7919

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CS-320

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC SURVEY

Field No. ARW-2151 Office No. H - 7919

LOCALITY

State Alaska

General locality Arctic Coast

Locality Point Barrow

1951

CHIEF OF PARTY

Max G. Ricketts

LIBRARY & ARCHIVES

DATE DEC 10 1951

B-1870-1 (1)

7919

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-7919

Field No. ARW-2151

State Alaska

General locality ~~North~~ Arctic Coast

Locality Point Barrow

Scale 1:20,000 Date of survey July 1951

Instructions dated 23 May 1951

~~Vessel~~ Arctic Field Party

Chief of party M. G. Ricketts

Surveyed by E. W. Richards and G. D. Scott

Soundings taken by fathometer, graphic recorder, ~~hand lead or pole~~

Fathograms scaled by G. P. Roberts, K. W. Jeffers, M. L. Hickey, W. R. Shoemaker

Fathograms checked by G.P. Roberts, K. W. Jeffers, M. L. Hickey, W. R. Shoemaker

Protracted by G. D. Scott

Soundings penciled by G. D. Scott

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: This project is a re-survey of an Emergency Anchorage - Area requested by ROINC, NPR 4, USN to determine whether or not there is any apparent Shoaling.

U. S. GOVERNMENT PRINTING OFFICE 693019

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY H-7919 (FIELD NO. ARW 2151)

POINT BARROW, ALASKA

EMERGENCY ANCHORAGE AREA

CS - 320

1951

SCALE 1:20,000

M. G. Ricketts - - - - - - - - - - - - - - - Chief, Arctic Field Party
M. A. Hecht - - - - - - - - - - - - - - - Officer in charge, West Party
E.W. Richards & G. D. Scott - - - - Officers in charge, Field Work

A. PROJECT

Authority for this survey is contained in the Director's Supplemental Instructions for Project CS-320 dated 23 May 1951 which authorizes small surveys in cooperation with the Armed Services and other civil agencies of the Government.

B. SURVEY LIMITS AND DATES

This resurvey, requested by the Navy, of an emergency anchorage north of Point Barrow is bounded by the North Arctic Coast on the south and a line drawn through the following coordinates:

	LATITUDE	LONGITUDE
1.	71° 25.3'N	156° 27.9'W
2.	71° 25.6'N	156° 24.1'W
3.	71° 23.8'N	156° 12.2'W
4.	71° 21.6'N	156° 21.7'W

The field work was accomplished between July 23, 1951 and July 27, 1951. This area had been previously surveyed by the USC&GS in 1945 on Sheet H-7070.

C. VESSELS AND EQUIPMENT

Two 35' Navy converted rearming boats, equipped with 808J fathometers were employed. The fathometers used on Launch 1 and 2 were numbered 104S and S106 respectively.

The base of operation was located on a spit just north of the Arctic

Contractors' camp at Point Barrow, Alaska.

D. TIDE AND CURRENT STATIONS

A portable tide gage was operated in Elson Lagoon just north of the contractors' dredged canal between the Arctic Ocean and Elson Lagoon (Lat. 71° 21.34', Long. 156° 32.75'). No time or range corrections were applied to the tidal data in reducing the soundings. An attempt was made to establish a gage on the Arctic Ocean side of the spit but heavy seas carried the support structure away.

No current stations were occupied in the vicinity of this survey.

E. SMOOTH SHEET

The projection was made by hand in the Seattle processing office. Shoreline obtained by plane-table methods in 1945 was transferred from a photostat of Sheet H-7070 (1945) for use on the boat sheet only. It is requested that shoreline be taken from T-9743 1951 photogrammetric compilations when they are available and added to the smooth sheet. Control was plotted and checked by personnel of the Seattle processing office.

F. CONTROL STATIONS

Triangulation for this survey was done in 1945 by R. W. Woodworth on the 1945 Point Barrow datum. Signals PEBE and SAL were located with a Wild T-3 theodolite observing two positions. The three point problem form was used to solve the triangles. Signals MIK and LEE were located with cuts of a transit magnetometer, or hydrographic sextant. The first determination of LEE was erroneous and caused considerable difficulty on the first day of hydrography. Subsequent sextant cuts at Point Barrow North Base 1945, at LEE and on position 64a (Launch No. 1) gave an adequate location of the signal.

G. SHORELINE AND TOPOGRAPHY

The field inspection of the 1947 nine-lens photographs covering the resurvey area was completed this season and will be submitted to the Portland photogrammetric office for compilation. The shoreline from the controlled photos should be better than the 1945 plane-table survey, (T-6997). Some minor changes in shoreline may have occurred between the time of the photo-flight and field inspection of the photographs. No effort was made to determine these discrepancies when executing hydrography. Due to the low range of tide, it was impossible to adequately define the low water line with the equipment used. (T-9743 (1951) and T-8998 (1947) used on smooth sheet.

H. SOUNDINGS

808J fathometers were used to obtain soundings. In addition, each launch was equipped with a wire sounding machine for taking serials, leadline comparisons and bottom samples. See special report "Combined

Filed with Tgms H-7919

Velocity and Fathometer Corrections, Point Barrow, Alaska, July 22 to August 16, 1951" for more detailed information on sounding corrections.

I. CONTROL OF HYDROGRAPHY

All sounding lines were controlled by sextant fixes on objects located ashore. Each launch had one angleman and one Officer in Charge who observed left angle and plotted.

J. ADEQUACY OF SURVEY

The purpose of this survey was to determine if there is any apparant shoaling in the anchorage area. The information gathered is considered adequate to prove this fact to be negative. The sounding lines were run normal to the beach which should permit more accurate determination of the depth curves than were obtained in 1945.

See PS of Review

K. CROSSLINES

The crosslines run constitute about 12% of the total lines in the survey. In most cases the crosslines ran down the centerline of the proposed anchorage berths. The maximum discrepancy in crosslines is two (2) feet at Latitude 71° 24.7'N and Longitude 156° 23.4'W and the average discrepancy was one (1) foot or less. Considering the possible lateral movement of the depth curves this amount is not considered excessive.

L. COMPARISON WITH PRIOR SURVEY

This survey was compared with a film positive of survey H-7070 (1945). This film positive is enclosed with this survey for use of the verifier.

In general, the 18, 24 and 30-foot curves follow the pattern of the 1945 survey, but have moved inshore indicating that the area has deepened.

The 36-foot curve was developed to a greater extent this year than in 1945. The curve as shown on the film positive is an approximation from incomplete data due to the wide spacing of the sounding lines. In general, this curve agrees with the 1951 depth curve better than the shallower depth curves.

Maximum discrepancy between the 1945 and 1951 soundings was two ~~(2)~~ 3 feet.

M. COMPARISON WITH CHART

A study of Chart 9445 (March 1950) shows no major discrepancies between the two surveys. There is an indication that the area may be deepening but this could be due to the method of determining fathometer corrections. In 1945 the correction was obtained by bar-check comparisons entirely and this survey used observed temperature and density data to compute the cor-

See PS of Review

rection. Bottom characteristics found this season should be added to aid the navigator.

N. DANGERS AND SHOALS

No new dangers or shoals were found. However, it may be necessary to revise the depth curves slightly on existing charts if the reviewer considers it justifiable. See TP5 of Review

O. COAST PILOT INFORMATION

No new information is submitted other than the revision and additions mentioned in the 1951 Coast Pilot Report submitted this year as a special report. The Navy has chosen this area as an anchorage for protection against southwesterly storms. The location of each berth in the anchorage area is shown in the 1951 BAREX operation plan and has been pencilled on the smooth sheet. The anchorage has a mud bottom.

P. AIDS TO NAVIGATION

There is a 16-foot radar screen located on the northernmost part of Point Barrow and has been submitted previously on Form 567 and shows on Chart 9445. This is the only permanent aid to navigation in the area surveyed.

Q. LANDMARKS FOR CHARTS

A wrecked Navy PBY airplane is located on the end of the spit at Eluitkak Pass opposite Doctor Island. This wreck shows for a considerable distance but its ~~permanency~~ Permanency is questionable. It does serve to identify the position of Eluitkak Pass.

R. GEOGRAPHIC NAMES:

See descriptive reports for this area submitted in 1945 and special report "Geographic Names, 1951".

Respectfully submitted,

E. W. RICHARDS
Lieutenant (j.g.), USC&GS

Approved and forwarded.

MAX G. RICKETTS
Commander, USC&GS
Chief, Arctic Field Party

TIDE NOTES

for

HYDROGRAPHIC SURVEY H-7919 (1951)

FIELD NO. ARW-2151

ARCTIC FIELD PARTY

WEST UNIT

CS-320

STATION LOCATION

Point Barrow tide gage and staff were located at the base camp at Latitude 71° 21.34'N and Longitude 156° 32.75'W. Data obtained from this gage was used for the reduction of soundings for entire area of the survey.

PLANE OF REFERENCE

MLLW is 2.5 feet above zero of the staff. No corrections for difference of time or range were applied to the observed tides. All marigrams have been submitted previously to the Washington office for the period of July 16 to August 12, 1951 inclusive.

STATISTICS

for

HYDROGRAPHIC SURVEY H-7919

FIELD NO. ARW-2151

ARCTIC FIELD PARTY

WEST UNIT

CS-320

DATE	DAY LETTER	HANDLEAD	POSITIONS	STATUTE MILES
			LAUNCH NO. 1 (red)	
7/23/51	a	0	63	15.1
7/24/51	b	1	48	10.5
7/25/51	c	0	83	20.0
7/26/51	d	0	99	27.0
TOTALS		1	293	72.6
			LAUNCH NO. 2 (blue)	
7/23/51	a	1	53	14.4
7/24/51	b	0	33	6.3
7/26/51	c	0	150	33.4
7/27/51	d	0	78	21.2
TOTALS		1	314	75.3
SHEET TOTALS		2	607	147.9
AREA				11.9

LIST OF GEOGRAPHIC NAMES

for

HYDROGRAPHIC SURVEY H-7919 (1951)

FIELD NO. ARW-2151

ARCTIC FIELD PARTY

WEST UNIT

CS-320

ARCTIC OCEAN

ELSON LAGOON

ELUITKAK PASS

DOCTER ISLAND

DEADMANS ISLAND

POINT BARROW

TAPKALUK ISLAND

APPROVAL SHEET

REG. NO. 7919

This request survey is the first comparison for depth change during the period of surveys along the Arctic Coast. It is interesting to note that the change has been very minor during a period of six years.

The sheet and records have been examined and are approved. The revision survey is considered adequate for the area.

Max G. Ricketts
Commander, USC&GS
Chief, Arctic Field Party

COMBINATION VELOCITY AND FATHOMETER CORRECTIONS

IN FEET

ARCTIC FIELD PARTY

POINT BARROW, ALASKA

1951

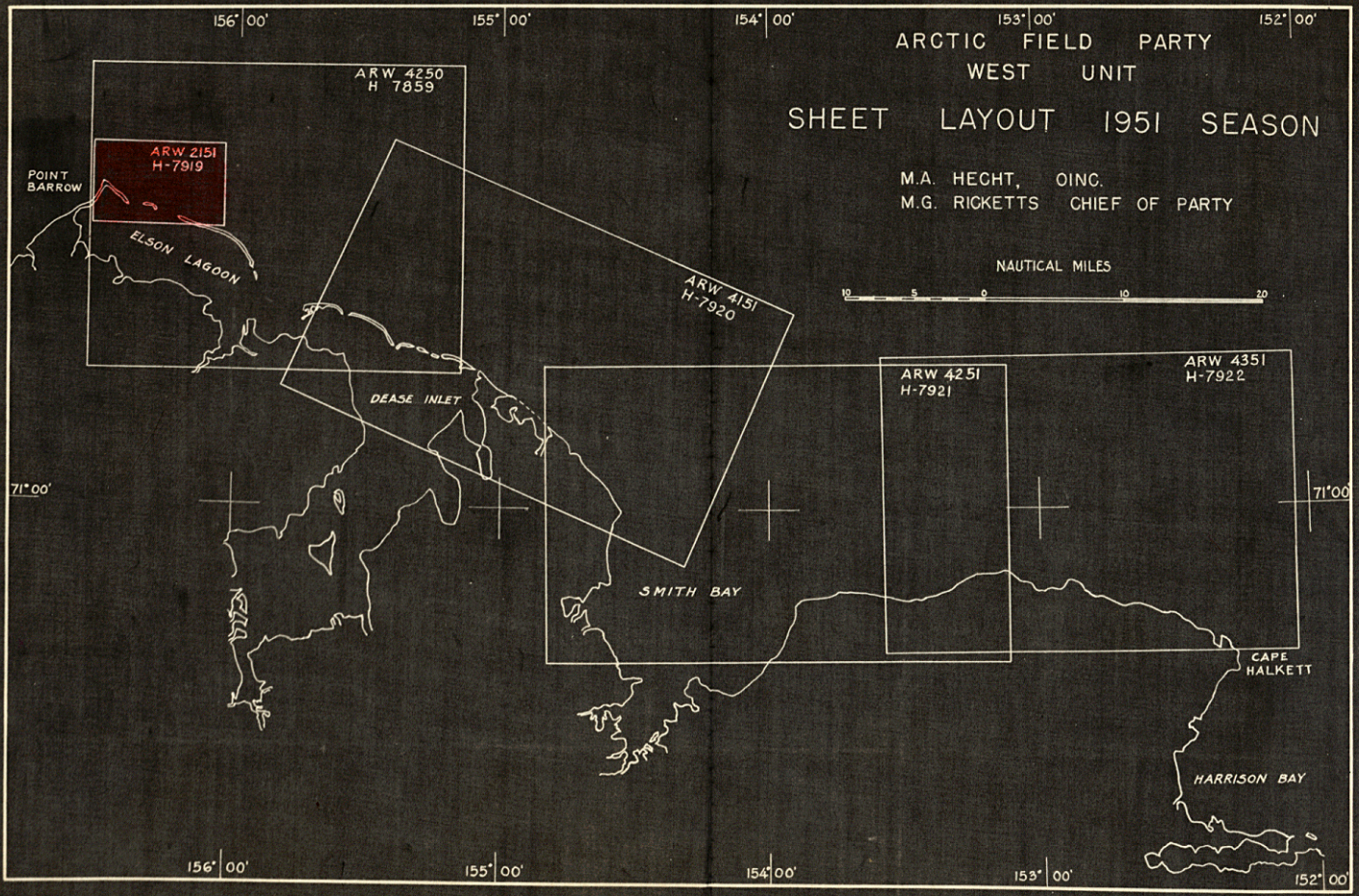
Fathometer 1048 (Launch No. 1)

Sheet No.	Day Letter	Date 1951	Applicable Depth	Velocity Corr.	Bar Check Corr.	A-B Scale Shift Corr.	Total Corr. *
ARW-2151	a	7/23	0-18	0.0	+1.0	—	+1.0
			18-52	-0.5	+1.0	—	+0.5
	b	7/24	0-18	0.0	0.0	—	0.0
			18-52	-0.5	0.0	—	-0.5
	c	7/25	0-18	0.0	0.0	—	0.0
			18-52	-0.5	0.0	—	-0.5
	d	7/26	0-18	0.0	+0.1	—	0.0
			18-52	-0.5	+0.1	—	-0.5

Fathometer S106 (Launch No. 2)

ARW-2151	a	7/23	0-18	0.0	+0.2	—	0.0
			18-52	-0.5	+0.2	—	-0.5
	b	7/24	0-18	0.0	+0.2	—	0.0
			18-52	-0.5	+0.2	—	-0.5
	c	7/26	0-18	0.0	+0.8	—	+1.0
			18-52	-0.5	+0.8	—	+0.5
	d	7/27	0-18	0.0	-0.1	—	0.0
			18-52	-0.5	-0.1	—	-0.5

* Total correction have been rounded off to the closest half foot.


156° 00'
155° 00'
154° 00'
153° 00'
152° 00'
ARCTIC FIELD PARTY
WEST UNIT
SHEET LAYOUT 1951 SEASON
M.A. HECHT, OINC.
M.G. RICKETTS CHIEF OF PARTY
NAUTICAL MILES
10 5 0 10 20
ARW 4250
H 7859
ARW 2151
H-7919
POINT BARROW
ELSON LAGOON
ARW 4151
H-7920
DEASE INLET
ARW 4251
H-7921
ARW 4351
H-7922
71° 00'
SMITH BAY
CAPE HALKETT
HARRISON BAY

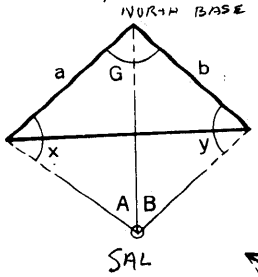
Form 655a
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

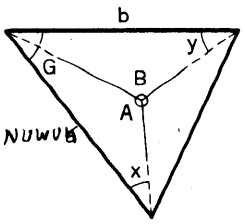
SPECIAL ANGLE COMPUTATION

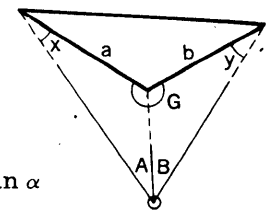
Lists of Directions 1950 – previously submitted

PT. BARROW NORTH BASE

PT BARROW SOUTH BASE

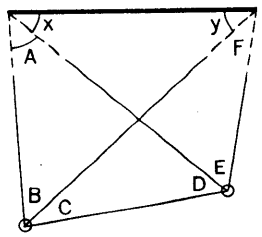






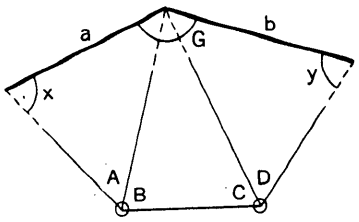
Case 1

$$\frac{\sin x}{\sin y} = \frac{b \sin A}{a \sin B} = \tan \alpha$$



Case 2

$$\frac{\sin x}{\sin y} = \frac{\sin A \sin C \sin E}{\sin B \sin D \sin F} = \tan \alpha$$



Case 3

$$\frac{\sin x}{\sin y} = \frac{b \sin A \sin C}{a \sin B \sin D} = \tan \alpha$$

A 17 04 15 ✓
B 64 46 31 ✓
G 172 24 54 ✓
254° 15' 40"

$(x+y) =$ { Case 1: $180° - \frac{1}{2}(A+B+G) =$ 52 52 10 ✓
Case 2: $\frac{1}{2}(C+D) =$
Case 3: $270° - \frac{1}{2}(A+B+C+D+G) =$

Leave blanks below here for values not involved in the CASE used.

log b = 3.660 653 ✓	log a = 3.648 669 ✓
log sin A = 9.467 688 ✓	log sin B = 9.956 477 ✓
log sin C =	log sin D =
log sin E =	log sin F =
*① Sum = 3.128 341 ✓	*② Sum = 3.605 146 ✓
-② –	-① – 3.128 341 ✓
log tan α =	log tan α = 0.476 805 ✓
α = ° ' "	α = 71° 33' 09" ✓
α - 45° =	α - 45° = 26 33 09 ✓

log tan ½(x+y) =	log tan ½(x+y) = 10.120 828 ✓
log tan (α-45°) =	log tan (α-45°) = 9.698 732 ✓
Sum = log tan ½(x−y) = ° ' "	Sum = log tan ½(y−x) = 9.819 560 ✓
½(x−y) =	½(y−x) = 33 25 33 ✓
½(x+y) =	½(y+x) 52 52 16 ✓
x	y 86 17 43 ✓
y	x 19 26 37 ✓

α is an auxiliary angle needed only for the computation: it is always between 45° and 90°

* Where ① is greater than ② use only the left side of the form below here, and vice-versa.

✓ mark

M-2236-12

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Nov. 1946

COMPUTATION OF TRIANGLES

State: ALASKA

	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.648 669
	1 SAL	17 04 15					0.532 312
	2 PT BARROW S.B.	19 26 37					9.522 286
	3 PT BARROW N.B.	(143 29 08)					9.774 536
	1-3						3.703 267
	1-2						3.955 517
		180 00 00					
	2-3						
	1 SAL	81 50 46					
	2 PT BARROW S.B.			INVERSE			
	3 NUNUK	REQUIRED					
	1-3						
	1-2						
G.P.	2-3						3.660 653
	1 SAL	64 46 31					0.043 523
	2 PT BARROW N.B.	(28 55 46)					9.684 602
	3 NUNUK	86 17 43					9.999 092
	1-3						3.388 781
	1-2						3.703 268
		180 00 00					
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						

TOPO UNMARKED
4TH
OROSK

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		°	′	″
α	2 PT BARROW to 3 NUWUK	221	24	37.
2d ∠	NB &	+ 28	55	46
α	2 PT BARROW to 1 SAL	250	20	23
Δα	NB			
		180	00	00.0
α′	1 SAL to 2 PT BARROW N.B.			

		°	′	″
α	3 NUWUK to 2 PT BARROW NB.	401	29	27.0
3d ∠	&	−86	17	43.6
α	3 NUWUK to 1 SAL	315	11	44.0
Δα				
		180	00	00.0
α′	1 SAL to 3 NUWUK			

First Angle of Triangle

	°	′	″			°	′	″
φ	71	21	25.06	2 PT BARROW NORTH BASE	λ	156	32	36.53
Δφ			54.64		Δλ		− 6	59.98
φ′	71	22	19.70	1 SAL	λ′	156	24	36.55

	°	′	″			°	′	″
φ	71	23	15.76	3 NUWUK	λ	156	27	30.66
Δφ		−	56.05		Δλ		− 2	54.11
φ′	71	22	19.71	1 SAL	λ′	156	24	36.55

	Logarithms	Values in seconds
s	3.703 268	(1249.1) 610.6
(−) Cos α	9.526 911	
B	8.508 705	
h	1.738 884	1st term − 54.81″
s²	7.406 54	
Sin² α	9.947 83	
C	1.873 47	
	9.22784	2d term + .17
h²	3.4778	
D	4.3370	
	7.8148	3d term + ——
		−Δφ − 54.64

½(φ+φ′)			°	′	″
	Logarithms	Values in seconds			
s	3.703 268	624.5			
(−) Sin α	9.973 914	305.3			
A′	8.508 403				
Sec φ′	0.495 638				
Δλ	2.681 223	− 479.98″			
Sin ½(φ+φ′)					
−Δα					

	Logarithms	Values in seconds
s	3.388 781	(232.4) 362.3
(+) Cos α	9.850 962	
B	8.508 704	
h	1.748 447	1st term + 56.03″
s²	6.777 56	
Sin² α	9.69600	
C	1.87430	
	8.34786	2d term + .02
h²	5.49689	
D	2.1755	
	7.6724	3d term + ——
		−Δφ + 56.05

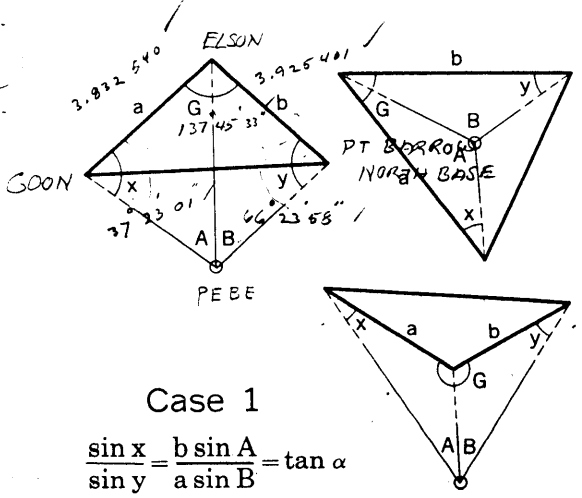
½(φ+φ′)			°	′	″
	Logarithms	Values in seconds			
s	3.388 781	116.2			
(−) Sin α	9.847 998	181.1			
A′	8.508 402				
Sec φ′	0.495 638				
Δλ	2.240 819	174.71″			
Sin ½(φ+φ′)					
−Δα					

11—0362 U. S. GOVERNMENT PRINTING OFFICE. 1929

Lists of Directions 1950 - previously Submitted.

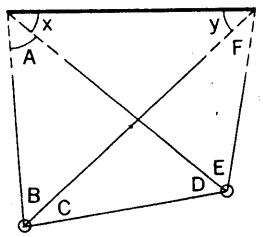
Form 655a
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

SPECIAL ANGLE COMPUTATION



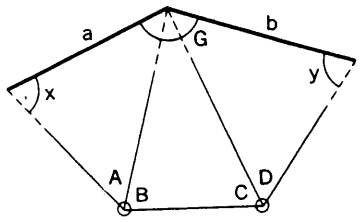
Case 1

$$\frac{\sin x}{\sin y} = \frac{b \sin A}{a \sin B} = \tan \alpha$$



Case 2

$$\frac{\sin x}{\sin y} = \frac{\sin A \sin C \sin E}{\sin B \sin D \sin F} = \tan \alpha$$



Case 3

$$\frac{\sin x}{\sin y} = \frac{b \sin A \sin C}{a \sin B \sin D} = \tan \alpha$$

A 37 23 01
B 66 23 58
G 137 45 33
241 32 32

$\frac{1}{2}(x+y) =$ { Case 1: $180° - \frac{1}{2}(A+B+G) =$ 59 ° 13 ' 44 "
Case 2: $\frac{1}{2}(C+D) =$
Case 3: $270° - \frac{1}{2}(A+B+C+D+G) =$

Leave blanks below here for values not involved in the CASE used.

log b = 3.925 401	log a = 3.832 540
log sin A = 9.783 295	log sin B = 9.962 066
log sin C =	log sin D =
log sin E =	log sin F =
*① Sum = 3.708 696	*② Sum = 3.794 606
-② –	-① – 3.708 696
log tan α = ° ' "	log tan α = 0.085 910
α =	α = 50 ° 37 ' 49 "
α - 45° =	α - 45° = 5 ° 37 ' 49 "

log tan ½(x+y) =	log tan ½(x+y) = 10.225 165
log tan (α-45°) =	log tan (α-45°) = 8.993 808
Sum = log tan ½(x-y) = ° ' "	Sum = log tan ½(y-x) = 9.218 973
½(x-y) =	½(y-x) = 9 ° 24 ' 04 "
½(x+y) =	½(y+x) 59 ° 13 ' 44 "
x	y 68 ° 37 ' 48 "
y	x 49 ° 49 ' 40 "

α is an auxiliary angle needed only for the computation: it is always between 45° and 90°

* Where ① is greater than ② use only the left side of the form below here, and vice-versa.

✓ Walt

M-2236-12

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Nov. 1946

COMPUTATION OF TRIANGLES

State: ALASKA

	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.832 540
	1 PEBE	37 23 01					0.216 705
	2 GOON	[49 49 40]					9.983 155
	3 ELSON	(92 47 19)					9.999 485
	1-3						3.932 400
	1-2						4.048 730
		180 00 00					
GP	2-3						
	1 PEBE	103 46 59					
	2 GOON			INVERSE			
	3 PT. BARROW N.B.		REQUIRES				
	1-3						
	1-2						
GP	2-3						3.925 401
	1 PEBE	66 23 58					0.037 934
	2 ELSON	(44 58 14)					9.849 262
	3 PT. BARROW N.B.	[68 37 48]					9.969 065
	1-3						3.812 597
	1-2						3.932 400
		180 00 00					
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						

TOPO
4TH ORDER
UNMARKED

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

POSITION COMPUTATION, ~~THIRD-ORDER~~ TRIANGULATION

						°	′	″								°	′	″
α	2 ELSON	to 3 PT BARROW NORTH BASE				155	25	49	α	3 PT BARROW N.B.	to 2	ELSON				335	20	15
2d ∠	&					+ 44	58	14	3d ∠	&						− 68	37	48
α	2 ELSON	to 1	PEBE			200	24	03	α	3 PT BARROW NB	to 1	PEBE				266	42	27
Δα									Δα									
						180	00	00.0								180	00	00.0
α′	1 PEBE	to 2	ELSON						α′	1 PEBE	to 3	PT BARROW N.B.						

First Angle of Triangle

	°	′	″			°	′	″		°	′	″			°	′	″
φ	71	17	18.04	2 ELSON	λ	156	26	43.36	φ	71	21	25.06	3 PT BARROW NORTH BASE	λ	156	32	36.53
Δφ	+	4	18.74		Δλ		− 5	00.94	Δφ	+		11.73		Δλ	−	10	54.11
φ′	71	21	36.78	1 PEBE	λ′	156	21	42.42	φ′	71	21	36.79	1 PEBE	λ′	156	21	42.42

	Logarithms	Values in seconds
s	3.932 406	(719.7)
(−) Cos α	9.971 868	1 140.0
B	8.508 709	
h	2.412 977	1st term + 258.81″
s²	7.864 80	
Sin²α	9.084 62	
C	1.871 83	
	8.821 25	2d term + .07
h²	4.8260	
D	2.1775	
	7.0035	3d term + ———
		−Δφ + 258.74

	°	′	″	Logarithms	Values in seconds (1:10000)
½(φ+φ′)	71	19	27.4		
s				3.932 400	359.8
(−) Sin α				9.542 310	570.0
A′				8.508 404	179.9
Sec φ′				0.495 370	285.0
Δλ				2.478 484	−300.94
Sin ½(φ+φ′)					
−Δα					

	Logarithms	Values in seconds
s	3.812 597	(174.4)
(−) Cos α	8.759 164	420.7
B	8.508 705	
h	1.080 466	1st term − 12.04″
s²	7.625 19	
Sin²α	9.998 56	
C	1.873 47	
	9.497 22	2d term + .31
h²	2.1609	
D	2.1761	
	4.3370	3d term +
		−Δφ − 11.73

	°	′	″	Logarithms	Values in seconds (1:10,000)
½(φ+φ′)	71	21	30.92		
s				3.812 597	87.2
(−) Sin α				9.999 282	210.3
A′				8.508 403	43.6
Sec φ′				0.495 370	105.2
Δλ				2.815 652	654.11″
Sin ½(φ+φ′)					
−Δα					

11—9362 U. S. GOVERNMENT PRINTING OFFICE, 1929

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

R H C

TIDE NOTE FOR HYDROGRAPHIC SHEET

14 December 1951

Division of Charts: R. H. Carstens

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 7919

Locality Arctic Coast, Alaska

Chief of Party: M.G. Ricketts in 1951
Plane of reference is mean lower low water, reading
2.5 ft. on tide staff at Point Barrow (Elson Lagoon)
6.8 ft. below B. M. 2 (1950)

Height of mean high water above plane of reference is 0.5 foot.

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756675

GEOGRAPHIC NAMES

Survey No. H-7919

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	
Pt. Barrow										1
Doctor Island										2
Eluitkak Pass										3
Elson Lagoon									BLM	4
Arctic Coast	}	for title.								5
Alaska										6
Deadmans I.										7
Crescent I										8
										9
				Names approved 4-24-58 L. Heck						10
										11
										12
										13
										14
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										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7919..

Records accompanying survey:

Boat sheets ..1...; sounding vols. ..3..; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 3 env.;

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

.....

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

Number of positions on sheet		 607
Number of positions checked		..... 100 = 17%
Number of positions revised		 19
Number of soundings revised (refers to depth only)		 16
Number of soundings erroneously spaced		 0
Number of signals erroneously plotted or transferred		 0
Topographic details	Time	 2
Junctions	Time	 16
Verification of soundings from graphic record	Time	 6

Verification by J.E. GEAGHART Total time 84 hrs. Date 3-18-53

Reviewed by ..... Time .17... Date 4-1-53

STERN I 3 hrs.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7919 FIELD NO. ARW-2151

Alaska, Arctic Coast, Point Barrow

Project No. CS-320

Surveyed in July 1951 Scale 1:20,000

Soundings:

808 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - M. G. Ricketts
Surveyed by - E. W. Richards and G. D. Scott
Protracted by - G. D. Scott
Soundings plotted by - G. D. Scott
Verified and inked by - J. E. Gearhart
Reviewed by - I. M. Zeskind, 1 April 1953
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with air-photographic surveys T-8998 (1947) and T-9743 (1951). Shoreline from T-9743 was applied to the present survey before review of the topographic survey.

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

2. Sounding Line Crossings

Depths at crossings are in adequate agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated, except for inshore curves falling close to the high-water line

The bottom is generally smooth except in depths less than 18 ft. where some irregularity is noted. This irregularity is attributed largely to the gouging of the bottom by ice.

4. Junctions with Adjoining Surveys

An adequate junction was effected with H-7859 (1950-51) on the northeast. At the limits of the unsurveyed area, butt junctions were made with the following surveys:

On the east, north and west with H-7070 (1945);
On the southeast with H-7071 (1945) and;
On the southwest with H-7069 (1945).

Minor changes of 1-2 ft. have occurred in the junctional areas.

5. Comparison with Prior Surveys

H-7070 (1945) 1:20,000

The present survey falls within the limits of this prior survey. A comparison between the prior and present surveys shows little change in depths, except in several areas where present survey depths are 1-3 ft. deeper. An example of this deepening occurs in lat. 71° 25.34', long. 156° 23.86', where a prior depth of 33 ft. falls in present depths of 35-36 ft. This increase in depth is also evidenced by the shifting shoreward of depth curves. For example, in the vicinity of lat. 71° 23.3', long. 156° 21.0', the present 30-ft. depth curve falls 550 meters inshore from its prior location.

Inasmuch as the shoal in lat. 71° 23.05', long. 156° 24.54', is sparsely developed on the present survey, the least depth of 11 ft. has been retained from H-7070. With this addition the present survey is adequate to supersede the prior survey within the common area.

6. Comparison with Chart Drawing No. 9, dated 3-27-53
Chart 9445 (latest print date 8-11-52)

A. Hydrography

The charted hydrography originates principally with the previously discussed prior survey, supplemented by soundings from the present survey prior to verification and review. Minor corrections to soundings amounting to 1 ft. have been made on the smooth sheet of the present survey during verification and review.

The present survey is adequate to supersede the charted hydrography.

B. Aids to Navigation

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

7. Condition of Survey

a. The field plotting was accurately done.

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

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work Recommended

This is a basic survey and requires no additional field work.

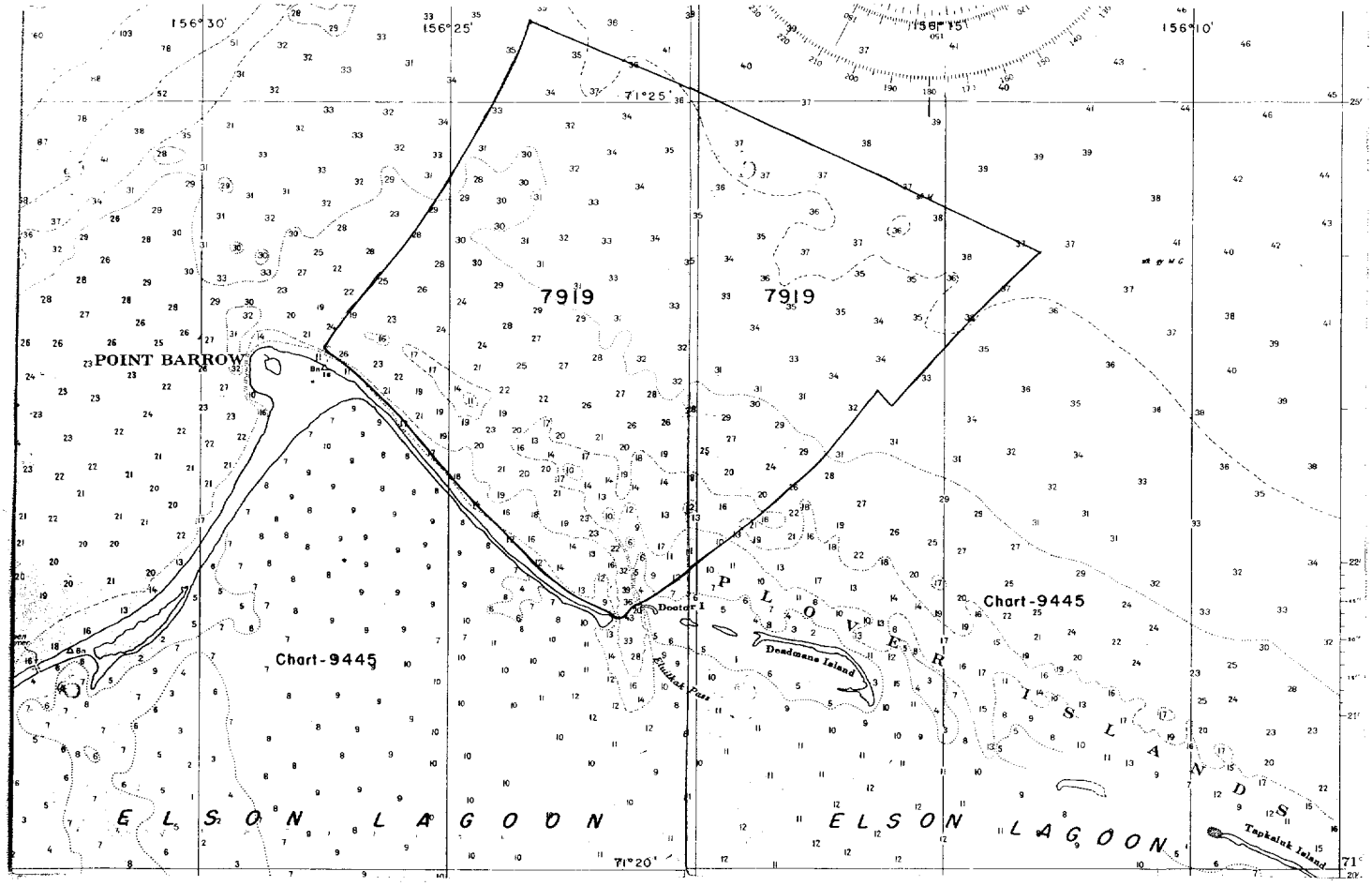
Examined and approved:

H. R. Edmonston
Chief, Nautical Chart Branch

H. Arnold Karo
Chief, Division of Charts

G. R. Fish
Chief, Section of Hydrography

Earl O. Heaton
Chief, Division of Coastal Surveys


156°30'
156°25'
156°15'
156°10'
71°25'
71°20'
7919
7919
POINT BARROW
Chart-9445
Chart-9445
Duster I
Deadmans Island
Boulder Four
PLOVER ISLAND
ELSON LAGOON
ELSON LAGOON
Tapkaluk Island

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7919

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
2 Jan 52 ✓	9445 } 9495 }	Ernest H Bell " "	Before ~~After~~ Verification and Review ✓ J.M.G. Soundings & Cames
			Before After Verification and Review
5/26/53	9402	H.W. Burgoyne	~~Before~~ After Verification and Review
11-23-54	9464	R.K. deLaunder	~~Before~~ After Verification and Review
& pet. ~~Sept 55~~	9403	M.E. MacEwen	~~Before~~ After Verification and Review Trans chart 9464
10-11-55	9495	R.K. deLaunder	~~Before~~ After Verification and Review To record. trans chart 9464.
			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.