7639

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-1146 Office No. H-7639

LOCALITY

State Alaska

General locality Bristol Bay

Locality Naknek River

1947-'48

CHIEF OF PARTY

R.F.A.Studds

LIBRARY & ARCHIVES

DATE June 25, 1948

8-1870-1 (1)

7639

JUN 25 1948

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.

H-7639

REGISTER No. H-7639

Field No. PF-1146

State Alaska ✓

General locality Bristol Bay ✓

Locality Naknek River - ~~Lower Part~~ ✓

Scale 1:10,000 ✓ Date of survey 6 August to 10 September 1947 and on 22 Sept. 1948 ✓

Instructions dated 20 June 1946 - CS 327

Vessel PATHFINDER

Chief of party R.F.A. Studds ✓

Surveyed by J. C. Tribble ✓

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

Fathograms scaled by Sorensen

Fathograms checked by H.S. Cole and J.R. Plaggmier

Protracted by L. W. Eason

Soundings penciled by L. W. Eason

Soundings in ~~fathoms~~ feet at ~~MLLW~~ MLLW ✓

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 693019

DESCRIPTIVE REPORT

to accompany

H-7639(1947)
Hydrographic Field Sheet PF-1146

Project CS 327

Bristol Bay Area - Naknek River

Instructions dated 20 June 1946.

H-7164(1946)
This survey covers the lower part of Naknek River. It is a completion of Boat Sheet PF-1146. The survey of 1946 was plotted on H-7164. It was intended that the survey of 1947 would be treated as additional work. However, a new smooth sheet was ordered for the additional work and a registry number has not yet been assigned. H-7639(1947)

Limits and junctions:

(1946)
The new work supplements and completes H-7164, splits being run to the western limit of that sheet. To the eastward a junction is made up river with H-7614 (1947) (PF-1147 and PF-1247). | par. 4, Review

Equipment:

The soundings were made from Launch No. 1, using 808 fathometer No. 68, and Launch No. 4, using 808 fathometer No. 46. Visual fixes and standard methods were used throughout.

The Naknek River:

H-7164(1946), H-7639 & H-7614 (1947)
This area is covered by hydrographic sheets 1146, 1147, and 1247, all of which have been completed. Hydrography on sheet 1146, from the river entrance to Naknek was done during the 1946 field season with the exception of a few splits done during the past season. (1947) and bottom characteristics which were | par. 4, Review

Portable automatic tide gages were in operation for periods covering the entire time that hydrography was being done at Naknek River Entrance, at Prominent Point (Omakstalia Point), and at Naknek Air Base (Upper Landing).

In addition a portable automatic tide gage was in operation at Anchor Hole (Morakas Point), for the period 11 July to 1 August 1947, prior to beginning hydrography. Supplementary observations were made at Horseshoe Bend, by fathometer for the period July 28-29, 1947, and

by tide staff readings for the period July 29-30, 1947. Observations were continuous over the period July 28-30, but the results obtained by fathometer are erratic.

The following tabulation shows the spacing between tide stations for the river as a whole:

Station	Period of operation	Dist. from river Entrance Nautical Miles	Spacing Naut.Mi.
Naknek River Entrance	26 May - 27 Sept.	0	4.1
Anchor Hole (Morakas Pt.)	11 July - 1 Aug.	4.1	3.5
Horseshoe Bend	28 July - 30 July	7.6	2.8
Prominent Pt. (Omakstalia Pt.)	10 Aug. - 12 Sept.	10.4	4.0
Naknek Air Base (Upper Landing)	18 July - 12 Sept.	14.4	

During the course of the hydrography this data was further supplemented by readings of tide staffs in the vicinity of work though no complete tidal cycles were observed. Tide staffs were located as follows:

Station	Location	Dates	Dist.from River Ent. Naut. Mi.
Fishery Creek	0.5 mi. E. of Anchor Hole gage site	21 Aug. 1400 2105 22 Aug. 0711 2000 23 Aug. 0734 1938	4.6
Saronoski	7.3 mi. W. of Horseshoe Bend tide station	20 Aug. 1415 1830 21 Aug. 1541 2047 5 Sep. 1800 1947	6.3

Station	Location	Dates		Dist. from River Ent. Naut. Miles
Horseshoe Bend	At Horseshoe Bend Tide Station	18 Aug.	1014	7.6
			1740	
		19 Aug.	1300	
			1856	
		20 Aug.	1507	
			1815	
		21 Aug.	1609	
			2035	
King Salmon Creek	2.1 mi. E. of Prominent Point gage site	22 Aug.	1848	12.5
			2031	
		25 Aug.	1004	
			1449	
		26 Aug.	1024	
			1430	
		28 Aug.	1118	
			1315	
		4 Sep.	1317	
			1741	
The Narrows	2.1 mi. E. of Air Base gage site	3 Sep.	1228	16.5
			1557	
		7 Sep.	1728	
			2023	

Respectfully submitted,

J. C. Tribble,
Lieut. Comdr. C&GS

STATISTICS FOR

H-7639 (1947)

HYDROGRAPHIC SHEET FIELD NUMBER PF-1146

PROJECT CS-327

NAKNEK RIVER — BRISTOL BAY

DATE	DAY LETTER	VOLUME	LAUNCH	POSITIONS	Stat. Mi. Soundings
6 Aug.	a	1	1	118	23.5
7 Aug.	b	1	1	153	23.3
8 Aug.	c	2	1	109	16.5
11 Aug.	d	2	1	127	21.2
13 Aug.	e	3	1	164	26.5
14 Aug.	f	3	1	26	4.0
15 Aug.	g	3	1	7	1.1
16 Aug.	h	3	1	5	0.7
22 Aug.	j	3-4	1	90	12.7
23 Aug.	k	4	1	28	4.9
25 Aug.	l	4	1	4	0.7
28 Aug.	m	4	1	59	10.0
5 Sept.	n	4	1	35	6.1
10 Sept.	p	4	1	50	6.2
TOTALS 1947				975	157.4
22 Sept.	A	—	#3	62	—

(obtaining bottom characteristics & location of two rocks awash)

Area in square statute miles - 2.5

PF-1146 H-7639(1947)

NAKNEK RIVER ENTRANCE

PROCESSING OFFICE NOTES

Boat Sheet:

The field party completed the unfinished boat sheet H-7164 (1946) (PF-1146) expecting the 1947 survey to be plotted on smooth sheet H-7164. When the Processing Office applied for the return of the smooth sheet to Seattle we were instructed to make a new projection. (H-7639, 1947)

Projection:

This is hand-made on Whatman paper. The datum is ~~NA27.~~ N.A.1927 The basic control is the triangulation by Tribble 1946, and Studds 1947. Topographic signals are from PF-C-46 T-7093(1947) and PF-G-47. T-7094(1947)

Tidal Zones:

When plotting soundings it became apparent that additional tide zones should be interpolated between the Entrance Gage and the Anchor Hole Tide Staff. Using the Naknek River tide curves furnished by the field party to this office, additional (quarter-point) curves were established. This eliminated successive 2 and 3 foot jumps in the tide reducers as forwarded to this office and produced more satisfactory results on crossings.

This procedure was carried out for the following days:

* a - Aug. 6, 1947
b - Aug. 7, 1947
c - Aug. 8, 1947
d - Aug. 11, 1947
* e - Aug. 13, 1947
j - Aug. 22, 1947

* Tide curves redrawn in Wash. office for "a" & "e" days.

Since the remaining days did not extend beyond the original sections, no changes in the reducers were necessary. The existing sections were merely re-numbered.

Discrepancies:

No solution was obtained for the problem caused by the obvious error in the following lines:

"d" day - pos. 61 to 66 - Tide reducer too great.
"m" day - pos. 23 to 35 - Tide reducer too great.

Discrepancies reduced to negligible amounts during verification

Overlay:

An overlay tracing showing the positions of the interpolated tide curves in dashed blue lines drawn across the river accompanies the smooth sheet. They are in the middle of the sections to which they apply.

Filed with boat sheet ✓

Crossings:

Most crossings are satisfactory with the exception of the crossings affected by the following lines:

"d" day - pos. 61 to 66 - (too shoal)
"m" day - pos. 23 to 35 - (too shoal)

} Only a few differences of 1-2 ft. now occur on smooth sheet Vicinity of ϕ 58°43.7, λ-156°58.7' and ϕ 58°43.6', λ-156°58.6'

S.W. corner RSC Wharf:

There is a difference in the position of S.W. corner wharf R.S.C. Company as plotted from the topographic sheet and as plotted from the triangulation (an intersection point). This discrepancy is in an east-west direction and amounts to about 6.0 or 7.0 meters.

Topo. position shown on present hydro. sheet but not on T-7093 (1947) (No source found for topo. position)

It is believed that the topographic location is the more accurate since it coincides with previous topography (1946). The topographic position was used to protract the three point fixes.

Either position adequate for charting and control of adjacent hydrography.

Large Boulder:

Attention is called to the large boulder at Latitude 58°42.9' Longitude 157°04.9'. It was located by cuts. It does not appear on H-7164 of 1946. (Transferred to H-7164) ✓

Comparison with H-7164:

The two sheets agree in places but the 1946 sheet tends to be shoaler than the 1947 survey. This may be due to differences in tide reducers. If the deepening in some places were due to changes in the river, there would also be shoaling in other places.

No conclusive solution found for disagreement. par. 4, review.

CONTROLLING DEPTHS

Latitude	Longitude	Feet	Remarks
58° 43.3'	167° 04.8'	5 / 6	This is taken from H-7164 (1946). The soundings on H-7165 (off the entrance) are more sparse but depths of 3 to 4 feet are shown. The soundings of PF-1146 do not cover this area, but in general it is 2 to 3 feet deeper than H-7164. H-7639
58° 43.6'	167° 04.4'	4-5 / 6	From H-7164 (1946)
58° 43.55'	166° 59.05'	3	
58° 44.4'	166° 57.6'	4-5	

H-7164 (1946) supersedes H-7639 (1947) in this area.

Respectfully submitted,

Edgar E. Smith,
Cartographic Engineer,
Seattle Processing Office.

COPY

Refer to No. 36-McC

Washington 25

22 December 1947.

To: Commanding Officer,
USC&GSS 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 surveyarea, 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.

TIDAL NOTE

BRISTOL BAY

(1947) 46) (1947)

NAKNEK RIVER - SNEETS H-7639, PF-1146, H-7614, PF-1147 & PF-1247

STATION	Lat.	Long.	Period 1947	MLLW Feet	REMARKS
Naknek River Entrance Portable	58°43.3'	157°03.3'	6/1 - 6/30 7/1 - 7/31 8/1 - 8/31 9/1 - 9/27 Means	3.53 3.26 3.57 3.37 3.43	
Anchor Hole - Portable	58°44.1'	156°55.6'	7/11- 8/1	5.77	
Fishery Creek Staff Staff #1 #2	58°43.9'	156°54.8'		0.45 2.37	All corrections made to Staff No. 1
Savonofski Staff	58°43.2'	156°52.1'		17.0	
Horseshoe Bend Staff	58°42.5'	156°50.1'		2.28	
Prominent Pt.(Omakstalia) Portable	58°42.4'	156°45.4'		4.59	
King Salmon Creek Staff	58°41.1'	156°42.8'		6.3	
Naknek River - Air Base Portable	58°40.4'	156°39.4'		6.02	
The Narrows - Upper Air Base - Staff	58°39.8'	156°36.8'		5.2	

H-7639 (1947)

H-7639 (1947)

PF-1146 - NAKNEK RIVER (1947 Work)

STATISTICS

DATE 1947	DAY LETTER	LAUNCH	L.L.SDGS.	POS.	STAT. MILES SOUNDINGS	VOL. NO.
o Aug.	a	1	0	118	23.5	1
7 Aug.	b	1	0	153	23.3	1
8 Aug.	c	1	0	109	16.5	2
11 Aug.	d	1	0	127	21.2	2
13 Aug.	e	1	0	164	26.5	3
14 Aug.	f	1	0	26	4.0	3
15 Aug.	g	1	0	7	1.1	3
16 Aug.	h	1	0	5	0.7	3
22 Aug.	j	1	0	90	12.9	3 & 4
23 Aug.	k	1	0	28	4.9	4
25 Aug.	l	1	0	4	0.7	4
28 Aug.	m	1	0	59	10.0	4
5 Sept.	n	1	0	35	6.1	4
10 Sept.	p	1	0	50	6.2	4
Totals for 1947			0	975	157.6	4 volumes

H-7639(1947)
PF-1146 (H-7639)(1947)

NAKNEK RIVER - BRISTOL BAY - ALASKA

GEOGRAPHIC NAMES

NAKNEK RIVER

NAKNEK [redacted]

SOUTH NAKNEK

CAPE SUWAROF

COFFEE POINT

LEADER CREEK

LEADER FLAT

TELEPHONE POINT

TELEPHONE CREEK

FISHERY POINT

MORAKAS POINT

PACIFIC CREEK

BOAT CREEK

KVICHAK BAY

GEOGRAPHIC NAMES

Survey No. H 7639

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			"	"						2
										3
Kvichak Bay										4
Cape Suwarof			(change position of name as shown)						USGB	5
Naknek River									"	6
Naknek			(not Naknek Village)						"	7
South Naknek									"	8
Coffee Point										9
Leader Creek										10
Leader Flat										11
Telephone Point										12
Telephone Creek										13
Fishery Point										14
Morakas Point										15
Pacific Creek										16
Boat Creek										17
										18
						Names underlined in red are approved. 7/14/48 L. Heck				19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H7639

Records accompanying survey:

Boat sheets ..1..; sounding vols. 4....; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls ..2..;

special reports, etc. .....

.....

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

Number of positions on sheet		975
Number of positions checked		33
Number of positions revised		0
Number of soundings revised (refers to depth only)	(mostly because of revised tide reducers)	671
Number of soundings erroneously spaced		6
Number of signals erroneously plotted or transferred		0
Topographic details	Time	~~84~~ 82 hrs.
Junctions	Time	5
Verification of soundings from graphic record	Time	24

Verification by S. Rose & L. Lubbers....Total time ~~134~~ 127 hrs. Date 10/7/48

Reviewed by J. A. Dinsmore Time 22 hrs Date 3/30/49

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. H-7639

FIELD NO. PF-1146

Alaska, Bristol Bay, Naknek River
Surveyed in August & September 1947 & Sept. 1948 Scale 1:10,000
Project No. CS-327

Soundings:

808 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - R. F. A. Studds
Surveyed by - J. C. Tribble
Protracted by - L. W. Eason
Soundings plotted by - L. W. Eason
Verified and inked by - L. Lubbers, Jr.
Reviewed by - T. A. Dinsmore, March 30, 1949
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline and signals originate with topographic surveys T-7036a, T-7093 and T-7094 (1946-47).

2. Sounding Line Crossings

Depths at crossings are generally in good agreement. Differences of 1-2 ft. occur in a few places. Such differences, however, are considered relatively unimportant over this area of unstable bottom.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated.

The bottom is generally smooth except for uneveness in the river channel. Large sand flats extend into the river as much as 1/2 mile from the shoreline. Many irregular shoals which uncover at M.L.L.W. are scattered throughout the area.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-7614 (1947) on the east (upstream). On the west (downstream), depths on the present survey could not be reconciled with those on H-7164 (1946) in the overlapping area. The discrepancies probably result both from differences in tide reducers applied to the two surveys and from the instability of the bottom. A butt junction was therefore made between the two surveys in the vicinity of Naknek.

5. Comparison with Prior Surveys

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

6. Comparison with Chart A-3370 (Preliminary print of 5/24/48)

A. Hydrography

Charted information was compiled in the field from advance information of the present survey. Numerous revisions in smooth-sheet soundings have been made during verification. The present survey soundings supersede the charted information.

B. Aids to Navigation

No floating aids to navigation are shown in the area of the present survey. Fixed aids on the present survey are in substantial agreement with those charted and adequately mark the features intended.

7. Condition of Survey

a. The sounding records and Descriptive Report are complete and adequate.

b. The smooth plotting was well done. However, many soundings were revised in the Washington Office, after the application of tide reducers taken from new tide curves which were drawn for "a" and "e" days. The tide reducers applied in the field for those days resulted in excessive discrepancies in sounding line crossings. The revised tide reducers have eliminated most of the 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

Casper M. Durgin
Chief, Division of Charts

K. G. Crosby
Chief, Section of Hydrography

W. M. Scaife
Chief, Division of Coastal Surveys

7639

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 26 July 1948

Division of Charts: R. H. Carstens

Plane of reference approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 7639

Locality - Naknek River, Bristol Bay, Alaska

Chief of Party: R. F. A. Studds in 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

NAUTICAL CHARTS BRANCH

SURVEY NO. H 7639

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
11/28/49	9051	J. G. McGann	Before (After) Verification and Review
2-23-61	8802	J. M. Albert	~~Before~~ After Verification and Review new cht 9051 added boundaries as *
			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
			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.