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Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. AR-2345 Office No. H-7071

LOCALITY

State ALASKA

General locality ARCTIC OCEAN

Locality POINT BARROW (ELSON LAGOON)

1945

CHIEF OF PARTY

R. W. Woodworth

LIBRARY & ARCHIVES

DATE MAR 11 1946

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DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. H7071

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-7071

Field No. AR 2345

State ALASKA -

General locality ARCTIC OCEAN

Locality POINT BARROW ~~Els on Lagoon~~

Scale 1:20,000 Date of survey July, Aug., Sept. 1945

Instructions dated 4/19/45 - Project CS-320

Vessel Shore Party. Launches # 1 and 2

Chief of party R. W. Woodworth

Surveyed by J. Bowie, F.B. Quinn, W.E. Randall

Soundings taken by ~~echometer~~, graphic recorder, ~~depth lead, wire~~

Protracted by W. M. Martin

Soundings penciled by W. M. Martin

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

REMARKS: Survey requested by Navy Department

Smooth sheet and Plotting by the Seattle Processing Office.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET H-7071  
(Field No. AR-2345)

Scale 1:20,000

Ralph W. Woodworth, Chief of Party -- Shore Party, Launches Nos. 1 & 2  
J. Bowie, F. B. Quinn, W. E. Randall - In Charge of Hydrographic Units

PROJECT

Instructions for Project CS-320 were issued by the Director April 19, 1945.

SURVEY LIMITS AND DATES

The survey was conducted between July 29 and Sept. 9, 1945.

The area covers the western half of Elson Lagoon and a small part of the Arctic Ocean on the north side of the lagoon. It is bounded as follows:

- To the North: <sup>H-7070 (1945)</sup> \*Sheet AR-2245 and unsurveyed areas of the Arctic Ocean. <sup>H-7072 (1945)</sup>
- To the SE: \*Sheet AR-2445 at a line between station AVAK and signal TAK.
- To the SW & NW: The mainland.

Ice conditions prevented survey operations prior to July 29, 1945.

VESSELS AND EQUIPMENT

The survey was made by 2 leased 30-ft. launches equipped with portable depth recorders Nos. 55-S and 73-S.

The speed of the launches was between 5 1/2 and 6 knots. The turning radius was about 50 meters.

TIDE STATION

A tide station was maintained the entire season at Point Barrow, in the northern corner of Elson Lagoon, Lat. 71° 23'.1, Long. 156° 26'.8.

CONTROL STATIONS

Triangulation stations were established during June and July of this season by this party. Intermediate stations along the spit at the northern part of the sheet were located by topography. Hydrographic signals on the sand spit islands SE of station DOCTOR were located by 3-point sextant angles observed at each station.

AR 2145	—	H-7069 (1945)	*AR-2445	—	H-7072 (1945)
* 2245		7070 (1945)	2545		7073 (1945)
2345		7071 (1945)	2645		7074 (1945)

### SHORELINE AND TOPOGRAPHY

Prior topographic surveys of the area did not exist. The shoreline between stations ASTRONOMIC and DOCTOR was surveyed by plane-table primarily to locate intermediate hydrographic stations.

The small sand islands SE of station DOCTOR were sketched in by the building unit. Air photographs taken this year are available for comparison. Some changes were noted during the season. For example, TAPKALUK ISLAND was continuous from signal MAN to and past signal TAK. Around the latter part of August a storm cut the island in two in the vicinity of signal TAK, washing out the signal. A sounding line was run through this washed-out gap.

The high and low water lines are practically identical due to the small range in tide and steepness of the land at the water edge.

### SOUNDINGS

All soundings were made by 808 portable depth recorders.

### CONTROL OF HYDROGRAPHY

Hydrographic control was by the usual method of sextant fixes observed from the launch upon shore signals.

### ADEQUACY OF SURVEY

For all practical purposes, the survey is complete. Along the shore of the sand spit islands SE of station DOCTOR, it was impractical to run the launches closer inshore because of dangers existing from shoal water and ice.

Junctions with adjacent sheets are in good agreement. Holidays or excessive differences do not exist. Depth curves can be drawn at the junctions.

### CROSSLINES

Crosslines are adequate, in good agreement, and run whenever practicable.

### COMPARISON WITH PRIOR SURVEYS

Prior hydrographic surveys of this area by any U.S. organization do not exist. This survey supersedes all previous information, whatever its source, and all subsequent charts should so conform.

### DANGERS AND SHOALS

All sand spit islands SE of station DOCTOR are dangers. They are only 2 or 3 feet in elevation and are difficult to see except in periods of good visibility.

NE of station DOCTOR and on the NE side of the channel, a shoal with a depth of less than 1 fathom extends in a NNW'ly direction 1/3 mile from signal HAM.

From the vicinity of station ELSON, a shoal with a depth of less than 1/2 fathom extends NNW'ly about 4 miles toward signal AXE.

COAST PILOT INFORMATION

Coast Pilot Information for this sheet is combined with the report for Sheets AR-2445, 2545 and 2645, and are submitted with the latter report.

AIDS TO NAVIGATION

No aids to navigation exist except the natural formation of the inconspicuous sand islands SE of station DOCTOR and the shoreline bounding the lagoon. Nothing is conspicuous.

LANDMARKS FOR CHARTS

The only objects that possibly qualify for landmarks are as follows:

1. Point Barrow
2. ELUITKAK PASS
3. Dead Mans Island
4. Tapkaluk Island
5. AHVAK Point
6. DOCTOR ISLAND

GEOGRAPHIC NAMES

1. AHVAK POINT - Point on mainland at station AVAK.
2. BRANT POINT - Point on mainland at station BRANT.
3. DEAD MANS ISLAND - Name of the island where signal DEAD is located. Name is of long standing and according to the Eskimos, a lot of dead men were found there once.
4. DOCTOR ISLAND - Small island where signal HAM is located. Name is of long standing.
5. ELSON LAGOON - Main area of boat sheet. Name is of long standing, and extends between the mainland and the PLOVER ISLANDS from POINT BARROW to CHRISTIE POINT.
6. ELUITKAK PASS - The main westerly entrance to ELSON LAGOON. It is between station DOCTOR and DOCTOR ISLAND. Name means in Eskimo: "Something wrong with the pass".
7. POINT BARROW - Most northerly point on the continent of North America. Eskimos also call it "NUWUK", which means in their language: "Used to be a point".
8. TAPKALUK ISLAND - Island where signals MAN, LUK, TAK and KAL are located. Name of long standing. In Eskimo, it means: "Old island".

Information concerning the names listed was obtained from leading natives\* at the nearby village of BARROW. Their adoption is recommended for charting purposes and should take priority over any other names, should conflicts exist.

\* See note under Geographic Names on report for Sheets AR-2445, 2545 and 2645.

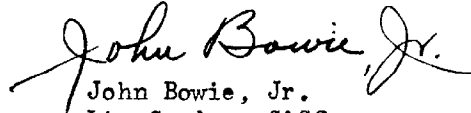
MISCELLANEOUS

The officers and civilian personnel of the Coast and Geodetic Survey were assisted by Navy SeaBees and Eskimos. The latter performed duties of launch engineer and coxswain, while the former were trained to record, operate the depth recorder, and observe sextant angles.

Due to the uniformity of the depths in Elson Lagoon, a system of lines spaced 800 meters apart was considered adequate. Developments of certain areas were made in accordance with standard practices.

The water in the lagoon froze between Sept. 13 and 15, terminating further launch operations. The ice was between 1 and 2 inches thick.

Respectfully submitted,

  
John Bowie, Jr.  
Lt. Comdr., C&GS

Approved and forwarded:

Ralph W. Woodworth  
Lt. Comdr., C&GS  
Chief of Party

TIME NOTE

PROJECT 03-120 -- SHEETS N-7069, N-7070, N-7071, (1975)  
N-7072, N-7073, N-7074.

POINT BARROW, ALASKA

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Two portable automatic tide gages were established to control the hydrographic surveys in the Arctic Ocean, Eison Lagoon and Tiny Island in Dease Inlet. The gage situated in the northwestern corner of Eison Lagoon (Latitude  $71^{\circ} 23' 11''$  N, Longitude  $156^{\circ} 26' 30''$  W) was established 29 July and was maintained throughout the season.

A second gage was established on Tiny Island (Latitude  $70^{\circ} 59' 15''$  N, Longitude  $155^{\circ} 36' 13''$  W) in Dease Inlet on 3 September. It was maintained until all surveys in Dease Inlet, Sheets N-7073 (AB-2543) and N-7074 (AB-2545) were completed on 15 September. At that time it was removed.

At the Navy Base, six miles south of Point Barrow (Latitude  $71^{\circ} 19' 17''$  N, Longitude  $156^{\circ} 40' 39''$  W), levels were run hourly from a permanent mark ashore to the water's surface, from Aug. 8 to Aug. 10, 1945.

Tide Reducers were obtained from Washington Office tabulations of observed tides at Eison Lagoon and Tiny Island. These tides were referenced to MLLW by the Division of Tides and Currents, as noted in Director's letter, 26-mh, dated 16 November 1945. Two exceptions to the above occurred on 7 and 9 September 1945, when extrapolations were made because observations were not available; and a third exception occurred on 9-10 August, when the tide curve was extended four additional hours.

Tide Reducers were applied in units of 0.2-foot to depths of 10 fathoms, and in even feet in greater depths. MLLW corresponded to 3.0 feet on the staffs at Eison Lagoon and Tiny Island. The Tiny Island tides occurred  $5/4$  hours later than those at Eison Lagoon; and those at the Navy Base and the "ocean staff" at Point Barrow occurred  $1 1/2$  hours and 1 hour earlier, respectively. The mean range tides at all four stations was approximately  $1/2$  foot.

Tide Data were used on the six hydrographic sheets as follows:

Sheet AB-2145 --- Eison Lagoon less  $1 1/2$  hours, and  
Tiny Island less  $5 1/4$  hours.  
Sheet AB-2245 --- Eison Lagoon less 1 hour.  
Sheet AB-2345 --- Eison Lagoon plus  $3/4$  hour, and  
Tiny Island less 3 hours.  
Sheet AB-2445 --- Tiny Island less 2 hours.  
Sheet AB-2545 --- Tiny Island less 1 hour.  
Sheet AB-2645 --- Tiny Island direct.

No tide reducers were applied to soundings inked on boat sheets because of the small range of tide.

Additional Notes by Seattle Processing Office

For DESCRIPTIVE REPORT

H-7071 (1945)

Point Barrow Alaska

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Control Stations-

The control for this sheet consisted of second- and third-order triangulation, 1945, supplemented by topographic stations and additional hydrographic stations located by sextant fixes when the signals were built. Geographic positions were furnished by the Washington Office. The position angles for other signals are in Vol. 1. Stations located by plane table are on T-6996 and T-6997.

Datum-

The boat sheet was based on an Astrolabe position of station ASTRO observed by the AAF in March 1945, a Solar Azimuth from ASTRO to NORTH BASE observed by Lieut. Comdr. R. W. Woodworth on the night of 1-2 July 1945, and the Point Barrow Baseline measured by Lieut. Comdr. J. Bowie Jr. in June 1945.

The Smooth Hydrographic Sheet was based on the second-order "USC&GS ASTRO 1945" datum, determined from two Astrolabe positions of SOUTH BASE observed by Commander Woodworth in September-October 1945, combined with the AAF observations at ASTRO, and a Polaris Azimuth, somewhat weaker than second-order, observed by the USC&GS on two nights in September-October 1945 from SOUTH BASE to NORTH BASE.

Shoreline-

The shoreline shown on the smooth sheet is from T-6996 and T-6997. No other topography is available at the Processing Office. It is presumed that shoreline will be added in the Washington Office after photo compilations are complete. *Shoreline corrected to conform to air photo manuscript CS-315*



Fathometer Corrections-

Fathometer corrections were derived from bar checks by Lt. Comdr. F. B. Quinn who prepared a report entitled "Velocity and Draft Corrections." This report was forwarded to Washington on 2 Jan. 1946. *Special Report No. 5 (1945) by Capt Siems.*

After plotting the soundings obtained from these corrections, differences of approximately a foot were found at crossings involving the two launches. An investigation was made by the Officer in Charge.

The differences were attributed to an erroneous length of bar line (red launch). A new set of fathometer corrections was provided; the books were again reduced and the soundings plotted. Certain crossings were improved and discrepancies showed at others, of the order of a foot.

After a second investigation, a new set of corrections was provided. The difference is attributed to a change in depth of fish (red launch). This set of fathometer corrections also were entered and the books reduced. After plotting the resultant soundings, there are differences of the order of a foot which are tabulated below.

Date	Red	Blue	Depths		Difference
	Launch	Launch	Red Lanch.	Blue Lanch.	
			ft.	ft.	ft.
8/30	2-3f	87-88d	9.5 - 9.4	8.6 - 8.7	0.8
8/23	61e	79g	6.3	5.7	0.6
8/23	73-74e	95-96g	5.8 - 6.0	4.7 - 5.1	1.0
7/29	-----	19-20a	5.2	-----	} 0.7
8/23 <sup>29</sup>	-----	95-96g		5.9	
8/23	81-82e	105-106g	9.5 - 9.8	8.7 - 8.9	0.8
8/23	80-81e	108-109g	8.8 - 9.1	8.2 - 8.3	0.7
8/23	85-86e	109-110g	9.8	8.5	1.3
7/29	24-25a	117-118g	9.0 - 9.2	7.7 - 8.0	1.2
7/29	30-31a	119-120g	9.8 - 10.0	8.5	1.4
8/30	42-43f	after 39h	10.0	9.1 - 9.3	0.8
8/23	64-65e	11-12a	7.9*	7.6 - 6.9*	0.7

\*These sdgs. are by same fathometer.

Captain Siems considers that the fathogram soundings on "g" day, blue launch, which are too shoal, probably have been misinterpreted due to incompleteness of the fathogram trace in not recording the entire motion of the launch. His remarks are given in the following paragraph. Also, a Supplemental Fathometer Report has been prepared by Captain Siems and is a part of this report. Copies of the supplemental report are provided for the reports of other sheets in this project.

"The only serious discrepancies in crossing of soundings occur along lines 95 to 120g (Launch #2). The soundings for this part of g day are consistently about 1 foot shoaler than the soundings crossed on various other lines or near other lines. There is a note in the record that it was rough and that the launch was rolling. The bottom trace of the fathogram for this part of the day is irregular and intermittent, indicating that the fish was out of water or nearly so at times. The roll may have been of such short duration that the trace of the momentary upper part of the roll for the most part would not be recorded perceptively, or with the fish out or nearly out of the water (on a two-foot roll or more), there would be no trace at all of the upper part of the roll. Therefore, an erroneous shoaler fathogram reading favoring the lower part of the roll was probably made." (FBTS)

H-7071 (AR 2345)

Point Barrow

LIST OF GEOGRAPHIC NAMES PENCILED ON SMOOTH SHEET

Arctic Ocean

Point Barrow

Elson Lagoon

Doctor Island

Deadmans Island

Tapkaluk Island

Eluitkak Pass

Brant Point

Alwak Point

STATISTICS

The statistics for Hydrographic Survey H-7071<sup>(1945)</sup> (AR-2345, 1945); Arctic Shore Party, Project CS-320, are as follows:

Vol. No.	Day Letter	Date	No. of Positions	Stat. Miles Sdg. Lines
<u>LAUNCH NO. 1</u>				
1	a	July 29	62	16.2
1	b	Aug. 12	83	28.2
1	c	16	61	17.8
1 & 2	d	17	70	26.2
2	e	23	99	24.0
2	f	30	87	33.6
6	g	Sept. 6	37	13.3
6	h	7	40	13.8
6	j	10	25	10.6
7	k	9	19	6.1

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Sub-total: 583 189.8

LAUNCH NO. 2

3	a	July 29	22	3.3
3	b	Aug. 12	67	23.1
3	c	13	63	18.1
3 & 4	d	23	88	26.4
4	e	30	83	30.1
4	f	31	32	3.6
5	g	Sept. 3	120	34.7
5	h	6	39	13.0
5	j	7	48	15.3
5	k	9	36	11.4

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Sub-total: 598 179.0

Totals: 1181 368.8

Area - 79 square statute miles

## SUPPLEMENTAL FATHOMETER REPORT

Notes regarding fathometer corrections  
to supplement Report on "VELOCITY AND DRAFT  
CORRECTIONS - POINT BARROW, ALASKA, 1945."

*to accompany*  
*Descriptive Report*  
*for AR 2345*  
*H-7071*

1. In the absence of serial temperature and salinity observations, it was necessary to compare bar-check fathometer soundings (F) with the sound-travel distances (A) to determine actual velocity and corresponding corrections for soundings taken with 808 fathometers calibrated for 820 fms/sec velocity. The average velocity, namely 780 fms/sec, was determined from bar-check data for sheets AR 2145 and 2245. (See report on Velocity and Draft Corrections.) A later compilation of all bar checks, shown on forms accompanying these notes, substantially gives the same average velocity.
2. In combining the draft and velocity corrections, a 1-foot fathometer draft was considered as having been maintained on both launches during the season. This assumption appeared reasonable at the time the report on Velocity and Draft Corrections was prepared. The report shows that the 6-foot bar-check fathometer soundings (F) for sheet AR 2145 do not differ materially from 5.26 feet, a value corresponding to a sound-travel distance of 5.0 feet, in the ratio of velocities 820:780. The single 6-foot bar-check fathometer sounding (F), sheet AR 2245, Launch No. 1, reading 3.8 feet, was discredited at the time the report was prepared.
3. Upon compiling the remainder of bar checks (including sheets AR-2345-2445-2545-2645), it was found that the 6-foot bar checks taken in Launch No. 1 during the latter part of the season, in general, gave F values of about 4.2. (Note exception of F value of 5.2 on 10 Sept.; also F value of 12-foot bar check of 11.5 rather than 10.5 on 16 August.)
4. In originally plotting the soundings on sheet AR 2345, discrepancies in crossings indicated a possibility that the 4.2 values of F were caused by a shortened bar line. Under this assumption, soundings were corrected by applying the actual initial reading (correction made in green in the sounding records) as the index correction, rather than a corrected initial reading. Originally, the initial reading was increased or decreased by an amount that the 6-foot bar-check fathometer soundings F differed from 5.26 (the F value for a 1-foot draft - see paragraph 2 above).
5. In replotting the soundings on sheet AR 2345, under the assumption that a 5-foot bar line was used instead of a 6-foot line, a far larger number of discrepancies at crossings resulted; and it was discovered also that the discrepancies occurring in the first plotting could be removed or improved by taking account of an apparent change in draft occurring on two occasions during the course of a day, and by a revision of estimated index corrections (see paragraph 9). A change in the draft of the fathometer rather than an incorrect bar line now clearly indicated the cause of the varying bar-check values of F. Accordingly, a second and final correction was made for draft supplementing the assumed 1-foot draft correction, as indicated by the bar-check values of F. The final corrected soundings (second correction) were entered in the 'Office' column of Reduced Soundings, or the reduced soundings in green (first correction) were corrected in lead pencil. In some cases, the first correction, held as the final correction, is necessary.

Thus, on 10 September (see sounding record for AR 2345, Vol. 6, page 26), a 6-foot bar check was taken by Launch No. 1 at the beginning of the day with an F value of 4.2. Work was then accomplished successively on sheets 2645, 2545, and 2445, and at the latter part of the day on sheet 2345. At the end of the day, a 6-foot bar check was taken reading 8.0 (R) with no initial showing at the bar check. However, an initial of 2.8 precedes the bar check and in using this initial the F value is 5.2 (value for a 1-foot draft). Under an assumption that a change in the draft of the fish took place (as indicated by the two F values of 4.2 and 5.2) just before work was started on sheet 2345, agreement in crossings is effected. The change in draft from about 2 feet while working on sheets 2645, 2545, and 2445 to a draft of about 1 foot while working on sheet 2345 could very well be the case, because during the interval between the work on sheets 2445 and 2345, the sounding launch grounded, and it is plausible to assume that the fish was lifted at the time and reset at the lesser depth. A second case of apparent change in draft of fish during the course of a day occurred on August 16, at position 52c, sheet 2345, Launch No. 1. See Sounding Vol. 1 for sheet 2345, page 46. The fish supports apparently struck bottom causing the fish to slide to a position about 1 foot deeper. Agreement is effected at crossings of soundings corrected under this assumption.

6. The finally reduced soundings, after the second correction, agree with the originally reduced soundings in most cases; some differences amount to 0.2 to 0.4 feet. They are the same except for changes brought about in a further scanning of the fathograms; a different interpretation of readings of the initial and bar checks was made. For instance, light initial traces were decreased 0.2 foot to correspond to a normal initial at normal gain. Some of the bar-check data also were revised.

7. The procedure carried out in making the first and second corrections is as follows: (a) In column 'Echo correction' the velocity correction combined with an assumed 1-foot draft correction was left unchanged, (b) the index correction was changed (in green) to correspond with the normal or actual (heavy trace) initial appearing on the fathogram, or where it was out out, the initial was assumed at a position related to the bar checks as shown in the tabulations of Index Corrections following these notes, (c) the tide reducers were left unchanged, and (d) a further correction for change in draft of fish from the assumed 1-foot setting was entered in red at the head of the Reduced Sounding (Office) column.

8. Corrected reduced soundings were also made in the sounding records for sheets AR 2445 (H-7072), 2545 (H-7073), and 2645 (H-7074). These will differ slightly from the originally reduced soundings plotted on these sheets which are now at the Washington Office. As sheets 2145 (H-7069) and 2245 (H-7070) cover deep water areas, it is considered that the originally reduced soundings plotted on those sheets may not need to be revised.

9. The attached tabulations pertain to estimated index corrections during days when the initial was partly or entirely out out.

*Williams*

Respectfully submitted,



Edgar E. Smith  
Cartographic Engineer  
Seattle Processing Office

Approved and Forwarded,



F. B. T. Siens  
Officer in Charge,  
Seattle Processing Office

Date	Line Position	Bar Check		Initial					No. of Fish	Draft	Notes
		R	F as sume	R-F	Fnt	Lt.	Net	Hvy			
16 Aug	2345	12.0	⊙	0.4					0.2		* Definite initial. ⊙ F value for 12-foot bar and 1-foot draft. gives calculated initial (R-F) corresponding to actual initial.
No 1	1-C	11.8	11.56	0.2					0.4	0.4	
	13-C								0.7	0.7	
	14-C								0.6	0.6	
	24-C								0.8	0.8	
	31-C								0.8	0.8	
	32-33c										Passing over shoal, Fish support probably struck bottom
	33c					1.0				0.8	
	34c							0.9		0.8	
	45c							1.0		0.9	
	60-c							1.0		0.9	
	61-C	5.1	⊙	4.2	0.9	1.0			0.9	0.8	⊙ F value for 6-ft bar and 2-foot draft. gives calculated initial (R-F) 0.9 corresponding to actual initial 0.8.
									0.4		1-11-C (1-ft draft)
									0.6		12-16c do
									0.8		16-32c do
									0.8		33c-52c (2-ft. draft)
									1.0		53-62c do.



Date	Roll No.	Bar Clock			Initial					No. of Bars	Bar Size
		B	F	U	R	F	L	H	H		
17 Aug	2345									(1.5)	
No 1.	1-d	5.7	4.2	1.5					1.0	1.0	F values are for assumed 2-foot draft (approx)
		12.0	10.5	1.5						(1.5)	
	46-d	5.6	4.2	1.4					1.5	1.4	
		12.1	10.5	1.6						1.6	End of roll.
	47-d	5.7	4.2	1.5				1.9	* 1.6	* 1.6 (1.8)	(check New roll. * Just preceding bar
		12.0	10.5	1.5							
	48-56d							2.0		(1.8)	
	56-57d										Fish aground.
	57-59							2.0		(1.8)	
	60-d								1.6	1.6	
	61-70d								1.8	1.7	
										1.0	1-8d
										1.2	9-22d
										1.4	23-34d
										1.2	34-38d
										1.4	39-42d
										1.2	43-46d
										1.6	47-70d

Date	Sheet and Position	Bar Check		Initial						IN-DEX GUR	Remarks	
		R	F or GUR	R-Y	Int	LG	Mod	Key	NOT			
23 Aug	2345									1.8		
No. 1	1-e	6.0	4.2	1.8		2.0				1.8		F values are for assumed 2-foot draft (approx).
	46-e							1.7		1.6		
	66-e	6.0	4.2	1.8					1.7	1.7		
	67-68e							1.7		1.6		
	99e								1.5	1.5		
	99e	6.0	4.2	1.8				1.7	1.7	1.6		
										1.6		1 to 99e.
30 Aug	2345									1.8		
No. 1	1-f	6.0	4.2	1.8				1.8		1.7		
	1-5f							1.8 to 1.8		1.8		
	36-f											Paper creeping in direction to decrease initial.
	48-f	5.3	4.2	1.1						1.1		end of roll. No initial.
	48-f	6.0	4.2	1.8						1.8		New roll. No initial.
	60-f					2.0				1.8		
	87-f	6.1	4.2	1.9						1.9		No initial.
										1.8		1-35f
										1.6		36-40f
										1.4		40-42f
										1.2		42-43f
										1.0		44-48f (end of roll)
										1.8		48-87f

Estimated

Date	Sheet and Por. Flow	Bar Check		Initial							IN-DEX COR.	REMARKS	
		R	F as sume	R-F	Font	Lg	Mod	Hvy	No. of				
6 Sept	2345									1.8			
No. 1	1-g	6.0	4.2	1.8				1.8		1.7			F values are for assumed
	2445									2.0			2-foot draft (approx).
	54-a				2.4					or 2.0			
	54-a+							*	2.1	or 2.0			* short moderate trace
	55-a									2.0	2.0		
	end-a	6.7	<del>4.2</del> (2.7)										* Bar check taken after paper slipped ∴ of no value as to position of initial.
<u>Estimated</u>										1.8	1-37g	(2345)	
<u>Estimated</u>										2.0	1-36a	(2445)	
<u>Estimated</u>										2.2	36-55a	(2545)	
7 Sept	2645									1.8			
No. 1	1-a	6.0	4.2	1.8				2.0		1.9			
	2345												
	40-h	6.7	4.2	2.5						2.5			No initial
<u>Estimated</u>										1.8	1-16a	(2645)	
<u>Estimated</u>										1.8	1-26 b	(2545 & 2445)	
<u>Estimated</u>										2.0	27-73 b	(2445)	
<u>Estimated</u>										2.2	1-20 h	(2345)	
<u>Estimated</u>										2.4	21-40 h	(2345)	

Date and Location	Cast and Position	Bar Check		Initial						IN- DEX COR	Remarks
		B	F as value	R-F	Pat	Ls	Mod	Hvy	Net val		
9 Sept No 1	2445 1-C	6.0	* 4.2	1.8					1.8	* F value is for assumed 2-ft. draft. (approx). No initial	
	2645 22-23b					2.0			1.8		
	24b	6.0	* 4.2	1.8					1.8	Initial preceding bar check None at bar check	
	2545 1-C								1.8	1-44c (2445)	
									1.8	44-69c (2545)	
									1.8	1-24b (2645)	
										Estimated	
10 Sept No 1	2645 1-C	6.0	4.2	1.8		2.0			1.8	F value (4.2) is for assumed 2-ft draft (approx). Calculated initial R-F corresponds to actual initial. Paper held out of normal position at bar check see tears in perforations.	
	1-2c					2.8			2.6	Paper brought to normal position causing change in initial indicated.	
	13-14c					2.6			2.4	Tears in perforations 6c-8d.	
	2545 42-43d					3.0			(2.6)		
	68d									Launch aground	
	2345 1j									Fish probably reset at lesser depth as indicated by bar check at 25j.	
	21j							2.8	2.8		
	25j	8.0	5.2	2.8					2.8	F value 5.2 is for assumed 1-foot draft. No initial at bar check.	
									1.8	1-C (2645) 2-ft draft	
									2.6	1-6c " do	
									2.4	6c-8d (2645 & 2545) do	
									2.6	8d-68d (2545 & 2445) do	
									2.8	1-25j (2345) 1-ft. draft.	

Date and Name	Draft Position	Bar Clock		Initial					Net Est.	In D&A C.R.	Remarks
		R	F or sume	E	F	Lat	Med	Hvy			
13 Sept	2445								1.9		F values are for assumed 2-foot draft (approx)
No 1.	1-e	6.1	4.2	1.9			2.1		2.0		
	8-e					2.4			2.2		
	9-e					2.6			2.4		
	12-e				3.0				(2.6)		
	2545				*						
	56-e				3.0				(2.6)	* Very faint	
	63-e				*				(2.6)	" "	
	2645								2.6		
	15-d	6.8	4.2	2.6		3.0			2.8		
	15-d	6.1	4.2	1.9		2.4			1.9	Reset initial	
									2.0	1-7e (2445)	
									2.2	7e-9e do	
									2.4	9-12e do	
									2.6	12e-15d (2445, 2545 & 2645)	
									2.0	15-26d (2645)	

Estimated.

Date	Sheet and Post	Bar Check		Initial						IN-DMY CUR	Remarks	
		R	W	W	Tab	Ln	Mod	Hvy	Net Est			
14 Sept	2545								1.8			
	1-f	6.0	4.2	1.8				1.9	1.8			F value for assumed 2-ft draft
	23-29f											Paper creeping in direction to increase initial see tears in perforations.
	35-42f											do
	43-56f											do
	56-66f											do
	66-f	6.9	4.2	2.7					2.7			No initial at bar check.
									1.8	1.8	1-22f (2545)	
									2.0	2.0	22-29f "	
									2.0	2.0	29-35f "	
									Estimated		2.2	35-42f "
									2.4	2.4	43-56f "	
									2.6	2.6	56-66f "	

Fathometer No. 5-55  
 Launch # 2

BAR CHECKS

Date and Position	Boat and Sheet	R-6' and I		R-12' and I		R-18' and I		R-24' and I		R-30' and I		R- and I		Remarks
		F-6'	I	F-12'	I	F-18'	I	F-24'	I	F-30'	I	F-	I	
1945 29 July 1-a	2345	6.0 .8	5.2											
2 Aug 1-a	2145	6.0 7	5.3	12.0 7	11.3	18.6 7	17.9	25.1 .7	24.4					Light initial at 6, 12, & 18-ft bar checks.... 0.9 corresponds to Normal... 0.7
		5.9 3	5.6	12.0 .3	11.7	18.7 3	18.4	24.9 3	24.6	31.1 3	30.8			
		5.9 .7	5.2	12.1 7	11.4	18.6 7	17.9	24.7? .7	(24.0)	30.9 7	30.2			
3 Aug 1-b		6.1 1.0	5.1	12.0 .7	11.3	18.8 7	18.1							
		5.1 0	5.1	11.3 0	11.3	17.8 0	17.8							
4 Aug 32-c		5.7 3	5.4	11.7 .1	11.6	18.5 3	18.2							
9 Aug 1-d		5.9 5	5.4	12.3 5	11.8	19.0 5	18.5	24.8 .0	24.8					
		5.4 0	5.4	11.8 0	11.8									
		5.7 1	5.6			18.7 1	18.6			31.2 2	31.0			
123-d 12 Aug		5.3 0	5.3	11.7 0	11.7	18.2 0	18.2							
1-b	2345	6.0 8	5.2											

Sheet 1 Means Velocities 6.23 790 6.60 745 6.26 786 6.20 793

Mean 778 fms/sec  
 sheets 2 to 5 772  
 " 6 & 7 770  
 " 8 to 10 782

Fathometer No. S-55  
 Launch # 1

BAR CHECKS

Date and Position	Boat and Sheet	R-6' and I		R-12' and I		R-18' and I		R-24' and I		R-30' and I		R- and I	Remarks
		F-6	F-6	F-12	F-12	F-18	F-18	F-24	F-24	F-30	F-30		
1945 13 Aug 1-e	No-1 2245									5.0 fms +0.1	30.6		$\begin{array}{r} 30.6 \\ 5.3? \\ \hline 25.3 \end{array}$ $\begin{array}{r} 4 \overline{)25.3} \\ 6.3 \\ \hline 4 \overline{)26.4} \\ 6.6 \end{array}$
69-e								4.2 fms .2	24.0		6.3		$\begin{array}{r} 24.0 \\ 5.3? \\ \hline 18.7 \end{array}$ $\begin{array}{r} 3 \overline{)18.7} \\ 6.2 \\ \hline 3 \overline{)19.8} \\ 6.6 \end{array}$
16 Aug 1-c	2345			12.0? 11.8? 4	11.6? 11.4?				6.2				$\begin{array}{r} 11.5 \\ 5.3 \\ \hline 6.2 \end{array}$
61-c		5.1 .8	Fair 4.3										Light initial--1.0 Normal--0.8
17 Aug 1-d		5.7 1.0	4.7	11.5? 6	10.9?	17.8 .6	17.2		6.3				
				12.0 1.0	Good 11.0								
46-d		5.6 1.4	4.2	12.1 1.4	10.7								Moderate initial--1.5 Normal 1.4
47-d		5.7 1.5	4.2	12.0 1.5	10.5								
19 Aug 48-f	2245							4.1 2	23.4				$\begin{array}{r} 23.4 \\ 4.2 \\ \hline 19.2 \end{array}$ $\frac{1}{3} \times 19.2 = 6.4$
20 Aug 1-g								4.1 2	23.4				
65-g								4.2 3	23.4	5.1 .1	30.0		$\begin{array}{r} 23.4 \\ 5.2 \\ \hline 18.2 \\ 6.0 \end{array}$ $\begin{array}{r} 30.0 \\ 4.2 \\ \hline 25.8 \\ 6.4 \end{array}$ $\frac{1}{4} \times 25.8 = 6.4$
152-g									6.4	5.1 1	30.0		



Fathometer No. S-55  
 Launch # 1

BAR CHECKS

Date and Position	Boat and Sheet	R-6' and		R-12' and		R-18' and		R-24' and		R-30' and		R- and		Remarks
		I	F-6	I	F-12	I	F-18	I	F-24	I	F-30	I	F-	
1945 23 Aug 1-c	2345	6.0												Light initial --- 2.0 Normal --- 1.8
66-e		6.0												Initial following bar. None at bar.
99-e		6.0												Initial following bar 1.7 Mod. 1.6 Normal
30 Aug 1-f		6.0												Mod. initial --- 1.8 Normal --- 1.7
48-f		5.3												End of roll. No initial.
48-f		6.0												New roll No initial
87-f		6.1												No initial
31 Aug 1-h	2245	mod 1.0 net 0.9		12.0 1.9 1.2		11.0				29.9 17.6 12.9				11.0 5.3 5.7
48-h		4.9	4.3	11.7		18.0		24.9	9.3	30.9		37.3		36.2 36.2 29.8 29.8 23.8 18.9 10.7 5.2 4.2 5.2 4.2 5.2 4.2 4.2 31.0 32.0 24.6 25.6 18.6 12.7 6.5 6.2 6.4 6.1 6.4 5.2 6.3
3 Sep. 1-j						2.95 6.5	6.2	3.95	6.9		6.4		6.4	23.4 4.2? 19.2 6.4
								4.0	6.0					23.4 5.2? 18.2 6.1
								0	24.0					24.0 4.2? 19.8 6.6
108-j				1.65 fmg +2.0	11.1	2.7 +2	17.4	3.8 +2	6.6	24.0				18.8 6.1

See Review Addendum  
to H-7070  
(GFU)

6.3  
6.6  
?





Fathometer No. S-73

## BAR CHECKS

6

Launch #

Date and Position	Boat and Sheet	R-6' and I F-6		R-12' and I F-12		R-18' and I F-18		R-24' and I F-24		R-30' and I F-30		Remarks
		I	F-6	I	F-12	I	F-18	I	F-24	I	F-30	
1945 29 July 1-a	2345	6.0 5	5.5									No initial at bar check used " immediately following
28-a		6.1 9	5.2									mod ... 1.0 Normal ... 0.9
65-a		6.3 1.0	5.3									
2 Aug 1-a	2145			11.9 5	11.4	*18.4 5	17.9	24.0 + 6	24.6			
				11.9 6	11.3	*17.7 2	17.5	6.5 6.7				
				11.9 3	11.6	*18.4 4	18.0	6.2 5	*25.0 24.5			x Possible bar checks not marked as such
3 Aug 1-a	2245					*18.1 5	17.6	6.4 6.5				* Light trace
65-a								24.5 5	24.0			
4 Aug In b						17.9 0	17.9	6.4 + 6	24.6	30.3? 0	30.3?	
32-b						17.7 1	17.6	6.7		30.5 1	30.4 17.6 12.8 6.4	
95-b										6.4		Bar Checks unsatisfactory
9 Aug 1-c	2145	5.8 6	5.2	11.9 6	11.3	18.0 6	17.4					

see Remarks Addendum  
H-7070  
(G.F.D.)



L  
 Fathometer No. S-73  
 Launch #.

BAR CHECKS

Date and Position	Boat and Sheet	R-6' and I F-6'		R-12' and I F-12'		R-18' and I F-18'		R-24' and I F-24'		R-30' and I F-30'		R- and I F-'		Remarks
		I	F-6'	I	F-12'	I	F-18'	I	F-24'	I	F-30'	I	F-'	
1945 13 Aug 1-c	2345	6.0 6	5.4											By Quinn - Gd.
63-c		6.0 4	5.6	12.3 4	11.9	18.7 4	18.3	25.0 4	24.6	31.0 4	30.6	37.2 4	36.8	" V.G.
15 Aug 1-e	2145				6.3	3.0 0	6.4 18.0		6.3		6.0		6.2	
119-c						18.0 0	18.0							
16 Aug 1-f		6.1 4	5.7	12.3 3	12.0	19.0 3	18.7	24.9 0	24.9	31.3 0	31.3	37.4 0	37.4	
		5.7 1	5.6	12.0 0	6.3 12.0	18.5 0	6.7 18.5	24.9 0	6.2 24.9	31.0 0	6.4 31.0		6.1	
17 Aug 1-g		5.7 2	5.5	11.8 1	6.4 11.7	18.5 1	6.5 18.4	24.5 0	6.4 24.5	30.7 1	6.1 30.6			
18-g		5.5 0	5.5	11.7 0	6.2 11.7	17.9 0	6.7 17.9	24.3 0	6.1 24.3	30.5 0	6.1 30.5			
1-h					6.2		6.2	3.6 fms +5	6.4 24.6		6.2			$\begin{array}{r} 24.6 \\ 5.21 \\ \hline 19.39 \\ 6.7 \end{array}$ $\begin{array}{r} 24.6 \\ 5.8 \\ \hline 18.8 \\ 2.8 \end{array}$
								4.1 -1	6.3 24.0					$\begin{array}{r} 24.0 \\ 5.5 \\ \hline 18.5 \\ 6.5 \end{array}$
64-h								4.2 -2	6.2 24.0					
19 Aug 1-j		5.3 0	5.3	11.5 1	6.1 11.4	17.9 1	6.4 17.8	24.1 1	6.2 24.0					







Rule  
83 1742

2400

Form 713  
DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY  
Rev. June 1937

839

### TIDE NOTE FOR HYDROGRAPHIC SHEET

18 March 1946

~~Division of Hydrography and Topography:~~

Division of Charts: H. W. MURRAY

Plane of reference approved in  
7 volumes of sounding records for

HYDROGRAPHIC SHEET 7071

Locality Arctic Ocean (Point Barrow)

Chief of Party: R. W. Woodworth in 1945  
Plane of reference is mean lower low water, reading  
3.0 ft. on tide staff at Point Barrow (Elson Lagoon)  
13.1 ft. below B. M. 1

Height of mean high water above plane of reference is 0.4 foot.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES

Survey No. **H7071**

Name on Survey	Source										Number
	A	B	C	D	E	F	G	H	K		
Point Barrow		(location of tide staff)							U.S. B		1
Elsor Lagoon									"		2
Eluitkak Pass											3
Deadmans Island											4
Tapkaluk Island											5
Scott Pt		(use the old name pending action by U.S. B.G.N. : not Ahvak Pt.)									6
Doctor I.											7
Ahrak Pt.											8
											9
		Name identified in row above by L. Heck on 8/29/46									10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. **.H7071**

Records accompanying survey:

Boat sheets<sup>2</sup>.....; sounding vols. **.7**....; wire drag vols. ....;  
bomb vols. ....; graphic recorder rolls **.12**...;  
. special reports, etc. ....  
.....

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

Number of positions on sheet		<b>.1181</b> ..
Number of positions checked		<b>.138</b> ..
Number of positions revised		<b>.1</b> ..
Number of soundings revised (refers to depth only)		<b>.3</b> ..
Number of soundings erroneously spaced		<b>.13</b> ..
Number of signals erroneously plotted or transferred		.....
Topographic details	Time	<b>.2</b> ..
Junctions	Time	<b>.10</b> ..
Verification of soundings from graphic record	Time	<b>.4</b> ..

Verification by *B. G. Williams*..... Total time **.81**... Date **8-14-46**

Reviewed by *J. F. Jordan*..... Time **.8**... Date **8-16-46**

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. 7071

FIELD NO. AR-2345

Alaska-Artic Ocean, Point Barrow, Elson Lagoon  
Surveyed in July to September, 1945 Scale 1:20,000  
Project No. CS-320

Soundings:

808 Fathometer

Control:

Three-point fixes on shore  
signals

Chief of Party - R. W. Woodworth  
Surveyed by - J. Bowie, F. B. Quinn and W. E. Randall  
Protracted by - W. M. Martin  
Soundings plotted by - W. M. Martin  
Verified and inked by - B. G. Williams  
Reviewed by - G. F. Jordan, August 16, 1946  
Inspected by - R. H. Carstens

1. Shoreline and Control

Shoreline is from air photo manuscript CS-315. Bare sand-spits in red ink are from the present survey.

Control is from contemporary triangulation and from planetable surveys T-6996 and T-6997 of 1945.

2. Sounding Line Crossings

Discrepancies of one foot in depth at crosslines is discussed on page 2 of notes by the Processing Office which are included in the descriptive report.

Some of the remaining 1-ft. discrepancies were arbitrarily adjusted during verification to eliminate false irregularities in smooth bottom.

3. Bottom Configuration

The bottom in Elson Lagoon is generally smooth and quite flat except for the ridge covered by 1-3 ft. of water in the western part of the survey. The few lines run outside the lagoon on the north show a very irregular bottom.

4. Adjoining Surveys

Satisfactory junctions are effected on the north and southeast with H-7070 (1945) and H-7072 (1945), respectively.

5. Comparison with Prior Surveys

There are no prior surveys in this area.

6. Comparison with Chart <sup>9445</sup> 9445 (Latest print of June 1, 1946)  
Chart 9495 (Latest print of June 8, 1946)

a. Hydrography

Charted hydrography is from the present survey before verification and is subject to minor corrections to depths and depth curves.

b. Aids to Navigation

Three beacons on the present survey agree with charted beacons. There are no floating aids to navigation.

7. Condition of Survey

- a. The sounding records and descriptive report are complete in all detail.
- b. The smooth sheet plotting was satisfactory.
- c. No bottom characteristics were obtained on this original survey.

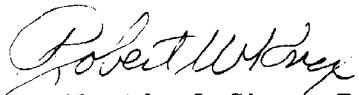
8. Compliance with Project Instructions

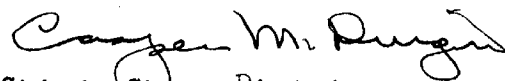
Satisfactory.

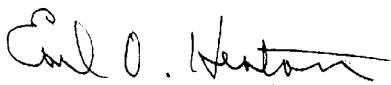
9. Additional Field Work

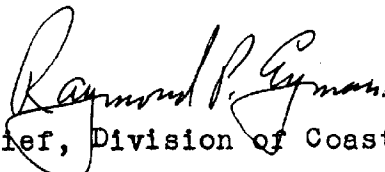
This survey fulfills the requirements for the project and requires no additional work.

Examined and approved:

  
Chief, Nautical Chart Branch

  
Chief, Chart Division

  
Chief, Section of Hydrography

  
Chief, Division of Coastal Surveys

# NAUTICAL CHARTS BRANCH

SURVEY NO.     H7071    

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
5/9/46	9445	G. K. Emminger	Before <del>After</del> Verification and Review
5/15/46	9495	H. E. MacEwen	Before <del>After</del> Verification and Review
2/19/47	9400	H. E. MacEwen	Presumably <del>Before</del> <u>After</u> Verification and Review
1/26/50	9445	R. D. Goodrich	<del>Before</del> <u>After</u> Verification and Review
2/2/50	9495	R. D. Goodrich	<del>Before</del> <u>After</u> Verification and Review
3/50	9403	Bell	<del>Before</del> <u>After</u> <i>Applied thru CH 9495</i> Verification and Review
6/3/54	9465	R. D. Goodrich	<del>Before</del> <u>After</u> Verification and Review
11-29-54	9464	R. K. DeLander	<del>Before</del> <u>After</u> Verification and Review
10-11-55	9495	R. K. DeLander	<del>Before</del> <u>After</u> Verification and Review <i>To reconstruction</i> <i>these charts 9464 &amp; 9465</i>
			<u>Before</u> <u>After</u> 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.