

# 6591

Form 504  
Rev. April 1935

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

## DESCRIPTIVE REPORT

~~Hydrographic~~ } Sheet No. 2340  
Hydrographic } H6591

U. S. COAST & GEODETIC SURVEY  
LIBRARY AND ARCHIVES

MAY 9 1941

Acc. No. ....

State S. W. Alaska

LOCALITY

Belkofski Bay

193/40

CHIEF OF PARTY

L. D. Graham

# 6591

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO.

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 2340

REGISTER NO. H-6591

State Alaska

General locality Alaska Peninsula

Locality Belkofski Bay

Scale 1:20,000 Date of survey May - Sept., 1940

Vessel DISCOVERER

Chief of Party L. D. Graham

Surveyed by L. D. Graham - J. D. Thurmond

Protracted by E. E. Smith

Soundings penciled by W. Weidlich

Soundings in fathoms ~~feet~~

Plane of reference MLLW

Subdivision of wire dragged areas by

Inked by B. Gregorowicz - A.R. Stini

Verified by B.G. - A.R.S.

Instructions dated March 18, 1938; April 6, 1939, 19

Remarks: Smooth sheet & plotting by Seattle Processing Office.

DESCRIPTIVE REPORT TO ACCOMPANY

SHEET FIELD NO. 2340 H-6591(1940)

(a) Date of Instructions:

Project HT-219  
March 18, 1938, April 6, 1939.

(b) Survey Methods:

Control for the additional development of the area south of Indian Head was obtained by a plane table traverse on the boat sheet. This traverse originated at station TOM (1925); station SLOPE (1911) was used for orientation and the traverse checked out on topographic signal "MET" within the allowable amount of error. It is a waterfall and easily identified. Triangulation station BEL (1925) across the Bay was also visible from the last set up and a cut to it checked the end of the traverse.

The following topographic signals were located in the above mentioned traverse: BET, JIM, BIL, DICK, and MET.

All the other signals used on this sheet were recovered from the original survey with the exception of topographic signal BLACK which was taken from Sheet-Registry No. 3228, 1911. The position of this signal is to be obtained on Unalaska datum before smooth plotting is done. *Accomplished.*

The Ship DISCOVERER and two 30 ft. motor sailers were used in making this survey. The soundings taken by the DISCOVERER were secured with the Dorsey No. 3, control was maintained by sextant angles taken from the flying bridge of the ship.

On the launches, hand lead soundings were taken with a standard leadline from a sounding chair rigged off the starboard bow. Machine

soundings were taken over a sheave off the stern, using a sheave graduated to tenths of fathoms. Sextant angles were taken from amidships.

- (c) Discrepancies: None.
- (d) Dangers: None
- (e) Channels: None
- (f) Anchorages: None
- (g) Comparison with previous surveys:

Supplemental Instructions, April 6, 1939, page 4, called for additional work on Sheet 4490<sup>(1925)</sup> as follows:

"Accomplish additional development of the area south of Indian Head as indicated". Additional lines were run by the Stbd. Motorsailer in this area and directions and distances noted regarding a breaker that was not shown on the original survey.

"Accomplish additional development in the vicinity of the 9-fathom sounding in Latitude  $55^{\circ} - 03.5'$ , Longitude  $162^{\circ} - 10.7'$ ." Additional lines were run by the Port Motorsailer and least depths of  $6-1/6$  fathoms were found at: Pos. 67a, Lat.  $55^{\circ} - 03.5'$ , Long.  $162^{\circ} - 10.8'$ ; Pos. 70a, Lat.  $55^{\circ} - 03.55'$ , Long.  $162^{\circ} - 10.78'$ . In each instance the hand lead was used while drifting back and forth, recording only the shoalest depths.

"Accomplish additional development of the large shoal  $2-1/2$  miles west of Belkofski Point, especially in the vicinity of Lat.  $55^{\circ} - 04.3'$ , Long.  $162^{\circ} - 07.6'$ ." This development was carried out by the DISCOVERER using the Dorsey No. 3 Fathometer. A series of cross lines was run with the following results: In Lat.  $55^{\circ} - 04.2'$ , Long.  $162^{\circ} - 07.6$  a sounding of  $7-3/4$  fathoms was obtained 10 seconds before Pos. 56a.

In Lat. 55° - 04.7', Long. 162° - 07.6', a sounding of 9-1/4 fathoms was obtained 20 seconds before Pos. 45A. In Lat. 55° - 04.7', Long. 162° - 07.7', a sounding of 9-3/4 fathoms was obtained 50 seconds before Pos. 65A. The present development is in compliance with Instructions.

"Accomplish additional development of the area off Belkofski Point between the rocks and the 10 fathom curve." A system of cross lines was done in this area and the necessary development accomplished.

- (h) Wire Drag Groundings: None
- (i) Geographic Names: No new names.
- (j) Statistics Sheet: Field No. 2340;

Date	Day Letter	Positions	Soundings	Stat. Miles	Sounding Lines
May 7	a (blue)	70	192		6.8
Aug 23	b (blue)	65	253		4.8
Sep 10	c (blue)	68	185		8.2
Jun 12	A (red)	72	258		14.6
		<u>275</u>	<u>888</u>		

Area 3.0 square miles.

TIDAL DATA TO ACCOMPANY  
SHEET FIELD NO. 2340 H-6591 (1940)

Tide Gauge - - - - - King Cove  
 Lat. 55° - 03.7'; Long. 162° - 19.1'

M.L.L.W. - - - - - 6.18'

Highest Tide - - - - - 14.4 August 17, 1939

Lowest Tide - - - - - 3.9 August 18 and 19, 1939

(Note: Not compared with 1940 marigrams for highest and lowest tides.)

*Forwarded May 1, 1944*  
*Geo. L. Bean*

Officer in Charge,  
Seattle Processing Office

Respectfully submitted,

*L.C. Johnson*  
L. C. Johnson  
Jr. H. and G. E., C. and G. S.  
Ship DISCOVERER

TIDAL DATA  
TO ACCOMPANY  
FIELD SHEET NO. 2340  
REGISTER NO. H-6591

TIDE GAGE KING COVE, ALASKA

Latitude  $55^{\circ} 03.7'$  N.

Longitude  $162^{\circ} 19.1'$  W.

M. L. L. W. on Staff	6.18'	
Highest Tide on Staff	14.4	August 17, 1939
Lowest Tide	3.9	August 18 & 19, 1939
M. L. L. W. on Staff	6.2' *	
Highest Tide on Staff	14.7	Sept. 4, 1940
Lowest Tide on Staff	4.3	May 23, 1940

\* Obtained by working back from Tidal Bench Marks, using 1940 level notes.

ADDITIONAL NOTES BY SEATTLE PROCESSING OFFICE, H-6591

Signal BLACK was scaled from a photostat of Sheet T-3228 (1911).  
 To obtain a correction from the 1911 field datum to the Unalaska Datum, the position of Triangulation Station INNER (which is near Signal BLACK), was scaled from the same sheet and compared with the triangulation coordinates on the Unalaska Datum. This difference was then applied to the scaled coordinates of signal BLACK.

	Latitude	Meters	:	Longitude	Meters
INNER			:		
(Scaled from Sheet T-3228)	55° 04'	721	:	161° 57'	523
(Unalaska Datum)	<u>55° 04' 28.012"</u>	<u>866.3</u>	:	<u>161° 57' 17.314"</u>	<u>307.3</u>
Correction on Field Data of 1911 (per Sheet T-3228)		+145	:		-216
BLACK			:		
(Scaled from Sheet T-3228)	55° 05'	1641	:	161° 58'	1059
BLACK (Unalaska Datum)	<u>55° 05'</u>	<u>1786</u>	:	<u>161° 58'</u>	<u>843</u>

E. E. Smith  
 Assoc. Cartographic Engr.

RAC  
HAC

## TIDE NOTE FOR HYDROGRAPHIC SHEET

Coastal Surveys

May 22, 1941.

Division of ~~Hydrography and Topography~~

✓ Division of Charts: Attention: Mr. H. R. Edmonston

Plane of reference approved in  
2 volumes of sounding records for

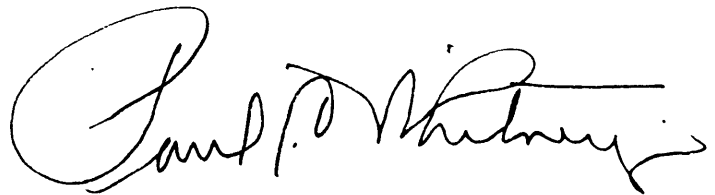
HYDROGRAPHIC SHEET 6591

Locality Belfonski Bay, Alaska Peninsula

Chief of Party: L. D. Graham in 1940  
Plane of reference is mean lower low water reading  
6.2 ft. on tide staff at King Cove  
23.0 ft. below B. M. 2

Height of mean high water above plane of reference is 6.1  
feet.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents.



GEOGRAPHIC NAMES  
 Survey No. **H6591**

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
<u>Belkofski Bay</u>												1
<u>Belkofski Pt.</u>												2
<u>Indian Head</u>												3
<u>Slavna Pt.</u>												4
<u>King Cove</u>												5
												6
												7
												8
												9
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												27

Names underlined in red approved  
 by L. HECK on 6/21/41

Remarks

Decisions

	Remarks	Decisions
1		550620 U.S. & B
2		" "
3		"
4		"
5	location of tide staff-off sheet.	.
6		
7		
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Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H.6591**

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	275
Number of positions checked	35
Number of positions revised	3
Number of soundings recorded	888
Number of soundings revised	12
Number of soundings erroneously spaced	4
Number of signals erroneously plotted or transferred	0

Date: *June 4, 1941*  
Verification by *B. Gregorovich* <sup>H.W.M. Corrections</sup>  
*A.R. Stirmi*  
Review by *Harold W. Murray*

Time: *23 hrs.* } *5 1/2 hrs.*  
*27 "* }  
Time: *3 1/2 hrs.*

HYDROGRAPHIC SURVEY NO. H6591

Smooth Sheet One

Boat Sheet One

Records; Sounding 2 Vols., Wire Drag      Vols., Bomb      Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes (in volume #1)

Landmarks for Charts (Form 567) No

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service -----  
(Circular Nov.30, 1933)

Hydrography: Total Days 4; Last Date Sept. 10, 1940

Remarks For Fathometer Corrections see Survey H-6485

# MEMORANDUM

## IMMEDIATE ATTENTION

SURVEY  
 DESCRIPTIVE REPORT  
~~PHOTOGRAPH~~

} No. H **H6591**  
~~No. H~~

{ received **May 9, 1941**  
 registered **May 10, 1941**  
 verified  
 reviewed  
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	<b>T. B. Reed</b>
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*✓ TBR*

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H H6591

Verified and Inked by *B. Gregorovic* Date *June 4, 1941*

1. The descriptive report was consulted and appropriate action taken. ✓
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude. ✓
3. All references to survey sheets mentioned in the descriptive report include the registry number and year. ✓
4. Geographic names of hydrographic features are in slanting lettering and of topographic features in vertical lettering. ✓
5. All items effecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken. ✓
6. All positions verified instrumentally were check marked in the sounding records. ✓
7. All critical soundings are clear and legible. ✓
8. The metal protractor has been checked within the last three months. ✓
9. The protracting and plotting of all bad crossings were verified. ✓
10. All detached positions locating critical soundings, rocks or buoys were verified. ✓
11. The boat sheet was compared with the smooth sheet. ✓
12. The spacing of soundings as recorded in the records was closely followed. ✓
13. The bottom characteristics were shown on outstanding shoals. ✓
14. The reduction and plotting of doubtful soundings were checked. ✓

15. The transfer of contemporary topographic information was carefully examined. ✓
16. All junctions were transferred. ✓
17. The notation "JOINS H " was added for all contemporary adjoining or overlapping sheets now registered. ✓
18. The depth curves have been drawn to include the significant depths. ✓
19. All triangulation stations and transfer of topographic and hydrographic signals were checked by the field party. ✓
20. Heights of rocks were checked against range of tide. ✓
21. Rocks transferred from topographic survey have a dotted curve where shown thereon. ✓
22. Unnecessary pencil notes have been removed. ✓
23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet. ✓
24. The low water line and delineation of shoal areas have been properly shown (see letter of October 20, 1934). ✓
25. Degree and minutes values and symbols have been checked. ✓
26. Source of shoreline and signals (When not given in report).
27. Depth curves were satisfactory ~~except as follows:~~ ✓

28. Sounding line crossings were satisfactory ~~except as follows:~~ ✓

29. Junctions with contemporary surveys were satisfactory ~~except as follows:~~ ✓

30. Condition of sounding records was satisfactory except as follows: ✓

*Time of position 7 on page 31 Volume 1  
changed from 9-00-00 to 9-01-00*

31. The protracting was satisfactory ~~except as follows:~~ ✓

32. The field plotting of soundings was satisfactory ~~except as follows:~~ ✓

33. Notes to reviewer:



DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF HYDROGRAPHIC SURVEY NO. 6591 (1940) FIELD NO. 2340

Alaska, Alaska Peninsula, Belkofski Bay  
Surveyed in May - September 1940, Scale 1:20,000  
Instructions dated March 18, 1938  
and April 6, 1939 (DISCOVERER)

Soundings: Hand Lead,  
Machine and Fathometer

Control: Three-point Fixes  
on Shore Signals

Chief of Party - L. D. Graham  
Surveyed by - L. D. Graham, J. D. Thurmond  
Protracted by - E. E. Smith  
Soundings plotted by - W. Weidlich  
Verified and inked by - B. Gregorowicz, A. R. Stirni  
Reviewed by - Harold W. Murray, June 9, 1941  
Inspected by - H. R. Edmonston

1. Shoreline and Signals

- a. The shoreline has been transferred from T-4144 (1925).
- b. The origin of the control is given in the Descriptive Report, page 1.

2. Results of Survey

The present survey is essentially additional work on several of the items called for in the Review of H-4490 (1925). In each instance the additional investigations have disclosed shoaler depths.

- a. The development off Indian Head in Lat.  $55^{\circ} 05'$ , Long.  $162^{\circ} 12'$  is adequate and permits delineation of the depth curves.
- b. Development of the single 9-fathom sounding in depths of 11 fathoms in Lat.  $55^{\circ} 03.5'$ , Long.  $162^{\circ} 10.8'$  disclosed several shoaler depths, the least of which is  $6\text{-}1/6$  fathoms.
- c. Investigation of the large shoal in Lat.  $55^{\circ} 04.5'$ , Long.  $162^{\circ} 07.7'$  revealed least depths of  $7\text{-}3/4$  to

9-1/4 fathoms where formerly depths of 10 to 12 fathoms were shown. The least depth obtained in the vicinity of the old 11-fathom sounding in Lat. 55° 04.0', Long. 162° 07.6' was 13 fathoms. A more intense development of this spot would probably reveal shoaler depths.

The single 8- and 9-fathom soundings charted in this area originate with Chart Letter 458 of 1940 which is advance information received from the chief of party of the present survey. They should be superseded by the present survey information.

- d. The development off Belkofski Point is adequate. (See par. 3 below.)

The light on the edge of the point agrees closely with the charted position on chart 8703.

3. Error in 1911 Computation of Triangulation Station Belkofski Church (Lat. 55° 05', Long. 162° 02')

In comparing the present survey with H-4490 (1925), the reviewer found a discrepancy of 125 meters between the independently computed 1911 and 1940 positions of this station. A rechecking of the triangulation computation disclosed an error of 33' 34.6" in the 1911 computation. The error occurred in determining the angles from the list of directions and was caused by subtracting the minutes and seconds of a station just above the one in question.

Six surveys are directly affected by this discrepancy, and the nature of the dispositions is as follows:

a. Present Survey (H-6591)

The 1940 position of the church was plotted on the smooth sheet but the 1911 position was used on the boat sheet. When the reviewer inspected the soundings on the boat sheet, it was noted that both series of soundings were identical in position when actually differences should have existed. Investigation with a protractor revealed that the smooth sheet work was in reality plotted on the old 1911 position. In reconstructing this discrepancy, it seems that the plotter accepted the old 1911 data in good faith. At some later time, when the 1940 position was probably available, the new position was plotted and inked and the old position was erased, but due to some misunderstanding the affected hydrography was not replotted. The necessary revisions off Belkofski Point were made in the office.

b. H-4490 (1925), scale 1:20,000

About 30 positions were revised on this survey. The maximum shift noted was 200 meters. The revised soundings materially improved the delineation of the depth curves and agreement with the junction survey, H-4491 (1925). Corrections to the charted hydrography on Chart 8703 are considered necessary. (See par. 3e).

c. H-4491 (1925), scale 1:40,000

The number of positions affected on this sheet is 26. The maximum discrepancy is 160 meters. Because of the small scale only a few positions were replotted. None of the revised soundings are particularly important and no revisions to Chart 8703 are considered necessary.

d. T-4143 (1925) and H-3305 (1925) Ad. Work, Scale  
1:20,000

The triangulation station falls in the extreme northwest corner of T-4143 but as no topography is shown in the immediate vicinity, it is doubtful if the small amount that is shown elsewhere on the sheet is affected.

Six hydrographic signals are plotted in blue on this sheet on the southwest side of Dolgoi Island and used as control for additional work in 1925 on H-3305 (1911). The Descriptive Report T-4143 states that these signals were each occupied and cuts taken to 5 triangulation stations, one of which includes the erroneously plotted Church. Since these cuts were not recorded, these signals cannot be replotted.

The additional hydrography of 1925 consisted of filling in a holiday of 1 square mile (Lat.  $55^{\circ} 04'$ , Long.  $161^{\circ} 48'$ ) on the 40,000 scale insert of Dolgoi Harbor on Chart 8851 and included an examination of a 1-foot spot 1 mile offshore. Difficulties in obtaining satisfactory signal control were evidently experienced because the ship obtained 3 additional series of cuts and another series was obtained by the launch. An effort was made to salvage these cuts but no satisfactory result could be obtained. The extent of the discrepancy cannot be ascertained but in looking over the sounding records a discrepancy of 120 meters was noted in the location of a pinnacle rock. This rock was not plotted as it practically falls on the high water line.

Inasmuch as the field party is working in the general vicinity in the 1941 season, a complete resurvey of the 1925 additional work on H-3305 is immediately recommended.

Due to an oversight the 1925 additional work was never applied to Chart 8851. Now that a discrepancy in the accuracy of this work has been discovered, it is recommended that charting be deferred pending receipt of new work in this area.

e. T-4144 (1925), scale 1:20,000

The triangulation station is plotted in the extreme eastern portion of this survey. No shoreline was obtained in this immediate area. Topographic signals Kof and Near between the church and triangulation station Bel on Belkofski Point (distance of 1.2 miles) might be affected. These signals were used for a small amount of hydrography on H-4490 (1925) but further consideration is not considered necessary because corrections for the church have already been made (par. 3b, above) and besides, the present survey work in this vicinity practically supersedes all of the 1925 work. Form lines are shown within 600 m. of the church and their accuracy may be affected. Differences in form lines are common in comparing surveys and no special resurvey is considered necessary.

f. Surveys of 1911

Topography and hydrography of 1911 accomplished in this area are based on the topographic location of the church on T-3228 (1911). Fortunately this position agrees closely with the corrected triangulation value and no revisions are therefore necessary.

4. Additional Field Work Recommended

Reference is made to the following:

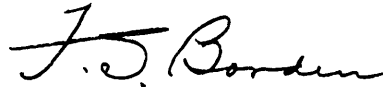
- a. The desirability of immediately resurveying the additional work on H-3305 (1925) discussed in par. 3d of this review.

- b. Inasmuch as investigation of a 9-fathom sounding in depths of 11 fathoms on H-4490 (1925) in Lat.  $55^{\circ} 03.5'$ , Long.  $162^{\circ} 10.8'$  (par. 2b, above) which lies only 800 meters offshore has revealed least depths of  $6\text{-}1/6$  fathoms, it would seem desirable at some future date that specific investigation be made of (1) the single  $6\text{-}2/6$  fathoms in depths of 9 to 10 fathoms lying 500 meters offshore in Lat.  $55^{\circ} 02.18'$ , Long.  $162^{\circ} 12.35'$  on H-4490 and (2) the 11-fathom sounding in depths of 13 to 14 fathoms lying 900 m. offshore in Lat.  $55^{\circ} 01.25'$ , Long.  $162^{\circ} 13.0'$ .

Examined and approved:



Chief, Surveys Section



Chief, Division of Charts



Chief, Section of Hydrography



Chief, Division of Coastal Surveys

Applied to CMA 8703 - Sept. 1941 - D.V.S.