

7666

Diag'd. on Diag. Ch. No. 8502-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PF-2147 Office No. H-7666

LOCALITY

State Alaska

General locality Bristol Bay - Kvichak Bay

Locality Middle Bluff to Johnson Hill

194 7-'48

CHIEF OF PARTY

R. F. A. Studds

LIBRARY & ARCHIVES

DATE June 3, 1949

7666

JUN 3 1949

Form 587  
(Ed. June 1946)

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

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.

REGISTER No. H 7666

Field No. Pf 2147

State Alaska

General locality Bristol Bay -- Kvichak Bay

Locality Middle Bluff to Johnson Hill

Scale 1/20 000 Date of survey SEPT. 1947 and May - August 1948

Instructions dated 20 June 1946

Vessel PATHFINDER

Chief of party R.F.A. Studds

J.C. Mathison, E.H. Sheridan

Surveyed by H.S. Cole Fred Natella

Soundings taken by fathometer, graphic recorder, hand lead wire  
Wallitner

Fathograms scaled by Johnson Ciejak McCaslin Saviage O'Laughlin

Fathograms checked by LOW VRS JRP GDS RLW JOP NET JOM RCD

Protracted by J.R. Plaggmier

Soundings penciled by C.O. Nyberg

Soundings in ~~XIXXXX~~ feet at ~~XLXV~~XMLLW

REMARKS: Positions plotted by field party.  
Projection & soundings by Seattle Processing Office.

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY H-7666

FIELD NO. PF-2147

A - PROJECT

Project No. CS-327. General instructions were issued to Commanding Officer, Ship PATHFINDER, dated 20 June 1946.

B - SURVEY LIMITS & DATES

Area covered by this survey is on the south shore of Kvichak Bay, extending from approx. vicinity of triangulation station JOHNSON,  $58^{\circ} 35'N$ ,  $157^{\circ} 14'W$  south to triangulation station MIDDLE BLUFF,  $58^{\circ} 24'N$ ,  $157^{\circ} 31'W$ . Area extends northward to a junction with PF-2146\*, westward to a junction with H-7667 (PF-4147) and southward to a junction with H-7672 (PF-2648).  
\* H-7165(146-47)

Hydrography was executed during the period from 29 May to 11 August 1948, and 23 September to 27 September 1947. Progress was retarded somewhat by the traffic of numerous fishing vessels during the fishing season.

C - VESSELS & EQUIPMENT

Ship PATHFINDER, and Launches 2, 3 & 4 operating from Ship PATHFINDER were used on this survey.

Hydrography was done using Model 808A fathometer No's. 74, 68, 59, & 46. The transceiver units were mounted in the bilge of the launches alongside the keel, and in the hull alongside keel of the ship.

D - TIDES CURRENT STATIONS

The tides were reduced in accordance with special tide report of Commanding Officer, Ship PATHFINDER, dated 17 November 1948 for Project CS-327. The reduction being based on portable automatic tide gage operating at Clarks Point, Nushagak Bay.

A multiple tide staff station was established at  $58^{\circ} 28' 7.13''N$ ,  $157^{\circ} 29' 8.0''W$  to ascertain proper tidal correction factors.  
(Locations of 4 tide staffs are shown on T-7085(1948) in the vicinity of the above position)

No current stations were occupied.

E - SMOOTH SHEET

The smooth sheet was protracted by personnel of Ship PATHFINDER and completed by personnel of the Seattle Processing Office.

F - CONTROL

Triangulation by the parties of J.C. Tribble in 1946, Curtis LeFever in 1947, and triangulation, theodolite and sextant cuts by personnel of Ship PATHFINDER in 1947 and 1948. Topographic stations located by graphic control sheets T-7085<sup>(1948)</sup> (PF-B-48) & T-7036b(PF-B-46) by personnel of Ship PATHFINDER<sub>(1946)</sub>

G - SHORELINE & TOPOGRAPHY

T-9072, T-9073 & T-9076 (1947)  
The shoreline will be taken from air photo control prints by the party of A. Newton Stewart in 1947 and to be supplemented by graphic control by personnel of Ship PATHFINDER in 1948.

H - SOUNDINGS

All soundings were recorded in feet and tenths using Model 808A fathometer except where bottom samples were taken when a hand lead was used.

I - CONTROL OF HYDROGRAPHY

Sounding lines were controlled using standard sextant fix methods.

J - ADEQUACY OF SURVEY

The area covered by this survey is out of the main ship channel in Kvichak Bay but is used extensively by fishing boats during the fishing season. The survey is complete and satisfactory junctions were obtained with adjoining sheets.

K - CROSSLINES

*See Proc. Off. addendum*  
About 5% crosslines were run and were in satisfactory agreement with the regular sounding lines.

L - COMPARISON WITH PRIOR SURVEYS

There are no prior surveys of this area.

M - COMPARISON WITH CHARTS

At present there are no large scale charts covering this area. In general the survey agrees with small scale U.S.C.&G.S. Chart No. 8802. | *Review, par. 6 A.*

N - DANGERS & SHOALS

This section of Kvichak Bay covered by this survey is navigable by small crafts and fishing vessels and is hazardous at low or falling tides.

O - COAST PILOT INFORMATION

This subject is covered in a separate report. ✓

P - AIDS TO NAVIGATION (No aids to navigation within limits of present survey)

Submitted under separate report on form #567 forwarded to Washington Office, 14 January 1949. ✓  
L70(1949)

Q - LANDMARKS FOR CHARTS

Submitted under separate report on form #567 forwarded to Washington Office, 14 January 1949. ✓  
L70(1949)

R - GEOGRAPHIC NAMES ✓

This subject will be covered under a separate report. ✓

S - TABULATION OF APPLICABLE DATA

(a) Attached to this report -

1. Tabulation of statistics
2. Fathometer corrections & summary of velocity corrections ✓
3. List of signals


(b) To be submitted to Washington Office under separate cover -

1. Report on tides submitted 17 November 1948
2. Geographic names
3. Landmarks for charts submitted on 14 January 1949 ✓ L70(1949)

Respectfully submitted

JOHN R. PLAGMIER  
Ensign, USC&GS  
Ship PATHFINDER

Approved & Forwarded:

  
ROBERT W. KNOX, Comdr., USC&GS  
Commanding Officer  
Ship PATHFINDER

# FATHOMETER CORRECTIONS FOR 1948 SEASON

## SHIP PATHFINDER

### Project GS-327

Portable 808-type fathometers were used for sounding during the entire 1948 season. Bar check corrections were obtained for each fathometer by meaning all the bar checks taken on that fathometer for the entire season, regardless of the launch or boat sheet used. In addition, for the fathometer used for Ship soundings the fathometer comparisons (vertical casts) were meaned in conjunction with the bar checks.

During the field season an abstract was maintained on the bar checks against the fathometer number. The corrections were individually plotted on graph paper and a mean curve obtained. A study of the curves show negligible variances during the season. The temperature and salinity observations follow this in showing, outside of the surface layer, constant velocity corrections for the entire season. The T & S curve approximates the bar check curves closely. Since there are inherent instrumental characteristics the bar check curves were held rather than the T & S curves. Corrections are in units of 0.5 foot in accordance with Director's letter 24 December 1948, No. 36-mr.

The fathometer installations for the PATHFINDER's launches are all practically the same, with inboard units. For ease of operation the initial was held on one foot for all launch work and the bar check curves were drawn from this point. Initial corrections were applied when the initial drifted off the one-foot line. No instrumental (electrical) changes were made during the season outside of replacement of weak tubes. The B and C scale corrections were obtained at the time the bar check was made, when possible. Vertical casts for the Ship were plotted in different colors for the three scales and the corrections were obtained from this curve. The draft was set for the initial for all Ship work. Insufficient data was obtained for Fathometer No's. 61 and 68 on the working grounds and the B scale corrections were taken in Lake Washington, Seattle. For only a few soundings were the bar check curves extended beyond the limits allowed by the manual, and apparently reliable vertical casts were used for verification.

At the beginning of the season all launches had a common bar - a six foot by eight inch drilled plate supported by a steel frame. One of these bars was lost and either a three inch pipe seven feet long or a four foot by eight inch flat plate was used instead. All bar lines were of tiller cord marked in five foot intervals. All lines (both bar and hand lead) were new at the beginning of the season. For the first month sufficient line comparisons were not taken and several bar checks were rejected. After the lines became stable the bar checks with the first bar proved adequate and reliable. The handlead lines were not remarked in the field and all handlead soundings should not be plotted unless corrected.

SUMMARY OF VELOCITY CORRECTIONS 1948

<u>Fathometer</u>	<u>A Scale</u>	<u>B Scale</u>
No. 46	Zero to 65'	+2.0' to 65' +2.5' to 90'
No. 59	-0.5 to 18' -1.0' to 44' -1.5 to 67'	-2.5 to 44' -3.0 to 67' -3.5 to 91'
No. 61	0.0 to 15' +0.5 to 48' +1.0 to 82'	-1.0 to 48' -0.5 to 82'
No. 68	Zero to 72'	-0.5 to 72'
No. 74	0.0 to 16.5' -0.5 to 37' -1.0 to 58' -1.5 to 74'	-1.5 to 37' -2.0 to 53' -2.5 to 74'
No. 130 S	0.0 to 2.5' -0.5 to 19.0' -1.0 to 39.5' -1.5 to 63.0' -2.0 to 115.0'	(B & C Scale) -1.0 to 39.5' -1.5 to 63.0' -2.0 to 115.0'

T & S (theoretical) Curve

0.0 to 20'  
-0.5 to 48'  
-1.0 to 79'  
-1.5 to 109'

Typed from copy attached to Descriptive Report of H-7672. This also is attached to Volume 1 of H-7667.

H-7666, H-7672 and H-7667 are part of project CS-327.

See front of Volume 1.

H 7666  
Pf 2147

Kvichak Bay

Middle Bluff to Johnson Hill Creek.

Processing Office Notes.

Smooth sheet.

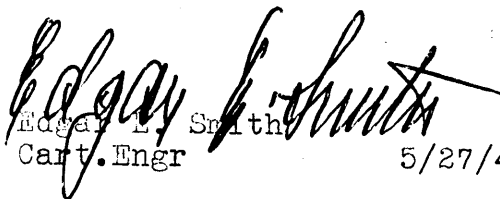
The Projection is hand made on K & E paper N 118. This was branded "Paragon" but it is not the embossed Germany made Paragon. The shoreline is from T 9072, T 9073 and T 9076. Topographic signals are from T 7085 (1948) and T 7036b (1946) (1947)

The projection was ruled in the processing office, triangulation and shoreline added. Then the sheet was transferred to the field party where the hydrographic and topographic signals were placed on the sheet, and then positions plotted. The sheet was returned to the processing office where the soundings were penciled in.

It was noticed that lines involving signal BOAT made bad crossings. BOAT was replotted from cuts found in Vol. 1 of H 7667 (1948) Pages 21, 22, 23, 25, 30, 31, 32 & 35. This gave a position about a hundred meters south of the first position. The replotted lines made much better crossings. The story is that BOAT is a part of a barge on the beach. The lines were first plotted from the position obtained in 1948. The soundings depending on this signal were made in 1947 and the position finally used is a 1947 position. It is evident that the barge drifted during the intervening winter. This signal was not used in 1948 on this sheet.

Noteworthy discrepancies have been listed on separate sheets.

The report by the field party has covered other pertinent things.

  
Edgar L. Smith  
Capt. Engr 5/27/49



Discrepancies.

✓ indicates discrepancies eliminated in the Washington Off.

Lat.	Long.	Position	Depth Feet				
58 26.2	157 32.	102e	13	✓			
		106 d	11				
26.2	32.7	101 b	14	✓			
		101 e	17				
26.7	34.8	83.e	33	✓			
		175 e	28				
27.9	33.5	171 e	24	✓			
		168 d	30				
27.5	33.9	172 e	27	✓			
		5 e	33				
28.9	30.6	112 b	20	✓			
		46 d	23				
29.	30.7	80 b	21	✓			
		47 d	24				
28.7	32.6	48 c	32	✓			
		167 e	28				
28.9	32.4	124 f	31	✓			
		166 e	27				
29.7	31.4	179 ae	Differences at crossings 1 to 4 ft. ✓				
		to 182 ae	day being shoaler.				
31.4	27.8	115 f	25	✓			
		6 b	20		b day generally shoaler.		
32.1	30.2	1 to	d day 1 to 5 ft. shoaler.				
		16 d	(1-15d. rejected) from 15d. on O.K.				
31.5	29.8	1 b	differences 2 to 4 ft. ✓				
		29-30f					
		195 -197b					

### Discrepancies

	Lat.	Long.	Position	Depth Feet				
58	32.	157 29.9 <sup>8</sup>	119 a 26 f	26 23	✓			
	32.7	27.7	5 b 22 f	25 21	✓			
	32.4	26.9	89 a 7 b	30 27	✓			
	36.1	21.8	1 b to end of day			b day one to five feet shoaler than crossed lines. ✓		
<p>Discrepancies have been listed where the line appeared consistently shoaler or deeper. Differences attributable to potholes, bars, steep slopes, etc. have been omitted. ✓</p> <p style="text-align: center;"><i>Discrepancies largely eliminated in Wash. Off.</i></p>								

H 7666

Pf 2147

Bristol Bay, Alaska

Geographic names penciled  
on smooth sheet.

Alaska Peninsula ✓

Kvichak Bay ✓

Kvichak Bay, Alaska.

List of Signals.

<u>Signal</u>	<u>Source</u>
---------------	---------------

Triangulation.

✓ Red 1946	Tribble 1946, Field Comp.
✓ Johnson 1946	" "
✓ Johnson Hill Cairn	" "
✓ Sue 1946	" "
✓ Will 1946	" "
✓ Deed 1946	" "
✓ Middle 1946 (Dim)	" "
✓ Peper 1948	LeFever 1948 " "

Graphic Control Sheet T 7085

Big	Kuk	Bar	She	Kid
Nat	Pud	Mam	Joe	

4th Order Triangulation-Studds 1948

Ear	Roy	Rib	Fox
-----	-----	-----	-----

Hydrographic Signals.

Yes	Transferred from H 7165	
But	Ditto	
Go	Volume 5	
Boat	See H 7667	Vol. 1

H 7666  
Pf 2147

Alaska - Bristol Bay

Tidal Note.

The tides were reduced in accordance with the Special Tide Report of the Commanding Officer, Ship PATHFINDER, dated 17 November, 1948, for Project CS - 327. The tide reducers were based on the portable automatic gage operating at Clarks Point, Nushagak Bay. ✓

A multiple tide staff station was established at <sup>approx.</sup> Lat. 58° 27' Long. 157° 29' to ascertain proper tidal correction factors. <sub>30</sub>

STATISTICS FOR HYDROGRAPHIC SHEET H-7666(1947)

DATE	DAY	VOL. NO.	NO. POSITIONS	STAT. MI. SDG. LINE	H. L. SDGS.
<u>Ship PATHFINDER</u>					
✓ 25 Sept. 1947	A	22	<u>15</u>	<u>5.4</u>	<u>0</u>
	TOTAL		15	5.4	0
<u>Launch No. 2</u>					
✓ 23 Sept. 1947	a (red)	1 ✓	132	34.3	0
✓ 27 Sept. 1947	b (blue)	3 ✓	<u>36</u>	<u>8.7</u>	<u>0</u>
	TOTAL		168	43.0	0
<u>Launch No. 3</u>					
✓ 26 Sept. 1947	a (blue)	3 ✓	<u>89</u>	<u>21.5</u>	<u>0</u>
	TOTAL		89	21.5	0
	GRAND TOTAL		273	69.9	0
<hr/>					
<u>Launch No. 2</u>					
✓ 7 June 1948	a (green)	1 5	132	27.9	4
✓ 8 June 1948	b (green)	1, 2 5, 6	182	39.1	1
✓ 9 July 1948	c (green)	2 6	198	55.3	0
✓ 12 July 1948	d (green)	3 11	174	37.3	0
✓ 9 Aug. 1948	e (green)	3, 4 11, 12	178	42.8	1
✓ 11 Aug. 1948	f (green)	4 12	<u>200</u>	<u>43.9</u>	<u>2</u>
	TOTAL		1064	246.3	8
<u>Launch No. 3</u>					
<sup>29</sup> ✓ 28 May 1948	a (blue)	1 4	161	38.5	1
✓ 31 May 1948	b (blue)	1 4	<u>84</u>	<u>19.8</u>	<u>0</u>
	TOTAL		245	58.3	1
<u>Launch No. 4</u>					
✓ 3 July 1948	a (red)	1 7	90	23.6	0
✓ 14 July 1948	b (red)	1, 2 7, 8	202	56.4	0
✓ 15 July 1948	c (red)	2 8	112	46.2	0
✓ 16 July 1948	d (red)	2, 3 8, 9	174	48.4	0
✓ 17 July 1948	e (red)	3 9	182	50.2	1
✓ 18 July 1948	f (red)	3, 4 9, 10	<u>161</u>	<u>38.7</u>	<u>0</u>
	TOTAL		921	263.5	1
	GRAND TOTALS		2503	638.0	10

Area - 47.6 Square Statute Miles

GEOGRAPHIC NAMES

Survey No. H-7666

Name on Survey	On Chart No.		On previous survey No.		On U. S. quadrangle Maps		From local information		On local Maps		P. O. Guide or Map		Rand McNally Atlas		U. S. Light List	
	A	B	C	D	E	F	G	H	K							
<u>Alaska</u>																1
<u>Bristol Bay</u>					"	"								ESGB		2
																3
<u>Alaska Peninsula</u>														USGB		4
<u>Kvichak Bay</u>																5
<u>Johnson Hill Creek</u>					(spelling of name pending with U.S.G.B.N.)											6
Middle Bluff																7
Johnson Hill																8
																9
																10
																11
																12
																13
<u>Clarks Point, Nushagak Bay</u>					(location of tide gage)											14
																15
																16
																17
																18
																19
																20
																21
																22
																23
																24
																25
																26
																27

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. <sup>H-7666</sup>.....

Records accompanying survey:

Boat sheets <sup>1</sup>...; sounding vols. <sup>12</sup>.....; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls <sup>9 envel.</sup>.....;  
 special reports, etc. ....  
 .....

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

Number of positions on sheet	<i>L. Lubbers</i> 2468	<i>W. Klein</i>
Number of positions checked	80 163	83
Number of positions revised	19 31	12
Number of soundings revised (refers to depth only)	116 144	28
Number of soundings erroneously spaced	452 512	60
Number of signals erroneously plotted or transferred	0	0
Topographic details	Time 6 hrs 17	11 hrs
Junctions	Time	0
Verification of soundings from graphic record	Time 20 hrs 27 hrs	7 hrs
Verification by... <i>L. Lubbers</i> .....	268 hrs	9/16/49
Verification by... <i>W. Klein</i> .....	Total time 215 hrs	Date 11/4/49
Reviewed by... <i>J. A. Dinsmore</i> .....	Time 16 hrs	Date 12/30/49



RHC

## TIDE NOTE FOR HYDROGRAPHIC SHEET

June 20, 1948

~~Division of Hydrography and Topography~~

Division of Charts: R. H. Carstens

Plane of reference approved in  
12 volumes of sounding records for

HYDROGRAPHIC SHEET 7666

Locality Kvichak Bay, Bristol Bay, Alaska

Chief of Party: R. F. A. Studds in 1947 - 48  
Plane of reference is mean lower low water, reading  
3.2 ft. on tide staff at Naknek River Entrance  
24.6 ft. below B. M. 2 (1946)

3.9 ft. on tide staff at Clark Point  
25.8 ft. below B. M. 5 (1947)

Heights of mean high water above plane of reference is as follows:

Naknek River Entrance = 20.7 feet  
Clark Point = 17.8 feet

Condition of records satisfactory except as noted below:

*E. C. McKay*  
*Section*

Chief, Division of Tides and Currents.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7666

FIELD NO. PF-2147

Alaska, Bristol Bay-Kvichak Bay, Middle Bluff to Johnson Hill  
Surveyed in Sept. 1947, May-Aug. 1948                      Scale 1:20,000  
Project No. CS-327

Soundings:

Control:

808 Fathometer

Sextant fixes on shore signals

Chief of Party - R.F.A. Studds  
Surveyed by - J.C. Mathison, E.H. Sheridan, H.S. Cole and  
                  F. Natella  
Protracted by - J.R. Plaggmier  
Soundings plotted by - C.O. Nyberg  
Verified and inked by - L. Lubbers, Jr. and W. Klein  
Reviewed by - T.A. Dinsmore, December 30, 1949  
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline originates with air photographic surveys T-9072, T-9073 and T-9076 (1947).

The signals are from the above surveys and from graphic control surveys T-7036b (1946) and T-7085 (1948). The fixes for the supplementary hydrographic signals are recorded in the sounding volumes of the present survey and adjoining surveys H-7165 (1946-47) and H-7667 (1948).

2. Sounding Line Crossings

Considering the unevenness of much of the bottom, depths at crossings are in very good agreement. Several short sections of sounding lines have been rejected because of excessive differences at crossings. Differences of 2 ft. still exist but are to be expected on the sides of bars and where steep slopes occur.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated.

A large sand flat which uncovers at M.L.L.W. extends throughout the inshore area of the present survey and reaches its maximum width in the northeastern part where the low-water line falls about two miles offshore.

The irregularities appearing throughout the inshore bottom probably result from ice gouging and the action of the strong tidal currents which flow in this region. The offshore bottom is moderately uneven.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7165 (1946-48) on the northeast and H-7667 (1948) on the west. The junction with H-7672 (1948) on the south will be considered in the review of that survey.

5. Comparison with Prior Surveys

There are no prior surveys of the area by this Bureau.

6. Comparison with Chart A-3370-1 (Preliminary print of 3/28/49)

A. Hydrography

Charted hydrography originates with advance information of the present survey (blueprint 44230, 1948). The present smooth-sheet soundings, in some instances, differ by as much as 7 feet from the charted soundings. The present survey supersedes the charted information.

B. Aids to Navigation

There are no aids to navigation within the limits of the present survey. Navigation in this area should be done during a rising tide.

7. Condition of Survey

- a. The sounding records are complete; the Descriptive Report covers all matters of importance.
- b. Most of the soundings were revised in the Washington Office after the application of tide reducers derived from new tide curves which were drawn for this area. The tide reducers applied in the field resulted in discrepancies of as much as 5 ft. in sounding line crossings. The revised tide reducers have eliminated these discrepancies and have greatly improved the delineation of the depth curves.

- c. The verifiers report indicates that little attention was given to the proper spacing of soundings during the smooth plotting of the survey. More than 500 soundings, most of them occurring at uneven time intervals, were replotted because of erroneous spacing.


8. Compliance with Project Instructions

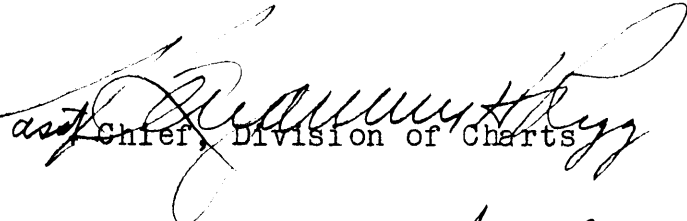
The survey adequately complies with the Project Instructions.

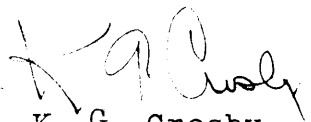
9. Additional Field Work


This is a basic survey and no additional field work is required.

Examined and approved:

  
H. R. Edmonston  
Chief, Nautical Chart Branch

  
Chief, Division of Charts

  
K. G. Crosby  
Chief, Section of Hydrography

  
W. M. Scaife  
Chief, Division of Coastal Surveys

