RESTRICTED

7073

Diag'd on Diag. No. 9400

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. AR-2545 *Office No.* H-7073

LOCALITY

State Alaska

General locality Arctic Ocean

Locality Dease Inlet

1945

CHIEF OF PARTY

R. W. Woodworth

LIBRARY & ARCHIVES

DATE Feb 6 - 1946

B-1870-1 (1)++

DECLASSIFIED BY NOAA
PURSUANT TO DOC SYSTEMATIC REVIEW
GUIDELINES AS DESCRIBED IN SECTION
3.3(a), EXECUTIVE ORDER 12356.

RESTRICTED
7073

Form 537
Ed. Dec. 1930

REG. NO. H7073

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.

Field No. AR-2545

REGISTER NO. H-7073

State Alaska

General locality Arctic Ocean ~~and Point Barrow~~

Locality ~~Eleon Lageon and~~ Dease Inlet

Scale 1:20,000 Date of survey September, 1945

Vessel Shore Party (Launches 1 and 2)

Chief of Party R. W. Woodworth ✓

Surveyed by J. Bowie and W. E. Randall ✓

Soundings taken by Graphic Recorder

Protracted by M. T. Gwinn

Soundings penciled by M. T. Gwinn

Soundings in ~~fathoms~~ feet Feet ✓

Plane of reference MLLW ✓

Subdivision of wire dragged areas by

Inked by B. G. Williams

Verified by " "

Instructions dated CS-320 - April 19, 1945, 19

Remarks: Smooth Sheet and Plotting by the Seattle Processing Office

U. S. GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEETS H-7072; H-7073, and H-7074
(Field Nos. AR-2445, 2545 and 2645)

Scale 1:20,000

Ralph W. Woodworth, Chief of Party -- Shore Party, Launches Nos. 1 & 2

J. Bowie and 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 performed Sept. 9 - 15, 1945, inclusive.

The area includes the eastern part of Elson Lagoon and Dease Inlet. Three boat sheets were used with limits as follows:

Sheet AR-2445

To the	North:	Unsurveyed area of the Arctic Ocean
"	S.E. :	Sheet AR-2545
"	South:	The mainland
"	N.W. :	Sheet AR-2345

Sheet AR-2545 H-7073

To the	North:	Eastern part of Plover Islands
"	East :	The mainland
"	South:	Sheet AR-2645
"	West :	The mainland
"	N.W. :	Sheet AR-2445

Sheet AR-2645

To the	North:	Sheet No. AR-2545
"	East :	The mainland
"	South:	Admiralty Bay
"	West :	The mainland

Ice forming in Elson Lagoon and Dease Inlet prevented hydrographic operations after Sept. 14, 1945.

VESSELS AND EQUIPMENT

The survey was made by two leased launches operating from and between camps located at Point Barrow and Tiny Island.

The speed of the launches was between 5½ and 6 knots. The turning radius was about 50 meters.

AR-2145	H-7069
2245	7070
2345	7071

AR-2445	H-7072
2545	7073
2645	7074

Portable Depth Recorders Nos. 55-S and 73-S, type 808, were used throughout.

TIDE STATION

A tide station was maintained the entire season at Point Barrow. A second tide station was maintained at Tiny Island during the period of hydrographic operations in Dease Inlet. It is recommended that the former control the tide reducers for Sheet AR-2445 and the latter control the tide reducers for Sheets AR-2545 and 2645.

H-7073

The location of each tide gage is as follows:

Point Barrow: (Elson Lagoon)	Lat.	71°	23'.1 N
	Long.	156°	26'.8 W
Tiny Island (Dease Inlet)	Lat.	70°	59'.5 N
	Long.	155°	36'.3 W

CONTROL STATIONS

Triangulation stations were established during July, August and September of this year by this party. Hydrographic signals on the Plover Islands and between triangulation stations were located by 3-point sextant angles observed at each station or by intersection cuts from main scheme stations.

SHORELINE AND TOPOGRAPHY

Prior topographic surveys of the area did not exist.

Air photographs taken this year are available for mapping the shoreline and offlying islands.

The high and low water lines are practically identical due to the small range in tide and the 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 launches upon shore signals.

Due to fog several of the lines were run by "dead reckoning" between fixes.

ADEQUACY OF SURVEY

On Sheet AR-2445, additional development south of and between signals KAL and COO is needed to complete the survey within Coast and Geodetic Survey standards. Additional lines could also be run on Sheets AR-2545 and 2645. Ice forming in the lagoon and inlet caused hydrographic operations to terminate earlier than anticipated.

More sounding lines could be run on Sheets AR-2545 and 2645 but it is doubtful if Dease Inlet will be navigated by anyone except Eskimos and they already know the area. H-7073

CROSSLINES

A few crosslines were run. The soundings are in good agreement.

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 the Plover Islands are dangers. They are only a few feet in elevation anddifficult to see except in periods of good visibility. They change shape somewhat during storms, but hold the same trend and locations.

Several shoals exist in EKILUKRUAK ENTRANCE with least depths and positions as follows:

1. Lat. 71-~~14.9~~ 15.0 Long. 155-54.4 A small rounded shoal, least depth 1/2 ft. - ½ ft
2. Lat. 71-13.8 Long. 155-50.9 A shoal, least depth ~~4~~ 5 ft.
3. Lat. 71-13.4 Long. 155-46.7 A shoal, least depth 1 ft.

COAST PILOT INFORMATION

Coast Pilot information is combined with Sheet AR-2345 to cover Elson Lagoon and Dease Inlet in one report.

Elson Lagoon extends from Point Barrow to Christie Point. It extends in an ESE-WNW direction, is from 2 to 5 miles in width, and has a uniform depth of 10 to 12 feet. The Plover Islands lie between the lagoon and the Arctic Ocean. These islands are very low, difficult to see except in periods of good visibility, and extend from Point Barrow to Tangent Point. The main navigable entrances to the lagoon are:

1. ELUITKAK PASS at the north
2. EKILUKRUAK ENTRANCE in the center
3. DEASE INLET at the Southeast.

To avoid shoals, boats should keep on the mainland side of the center of the lagoon when in the vicinity of AHVAK BAY and the western end of COOPER ISLAND.

Dease Inlet extends between Admiralty Bay and the southeastern Plover Islands. It is ~~10~~ 8 to 11 feet deep uniformly throughout except near the beach where the depth is very shallow.

The main entrances are from Elson Lagoon and via SANIGARUAK PASS. Small boats can pass near Tangent Point but this entrance is not recommended.

While engaged in the survey, the launches operated on a shuttle system between camps located at Point Barrow and Tiny Island. Anchorages were made near each camp. There is fresh water in a small lake on Tiny Island.

The Plover Islands and the mainland are desolate looking, barren stretches ofland, covered by snow and ice most of the year. Nothing distinctive is in the area.

The weather is the same as explained in the report accompanying Sheet AR-2245. No currents were in evidence. What little there is is probably less than 1/2 knot.

During 1945, the winter ice did not break up in the lagoon until July 28 and started reforming again on September 13. The survey launches had a tough time getting out of Dease Inlet on September 15. At that time, the entire inlet and lagoon were frozen over entirely, with brittle ice 1/2 to 1 inch in thickness to break through. In the winter, the ice freezes from 6 to 10 feet in depth.

AIDS TO NAVIGATION

No aids to navigation exist except the natural formations of the islands and the mainland and these are inconspicuous.

LANDMARKS FOR CHARTS

The only objects that possibly qualify for landmarks are:

1. PLOVER ISLANDS
2. AHVAK POINT
3. EKILUKRUAK ENTRANCE
4. CHRISTIE POINT
5. WRIGHT POINT
6. KIKIKTAK ISLANDS (OARLOCK and Tiny Islands).

GEOGRAPHIC NAMES

1. ELSON LAGOON
2. DEASE INLET
3. AHVAK POINT (Location of triangulation station AVAK)
4. AHVAK BAY (Located between stations AVAK and ROSS)
5. AHVAK RIVER (At the head of Ahvak Bay. Ahvak means "half-a").
6. EKILUKRUAK ENTRANCE (Between Tapkaluk and Cooper Islands. Means "big wide").
7. PLOVER ISLANDS (All the sand-spit islands between Point Barrow and Tangent Point).
8. COOPER ISLAND (First island SE of Ekilukruak Entrance).
9. SANIGARUAK PASS (The pass between Cooper and Sanigaruak Islands and West of signal BERT. Means "straight across" entrance).
10. SANIGARUAK ISLAND (The island SE of Sanigaruak Pass).
11. IGALIK ISLAND (The island SE of Sanigaruak Island. Means "the island with food on it").
12. TANGENT POINT (SE of Igalik I. Is called MAKGAK by the Eskimoes, which means "end of the sand").

13. CHRISTIE POINT (At triangulation station CHRISTIE)
14. WRIGHT POINT (" " " WRIGHT)
15. KIKIKTAK ISLANDS (Consists of OARLOCK and TINY ISLANDS. Means "big and little islands").
16. OARLOCK ISLAND (Larger of KIKIKTAK IS., and at station OARLOCK).
17. TINY ISLAND (Smaller " " " TINY).
18. McTAVISH POINT (On mainland NW of Oarlock Island).
19. ADMIRALTY BAY (The name given to the body of water at the head of Dease Inlet).

Information concerning these names was obtained from leading natives* in the nearby village of Barrow. These names are in common use by the natives. This is their country and their names should be used on charts. The adoption of these names is therefore strongly recommended for charting purposes, and should take priority over any other names if confliots exist. Such names as MARTIN ISLAND, SCOTT POINT and KIO BAY do not exist and should be removed from all charts.

* Tommy Brower, Dave Brower, and Ned Nusunginya. The Brower brothers are sons of Charles D. Brower, author of the book "FIFTY YEARS BELOW ZERO". Mr. Brower died early in 1945.

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.

Time was an important factor while undertaking the survey as it was September before hydrography on these sheets could be started and by then it was late in the season. A system of lines spaced 800 meters was considered the best means of covering the area in a minimum of time.

A few miles of soundings were run on the Arctic side of the Plover Islands. Ice prevented the launches from getting closer inshore.

Respectfully submitted,

John Bowie, Jr.

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

Approved and Forwarded:

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

STATISTICS

The statistics for Hydrographic Surveys H-7072, H-7073, and H-7074 (Field Nos. AR-2445, 2545 and 2645) are as follows:

SHEET AR-2445

Launch No.	Vol. No.	Day Letter	Date	No. of Positions	Stat. Miles Sdg. Lines
1	3	a	Sept. 6	36	13.5
1	3	b	7	50	16.3
1	3	c	9	44	14.4
1	4	d	10	46	16.7
1	4	e	13	45	16.1
1	5	f	15	26	9.7
2	1	a	Sept. 6	42	15.3
2	1	b	7	86	29.2
2	1	c	9	49	14.2
2	1 & 2	d	10	72	23.8
2	2	e	13	45	14.2
2	2	f	15	13	3.0
			Sub-totals:	554	186.4
			Area in sq. stat. miles - 63		

SHEET AR-2545 H-7073

1	3	a	Sept. 6	19	7.9
1	3	b	7	23	7.8
1	3	c	9	25	8.8
1	4	d	10	22	8.8
1	4	e	13	29	9.9
1	4 & 5	f	14	66	33.4
2	1	a	Sept. 6	22	9.3
2	1	b	7	25	8.2
2	1	c	9	28	10.4
2	1	d	10	21	7.6
2	2	e	13	25	8.3
			Sub-totals:	305	118.4
			Area in sq. stat. miles - 67		

SHEET AR-2645

1	3	a	Sept. 7	16	5.5
1	3	b	9	24	8.7
1	4	c	10	15	5.7
1	4	d	13	26	9.2
2	1	a	Sept. 6	12	6.2
2	1	b	7	17	5.7
2	1	c	9	19	5.8
2	1	d	10	15	5.2
2	2	e	13	11	4.0
2	2	f	14	77	26.0
			Sub-totals:	232	82.0
			Area in sq. stat. miles - 39		
			Grand totals:	1091	386.8
			Area in sq. stat. miles - 169		

GEOGRAPHIC NAME LIST

1. ADMIRALTY BAY
2. AHVAK BAY
3. AHVAK POINT
4. AHVAK RIVER
5. CHRISTIE POINT
6. COOPER ISLAND
7. DEASE INLET
8. ELSON LAGOON
9. EKILUKRUAK ENTRANCE
10. IGALIK ISLAND
11. KIKIKTAK ISLANDS
12. McTAVISH POINT
13. OARLOCK ISLAND
14. PLOVER ISLANDS
15. SANIGARUAK ISLAND
16. SANIGARUAK PASS
17. TANGENT POINT
18. TINY ISLAND
19. WRIGHT POINT

TIDE NOTE

PROJECT CS-520 - SHEETS H-7069, H-7070, H-7071,
H-7072, H-7073, H-7074.

POINT BARROW, ALASKA

- -

Two portable automatic tide gages were established to control the hydrographic surveys in the Arctic Ocean; Elson Lagoon and Tiny Island in Dease Inlet. The gage situated in the northwestern corner of Elson Lagoon (Latitude 71° 23.1 N, Longitude 156° 26.8 W) was established 29 July and was maintained throughout the season.

A second gage was established on Tiny Island (Latitude 70° 59.5 N, Longitude 155° 56.3 W) in Dease Inlet on 3 September. It was maintained until all surveys in Dease Inlet, Sheets H-7073 (AR-2545) and H-7074 (AR-2645) were completed on 15 September. At that time it was removed.

At the Navy Base, six miles south of Point Barrow (Latitude 71° 19.7 N, Longitude 156° 40.9 W), levels were run hourly from a permanent mark ashore to the water's surface, from Aug. 2 to Aug. 10, 1945.

Tide Reducers were obtained from Washington Office tabulations of observed tides at Elson Lagoon and Tiny Island. These tides were referenced to MLLW by the Division of Tides and Currents, as noted in Director's letter, 56-mlh, 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 Elson Lagoon and Tiny Island. The Tiny Island tides occurred 3 3/4 hours later than those at Elson 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 AR-2145 --- Elson Lagoon less 1 1/2 hours, and
Tiny Island less 5 1/4 hours.
Sheet AR-2245 --- Elson Lagoon less 1 hour.
Sheet AR-2345 --- Elson Lagoon plus 3/4 hour, and
Tiny Island less 3 hours.
Sheet AR-2445 --- Tiny Island less 2 hours.
H-7073 Sheet AR-2545 --- Tiny Island less 1 hour.
Sheet AR-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

SHEETS (Register No. H-7072, H-7075, H-7074
Field No. AR-2445, AR-2545, AR-2645

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 for all signals on these sheets, including those located by sextant angles, were furnished by the Washington Office, except signal KAL on sheet H-7072.

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.

Fathometer Corrections-

Fathometer corrections were derived from Bar Checks by Lt. Comdr. F. B. Quinn, who has prepared a fathometer report entitled "Velocity and Draft Corrections." This report was forwarded to Washington on 2 January 1946.

Shoreline-

This is to be added in the Washington Office after photo compilation is complete. No other topography is available.

Respectfully submitted,

Francis B. Quinn

Francis B. Quinn
Lieut. Comdr., USC&GS

Edgar E. Smith
Cartographic Engineer
Seattle Processing Office

Approved and Forwarded,

F. B. T. Siems

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

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

18 March 1946

~~Division of Hydrography and Topography~~:

Division of Charts: H. W. MURRAY

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEETS 7072, 7073 and 7074

Locality Arctic Ocean (Elson Lagoon and Dease Inlet)

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
2.6 ft. on tide staff at Tiny Island (Dease Inlet)
19.5 ft. below B. M. TINY No. 1-X

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

Condition of records satisfactory except as noted below:

G. K. Green

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 154327

GEOGRAPHIC NAMES

Survey No.

H7073

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H		
Dease Inlet									USGS	1
SAMIGARUAK Pass										2
Christie Pt										3
Tangent Pt										4
										5
										6
				by [illegible] Heck 7/26/46						7
										8
										9
Pt. Barrow (Elson Lagoon)			location of one tide staff)							10
Tiny I. (Dease Inlet)			"	"	"	"	"			11
										12
										13
										14
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										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H7073

Records accompanying survey:

Boat sheets ..2..; sounding vols. 5 (H-7072, H-7073, H-7074); wire drag vols. .....;

bomb vols. .....; graphic recorder rolls .....;

special reports, etc. .....

.....

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

Number of positions on sheet		..305..	305
Number of positions checked		..41...	41
Number of positions revised		..0...	0
Number of soundings revised (refers to depth only)		..1...	1
Number of soundings erroneously spaced		..3...	3
Number of signals erroneously plotted or transferred		..0...	0
Topographic details	Time	..0...	
Junctions	Time	..2...	2
Verification of soundings from graphic record	Time	..2...	2

Verification by B.C. Williams.....Total time ..40.. Date July 24, 1946

Reviewed by.....G. F. Jordan..... Time ..4.. Date July 26, 1946

M-2232-1

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. 7073

FIELD NO. AR-2545

Alaska, Artic Ocean, Dease Inlet
Surveyed in 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 and W. E. Randall
Protracted by - M. T. Gwinn
Soundings plotted by - M. T. Gwinn
Verified and inked by - B. G. Williams
Reviewed by - G. F. Jordan, July 25, 1946
Inspected by - H. W. Murray

1. Shoreline and Control

Shoreline has not yet been compiled from air photos.

Control is from contemporary triangulation and signals located by sextant angles and cuts.

2. Sounding Line Crossings

Sounding-line crossings were brought into agreement with the adjustment referred to in par. 7b of this review.

3. Bottom Configuration

The present survey covers an area of shallow flat bottom.

4. Junctions

A satisfactory junction is effected on the south with H-7074 (1945). The junction on the northwest will be considered when H-7072 (1945) is verified.

5. Prior Surveys

There are no prior surveys in this area.

6. Comparison with Chart 9495 (Latest print of June 8, 1946)

a. Hydrography

Charted soundings are from the present unverified survey and are subject to minor corrections of one foot in depth.

7. Condition of Survey

a. The sounding records and the descriptive report are complete in all detail.

b. The smooth plotting was satisfactory except for reduction of soundings. Reduction of soundings is discussed in a report by the Processing Office which is included in the descriptive reports of H-7071 and H-7072. It was found necessary to reject an assumed plus one foot correction in order to bring agreement in crosslines and to show all soundings on the same plane. The soundings of launch No. 1 on lines which ran between the lines of launch No. 2 were for the most part 1-ft. deeper in 9-ft. depths.

c. No bottom characteristics were obtained on this original survey.

8. Compliance with Prior Instructions

Satisfactory.

9. Additional Field Work

The survey appears to be adequate for the purpose intended, which was to discover and develop any irregularities in Dease Inlet.

Examined and approved:

Robert W. Knox
Chief, Nautical Chart Branch

J. S. Borden
Chief, Chart Division

Earl O. Heaton
Chief, Section of Hydrography

Raymond P. Eyman
Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. 7073

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
4/16/46	9495	W.E. MacEwen	Before ~~After~~ Verification and Review
2/20/47	9400	W.E. MacEwen	Before After Verification and Review
2/3/50	9495	R.D. Goodrich	~~Before~~ After Verification and Review
3/50	9403	Bell	~~Before~~ After Verification and Review Applied thru Ch 9495
6/3/50	9465	R.D. Goodrich	~~Before~~ After Verification and Review
10-10-55	9495	R.K. DeLaunder	~~Before~~ After Verification and Review. Area N. of 71°06' applied thru Chart 9465
			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.