

8124

Diag. Cht. No. 9302

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PF-4254 Office No. H-8124

LOCALITY

State Alaska

General locality Bering Sea

Locality St. Lawrence Island

194/54

CHIEF OF PARTY

K. G. Crosby

LIBRARY & ARCHIVES

DATE December 20, 1954

8124

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-8124

Field No. PF-4254

State ALASKA

General locality BERING SEA

Locality ST. LAWRENCE ISLAND

Scale 1:40,000 Date of survey July & August 1954

Instructions dated 6 March 1951 and 14 December 1953

Vessel USC&GSS PATHFINDER

Chief of party K. G. CROSBY

Surveyed by J. P. Lushene; F. A. Riddell; W. F. Deane; P. A. Weber

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

Fathograms scaled by Fathometer readers

Fathograms checked by Ship's Officers

Protracted by J. P. Lushene; F. A. Riddell; W. F. Deane; P. A. Weber

Soundings penciled by P. A. Weber

Soundings in fathoms and tenths feet at MLW MLLW and are based on a velocity of sound of 800 fms/sec

REMARKS: This sheet was experimental smooth sheet - boat sheet as per
Director's letter 22/MEK, S-2-PF, 19 April 1954.

7162

DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SURVEY H-8124 (Field No. PF-4254)

ST. LAWRENCE ISLAND

A L A S K A

SCALE 1:40,000

1 9 5 4

USC&GSS PATHFINDER

Capt. K. G. Crosby, Comdg.

Hydrographers: Comdr. J. P. Lushene
Comdr. F. A. Riddell
Comdr. W. F. Deane
Comdr. P. A. Weber

A. PROJECT

1. Project CS-343, Bering Sea, Alaska
2. Original Instructions dated 6 March 1951 with latest Supplemental Instructions, superseding all others, dated 14 December 1953.

B. SURVEY LIMITS AND DATES

1. This sheet covers the area lying between Latitude $63^{\circ} 03.0'$ N. and Latitude $62^{\circ} 53.5'$ N. and Longitude $168^{\circ} 50.0'$ W. and Longitude $169^{\circ} 30.0'$ W. The step effect on south and east sides is due to limiting coverage of shore stations.

2. All field work was done in July and August 1954.

3. This sheet is crossed by a wedge of sounding lines from 1951 EPI sheet H-7950.

4. The north limit of this sheet joins 1954 survey H-8122 to Longitude $169^{\circ} 22.0'$ W. (1954)

5. From Longitude $169^{\circ} 22.0'$ W. westward to Longitude $169^{\circ} 29.0'$ W. and south to Latitude $62^{\circ} 59.0'$ N. this sheet joins 1954 survey H-8123. (1954)

C. VESSELS AND EQUIPMENT

1. The survey was done entirely by the Ship PATHFINDER.

2. Turning radii for the ship at 130 R.P.M. (the only data available) are as follows:

	<u>Radius (meters)</u>	<u>Rudder Indicator</u>
Port turn	167	32°
Starboard turn	153	36°

3. Soundings were taken with an 808 type graphic recording fathometer No. 130S.

4. The shoran stations used for control were as follows: SHO-PUN located on higher of two peaks on Punuk Islands and SHO-CYN located on St. Lawrence Island about 1-1/2 miles southwest of entrance to Lake Cynthia.

D. TIDE AND CURRENT STATIONS

1. A portable automatic tide gage established near SHO-CYN was used throughout the survey with no time or range corrections applied.

2. Four current stations fall in the area covered by this sheet. Their locations are as follows:

- a. Station No. 1, Lat. 63° 02.8' N., Long. 168° 44.7' W. - radio current meter used. ✓
- b. Station No. 2, Lat. 62° 58.4' N., Long. 169° 08.0' W. - radio current meter used. ✓
- c. Station No. 3, Lat. 62° 53.0' N., Long. 169° 32.3' W. - radio current meter used. ✓
- d. Station No. 5, Lat. 63° 03.3' N., Long. 169° 07.4' W. - current pole used. ✓

E. SMOOTH SHEET

1. The projection for this sheet was made by hand and verified by Ship's Officers.

2. There is no shoreline within the area of this sheet. ✓
H.W.L. added from T-9617, T-9619, T-9620 - see sketch p. 1

3. Soundings were penciled in fathoms and tenths from 0 to 11 fathoms and in integral fathoms over 11 fathoms. ✓

1951 B.G.N. decision is Maknik lagoon (not L. Cynthia). L.H.

F. CONTROL STATIONS

1. Shoran station SHO-PUN was located by triangulation. ✓
2. Shoran station SHO-CYN was located by photogrammetric methods. ✓

G. SHORELINE AND TOPOGRAPHY

1. No topographic detail or shoreline falls in the area of this survey. *see review P1*

H. SOUNDINGS

1. Soundings were measured in fathoms with an 808 type graphic recording fathometer calibrated for a velocity of 800 fms/sec. ✓
2. The corrections for initial were obtained by inspection of the fathograms. See Fathometer Corrections Descriptive Report, 1954 for echo corrections. ✓

I. CONTROL

1. Hydrography was controlled entirely by shoran fixes. ✓
2. The shoran distances were corrected for calibration zero set only. For a complete detailed explanation of the procedure used to obtain the corrections see Shoran Corrections Descriptive Report, 1954. *In Library* ✓

J. ADEQUACY OF SURVEY

1. This survey is considered complete and should supersede prior surveys for charting. ✓
2. At this time surveys H-8122 and H-8123 have not been completed. Comparisons with junctions will be made in the descriptive reports for the respective sheets. *Compare during verification - see review P 7c* ✓

K. CROSSLINES

1. Approximately 17% crosslines were run. ✓
2. The crossings agree very well; the only discrepancies being that caused by the break point for plotting soundings. ✓

L. COMPARISON WITH PRIOR SURVEYS

1. This survey was compared with prior survey H-7950, scale 1:500,000, an EPI survey made in 1951. The few soundings which fall in the area of the present survey agree very well. No discrepancies were noted. ✓

M. COMPARISON WITH CHART

1. Coast and Geodetic Survey Chart No. 9302 (Print date 8 December 1952) is the largest scale chart covering this area. Charted soundings were evidently taken from H-7950, therefore comments under "L" above apply here. ✓

N. DANGERS AND SHOALS

1. There are no dangers or shoals in the area of this survey. ✓

O. COAST PILOT INFORMATION

1. See Coast Pilot Report. ✓

P. AIDS TO NAVIGATION

1. There are no fixed or floating aids to navigation within the limits of this survey. ✓

Q. LANDMARKS FOR CHARTS

1. No landmarks for charting are within the limits of this survey. ✓

R. GEOGRAPHIC NAMES

1. BERING SEA is the only geographic name charted in the area of this survey. ✓

S-X - Not applicable.

Y. COMMENTS

This sheet was experimental combination boat sheet - smooth sheet as per Director's letter 22/MEK, S-2-PF, dated 19 April 1954.

A tracing cloth cover was placed over the sheet to keep it ✓

clean during plotting. Since data was not available for final reduction of soundings, field values of soundings were plotted on the overlay to determine if development was necessary.

Corrections were applied to shoran readings before plotting. The following is a list showing final correction and the correction used for plotting. Except on "K" day the differences between final and field corrections are not plottable. On "K" day the discrepancy amounts to .020 mile and throws an error in position between field and final values; for instance on position "1-K" the displacement in position is about 40 meters which is about the maximum for "K" day. Because of the regularity of the bottom this error does not materially affect the final results. *Positions on K day revised to reconcile jet with H-8122*

DAY	SHO-CYN		SHO-PUN	
	Correction Final	Field	Correction Final	Field
A to position 115	-.004	-.007	-.004	-.006
A 116 to end	-.012	-.007	+.001	-.006
B	-.010	.000	+.001	-.010
C	-.013	-.010	-.003	.000
D	-.016	-.016	-.001	.000
E	-.015	-.010	+.001	.000
F	-.017	-.010	.000	.000
G	-.016	-.016	-.001	.000
H	-.017	-.016	-.001	.000
J	-.013	-.020	-.005	.000
K	-.004	+.016	-.001	.000

2. Advantages

- Reduction of processing time.
- Hydrographer does the plotting thus obviating conjectures and possible confusion in later processing by a different person.

3. Disadvantages

- Zero set corrections for shoran distances not timely and could interpose a noticeable plotting error.
- Combination sheet with overlay more difficult to plot because of efforts to keep sheet clean, free from wrinkling, and keeping overlay in place.
- Lettering of positions often has to be altered because of subsequent survey lines.

4. Opinion of Hydrographers

a. With a more fixed zero-set correction which can be obtained by checking for several days prior to hydrography the plotting of the sheet in the field is recommended if confined only to off-shore ship shoran sheets of scale not larger than 1:40,000.


b. Certain mechanical disadvantages noted in paragraph (a) of Disadvantages can be minimized in various ways after some experience.

Z. TABULATION OF APPLICABLE DATA


<u>NAME</u>	<u>DATE FORWARDED</u>
1. Fathometer Correction Descriptive Report	19 Oct. 1954
2. Shoran Correction Descriptive Report	13 Oct. 1954
3. Coast Pilot Notes	23 Nov. 1954
4. Triangulation records	12 Oct. 1954
5. Current Observation Records - St. Lawrence Island	5 Oct. 1954
6. Tide Observation Records - St. Lawrence Island	4 Oct. 1954

In Library

Respectfully submitted,


Philip A. Weber,
Cdr., USC&GS

APPROVED AND FORWARDED:


K. G. CROSBY
CAPTAIN, USC&GS
COMDG. SHIP PATHFINDER

STATISTICS FOR HYDROGRAPHIC SURVEY H-8124

<u>VOL.</u> <u>NO.</u>	<u>DAY</u> <u>LETTER</u>	<u>DATE</u>	<u>POSITIONS</u>	<u>STATUTE MILES</u> <u>OF SOUNDING</u>
1	A	7/16/54	166	114.3
1-2	B	7/17/54	90	63.7
2	C	7/20/54	143	105.6
2-3	D	7/21/54	111	65.5
3-4	E	7/22/54	216	148.5
4-5	F	7/23/54	185	126.3
5-6	G	7/24/54	206	145.4
6	H	7/26/54	119	75.4
6	J	8/ 5/54	26	- -
6-7	K	8/27/54	<u>157</u>	<u>92.7</u>
TOTALS FOR SHIP			1419	937.4

SHORAN CORRECTIONS

FOR

ZERO SET

HYDROGRAPHIC SURVEY H-8124

<u>DAY</u>	<u>CORRECTION</u>		<u>REMARKS</u>
	<u>CYN</u>	<u>PUN</u>	
A	-.004	-.004	Pos. 1 to Pos. 115
	-.012	+.001	Pos. 116 to end
B	-.010	+.001	
C	-.013	-.003	
D	-.016	-.001	
E	-.015	+.001	
F	-.017	.000	
G	-.016	-.001	
H	-.017	-.001	
J	-.013	-.005	
K	-.004	-.001	

TIDE NOTE

HYDROGRAPHIC SURVEY H-8124

Records from the portable automatic tide gage installed at SHO-CYN, St. Lawrence Island in latitude $63^{\circ} 08' N.$, longitude $169^{\circ} 24' W.$, were used for the reduction of soundings.

The reading on the staff corresponding to MLIW was 2.6 feet.

No corrections for time or range were applied.

APPROVAL SHEET

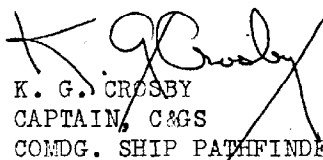
HYDROGRAPHIC SURVEY H-8124 (PF-4254)

ST. LAWRENCE ISLAND

A L A S K A

This survey was inspected daily while hydrography was in progress. The smooth sheet was inspected at frequent intervals during the time it was being protracted and while the soundings were being penciled.

I consider this survey to be complete and adequate. No additional work is required or recommended within the area of the present hydrography.


K. G. CROSBY
CAPTAIN, C&GS
COMDG. SHIP PATHFINDER

GEOGRAPHIC NAMES

Survey No. H-8124

GEOGRAPHIC NAMES		Survey No. H-8124									
Name on Survey	<div>On Chart No. On previous survey No. On U. S. quadrangle Maps From local information On local Maps P. O. Guide or Map Rand McNally Atlas U. S. Light List</div>										
	A	B	C	D	E	F	G	H	K		
Alaska											1
Bering Sea									B.F.N.		2
St. Lawrence Island									"		3
Southeast Cape									"		4
											5
											6
											7
											8
											9
Note name correction											10
on page 2.											11
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											27

M 234

Names approved

12-17-54 L. Heck

Note name correction
on page 2.

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8124.....

Records accompanying survey:

Boat sheets ~~none~~; sounding vols. 7.....; wire drag vols. ~~none~~...;
bomb vols. ~~none~~; graphic recorder rolls ~~none~~...;
special reports, etc. 60 Abstracts of Shore Positions, 9 Fathograms, 1...
smooth sheet, 1. Vellum overlay for smooth sheet.....

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

	Totals	Prel. Verif.	Final Verif.
Number of positions on sheet	1419		1419
Number of positions checked	.....	11	203
Number of positions revised	.....	5	(see 0101445)
Number of soundings revised (refers to depth only)	.....	658*	0
Number of soundings erroneously spaced	.....	-	0
Number of signals erroneously plotted or transferred	.....	-	✓
Topographic details	Time	-	✓
Junctions	Time	4 hrs	✓
Verification of soundings from graphic record	Time	2 hrs	16 hr
Prel. Ver. Ernest Thomas	25 hrs	9/21/55	
Verification by <i>J. L. Chambers</i>	Total time 8.6...	Date 3-9-56	
Reviewed by <i>A. R. STIRNI</i>	Time 28 hrs	Date 10/14/55	

* depths thru 8-11 fms corrected for instrumental Corr. error.

Addendum - A. R. STIRNI

16 hrs

4/9/56

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~DIVISION OF COASTAL SURVEYS~~

19 January 1955

Division of Charts: R. H. Carstens

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET

8124

Locality St. Lawrence Island, Bering Sea

Chief of Party: K. C. Crosby in 1954

Plane of reference is mean lower low water, reading

2.6 ft. on tide staff at Lake Cynthia Entrance ($1\frac{1}{2}$ miles S.W. of)

4.6 ft. below B. M. 1 (1954)

Height of mean high water above plane of reference is 1.7 feet.

Condition of records satisfactory except as noted below:

E.C. McKay
Tides Branch

Chief, Division of Tides and Currents.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8124

FIELD NO. PF-4254

Alaska, Bering Sea, St. Lawrence Island

Project No. CS-343

Surveyed - July, August, 1954

Scale 1:40,000

Soundings:

Control:

808 Fathometer

Shoran

Chief of Party - K. G. Crosby

Surveyed by - J. P. Lushene, F. A. Riddell, W. F. Deane, P. A. Weber

Protracted by - J. P. Lushene, F. A. Riddell, W. F. Deane, P. A. Weber

Soundings plotted by - P. A. Weber

Preliminary Verification by - E. E. Thomas

Verified and inked by - J. C. Chambers

Reviewed by - A. R. Stirni 10/14/55

Inspected by - R. H. Carstens

1. Shoreline and Control

The high-water line was applied from the reviewed manuscripts of air-photographic surveys T-9617 (1948-51-55), T-9619 ← 9618 (1948-51-55), and T-9620 (1948-51-55).

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

2. Sounding Line Crossings

The sounding line crossings are in adequate agreement.

3. Depth Curves and Bottom Configuration

The sand bottom is smooth, moderately flat, and comparatively featureless. There is a gradual slope away from the northwest and northeast limits toward the middle and south. The shoalest depths of 8 to 9 fms. are in the northwest and northeast and the deepest depths of 22 to 24 fms. are in the southwest.

The usual depth curves can be adequately delineated.

4. Junctions with Contemporary Surveys

Depths on the present survey are in harmony with depths on the preliminary verification of survey H-8122 (1954) on the northeast and with unverified survey H-8123 (1954) on the north and west (see item 7c). There are no contemporary surveys on the east. The few soundings from unverified offshore survey H-7950 (1951-53), (1:500,000), which fall in the present survey area are in satisfactory agreement with present survey soundings. Further disposition of all junctions is deferred pending completion of the verification and final review of the present survey and the junctional surveys.

5. Comparison with Prior Surveys

H-2620 (Recon.), (1902), 1:40,000

A few soundings from this prior reconnaissance survey fall in the extreme northeast portion of the present survey. The soundings from the prior survey generally differ with the present survey by only 1-fm.

The present survey entirely supersedes this prior survey.

6. Comparison with Chart 9302 (print date 6-15-53)

A. Hydrography

Only nine soundings are charted in the present survey area. Eight soundings originate with the boat sheet of H-7950 (1951-53) before verification and review, and one of 21 fms. at lat. $62^{\circ}56.5'$, long. $169^{\circ}06.0'$ is from an undetermined source prior to 1900. The present survey reveals depths of 16 fms. in the locality of the charted 21-fm sounding. Other differences between charted soundings and the present survey are minor.

The present survey supersedes the charted hydrography.

B. Aids to Navigation

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

7. Condition of Survey

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

(b) The smooth plotting was accurately done.

(c) A correction of -0.3 fm. was applied during verification to 658 soundings on the present survey in order to effect agreement with the junctional surveys H-8122 (1954, and H-8123 (1954) in depths of 8 to 11 fms. The fathometer correction applied by the field party was a combined instrumental correction for draft. However, the method of determining the instrumental correction by a comparison of fathometer depths and leadline depths in effect corrected for draft. The additional correction for draft amounting to about .3 fm. which was applied by the field party was, therefore, in error.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This is a good basic survey and no additional field work is recommended. ✓

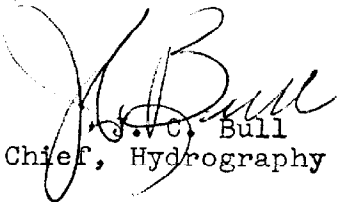
Examined and Approved:



H. R. Edmonston
Chief, Nautical Chart Branch



E. R. McCarthy
Chief, Division of Charts



J. V. C. Bull
Chief, Hydrography Branch



Earl O. Heaton
Chief, Division of Coastal Surveys

Addendum to Review

H-8124 (1954)

Inked by - J. C. Chambers
Review Addendum by - A. R. Stirni 4/9/56
Inspected by - R. H. Carstens

The verification of this survey is now complete.

Junctions with Contemporary Surveys

An adequate junction was completed with reviewed survey H-8123 (1954) on the north and west. The status of the other junctions has not changed since the date (10/14/55) of the review.

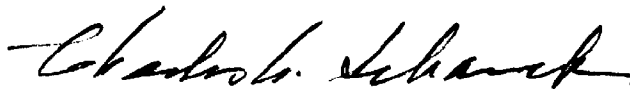
Comparison with Chart 9302 (Drawing 1/11/55)

The only changes in charted information on the drawing are the removal of the 21-fm. sounding at lat. $62^{\circ}56.5'$, long. $169^{\circ}06.0'$, noted in paragraph 6A of the review, and the addition, in the same locality, of a 15 fm. sounding from the boat sheet (Bp. 51900) of the present survey. The 15-fm. sounding is in accord with the present survey after verification.

Condition of Survey

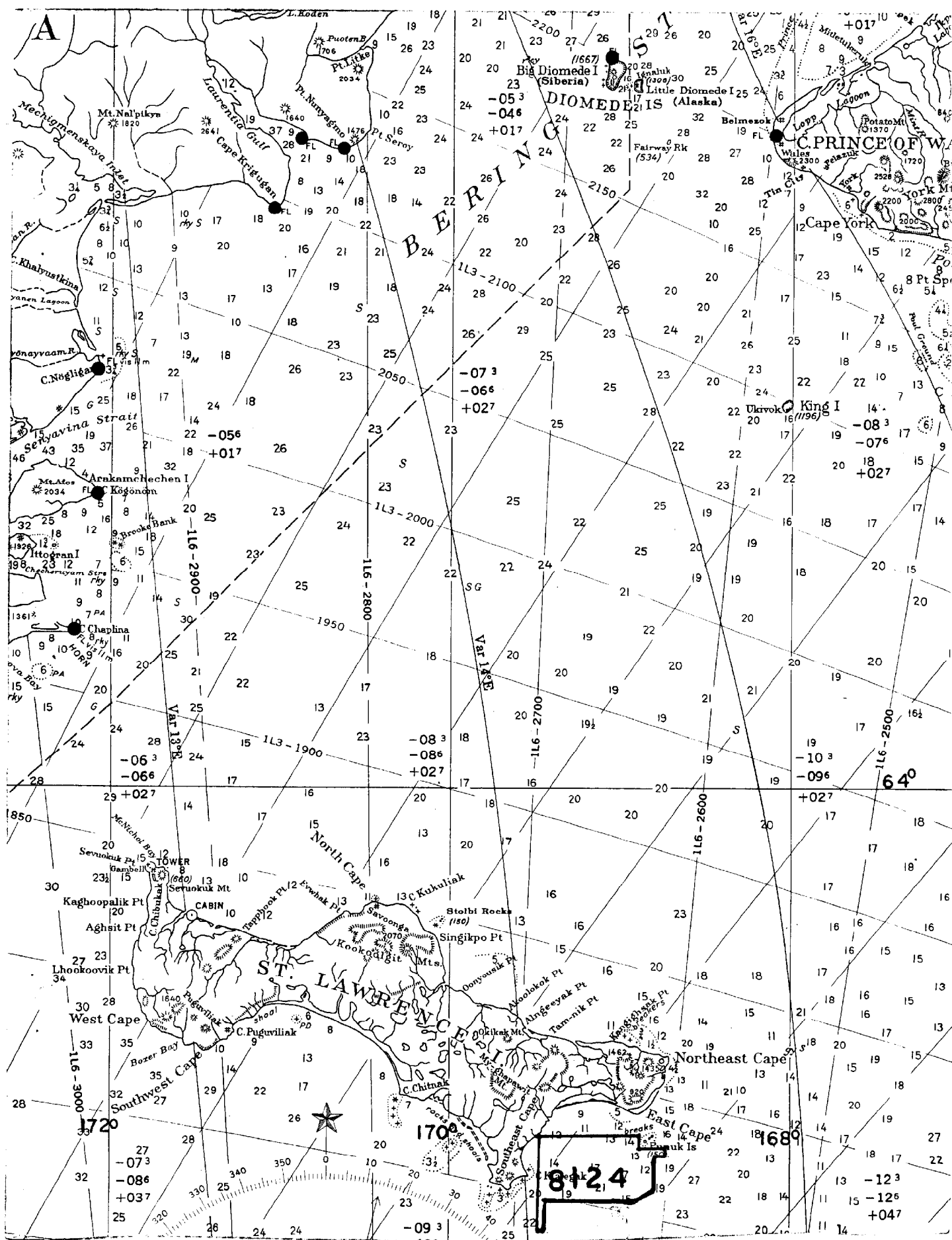
Completion of the verification reveals that the smooth plotting was well done.

Approved:





Chief, Chart Division



NAUTICAL CHARTS BRANCH

SURVEY NO. H-8124

Record of Application to Charts

[illegible]

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.