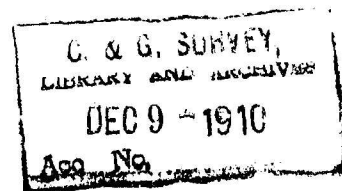
Statistics of Hydrographic Sheet 0.

Date, 1910	Letter	Vol.	Position	Soundings	Statute Miles Sounding Line	Vessel
Brought forward			5937	12153	1893.5	Str. McArthur.
Sept. 16	A"	8	86	360	27.0	" "
10	A"	9	69	353	25.0	" "
	Total		4051	12866	1943.5	

3199

*Soundings plotted in fathoms.*

*Plotted & inked by H.L.S.  
Verified by R.L.J.*



W. E. C.  
Jan. 12, 1911.

HYDROGRAPHIC SHEET 3199.

North of Forelands, Cook Inlet, Alaska, by Asst.  
H. L. Beck in 1910.

TIDES.

	Trading Bay ft.	Nikishka ft.	Tyonek ft.	3 Mile Creek ft.	Moose Point ft.	Fire Island ft.
Mean lower low water, or plane of reference on staff	7.2	6.0	5.3	2.2	4.0	5.1
Lowest tide ob. on staff	6.5	3.4	2.2	0.9	1.0	2.0
Highest " "	27.7	28.7	27.1	26.1	29.8	36.0
Mean range of tide	16.5	18.0	17.5	19.2	20.6	24.4

Coast and Geodetic Survey  
JAN 18 1911  
TIDAL DIVISION

Hyd Sheet No 3199

Feb 20 1911

The line of soundings between 15° 48' E, about five miles northwest of St. Toureland appear to be in error or out in position. This spot should have been developed and the depths verified.

The three shoal spots east of Spit, over which depths of from 5½ to 6 fathoms are shown, are not sufficiently developed.

All work above the south end of Pine Id. should have been plotted on Hyd Sheet No 3200 and not on this sheet.

A. L. Simmons

Verified ;

April 26, 1911.

R. L. Johnston

3200

83  
SHA  
1910  
B

Diag. Cht. No. 8502-1

See 3199 Hyd

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

Superintendent.

State: Alaska

DESCRIPTIVE REPORT.

Sheet No.

LOCALITY:

190

CHIEF OF PARTY:

V.E.C.  
Jan. 10, 1911.

HYDROGRAPHIC SHEET 3200.

Head of Cook Inlet, Alaska, by Asst. H. L. Beck  
in 1910.

TIDES.

	Fire Island ft.	Knik Arm ft.
Mean lower low water, or plane of reference on staff	5.1	3.9
Lowest tide observed " "	2.0	2.6
Highest " " " "	36.0	37.8
Mean range of tide	24.4	28.8

Coast and Geodetic Survey  
JAN 10 1911  
TIDAL DIVISION.

*Note:*  
*For positions in red see stakes for Hydro 3099*

*Soundings plotted in fathoms.*

*Plotted and inked by H. L. S.  
Verified by R. L. J.*

Hyd Sheet No. 3200.

July 23, 1911.

The area within the 6 fath curve, 2 miles north of Tree Id. between long  $150^{\circ}08'$  &  $150^{\circ}14'$ , should have carefully developed especially that near the  $3\frac{1}{2}$  fath spot.

There is a small area about 1 mi. northeast of  $\Delta$  Knight which is not covered.

More soundings should have been taken to develop the channel east of  $\Delta$  Crow, near the upper limit of the sheet.

The crossings are very good.

H. L. Simon

Verified;

March 22, 1911.

Except the areas mentioned, the work is very good.

There is a lead line correction for (blue) o day, Volt #4, which was not applied. This is too slight however to affect the soundings as shown on the Hyd. sheet.

A small portion of the work was not well recorded. The figures were poor, some figures were rubbed instead of being crossed out and the "no bottom" signs were so illegible that they were not recognised in most cases.

R. L. Johnston

83  
SHA  
1910  
B

# 3203

Diag. Cht. No. 8502-1

*See 3199 Hyd*

C. & G. SURVEY,  
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JAN 28 1911  
No.

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

Superintendent.

State: *Alaska*

DESCRIPTIVE REPORT.

Sheet No.

LOCALITY:

190

CHIEF OF PARTY:

3203



DEPARTMENT OF COMMERCE AND LABOR  
COAST & GEODETIC SURVEY  
O. H. TITTMANN, SUPERINTENDENT

HYDROGRAPHIC SHEET "D"  
COOK INLET, ALASKA  
MOOSE PT. TO POINT POSSESSION  
and  
ENTRANCE TO TURNAGAIN ARM

Hydrography executed by

L. O. Colbert, Aid  
and  
W. S. Keyes, Mate  
and party using

LAUNCH "DELTA"

1910

Scale 1/40,000

Positions plotted by

SE.E. Smith, Aid  
and  
H. Bernhardt, Mate

(Numerous positions in Turnagain Arm re-plotted by H. L. Beck  
on account of errors in plotting signals.)

STR. McARTHUR

HENRY L. BECK, ASS'T.

CHIEF OF PARTY.

3203

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

**Department of Commerce and Labor**  
COAST AND GEODETIC SURVEY  
Washington

# 3203

Statistics. Sheet No "D"

Date, 1910.	Letter	Vol.	Posit-ions	Sound-ings.	Miles Statute	Vessel
July 15	a	1	59	224	18.5	"Delta"
" 16	b	1	107	363	41.0	"
" 18	c	1	54	206	8.0	"
" 20	d	1	41	181	14.0	"
" 23	e	1	69	344	23.0	"
" 25	f	1	53	350	13.5	"
" 25	f	2	24	114	8.0	"
August 29	g	2	22	89	12.5	"
" 30	h	2	48	259	14.5	"
Sept. 1	i	2	41	260	11.5	"
" 3	j	2	103	612	32.7	"
" 6	k	2	68	359	18.7	"
" 7	l	3	80	529	22.2	"
" 8	m	3	60	321	17.0	"
" 9	n	3	82	545	24.2	"
" 10	o	3	<u>69</u>	<u>480</u>	<u>20.2</u>	"
			980	5236	299.5	

*All soundings shown in feet.*

*Soundings plotted and inked by R.L.J.  
Verified by H.L. Simmons*

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

**Department of Commerce and Labor**  
COAST AND GEODETIC SURVEY  
**Washington**

V.E.C.  
Jan. 5, 1911.

*H. L. Beck*

HYDROGRAPHIC SHEET 3203.

Moose Point to Point Possession and Entrance  
to Turnagain Arm, Alaska, by Asst. H. L. Beck, 1910.

TIDES.

	Moose Point ft.	Fire Island ft.
Mean lower low water, or plane of reference on staff	4.0	5.1
Lowest tide observed " "	1.0	2.0
Highest " " " "	29.8	36.0
Mean range of tide	20.6	24.4

Coast and Geodetic Survey

JAN 6 1911

TIDAL DIVISION

Report on Hyd. Sheet No. 3203.

From Moose Pt. around Pt. Possession, the ground is well covered from the ten fathom curve inshore. Some lines were run in Turnagain Arm, and the line of best water is shown, but no thorough developement was attempted. These lines are not close enough to draw the curves from and only give a general idea of the conditions.

Two rocks were located in the sounding records, off "Grand View", between the one and two fathom curves, while other rocks were transferred from the topographic sheet.

The tide is very great in this locality and the large tidal reduction may be partly the cause of some irregularity in the curves.

Some positions were rejected on account of weak angles and being "on circle".

The records are clear.

R. L. Johnston

Draftsman

Feb. 1911.

Checked by H. L. Simons

83  
SHA  
1910  
B

# 3210 & 3211

Diag. Cht. No. 8502-1

*See Hyd 3/99*

C. & G. SURVEY,  
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JAN 28 1911  
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Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

Superintendent.

State: \_\_\_\_\_

## DESCRIPTIVE REPORT.

Sheet No. \_\_\_\_\_

LOCALITY:

190

CHIEF OF PARTY:

3211  
3210  
3211

DEPARTMENT OF COMMERCE AND LABOR.

COAST AND GEODETIC SURVEY.

O.H.Tittmann, Superintendent.

Cook Inlet, Alaska.

North of Forelands.

East Foreland to Moose Point.

Hydrography executed by

L.O.Colbert, Aid,

and party using

Launch "Delta",

June 7, to June 16, 1910

and

July 9, to July 23, 1910.

Scale:  $\frac{1}{40,000}$

Positions plotted by

E.F.Smith, Aid,

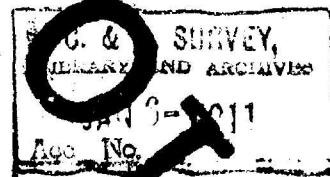
Str. McArthur.

Henry L. Beck, Asst.,

Chief of Party.

*Soundings plotted & inked by H.L.S.  
Verified by R.L.J.*

*Henry L. Beck, Asst. Crs. S.  
Chief of Party*





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EXPRESS OFFICE:

**Department of Commerce and Labor**

COAST AND GEODETIC SURVEY

POST-OFFICE ADDRESS:

TELEGRAPH ADDRESS:

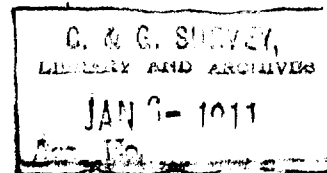
EXPRESS OFFICE:

# 3210

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

Statistics of Sheet No. "B".



Date, 1910	Letter	Volume	Positions	Soundings	Statute miles	Vessel
------------	--------	--------	-----------	-----------	---------------	--------

June 7	a	1	55	349	11	Launch Delta
8	b	1	106	695	25.5	" "
9	c	1	71	464	20	" "
10	d	1&2	105	841	32	" "
11	e	2	39	182	11	" "
13	f	2	86	690	26	" "
14	g	2&3	87	650	24.5	" "
15	h	3	76	557	26.5	" "
16	i	3	84	578	28	" "
July 9	j	4	69	275	23.5	" "
11	k	4	106	421	34	" "
12	l	4	117	452	34.5	" "
13	m	4	124	487	36	" "
14	n	5	78	347	21.5	" "
19	o	5	14	57	4	" "
22	p	5	145	508	46.5	" "
23	q	5	50	261	16	" "
Totals			1412	7814	430.5	

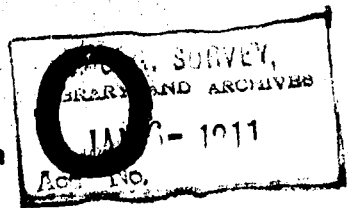
*Soundings in fathoms.*

POST-OFFICE ADDRESS:

TELEGRAPH ADDRESS:

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3210



Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

Unit for Soundings: Fathom.

Plane of Reference: Mean Lower Low Water.

Tide Gauge two miles Northeast from Boulder Point used  
from June 7, 1910, position # 1 a to June 16, 1910, position  
# 84i.

Tide Gauge near Moose Point used from July 9, 1910, position  
# 1j to July 23, 1910, position # 50q.

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Tide Gauge near Boulder Point.

Plane of Reference, reading on gauge:		ft.
Lowest tide observed " " "	2.4	"
Highest " " " " "	28.7	"

---

Tide Gauge near Moose Point.

Plane of Reference reading on gauge		ft.
Lowest tide observed " " "	1.0	"
Highest " " " " "	29.8	"

V. B. C.  
Jan. 14, 1911.

HYDROGRAPHIC SHEET 3210.

Cook Inlet, East side north of Forelands,  
Alaska, by Asst. H. L. Beck in 1910.

TIDES.

	Nikishka ft.	Moose Point ft.
Mean lower low water, or plane of reference on staff	6.0	4.0
Lowest tide observed " "	2.4	1.0
Highest " " " "	28.7	29.8
Mean range of tide	18.0	20.6

Coast and Geodetic Survey

JAN 14 1911

TIDAL DIVISION

Cgd Sheet No 3210

Jan. 31, 1911.

This survey does not give a complete development of the area covered. The work should have been plotted on a larger scale.

The crossings are good and the records were kept in a satisfactory manner.

H. R. Simons

Verified

Feb. 1911.

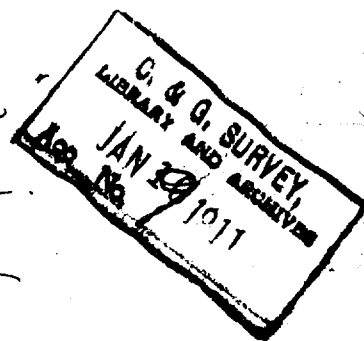
This area is thickly covered with rocks, most of which are approximately located from the sounding lines and positions.

Nothing could be found locating the large rock, lying farthest off shore, north east of Tri. Pt. "Boulder"

R. L. Johnston  
Draftsman

Cook Inlet Survey,  
O. H. Pittmann, Superintendent,

Hydrographic Sheet "C"  
Cook Inlet, Alaska.  
Tyonik to Susitna



Hydrography executed by party on  
Launch "Delta"  
in charge of  
L. O. Colbert, Aid  
and  
W. S. Keyes, Mate

Scale 40,000  
Season of 1910.

1123

Plotted & indexed by H. L. S.  
Verified by R. L. J.

St. McArthur,  
Henry L. Beck, Asst.  
Chief of Party.

V.E.C.  
Jan. 20, 1911.

HYDROGRAPHIC SHEET 3211.

*J. E. D. W.*  
*113*  
*120711*

Cook Inlet, Tyonek to Susitna, Alaska, by  
Asst. Henry L. Beck in 1910.

TIDES.

	Tyonek ft.	3 mile Creek ft.	Fire Island ft.
Mean lower low water, or plane of reference on staff	5.3	2.2	5.1
Lowest tide observed " "	2.2	0.9	2.0
Highest " " " "	27.1	26.1	36.0
Mean range of tide	17.5	19.2	24.4

Coast and Geodetic Survey  
JAN 20 1911  
TIDAL DIVISION

*All soundings plotted in fathoms.*

*Plotted & inked by H. L. S.*  
*Verified by R. L. J.*

83  
SHA  
1910  
B

# 3215

Diagram No 8502-1

*See Hyd 3.199*

C. & G. SURVEY,  
LIBRARY ARCHIVES  
JAN 20 1911

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

Superintendent

State: *Alaska*

## DESCRIPTIVE REPORT.

Sheet No.

LOCALITY:

190

CHIEF OF PARTY:

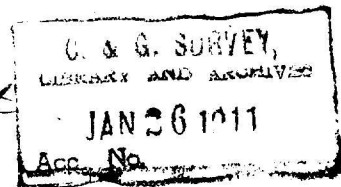
# 3215



Department of Commerce and Labor.

Coast and Geodetic Survey

O. H. Tittmann, Superintendent



Hydrographic Sheet "A"

Cook Inlet, Alaska.

West Foreland to Tyonek

Hydrography executed by

L. O. Colbert, Aid and party

Launch "Delta"

May 17, to June 28, 1910.

Scale 40 000

Steamer McArthur.

Henry L. Beck, Assistant,

Chief of Party.

3215

V.E.C.  
Feb. 6, 1911.

HYDROGRAPHIC SHEET 3215.

*Stedman*  
*to*  
*4/7/11*

Trading Bay, Cook Inlet, Alaska, by Asst. H. L. Beck,  
in 1910.

TIDES.

	Trading Bay ft.	Tyonek ft.
Mean lower low water, or plane of reference on staff	7.2	5.3
Lowest tide observed " "	6.5	2.2
Highest " " " "	27.7	27.1
Mean range of tide	16.5	17.5

Coast and Geodetic Survey  
FEB 7 1911  
TIDAL DIVISION

Hyd. Sheet 3215.

Oct. 25, 1911.

The ground within the limits of this survey  
is well covered

With a few exceptions the crossings are good.

H. L. Simons

Verified ;

April 5<sup>th</sup>, 1911

R. L. Johnston.

Soundings plotted in fathoms

H 3199 }  
H 3200 } added to EXT of chart 5557 *Ed. 1/19-65*  
H 3211 }

CHART 8553 18 MARCH 1971 *Rogel J. Durso*  
USED H-3210 AS SUPPLEMENTAL HYDRO SOURCE  
IN HOLIDAY AREAS OF H-9075 FOR NIKISHKA INSET