

7656

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3.3(a), EXECUTIVE ORDER 12356.

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey ..... HYDROGRAPHIC  
Field No. ARN-1148 ..... Office No. H-7656

LOCALITY

State ..... ALASKA  
General locality ..... ARCTIC COAST  
Locality ..... BARTER ISLAND

1948.

CHIEF OF PARTY

Hubert A. Paton

LIBRARY & ARCHIVES

DATE ..... FEB 23 1949

7656

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FEB 23 1949

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-7656

Field No. ARN-1148

State ALASKA

General locality ARCTIC COAST

Locality BARTER ISLAND

Scale 1:10,000 Date of survey July, Aug. Sept. 1948

Instructions dated 4 February 1948.

Vessel Launches of Arctic Shore Party.

Chief of party Hubert A. Paton

Surveyed by Horace G. Conerly, Don A. Jones, and Lewis V. Evans

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

Fathograms scaled by H. Leavitt, M. Jenkins, C.H.A.

Fathograms checked by H. G. Conerly and Van Altree

Protracted by Carl N. Nyberg

Soundings penciled by Carl N. Nyberg and Leo W. Eason

Soundings in ~~fathoms~~ feet at ~~XXXXX~~ MLLW

REMARKS:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

REG. NO. H-7656

DESCRIPTIVE REPORT  
 TO ACCOMPANY  
 HYDROGRAPHIC SURVEY H-7656  
 (Field Number ARN 1148)

BARTER ISLAND, ALASKA

PROJECT CS 320  
 1948

SCALE OF SURVEY: 1-10,000  
 CHIEF OF PARTY: HUBERT A. PATON  
 IN CHARGE OF SUB-PARTY HORACE G. CONERLY  
 FIELD WORK BY: H.G.CONERLY AND D.A.JONES AND L.V.EVANS

A. PROJECT:

Authority for this survey is contained in the supplemental instructions for Project CS 320 issued by the Director, dated 4 February 1948.

B. SURVEY LIMITS AND DATES:

This survey covers Bernard Harbor and its approaches and the north coast of Barter Island. The entire survey was made in the summer months of 1948.

C. VESSELS AND EQUIPMENT:

Tidal data for the reduction of soundings were obtained from the Washington Office based on recorded tides of the tide staff and the portable automatic tide gage maintained at Barter Island. See tidal note attached.

No current stations were occupied.

E. SMOOTH SHEET:

The smooth sheet will be compiled using reduced soundings by personnel in the Seattle Processing Office. See Processing Office report attached.

F. CONTROL:

The control of this survey consists of second and third order triangulation, and hydrographic signals located by sextant fixes and transit cuts from triangulation. The triangulation was executed by H.A.Paton in 1948, and is based on BARTER ASTRO, 1948 datum.

G. SHORELINE AND TOPOGRAPHY:

The shoreline on this survey is derived from aerial photographic compilations from photographs taken with the nine-lens camera and from AAF tri-metrogon photographs. *No control on preliminary CS 370 Shoreline to be transferred when airphoto surveys are completed*

H. SOUNDINGS:

All soundings were obtained by 808J recording fathometers operating on the foot scale. The soundings were scaled and recorded to the nearest one-half foot and were corrected for tide, index, scale and velocity. See report on Velocity Corrections, Project CS320, Barter Island, Alaska, 1948.

I. CONTROL OF HYDROGRAPHY:

The hydrography on this survey was controlled by sextant fixes on signals erected over the hydrographic and triangulation stations.

J. ADEQUACY OF SURVEY:

This survey is adequate in all respects; additional development is not required. *See Review, par. 9*

K. CROSSLINES:

Approximately 8% of crosslines were run, and they show satisfactory crossings throughout the survey.

L. COMPARISON WITH PRIOR SURVEYS:

No prior detailed surveys of this area have been accomplished. (The survey sketches of E.deK. Leffingwell show details and soundings that correspond closely to this survey)

M. COMPARISON WITH CHART:

U.S.C&GS Chart 9400 is a small scale sailing chart and does not show the area covered by this survey in sufficient detail to make comparisons.

N. DANGERS AND SHOALS:

One mile north of the entrance to Bernard Harbor and on the west shores of the outer sand spit are bars and shoals; often during the summer season ice floes ground on these bars.

The passage from Bernard Harbor into the lagoon which lies south-east of Barter Island is close inshore to the eastern most end of Barter Island. A large shoal area extending from Manning Point northwestward makes this passage narrow. There also is a long sand bar which extends southwest from the end of the spit which forms the eastern most portion

of Barter Island. This bar breaks in easterly weather. ✓

At the entrance of the small boat harbor formed by the northeast shore of Barter Island and the sand spit extending eastward from this northeast corner of the island, are shoals which constrict the entrance and which in easterly weather tempers the waves inside the small boat harbor. ✓

O. COAST PILOT INFORMATION:

Good anchorage for launches is available in Bernard Harbor and Akvakniakvik Lagoon. The entrance channel to these waters is narrow and swift currents up to about 5 miles per hour are not uncommon. Exit from Bernard Harbor to the eastward through the eastern portion of Akvakniakvik Lagoon is possible for boats of draft not exceeding 4 feet. Landings upon all sand spits can be readily made. ✓

P. AIDS TO NAVIGATION:

See Special Report. *Chart Letter 940(1948)*

Q. LANDMARKS FOR CHARTS:

See Special Report. " " "

R. GEOGRAPHIC NAMES:

See Special Report. ✓

S. TABULATION OF APPLICABLE DATA:

1. Triangulation records - forwarded to Washington.
2. Tidal Data, Barter Island - forwarded to Washington.
3. Report on Velocity <sup>5-2636</sup> Corrections - forwarded to Washington.
4. Coast Pilot Notes - forwarded to Washington. *consulted in C.P. section*
5. Landmarks for Charts - forwarded to Washington. *see Q above*
6. Report on Geographic Names - forwarded to Washington.

T. ATTACHMENTS:

1. Abstract of Velocity Corrections. ✓
2. Tidal Data Sheets. ✓
3. List of Signals. ✓
4. Statistics for this Survey. ✓
5. Approval Sheet. ✓
6. Report on smooth plotting to be inserted by Processing Office. ✓

STATISTICS FOR HYDROGRAPHIC SURVEY H-7656  
(Field Number ARN 1148)

Launch No.	Date 1948	Volume Number	Day Letter	Number Pos.	Stat. Mile Sounding
9	31 July	1	a green	210	22.9
9	3 Aug.	2	b "	44	5.1
10	17 Aug.	1	a blue	175	19.3
10	18 "	1	b "	54	9.4
10	20 "	1&2	c "	109	28.7
11	16 July	1	a red	80	14.4
11	21 "	1	b "	42	7.2
11	26 "	1&2	c "	263	38.2
11	27 "	2&3	d "	221	22.0
11	28 "	3	e "	21	2.8
11	30 "	3	f "	21	2.5
11	2 Aug.	3	g "	96	15.2
Totals				1336	187.7

Total Area 9.0 sq. Stat. Miles.

H-7656

TIDAL NOTE

The soundings on this survey were reduced to mean lower low water. The soundings inside the lagoons were reduced using tides as recorded by portable automatic tide gage at Barter Island, Latitude 70 08.17' and Longitude 143 35.48'. All soundings offshore from the barrier sand reefs and offshore from Barter Island were reduced using tides as observed at the tide staff at Barter Island, Latitude 70 08.20' and Longitude 143 35.83'.

The height of mean lower low water above the 0 foot mark of the staffs varied throughout the season because damage sustained by the staff supports on account of ice.

ABSTRACT OF VELOCITY CORRECTIONS  
ARCTIC SHORE PARTY PROJECT GS 320 1933  
BARTER ISLAND, ALASKA

LAUNCH NO 11

1ST FISH INSTALLATION - Fatho. No. 1268		2ND FISH INSTALLATION, FATHO. 1268	
HYDRO SURVEY AREA 1148 a thru f days.		HYDRO SURVEY AREA 2348 e thru h days	
"	"	"	"
"	ANN 2348 a, b, & d days.	"	ANN 2348 e thru f days
"	ANN 2348 b day.	Depth	Corrections
Depth	Correction	0.0 ft. to 7.0 ft.	0.0 ft.
0.0 ft. to 5.0 ft.	-0.8 ft.	7.0 to 11.0	-0.2
5.0 to 9.0	-1.0	11.0 to 14.5	-0.4
9.0 to 13.0	-1.2	14.5 to 18.0	-0.6
13.0 to 17.0	-1.4	18.0 to 22.0	-0.8
17.0 to 21.0	-1.6	22.0 to 25.5	-1.0
21.0 to 24.5	-1.8	25.5 to 29.0	-1.2
24.5 to 28.0	-2.0	29.0 to 33.0	-1.4
28.0 to 31.5	-2.2	33.0 to 37.0	-1.6
31.5 to 35.5	-2.4	37.0 to 41.0	-1.8
35.5 to 39.0	-2.6	41.0 to 45.0	-2.0
39.0 to 43.5	-2.8	45.0 to 49.0	-2.2
43.5 to 47.5	-3.0	49.0 to 53.5	-2.4
47.5 to 52.0	-3.2	53.5 to 58.0	-2.6
52.0 to 56.5	-3.4	58.0 to 62.5	-2.8
56.5 to 61.0	-3.6		

1ST AND 3RD FISH INSTALLATIONS FATHO NO. 126 S  
HYDRO SURVEY AREA 1148 g day  
" " ANN 2348 e day, j day thru m day.  
" " ANN 2348 a day, g day thru j day

Depth	Corrections
0.0 ft. to 7.0 ft.	-1.0
7.0 to 11.0	-1.2
11.0 to 14.5	-1.4
14.5 to 18.5	-1.6
18.5 to 22.0	-1.8
22.0 to 26.0	-2.0
26.0 to 29.5	-2.2
29.5 to 33.0	-2.4
33.0 to 37.0	-2.6
37.0 to 41.0	-2.8
41.0 to 45.0	-3.0
45.0 to 49.0	-3.2
49.0 to 54.0	-3.4
54.0 to 58.0	-3.6
58.0 to 63.0	-3.8
63.0 to 68.0	-4.0



ABSTRACT OF VELOCITY CORRECTIONS  
ARCTIC SHORE PARTY PROJECT GS 320 1948  
BARTER ISLAND, ALASKA

LAUNCH NO. 9

Fathometer No. 121 S

FISH UNITS DEEP INSTALLATION

HYDRO SURVEY ARH2248 e day.

" " ARH2348 e day.

Depth	Correction
0.0ft. to 7.0ft.	0.4 ft.
7.0 to 10.5	0.2
10.5 to 14.5	0.0
14.5 to 18.0	-0.2
18.0 to 21.5	-0.4
21.5 to 25.0	-0.6
25.0 to 28.5	-0.8
28.5 to 32.5	-1.0
32.5 to 36.5	-1.2
36.5 to 40.5	-1.4
40.5 to 45.0	-1.6
45.0 to 49.0	-1.8
49.0 to 53.5	-2.0
53.5 to 58.0	-2.2

FISH UNITS 1ST. INSTALLATION

HYDRO SURVEY ARH 2148 34a to 175 a day

" " " 1c to 16c day

" " ARH 2248 f thru k days

" " ARH 2348 d thru f days

Depth	Correction
0.0 ft. to 2.5 ft.	-0.2 ft.
2.5 to 6.0	-0.4
6.0 to 10.0	-0.6
10.0 to 13.5	-0.8
13.5 to 17.5	-1.0
17.5 to 21.0	-1.2
21.0 to 24.5	-1.4
24.5 to 28.5	-1.6
28.5 to 32.0	-1.8
32.0 to 36.0	-2.0
36.0 to 40.0	-2.2
40.0 to 44.0	-2.4
44.0 to 48.0	-2.6
48.0 to 52.5	-2.8
52.5 to 57.0	-3.0
57.0 to 61.5	-3.2

BILGE UNIT INSTALLATION

HYDRO SURVEY ARH2148 1a to 23a day, b day,

17c to 58c day, d & e days

" " ARH1148 a & b days

" " ARH2248 a thru d days.

" " ARH2348 a & b days

Depth	Correction
1.0 ft. to 4.5 ft.	-0.4 ft.
4.5 to 8.0	-0.6
8.0 to 12.0	-0.8
12.0 to 15.5	-1.0
15.5 to 19.0	-1.2
19.0 to 23.0	-1.4
23.0 to 26.5	-1.6
26.5 to 30.0	-1.8
30.0 to 34.0	-2.0
34.0 to 38.0	-2.2
38.0 to 42.0	-2.4
42.0 to 46.0	-2.6
46.0 to 50.5	-2.8
50.5 to 55.0	-3.0
55.0 to 59.0	-3.2

ABSTRACT OF VELOCITY CORRECTIONS  
ARCTIC SHORE PARTY PROJECT GS 320 1948  
BARTER ISLAND, ALASKA

LAUNCH NO 10

Corrections to be used between 16 July and 4 September 1948.

HYDRO SURVEY AHN 2148 a thru m days and aa thru cc days  
" " AHN 1148 a thru e days.

Depth		Corrections
0.0 ft.	to 5.0 ft.	0.0 ft.
0.0	to 5.0	-0.2
5.0	to 10.0	-0.4
10.0	to 15.5	-0.6
15.5	to 17.5	-0.8
17.5	to 21.0	-1.0
21.0	to 25.0	-1.2
25.0	to 28.5	-1.4
28.5	to 32.0	-1.6
32.0	to 36.0	-1.8
36.0	to 40.0	-2.0
40.0	to 44.0	-2.2
44.0	to 48.5	-2.4
48.5	to 53.0	-2.6
53.0	to 57.0	-2.8
57.0	to 61.0	-3.0
61.0	to 65.5	-3.0

H-7656

APPROVAL SHEET

The boat sheet and field records of this survey are approved as transmitted to the Seattle Processing Office for smooth plotting. The work of this survey was inspected daily and suitable suggestions made to the hydrographers.

*Horace G. Conerly*  
Horace G. Conerly,  
Lt. Comdr., C&GS.  
In-charge of Subparty.

Approved and forwarded:

*Hubert A. Paton*

Hubert A. Paton,  
Comdr., C&GS,  
Chief of Arctic Project.

BARTER ISLAND - ARCTIC COAST OF ALASKA

PROCESSING OFFICE NOTES

Smooth Sheet

The projection is hand made on "K & E" paper N124H. All triangulation is work of the hydrographic party in 1948. The datum depends on the astronomical determination of the same year. There are no topographic signals. Hydrographic signals depend on cuts in sounding volume No. 8. No acceptable shoreline is available. This will come from air photographs inspected in 1948, when the plot has been made. Shoreline on the boatsheet was transferred from air photographs. ✓

Ice Gouging

In the area north of Bernard Spit (approximately within a radius of a mile and a half from station "Ice") the fathograms show irregularities from gouging by grounded ice floes. *See overlay tracing attached.* ✓

Channels

There is a limiting depth of ten feet over the outer bar into Barnard Harbor. There the best water is close to the Barter Island shore. One or two additional sounding lines in the inner part of the entrance to the harbor would be desirable. | *Review, par. 9*

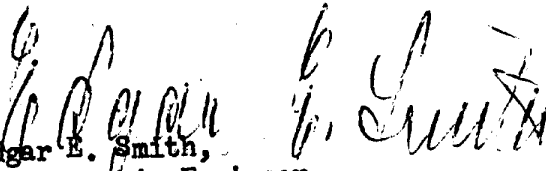
Seven (possibly eight) feet can be carried from Barnard Harbor southeastward into Akvakniakvik Lagoon. ✓

Eight feet is the limiting depth past Manning Point into the western part of Akvakniakvik Lagoon. ✓

<sup>Four</sup> Five feet is the limiting depth <sup>South of</sup> along parallel 70°08' into the small boat harbor at the northeast part of Barter Island (Longitude 143° 36.5'). ✓

14 February 1949.

Respectfully submitted,

  
Edgar E. Smith,  
Cartographic Engineer,  
Seattle Processing Office.

H-7656 - (ARN-1148)

BARTER ISLAND - ARCTIC COAST OF ALASKA

LIST OF GEOGRAPHIC NAMES PENCILLED ON SMOOTH SHEET

BEAUFORT SEA

BARTER ISLAND

BERNARD HARBOR

BERNARD SPIT

AREY ISLAND

AKVAKNIAKVIK LAGOON

MANNING POINT

(NOTE: The near separation of the eastern and western parts of Akvakniakvik Lagoon would seem to justify an additional name for one of these parts. E.E.S.)

*Noted*

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

24 February 1949

~~Division of Hydrography and Topography:~~

Division of Charts: R. H. Carstens

Plane of reference approved in  
8 volumes of sounding records for

HYDROGRAPHIC SHEET 7656

Locality - Barter Island, Arctic Coast

Chief of Party: H. A. Paton in 1948  
Plane of reference is mean lower low water, reading  
3.0 ft. on tide staff at Barter Island (Bernard Harbor)  
53.3 ft. below B. M. 1 (BARTER ASTRO 1948)

Height of mean high water above plane of reference  
is 0.50 feet.

Condition of records satisfactory except as noted below:

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

GEOGRAPHIC NAMES

Survey No. H-7656

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
<u>Alaska</u>											1
<u>Arctic Coast</u>											2
<u>Beaufort Sea</u>									USGB		3
<u>Arey Island</u> <i>do not include</i>											4
<u>Barter Island</u>									USGB		5
<u>Bernard Spit</u>											6
<u>Bernard Harbor</u>											7
<u>Akvakniak<sup>i</sup> Lagoon</u>											8
<u>Manning Point</u>											9
											10
											11
											12
											13
											14
											15
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											24
											25
											26
											27

Names are based on special report No. 118 (1948). Those underlined in red are approved. 3/8/49 L.H.



Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7656...

Records accompanying survey:

Boat sheets ..1...; sounding vols. .8...; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls <sup>6</sup>envel. ....;  
 special reports, etc. ....  
 .....

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

Number of positions on sheet		1336
Number of positions checked		72
Number of positions revised		12
Number of soundings revised (refers to depth only)		59
Number of soundings erroneously spaced		25
Number of signals erroneously plotted or transferred		0
Topographic details	Time	0
Junctions	Time	0
Verification of soundings from graphic record	Time	<del>11</del> ?

Verification by *Robert C. Richard* ..... Total time 147... Date APRIL 29, 1949

Reviewed by *J. J. Jordan* ..... Time 15... Date May 16, 1949

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7656

FIELD NO. ARN-1148

Alaska, Arctic Coast, Barter Island  
Surveyed in July to September, 1948      Scale 1:10,000  
Project No. CS-320

Soundings:

Control:

808 Fathometer

Visual fixes on shore signals

Chief of Party - H. A. Paton  
Surveyed by - H. G. Conerly, D. A. Jones and L. V.  
Evans

Protracted by - C. N. Nyberg  
Soundings plotted by - C. N. Nyberg and L. W. Eason  
Verified and inked by - R. C. Richard  
Reviewed by - G. F. Jordan, May 13, 1949  
Inspected by - R. H. Carstens

1. Shoreline and Control

The control for this survey originates with 1948 triangulation based on Barter Astro, 1948 datum. Hydrographic signals located on the present survey supplemented the triangulation signals.

Photogrammetric compilation of the shoreline is in progress. A preliminary compilation on prints of CS-370 shows no projection lines or control.

2. Bottom Configuration and Depth Curves

This survey covers smooth lagoon bottom, offshore areas and the connecting narrows. The coastal bottom gradually deepens to 50-ft. depths about two miles offshore. Considerable irregularity in the bottom in the vicinity of Bernard Spit is caused by ice gouging.

The usual depth curves are adequately delineated except in the foreshore areas where the low-water line is undeveloped. Although a completed compilation of the high-water line is not available at present, it is apparent, however, that the foreshore bottom is generally steep and that the present hydrography showing 3-to 10-ft. depths here is adequate.

3. Sounding Line Crossings

The sounding line crossings show very good agreement of depths.

4. Adjoining Surveys

Junctions with H-7657 (1948) on the east and south and with H-7658 (1948) on the west will be considered in the review of those surveys.

5. Comparison with Prior Surveys

No prior surveys have been made by this Bureau in the area.

6. Comparison with Arctic Coast Chart No. 7(Print of 5/16/49)

a. Hydrography

This preliminary chart was compiled from the present survey before verification. The following soundings have been rejected and should be deleted from the chart:

6 ft. in lat.  $70^{\circ} 07.48'$ , long.  $143^{\circ} 33.25'$   
6 ft. in lat.  $70^{\circ} 08.06'$ , long.  $143^{\circ} 32.40'$   
11 ft. in lat.  $70^{\circ} 09.16'$ , long.  $143^{\circ} 34.40'$

b. Aids to Navigation

No aids to navigation are charted in the area of this survey.

7. Condition of the Survey

- a. The Descriptive Report and sounding records are complete and comprehensive.
- b. Smooth-plotting of this survey was very good.
- c. Complete hydrographic development was not accomplished in the following areas;

- (1) In the western entrance to Bernard Harbor in depths greater than 6 ft. between long. 143° 34' and Long. 143° 36'.
- (2) In the narrows and approaches east and south of the spit at the east end of Barter Island.
- (3) In the entrance to the small lagoon in lat. 70° 07.95', long. 143° 35.5', where a connecting channel is a possibility.

d. No bottom characteristics were obtained in the recommended anchorage for launches in Bernard Harbor. As this is an original survey, no prior bottom characteristics are available.


8. Compliance with Project Instructions


The survey adequately complies with the project instruction, except as noted in paragraph 7c and 7d above.

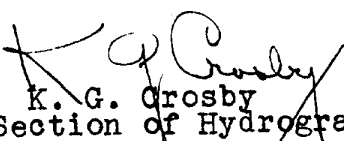
9. Additional Field Work


This is a basic survey and no additional field work is recommended at this time. The deficiencies noted in paragraphs 7c and 7d are a matter of record for possible future consideration.

Examined and approved:

  
H. R. Edmonston  
Chief, Nautical Chart Branch

  
Casper M. Durgin  
Chief, Division of Charts

  
K. G. Crosby  
Chief, Section of Hydrography

  
W. M. Scaife  
Chief, Division of Coastal Survey

# NAUTICAL CHARTS BRANCH

SURVEY NO. H. 7656

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
Aug. 1949	9400	Risegari	<del>Before</del> After Verification and Review Fully Appld.
2/16/49	Arctic # 7	Nichols	Examined After Review for Corrections 1/11/50 <del>Before</del> <del>After</del> Verification and Review <del>80E</del>
3/50	9403	H W Burgoyne	Applied two CH's <del>Before</del> After Verification and Review
Feb. 1952	arctic #7	Bell	added some edge north of Barts L. <del>Before</del> After Verification and Review as directed.
10-10-54	9476	Goodrich	<del>Before</del> 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
			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.