7041

[redacted]

Diag. Cht. No. 9302

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Reconnaissance Hydrographic

Field No. Pf. 10151 Office No. H 7041

LOCALITY

State Alaska

General locality Bering Sea

Locality St. Matthew Island

194 1951

CHIEF OF PARTY
Charles Pierce
T.B.Reed

LIBRARY & ARCHIVES

DATE JUL 17 1952

B-1870-1 (1)

7041

[redacted]

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 7041

Field No. Pf 10151

State Alaska

General locality Bering Sea

Locality St. Matthew Island

Scale 1/100 000 & 1/25 000 Date of survey 6/11 to 9/13--1951

Instructions dated

Vessel PATHFINDER & Launches PIONEER

Chief of party Chas. Pierce T.B.Reed

Surveyed by K.S.Ulm, Fair Bryant, P.A.Weber. Chas. Pierce, Wm. Russell, J.C.Tribble,

Soundings taken by [illegible] graphic recorder, [illegible]

Fathograms scaled by EB CPB Walz MAJ Burbeck Lawton, Johnson Savage

Fathograms checked by JBW EEE JDH POR GWG

Protracted by REW EEE CNH

Soundings penciled by CNH

Soundings in fathoms [illegible] MLLW and are based on a velocity of sound of 800 fm./sec.

REMARKS: Reconnaissance Survey

U. S. GOVERNMENT PRINTING OFFICE 693019

Processing Office Report
H 7041 Pf 10151
Project CS-343
St. Matthews Island

Bering Sea.

No report was received with this sheet. The following remarks were prepared in the Seattle Processing Office.

The plotting of the sheet was started by the field party. They plotted about half the positions. On sailing to Alaska this Spring the sheet was given to the Seattle Processing Office to finish. In lieu of a boat sheet we received a film positive copy which shows additional lines northeast and northwest of St. Matthew I. but omits a good deal of work on the southwest side which has been plotted on the smooth sheet. This omitted work appears on a linen tracing which seems to have served as a boat sheet for part of the work, with additional sounding lines transferred from the other boatsheet.

Volumes 1 to 6 are by party of the PATHFINDER; Volume 7 by the PIONEER. On the front of Vol. 4 this note appears: "Reconnaissance Hydrography. Control-recognizable features on 1/100 000 scale boatsheet, compiled from uncontrolled photo plot-Navy single lens photos 1/20 000." So it appears that the control to northwestward and to the eastward of the intensively sounded area have the uncertainties of the uninspected photo plot. It seems to me that the closely developed work is of standard grade, or something hardly distinguishable from it. On looking thru the sounding records it is noted that the following triangulation points were recognized and used:-

see Review Par 1 & 7c

		Gull	
Pin	Astro	Narol	Rock A
Pinnacle Island	Sugar Loaf Mt.	Hill A.	Rock B

see Review Par 7c

The recognition and use of these signals should make the closely sounded area inside of Pinnacle Island very good. The blue hydrographic signals plotted by the field party and checked show good intersections, and this implies that the signals on which the cuts depend are satisfactory. The regularity of the western lines induces confidence in them. If the westward photo signals should be changed on inspection and replot the shifting of the dependent soundings would cause no practical change in the chart because of the smoothness of the bottom.

see Review Par 9

If an inspected radial plot should give substantially different positions for the control points it is recommended that the work be replotted- not resurveyed. The location of the point Block and reliable determinations of ⊙ UP and ☉ Dol would make additional lines* plottable which have been omitted for lack of suitable control. A good delineation of the prominent capes is desirable also as tangents were used in fixes.

* *Signals were identified approximately and the additional line were plotted in the Washington office.*

* Signals were spotted, approximately and the sounding lines plotted in the Washington office.

In Volume 4 positions 27 to 129* G day and 34 to 66* H day were not plotted because the signals were not located. The signals were not described and their nature can be guessed only. After examining boatsheets and Chart 8851 and making a rough plot of positions and cuts the following list is offered to help locate these signals if it is desired to plot these lines.

Not shown on smooth sheet Positions and identification too questionable

Blok	Hill near shore south of ⊙ Don.
Rock	Close to and west of ⊙ Don. ?
Not	Probably hill top close to shore.
Joe	Probably Bull Seal Point , or rock on the point. ?
Ada	Could be rock ~~on~~ off point 1.5 Mi. west of ⊙ Don.
Bob	Possibly offlying rock S. side Sarichef Strait.
Off	Probably Arre Rocks SW of Hall I. ?

Corrections were applied to soundings for draft, squat, tide, initial. Velocity corrections were applied to soundings made by the launches. No velocity corrections were applied to soundings made by the ships because the tachometers were calibrated for a sound speed of 800 fathoms per second. see addendum by reviewer

PIONEER	Fathometer	808 J 141 SP	calibration 800 fm./sec
PATHFINDER		808 130 S	820 & 800
Launch No. 1		808A 52 & 74 S	820
Launch No. 4		808 59	820

Smooth sheet.

The main projection , scale 1/ 100 000 was ruled on the machine in Washington. A sub-plan, scale 1/ 25 000, was added in the processing office to show the soundings near shore in the vicinity of ⊙ Dog which are so congested on the smaller scale. Signals and shoreline were added by the field party.

Datum.

The Washington Office determined the following position for EPI--E. NA 1927 GPS-IV p226 & 227 1944 GPS-Alaska p 79

φ 60 21 40.33 or 60 20 + 3105 M. } NA 1927 DATUM chart letter 746(1951) } tick added to smooth sheet
λ 172 42 45.11 172 40 + 2531 M. }

Plotting back from EPI--E we find that this would shift the latitude 0.5 mm. south and the longitude 1.5 mm. west. ~~We presume that~~ the position used is a field determination of the EPI Station. ~~It is assumed that~~ the NA 27 Datum of the sheet depends on that position and is subject to the correction noted above. (EPI "E" on St. Matthew Datum of 1944 on the St. Matthew Datum of 1944

Sub-plan.

The large scale subplan discloses an even, gently sloping bottom free from dangers, apparently offering good anchorage when the weather is suitable half a mile off shore in depths of 7 fathoms.

Dangers.

These and other slightly deeper points are on a ridge extending NNE from Pinnacle Island to the shore. They are not all dangers under ordinary circumstances but they are called to your attention.

5.3 Fms.	Pos. 17-18 a	φ 60	17.85′ λ 172	40.8′
6.4	32-33 a		17.2′	~~42.2~~ 41.3′
4.2	71-72 c		14.7′	43.0′
7.2	~~42-43 d~~ 17-18 d		16.1′	44.3′
See also 8.1	42-43 D		18.35′	45.7′

The latter point is west of the ridge mentioned above.

Pinnacle Island is a continuation of the ridge, which may extend into the unsurveyed area southward of Pinnacle Island.

2.8 fms. 176 a (blue) 60° 19.3′ 172° 37.65′

Edgar E. Smith
Cart. Engr.

Tide corrections.

This office does not have the information for making a proper tide note.

A tide gage was maintained on St. Matthew I. for 4 1/2 days from 13 June to 18 June 1951. It is not known whether the tide reducers for this period were taken from this gage.

A note in a sounding record indicates that Dutch Harbor tides were used without time correction but with a range factor of 0.5 applied. See Vol. 1 Pages 4, 26, 50, 72. It is assumed that this appies to all soundings on the sheet.

EES

see tide note dated, 6 Aug 1952.

Addendum by Reviewer

H-7041 (1951)

SOUNDINGS

The soundings of H-7041 are based on a velocity of sound in sea water of 800 fm. per second in accordance with supplemental Project Instructions; and are corrected for tide, draft, fathometer instrumental error and initial. Settlement and squat correction (+0.1 fm. determined in 1952) are not applied to soundings by the PATHFINDER in 1951.

The launch fathometers were operated at a calibration velocity of 820 fm. per second and are reduced to the actual velocity of sound in sea water for the area (approx. 800 fm. per second) by bar checks and leadline comparisons.

Soundings from ship fathometers operated at a calibration velocity of 820 fm. per second, are reduced to a calibration velocity of 800 fm. per second by percentage corrections.

After 16 July 1951, ship fathometers were operated at a calibration velocity of 800 fm. per second. The mean velocity of sound for the various depths of the project was found to be 801.2 fm. per second for the 1951 season according to Special Report 137, Velocity Corrections from Temperature and Salinity Observations.

Fathometer corrections for ship fathometer are more fully discussed in:

Descriptive Report H-7948 (1951-52).

Descriptive Report H-7949 (1951).

Fathometer Corrections Report, PATHFINDER - 1951 (Special Report 137, filed in library).

SEASONS REPORTS

PATHFINDER - 1951

PIONEER - 1951

EXPLORER - 1951

R. E. Elkins - 5/29/53
Reviewer

H 7041
Pf 10151

Bering Sea
St. Matthew Island

List of geographic names
penciled on smooth sheet.

Bering Sea

St. Matthew Island

Hall Island

Sarichef Strait

Cape Upright

Pinnacle Island

H 7041

Pf 10151

Bering Sea
St. Matthew Island

Tide Note.

A tide gage was maintained on St. Matthew Island from 13 June to 18 June, 1951.

Notes in sounding Vol. 1 on Pages 4, 28, 50 & 70 indicate that Dutch Harbor tides were used, with no time correction but with a range factor of 0.5 applied. It is assumed that all tide corrections were similarly derived.

See tide note dated 6 Aug. 1952.

EES
Seattle Proc. Off.

H 7041
Pf 10151

Statistics.

Vol. No.	Day	Date 1951	Positions	Stat.Mi.	Vessel.	
1	A	June 11	20 ✓	20.1	PATHFINDER	Green
	B	14	85 ✓	86.3	"	
	C	15	96 ✓	94.0	"	
	D	18	87 ✓	86.2	"	
4	E	July 1	33 ✓	42.9	"	
	F	9	27 ✓	24.5	"	
	G	26	~~148~~ 141	140.6	"	
	H	Aug. 11	76 ✓	90.2	"	
5	J	31	20 ✓	21.8	"	
	K	Sept.13	66 ✓	72.0	"	
2	a	June 12	99 ✓	49.5	Launch 1	Red
	b	13	48 ✓	31.4	"	
	c	14	~~89~~ 88	58.0	"	
3	d	18	88 ✓	58.3	"	
7	e	15	~~79~~ 74	21.4	"	
	a	18	216 ✓	33.5	Launch 4	Blue
6	A	Sept.13	115 ✓	104.8	PIONEER	Red
	Totals		~~1392~~ 1379 ✓	1035.5		

Area 270 Squ. Stat. Mi.

GEOGRAPHIC NAMES

Survey No. H-7041

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Alaska										1
Bering Sea				✓					Bldy	2
St. Matthew Island				✓					"	3
Hall Island				✓						4
Sarichef Strait										5
Cape Upright				✓						6
Pinnacle Island				✓						7
Gull Rock				✓						8
Spit Rock				—						9
										10
										11
				Names underlined in red are approved. 7-24-52 L. Heck						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. .....

Records accompanying survey:

Boat sheets ..2...; sounding vols. ..7...; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 4 Env.;

special reports, etc. ..1 Smooth Sheet, 1 Descriptive Report.....

.....

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

Number of positions on sheet		1379
Number of positions checked		264
Number of positions revised		150 (added)
Number of soundings revised (refers to depth only)		4
Number of soundings erroneously spaced		34
Number of signals erroneously plotted or transferred		—
Topographic details	Time	7 hr.
Junctions	Time	2 hr.
Verification of soundings from graphic record	Time	10 hr.

Verification by A.J. Hoffman 90 hrs. / G.J. Thompson 67 hrs. Total time 157 hrs. Date 11-14-52 / 3-23-53

Reviewed by R.E. Elkins Time 52 hrs Date 6-3-53

M-2232-1

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF RECONNAISSANCE HYDROGRAPHIC SURVEY REGISTRY NO. H-7041

FIELD NO. PF-10151

Alaska, Bering Sea, St. Matthew Island

Surveyed in June to September 1951 Scale 1:100,000; 1:25,000

Project No. CS-343

Soundings:	Control:
808 Fathometer	Sextant fixes on shore signals

Chief of Party - Charles Pierce, T. B. Reed
Surveyed by - Charles Pierce, J. C. Tribble, K. S. Ulm, W. C. Russell, P. A. Weber, F. J. Bryant
Protracted by - E. E. Ellis, C. N. Hillman
Soundings plotted by - C. N. Hillman
Verified and inked by - A. J. Hoffman and G. J. Thompson
Reviewed by - R. E. Elkins, 3 June 1953
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline originates with provisional topographic surveys, T-8629, T-8630, T-8631, compiled from single lens photographs of 1948 without field inspection and controlled by triangulation covering only a portion of St. Matthew Island.

The signals for the present survey consist of triangulation stations of 1944, hydrographic stations located by the hydrographic party and identifiable objects on the air-photographic surveys.

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves on this reconnaissance survey are adequately delineated in the developed area.

The bottom is smooth within the developed area southwest of St. Matthew Island except for the area lying between Pinnacle Island and St. Matthew Island where a ridge covered by about 4 to 9 fms. connects the two islands. Other shoals covered

by about 7 to 9 fms. are also found in this locality. Random lines encircling St. Matthew Island in depths of 20 to 35 fathoms reveal a generally smooth bottom.

4. Junctions with Contemporary Surveys

Depths on the present survey random lines southeast of St. Matthew Island are in agreement with random-line depths of H-7950 (1951). Project surveys at the other limits have not been made.

5. Comparison with Prior Surveys

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

6. Comparison with Chart 8851 (Print date 3/9/53)
Chart 9302 (Print date 12/8/52)

A. Hydrography

The charted hydrography originates principally with the present survey boat sheets (Bps. 48423, 48424, 48425). A few soundings are also charted from the present smooth-sheet before verification. Charted soundings are in general agreement with smooth-sheet depths except for minor differences in depths and positions of soundings.

The 15-fm. sounding charted in lat. 60° 30.6', long. 172° 28.5' from a 1940 trackline (Bp. 34778) by the Coast Guard, falls in general depths of 28 fms. on the present survey. The 15-fm. sounding is the first sounding on the trackline and differs by about 10 fathoms, with depths on a 1939 trackline (Bp. 33491) by the Coast Guard. The 15-fm. sounding is probably in error and should be disregarded.

The depths now shown on the smooth-sheet supersede the charted soundings within the common area.

B. Aids to Navigation

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

7. Condition of Survey

a. The sounding records are complete except for positive identification of some signals from the air-photographic compilations. No Descriptive Report was received for this sheet; however, the Processing Office Report mentions most of the important items of this survey.

b. The smooth plotting is, in general, adequate. Sounding lines omitted by the Processing Office were plotted on the smooth sheet in the Washington Office.

c. This is a reconnaissance survey consisting of random sounding lines in the vicinity of St. Matthew Island, and partial development of the area southwest of the island. The scale of the survey precludes adequate development and delineation of the ridge and other irregularities lying between St. Matthew Island and Pinnacle Island to the southward. Many of the signals are spotted from photographic details on the provisional topographic surveys T-8629, T-8630, T-8631 of 1948 which are of questionable accuracy because of inadequate triangulation coverage. As mentioned in the Season's Report, PATHFINDER-1951, numerous sextant cuts to shoreline tangents proved unsatisfactory because of azimuth and position errors of the preliminary topographic surveys. Triangulation stations in the subplan are misplotted as much as 20 meters; however, as the hydrography of the subplan is controlled also by stations of a reconnaissance nature, spotted from photographic details, the triangulation and dependent hydrography have not been replotted on the smooth sheet.

8. Compliance with Project Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

This reconnaissance survey serves the purpose intended. However, development of the 4-10 fm. shoals in this area on a scale larger then the present 1:100,000 scale survey would be desirable at some future time.

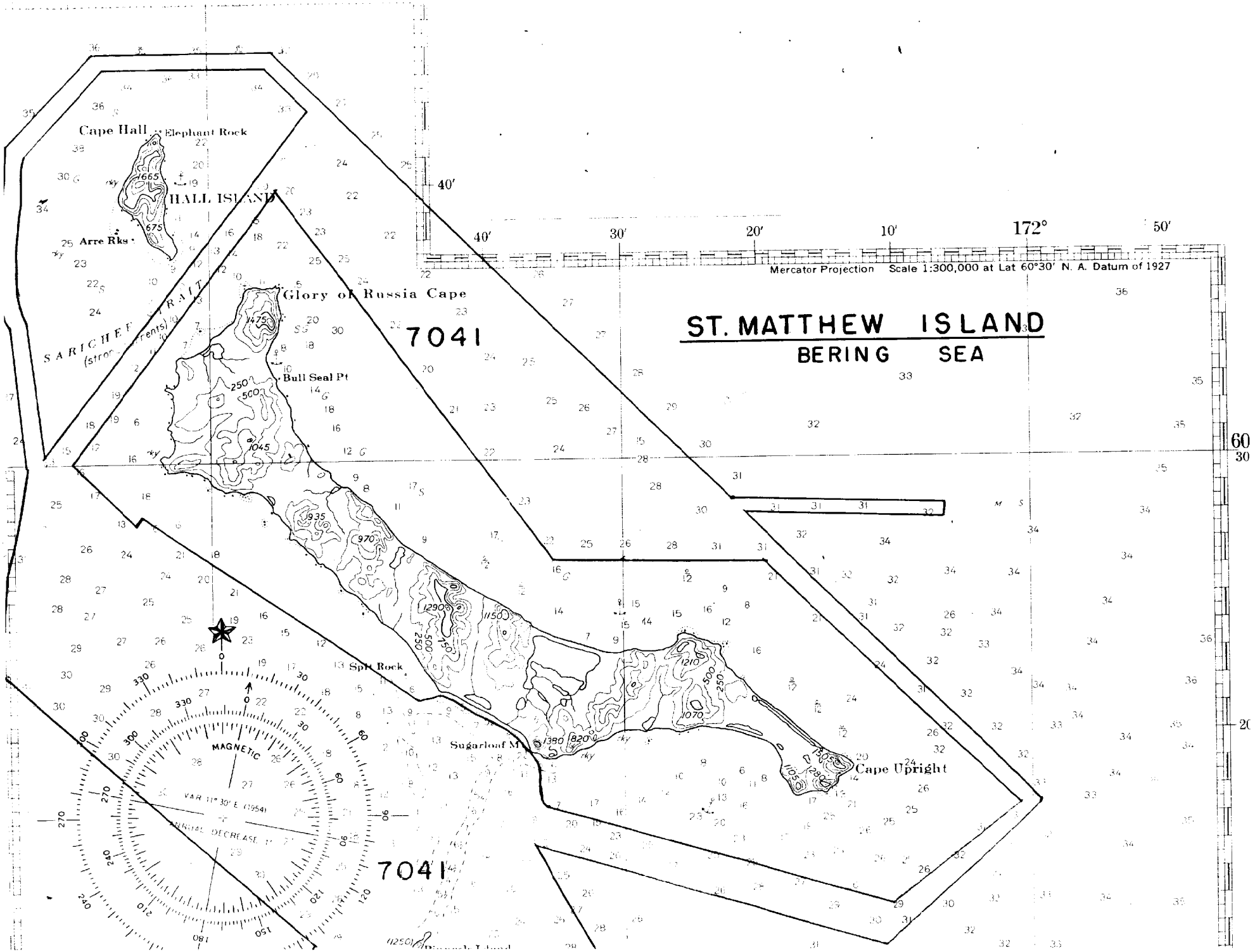
H. R. Edmonston
Chief, Nautical Chart Branch

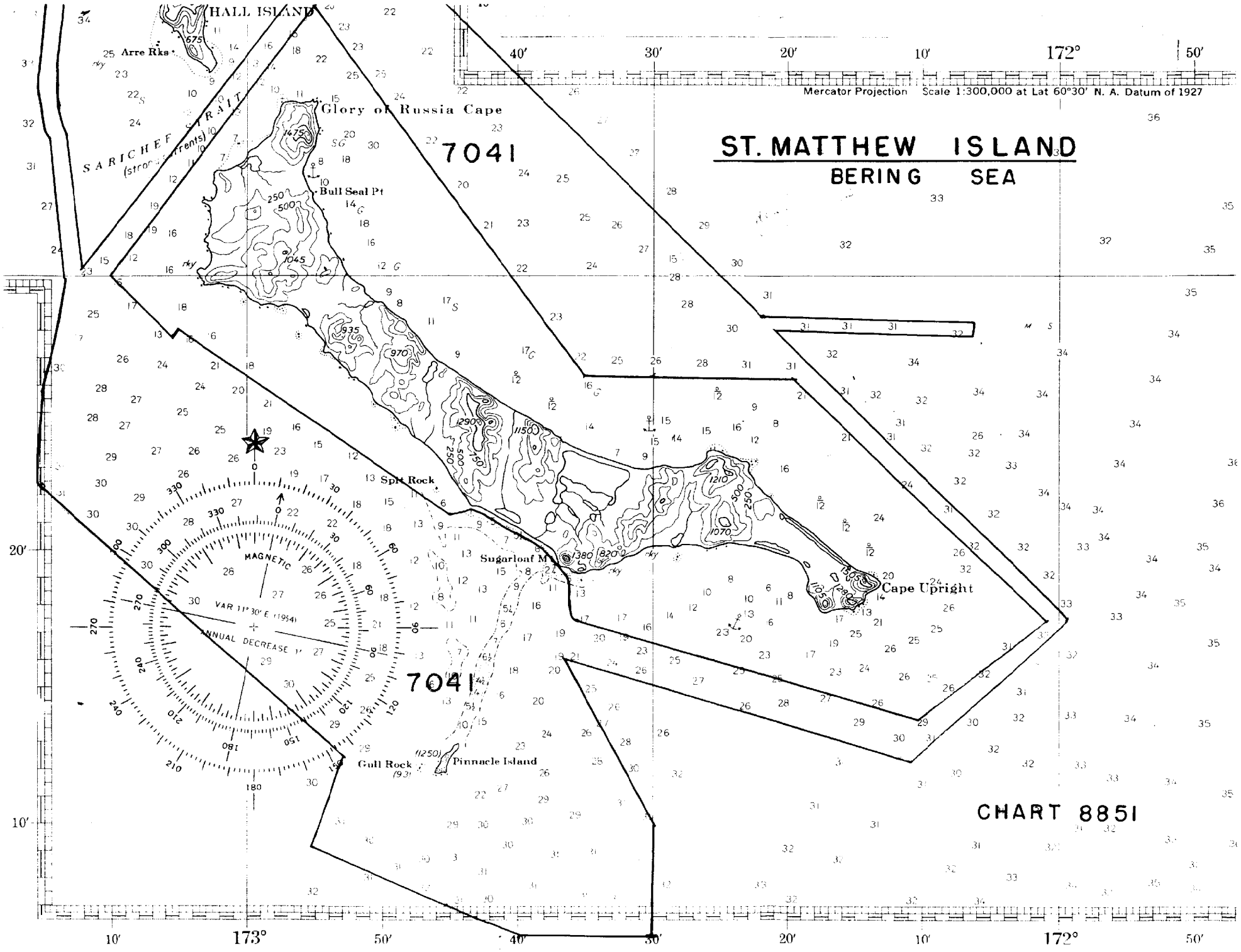
G. R. Fish
Chief, Section of Hydrography

Examined and approved:

H. Arnold Karo
Chief, Division of Charts

Earl O. Heaton
Chief, Division of Coastal Surveys


Cape Hall
Elephant Rock
HALL ISLAND
Arre Rks
Glory of Russia Cape
7041
ST. MATTHEW ISLAND
BERING SEA
Bull Seal Pt
Spit Rock
Sugarloaf M
Cape Upright
MAGNETIC
VAR 11° 30' E (1954)
ANNUAL DECREASE 7'
7041
40'
30'
20'
10'
172°
50'
60
30
20
Mercator Projection Scale 1:300,000 at Lat 60°30' N. A. Datum of 1927


HALL ISLAND
Arre Rks
675
SARICHEF STRAIT
(strong currents)
Glory of Russia Cape
1475
Bull Seal Pt
250
500
1045
7041
ST. MATTHEW ISLAND
BERING SEA
935
970
1290
1150
1210
1070
Spit Rock
Sugarloaf Mt
1380
820
Cape Upright
MAGNETIC
VAR 11° 30' E (1954)
ANNUAL DECREASE 1°
7041
Gull Rock
(1250)
Pinnacle Island
CHART 8851
Mercator Projection Scale 1:300,000 at Lat 60°30' N. A. Datum of 1927
40'
30'
20'
10'
172°
50'
173°
20'
10'

R4C

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 6 August 1952

Division of Charts: R. H. Carstens

Plane of reference approved in 7
volumes of sounding records for

HYDROGRAPHIC SHEET 7041

Locality Bering Sea, Alaska

Chief of Party: C. Pierce in 1951
Plane of reference is mean lower low water, reading
3.3 ft. on tide staff at Dutch Harbor
15.3 ft. below B. M. 2 (1934)

NOTE: Time and height corrections in accordance with tide zones as indicated on sketch enclosed in letter of 21 November 1951 to Commanding Officer of U.S.C.&G.S. Ship PATHFINDER.

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 758675

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7041

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
9/25/52	9302	D. H. Benson	Before ~~After~~ Verification and Review Fully applied
11/14/52	8857	GJE	Before ~~After~~ Verification and Review Fully App'd
11/16/53	9000	C. R. Wittman	~~Before~~ After Verification and Review Fully App'd.
3-7-'61	9302	J. M. Albert	~~Before~~ After Verification and Review " " new smooth sheet
			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.