8309

Diag. Cht. Nos. 8862 and 8863-3.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. EX-6156 *Office No.* H-8309

LOCALITY

State Alaska - Aleutian Islands

General locality Andreanof Islands

Locality Chisak Bay to Atka Pass

1956

CHIEF OF PARTY

G. A. Nelson

LIBRARY & ARCHIVES

DATE January 29, 1957

B-1870-1 (1)

8309

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. H-8309

Field No. EX-6156

State ALASKA - ALEUTIAN ISLANDS

General locality ~~ALEUTIAN ISLANDS~~, ANDREANOF ~~GROUP~~ ISLANDS

Locality ~~OFFSHORE~~ - CHISAK BAY TO ATKA PASS

Scale 1:60,000 Date of survey 15 JULY TO 12 AUGUST 1956

Instructions dated 16 DECEMBER 1954 AND 10 NOVEMBER 1955

Vessel SHIP EXPLORER

Chief of party GEORGE A. NELSON

Surveyed by F. R. GOSSETT, E. F. HICKS, JR., P. A. WEBER, J. O. PHILLIPS, E. W. RICHARDS

Soundings taken by XXXXXXXXX graphic recorder, XXXXXXXX wire

Fathograms scaled by FATHOMETER READERS

Fathograms checked by SHIP'S OFFICERS

Protracted by ALLEN J. LEWIS

Soundings penciled by ALLEN J. LEWIS

Soundings in fathoms XXXX at XXXX MLLW ~~Chisak Bay & Fenimore Pass Tide Gauges~~ and are based on velocity of sound of 800 fms./sec.

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 16—66520-1

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHY SURVEY NO. H-8309

OFFSHORE - CHISAK BAY TO ATKA PASS

ALEUTIAN ISLANDS, ALASKA

PROJECT 12180, SEASON 1956

Surveyed by: F. R. Gossett, E. F. Hicks, Jr., P. A. Weber, J. O. Phillips
E. W. Richards

A. PROJECT:

This survey was executed in accordance with:

1. Revised Instructions - Project CS-218, Aleutian Islands, Alaska, dated 16 December 1954.

2. Supplemental Instructions - Project 1218, Aleutian Islands, Alaska, dated 10 November 1955.

3. Director's letter No. 22/MEK, S-1-EX, dated 13 July 1956, Subject: Project 12180.

B. SURVEY LIMITS AND DATES:

This survey includes the offshore area from Chisak Bay to Atka Pass and extends south to latitude 51 25 N. This survey covers much the same area as a previous naval survey, H-6899, made in 1934 (By The NAVY) at a scale 1:60,000.

A junction was effected at the western limit off Azamis Cove with survey H-8235, (1955) scale 1:40,000.
This Junction will be finally considered in the Addendum to H-8235(1955)

Junctions were made with contemporary surveys as follows:

H-8307 (1956) (1:20,000) inshore south coast of Little Tanaga Island from Chisak Bay eastward to longitude 175 56 W.

H-8308 (1956) (1:20,000) inshore south coast of Chugal and Tagalak Islands from longitude 175 46 W to longitude 175 30 W.

H-8306 (1956) (1:20,000) at the northwest corner. No overlap, sufficient no. of sigs trans. for 50 fm. curve.

This survey was made between 15 July and 12 August 1956.

C. VESSEL AND EQUIPMENT:

All hydrogrpahy on this survey was accomplished by the Ship EXPLORER.

Turning radius of the ship (from 1952 Descriptive Report):

Full right rudder - 360 meters

Full left rudder - 275 meters

The ship was run at standard speed, except for a few instances where rough weather made it necessary to reduce speed.

Soundings were scaled from continuous profiles recorded on 808 fathometer No. 113S and No. 50 in depths to approximately 110 fathoms and EDO fathometer No. 4 in greater depths.

Shoran control was used during the entire survey with the exception of three positions. Considered as Shoran Controlled.

Bottom samples were obtained with snapper type cups on a wire sounding machine.

D. TIDE AND CURRENT STATIONS:

Portable automatic tide gages were installed at Chisak Bay and the small island just west of Fenimore Pass. Soundings obtained from 15 July - 26 July, comprising A - G days, are referred to the gage at Chisak Bay. Soundings obtained from 10 August - 12 August, comprising H - K day are referred to the Fenimore Pass gage.

In general all soundings north of 51 48.5 N are reduced using the Fenimore Pass gage, those south using the Chisak Bay gage.

No current stations were occupied within the limits of this survey.

One oceanographic station was observed within the limits of this survey at latitude 51 29 N and longitude 175 38 W on 26 July 1956.

E. SMOOTH SHEET:

The smooth sheet projection was made 16 October 1956 by projection ruling machine in the Washington Office.

Shoran stations were plotted in the Washington Office from computed geographic positions.

Shoran arcs were inked in the Washington Office.

F. CONTROL STATIONS:

Control is based on triangulation stations established by the U.S. Navy in 1934 supplemented by stations established by this party in 1956. Navy 1934 triangulation is published by the Coast and Geodetic Survey.

Shoran stations MOSS and SAK are at stations MOSS PT., 1956 and CHISAK, 1956 respectively. see back page for position of Δ sta.

Positions of shoran station CHU and NEF were computed from CHUGUL (USN), 1934 and FEN, 1956, respectively, from distances and directions recorded in triangulation records. Computations are included with the data for this sheet.

G. SHORELINE AND TOPOGRAPHY:

This is an offshore sheet and no shoreline or topography will be plotted.

H. SOUNDINGS:

The soundings were all taken by echo soundings with an EDO fathometer and/or 808 fathometer mounted on the Ship EXPLORER. A considerable number of comparisons were made between soundings taken with the EDO fathometer and the 808 fathometer on different phases or scales to make sure that there would be as few discrepancies as possible. The 808 fathometers are old and worn, especially the phasing heads. Observations indicate that the phase corrections for any 808 fathometer are not constant. The phase corrections used are such that simultaneous EDO and 808 soundings seldom disagree by more than one fathom. See Special Report on Fathometer Corrections. *

* Report apparently not submitted - Ltr 6/1/59 from C.O. of EX.

I. CONTROL OF HYDROGRAPHY:

With few exceptions all the horizontal control for hydrographic fixes on this sheet were shoran distances. Final corrections for this sheet were determined and applied after the boat sheet had been plotted. It was not possible to obtain the exact location of shoran station NEF until the survey had been completed.

Four shoran stations were used during the survey: stations CHU, MOSS, NEF, and SAK. For further information regarding these stations refer to paragraph F, CONTROL STATIONS.

Positions 78A, 79A, and 91C were visual fixes, plotted on sheet H-8307 (1956) and transferred by latitude and longitude.

J. ADEQUACY OF SURVEY:

The survey of the area is complete and is adequate to supersede prior surveys. The survey complies with the project instructions.

A comparison of the junction with H-8235 (1:40,000, 1955) is good and all depth curves join smoothly to the western limits of this sheet.

A comparison of the junctions with H-8307 (1:20,000, 1956), H-8308 (1:20,000, 1956), and H-8306 (1:20,000, 1956 are good and the depth curves join smoothly in the corresponding areas.

K. CROSSLINES:

Crosslines represent approximately 11 per cent of the hydrography.

Discrepancies noted:

(a)	51 48 N 175 54 W	1B - 2B 88 - 90C	→ Error in recording corrected 90C-91C Vol 3 page 7	1 - 2 fathom discrepancy (1 - 2%) Probably along the edge of a shelf or slight displacement in position 90C
(b)	51 46 175 40.6	106B - 72F	→ see vol 5 page 11 - F-day	3 fathom discrepancy (F low) 3%
(c)	51 46 176 03	51 - 52A 96 - 97F	→ see vol 1, page 24 - A day " " 5 " 23 - F day	6 fathom discrepancy - 8½% On the edge of shelf, a small shift in position would remedy this
(d)	51 48 175 32	39 - 41F 123 - 124D	→ see vol. 4 page 65 - F-day	2 fathom discrepancy - 2% (F low)
(e)	51 47 175 38	70 - 71F 72 - 73D 128 - 129D	→ see vol 5 page 11 F-day	3 fathom discrepancy - 3% (F low)
(f)	51 47 176 03	1 - 2C 50 - 51A	→ see vol 1 page 28 A-day	3 fathom discrepancy - 4.5% (A high)
(g)	51 46 176 02	98 - 99F 49 - 50A	→ see vol 5 page 24 - F day " " 1 " 28 - A day	3 fathom discrepancy - 4% (F low)

check F day soundings

See Note below

As can be seen, in a number of instances the sounding line run of F day appears to be low. There are a number of possible contributing factors. Between 78F and 93F, D scale of fathometer 50 appears 2-3 fathoms low. During the day there were 2 to 3 fathom swells with the bottom being quite rough. A slight shift in position of one or another of the lines would account for most cases.

Note: The verifier was able to reconcile the above crossing discrepancies by rejecting doubtful portions of 808 soundings and substituting simultaneous EDO soundings. EDO crossings were checked in all cases noted DRE

L. COMPARISON WITH PRIOR SURVEYS:

Practically the entire area of the survey was previously surveyed by the U.S. Navy in 1934, H-6898 on a 1:60,000 scale. The Navy survey was in the nature of a reconnaissance survey. There is no general displacement of depth curves, merely a ragged disagreement. This survey is more complete and should supersede the old survey. There are no dangers to navigation in the area of either survey.

M. COMPARISON WITH CHART:

The survey is compared with the following charts: No. 9193, 2nd Ed., 54-7/5; No. 8862, 2nd Ed., 51-10/15; No. 8863, 4th Ed., 52-1/14. Two soundings, 1195 (175-57W, 51-29N) and 1219 (175-40W, 51-29N) were not found during this survey; it is probable that they are displaced from their actual positions and should be deleted from the chart.

N. DANGERS AND SHOALS:

There are no dangers to navigation or shoals within the limits of this survey.

O. COAST PILOT INFORMATION:

This is an offshore sheet and there is nothing thereon pertaining to the Coast Pilot.

P. AIDS TO NAVIGATION:

There are no aids to navigation within the area of this survey. No bridges, submarine or overhead cables, or ferry routes exist.

Q. LANDMARKS FOR CHARTS:

There are no landmarks for charts within the area of this survey.

R. GEOGRAPHIC NAMES:

There are no geographic names for charts within the area of this survey.

Z. TABULATION OF APPLICABLE DATA:

1. Forwarded with this report:

(a) Smooth Sheet H-8309
(b) Boat Sheet H-8309
(c) 7 Volumes of sounding records
(d) 1 Envelope of fathograms
(e) 1 Cahier of shoran abstracts

Not in Seattle or on ship
Not received in Washington
No transmittal letter 5/5/59
DAR

2. Data forwarded separately:

(a) Special Report on Fathometer Corrections, 1956, EXPLORER, Project 12180

(b) Special Report on Shoran Corrections, 1956, EXPLORER, Project 12180

(c) Coast Pilot Notes, U. S. Coast Pilot, Part II, Yakutat Bay to Arctic Ocean, EXPLORER, 1955

(d) Tide Observations at Chisak Bay and small island just west of Fenimore Pass

(e) Season's Report, Ship EXPLORER, Project 12180

Respectfully submitted,

Allen J. Lewis

Allen J. Lewis
Ensign, C&GS

STATISTICS

HYDROGRAPHIC SURVEY H-8309

FIELD NO. EX-6156

SHIP EXPLORER

Project 12180

Vol. No.	Day Letter	Date	No. Pos.	Wire Sdgs.	Sdg. Line Naut. Miles
1	A	7/15/56	79	0	82.4
1	B	7/20/56	49	0	47.6
2	B	7/20/56	59	1	58.0
2	C	7/21/56	80	1	81.7
3	C	7/21/56	11	0	9.0
3	D	7/22/56	132	1	124.6
4	E	7/23/56	86	3	84.0
4	F	7/24/56	55	0	45.0
5	F	7/24/56	47	2	43.0
5	G	7/26/56	67	0	54.9
5	H	8/10/56	17	0	17.0
6	H	8/10/56	51	0	46.5
6	J	8/11/56	69	4	64.0
6	K	8/12/56	16	1	12.5
7	K	8/12/56	35	0	32.0
		TOTALS	853	13	810.44

Area surveyed: 719.5 sq. naut. miles

TIDAL NOTES

TO ACCOMPANY

HYDROGRAPHIC SHEET EX-6156 REG. NO. H-8309

Tide reducers for the sheet were taken from the records of the gages at Chisak Bay and the small island just west of Fenimore Pass with no correction for distance from the gages. Tide reducers were not applied in depths greater than 150 fathoms. Soundings north of 51 48.5 N are, in general, reduced using the gage near Fenimore Pass, those south using the Chisak Bay gage.

Position of Chisak Bay gage: Latitude: 51 47.9 Not on sheet.
Longitude: 179 08.2

Staff reading of MLLW was 1.5 feet

Position of gage near Fenimore Pass: Latitude: 51 57.6
Longitude: 175 35.25

Staff reading of MLLW was 3.2 feet

SHORAN CORRECTIONS

SHIP EXPLORER

EX-6156 -- H-8309

SAK	CHU	NEF	MOSS
0.00 (All)	-0.01 (0 to 37 mi.)	-0.02 (0 to 35 mi.)	-0.03 (0 to 32 mi.)
	-0.02 (37 to -- mi.)	-0.03 (35 to -- mi.)	-0.04 (32 to -- mi.)

FATHOMETER CORRECTIONS

SHIP EXPLORER

EX-6156 -- H-8309

808 Fathometer No. 113S

to A scale	--	+0.7 fms
to B scale	--	+1.0 fms
to C scale	--	-0.5 fms
to D scale	--	-2.3 fms

808 Fathometer No. 50

to A scale	--	+0.7 fms
to B scale	--	+0.5 fms
to C scale	--	-0.7 fms
to D scale	--	-1.2 fms

EDO Model 185, Ser. 4

0 to 150 fms	--	+2.5 fms
150 to 600 fms	--	+2.0 fms
600 to - - -	--	- - - -

Descriptive Report
To Accompany
Topographic Control Survey T-10291, Field No. LR-B-48
Topographic Control Survey T-10292, Field No. LR-C-48
Topographic Control Survey T-10293, Field No. LR-D-48

These surveys are a by-product of Projects Ph-2(45), and CS-332. Project Ph-2(45) furnished shoreline and photo-hydro locations for the survey of Franklin D. Roosevelt Lake. Project CS-332 is a hydrographic survey of the lake. The control sheets were used to locate additional hydrographic stations by planetable methods, as well as to verify, in several instances, the compilation of the shoreline, and the location of some of the photo-hydro stations.

INSTRUCTIONS

1. These surveys are not covered by specific Instructions. In general, Instructions for Project CS-332 cover the surveys. The latter instructions suggest that additional hydrographic stations be located by sextant cuts plotted on the boat sheets. Due to the large number of additional statipns necessary, the suggestion was not practical, and separate control sheets were adopted.

SURVEY LIMITS AND DATES

1. These surveys extend from Hells Gate Island to the Spokane River. They were executed during the months of May and June, 1948.

LR-B-48 extends from Hells Gate Island to Halverson Canyon; work began May 2, 1948 and it was completed on May 6, 1948. It supplements shoreline survey sheet T-8853.

LR-C-48 extends from Halverson Canyon to Lincoln Mills; work began May 12, 1948 and was finished May 18, 1948. It supplements shoreline survey sheet T-8854.

LR-D-48 extends from Lincoln Mills to the Spokane River; work began June 6, 1948 and ended on June 13, 1948. It supplements T-8855 and T-8856.

CONTROL

1. Horizontal control for these surveys is second and third order triangulation executed by the Bureau of Reclamation from 1934 to 1940. For a complete treatment of the main source of the horizontal control, refer to the "Special Report on Reservoir Boundary Points, Project Ph-2(45)" previously submitted to the Washington Office. Refer also to the Descriptive Report accompanying Hydrographic Sheets LR 10147 (H-7681) and LR 10247 (H-7682), side heading "F".

~~839~~

JUN 15 1956

Ser 99
File 100.2
EBB/cj

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
SHIP EXPLORER
705 FEDERAL OFFICE BUILDING
SEATTLE 4, WASHINGTON

1 June 1959

To: The Director
Coast and Geodetic Survey
Department of Commerce
Washington 25, D.C.

Subject: Fathometer Correction Report 1956

Reference: 839:der

A thorough search has been made for this Report on the Ship EXPLORER but it apparently is not in our records. A check of the letters of transmittal for 1956-57 indicates that no such Report was ever sent to Washington.

Mention of velocity corrections is made in various Descriptive Reports for the 1956 season as follows:

Descriptive Report # EX-6156 (H-8309), on 10th page (pages unnumbered). Clear
Descriptive Report # EX-05156 (H-8284), on page 5.
Descriptive Report # EX-2243 (H-6918), on pages 4 and 5.

E.B. Brown
CDR C&GS
Comdg. Ship EXPLORER

cc: SDO

~~839~~ 839

JUN 22 1959

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
SEATTLE DISTRICT OFFICE
SEATTLE 4, WASHINGTON

Refer to file:
521.2 PMF:mll

15 June 1959

To: The Director
Coast and Geodetic Survey
Dept. of Commerce Bldg.
Washington 25, D. C.

Subject: Fathometer Correction Report, Ship EXPLORER, 1956 season

Ref: Assistant Director's letter of 8 May 1959, file 839:der, to C.O. EXPLORER

No report such as described in reference can be found in the Seattle District Office or Processing Office.

G. C. MAST
CAPTAIN, C&GS
SEATTLE DISTRICT OFFICER

cc: C.O. EXPLORER

APPROVAL SHEET

H-8309 -- EX-6156

All hydrography on this survey was accomplished under my direct supervision. The records and smooth sheet have been examined and are approved.

George A. Nelson
Captain, C&GS
Commanding Ship EXPLORER

DIVISION OF CHARTS

REVIEW SECTION -- NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8309 FIELD NO. EX-6156

Alaska-Aleutian Islands, Andreanof Islands, Chisak Bay to Atka Pass

SURVEYED: July-August 1956 SCALE 1:60,000

PROJECT NO. 12180

SOUNDINGS: 808 Depth Recorder
Edo Depth Recorder

CONTROL: Shoran

Chief of Party ---------- G. A. Nelson
Surveyed by ---------- F. R. Gossett, E. F. Hicks,Jr., P.A.Weber, J. O. Phillips, E. W. Richards.
Protracted by ---------- A. J. Lewis
Soundings plotted by ------- A. J. Lewis
Verified and inked by ------ J. C. Chambers
Reviewed by ---------- L. S. Straw DATE: 24 Dec. 1959
Inspected by ----------R. H. Carstens

1. Shoreline and Control

This survey is located offshore; no shoreline is shown.

The source of the control is described in the Descriptive Report.

2. Sounding Line Crossings

Sounding line crossings, including those mentioned in the Descriptive Report were improved during verification by rejecting doubtful 808 soundings and substituting simultaneous EDO soundings. The sounding line crossings on this survey are now adequate.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated. The present survey lies between long. 175°25' and long. 176°05' from 2 to 30 miles south of the Andreanof Islands. The bottom is even and slopes southeastward from 80 to 120 feet per mile to the 200 fathom curve where the gradient increases to about 700 feet per mile at depths of over 2000 fathoms.

4. Junctions with Contemporary Surveys

The junction with H-6919 (1943) in the vicinity of lat. 51°53', long. 175°49' is in good agreement with the present work. The junction with H-8235 (1955) on the west appears to be satisfactory, however, it will be finally considered in the addendum to the preliminary review of that survey.

The junction with H-8307 (1956) on the northwest is adequate. The junctions with H-8308 (1956) on the north, H-8438 (1957-58) on the northeast and H-8473 (1958) on the east will be considered in the reviews of those surveys.

5. Comparison with Prior Surveys

a. H-6894 (1934), 1:15,000
H-6897 (1934), 1:30,000
H-6898 (1934), 1:60,000

The above listed surveys were made by the U. S. Navy in 1934. The differences in depths from the 50 fathom curve to the 100 fathom curve generally do not exceed one fathom, but beyond the 100 fathom curve and over 10 miles offshore radical differences in depths occur. For example in the vicinity of lat. 51°35.00', long. 176°04.00' some of the lines on H-6898 (1934) contain soundings which are from 100 to 200 fathoms deeper than those on the present survey. It is apparent that the prior soundings on dead reckoning lines are from one to two miles out of position.

The present survey completely supersedes these surveys within the common area.

b. Several track lines by this Bureau made from 1956 to 1959 criss-cross the area of the present survey. The scale and the methods of positioning preclude a close comparison with the present work; however, no important differences in depths are noted. Within the limits of the present survey the soundings on the track lines may be disregarded.

6. Comparison with Charts

9140 (Latest print 10/15/52)	8863 (Latest print 5/4/59)
9193 (Latest print 6/3/57)	9102 (Latest print 5/4/59)
8862 (Latest print 10/15/51)	9000 (Latest print 6/23/58)

A. Hydrography

The present survey was basically applied to chart 8863 before verification and review and is in agreement therewith.

The other charts contain soundings from track-lines, prior surveys and partial application of the present work before verification and review. Some of the soundings from track lines prior to 1956 and soundings from other sources which

could not be identified are erroneous in depth and/or position. Except for chart 8863, the charted information is completely superseded by the present survey within the common area.

B. Aids to Navigation

There are no aids to navigation within the limits of the present survey.

7. Condition of Survey

a. The sounding records and Descriptive report are complete and comprehensive except that no report on Fathometer Corrections was received. According to a letter from the commanding officer of the EXPLORER dated 1 June 1959 - "A check of the letters of transmittal for 1956-57 indicates that no such Report was ever sent to Washington."

b. The smooth plotting was done accurately, however, crossings could have been improved as indicated in paragraph 2.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work Recommended.

This survey is considered basic and no additional field work is recommended.

Examined and Approved:

Chief, Nautical Chart Branch

Chief, Division of Charts

Chief, Hydrography Branch

Chief, Division of Coastal Surveys

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April 1945

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

			°	′	″					°	′	″
α	2 CHUGUL	to 3 EGO	122	02	53.0	α	3 FEN	to 2 KASATOCHI	194	37	37
2d ∠		&	+ 89	09	18	3d ∠		&	− 162	22	00
α	2	to 1	211	12	11	α	3	to 1	356	59	37
Δα						Δα					
			180	00	00.0				180	00	00.0
α′	1	to 2	31	12	11	α′	1	to 3			

First Angle of Triangle

	°	′	″			°	′	″			°	′	″			°	′	″
φ	51	56	42.724	2 CHUGUL	λ	175	52	14.996	φ	51	57	32.659	3 FEN	λ	175	35	17.361
Δφ	+		0.086	3.09 m-	Δλ	−		0.084	Δφ			0.252	7.79 m	Δλ		−	0.021
φ′	51	56	42.810	1 SHORAN CHU	λ′	175	52	14.912	φ′	51	57	32.407	1 SHORAN NEF	λ′	175	35	17.340

	Logarithms	Values in seconds
s	0.48996	+ 1323.1
Cos α	9.93214	− 531.3
B	8.50994	
h	8.93204	1st term 0.″086
s^2		
$\sin^2\alpha$		
C		
		2d term +
h^2		
D		
		3d term +
		−Δφ

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	51	56	42.8		
s				0.489 96	+ 284.8
Sin α				9.71439	− 861.1
A′				8.50881	
Sec φ′				0.21013	
Δλ				8.92329	0.″084
$\sin\frac{1}{2}(\phi+\phi')$				9.89621	
−Δα				8.81950	

	Logarithms	Values in seconds
s	0.891538	1001.6
Cos α	9.999 402	(852.8)
B	8.509 935	
h	9.400 875	1st term 0.″2517
s^2		
$\sin^2\alpha$		
C		
		2d term +
h^2		
D		
		3d term +
		−Δφ 0.2517

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)					
s				0.891538	331.1
Sin α				8.719703	
A′				8.508813	
Sec φ′				0.210 260	
Δλ				8.330314	−0.″0214
$\sin\frac{1}{2}(\phi+\phi')$					
−Δα					

16—44238-1 U. S. GOVERNMENT PRINTING OFFICE

GEOGRAPHIC NAMES

Survey No. H-8309

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
Aleutian Islands										2
Andreanof Group										3
~~Chisak Bay~~										4
Atka Pass										5
Chisak Bay				(tide station)						6
				Names approved						7
				1-22-57. L. Heck						8
										9
										10
Fenimore Pass			(tide station)							11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ..8309..

Records accompanying survey:

Boat sheets .1...; sounding vols. ...7.; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 3-Envelopes

special reports, etc. .1-Smooth sheet, 1-Descriptive report,

.1-Cahier Shoran Abstracts.....

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

Number of positions on sheet		953
Number of positions checked		79
Number of positions revised		0
Number of soundings revised (refers to depth only)		67
Number of soundings erroneously spaced		10
Number of signals erroneously plotted or transferred		0
Topographic details	Time	0
Junctions	Time	2
Verification of soundings from graphic record	Time	4

Verification by J. C. Chambers ..... Total time .63.. Date 5/24/59

Reviewed by ..... Time 46 Date 12/24/59 ~~5/24/59~~

/DRE

M-2232-1

K.4 C

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 24 January 1957

Division of Charts: R. H. Carstens

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 8309

Locality Aleutian Islands, Alaska

Chief of Party: G. A. Nelson in 1956
Plane of reference is mean lower low water, reading
1.5 ft. on tide staff at Chisak I.
12.3 ft. below B. M. 1 (1956)

3.2 ft. on tide staff at Fenimore Pass
7.7 ft. below B. M. 1 (1956)

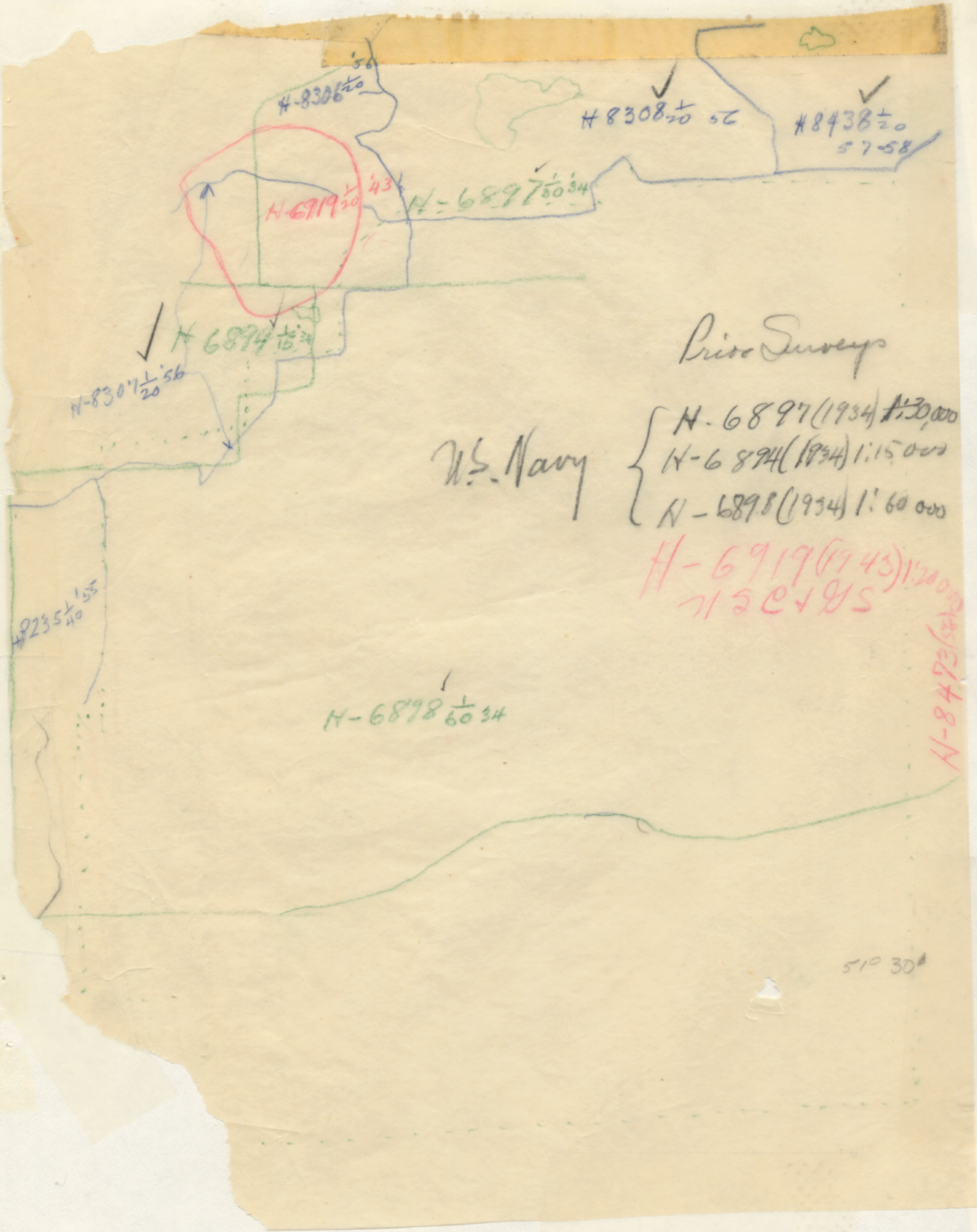
Height of mean high water above plane of reference is 3.3 feet.

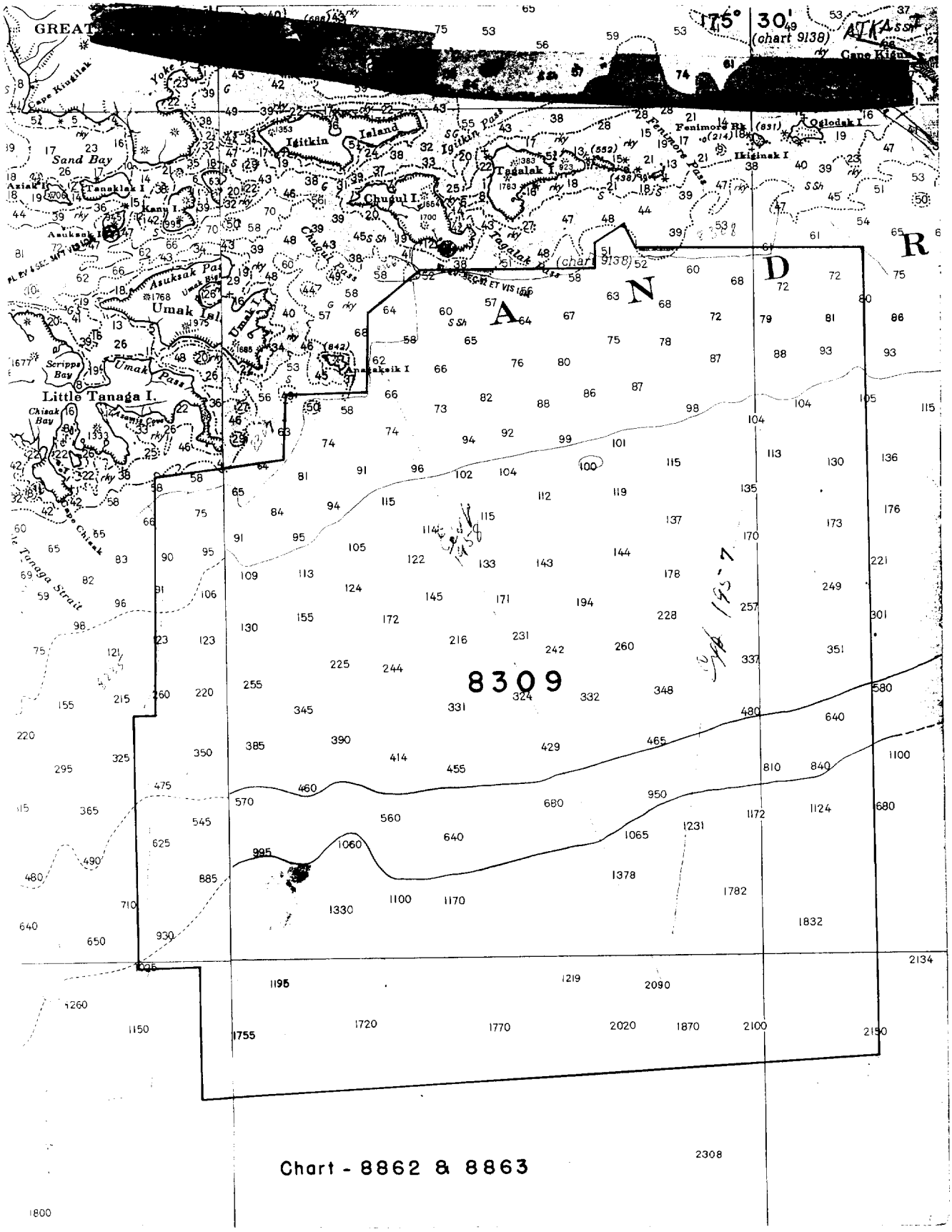
Condition of records satisfactory except as noted below:

William Shapiro

Chief, ~~Division of~~ Tides ~~and Currents~~ Branch

U. S. GOVERNMENT PRINTING OFFICE 750675


H-8306 1/20 '56
H 8308 1/20 56
H 8438 1/20 57-58
H-6919 1/20 '43
H-6897 1/80 34
H 6894 1/15 34
H-8307 1/20 '56
H8235 1/40 '55
H-6898 1/60 34
Prior Surveys
U.S. Navy
H-6897 (1934) 1:30,000
H-6894 (1934) 1:15,000
H-6898 (1934) 1:60 000
H-6919 (1943) 1:20 000
C&GS
51° 30'


GREAT
175° 30'
(chart 9138)
Cape Kigalak
Sand Bay
Igitkin Island
Igitkin Pass
Tagalak I
Chugul I.
Chugul Pass
Tagalak Pass
Fenimore Pk
Fenimore Pass
Ogiodak I
Ikiginak I
Kanu I.
Asuksak I
Asuksak Pass
Umak I.
Umak Pass
Scripps Bay
Anaksik I
Little Tanaga I.
Chisak Bay
Tanaga Strait
Cape Chisek
8309
Chart - 8862 & 8863

PAGE 1

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8309 /1956

Record of Application to Charts   REVIEW 12-24-59

Reviewed 12-24-'59

DATE	CHART	CARTOGRAPHER	REMARKS
1/24/57	9193	[illegible]	Applied a few soundings to fill in open spaces in SE portion of chart. Before ~~After~~ Verification and Review Partial Application. Completely applied before verification. FMA
6-18-57	9102	F. M. Albert	Before ~~After~~ Verification and Review apply a few sdgs.
9/25/57	Reconst 8863	S. T. McGann	Before ~~After~~ Verification and Review Completely
5-19-59	8862	R. K. DeLounder	Part appd. ~~Before~~ After Verification and before Review, Area covered by cht 8863 appd thru that chart. Added 100 fm & 200 fm curves and some some sdgs deeper than 50 fms without going thru cht 9193
12/21/59	9000	M. Rogers	~~Before~~ After Verification and before Review thru chart 8862 above. No corr. considered necessary to this scale at this time.
3-13-61	9102	F. M. Albert	~~Before~~ After Verification and Review via cht 8862, 8863 and smooth sheet completely
3-18-61	9000.	FMA	~~Before~~ After Verification and Review via 9102
6-6-61	9140	R. E. Elkins	~~Before~~ After Verification and Review Extensive revision Partly applied
1-19-66	9139	[illegible]	~~Before~~ After Verification and Review Comp. appd thru cht 9140.
2/2/66	9193	John P. Weir	~~Before~~ After Verification and Review Part. Applied in area of Ch 9140
5/21/66	8862	J. McMillan	After Verification & Review applied thru Cht 9140 Dwg #5 & Cht 9193 Dwg #10 but appl
3/24/67	8863	T. Ware	Exam after verification & review
3/13/68	9138	W H Wall	Fully applied after V & R.
1-12-70	9140	I Beeler	Fully Applied; Extensive revision; After V & R per MR RHC
1-12-70	9138	I Beeler	Reapplied ~~in area of 9140 #6 for agreement~~ per MR
1-12-70	9193	I Beeler	Fully Applied After V & R partly thru 9140 #6 & 9138 #6 Extensive Revision (per MR + RHC)

M-2168-1

Continued On Next page

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.

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

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RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H 8309

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
8862	1-12-70	J. Beeler	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via 9193
			Drawing No. 13 Extensive Revision (per MR & RHC)
9139	1/14/70	E Frey	~~Full Part Before~~ Fully After Verification Review Inspection Signed Via
			Drawing No. Thru cht 9138 & 9140
8863	1/28/70	BEELER	Full ~~Part Before~~ After Verification Review Inspection Signed Via 8862
			Drawing No. 9 + 9193 " 13 Extensive Revision
9140	1-12-70	BEELER	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No.
9138	1-12-70	BEELER	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63