7165

Diag. Cht. No. 8502-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. Pf-2146 Pf-4147 *Office No.* H-7165

LOCALITY

State ALASKA

General locality BRISTOL BAY

Locality KVICHAK BAY

194 6-'48

CHIEF OF PARTY

R.F.A.STUDDS

LIBRARY & ARCHIVES

DATE JULY 27, 1948

B-1870-1 (1)

7165

1946 Work

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PF-2146 Office No. 7165

LOCALITY

State ALASKA

General locality BRISTOL BAY

Locality KVICHAK BAY

194 6

CHIEF OF PARTY

R. F. A. STUDDS

LIBRARY & ARCHIVES

DATE

8-1870-1 (1)

DESCRIPTIVE REPORT

HYDROGRAPHIC SHEET FIELD NO. 2146

REG. NO. 7165

A. This survey was conducted in accordance with instructions for project No. CS-327, dated 20 June 1946.

B. Hydrography was started on 10 Sept. 1946 and discontinued on 3 Oct 1946. There is no index of sheets. The survey covers a portion of Kvichak Bay at the head of Bristol Bay. The area includes the anchorage used by commercial shipping which serves the fishing industry. The shoreline included is on the southeast side of Kvichak Bay from the Naknek River entrance to triangulation station Sue. Lat. 58° - 34' - 36.026" Long. 157°-18'-05.318". There is additional shoreline at the head of Kvichak Bay between the entrance of the Naknek River and the entrance of the Kvichak River. The limits of the northwest side of the survey are bounded by a line between the following two points, Lat. 58-47 N Long. 157-16 W Lat. 58-38 Long. 157-26. There are no junctions with prior surveys.

C. The survey was executed by launches of the ship PATHFINDER. During the survey the ship was anchored at Lat. 58-42.3 Long. 157-15.0. The following 808 graphic recorders were used,

Launch No. 1	68 and 59
Launch No. 2	46
Launch No. 3	61 and 68
Launch No. 4	745

Launches 2 and 4 operated in the central portion of the sheet.

Launch No. 1 operated in the northern portion of the sheet.

Launch No. 3 operated in the southern portion of the sheet.

A hand lead was used for vertical casts. The depths range from 4 to 80 feet.

D. One portable automatic tide gage was maintained at Lat. 58°-43'-19.0" Long. 157-03-26.9", in the entrance of the Naknek River. Boat sheet soundings were reduced from marigrams of the Naknek River portable gage. The datum of MLLW was determined by simultaneous comparasions between the records of the Naknek River gage and the predicted tides of Nushagak Bay (Clark Pt.) Alaska. This datum was determined in the field as -3.7 feet on the Naknek River gage staff. Verification of this has not been received from the Washington Office. Soundings were reduced from hourly heights furnished by Washington Office. These hourly heights were taken from the fathometer observations taken at the ships anchorage. Review, par. 7c.

Half hourly current observations were recorded aboard the PATHFINDER, at anchor in Lat. 58-42.3 Long. 157-15.0 from 16 Sept. 1946 to 28 Sept. 1946 and from 30 Sept. 1946 to 1 Oct. 1946. The maximum current observed was 3.2 knots.

E. Smooth sheet data.

F. The control used was the triangulation executed by the party of J. C. Tribble Jr. in 1946.

Topographic stations were transferred to the boat sheet from 1:20,000 aluminum planetable sheets Pf-A-46 T-7036 a (1946) and Pf-B-46. T-7036 b (1946)

Stations Sob and Red were located by triangulation executed by the PATHFINDER. The line Can-Johnson of J.C. Tribble's scheme was used as a starting line.

G. The shoreline and topographic details were surveyed on aluminum planetable sheets Pf-A-46 T-7036 a (1946) and Pf-B-46, on a 1:20,000 scale. There are no prior topographic surveys T-7036 b (1946) of this area. Air photographs of the area are available.

The low water line has been established by soundings.

H. Soundings were taken in feet and tenths with the 808 graphic recorder. Corrections will be made from bar checks which were conducted in accordance with 557 of the hydrographic manual.

I. Three point sextant fixes were used to control the hydrography.

(Survey completed in 1947-48)

J. The survey is incomplete. There are no prior surveys or holidays. The junction with Pf 1146 is satisfactory. (Naknek River entrance) H-7164 (1946)

Respectfully submitted

E. H. Kirsch

E. H. Kirsch
H. & G. E.

Approved, forwarded:

R. F. A. Studds

R. F. A. Studds,
Chief of Party

H- 7165

FATHOMETER CORRECTIONS

820 fms/sec. 808

10 September - 3 October
1946

FATHOMETER	DEPTH	CORRECTION	SCALE
All	0 - 26 feet	0 feet	A
	26½ - 55 feet	-0.5 feet	A
46	35 - 85 feet	+2.0 feet	B
59	35 - 59 feet	-1.5 feet	B
	59½ - 85 feet	-2.0 feet	B
61	35 - 38 feet	+0.5 feet	B
	38½ - 74 feet	0 feet	B
	74½ - 85 feet	-0.5 feet	B
68 & 74S	35 - 56 feet	-1.0 feet	B
	56½ - 85 feet	-1.5 feet	B

1947 Work

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PF-2146 *Office No.* H-7165

LOCALITY

State Alaska

General locality Bristol Bay

Locality Kvichak Bay

1947

CHIEF OF PARTY

R. F. A. Studds

LIBRARY & ARCHIVES

DATE

8-1870-1 (1)

7165

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET FIELD NO. 2146

1947 Supplement

GENERAL:

This sheet was partially done in 1946, and was completed in 1947. The work was extended to the southward to a line from a point 1 mile south of triangulation station SUE to a point at Lat. 58°- 38' Long. 157°-27' where a junction was obtained with sheet field No. PF-4147. The northern section of the work on the latter sheet, which extended westward to Lat. 58°- 39' Long 157°- 29' thence along a general northeasterly line to Lat 58°-44.5' Long 157°-19' where a junction was obtained with sheets 2146 and PF-2547, was done on the 1:40,000 scale to facilitate plotting in the launch, and is to be smooth plotted on, and become a part of, sheet PF-2146. From the junction point of the three sheets, sheet 2146 effects a continued junction with sheet 2547 along a line in a general notheasterly direction to a point at Lat. 58°-47' Long. 157°- 16' thence along a line due east to Libbyville. This northern limit joins sheets 2547 and PF-2347. The junction with sheet PF-1146 is as described in the report on the 1946 work. On the southern limiting line, this sheet joins sheet PF-2147, incomplete, and the southern section of sheet PF-4147. The latter work will not become a part of sheet 2146, but may be included in sheet 2147 at the end of the 1948 season.

In order to facilitate the field work, three boat sheets were used to cover the area of this sheet. The north section, covering the area from the northern line of the sheet to an east-west line beginning at a point just north of Cape Suwarof, is contained on one boat sheet; the south section, comprising of the balance of the sheet is plotted on the other two copies of the boat sheet, with no specific area assigned to each.

The northern section of the sheet contains extensive shoal areas which were partially developed in 1946. Additional splits and development as necessary were accomplished, and several channel lines thoroughly developed.

The area in the northwest corner of the sheet was particularly difficult because of extreme distance of the signals. It was frequently necessary to use double extension arms on the steel protractor; hence boat sheet positions, which were plotted under difficult field conditions, may be slightly in error. It is felt however, that complete coverage was effected in spite of the difficulties.

Because of a like condition on the entire western edge of the sheet, a 1:40,000 scale sheet (PF-4147) H-7165 (1947) was used to accomplish hydrography. Although there is some deep water in the area, much of it is comprised of shoals; therefore all work had to be done by launch. Field plotting on the 1:40,000 scale aided materially the control of the hydrographic lines. This work will be smooth plotted on the 1:20,000 sheet as heretofore explained, and become a part of it. All work done on sheet 4147 H-7165 (1947) south of the southern limit of sheet 2146, H-7165 (1946) and any additional work done in the future to the westward, will be correlated to other sheets after completion.

A small amount of ship hydrography was done in the south central part of the sheet, along and on both sides of the main ship channel.

The anchorage area was further developed during the 1947 season -- no obstructions were found therein, although the bottom in the area is quite uneven.

CONTROL:

Triangulation stations and topographic signals along the eastern shore line were used exclusively for control; three point fixes by sextant angles being the medium used. Triangulation was the same as used during the 1946 season. One T-7099 (1947) topographic signal north of Libbyville was located on sheet PF-F-47. Several hydrographic signals were located and used.

EQUIPMENT:

All sounding was done with the 808 fathometers, mounted on launch and ship. Fathometer numbers are listed under "Fathometer Corrections."

Bar checks were taken at the beginning and end of each day when weather permitted; comparisons by hand lead line were taken from time to time.

TIDES:

Tide gage used was maintained at the mouth of the Naknek River. A Ship Fathometer Station was occupied at the anchorage. Tide reducers, based on the Naknek River gage, corrected as determined by special Tide Report submitted by the Commanding Officer, Pathfinder, for season 1947 were used. Reducers used on boat sheet will, due to lack of sufficient information during the field season, show discepancies of several feet; these s hould be corrected on the smooth sheet after application of correct tide reducers. Review, par. 7c.

CURRENTS:

Current observations were taken from 1 Aug. through the 5 Aug. 1947, 5½ miles West by South of Cape Suworof Light. Latitude 58°- 42' and Longitude 157°-15'.

JUNCTIONS:

The survey was completed in 1947, and satisfactory junctions were obtained with other sheets listed under the "General" heading. (one days add'l work done Sept. 22, 1948)

No surveys prior to 1946 were in existence, therefore this may be considered a complete basic survey of the area. With proper application of tide reducers to the two years' work crossings should be satisfactory. Review, par. 7c.

DANGERS:

A large shoal area (Deadman Sands) extends for some distance along the Southwestern edge of the sheet. This shoal bares about 10 feet at MLLW and is quite evident at half tide.

The low water line on the east side extends ~~from ½ to 3/4~~ as much as two miles off shore.

A large shoal extends to the westward for about 2 miles on the south side of the entrance to Naknek River. This shoal is in the form of a sand bar; it bares up to 3 feet at MLLW, and a large* boulder lies about in the center of it. → Presumed to be the boulder at Lat. 58° 42.90'. Long. 157° 04.90'. E.G.S.

The north and east sections of the sheet are comprised of extensive sand and mud shoals. These bare up to 7 feet at MLLW, and should be avoided by shipping unless pilots with local knowledge are available.

* Located on H-7639 (1947-48) and carried fwd. to the present survey

ANCHORAGES - CHANNELS:

The head of navigable waters for ocean going shipping is

ANCHORAGES - CHANNELS: (Cont.)

at the deep water anchorage area at about Lat 58° - 42', Long. 157° - 15'. The approach channel to this anchorage carries from ~~27~~ 33 to 60 feet at MLLW, and depths of 38 to 40 feet govern in the anchorage area. These depths, are, of course, augmented by the 20 foot range of tides found in the area.

A channel which is used by tugs and barges runs from the general anchorage area in a north-easterly direction to the cannery of the Bristol Bay Packing Company. The company maintains a range by which this channel may be navigated; this range consists of a white diamond shaped day marker in rear, Lat. 58°-45.03', Long. 157°-03.32', and the Cannery tank, Lat. 58°-45.91', Long. 157°-03.62' in front. This range must be held slightly open to the northward to effect a mid-channel course.

From a point 0.4 mile off the Bristol Bay Packing Co. wharf (which dries at Low Water) the channel veers to the northward and passes about 0.3 mile off the wharf at Libbyville, from whence it cuts thru the reef at a depth of about 4 feet and enters the main north-south channel toward Graveyard Point.

Although the above features may be classed as channels, it is common practice in the area to avoid all movement of vessels north of the Naknek River at the lower stages of the tide or on a falling tide. At or near high water, it is safe to navigate almost any part of the area with vessels drawing up to 7-8 feet; and vessels going aground on a rising tide are floated in very short time and may proceed. Since no rocks exist on the shoals, temporary grounding does no damage to underwater bodies of vessels.

AIDS TO NAVIGATION:

The positions of the fixed aids to navigation are reported on form No. 567. C.L. 470 (1948)

LANDMARKS FOR CHARTS:

The positions of the landmarks to be charted are reported on form NO. 567. C.L. 470 (1948)

GEOGRAPHIC NAMES: 814

A special report on geographic names is being submitted under separate cover.

Respectfully submitted,

J. C. Ellerbe
Lt. Comdr., USC&GS

Approved and forwarded,

R. F. A. Studds
Comdr. USC&GS
Chief of Party

VELOCITY CORRECTIONS

808 Depth Recorders — Cal. Velocity 820 fms/sec.

Fathometer	Date	Depth	Correction	Scale
46		3 Ft. to 12.5Ft.	- 0.5	A
		13 Ft. To 55.0 Ft.	0	A
59		3 Ft. to 22.5 Ft.	0	A
		23 Ft. to 37.5 Ft.	- 0.5	A
		38 Ft. to 55.0 Ft.	- 1.0	A
74-S		3 Ft. to 10.5 Ft.	0	A
		11 Ft. to 34.5 Ft.	- 0.5	A
		35 Ft. to 55.0 Ft.	- 1.0	A

59	6-17-47	All	± 1.0	A
"	" " "	"	+ 0.5	B
68	9-20-47	All	+ 4.0 (+2)	A
"	" " "	"	+ 4.0 (+2)	B
"	" " "	"	- 3.5	C
68	9-22-47	1-C to 27-C	+ 1.5 (-0.5)	B&C
"	" " "	27-C to 200-C	+ 2.0	A, B, &C 0.0 to A -0.5 to B & C
68	9-23-47	All	+ 1.0 (- 1.5)	A
"	" " "	"	+ 1.5	B
68	9-25-47	All	+ 1.0 (0.0)	A
"	" " "	"	+ 1.5 - (0.5)	B
68	9-26-47	All	0.0	A
"	" " "	"	0.0 (- 0.5)	B
68	9-27-47	All	0.0	A
"	" " "	"	+ 1.0 (- 0.5)	B

Revised corrections in red were used to attain adequate agreement.

1947 Work on PF 4147
Plotted on H 7165

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PF * 4147 *Office No.* 7165

LOCALITY

State Alaska

General locality Bristol Bay

Locality Kvichak Bay

194 7

CHIEF OF PARTY

R. F. A. Studds

LIBRARY & ARCHIVES

DATE

8-1870-1 (1)

DESCRIPTIVE REPORT
To Accompany
Hydrographic Sheet H - 7165

(Field No. PF-4147)

A. This survey was conducted in accordance with instructions for Project CS-327, dated 20 June 1946.

B. Hydrography was begun on 16 July 1947 and discontinued on 23 September 1947. The area covered is in the center and Eastern part of Kvichak Bay between triangulation stations Sob Lat 58° 40' Long 157° ~~29~~ 18' and Cope Lat 58° 48' Long 157° 25' on the northern limit and the southern limit is at a point Lat 58° 38' Long 157° 29'. This sheet was used to provide a survey in the holiday in Sheet H-7165 (Field No. PF-2146).

C. The survey was accomplished with Launch Nos. 2, 3, and 4.

All sounding was done using the following 808 depth recorders:

Launch No.	Recorder No.
2	74-s
3	59
4	46

A hand lead was used for vertical casts to check the fathometer and secure bottom samples.

D. A portable tide gage was maintained at the mouth of the Naknek River,* Lat 58° ~~43~~ 38' Long 157° 03'. Tide reducers will be determined in accordance with the Special Tide Report for the 1947 season submitted by the Commanding Officer, PATHFINDER.

* approximate

final tide reducers determined in Wash. Office

No current observations were taken in this area.

E. Smooth sheet data (to be submitted by Processing Office).

F. Control for this survey was provided by triangulation and hydrographic stations. The triangulation was located by the party of Lt. Comdr. J.C. Tribble in 1946 and by the personnel of the PATHFINDER in 1947. The two hydrographic stations (House and Yes) were located by the personnel of the ship PATHFINDER.

Signal COPE was originally located by sextant fixes, but was later incorporated with station HIGH in the 1947 triangulation by the party of Lt. Comdr. J. C..

LeFever. The sextant location was used on the boat sheet for this survey.

G. No topography or shoreline was available at the time this survey was made. These details will be provided by the Washington office from the compilation of air photographs inspected by the personnel of the PATHFINDER and the party of Lt. Comdr. A.N. Stewart. Shoreline added; See Review, par. 1.

H. Soundings were recorded in feet and tenths using 808 depth recorders. Corrections will be made from bar checks taken in accordance with Par. 557 ofthe Hydrographic Manual. ✓

I. All hydrography was controlled by 3-point sextant fixes. ✓

J. The survey is complete within the area covered. It is anticipated that the survey will be extended to the South during the 1948 field season. Additional development of shoal areas was not considered practical due to the instable sandy bottom and yearly changes caused by grounding of ice in the Spring break-up. ✓

Field junctions with adjoining surveys were not entirely satisfactory due to the lack of accurate tide information. Discrepancies are expected to disappear when final tide reducers are applied. (Discrepancies eliminated) ✓

K. Cross lines were run in accordance with the instructions, being approximately 5% of the survey. In some cases there are discrepancies of 7 to 8 feet in crossings at a depth of approximately 40 feet. This discrepancy will probably be eliminated when final tide reducers are applied. ✓ Review, par. 7c.

L. There are no previous surveys in the area. ✓

M. There are no soundings on Chart 8802 within the area of this survey. (Comparison made w/ Chart A-3370, dated 3/28/49) ✓ Review, par. 6 A.

N. The area surrounding this survey abounds with shoals and flats most of which are well known to the local operators of small craft. ✓

O. While this survey was being made, the PATHFINDER was anchored in the vicinity of Lat 58° 42' Long 157° 14'. There are no recommended anchorages within the area of the survey. ✓

Larger ships do not operate in this area due to the extended shoal from the West shore of the bay. The anchorage and approved channel is East ofthis survey. which was surveyed in 1946. ✓

* Dead Man Sands

P. There are no aids to navigations within the survey area.

Q. There are no objects recommended as landmarks within the limits of the survey. (1947 work was entirely offshore)

R. A special report on geographic names will be submitted by the Commanding Officer, PATHFINDER, for the 1947 season.

Respectfully submitted,

Fred Natella

Fred Natella,
Lt. Comdr., C&GS

Approved and forwarded,

R. F. A. Studds

R. F. A. Studds
Comdr., C&GS
Chief of Party

TIDAL NOTE

Hydrographic Sheet H - 7165 (1947)

For tide reducers, the Naknek River entrance gage, corrected for time and range at various sections ofthe sheet, will be used. Corrections will be made in accordance with the Special Tide Report for the 1947 season submitted by the Commanding Officer, PATHFINDER.

Position of the gage was Lat 58°43', Long 157°03'.

Time used on the survey was 150th meridian.

VELOCITY CORRECTIONS

808 Depth Recorders Cal. Velocity-820 fms/sec.

Fathometer	Depth	Correction	Scale
46	3 Ft. to 12.5 Ft.	+0.5	A
	13 Ft. to 55.0 Ft.	0	A
59	3 Ft. to 22.5 Ft.	0	A
	23 Ft. to 37.5 Ft.	-0.5	A
	38 Ft. to 55.0 Ft.	-1.0	A
74-s	3 Ft. to 10.5 Ft.	0	A
	11 Ft. To 34.5 Ft.	-0.5	A
	35 Ft. to 55.0 Ft.	-1.0	A

Form 537
(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. 7165

Field No. Pf 2146 & PF 4147

State: Alaska

General locality: Bristol Bay

Locality: Kvichak Bay

Scale: 1/20,000

Date of survey: Sept.10 to Oct.3, 1946
May 27 to Sept. 27, 1947
Add'l. work on Sept.22, 1948

Instructions dated: 20 June 1946

Vessel: PATHFINDER and Launches 2,3,& 4

Chief of party: R.F.A.Studds

Surveyed by: H.J.Healy, F. Natella J.C.Ellerbe V.R.Sobieralski
G.E.Boothe E.H.Kirsch C.G.Mast

Soundings taken by ~~echo sounder~~, graphic recorder, ~~hand lead~~: ~~Graphic recorder~~
J. Ciejeck W.A.Short Kram Nelson

Fathograms scaled by: DCB Kruszewski

Fathograms checked by: H S Cole H C Parsons H C Applequist V R Sobieralski
H A Paton H D Reed G E Boothe H J Healy
G C Mast E H Sheridan J C Ellerbe F Natella

Protracted by: H C Parsons

Soundings penciled by: H C Parsons

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: Smooth sheet and plotting by Seattle Processing Office.
The one days add'l work of Sept 22, 1948 was processed and plotted in the Wash. Office.

U. S. GOVERNMENT PRINTING OFFICE 693019

H 7165 (PF 2146)(Pf 4147)

Kvichak Bay, Alaska.

Processing Office Notes

General Statement.

This survey was started in 1946 when the soundings filled eleven volumes. In 1947 twenty more sounding volumes were added. Of these, six are the launch work of Boatsheet PF 4147, H-7165 the entire northern part of that sheet surveyed in 1947, which has been plotted on smooth sheet H 7165 as desired by the chief of party. The additional work of 1947 both overlays and splits the sounding lines of 1946 as well as extending the sounded area. Separate cover sheets were used in plotting the positions of 1946 and 1947. They accompany the smooth sheet for the information of the reviewers in separating the work of the two seasons.

On the 1946 cover sheet the tidal zones were drawn as shown on the " sketch of tide analysis" which accompanied the Special Tide Report for the 1947 season submitted by the chief of party. In the lefthand edge of the sounding record the tide zones were noted by the plotter in red figures which were encircled. These figures appeared in the books when the sounding line crossed a tide zone. The sounding reducers were derived and inserted by the field party. We understand that they did not maintain the large number of zones shown on the sketch mentioned above.The number of zones was reduced on the advice contained in paragraph 5 of the Director's letter of 22 December 1947, Ref.No.36 McC., a copy of which is a part of this report. However, the zones were marked in the sounding records according to the sketch.

The three separate reports prepared by the field party for the 1946 work on Pf 2146, the 1947 work of PF 2146 and the 1947 work on PF 4147 which is plotted onH 7165 are included in this report.

About half the work completed on boatsheet Pf 4147 has been plotted on H 7165. Boatsheet PF 4147 was returned to the field party for completion. No smooth sheet has been prepared for it and no registry number has been assigned to it. This will follow in due course at the end of the 1948 season.

The Director's letter 22 MEK-D-1-NW of 11 May 1948 to the Supervisor NW District instructed the processing office to make a preliminary review of this sheet for the benefit of the field party so that any necessary additional work can be done while the ship is in the vicinity. The sheet is well developed. Discrepancies seem due to tide reducers. The only items we have noted where additional field work would be desirable are the first three items in the List of Important Soundings found later in this report. A copy of the Processing Office Notes is being furnished to the field party, one boat sheet will be returned to them, and a photostat of the smooth sheet will be requested for them. We have not noted a need for additional field work on the adjacent sheets. (see note below)

One days add'l work was done during 1948 (Sept. 22) over the 11-ft. shoal in φ 58°43.60' λ 157°17.05', and the 16-ft. shoal in φ 58°42.57', λ 157°12.95'.

Projection

Hand made on K & E Paper N 124 H. Shoreline is to be added from photo compilation in process at Portland. (See Review, par. 1.)

Depth Curves.

Where discrepancies occur near the depth curves which are attributed to sounding reducers the curve has been drawn to the soundings which seem correct. The conflicting depths have not been encircled with a depth curve but have been ignored. These are usually differences of two or three feet. Note for instance that the three fathom curve in the vicinity of Lat. 58 44 Long. 157 15 is quite uncertain. See the four fathom curve near Lat. 58 43.6 Long. 127 11.5. The curves cannot be drawn with confidence. They should be regarded as approximations.

Curves improved with application of revised tide reducers

Comparison with H 7616 on the north.

The overlap shows the same differences found all over both sheets. It is usually limited to two feet. At Lat. 58 47.13 Long. 157 10 there is 16 feet on H 7165 and 8 to 11 feet on H 7616. This seems to be the only important difference. The bottom is very irregular on both surveys. The junction line occurs in an area of irregular bottom.

List of Important Soundings

*See note at bottom of preceding page

Latitude	Longitude	Position	Depth Feet	
58 42.57	157 12.95	114 rr	16 *	
42.68	12.80	56-57 jj	~~20~~ 21	Profile has appearance of rock formation
43.60	17.05	46 g	11 *	
43.40	16.90		11	
38.8	20.0	225 uu	~~22~~ 23	
38.8	25.1	86-87 n	47	
38.7	24.6	85-86 n	37	
42.3	18.7	34 a	~~15~~ 16	
41.4	21.1	23-24a	~~39~~ 42	

Additional development is recommended for the first three points if it should become convenient. (Add'l development accomplished Sept. '48)

Rock at Cape Suworof

No position has been found for the* rock charted at Lat. 58 43.6 Long 157 04.85 It is said to be a boulder about " half as big as a box car". A position has been requested of the field party.

* This rock and another nearby were located on H-7639 (1947-48). Cuts to these rocks are recorded in Vol. I of that survey. The rocks have been carried fwd. to the present survey.

Discrepancies

Latitude	Longitude	Position	Remarks
58 42.7 ✓	157 12.3 ✓	3a Vol 17 MAY 27, 1947 LAUNCH 4	*1a to 10a is 1 to 4 ft. deeper.
44.1 ✓	13.5 ✓	93b Vol 19 SEPT 18, 1946 LAUNCH 1	*86b to 95b seems 2 to 4 ft. too dee
41.7 ✓	14.5 ✓	60a Vol SEPT 10, 1946 LAUNCH 4	59a to 64a is 2 to 5 ft. too shoal (Portions of this line rejected)
43.7 ✓	11.4 ✓	119e Vol 19 SEPT. 17, 1946 LAUNCH 1	*See 117e to 120e. Line is deeper.
41 ✓ 43 ✓	19) ✓ 16) ✓	Curve improved by revised tide reducers	The 4 fm. curve in this vicinity is uncertain. Adjacent lines indica discrepancies which throw the curve considerably on the rather flat bottom.
39.9 ✓	24.1 ✓	23d Vol 15 AUG. 21, 1947 LAUNCH 2.	*12 to 29d is 2 to 6 ft. shoal.
39.5 ✓	21.5 ✓	94a A Vol 25 JUNE 17, 1947 SHIP	*93a to 95a is about 4 ft. shoal.
41.9 ✓	17.2 ✓	95 n Vol 5 SEPT 30, 1946 LAUNCH 2	*90n to 104n is deeper than adjacent lines and crossed lines by 2 to 4 ft.
41.1 ✓	13.8 ✓	60c Vol SEPT 13, 1946 LAUNCH 4	*60c to 68c is 2 to 5 ft. deeper.
41.9 ✓	11.9 ✓	86kk Vol 18 AUG 23, 1947 LAUNCH 4	*85kk to 93kk is too shoal.
43.2 ✓	12.6 ✓	48f Vol 2 SEPT 17, 1946 LAUNCH 4	42f to 51f is 2 to 4 ft. deeper. Portions of this line rejected
44.1 ✓	15.8 ✓	69b Vol 19 SEPT 13, 1946 LAUNCH 1	*60b to 80 b line is deeper.
44.4 ✓	08.1 ✓	104e Vol 19 SEPT 17, 1946 LAUNCH 1	*99e to 110e is 2 to 5 ft. deeper.
46.4 ✓	10.5 ✓	12ee Vol 5 JULY 24 1947 LAUNCH 4	*11ee to 16 ee is 2 ft. shoal.

These differences are attributed to tide reducers. ✓
This is not a complete list but cites the more outstanding examples.

* – Indicates revised tide reducers have eliminated discrepancies and that depths are now in adequate agreement.

After examing Kvichak Bay sheets for a long time certain opinions have been formed which may not find agreement or approval. They are passed on to the verifiers for whatever they are worth in dealing with discrepancies due to tide reducers.

(1) There are numerous differences of one or two feet at crossings spread well over the sheets. Most of these, except in channels, could be ignored because differences of this order and more occur between soundings in the same line. There are areas of flat bottom where small discrepancies throw the depth curves considerable distances and these should be reconciled.
(2) Differences of three feet outside the six fathom curve could be ignored.
(3) In the channels leading to Naknek and Kvichak Rivers differences of two feet or more should be reconciled
(4) Outside the six fathom curve differences of four feet or more should be reconciled.
(5) On the exposed flats the heights of the first points to uncover and the LW line (1947) should be verified.
(6) Sheet H 7616 in the entrance to Kvichak River shows more discrepancies than the other sheets of this area. The large mud flats which are exposed at low water occupy the central part of it and extend down into the northern part of H 7165. (1946-48) The behavior of the tides around these flats when they are bare and over them when the tide is of sufficient height is the central problem of tide reducer revision. There is the suspicion that the effect of wind on the thin sheet of water as the flats cover or bare has an important influence on the height of tide in this vicinity.
(7) The PATHFINDER anchored at several places in the vicinity of Lat. 58 42 Long. 157 15. Cannery ships anchored about a mile to southwestward. Cargo was lightered to and from them in cannery tenders and scows working with favorable tides to navigate Naknek and Kvichak river approaches. It is suggested that the revision of the tide reducers may not be refined beyond what is neceassary to make the channels navigable over the controlling points by the class of vessels which will use them.

Note: The reviewer concurs generally in the above observations. Numerous discrepancies in depths have been eliminated in the Washington Office by revisions in the tide reducers made after an intensive study of crossings.

H 7165
List of Signals

Triangulation Stations
BAR APA Diamond "O" Tank 1946
BRIS Bristol Bay Packing Co 1946
DIA APA Tank 1946 Diamond NN
CAN 1946
GAGE 1947
HILL Johnson Hill Cairn 1946
JOHNSON 1946
LIB Libby McNeil & Libby, Libbyville Cannery Tank 1946
PAD APA Diamond "M" Tant 1946
RED 1946
SOB 1946
SUE 1946
TANK CRPA Tank 1946
TWIN Nanmak Village South Tank 1946

Hydro Signals
But Vol 14 No Vol 14 Yes Vol 14

Topo Signals from Sheet T 7036a (1946)

Bag	Eat	Gas	Ida	Ken	Rag
Daw	Fat	Hat	Jap	Lad	
Ear	Gad	Ice	Jar	Nat	

Topo Signals from Sheet T 7036b (1946)

Act	Man	Par	Tap	Yam
Bat	Nay	Ram	Vet	Zig
House	Obi	Sal	Wag	

Topo Signals from Sheet PF-F-47 T-7099 (1947)
Goo

COPY

Ship PATHFINDER, Naknek, Bristol Bay, Alaska

26 July 1947 Refer to file: 9310/JCE/gwg

To: The Supervisor
Processing Office, Northwestern District
U. S. Coast and Geodetic Survey
Seattle, Washington

Subject: Hydrographic Sheet PF 2146 H-7165 (1946)

Tidal datum plane for reduction of soundings on subject hydrographic sheet was based on a short series of observations made in late September and early October last year. Observations to date at the same locality this year indicate that the plane thus established may differ about one-half foot from one arrived at by using this season's observations.

Accordingly, it is suggested that reduction of soundings and plotting of smooth sheet for last year's hydrography be postponed until this season's tidal data have been processed.

/s/ R.F.A. Studds
Commanding Officer
Ship PATHFINDER

cc: The Director

This concerns the plotting of the 1946 Soundings
It was referred to Washington.
See reply of Director following page.

AIR MAIL

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON 25

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER
AND REFER TO NO. 36-McC

30 September 1947

To: Officer in Charge,
Seattle Processing Office,
Coast and Geodetic Survey,
1500 Westlake Avenue N.,
Seattle 9, Washington.

Subject: Tide Reducers, Naknek River Entrance, Alaska.

Reference is made to your letter of 23 September 1947 requesting reconsideration of tide reducers previously furnished for hydrographic sheet PF 2146 H-7163 (1946) on the basis of new observations referred to in letter of 26 July 1947 from the Commanding Officer of the PATHFINDER. These new observations are not yet available in this office.

The tide reducers previously furnished were based on fathometer tide records without the bench mark connections that would permit direct comparison with the results of the later series. It is, therefore, recommended that the tide reducers be continued in use as originally furnished and your copy of these reducers is returned herewith as requested.

Acting Director.

Inclosure

C O P Y

Refer to No. 36-McC

Washington 25

22 December 1947

To: Commanding Officer,
U. S. C. & G. S. S. PATHFINDER,
400 Insurance Building,
Seattle 4, Washington.

Subject: Tide reducers, Bristol Bay, Alaska, 1947.

Reference is made to your descriptive report on tide observations made during the 1947 field season in connection with project CS-327. The Division of Tides and Currents has given careful consideration to this report and is in general agreement with its findings and conclusions.

Particularly pertinent is the conclusion that for satisfactory determination of tide reducers a much closer spacing of tide stations and longer periods of observations would be necessary. However, the practical difficulties of providing for adequate vertical control under the circumstances are recognized.

It is believed that in this case little would be gained by any general revision of the field computation of the tide records. This office has no additional tidal information not originally available to your party and no previous observations that could be used for verification purposes. Obviously the field party has given considerable time and care to the analysis of the available tide records and for this office to go over the same ground would seem to be an unwarranted duplication of effort and would unquestionably delay processing beyond the present winter season. This would be unwise as it would be a definite advantage to have the initial processing of reducers performed by personnel directly associated with the actual field operations. Under the circumstances it is expected that considerable office reviewing of reducers may be necessary, but this can be accomplished only after a comprehensive office analysis of available records. It is, therefore, planned to have your party proceed with the processing of the sounding records on the basis of field computation of reference planes and tide reducers.

In this connection this office is in complete agreement with your conclusion that the half-foot unit for tide reducers is impracticable and that the one-foot reducer should be used. Even with this unit it is recognized that reducer determination will be largely a matter of judgment and approximation.

Because of the restricted tides in most parts of the survey area, with particular reference to the low waters, the usual comparisons with simultaneous observations are ineffective and the datums derived from short series will be of uncertain accuracy. Also with the tidal characteristics varying so considerably from place to place with no assurance of uniform variation, any great refinement in sectionalizing the area for tide reducers is not considered justified. Much time and study have been given by the field party to sectionalizing the area on a time basis and the results obtained will be valuable for the determination and adjustment of reducers. However, when allowance is made for the general inadequacy of the available tide records, it is believed that a broader zoning will prove more suitable in practice.

Apparently it was the intention of the field party that inferred tide curves would be constructed for each section on the basis of computed time and height differences applied to observed tides at one or more stations. This would be a correct procedure, but, with narrow sections, it would require a very considerable amount of inferred tide curve construction. It is suggested as a possible alternative that the general area between each two contiguous tide stations be considered as a single broad zone and that the reducers be determined by estimation between the limits of the two reducers obtained separately from each of the two control stations. These two reducers, as your report observes, will sometimes differ by several feet and the actual reducer for any particular soundings must be estimated and adjusted on the basis of the position of the sounding area relative to the tide stations and any other factors that the local hydrographic features may suggest.

Your report bases its conclusion relative to reducers previously furnished for 1946 hydrography on the assumption that they were obtained from the river station. Actually they were largely based on the fathometer station records so that they should prove more suitable for general application than your report supposes. However, as in the case of the 1947 work, estimation necessarily entered into their determination to a considerable degree and they are accordingly subject to such revision as may be needed to effect reasonable agreement between the work of the two seasons.

Sketches attached to your report will be returned as requested as soon as copies can be reproduced for office use. Office processing of the tide records furnished with your transmitting letter of 4 December will be prosecuted for review purposes as rapidly as availability of personnel permits. As it is possible that your party or the processing office may require the further use of some or all of these original records, they will for the present be kept segregated in the form of their receipt so that requests for specific records can be identified.

(signed) J. H. Hawley

Acting Director.

SEATTLE PROCESSING OFFICE
FOR [illegible]

22/MSK
D-1-NW

11 May 1948

To: Supervisor, Northwestern District
U. S. Coast and Geodetic Survey
705 Federal Office Building
Seattle 4, Washington

Subject: Preliminary Review—Hydrographic survey H-7165, (1946-48)
Egegik River, Alaska

According to the records of this office subject hydrographic survey is still being processed at the Seattle Processing Office. In view of the fact that the Ship PATHFINDER will work in the immediate vicinity of this survey, and will make junctions with it, there is need to know if additional work is required on H-7165 to make this a complete survey.

You will please arrange to make a preliminary review of this survey and furnish the Commanding Officer, Ship PATHFINDER with the necessary information to accomplish any additional work which may be required as a result of this review.

(Signed) L. O. COLBERT.
Director.

cc. Seattle Processing Office
Commanding Officer, Ship PATHFINDER
Division of Charts
Chief, Hydrography Section

1946 Tides.

Hourly Heights furnished from Washington

Fathometer Station

Form 362
Ed. May, 1929
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TIDES: HOURLY HEIGHTS (Tide reducers, sheet 2146)

Station: Kvichak Bay (off Naknek R. Ent.), Bristol Bay, Alaska Year: 1946

Observer: _____ Lat. 58° 42.2 N Long. 157° 14.96 W

Time Meridian: 150° W Height datum is LLW which is _____ ft. below B. M.

16—47802-1 U. S. GOVERNMENT PRINTING OFFICE

Month and Day / Day of Series	mo. Sept d. 10	d. 12	d. 13	d. 14	d. 15	d.	d.	d. 17	Horizontal Sum
Hour	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
0	.	.	.	.	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.
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6	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.
8	6.5	6.2	7.2	8.4	10.2	.	.	16.1	.
9	8.8	4.6	4.2	5.0	6.3	.	.	11.4	.
10	12.6	5.6	3.4	2.3	2.9	.	.	6.8	.
11	16.2	9.4	5.2	1.9 2.1	0.7	.	.	2.5	.
Noon	18.4	14.0	9.3	5.2	1.2	.	.	−0.6	.
13	18.7 18.4	17.7	14.3	10.2	4.9	.	.	−1.7	.
14	16.2	19.9	18.6	15.4	10.2	.	.	−0.1	.
15	13.1	19.4	20.9	19.9	16.1	.	.	5.0	.
16	10.0	16.9	20.5	22.0	20.7	.	.	11.4	.
17	6.9	13.9	17.6	21.4	23.0	.	.	17.4	.
18	3.8	10.6	14.5	18.6	22.3	.	.	22.4	.
19	.	.	.	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.	.
23	.	.	.	(OVER)	.	.	.	.	.
Sum	.	.	.	.	.	.	.	.	.

Sum for _____ = Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = _____

Tabulated by _____ Date _____ Summed by _____ Date _____

Fathometer Station

Form 362
Ed. May, 1929
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TIDES: HOURLY HEIGHTS (Tide reducers, Sheet 2146)

Station: Kvichak Bay (off Naknek R. Ent.), Bristol Bay, Alaska Year: 1946

Observer: _____ Lat. 58° 42.2 N Long. 157° 14.96 W

Time Meridian: 150° W Height datum is LLW which is _____ ft. below B. M.

16—47802-1 U. S. GOVERNMENT PRINTING OFFICE

Month and Day	mo. Sept	d. 19	d. 20	d.	d.	d. 23	d. 24	d. 25	d. 26	Horizontal Sum
Day of Series										
Hour	Feet		Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
0	.		.	.	.	.	.	.	.	.
1	.		.	.	.	.	.	.	.	.
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4	.		.	.	.	.	.	.	.	.
5	.		.	.	.	.	.	.	.	.
6	.		.	.	.	.	.	.	.	.
7	.		.	.	.	.	.	.	.	.
8	20.8		20.0	.	6.8	3.9	3.4	4.2	.	.
9	18.7		20.4 20.1	.	11.3	7.3	3.0 4.2	2.4	.	.
10	14.2		17.3	.	15.5	11.5	8.2	3.8	.	.
11	10.3		12.9	.	20.2	16.0	12.4	8.3	.	.
Noon	6.0		9.8	.	21.4	20.2	17.3	13.4	.	.
13	2.7		5.5	.	18.5	21.5	20.7	17.4	.	.
14	0.0		1.8	.	14.5	18.4	21.4	20.7	.	.
15	-1.6		-1.4	.	10.0	14.5	18.7	21.5	.	.
16	0.7		-2.6	.	6.3	10.3	15.4	19.8	.	.
17	5.1		-0.6	.	3.0	6.4	11.0	15.4	.	.
18	11.2		5.1	.	0.5	3.4	6.7	11.7	.	.
19	.		.	.	.	.	.	.	.	.
20	.		.	.	.	.	.	.	.	.
21	.		.	.	.	.	.	.	.	.
22	.		.	.	.	.	.	.	.	.
23	.		.	.	.	.	.	.	.	.
Sum	.		.	.	.	.	.	.	.	.

Sum for _____ = Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = _____

Tabulated by _____ Date _____ Summed by _____ Date _____

Fathometer Station

Form 862
Ed. May, 1929
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TIDES: HOURLY HEIGHTS (Tide reducers, Sheet 2146)

Station: Kvichak Bay Coff Naknek R. Ent.), Bristol Bay, Alaska Year: 1946

Observer: _____ Lat. 58° 42.2 N Long. 159° 14.96 W

Time Meridian: 150° W Height datum is LLW which is _____ ft. below B. M.

16—47802-1 U. S. GOVERNMENT PRINTING OFFICE

Month and Day / Day of Series	mo. d. Sept 27	d.	d. Sept 30	d.	d.	d.	d. Oct 3	d.	Horizontal Sum
Hour	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
0	.	.	.	.	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.
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4	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.
8	5.2	.	11.5	.	.	.	16.9	.	.
9	2.5	.	8.0	.	.	.	14.4	.	.
10	1.8	.	5.4	.	.	.	11.8	.	.
11	3.8	.	2.9	.	.	.	8.8	.	.
Noon	7.4	.	1.5	.	.	.	6.3	.	.
13	11.2	.	3.3	.	.	.	3.4	.	.
14	16.2	.	6.6	.	.	.	2.0	.	.
15	20.2	.	10.1	.	.	.	4.2	.	.
16	21.4	.	15.4	.	.	.	8.2	.	.
17	18.4	.	20.3	.	.	.	13.2	.	.
18	14.5	.	22.8	.	.	.	18.0	.	.
19	.	.	.	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.	.
23	.	.	.	(OVER)	.	.	.	.	.
Sum	.	.	.	.	.	.	.	.	.

Sum for = Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =

Tabulated by _____ Date _____ Summed by _____ Date _____

Portable Gage Record

Form 362
Ed. May, 1929
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TIDES: HOURLY HEIGHTS (Tide reducers, sheet 1146)

Station: Naknek River Entrance, Kvichak Bay, Bristol Bay, Alaska Year: 1946

Observer: _____ Lat. 58° 43.3 N Long. 157° 03.45 W

Time Meridian: 150° W Height datum is LLW which is _____ ft. below B. M.

16—47802-1 U. S. GOVERNMENT PRINTING OFFICE

Month and Day	mo. Sept	d. 24	d. 25	d. 26	d. 27	d.	d.	d.	d.	Horizontal Sum
Day of Series										
Hour	Feet		Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
0	.		.	.	.	.	.	.	.	.
1	.		.	.	.	.	.	.	.	.
2	.		.	.	.	.	.	.	.	.
3	.		.	.	.	.	.	.	.	.
4	.		.	.	.	.	.	.	.	.
5	.		.	.	.	.	.	.	.	.
6	.		.	.	.	.	.	.	.	.
7	.		.	.	.	.	.	.	.	.
8	2.5		2.6	4.0	4.7	.	.	.	.	.
9	6.0		2.2 2.7	2.3	2.7	.	.	.	.	.
10	11.2		7.1	1.8	1.4	.	.	.	.	.
11	16.0		11.7	6.3	1.1 2.1	.	.	.	.	.
Noon	19.5		16.5	11.5	6.7	.	.	.	.	.
13	20.5		19.7	16.7	12.3	.	.	.	.	.
14	18.0		20.6	20.3	17.3	.	.	.	.	.
15	13.8		18.3	21.4	20.5	.	.	.	.	.
16	9.7		14.5	19.3	21.5	.	.	.	.	.
17	6.5		10.6	14.9	18.9	.	.	.	.	.
18	3.7		7.2	11.6	14.9	.	.	.	.	.
19	.		.	.	.	.	.	.	.	.
20	.		.	.	.	.	.	.	.	.
21	.		.	.	.	.	.	.	.	.
22	.		.	.	.	.	.	.	.	.
23	.		.	.	.	.	.	.	.	.
Sum	.		.	.	.	.	.	.	.	.

Sum for _____ = Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = _____

Tabulated by _____ Date _____ Summed by _____ Date _____

Respectfully submitted.

Edgar E. Smith
Cartographic Engineer
Seattle Processing Office

July 20 1948

H 7165 (PF 2146 & 4147)

Kvichak Bay, Alaska.

List of geographic names penciled on the smooth sheet.

Libbyville

Pedersen Point

Naknek

South Naknek

Naknek River

Cape Suwarof

Deadman Sands

Kvichak Bay

Alaska Peninsula

H 7165 (Pf 2146 and 4147)

Kvichak Bay, Alaska.

Tidal Note

1946

Naknek River Entrance
Portable Automatic Gage.

Lat. 58 43.3
Long. 157 03.4

Ship Fathometer Station
Lat. 58 42.2
Long. 157 14.96

This station not plotted on S.S. R.N.D.

Reducers were taken from hourly heights based on MLLW furnished by the Director's letter 36 McC of 18 December 1946. The staff reading of MLLW used by the Washington office was not stated.

No zone corrections were applied to the 1946 tides.

1947

Naknek River Portable Automatic Gage.

Lat. 58 43.3
Long. 157 03.3

The tide gage at the entrance to Naknek River was used to provide sounding reducers. Corrections for time and range were applied as determined by the Special Tide Report submitted by the Commanding Officer PATHFINDER for the 1947 season.

150 Meridian time used on the survey.

STATISTICS FOR

HYDROGRAPHIC SHEET H-7165

(Field No. PF-2146)

Vol No.	Date	Day Letter	Party No.	No. Positions	Sta. Mi. Sndg.	Total Mi. (naut.)
L						
1	9-10-46	a	1	85	16.0	24.2
1	9-12-46	b	1	59	19.7	19.5
1	9-13-46	c	1	164	47.5	45.3
1-2	9-14-46	d	1	70	17.8	16.5
2	9-15-46	e	1	158	46.7	43.6
2	9-17-46	f	1	71	17.1	26.3
2-3	9-19-46	g	1	161	46.9	43.8
3	9-20-46	h	1	147	48.3	44.0
3-4	9-24-46	j	1	135	33.7	34.2
4	9-25-46	k	1	161	51.2	46.5
4-5	9-26-46	l	1	138	43.7	45.0
5	9-27-46	m	1	69	23.0	26.0
5	9-30-46	n	1	138	38.0	38.0
5	10- 3-46	p	1	57	13.8	13.6
6	5-28-47	q	3	48	12.5	14.5
6	5-29-47	r	3	117	38.0	40.2
6-7	5-31-47	s	4	108	24.3	40.6
7	6-17-47	t	3	58	15.6	23.7
7	7- 8-47	u	3	35	7.8	11.0
7	7-9- 47	v	4	15	3.4	7.0
7	7-11-47	w	4	16	4.6	5.0
7	7-13-47	x	4	23	6.8	6.9
8	7-14-47	y	4	15	5.2	8.0
8	7-15-47	z	4	11	7.8	10.0
8	7-15/16-47	aa	4	12	4.2	4.7
8	7-16/19-47	bb	4	19	5.9	8.7
8	7-19/21-47	cc	4	31	7.5	7.6
8	7-23-47	dd	4	16	4.1	6.6
8	7-24-47	ee	4	98	19.2	21.8
9	8-14-47	ff	4	17	4.6	6.0
9	8-17-47	gg	4	21	5.1	12.5
9	8-18-47	hh	4	107	25.5	29.3
9-10	8-21-47	jj	4	206	48.3	48.3
10	8-23-47	kk	4	104	23.9	23.9
10-11	8-24-47	ll	4	63	17.8	16.6

(Cont. on following page)

STATISTICS (Cont.)

Vol. No.	Date	Day Letter	Party No.	No Positions	Sta. Mi Sndg.	Total Mi (naut.)
11	8-25-47	mm	4	27	8.5	15.5
11	8-26-47	nn	4	124	34.1	33.8
11-12	9-10-47	pp	1	163	35.0	32.6
12	9-11-47	qq	1	116	28.6	31.3
13	9-13-47	rr	4	116	31.3	35.4
13	9-17-47	ss	4	86	18.1	24.8
14	9-20-47	tt	4	39	6.8	8.4
14-15	9-22-47	uu	4	227	52.7	47.7
15	9-23-47	vv	4	228	51.9	49.7
15	9-23-47	ww	2	3	0.5	0.4
15	9-27-47	xx	2	16	2.9	4.0
16	9-20-46	a	3	129	39.1	39.3
16	9-30-46	b	2	113	36.1	45.9
17	5-27-47	a	4	70	19.6	22.0
17	5-29-47	b	4	49	5.7	7.0
18	9-12-46	a	2	52	13.9	14.0
18	9-13-46	b	2	179	44.3	42.0
18	9-14-46	c	2	96	33.5	35.6
19	9-15-46	d	2	126	42.2	39.2
19	9-17-46	e	2	122	31.7	29.8
19-20	9-19-46	f	2	150	51.1	47.9
20	9-20-46	g	2	117	40.1	41.4
20-21	9-23-46	h	2	85	26.2	24.8
21	9-25-46	j	2	157	44.8	44.7
21	9-26-46	k	2	137	43.0	46.7
22	9-27-46	l	2	60	15.1	22.5
22	9-30-46	m	2	158	39.9	39.3
23	6-17-47	A	Ship	154	63.1	55.2
23	9-20-47	B	Ship	18	7.0	15.0
23-24	9-22-47	C	Ship	200	60.0	60.0
24-25	9-23-47	D	Ship	197	61.7	58.0
25	9-25-47	E	Ship	75	21.5	28.2
25	9-26-47	F	Ship	24	10.1	17.8
25	9-27-47	G	Ship	45	16.0	28.4
TOTALS				6411	1791.6	1907.5

G2

H 7165

Additional statistics from Boatsheet PF 4147.

Vol.No.	Date 1947	Day	Launch	Positions	Stat.Mi. Sound. Line.	Tot.Naut.Mi.
Forward				6411	1791.6	1907.5
26	7/16	a (sample)	3	53	11.7	13.2
26	7/23	b "	4	12	7.5	14.5
26	7/25	c "	2	25	10.8	21.8
26	8/21	d "	2	10.8	26.4	25.7
27	8/22	e "	2	121	29.2	34.4
27	8/23	f "	2	138	32.0	32.8
28	8/23	f "	2	43	9.4	10.0
28	8/24	g "	2	52	10.5	12.7
28	8/25	h "	2	49	10.5	18.1
28	8/27	j "	2	76	18.4	19.8
28	9/10	k "	2	19	6.4	6.8
29	9/10	k "	2	81	19.5	18.7
29	9/13	m "	3	21	4.9	8.7
29	9/14	n "	3	126	29.6	37.5
30	9/20	p "	3	27	7.5	21.5
30	9/22	q "	3	186	42.2	41.1
30	9/23	r "	3	100	21.2	19.2
31	9/23	r "	3	86	18.6	21.2
Total for sheet				7734	2107.9	2285.2

GEOGRAPHIC NAMES

Survey No. H7165

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Alaska			(for title)							1
Bristol Bay			"	"					USCB	2
Kvichak Bay			"	"						3
										4
Alaska Peninsula									USCB	5
Libbyville										6
Pederson Point										7
Cape Suworof									USCB	8
Naknek River									"	9
Naknek									"	10
South Naknek									"	11
Dead Man Sands										12
										13
					Names underlined in red are approved. 8/ 12/ 48					14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27
										M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7165.

Records accompanying survey:

Boat sheets .....; sounding vols. 31 .....; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 76+(in 28 env.);

special reports, etc. .....

.....

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

Number of positions on sheet		7734
Number of positions checked		1021
Number of positions revised		249
Number of soundings revised (refers to depth only)		343 This does not include soundings revised because of a change in tide reducers.
Number of soundings erroneously spaced		295
Number of signals erroneously plotted or transferred		0
Topographic details	Time	1 hr.
Junctions	Time	68 hrs.
Verification of soundings from graphic record	Time	80 hrs.

49 hrs. Inspection of sheet 12-3-48 before boat sheet was received.

Verification by R. K. DE LAWDER Total time 918 hrs. Date 1-4-50

Reviewed by J. A. Dinsmore Time 28 hrs. Date 1/30/50

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

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TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 18 August 1948

Division of Charts: R. H. Carstens

Plane of reference approved in
31 volumes of sounding records for

HYDROGRAPHIC SHEET 7165

Locality - Kvichak Bay, Bristol Bay, Alaska

Chief of Party: R. F. A. Studds in 1946 - 1947
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)

Height of mean high water above plane of reference is 20.7 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Chief, ~~Division~~ Section of Tides ~~and Currents.~~

U. S. GOVERNMENT PRINTING OFFICE 154327

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RHC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

5 December 1949

~~Division of Hydrography and Topography:~~

Division of Charts: R. H. Carstens

Plane of reference approved in
1 volumes of sounding records for

HYDROGRAPHIC SHEET 7165 1 vol

Locality Kvichak Bay, Bristol Bay, Alaska

Chief of Party: R. F. A. Studds in 1948
Plane of reference is mean lower low water, reading
4.5 ft. on tide staff at Nankek River Entrance
24.7 ft. below B. M. 2 (1946)

Height of mean high water above plane of reference is 20.7 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Chief, ~~Division~~ Section of Tides ~~and Currents.~~

U. S. GOVERNMENT PRINTING OFFICE 756675

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7165
PF-2146
FIELD NO. PF-4147

Alaska, Bristol Bay, Kvichak Bay
Surveyed Sept. - Oct., 1946, May - Sept., 1947, Sept. 22, 1948
Scale 1:20,000
Project No. CS-327

Soundings:

808 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - R.F.A. Studds
Surveyed by - H.J. Healy, F. Natella, J.C. Ellerbe, G.E. Boothe, E.H. Kirsch, C.G. Mast and V.R. Sobieralski
Protracted by - H. C. Parsons
Soundings plotted by - H. C. Parsons
Verified and inked by - R. K. DeLawder
Reviewed by - T. A. Dinsmore, January 30, 1950
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline and signals originate with topographic surveys T-7036a & b (1946) and T-7093 (1946-47). Additional topographic detail is available on the unreviewed manuscripts of air-photographic surveys T-9062, T-9068 and T-9073 (1943-49). The fixes for supplementary hydrographic signals are recorded in sounding volume 14 of the present survey.

2. Sounding Line Crossings

Considering the uneveness of much of the bottom, depths at crossings are in good agreement. Several shore sections of sounding lines have been rejected because of excessive differences at crossings possibly caused by inaccuracies in tide reducers. Differences of 2 - 3 feet 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.

Large sand flats uncovering at M.L.L.W. extend throughout the inshore area and in the northeastern part of the survey. Except over the flats, the bottom is generally uneven. The bottom irregularities probably result from ice gouging and the action of the strong tidal currents which flow in this region.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with the following surveys:

H-7616 (1947) on the north.
H-7164 (1946) on the east (Naknek River).
H-7666 (1947-48) and H-7667 (1947) on the southwest.
H-7671 (1948) and H-7617 (1947) on the northwest.

Except for the coastal area on the southeast, the above surveys completely enclose the present 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 inshore hydrography (1946 work) was compiled in the field from advance information of the present survey. The offshore charted hydrography is also from advance information of the present survey (Bp. 45651, 1947).

Several shoal soundings (not charted) were revealed during verification of the present survey. Attention is particularly directed to the smooth-sheet depth of 16-ft. in lat. 58° 42.57', long. 157° 12.95', as compared with the charted depth of 28 ft.

Because of changes in tide reducers, numerous revisions have been made to the smooth-sheet soundings during verification. The present survey supersedes the charted information.

B. Aids to Navigation

No floating aids to navigation are charted in the area covered by the present survey. The survey positions of fixed aids are in substantial agreement with those charted and adequately serve the purpose intended. Navigation in the shoal areas 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. The smooth plotting was generally satisfactory. However, it appears probable that the protractor used to plot the 1947 work contained an error of a few minutes. About 250 positions were revised from 60-130 meters during verification. These errors occurred during the plotting of the ships work in the southern part of the survey and when the left angle was less than 25 degrees.

c. 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 7-8 ft. in sounding line crossings. The revised tide reducers have eliminated these discrepancies and have greatly improved the delineation of the depth curves.

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

NAUTICAL CHARTS BRANCH

SURVEY NO. H 7165

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
1/16/50	9051	SA McGann	~~Before After Verification and Review~~
			After verification and before review.
2-21-61	8802	J. M. Albert	~~Before~~ After Verification and Review via chart 9051 as correction
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.