

7652

Diag. Cht. No. 8864-2

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PI-20148 Office No. H-7652

LOCALITY

State Alaska - Aleutian Islands

General locality Rat Islands

Locality South of Kiska & Rat Islands

1948

CHIEF OF PARTY

H.E. Finnegan

LIBRARY & ARCHIVES

DATE 8 NOV. 1949

B-1870-1 (1)

7652

NOV 8 1949

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. H-7652

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-7652

Field No. PI-20148

Alaska -
State - Aleutian Islands ✓

General locality Rat Islands ✓

Locality South of Kiska and Rat Islands ✓

Scale 1 : 200,000 ✓ Date of survey 12 & 13 July 1948 ✓

Supplemental
Instructions dated 28 February 1936. (Item 1. of the attached List of Instructions).

Vessel Ship PIONEER

Chief of party H.E. Finnegan ✓

Surveyed by G.R. Fish, E.B. Lewey, C.A. George, C.J. Beyma ✓

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

Fathograms scaled by E.A.C.

Fathograms checked by S.D.P.

Protracted by James I. Best

Soundings penciled by James I. Best

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

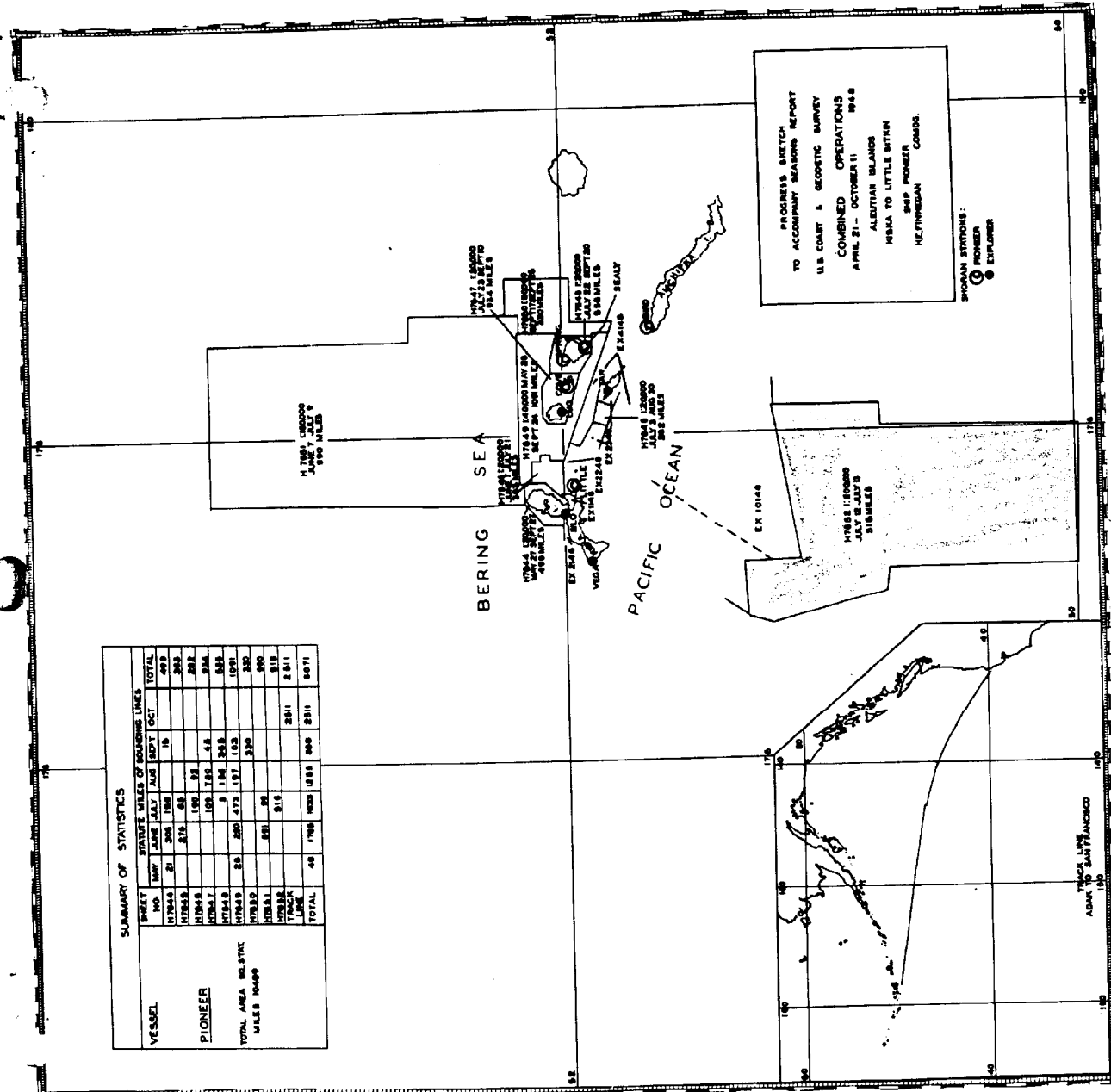
REMARKS:

SUMMARY OF STATISTICS

SHEET NO.	STATUTE MILES OF SOUNDING LINES					TOTAL
	MAY	JUNE	JULY	AUG	SEPT		OCT
17844	21	208	128	75		424
17845	21	273	63			357
17846		150	54			204
17847		102	125	42		269
17848		3	124	222		349
17849	25	282	173	127	128	655
17850				230		230
17851				26		26
17852				215		215
17853						231
17854	49	178	122	123	260	632
TOTAL						2071

VESSEL
PIONEER

TOTAL AREA SOUNDED
MILES 10400



PROGRESS SKETCH
TO ACCOMPANY SEASONS REPORT
U.S. COAST & GEODETIC SURVEY
COMBINED OPERATIONS
APRIL 21 - OCTOBER 11 1948
ALEUTIAN ISLANDS
KODIAK TO LITTLE BATHIN
SHP PIONEER
NORTH PACIFIC COMDR.

SOUNDING STATIONS:
① PIONEER
② EXPLORER

LIST OF INSTRUCTIONS AND SUPPLEMENTAL INSTRUCTIONS
FOR PROJECT CS-218

(To Season of 1949)

1. Supplemental Instructions dated 28 February 1936.
2. Instructions dated 3 February 1938.
3. Supplemental Instructions dated 28 February 1938.
4. Amended Instructions dated 1 March 1938.
5. Supplemental Instructions dated 3 April 1939.
6. Amendment to Instructions dated 8 May 1940.
7. Revised Instructions dated 16 April 1943.
8. Supplemental Instructions dated 1 February 1944.
9. Supplemental Instructions, Shoreline Inspection, 18 March 1944.
10. Supplemental Instructions dated 10 February 1948.
11. Supplemental Instructions, Photogrammetric Field Surveys,
8 April 1948.
12. Detail Instructions for Operation of the K-20 Camera (Reference
Paragraph 16-D of Instructions dated 8 April 1948).
13. Report on Experimental Use of Photographs for Establishing
Elevations in Alaska. Division of Photogrammetry, April 1949.
14. Brief Instructions for Operation of the K-20 Camera (Reference
Paragraph 16-D of Instruction dated 8 April 1948).
15. Supplemental Instructions dated 11 April 1949 (To C.O.EXPLORER).

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SURVEY

H-7652 (Field PI-20148)

South of Rat Islands

Project GS-218

Season of 1948

Ship PIONEER

H.E. Finnegan, Chief of Party

Scale 1:200,000

Surveyed by: G.R. Fish
E.B. Lewey
C.A. George
C.J. Beyma

A. PROJECT:

Supplemental Instructions dated 28 February 1936 (Item 1. of the attached List of Directions) are applicable to this work. ✓

B. SURVEY LIMITS AND DATES:

The general locality is the Aleutian Islands, South of Kiska and Rat Islands. The actual limits are: Lat. $49^{\circ} - 58.0'$ N. to Lat. $51^{\circ} 18.0'$ N. and Long. $176^{\circ} - 50.0'$ E. to Long. $178^{\circ} - 08.0'$ E. (see Sheet Index). *One sdy. line extends north to Lat. $51^{\circ} 42'$* ✓

H-7627 (1947)

Junctions are made with Sheet EX-10247 on the northwest and with Sheet EX-10148 on the north. ✓

H-7711 (1948)

Field work began on 12 July 1948 and ended on 13 July 1948.

C. VESSELS AND EQUIPMENT:

All hydrography on this survey was done by the Ship PIONEER. ✓

All soundings were obtained with the MEC-2 fathometer No. 115.

D. TIDE AND CURRENT STATIONS:

Tide reducers were obtained from the tide gage at Gertrude Cove, Kiska Island. No time or range corrections were applied. ✓

A tidal note is included with this report.

No current stations were occupied.

MEMORANDUM TO SEATTLE PROCESSING OFFICE LISTING OFFICE WORK
ON SURVEY H-7652 (FI-20148)

Office work done by personnel of Ship PIONEER:

1. Fathograms scanned and verified.
2. Tidal Reducers entered and checked.
3. Velocity Corrections entered and checked.
4. Initial Corrections entered and checked.
5. Phase Corrections entered and checked.
6. Shoran Corrections entered and Checked.
7. Shoran Distances corrected and checked.
8. Hydrographic Title Sheet (Form 537), partially complete.
9. Descriptive Report.
10. Following data submitted to accompany final Descriptive Report:
 - a. Index of Sheet.
 - b. List of Instructions.
 - c. Tide Note.
 - d. List of Stations.
 - e. Abstract of Velocity Corrections.
 - f. Abstract of Fathometer Initial and Phase Corrections. } *filed with H-7645*
 - g. Abstract of Shoran Zero Settings.
 - h. Abstract of Statistics.
 - i. Approval Sheet by Chief of Party.

Office work to be done by Processing Office:

1. Reduction and checking of soundings in Sounding Records.
2. Construction and inking of smooth sheet projection, the plotting and inking of control stations, and the drawing of Shoran Distance Circles.
3. Plotting the positions.
4. Penciling the soundings.
5. Drawing the depth curves in pencil.
6. Completion of Title Sheet (Form 537).
7. Additions to Descriptive Report (if required).

F. CONTROL STATIONS:

Only three stations were used to control this survey. All were Shoran Stations, they were located by triangulation, and are on the N.A. 1927 Datum. (Stations listed on pg. 4a)

Distance circles from TAR were drawn on the ^{boat} sheet, but were not used because TAR was not in operation at the time. (not shown on smooth sheet)

H. SOUNDINGS:

Soundings were obtained with the MMC-2 fathometer No. 115. Difficulty was experienced in obtaining soundings over the steep slopes of the Aleutian Deep. It was necessary to stop the ship and even then the returns were very faint. Some noise interference was caused by an air compressor in the engine room. This took some time to discover, but when the compressor was shut down the interference stopped. The graph recorded few of the soundings over the slopes and audible soundings had to be used.

Where possible, soundings were verified from the graph. Fathometer and Velocity Corrections were applied. No Draft or Settlement Corrections were applied.

I. CONTROL OF HYDROGRAPHY:

All hydrography on this survey was controlled by Shoran. Exceptional shoran distances were obtained on this survey which gave excellent control of the loop across the Aleutian Deep.

J. ADEQUACY OF SURVEY:

This survey is considered to be complete and adequate for the area covered.

K. CROSS LINES:

Cross lines consist of approximately 11% of the total lines run. Crossings are satisfactory.

L. COMPARISON WITH PRIOR SURVEYS:

There are no prior surveys of this area. (Review, par. 5.)

M. COMPARISON WITH CHARTS:

Chart No. 8864 (March 1948, 4th. Edition):

In general, this survey does not agree well with Chart No. 8864. Differences are from a few fathoms to over 500 fathoms. The control of hydrography for this survey is far superior to prior control, and it is suggested that this survey supersede the charted depths within the area covered by this sheet.

APPROVAL SHEET TO ACCOMPANY

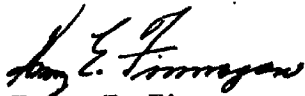
SURVEY H-7652

(Field No. PI-20148)

The field work on this survey was closely supervised and the boat sheet was examined while the work was in progress.

The records have been inspected and approved. The smooth sheet has been plotted by the Seattle Processing Office.

The survey is considered complete and adequate.


Henry E. Finnegan
CDR., USC&GS
Comdg. Ship PIONEER

21 October 1949

✓

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PG. - 4a.

LIST OF STATIONS H - 7652 -

<u>Name used in</u> <u>Hydro - Survey</u>	<u>Origin of</u> <u>Station</u>
LITTLE	Little - 1904
SPRING	Spring - 1948
VEGA	Tri. Sta. Sus. - 1945
all shore stations	

M. COMPARISON WITH CHARTS (Cont'd):

Chart No. 9102 (March 1944, 10th. Edition):

There are few comparative soundings between this survey and Chart No. 9102 (other than those falling on Chart No. 8864). The charted soundings are from 300 to 400 fathoms too deep. Since this survey is well-controlled by Shoran, it is suggested that it supersede the charted depths within the area covered by this sheet.

N. DANGERS AND SHOALS:

There are no dangers within the limits of this survey.

• (1917 corrected)

A sounding of 1935 fathoms (uncorrected) was obtained in Lat. $49^{\circ} 59.8'$ N. and Long. $177^{\circ} - 42.5'$ E. A line was run on each side of this sounding at two to three mile spacing and least depths of 1860 (1886 corrected) fathoms (uncorrected) were obtained in Lat. $49^{\circ} - 58.5'$ and Long. $177^{\circ} 42.5'$ E. Further development was not deemed advisable because it was considered more important to complete the loop across the trench while the exceptional Shoran returns were coming in.

Attention is called to the seamount on the north side of the Aleutian Deep, in Lat. $50^{\circ} - 45.8'$ N. and Long. $177^{\circ} - 34.0'$ E., with least depth of 2580 fathoms (uncorrected). Slopes are steep to the north and south, particularly to the south where the depth drops 600 fathoms in a distance of one mile. (2652 corrected)

U. VELOCITY CORRECTIONS:

Abstracts of Velocity Corrections are included with this report. For determination of this data, see the special report "REPORT ON FATHOMETER AND VELOCITY CORRECTIONS, Ship PIONEER, 1948."

filed with
H-7645

V. SHORAN CORRECTIONS:

An abstract of Shoran Zero Settings is included with this report. For determination of these values, see the special report "REPORT ON DETERMINATION OF SHORAN ZERO SETTINGS for 1948 Records".

W. MISCELLANEOUS:

The following data are included with this report:

1. Title Sheet.
2. Index of Sheets.
3. List of Instructions.
4. Tide Note.
5. List of Stations.
6. Velocity Corrections.
7. Fathometer Corrections.
8. Shoran Zero Settings.
9. Abstract of Statistics.

X. REMARKS:

The boat sheet was returned to the field in 1949 in case an opportunity arose to run another loop across the Aleutian Deep. This would save the work necessary to construct another sheet. However, time did not permit accomplishing additional work in 1949, and since other shoran stations will be necessary when adjacent work is resumed, it has been decided to consider this sheet complete.

This work was done in 1948 at the request of the Commanding Officer of the EXPLORER who planned to do the work on Sheet EX-10148. However, this sheet did not extend far enough to the southward, and ^{H-7645 (1948)} ~~another~~ ^{the present} sheet was prepared by the personnel of the PIONEER and given the field number PI-20148.

Z. APPLICABLE DATA:

The following special reports are pertinent to this survey:

1. REPORT ON FATHOMETER AND VELOCITY CORRECTIONS, Ship PIONEER, 1948. Forwarded to the Seattle Processing Office 16 March 1948.
2. REPORT ON DETERMINATION OF SHORAN ZERO SETTINGS for 1948 Records, Forwarded to the Seattle Processing Office 16 March 1948.

Filed with H-7645

Submitted by:

Ernest B. Lewey
Ernest B. Lewey
LCDR., USC&GS
Ship PIONEER

Approved and Forwarded:

Henry E. Finnegan
Henry E. Finnegan
CDR., USC&GS
Comdg. Ship PIONEER

H 7652 (1948)
Pi 20148

South of Kiska and Rat Islands.

Processing Office Notes.

Smooth sheet.

The projection is hand made on K & E paper N 124 H. The distance circles were controlled by computed points. As this is an offshore sheet no shoreline is required. Island names have been placed on the sheet to make the locality recognizable.

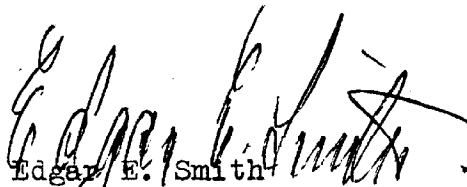
Crossing 74A with 69B. $\phi 50^{\circ}45.5'$ $\lambda 177^{\circ}11.0'$

The crossing is 40 fathoms shoal at 74 A day. It is noted that corrections of 20 to 40 fathoms were made at this part of the "A" line on rescanning. If the original entries which were from red light readings were accepted the crossing would be very good.

B day sags in this area were not plotted.

No trace on fathogram for this part of B day

Other subjects have been covered by the report prepared by the field party.


Edgar E. Smith
Capt. Engr.
Seattle Processing Office

10/26/49

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TIDE NOTE

Project CS - 218

Ship PIONEER

Field Season of 1948

The tide gage at Gertrude Cove, Kiska Island, Aleutian Islands, Alaska, Latitude $51^{\circ}56.2'$ North and Longitude $177^{\circ}27.5'$ East was used for the reduction of all soundings.

A height of 4.4 feet on the tide staff corresponds to mean lower low water (The Director's letter, 36-tmo, dated 31 August 1948 to the Commanding Officer, Ship EXPLORER). No corrections for differences in time or height were applied to the observed tides.

Hourly heights were obtained from the Ship EXPLORER, except for the following periods: August 25-31 and September 24-27, which were obtained from the Washington Office.

H 7652
Pi 20148

South of Kiska and Rat Islands.

Geographic names penciled on
the smooth sheet.

Kiska Island

Little Kiska Island

Rat Island

Little Sitkin Island

Amchitka Island

Pacific Ocean

Aleutian Trench

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STATISTICS FOR HYDROGRAPHIC SURVEY H - 7652 (1948)

Ship PIONEER Project CS - 218

<u>Day</u>	<u>Vol. No.</u>	<u>Date</u>	<u>No. Positions</u>	<u>No. St. Mi.</u>
A	1	12 July	148	260.6
B	1	13 July	123	255.3

271

SHEET TOTALS: No. of Positions 271
Statue Miles..... 515.9
Square Statue Miles..... 6030.0

GEOGRAPHIC NAMES

Survey No. H-7652

Name on Survey										
	On Chart No.	On previous survey No.	On U. S. Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List		
	A	B	C	D	E	F	G	H	K	
<u>Alaska</u>				(top title)						1
<u>Aleutian Islands</u>				"	"					2
<u>Rat Islands</u>				"	"					3
										4
<u>Pacific Ocean</u>										5
<u>Kiska Island</u>									US6B	6
<u>Little Kiska Island</u>									"	7
<u>Little Sitkin Island</u>									"	8
<u>Rat Island</u>									"	9
<u>Amchitka Island</u>									"	10
<u>Aleutian Trench</u>										11
										12
										13
										14
										15
										16
<u>Gertrude Cove</u>										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Names underlined in red
are approved. 11-25-49
L. Heck

(location of tide gage)

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7652

FIELD NO. PI-20148

Alaska-Aleutian Islands, Rat Islands, South of Kiska and
Rat Islands

Surveyed in July 1948

Scale 1:200,000

Project No. CS-218

Soundings:

Control:

NMC-2 Fathometer

Shoran

Chief of Party - H. E. Finnegan

Surveyed by - G. R. Fish, E. B. Lewey, C. A. George and
C. J. Beyma

Protracted by - J. I. Best

Soundings plotted by - J. I. Best

Verified and inked by - R. K. DeLawder

Reviewed by - T. A. Dinsmore, 30 June 1950

Inspected by - R. H. Carstens

1. Shoreline and Control

No shoreline is shown on this offshore survey.

The origin of the control stations is given in the
Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in adequate agreement.

3. Submarine Relief and Depth Curves

The survey includes sounding lines over a portion of the
southern slope of the Aleutian Ridge south of Kiska Is-
land and two lines of soundings which cross the Aleutian
Trench. Several prominent submarine features are ap-
parent on the southern slope of the Ridge, the most un-
usual of which is the small seamount which rises about
600 fms. from adjacent depths immediately north of the
Trench in lat. 50° 46' N., long. 177° 34' E.

The usual depth curves are adequately delineated for this offshore area.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7611 (1948) on the north and H-7627 (1947) on the northwest. There are no other adjoining surveys.

5. Comparison with Prior Surveys

H-6901 (1935) 1:60,000 (U. S. Navy)

Only that part of the sounding line on the present survey which extends north of lat. $51^{\circ} 30'$, falls within the area of this prior survey. Minor differences between the prior and present depths are attributed to the dead reckoning control of the prior survey and the steep slope. It is apparent that a slight shift in position of the prior sounding lines would effect agreement between the prior and present depths.

The present survey is adequate to supersede the prior survey within the common area.

6. Comparison with Chart 8864 (Latest print date 3/8/48)
Chart 9102 (Latest print date 3/8/48)

A. Hydrography

Hydrography charted north of lat. $51^{\circ} 30'$, originates with the prior survey which needs no further consideration.

Hydrography charted south of the above latitude originates with trackline surveys by this Bureau, the U. S. Navy and Coast Guard. Differences of as much as 1000-fms. are noted between charted and present depths. The charted hydrography is superseded within the common area by the well-controlled and more reliable hydrography on the present survey.

B. Aids to Navigation

No navigational buoys are stationed in the area of the present survey. No dangers to navigation are revealed by the survey.

7. Condition of Survey

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

b. The smooth plotting was satisfactory except that about 150 soundings were revised in position during verification because of erroneous spacing.

c. No bottom characteristics were obtained.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

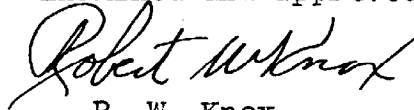
9. Additional Field Work

The survey is adequate for the purpose intended and no additional field work is recommended. As a matter of record, mention is made of the absence of bottom characteristics in this area.

Examined and approved:



H. R. Edmonston
Chief, Nautical Chart Branch



R. W. Knox
Chief, Division of Charts



L. S. Hubbard
Chief, Section of Hydrography



W. M. Scaife
Chief, Division of Coastal Surveys

RHC

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 7652

Locality Rat Islands, Aleutian Islands

Chief of Party: H. E. Finnegan in 1948
Plane of reference is mean lower low water, reading
4.4 ft. on tide staff at Gertrude Cove
7.3 ft. below B. M. 2 (1947)

Height of mean high water above plane of reference is 3.2 feet.

Condition of records satisfactory except as noted below:

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

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7652.

Records accompanying survey:

Boat sheets $\frac{1}{1}$...; sounding vols. $\frac{1}{1}$...; wire drag vols.;
bomb vols.; graphic recorder rolls $\frac{1}{1}$ envel.;
special reports, etc.
.....

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

Number of positions on sheet	.....	271
Number of positions checked	.....	17
Number of positions revised	.....	1
Number of soundings revised (refers to depth only)	.....	4
Number of soundings erroneously spaced	.....	147
Number of signals erroneously plotted or transferred	.....	0
Topographic details	Time	..... 0
Junctions	Time	..... 30 min.
Verification of soundings from graphic record	Time	..... 1 hr.

Verification by *ROBERT K. DE LAUDER* Total time *24 hrs.* Date *2-23-50.*

Reviewed by *J.A. Dismore* Time *16 hrs.* Date *6/30/50.*

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7652

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
9-18-'50	8864	<i>W. J. Andrews</i>	Before After Verification and Review <i>Partially applied.</i>
10/24/50	9102	<i>W. J. Andrews</i>	Before After Verification and Review
12/6/61	8864	<i>W. J. Andrews</i>	Before After Verification and Review <i>Extensive (add'l) partial appl'n - to be considered final until reconstr.</i>
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			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.