8002

Diag. Cht. Nos. 8802-3 & 9000-1 & 8995

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

(HYDROGRAPHIC)

Type of Survey ....HYDROGRAPHIC.....

Field No. ....PF-10252.....

Office No.....H-8002.....

LOCALITY

State .....ALASKA.....

General Locality ....BERING SEA.....

Locality ..WESTWARD OFF PRIBILOF ISLANDS.....

.....

1952

CHIEF OF PARTY

.....CHARLES PIERCE.....

LIBRARY & ARCHIVES

DATE .....MARCH 9 1953.....

☆U.S. GOVERNMENT PRINTING OFFICE: 1974-763-098

8002

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-8002

Field No. PF-10252

State ALASKA

General locality Bering Sea

Locality Westward off Pribilof Islands, ~~Western Part~~

Scale 1: 100 000 Date of survey 29 July - 7 Sep 1952

Instructions dated 6 March 1951; 21 March 1952

Vessel USC&GSS PATHFINDER

Chief of party CHARLES PIERCE

Surveyed by H.J. HEALY, K.S. ULM, F.J. BRYANT

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

Fathograms scaled by GCA, DCH, EEE, MJT, VE

Fathograms checked by EEE, REW, MJT, KWB, VE

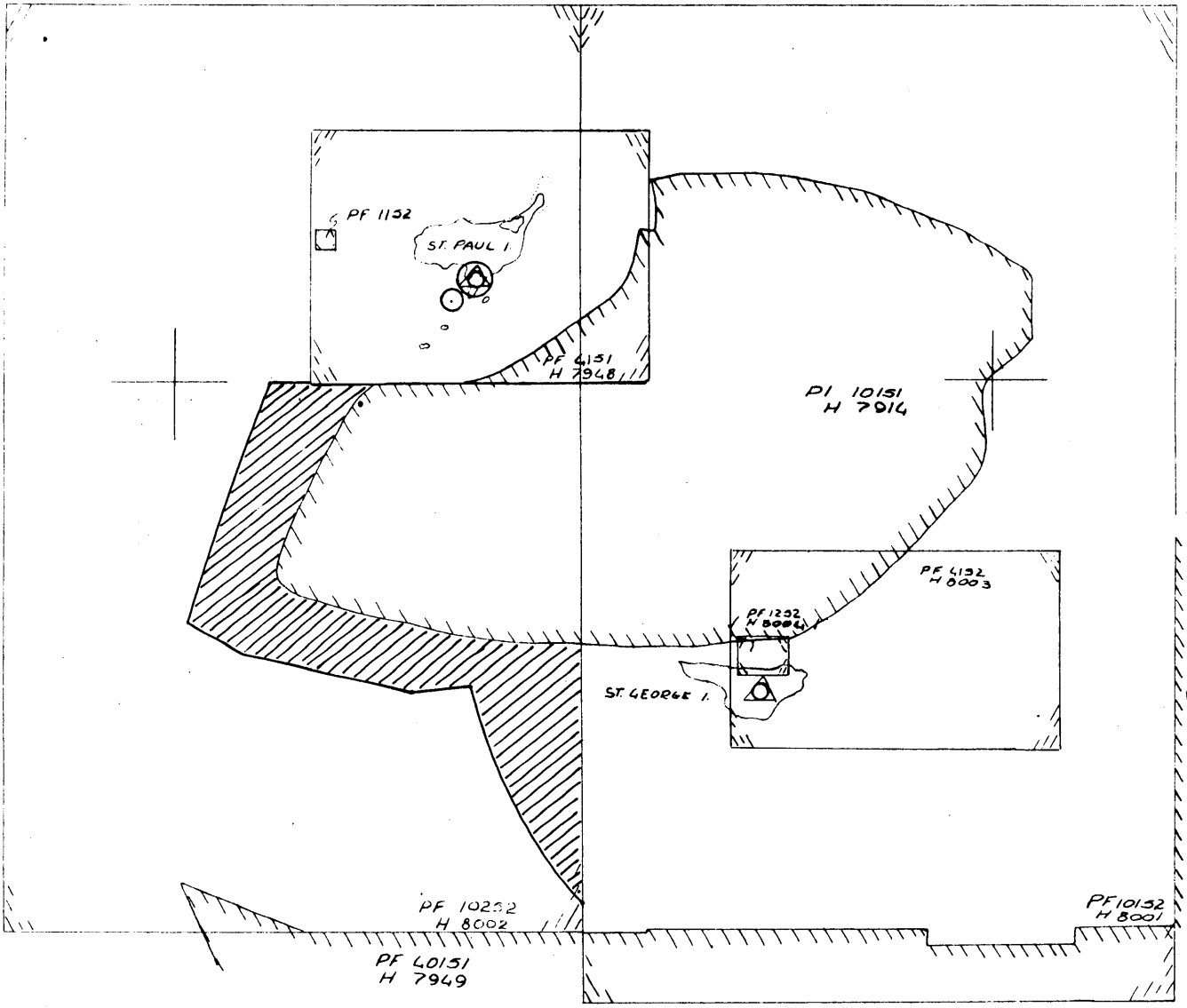
Protracted by EEE

Soundings penciled by EEE

Soundings in fathoms ~~feet~~ at ~~XXXX~~ MLLW and are based on a velocity of sound of 800 fathoms per second.

REMARKS: ~~Incomplete Survey~~ see review

U. S. GOVERNMENT PRINTING OFFICE 777032



U S C & GSS PATHFINDER

1952 SHEET LAYOUT SKETCH

PRIBILOF ISLANDS ALASKA

PROJECT CS-343

CHARLES PIERCE, COMDG.

SCALE: CHART 8802

LEGEND: SHORAN STATION

E.P.I. STATION

TIDE GAGE

171° 170°

DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SURVEY H-8002 (Field No. PF 10252)

Pribilof Islands, Western Part

SCALE: 1: 100 000

1952

USC&GSS PATHFINDER — CHARLES PIERCE, Comdg.

H.J HEALY

K.S. ULM - - - - - - - - - HYDROGRAPHERS

F.J. BRYANT

A PROJECT

1. Project CS-343, Bering Sea, Alaska
2. Instructions 22/MEK, dated 6 March 1951
   Supplemental Instructions 22/MEK, dated 21 Mar 1952

B SURVEY LIMITS AND DATES

1. Paragraph 26 of Supplemental Instructions - Project CS-343, dated 21 March 1952 specifies complete offshore and coastal hydrographic coverage within the limits of Chart 8995 Pribilof Islands, Survey H-8002 is designed for offshore coverage of that part of the project area West of Longitude 170° 00' W.

2. Hydrographic coverage in 1952 is an irregular shaped area done while running between St. Paul Island and Survey H-8001 (PF 10152). See the enclosed index of sheets.

3. Field work was done between the inclusive dates 29 July and 7 September 1952.

4. H-8002 joins H-7914 (PI 10151) and the following contemporary surveys:

SURVEY	FIELD NO	SCALE	STATUS
H-7949	EX-PF 40151	1: 500 000	Incomplete being verified PMC
H-8001	PF 10152	1: 100 000	Incomplete not verified
H-7948	PF 4151	1: 40 000	Incomplete Reviewed
H-8103	PI-50352	1: 500000	Reviewed
H-7951	PI-503-52	1: 500000	Verified
H-8121	PF-4154	1: 40,000	Reviewed
H-7914	PI-10151	1: 100,000	Reviewed

C VESSEL AND EQUIPMENT

1. The vessel was USC&GSS PATHFINDER. Standard speed while sounding varied from 115 to 102 RPM as noted in the sounding volumes. The turning radius of the vessel over this range of speed is estimated to be 300 meters.

2. The echo-sounding equipment used for depth measurements was 808 Fathometer No. 130-S.

D TIDE AND CURRENT STATIONS

1. A Portable Automatic Tide Gage was maintained at Village Cove, St. Paul Island during the entire period of field work.

2. Tidal Data from this gage was used for reduction of soundings without application of corrections for time and range differences. (Reference: Director's letter 36-rcb, Subject "Tide Zones and Reducers, Pribilof Islands Area, Alaska", 18 September 1952).

3. Current stations occupied within the area covered by the Smooth Sheet are discussed in the Descriptive Report accompanying Hydrographic Survey H-7948 (PF 4151) (1952).

E SMOOTH SHEET

1. The Smooth Sheet was constructed at the Seattle Processing Office by conventional means. The scale and area covered are the same as for the Boat Sheet.

2. Distance arcs from stations EPI B, St. Paul Island, and SHO CAN, St. George Island, were constructed on the Smooth Sheet by swinging circles from the plotted positions of the stations through computed geographic positions of selected points on the distance arcs.

3. All circles have been constructed to represent distances in statute miles.

F CONTROL STATIONS

1. Electronic control stations only were used on this survey. The positions of each of these stations have been computed on the 1927 North American Datum.

2. The stations used and the source of control are as follows:

EPI B 1951, St. Paul Island. The position of this station originates with the Electronic Position Indicator trilateration accomplished in 1951. The computations were made and the position furnished by the Washington Office. (Reference: Director's ltr 22/MEK, S-1-PF, Subject "Report on Adjustment of EPI observations", 7 November 1951).

(red ink)

SHO CAN 1952, St. George Island. Located in 1952 by personnel of USC&GSS PATHFINDER using conventional methods of third order accuracy for a connection to existing triangulation of 1897 and 1944. Published values of existing triangulation are on the 1944 St. Paul - St. George Datum and geographic positions were corrected to the 1927 North American Datum by applying factors, furnished by the Washington Office, resulting from a connection to the Bering Sea Electronic Position Indicator trilateration scheme at St. Paul Island by observed reciprocal azimuths and electronic distance measurements accomplished jointly by USC&GSS PIONEER and PATHFINDER in 1951. The correction factors furnished and used are: Latitude -6.67"; Longitude -30.15"; Azimuth +27.4". The resulting position of SHO CAN 1952 is from the field computations.

G SHORELINE AND TOPOGRAPHY

Shoreline and topographic details have been omitted in accordance with Section 751 (c) of the Hydrographic Manual. *There is no shoreline within limits of this survey.*

H SOUNDINGS

Depths were measured with the echo-sounding equipment listed in "C". Complete and legible Fathograms exist for all periods of sounding.

2. Velocity corrections have not been applied. (Reference: Director's letter 21/MEK, S-1-PF, Subject "Fathometer Correction, Alaska", 21 June 1951).

3. On 29 July between positions 11A and 17A, in the vicinity of Latitude 56° 37' N., Longitude 170° 02' W., the speed of revolution of the stylus arm of the 808 Fathometer No. 130-S then being used for sounding varied from the standard speed of 109.1 RPM corresponding to the calibration velocity of 800 fms/sec due to changes in the line voltage from the Ship's supply. By timing the revolutions of the stylus arm frequently, average stylus arm speeds were found. The average speeds found and corrections used are as follows:

PERIOD	AVERAGE SPEED	CORRECTION
3 min after 11A thru 5 min after 12A	110	-1.0%
6 min after 12A thru 8 min after 14A	111	-2.0%
9 min after 14A thru 3 min after 15A	110	-1.0%
4 min after 15A thru 17A	108	+2.0%

EXAMPLE OF CALCULATIONS

$$\frac{800 \text{ fms/sec} - 784.6 \text{ fms/sec}}{784.6 \text{ fms/sec}} = +0.0196 \text{ or } +2.0\%$$

784.6 fms/sec is the theoretical calibration velocity corresponding to a stylus arm speed of 107 RPM.

4. Instrumental corrections have been based on simultaneous comparisons of 808 Fathometer No 130-S and wire and hand-lead soundings and from phase comparisons between the various scales taken throughout the season. For details concerning the computation of these corrections reference should be made to the report "Fathometer Corrections 1952", submitted separately.

5. Fathometer initials were maintained at a standard setting of 2.0 fathoms. Initial corrections, that is the difference between 2.0 fathoms and the actual initial as shown on the Fathograms, were applied when the Fathograms were scanned and have not been entered in the sounding volumes.

6. A continuous record was kept of the mid-ship draft and plotted as a graph. Draft corrections have been obtained by reference to these graphs and the values of this correctionentered in the sounding volumes represent the difference between the standard initial setting of 2.0 fathoms and the instantaneous draft.

7. Corrections for the effect of settlement and squat, from observations in Iliuliuk Bay, Alaska, on 26 June 1952, have been combined with the instrumental corrections discussed in paragraph 4 above. Mean values of +0.15 fathom for speeds of 102 RPM and over and +0.10 fathom for speeds between 75 and 101 RPM have been used.

I CONTROL OF HYDROGRAPHY

1. All hydrography was controlled by electronic means using either a combination of Shoran and Electronic Position Indicator distances, or two Shoran distances.

2. The major part of the hydrography was controlled by the combination of EPI and Shoran distances, the Ship usually being conned along the Shoran arcs. Shoran distances from station SHO CAN, St. George Island were combined with EPI distances from EPI B, St. Paul Island. Positions 1 and 2C, 1 through 4H, and 1 through 10K were plotted from SHO CAN and Shoran station FAIR, St. Paul Island. Since arcs from station FAIR have not been constructed on the Smooth Sheet the arcs were individually swung with a beam compass from station FAIR.

3. All plotting has been done in statute miles, observed EPI distances being converted to statute miles by a table computed from the factor 1 microsecond = 0.093109 statute miles.

4. Observed electronic distances were corrected by values derived from calibrations of the equipment used at various times during the progress of the hydrography. For detailed information concerning the computation of these corrections, reference should be made to the report "EPI and Shoran Corrections 1952", submitted separately.

J ADEQUACY OF SURVEY *Considering all junctional surveys under Project CS-343 this survey is adequate*

1. ~~The survey is not complete.~~ Most of the hydrography was done while running between St. Paul Island and survey H-8001; only a small percentage of the area is covered.

2. Junction with H-8001 (PF 10152) (1: 100 000) consists mainly of continuous lines between the two surveys. Junctions were also made with H-7914 (PI 10151) (1: 100 000) and H-7949 (EX-PF 40151) (1: 500 000). The junctions are satisfactory to the extent of the completed hydrography. The amount of hydrography is not sufficient to delineate extended depth curves. *See Review Notes*

K CROSS LINES

1. No system of crosslines was attempted, those run being incidental and amount to 2½% of the hydrography. While the cross lines as run do not afford a systematic coverage of the area, 6 lines of soundings from H-7949 (EX PF 40151) (1: 500 000) cross that part of the area not covered by crosslines of the present survey and are a satisfactory substitute. Agreement at crossing with sounding lines from H-7949 is excellent. *See Review Notes*

2. Six crossing discrepancies were noted, four amounting to less than 1% and the other two not in excess of 1.5% of the depth. *Final soundings O.K.*

L COMPARISON WITH PRIOR SURVEYS

1. There are no surveys in the area prior to 1951.

M COMPARISON WITH CHART

1. The survey was compared with Chart 8995, 3rd Edition, print date 51-9/24. The majority of the soundings in the common area originate with the Boat Sheet of H-7949 *(Bp. 48413-14)* (EX - PF 40151). Such charted information is not further considered under this heading.

2. The small amount of hydrography done on this survey indicates a much more regular bottom than is shown on the chart. The large shoal as shown on the chart East of St. George Island with a least depth of 19 fathoms at 56° 35' 30"N., 170° 07' W., was not discovered by this survey. This 19fm not shown on chart 8995 date 12-1-52 – hydro revised chart 8995 reconstructed in 1952.

3. Depths from the present survey should supersede the charted information.

N DANGERS AND SHOALS

1. No dangers or shoals were found by the survey. Shoals in the vicinity of St. Paul Island are considered in the Descriptive Report accompanying H-7948 (PF 4151). (1951-53)

O COAST PILOT INFORMATION

1. Information of this nature has been separately submitted for the general area of the project from time to time.

P AIDS TO NAVIGATION

No Aids to Navigation are regularly maintained within the limits of this survey.

Z TABULATION OF APPLICABLE DATA

1. Forwarded with the Smooth Sheet:
   Overlay of soundings from H-7914 and H-7949

2. To be submitted separately:
   a. EPI and Shoran corrections 1952
   b. Fathometer corrections 1952
   c. Bathythermograph Observations 1952
   d. Observations of Serial Temperatures and Salinities 1952
   e. Geodetic Data, St. George Island
   f. Tidal Data, Portable Automatic Tide Gage, Village Cove, St. Paul Island, Alaska

Fair J. Bryant
FAIR J. BRYANT
Lieutenant Commander, USC&GS

Earl E. Ellis
EARL E. ELLIS
Ensign, USC&GS

STATISTICS FOR HYDROGRAPHIC SURVEY H-8002

(Field No. PF 10252)

PATHFINDER Project No. CS-343

VOL NO	DAY LTR	DATE	H.L. WIRE	POSIT	STAT MILES
1	A	29 Jul 52	0	17	32.5
1	B	7 Aug 52	0	26	60.2
1	C	8 Aug 52	0	75	151.0
I & II	D	9 Aug 52	0	50	94.1
II	E	21 Aug 52	0	43	88.4
II	F	27 Aug 52	0	32	71.0
II	G	29 Aug 52	0	34	73.3
III	H	2 Sep 52	0	36	86.0
III	J	5 Sep 52	0	37	76.1
III	K	7 Sep 52	0	46	85.9
	TOTAL- - - - - - - -		0	396	818.5

AREA: 528 Square Statute Miles

TIDE NOTE

HYDROGRAPHIC SURVEY H-8002 (PF 10252)

1. Records from the Portable Automatic Tide Gage maintained at Village Cove, St. Paul Island, Alaska, Latitude 57° 07'.5 (42') N., Longitude 170° 16'.5 (55') W., during the period of the field work were used for the reduction of soundings for tide.

2. 4.3 feet on the staff corresponded to MLLW in 1952.

3. Hourly heights for the reduction of soundings were scaled from the Marigrams in the field.

4. Tidal Data from this gage was used for the entire area of the survey without application of corrections for time or height differences. (Reference: Director's letter 36-rcb, Subject "Tide Zones and Reducers, Pribilof Islands, Area, Alaska, 18 September 1952).

FATHOMETER CORRECTIONS

HYDROGRAPHIC SURVEY H-8002 (PF 10252)

808 FATHOMETER NO. 130-S

A Scale Corrections	Full Speed (102 RPM and over)
To Depth	Correction
30.9 fms	+0.1 fm
55 fms	0.0 fm
A Scale Correction	**Reduced Speed (75 - 101 RPM)**
To Depth	Correction
55 Fms	0.0 fm
B Scale Correction	**All speeds**
To Depth	Correction
90 fms	0.0 fm

ABSTRACT OF SHORAN CORRECTIONS

HYDROGRAPHIC SURVEY H-8002 (PF 10252)

DATE 1952	DAY LETTER	PERIOD FROM	PERIOD TO	STATION	CHANNEL	CORRECTION
29 Jul 52	A	1655	1905	SHO CAN	Drift	-0.012
7 Aug 52	B	1500	1900	SHO CAN	Drift	-0.010
8 Aug	C	0703	1740	SHO CAN	Drift	-0.004
8 Aug	C	1703	0710	FAIR	Rate	0.000
9 Aug	D	0905	1740	SHO CAN	Drift	-0.008
21 Aug	E	0850	1835	SHO CAN	Drift	-0.005
27 Aug	F	1220	1710	SHO CAN	Drift	-0.004
29 Aug	G	0735	1250	SHO CAN	Drift	-0.009
2 Sep	H	0655	1210	SHO CAN	Drift	-0.006
2 Sep	H	0655	0715	FAIR	Rate	+0.002
5 Sep	J	0005	0550	SHO CAN	Drift	-0.007
7 Sep	K	0756	1425	SHO CAN	Drift	-0.008
7 Sep	K	0756	0845	FAIR	Rate	+0.005

ABSTRACT OF EPI CORRECTIONS

HYDROGRAPHIC SURVEY H-8002 (PF 10252)

DATE	DAY LETTER	PERIOD FROM	PERIOD TO	A CHANNEL STATION	SET NO	CORRECTION
29 Jul 52	A	1655	1905	EPI B	7	-5.0
7 Aug 52	B	1500	1900	EPI B	7	-5.0
8 Aug 52	C	0703	1740	EPI B	7	-5.0
9 Aug 52	D	0905	1740	EPI B	7	-5.0
21 Aug 52	E	0850	1835	EPI B	1	-6.1
27 Aug 52	F	1220	1710	EPI B	7	-5.0
29 Aug 52	G	0735	1250	EPI B	7	-5.0
2 Sep 52	H	0655	0710	EPI B	7	-5.0
2 Sep 52	H	0715	1210	EPI B	7	-5.0
5 Sep 52	J	0006	0550	EPI B	1	-6.1
7 Sep 52	K	0845	1425	EPI B	1	-6.1

APPROVAL SHEET

The field work was done under my immediate supervision and the Boat Sheet was inspected daily as the work progressed. Only a small part of the area has been covered by hydrography; the additional work necessary to complete the survey is recommended.

The completed Smooth Sheet and accompanying records have been examined by me and are approved.

Charles Pierce

CHARLES PIERCE
Chief of Party

GEOGRAPHIC NAMES

Survey No. H-8002

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									BofY	2
Pribilof Islands									"	3
St. Paul Island	8802									4
										5
					Names underlined in red are approved 3-12-53. L. Heck					6
										7
										8
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										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-8002..

Records accompanying survey:

Boat sheets B.S. Rec'd from PMC 27 Mar 73 DEE; sounding vols. ..3..; wire drag vols. .....;

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

special reports, etc. 1 Descriptive Report; 3 Folders, EPI Abstracts;

1 Smooth Sheet; 1 Overlay- Soundings from H-7914 & H-7949;.....

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

Number of positions on sheet		.396.
Number of positions checked		..88.
Number of positions revised		..05.
Number of soundings revised (refers to depth only)		..18.
Number of soundings erroneously spaced		.105..
Number of signals erroneously plotted or transferred		..00..
Topographic details	Time	..00..
Junctions	Time	..36..
Verification of soundings from graphic record	Time	..10..

Verification by Bruce Alan Olmstead Total time .154.. Date 03/21/73

Reviewed by J.T. Gallahan ..... Time ..65.. Date 03-03-75

Inspected by D.R. Engle Cartano 10 / 40 6-13-75 7/10/75

H-2232-1

H-8002

Items for Future Presurvey Reviews

The bottom is considered adequately developed on the present survey. There are no surveys in the area prior to the date of the present survey. All depths are greater than 20 fathoms and therefore, the resurvey cycle is 50 years.

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8002 FIELD NO. PF-10252

Alaska, Bering Sea, Westward off Pribilof Islands

SURVEYED: July 29, 1952 thru September 7, 1952

SCALE: 1:100,000 PROJECT NO.: CS-343

SOUNDINGS: 808 Echo Sounder CONTROL: Shoran and EPI

Chief of Party ..... C. Pierce
Surveyed by ..... H. J. Healy
..... K. S. Ulm
..... F. J. Bryant
Protracted by ..... E. Ellis
Soundings plotted by ..... E. Ellis
Verified and inked by ..... B. A. Olmstead
Reviewed by ..... J. T. Gallahan
..... Date: March 3, 1975
Inspected by ..... D. R. Engle

1. Description of the Area

This survey covers an area in the vicinity of Pribilof Islands, which lies southwest of St. Paul Island and west of St. George Island between lat. 56°15' and lat. 57°00' and between long. 170° and 171°. Depths in the area range from 44 to 63 fathoms over a smooth bottom. The predominant bottom characteristics are mud, sand and rock.

2. Control and Shoreline

The origin of the control is adequately covered in parts F and I of the Descriptive Report. This is an offshore survey and no shoreline is shown.

3. Hydrography

A. The percentage of crosslines run was insufficient to verify the accuracy of the survey. However, lines from contemporary junctional surveys crossing the area serve as a satisfactory substitute.

B. The usual depth curves were adequately delineated.

C. The development of the bottom configuration is considered adequate.

4. Condition of the Survey

The field work, sounding records and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual except as follows:

A. Bottom samples were not taken on the present survey.

B. The percentage of crosslines run was insufficient to satisfy the requirements of the manual.

C. A combination of EPI and Shoran was used to control the survey and statute mile arcs were used for plotting both. This necessitated the conversion of EPI data from micro-seconds to statute miles.

5. Junctions

Adequate junctions have been effected with H-7914 (1951) on the east and north, H-8121 (1954) and H-7948 (1951-53) on the north, H-7951 (1951-52) on the northwest and H-8103 (1953) on the west and south. Junctions with unverified surveys H-8001 (1952) and H-7949 (1951-52) will be discussed in the reviews of those surveys.

6. Comparison with Prior Surveys

There are no prior surveys in the area.

7. Comparison with Chart 16380 (8995) (latest print date August 31, 1974)

A. Hydrography

The charted hydrography in the area originates with boat sheet information of the present survey and contemporary junctional surveys previously discussed. The present survey is adequate to supersede the charted hydrography within the common area.

B Aids to Navigation

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

8. Compliance with Project Instructions

This survey adequately complies with Project Instructions except that cross lines were not run and bottom samples were not taken as required by the project instructions.

9. Additional Field Work

This survey was not completed as originally planned. However, the surveyed area is adequately covered and no additional field work is recommended.

Examined and Approved:

R H Houston

Chief
Marine Chart Division

Robert C. Munson

Associate Director
Office of Marine Surveys
and Maps

RHC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. Apr. 1950

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys~~ 13 March 1953

Division of Charts: R. H. Carstens

Plane of reference approved in 3
volumes of sounding records for

HYDROGRAPHIC SHEET 8002

Locality Bering Sea, Alaska

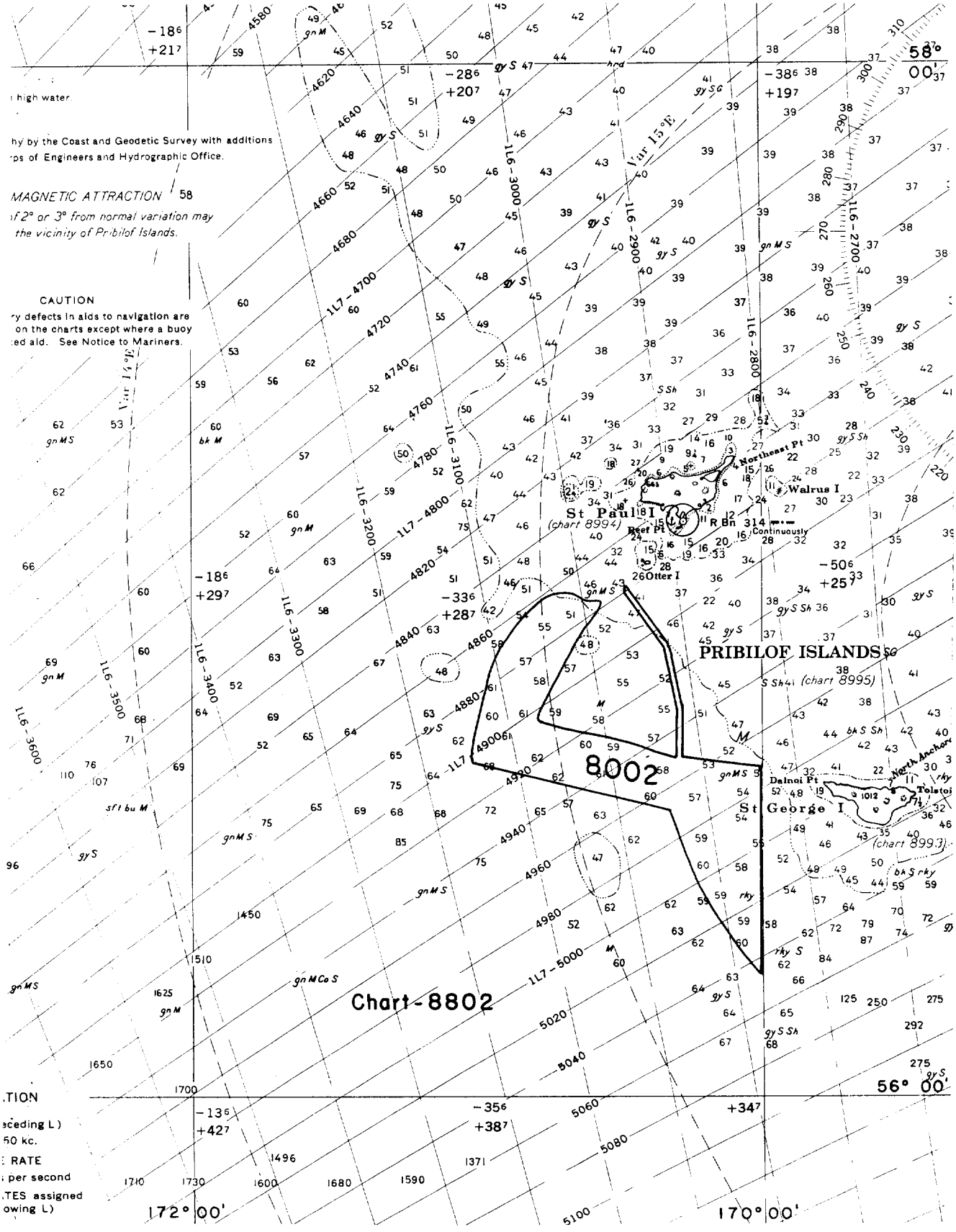
Chief of Party: C. Pierce in 1952
Plane of reference is mean lower low water, reading
4.3 ft. on tide staff at Village Cove, St. Paul Island
9.5 ft. below B. M. 2 (1946)

Height of mean high water above plane of reference is 3.0 feet.

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 877933


high water
hy by the Coast and Geodetic Survey with additions
ps of Engineers and Hydrographic Office.
MAGNETIC ATTRACTION
f 2° or 3° from normal variation may
the vicinity of Pribilof Islands.
CAUTION
y defects in aids to navigation are
on the charts except where a buoy
ed aid. See Notice to Mariners.
Var 14°E
Var 15°E
St Paul I
(chart 8994)
Northeast Pt
Walrus I
Reef Pt
R Bn 314
Continuously
Otter I
PRIBILOF ISLANDS
(chart 8995)
8002
Dalnoi Pt
North Anchorage
Tolstoi
St George I
(chart 8993)
Chart-8802
58° 00'
56° 00'
172° 00'
170° 00'

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8002

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
3/22/54	8995	Chas R. Wittmann	Before ~~After~~ Verification and Review (Part)
5/4/54	8994	N.W. Burggraf	Examined - No correction Before ~~After~~ Verification and Review Not applied
Nov. '55	8802	G.H.E.	Before ~~After~~ Verification and Review via 8995
3-6-61	9302	J.M. Albert	Before ~~After~~ Verification and Review via 8802
3/30/76	8802	Naitoh	Exam ~~Before~~ After Verification and Review and Inspection for critical corr only
5/11/76	8995	M.D. Kan	Part ~~Before~~ After Verification and Review + Inspec + Signature For critical corrections
9/14/76	9000	M.D. Kan	Full ~~Before~~ After Verification and Review + Signature
3-1-77	8994	S.J. Perry	Full ~~Before~~ After Verification and Review + Signature
11-15-82	16011	R.S. House	Full ~~Before~~ After Verification and Review + Signature
11/30/83	16006	J. Bailey	Full ~~Before~~ After Verification and Review + SIGNATURE NO CORR. App'd. thru 16011 DRNG. #28.
4/10/90	16006	DMCMAHNON	CONSIDER ADEQUATELY APPLIED

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.