

6944

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic  
Field No. 1143 Office No. **6944**

LOCALITY

State Southeast Alaska  
General locality Head of Chilkoot Inlet  
Locality Lutak Inlet

194 3

CHIEF OF PARTY

Charles Pierce

LIBRARY & ARCHIVES

DATE

6944

(1)

(1)

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. 1113

REGISTER NO. **6044**

State Southeast Alaska

General locality Head of Chilkoot Inlet

Locality Lutak Inlet

Scale 1:10000 Date of survey Oct. 9 to 13, 1943

Vessel Motor Vessel WESTDAHL

Chief of Party Charles Pierce

Surveyed by Charles Pierce

Protracted by E. A. Dorner

Soundings penciled by R. M. Sylar

Soundings in fathoms ~~feet~~ Fathoms

Plane of reference MLLW

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by A. P. STIRNI

Verified by A. P. STIRNI

Instructions dated July 20, 1943

Remarks: Smooth Sheet and Plotting by the

Seattle Processing Office.

Preliminary Descriptive Report  
to accompany  
Hydrographic Field Sheet 1143

INSTRUCTIONS:

Dated July 20, 1943 - Project CS-306.

LIMITS:

This survey covers all of Lutak Inlet from a line running north from Tanani Pt., northwest to the head of the inlet.

CONTROL:

Basic control was established by this party by extending 2nd order Triangulation to the head of the inlet from a line near its entrance. Most of the hydrographic signals were located by theodolite cuts taken from the triangulation stations at the time the triangulation was executed. A few of the closer spaced signals at the head of the inlet were located by topography. T-6953 (1943)

MAGNETIC VARIATIONS:

Observations were taken at four stations in the area and the variation was found to be from  $31^{\circ} 34'$  to  $31^{\circ} 58'$ .

SURVEY METHODS:

Sextant angle fixes were used throughout the survey. All soundings were taken with the WESTDAHL using the Dorsey 111 fathometer and with launch No. 88 using the 808A depth recorder. Wire and leadline comparisons were made at frequent intervals throughout the survey and when the 808 depth recorder was used bar-checks were taken 2 to 3 times daily. A serial temperature taken at the entrance of the inlet on October 5, 1943 furnished the data for correcting the soundings taken with both fathometers.

No detailed comparison was made with the previous survey of the area due to the difference in scale.

DANGERS TO NAVIGATION:

There are no indications of any dangers in this area.

ANCHORAGES:

The bottom throughout this inlet is sticky gray mud and is very good holding bottom. The inlet is being used as an anchorage for large ships while waiting for space at either Skagway or Haines wharves. It is a very good anchorage and is well sheltered from northerly weather. When the wind is southerly it seems to follow the contour of the high shoreline and considerable chop is built up in the inlet.

TIDES:

The portable automatic tide gage installed on the U. S. Army wharf, Portage Cove during the period the survey was made furnished all data for tidal reductions of soundings. The tidal records were forwarded to Washington and the reducers were furnished by that office.

STATISTICS:

Area in square statute miles - - - - -	5.5
Statute miles of sounding lines - - - - -	130.0
Number of recorded soundings - - - - -	6300
Number of positions recorded - - - - -	733

Respectfully submitted,

*Curtis Le Fever*  
 Curtis Le Fever,  
 H. & G. Engr.

Approved and forwarded:

*Charles Pierre*  
 Charles Pierre,  
 H. & G. E., Chief of Party  
 Comdg., WESTDAHL.

Seattle Processing Office Notes

The shore line is not shown for most of the inlet, as the former survey sheets were not available. Shore line shown is from T-6955 (D-45). Shoreline in pencil from T-3990 (1922) added in Wash. Office

The topographic signals are from T-6953.

Signals in blue circles were plotted from the theodolite cuts of the 1943 triangulation. The intersections were good. The plotting was checked.

Signals Pod, Wig, and Spot were computed from the cuts, and the computations are attached.

The plotting of the sheet was chiefly by Ensign E. A. Dornier, while he was temporarily attached to this office. It was completed by R. M. Sylar.

*Edgar E. Smith*  
Edgar E. Smith  
Assoc. Cartographic Engineer

Approved and Forwarded: *F. H. Hardy*  
F. H. Hardy  
Officer in Charge,  
Seattle Processing Office.

H-6944

Tidal Note

Southeast Alaska

Lutak Inlet

Portable Automatic Gage

Army Wharf at Haines

Latitude 59° 13.77 N

Longitude 135 26.15 W

Staff reading of MLLW Minus 1.2 feet

(See Director's Letter of Oct. 26, 1943  
to C. O. WESTDAHL)

List of Signals

Topographic Signals  
from F-6953

Hydrographic Signals  
located by cuts in  
Lists of Directions  
1943 Triangulation.

Our  
Eda  
Jig  
Red \*  
Ray  
Sal  
Spot \*  
Wig \*

Cross  
Gal  
Hag  
Hat  
Rek  
Sun  
Tri

\* = Computed on  
Form No. 27

Triangulation Stations

FLAG	1943
SANKA	1943
LUP	1943
ZIS	1943
CHIL	1943
KOKA	1943
TAK	1943
OAN	1943
PILE	1943
NOB	1943
VIL	1921

Lutak Intot

6944

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
FORM 97  
Ed. April, 1929

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

$\alpha$	2	to 8	133	12	13.6	$\alpha$	8	to 2	313	10	32.8
$2^d L$		&	+ 64	37	27	$2^d L$		&	- 40	40	17
$\alpha$	2	to 1	197	49	41	$\alpha$	8	to 1	272	30	16
$\Delta\alpha$					+ 29	$\Delta\alpha$				+ 02	09
			180	00	00.0				180	00	00.0
$\alpha'$	1	to 2	17	50	10	$\alpha'$	1	to 8	72	32	25

FIRST ANGLE OF TRIANGLE

74 42 16

$\phi$	59	17	59.511	2	TAK	$\lambda$	135	30	49.319	$\phi$	59	18	59.766	8	KOKA	$\lambda$	135	32	46.514
$\Delta\phi$			+ 52.866			$\Delta\lambda$			- 33.258	$\Delta\phi$			- 03.388			$\Delta\lambda$			- 02.30453
$\phi'$	59	18	52.377	1	SPOT	$\lambda'$	135	30	16.061	$\phi'$	59	18	52.378	1	SPOT	$\lambda'$	135	30	16.061

Logarithms		Values in seconds		Logarithms		Values in seconds	
$s$	3.235 150			$s$	3.235 150		
$\cos \alpha$	9.978 628	"	(235.9) 1620.8	$\sin \alpha$	9.485 951	"	
$B$	8.509 408	1st term	52.8672	$A'$	8.508 637		(695.1)
$h$	1.723 186			$\sec \phi'$	0.292 154		254.1
$s^2$	6.470 30			$\Delta\lambda$	1.521 892		33.2577
$\sin^2 \alpha$	8.971 90			$\sin \frac{1}{2}(\phi+\phi')$	9.934 456		
$C$	1.628 99	2d term	+ .0012	$-\Delta\alpha$	1.456 348		28.6
	7.071 18			$D$	2.336 7		
$h^2$	3.446 4						
$D$	2.336 8	3d term	+ .0001				
	5.783 2						
		$-\Delta\phi$	52.8659				

Comp. H.M.B.



POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

$\alpha$	2	to 8	133	12	13.6	$\alpha$	8	to 2	313	10	32.8
$2^d L$		&	+ 25	33	38	$2^d L$		&	- 99	36	06
$\alpha$	2	to 1	158	45	52	$\alpha$	8	to 1	213	34	27
$\Delta\alpha$				-01	00	$\Delta\alpha$				+ 40	
			180	00	00.0				180	00	00.0
$\alpha'$	1	to 2	338	44	52	$\alpha'$	1	to 8	33	35	07

FIRST ANGLE OF TRIANGLE

54 50 16

$\phi$	59	17	59.511	2	TAK	$\lambda$	135	30	49.319	$\phi$	59	18	58.766	8	KOKA	$\lambda$	135	32	46.514
$\Delta\phi$			+01	32.394		$\Delta\lambda$			+01	10.256	$\Delta\phi$			+ 36.139			$\Delta\lambda$		-46.940
$\phi$	59	19	31.905	1	W19	$\lambda'$	135	31	59.575	$\phi$	59	19	31.905	1	W19	$\lambda'$	135	31	59.575

Logarithms		Values in seconds		" "		Logarithms		Values in seconds		" "		
$\phi$	3.486 798			$\frac{1}{2}(\phi+\phi')$	59 18 45.7	$\phi$	3.127 870			$\frac{1}{2}(\phi+\phi')$	59 19 13.8	
$\cos \alpha$	9.969 462	"	(869.4) 987.3		Logarithms		9.920 734	"			Logarithms	
B	8.509 408			$\phi$	3.486 798		B	8.509 407		$\phi$	3.127 870	
h	1.965 668	1st term	92.3994	$\sin \alpha$	9.558 952	P	h	1.558 071	1st term	36.1419	$\sin \alpha$	9.742 738
$\alpha'$	6.973 60			A'	8.508 637	(6.7) 942.2	$\alpha'$	6.255 74			A'	8.508 637
$\sin^2 \alpha$	9.117 90			$\sec \phi'$	0.292 294	"	$\sin^2 \alpha$	9.485 48			$\sec \phi'$	0.292 294
C	1.628 98			$\Delta\lambda$	1.846 681	70.2556	C	1.628 25			$\Delta\lambda$	1.671 539
	7.720 48	2d term	+ 10052	$\sin \frac{1}{2}(\phi+\phi')$	9.934 489			7.370 47	2d term	+ .0024	$\sin \frac{1}{2}(\phi+\phi')$	9.934 516
$\mu'$	3.931 3			$-\Delta\alpha$	1.781 162	60.41	$\mu'$	3.716 0			$-\Delta\alpha$	1.606 055
D	2.336 8						D	2.336 7				
	6.268 1	3d term	+ .0001						3d term	+		
		$-\Delta\phi$	92.3939						$-\Delta\phi$	36.1395		

Comp RMB

9.708-9608  
702 0552

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
FORM 27  
Ed. April, 1929

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

$\alpha$	2	to 8	292	28	32.5	$\alpha$	8	to 2	112	30	22.6
$2^d L$		&	+ 52	59	37	$2^d L$		&	- 59	58	50
$\alpha$	2	to 1	345	28	10	$\alpha$	8	to 1	52	31	3.3
$\Delta\alpha$					+ 28	$\Delta\alpha$			- 01	22	
			180	00	00.0				180	00	00.0
$\alpha'$	1	to 2	165	28	38	$\alpha'$	1	to 8	232	30	11

FIRST ANGLE OF TRIANGLE

$\phi$	59	19	29.613	2	CHIL	$\lambda$	135	32	49.110	$\phi$	59	19	02.514	8	Z15	$\lambda$	135	30	41.058	
$\Delta\phi$			- 01	04.491		$\Delta\lambda$			- 32.688	$\Delta\phi$			- 37.392			$\Delta\lambda$			+ 01	35.364
$\phi'$	59	18	25.122	1	Pod	$\lambda'$	135	32	16.422	$\phi'$	59	18	25.122	1	Pod	$\lambda'$	135	32	16.422	

Logarithms		Values in seconds		Logarithms		Values in seconds					
$s$	3.314 203	p (1019.3) 777.4	1st term 64.4898	$\frac{1}{2}(\phi+\phi')$	59	19	57.4				
$\text{Cos } \alpha$	9.985 882			$s$	3.314 203	$\text{Cos } \alpha$	9.784 192	$\frac{1}{2}(\phi+\phi')$	59	18	43.8
$B$	8.509 406			$B$	8.509 407	$s$	3.279 069	$\text{Cos } \alpha$	9.784 192	$B$	8.509 407
$h$	1.809 491			$h$	1.572 668	1st term	37.3825	$h$	1.572 668	1st term	37.3825
$s^2$	6.628 41			$s^2$	6.558 14	$s$	3.279 069	$s$	3.279 069	$s$	3.279 069
$\text{Sin}^2 \alpha$	9.798 99	$\text{Sin } \alpha$	9.399 494	$\text{Sin } \alpha$	9.399 494	$\text{Sin } \alpha$	9.399 494	$\text{Sin } \alpha$	9.399 494		
$C$	1.629 41	$A'$	8.508 637	$A'$	8.508 637	$A'$	8.508 637	$A'$	8.508 637		
	7.056 81	$\text{Sec } \phi'$	0.292 059	$\text{Sec } \phi'$	0.292 059	$\text{Sec } \phi'$	0.292 059	$\text{Sec } \phi'$	0.292 059		
$h^2$	2.619 0	$\Delta\lambda$	1.514 393	$\Delta\lambda$	1.514 393	$\Delta\lambda$	1.514 393	$\Delta\lambda$	1.514 393		
$D$	2.336 6	$\text{Sin } \frac{1}{2}(\phi+\phi')$	9.934 496	$\text{Sin } \frac{1}{2}(\phi+\phi')$	9.934 496	$\text{Sin } \frac{1}{2}(\phi+\phi')$	9.934 496	$\text{Sin } \frac{1}{2}(\phi+\phi')$	9.934 496		
	5.955 6	$-\Delta\alpha$	1.448 889	$-\Delta\alpha$	1.448 889	$-\Delta\alpha$	1.448 889	$-\Delta\alpha$	1.448 889		
		2d term	+ .0011	2d term	+ .0077	2d term	+ .0077	2d term	+ .0077		
		3d term	+ .0001	3d term	+ —	3d term	+ —	3d term	+ —		
		$-\Delta\phi$	64.4910	$-\Delta\phi$	37.3922	$-\Delta\phi$	37.3922	$-\Delta\phi$	37.3922		

*VMS*

COMPUTATION OF TRIANGLES

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

11-0131

NO.	STATION	OBSERVED ANGLE	CORB'N	SPHERE'S ANGLE	SPHERE'S EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3 1 WIG 2 TAK 3 KOKA 1-3 1-2	( 54 50 16 ) 25' 33" 38" 99' 36" 06"  178 119 60					3.405 426 ✓ 0.087 499 ✓ 9.634 945 ✓ 9.993 873 ✓ 3.127 870 ✓ 3.486 798 ✓
	2-3 1 SROT 2 TAK 3 KOKA 1-3 1-2	( 74 42 16 ) 64' 37" 27" 40' 40" 17"  178 119 60					3.405 426 1 0.015 663 ✓ 9.955 936 ✓ 9.814 061 ✓ 3.377 025 ✓ 3.235 150 ✓
	2-3 1 POD 2 CHIL 3 ZIS 1-3 1-2	( 67 01 33 ) 52' 59" 37" 59' 58" 50"  178 118 120					3.340 866 ✓ 0.035 891 ✓ 9.902 312 ✓ 9.937 446 ✓ 3.279 069 ✓ 3.314 203 ✓
	2-3 1 POD 2 ZIS 3 LUT 1-3 1-2	( 41 45 25 ) 96' 54" 37" 41' 19" 58"  178 118 120					3.282 704 ✓ 0.176 544 ✓ 9.996 834 ✓ 9.819 828 ✓ 3.456 082 ✓ 3.279 076 ✓

Do not write in this margin

Surveys Section (Chart Division)

HYDROGRAPHIC SURVEY NO. **H6944**

Records accompanying survey:

Boat sheets .1...; sounding vols. .4...; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls .1...;  
 special reports, etc. ....  
 .....

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

Number of positions on sheet	.732.	
Number of positions checked	.41..	
Number of positions revised	... ..	
Number of soundings recorded	8,000.	(Estimate)
Number of soundings revised (refers to depth only)	..7..	
Number of soundings erroneously spaced	... ..	
Number of signals erroneously plotted or transferred	... ..	
Topographic details	Time ..4..	
Junctions	Time ... ..	
Verification of soundings from graphic record	Time ..4..	
Verification by <i>A. R. STIRNI</i> .....	Total time .37..	Date <i>7/24/44</i>
Review by <i>Harold W. Murray</i> .....	Time .25..	Date <i>7/27/44</i>

GEOGRAPHIC NAMES  
 Survey No. **H6944**

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
<u>Chilkoot Inlet</u>					590350					1	
<u>Lutak Inlet</u>					.					2	
<u>Tanani Pt.</u>		(U.S.G.B.)			.					3	
<u>Chilkoot R.</u>					590355					4	
<u>Taiyasanka Harbor</u>					590350					5	
										6	
										7	
										8	
										9	
										10	
<u>Haines</u>		(location of tide staff)									11
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	
										21	
										22	
										23	
										24	
										25	
										26	
										27	

Names underlined in red approved  
 by L. Heck on 7/31/44

# MEMORANDUM

## IMMEDIATE ATTENTION

SURVEY  
DESCRIPTIVE REPORT  
PHOTOSTAT OF

} No. H **H6944**  
No. T

{ received  
registered  
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	
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*✓ Pencil*

xac  
RLE

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 14, 1944

~~Division of Hydrography and Topography:~~

✓ Division of Charts: Attention: H. R. EDMONSTON

Plane of reference approved in  
4 volumes of sounding records for


HYDROGRAPHIC SHEET 6944

Locality Southeast Alaska: Head of Chilkoot Inlet, Lutak Inlet.

Chief of Party: Chas. Pierce in 1943  
Plane of reference is mean lower low water.  
-1.2 ft. on tide staff at Haines  
24.7 ft. below B. M. 2 (1921)

Height of mean high water above plane of reference is 15.9 feet.

Condition of records satisfactory except as noted below:

  
Chief, Division of Tides and Currents.

DIVISION OF CHARTS

REVIEW SECTION \* SURVEYS BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. 6944

Field No. 11

Southeast Alaska, Head of Chilkoot Inlet, Lutak Inlet  
Surveyed October 9 - 13, 1943; Scale 1:10,000  
Instructions dated July 20, 1943  
Project No. CS 306

Soundings:

808 Fathometer  
Dorsey Fathometer

Control:

Three-point fix on shore signals

Chief of Party - Charles Pierce  
Surveyed by - Charles Pierce  
Protracted by - E. A. Dorner  
Soundings plotted by - R. M. Sylar  
Verified and inked by - A. R. Stirni  
Reviewed by - Harold W. Murray  
Inspected by - H. R. Edmonston, July 27, 1944

1. Shoreline and Signals

The inked shoreline originates with plane table survey T-6953 (1943). The shoreline shown in pencil is from T-3990 (1922) originally surveyed on a scale of 1:20,000. It was not considered advisable to ink the 1922 shoreline because differences of 20 to 45 meters are already noted in the area common to the 1922 and 1943 topographic surveys.

Data on the origin of signals is given in the Descriptive Report, pages 1 and 3. Signals "SPOT" and "HAT" in Lat.  $59^{\circ}18.8'$ , Long.  $135^{\circ}30.1'$  fall outside the high water line and are undescribed. They are probably located on boulders.

2. Sounding Line Crossings

Agreement of sounding line crossings is excellent.

3. Depth Curves and Submarine Relief

The usual depth curves may be satisfactorily drawn within the limits of the survey. The hydrographer probably considered it too dangerous to develop more of the inshore curves on the northeast side of the inlet.



No unusual physiographic features are revealed by the depth curves. However, at the mouth of this inlet the 45, 49, 55 and 60-fm. curves have been added in brown to emphasize certain valley depressions of a minor nature.

4. Junctions with Adjacent Surveys

No contemporary surveys adjoin the present survey.

A satisfactory junction, for charting purposes, is made with the previous survey, H-2057 (1890).

5. Comparison with Prior Surveys

H-2057 (1890), scale 1:40,000

This survey is very sparsely surveyed and completely covers the area of the present survey. Comparison with the present survey indicates a general good agreement in depths and reveals no changes in bottom of particular interest. This is especially true of the edge of the flats at the head of the inlet.

A bare rock or ledge on H-2057 in Lat.  $59^{\circ}18.97'$ , Long.  $135^{\circ}30.48'$  was not carried forward. This rock was observed at the end of a sounding line, pos. 103u' during a 9-ft. tide. The rock was noted as baring one foot at the time and hence bares 10 feet at MLLW. This rock falls close inshore on the edge of the low water line determined on T-6953 (1943) and was not noted by that topographer. The descriptive card of triangulation station "ZIS" just northwest describes the low water line area as a rocky spit. The rock therefore appears to be the first one noted on the sounding line and is probably one of many rocks or a prominent part of a projecting outcrop. The general notation "rocky" has been shown on the present survey in lieu of the actual rock symbol.

The present survey is completely adequate and supersedes the 1890 work. Additional bottom characteristics for charting purposes, however, may be obtained from the 1890 survey.

6. Comparison with Wire Drag Surveys

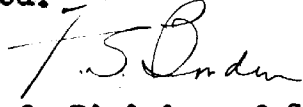
H-4226 (1922), scale 1:40,000

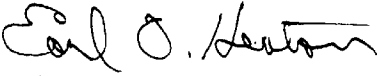
This wire drag survey covers practically all of the present survey. The drag was set to an effective depth of about 14 fathoms and does not conflict with any of the present survey soundings.


7. Comparison with Chart 8303 (latest print dated 4-5-1943)  
Hydrography on this chart originates with surveys previously considered in this review. No additional consideration is necessary.
8. Condition of Survey  
Satisfactory.
9. Compliance with Project Instructions  
Satisfactory.
10. Additional Field Work Recommended  
This is a comprehensive basic survey and no additional field work is necessary.
11. Superseded Surveys  
H-2057 (1890) in part

Examined and approved:

  
Chief, Surveys Branch

  
Chief, Division of Charts

  
Chief, Section of Hydrography

  
Chief, Division of  
Coastal Surveys

before ver + rev.

Examined for critical edgs. for Chrt. 8202 - none found.

7/12/44 GR.

Applied to Chart 8303 after review Aug. 5, 1944 H.F. D.

Applied to Chart 8002 after review May 9, 1947 D.H.B.  
no connection.