7760

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Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. ARN-2649 *Office No.* H-7760

LOCALITY

State Alaska

General locality Arctic ~~North~~ Coast

Locality Midway Islands to Cross Island

194 9-50

CHIEF OF PARTY

R.A.Earle

LIBRARY & ARCHIVES

DATE Feb. 14, 1950

B-1870-1 (1)

7760

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET [redacted]

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-7760

Field No. ARN - 2649

State ALASKA

General locality ARCTIC ~~OCEAN~~ Coast

Locality MIDWAY ISLANDS TO CROSS ISLAND

Scale 1:20,000 Date of survey 4 August to 6 September 1949 (22 July to 13 August 1950)

Instructions dated 3 February 1949

Vessel ARCTIC NORTH PARTY

Chief of party R.A. Earle

Surveyed by H.D. Nygren

Soundings taken by fathometer, graphic recorder, ~~hand lead, wire~~ 12½

Fathograms scaled by E.M. Freeborg

Fathograms checked by S.K. Jeffers

Protracted by H.D. Nygren

Soundings penciled by H.D. Nygren

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

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 693019

Note: Overlay from AAF Preliminary Base Map, Beachy Point (63 B)

ARCTIC FIELD PARTY
NORTH UNIT
SHEET LAYOUT 1950 SEASON

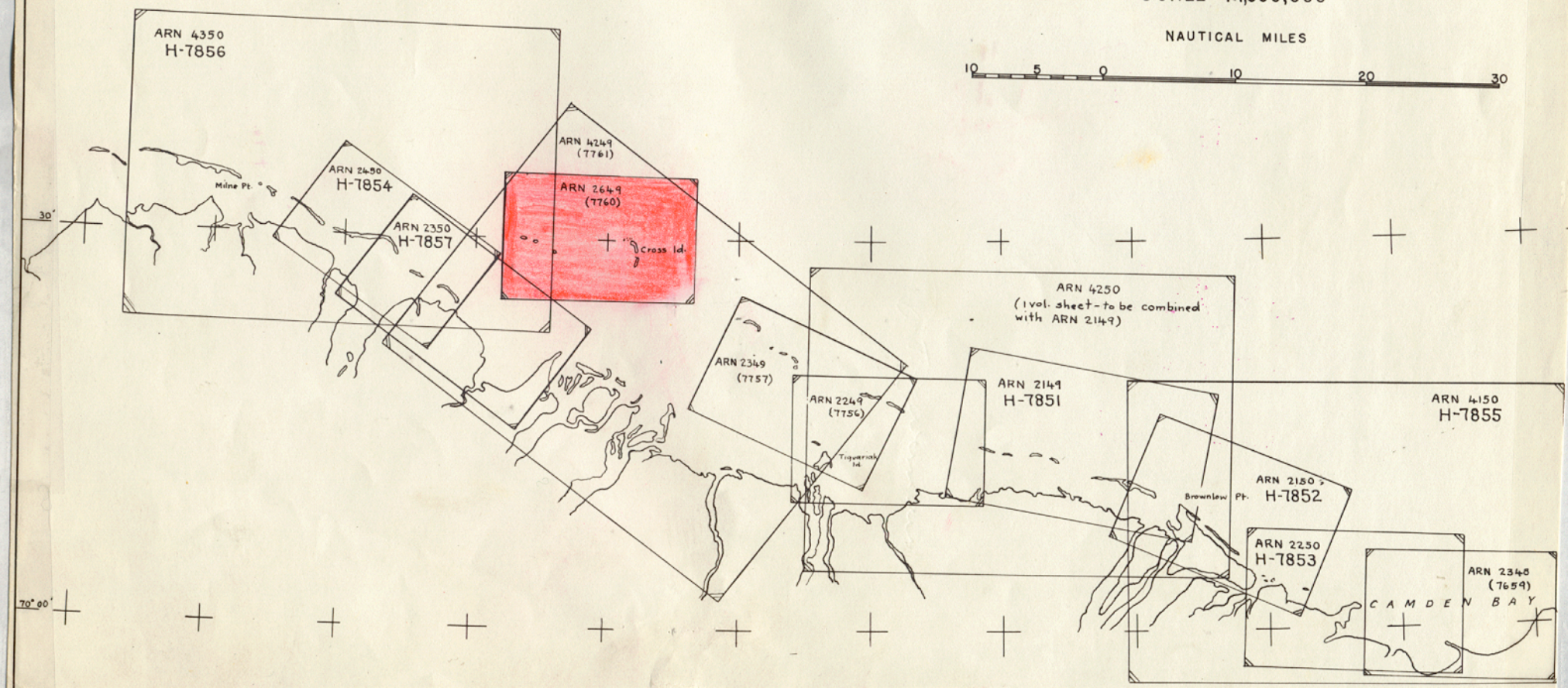
J. T. JARMAN, OINC

R.A. EARLE, CHIEF OF PARTY

SCALE 1:1,000,000

NAUTICAL MILES

10 5 0 10 20 30



1949 Season

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-7760
FIELD NUMBER ARN-2649
CROSS ISLAND, ALASKA
PROJECT CS-320

[redacted]

SCALE: 1:20,000

R. A. EARLE — Chief of Party
D. A. JONES — In Charge, Sub-Party
H. D. NYGREN — In Charge, Field Work

A: PROJECT CS-320 Basic Surveys, Arctic Coast, Authority contained in supplemental instructions dated 15 February 1949.

B: SURVEY LIMITS AND DATES This survey covers the general area between and around the Midway Islands and Cross Island. The work started on 3 August 1949 and was discontinued on 6 September 1949. This survey is a development in the area covered by ARN-4249, H-7761.1949 Progress was impeded in this area by the continual presence of heavy ice concentrations to the north of the islands; to the east of Cross Island; and in the bay south of Cross Island. During the latter part of the season, heavy fogs and rain were common for extended periods. Because of the continual presence of ice, coxswains were directed to avoid floes, but to pick up the continuation of the line on the opposite side. For this reason time will not check along the course in ice-congested areas.

C: VESSELS AND EQUIPMENT The survey was made with converted rearming launch No. 15 using portable fathometer 121S, type 808J, equipped with cold water reeds and an outboard fish. The area was intended to be surveyed using shoran control and the launch was so equipped. Visual control was resorted to when possibilities of using shoran were abandoned for the season. Shoran camps were to be placed on Anxiety Point, Howe Island and on high ground SE of Point Storkerson. Because of grounded ice in these areas, debarkation of supplies was held up. After landings were feasible, difficulty was experienced in getting supplies in over extensive shoal areas and interior marshes. Shoran station Son was found to be inoperative due to equipment failures, after installation. Extensive tests were conducted between the camps and the shoran launch during the repair period, while the shoran launch was endeavoring simultaneously to do preliminary reconnaissance work to test the suitability of the passage for the Navy Resupply Expedition of 1949. After repairs had been accomplished at Son, additional equipment failures occurred on the launch as enumerated in Special Shoran Report, Arctic North Party. As the parties supply of spares was then exhauested the Chief of Party ordered abandonment of the shoran trials, and visual hydrography continued on H-7760 1949 and H-7761.1949

D: TIDE AND CURRENT STATIONS A tide gage was installed in an ice free bight on Cross Island and tide reducers were applied for this gage during the periods when it was in operation. When Cross Island tides were not available, Tigvariak reducers were used. Datums for both gages were supplied by the Washington Office.

Current stations were not observed on this sheet, but westerly

setting currents were noted north of Argo Island, south of Argo Island and in the pass at Cross Island as noted in the sounding records.

E: SMOOTH SHEET The smooth sheet projection was made and control plotted in the Seattle Processing office. Signals were plotted from computed geographic positions. Protracting and penciling of soundings was done by H.D. Nygren.

F: CONTROL STATIONS Control was from the triangulation of H. A. Paton, 1949. Signals Cross and Deer are third order, marked triangulation stations. Hydro-signals on Cross Island were located by traverse and computed. Hydrographic signals, Ran, Jef, and Argo were built and located by the hydrographic party as temporary signals to be used locally in the interval before the shoran stations were made operative. Preliminary locations were obtained with difficulty by the use of standard hydro sextants. It was contemplated that more refined positions would be obtained by the air photo inspection party using standard observing procedure. These operations were delayed by weather and finally rendered impracticable for the season. The Cross Island sub-party used several locations for these signals during the course of the work as derived by plot ing the available cuts on a badly distorted sheet of ARN-4279 and then transferring them to ARN-2649. Smooth sheet plotting indicated that one or several of the signals is weakly located. Lines which use the fix: Deer, Ran, Argo, or Argo, Ran, Deer do not close out with lines continued on other fixes, particularly in the area where this fix is weak, as far north of the Midway Islands or to the ENE of Argo Island. As signal Argo is used in virtually all fixes on the western half of the sheet, the actual displacement of sounding is difficult to estimate, but is not considered very extreme. Triangulation was computed on the datum of Flaxman Island 1912.

G: SHORELINE AND TOPOGRAPHY Boat sheet shoreline was from an uncontrolled office compilation of nine lens photographs. The inshore sounding lines were run as close to the shore as grounded ice permitted in areas where control was available. The low water line was not defined by hydrography because of the low range of tide.

H: SOUNDINGS All soundings were made with 808j portable fathometer number 121 with an outboard fish. The sounding was done on the foot scale, time being controlled by the fathogram. Cold water reeds were used giving a calibrated velocity for the machine of 788.2 fm/sec. See: Fathometer Correction Report. Arctic North Party, 1949. The outboard fish was damaged by collision with ice several times during the season, as noted.

I: CONTROL OF HYDROGRAPHY Control of hydrography was where possible by sextant angle. The extreme distance between signals made plotting with the extension arms mandatory a large part of the time. A Courts protractor was made up with special celluloid extension arms for the purpose, which injected slight inaccuracies into the boat sheet plotting.

As it was intended that the Navy Resupply Expedition of 1949 use the passage south of the McClure Islands during the first week of August it was necessary to run many reconnaissance lines in this area before the ice had cleared and before signal building was completed. To obtain this data, dead reckoning lines were extended between the area where fixes were available. In the area between the north side of Argo Island and Cross Island the lines were almost without exception adjusted to fit the available data in the intervals where little routine control was usable.

The work on "c" day was run off the southern limits of the sheet while servicing a shoran camp and continued across ARN-4249. This line was adjusted to DR and single angle at the southern limits, cognizance being taken of the fact that the line was set west by a current as shown on ARN 249, H-7761.[1948] On "e" day, positions 17-40 were run before Argo was located or Ran built. A single angle and a relative bearing by pelorus were taken. The true heading was known from a recent swing on sheet ARN-4249, H-7761, 1949 and when the line was subsequently plotted it was found to be satisfactory. A line in an otherwise unsurveyed area between Pos. 154L and 159L was not smooth plotted when fixes to the north of the Midway Islands did not close out with the remainder of the lines. One of the most southerly lines between Cross and Argo Islands on "m" day was not plotted as it would not close out between positions 161m and 165m. These positions are where the fix is particularly weak and would not plot with the present signal location. See: Hydrographer's note on sum angle, time and course as noted in the record. plotted and agrees with 1950 work

J: ADEQUACY OF SURVEY This survey is incomplete and inadequate. Approximately 50% of the field work remains to be accomplished at this time. (Done 1950)

K: CROSSLINES Crosslines checked satisfactorily. One crossline shows a continual twelve foot profile crossing an area of thirteens in the bay south of Cross Island. This line of twelves was ignored in drawing the depth curves as it was on a different day's work and only differs because of the selection of the break point. (1st added pos 4-11b)

L: COMPARISON WITH PRIOR SURVEYS There ~~was~~ are no ~~extensive~~ previous surveys in this area. by this Bureau

M: COMPARISON WITH CHART The existing chart of this area USC&GS number 9400 is of too small a scale for comparison.

N: DANGERS AND SHOALS Although the area is not completely surveyed as yet, several shoals are indicated by the survey to date. Southeast of Argo Island at 70°27.5'N and 148°09'W there is an indication of a shoal area with a least depth of fifteen feet, possibly what was formerly called Argo Shoals. There is extensive shoaling to the west and southwest of Reindeer Island of undetermined extent. At 70°29'N and 147°57.5 in the bay south of Cross Island is a least depth of ~~nine~~ 10 feet. To the southeast of Cross Island at 70°26.3'N and 147°51'W there is a least depth of eight feet on an undeveloped shoal. To the south of Cross Island at 70°26.9'N and 147°58.3'W there is a ~~fifteen~~ 14 foot depth in an undeveloped area.

O: Coast Pilot Information See Coast Pilot Report, Arctic North Party, 1949. During the hydrographic season the launches based at Cross Island anchored close to the beach south of the ruined huts in twelve feet of water. The continual presence of ice in this bay made caution necessary and a better anchorage would be in the bight south of signal Nix. During operations around Reindeer Island the launch lay just west of the eastern end of the island by signal Ran in a very sheltered bight with a depth of six feet. This was only suitable with north winds. Ice was seldom seen in any large amounts south of Reindeer Island, its presence being continual to the north of Cross Island. During the season the hydrographic party obtained its drinking water from pools formed on the tops of the larger bergs.

Launches can safely enter the bay south of Cross Island by passing close to the beach south of station CROSS.

Weather in this area varies from predominantly clear early in August to predominantly foggy early in September. Fog lays over the offshore islands at times when the mainland is clear, possibly due to the extensive icefields offshore. Currents were observed as noted, setting westward past grounded ice bergs south and west of Cross Island and in the pass south of Signal Cross.

P: AIDS TO NAVIGATION *Aids superseded - see Ch L 885 (1950)*

OBJECT	HYDROGRAPHIC NAME	LOCATION	
Radar Tower	Rad	70°29'	1511.2 M North
		147°57'	107.4 M West
Wooden Tripod	Cross	70°28'	1802.9 M North
		147°55'	143.3 M West
Wooden Tripod	Deer	70°29'	461.3 M North
		148°20'	408.6 M West

Q: LANDMARKS FOR CHARTS See Special Report, Arctic North Party, 1949.

R: GEOGRAPHIC NAMES See Special Report, Arctic North Party, 1949.

S: TABULATION OF APPLICABLE DATA

1. Triangulation records	Forwarded to	Washington	Office	
2. Tidal data, Cross Island	"	"	"	"
3. Fathometer Corrections *with fathograms*	"	"	"	"
4. Coast Pilot Notes	"	"	"	"
5. Landmarks for Charts	"	"	"	"
6. Geographic Names Report	"	"	"	"

T: ATTACHMENTS

1. List of Signals
2. Statistics for this survey
3. Tidal Note
4. Fathometer Corrections *(with fathograms)*
5. Geographic Name List
6. Approval Sheet

H.D. Nygren
H. D. Nygren
USC&GS, Ensign
In Charge Field Work

HDN:tjk

H-7760

TIDAL NOTE

The soundings on this survey were reduced to mean lower low water (MLLW), using tides as recorded from observation on the tide staff at Cross Island at Latitude 70° 29.7N; Longitude 147° 56.8' W.

The height of mean lower low water above the zero foot mark of the staff was 2.3 feet.

STATISTICS FOR HYDROGRAPHIC SURVEY H-7760
(Field Number ARN 2649)

Launch No.	Date 1949	Volume Number	Day Letter	Number Pos.	Stat.Mile Sounding
15	3 Aug.	I	a	7	1.6
15	4 Aug.	1	b	21	4.9
15	5 Aug.	1	c	17	6.9
15	13 Aug.	1	d	152	22.8
15	17 Aug.	1	e	60	34.8
15	18 Aug.	1 & 2	f	25	8.5
15	19 Aug.	2	g	76	24.7
15	20 Aug.	2	h	98	31.6
15	21 Aug.	2	j	18	5.6
15	25 Aug.	2 & 3	k	121	38.5
15	28 Aug.	3	l	180	56.7
15	29 Aug.	4	m	171	49.4
15	4 Sept.	4	n	5	1.3
15	5 Sept.	4	p	14	3.7
15	6 Sept.	4	q	54	13.6
15	7 Sept.	5	r	36	9.1
				1055	313.7

Total Area 25 Sq. Stat. Miles

FATHOMETER CORRECTIONS LAUNCH No. 15

1949 Fath Report in cahier

July 30 through 3 Aug.

Fathometer Depth	Correction
0 - 14.0	-0.4
14.1 - 90	-0.6

4 Aug. Pos. 1-44d ARN -4249 through Pos. 11b ARN 2649

and

4 Aug. Pos. 17b ARN 2649 to close of season on all sheets.

		B Scale Cor.
0 - 14.0	0.0	
14.1 - 90	-0.2	0.7

4 August Pos. 12 - 16b ARN 2649

0 - 13	1.0
13.1 - 90	0.8

H-7760

Field Survey ARN-2649

List of Signals

Name	Source
Argo	Vol. 3, ARN-2649
Cross	Cross, 1949
Deer	Deer, 1949
Deo	G.P. 1949
End	G.P. 1949
Ive	G.P. 1949
Jef	Vol. 4, ARN-2649
Nix	G.P. 1949
Rad	G.P. 1949
Ran	G.P. 1949
Sal	G.P. 1949

H-7759

Field Survey ARN-2649

GEOGRAPHIC NAME LIST

Reindeer Island

Cross Island

Argo Island

Midway Islands

Alaska

Beaufort Sea

See Special Report, Geographic Names Arctic Coast, Alaska, 1948 and Report Geographic Names, Arctic Coast, Alaska 1949.

H-7760

Field Survey ARN-2649

APPROVAL SHEET

The smooth sheet and field records of this survey are approved as transmitted to the Washington Office. The field work and processing of this survey was inspected daily and supervised personally by the Officer-in-Charge of sub-party.

The survey is not complete and additional hydrography should be accomplished.

Don A. Jones
Lieut. USC&G Survey
Officer-in-Charge, Sub-party

Approved and forwarded.

R. A. Earle
Lt.Comdr. USC&G Survey
Chief, Arctic Field Party

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 31 March 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 7760

Locality Cross Island, Arctic Coast, Alaska

Chief of Party: R. A. Earle in 1949
Plane of reference is mean lower low water, reading
2.5 ft. on tide staff at Tigvarik Island
5.6 ft. below B. M. 1 (1949)

2.3 ft. on tide staff at Cross Island
5.6 ft. below B. M. 1 (1949)

Height of mean high water above plane of reference is as follows:

Tigvarik Island = 0.70 foot
Cross Island = 0.50 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

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7760 (1949 work)

Records accompanying survey:

Boat sheets 1; sounding vols. 5; wire drag vols. .....;
bomb vols. .....; graphic recorder rolls 6 envel.;
special reports, etc. 1 Report, Fath. Corrections, Arctic North Party, Midway Islands to Maguire Island, Alaska (Forms 717 Included)

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

Number of positions on sheet		1055
Number of positions checked		26
Number of positions revised		1
Number of soundings revised (refers to depth only)		8
Number of soundings erroneously spaced		12
Number of signals erroneously plotted or transferred		0
Topographic details	Time	1
Junctions	Time	2
Verification of soundings from graphic record	Time	7

Verification by A.M. WARREN Total time .55 HRS. Date JULY 16 '51

Reviewed by J. F. Jordan Time .16 Date July 27, 1951

M-2232-1

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-7760

Field No. ARN-2649

State ALASKA

General locality ARCTIC ~~NORTH~~ COAST

Locality CROSS ISLAND TO MIDWAY ISLANDS

Scale 1:20,000 Date of survey 22 July to 13 Aug. 1950

Instructions dated 15 February 1949 and 8 March 1950

Vessel ARCTIC NORTH PARTY

Chief of party R. A. EARLE

Surveyed by H. D. NYGREN

Soundings taken by ~~fathometer~~, graphic recorder, ~~hand lead, wire~~ 125s

Fathograms scaled by J. T. SHANAHAN

Fathograms checked by M. J. GRAY

Protracted by H. D. NYGREN

Soundings penciled by H. D. NYGREN

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

REMARKS:

A title sheet containing data on the earlier work was submitted with the 1949 Descriptive Report.

U. S. GOVERNMENT PRINTING OFFICE 693019

ADDENDUM TO
DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY No. H-7760
FIELD NUMBER ARN-2649
CROSS ISLAND, ALASKA
PROJECT CS-320
1950

SCALE: 1:20,000

OINC, ARCTIC FIELD PARTY- - - - - - - - - - - - - - - - - - - R. A. EARIE
IN CHARGE, SUB-PARTY- J. T. JARMAN
IN CHARGE, FIELD WORK- - - - - - - - - - - - - - - - - - - H. D. NYGREN

A: PROJECT

This survey was executed in accordance with Instructions for Project CS-320, Basic Surveys, Arctic Coast, and Supplemental Instructions dated to 8 March 1950.

B: SURVEY LIMITS AND DATES

This survey completes the work which was started in 1949 in the vicinity of the Midway Islands and Cross Island. Hydrographic work began on 21 July and was discontinued on 13 August 1950. As in 1949, heavy ice concentrations and nearly constant fog impeded progress. Due to a breakdown of the shoran set on launch No. 14, it was necessary to run two distinct shifts with launch No. 15. Most of the work accomplished on this sheet during the month of July was done between the hours of 1500 and 2400 by the second launch crew.

After 1 August the ice barrier moved south to latitude 70° 28' and it was not possible to work north of this line again until late in August when shoran control was no longer available. An area two miles north of Reindeer Island, properly within the limits of this survey, was developed on sheet H-7856 (ARN-4350) 1950 when ice conditions finally permitted access by a launch. Several large bergs remained grounded in this area until field work was suspended. (See the report on survey H-7856 ARN-4350) 1950

The northern limits of the work were restricted by the receding ice barrier until 1 August . After this time it became impossible to penetrate the ice at all.

C: VESSELS AND EQUIPMENT

This survey was completed by personnel based at Cross Island, Alaska. Converted rearming launch No. 15, equipped with 808j fathometer 125S (cold water reeds) and an outboard fish installation was used for this survey. The outboard fish was, as in 1949, repeatedly damaged by collision with floating ice.

Shoran set No. 572 was used on this launch on "s" day after which it was replaced with set number 933. A belt driven generator and a PU-6 power unit supplied shoran current.

D: TIDE AND CURRENT STATIONS

Tide reducers were obtained from records of the Cross Island tide gage, which was located in an ice-free cove at Latitude 70° 29.3 N; Longitude 147° 56.4 W. The location of the gage was different from the one in 1949; however levels were run to previously established benchmarks.

Current stations were not observed in the area of this sheet. It might be stated that strong westerly currents were noted north of Reindeer Island during the periods of prevailing east winds.

E: SMOOTH SHEET

Shoran stations and curves were plotted by personnel of the Seattle Processing Office. The protracting of positions and plotting of soundings were accomplished by Arctic Party personnel.

F: CONTROL STATIONS

A new location was obtained for station Ran- 1949, however this was not plotted as it was not used. This signal and signals Erg, Pal, and Dink were located by triangulation cuts obtained with a Wild theodolite. Station Argo 1949 was not recoverable as the island had receded considerably in this area. Shoran stations were located by traverse from triangulation stations. See "Special Report, Shoran Operations, Arctic North Party, 1950". No discrepancies were noted between the work accomplished in 1949 when a few questionable signals were used, and the 1950 hydrography.

G: SHORELINE AND TOPOGRAPHY

The shoreline for the smooth sheet was traced from copies of manuscripts compiled from 9-lens photographs by the Portland Photogrammetric Office. (See Review)

The shoreline of Argo Island is subject to extensive change as witnessed by the destruction of signal Argo. The 1950 shoreline was sketched on the boat sheet by the hydrographer and transferred inked to the smooth sheet. Further changes will undoubtedly occur in the location of the shoreline of this island.

H: SOUNDINGS

All soundings were taken with fathometer 125S. The foot scale was used and time was controlled by the fathogram. The cold water reeds which were used, gave a calibrated velocity of 788.2 fm/sec. See "Fathometer Corrections Report, Arctic North Party, 1950". (with H-7857)

Soundings on the 12 and 18 foot curves were occasionally plotted at 1/2 foot intervals on the smooth sheet to facilitate drawing the depth curves.

I: CONTROL OF HYDROGRAPHY

In general, the hydrography was controlled by shoran, however visual

fixes were occasionally used. On "s" day a combination of shoran and visual control was utilized, however the large undetermined error in shoran set 572 made it necessary to reject part of this day's work. See "Special Report, Shoran Operations, Arctic North Party, 1950".

A large error in the distances obtained with launch set number 933 made boat sheet plotting difficult. Soundings on "ad" day were not plotted on the boat sheet because of the obvious relative displacement.

This error was found and the corrections were computed as described in "Special Report, Shoran Operation, Arctic North Party, 1950". No discrepancies were noted in smooth sheet plotting.

The eleven mile shoran circle from all stations was in error on the boat sheet.

J: ADEQUACY OF SURVEY

The survey is considered complete and adequate for this isolated area of the Arctic Coast.

Although further development of the area between Argo and Cross Islands might be desirable it is not considered essential and is not contemplated. The holiday in the area north of Argo Island, which did not appear on the boat sheet, was occasioned by erroneous shoran distances.

K: CROSSLINES

Crosslines checked satisfactorily and are adequate. Due to ice gauging the bottom in this area is exceptionally rough.

L: COMPARISON WITH PRIOR SURVEYS

The 1949 and 1950 surveys checked well in areas where they adjoined. See 1949 Descriptive Report.

M: COMPARISON WITH CHART

See ~~1949 Descriptive Report~~ Review.

N: DANGERS AND SHOALS

See 1949 Descriptive Report. The shoal area SE of Argo Island was not developed extensively due to its proximity of another shoal.

This additional shoal runs eastward from Argo Island and depths increase gradually to 17 feet at a point 4.2 miles east of station Erg 1950. Depths of 10, 11 and 12 feet are scattered through this area and shoaler depths may exist. The bottom throughout this area is very rough and subject to intensive ice gouging.

The shoal which extends to the westward of Reindeer Island, continues into the area surveyed on Sheet H-7856. 1950 See Descriptive Report H-7856. 1950

The shoal lying 3 miles southeast of Cross Island is a continuation of a bar which extends into the area of survey H-7761, 1950. It also runs to the westward and includes the shoal depths previously reported south of Cross Island.

O: COAST PILOT INFORMATION

See 1949 Descriptive Report.

During the 1950 season the launches were anchored in the bight south of signal Nix. This proved to be an excellent small boat anchorage, as it was well protected from large ice concentrations. On two occasions, the entire bay south of Cross Island was practically filled with compacted ice and long detours were necessary to clear the area.

Ice conditions were very unsatisfactory in this area during this season. The ice barrier receded gradually to latitude 70° 32', until the 1st of August when westerly winds brought it back into the southern portion of the survey and precluded further field work. The ice to the north of Cross Island never receded to the limits of the 1949 hydrography.

The weather during July was continually foggy with easterly winds. During August both easterly and westerly gales were experienced. Rain and snow were common, and air temperatures often dropped to below freezing.

P: AIDS TO NAVIGATION

The wooden tripods previously recommended as landmarks are ~~to be deleted from the~~ not charted. The positions of the two new aids which were constructed are as follows: Ch L 885 (1950)

OBJECT	LOCATION
Day Beacon	70° 29' 1530.6 M North 147 57 152.7 M West
Tower	70 29 512.3 M North 148 21 4.3 M West

Q: LANDMARKS FOR CHARTS

See "Special Report, Arctic North Party, 1949."

R: GEOGRAPHIC NAMES

See "Special Report, Arctic North Party, 1949".

A small gravel island which actually falls within the limits of survey H-7761, 1950, was discovered during the 1949 season but omitted from the 1949 "Geographic Name Report." This islet was named DINKUM SANDS by the field party. No special report was submitted.

S: TABULATION OF APPLICATION DATA

1. Triangulation Records	Forwarded to Washington Office
2. Tidal Data Cross	" " " "
3. Fathometer Corrections	See "Special Report" with H-7857
4. Shoran Corrections	" "
5. Coast Pilot Notes	Forwarded to Washington Office
6. Landmarks for Charts	" " " "
7. Geographic Names Report	" " " "

T: ATTACHMENTS

1. Supplementary List of Signals
2. Supplementary Statistics
3. Tidal Note
4. Fathometer Corrections with H-7857
5. Approval Sheet

Respectfully submitted,

Harley D. Nygren

Harley D. Nygren
Ensign, USC&GS
In Charge, Field Work

Approved and forwarded.

R. A. Earle

R. A. Earle,
Commander, USC&GS
OinC, Arctic Field Party

H-7760

Field Survey ARN-2649
Supplementary List of Signals

NAME	SOURCE
Pal	G.P. 1950
Erg	G.P. 1950
Dink	G.P. 1950

List of Shoran Stations

NAME	LOCATION
Ed	70° 23' 1654.9 m N 147 30 425.9 m W
Jim	70 29 465.5 m N 148 20 426.5 m W
Smit	70 29 823.1 m N 147 55 619.3 m W
Tube	70 22 111.9 m N 148 21 461.9 m W

All shoran stations were located by traverse from triangulation stations.

STATISTICS FOR HYDROGRAPHIC SURVEY H-7760

(FIELD NO. ARN-2649

LAUNCH NO.	DATE 1950	VOLUME NO.	DAY LTR	NUMBER POSITIONS	STAT. MILES
15	22 July	5	s (blue)	56	13.7
15	23 July	5	t "	105	30.6
15	24 July	5 & 6	u "	286	60.4
15	25 July	6 & 7	v "	127	37.4
15	26 July	7	w "	149	35.4
15	27 July	7 & 8	x "	181	51.0
15	28 July	8	y "	147	38.4
15	29 July	9	z "	8	1.4
15	30 July	9	aa "	102	29.6
15	31 July	9	ab "	145	40.4
15	1 Aug.	10	ac "	150	38.6
15	9 Aug.	11	ad "	26	6.1
15	13 Aug.	11	ae "	4	- - -
TOTALS 1950				1486	383.0
TOTALS FROM 1949				1055	313.7
GRAND TOTALS				2541	696.7

Area 1949	25 sq. miles
Area 1950	41 sq. miles
Total Area	66 sq. miles

TIDAL NOTE

SHEET H-7760 (Field No. ARN-2649)

The 1950 soundings were reduced to mean lower low water (MLLW), using tides as recorded from observations on the tide gage at Cross Island, Lat. 70° 29.3N, Long. 147° 56.4 West.

The height of mean lower low water above the zero of the staff is 3.8 feet.

Refer to "Tide Data Report 1950" for applicable tide curves.

VELOCITY CORRECTIONS
Sheet ARN-2649
(H-7760) 50 work Fath report filed with H-7858

Launch No. 15
Fath. No. 125
Velocity Curve No. 2
7/22 thru 7/27 at 1606

Depth Applicable Feet	Velocity Corr. Feet	Bar-Check Corr. Feet	Combined Corr. Feet
0 to 20	0.0	-0.4	-0.4
20 to 49	-0.2	-0.4	-0.6
49 to 67	-0.4	-0.4	-0.8

"B" and "C" scale corrections same as "A" scale (0.0)

- -

Launch No. 15
Fath. No. 125
Velocity Curve No. 2
7/27 after 1606 thru 8/13

Depth Applicable Feet	Velocity Corr. Feet	Bar-Check Corr. Feet	Combined Corr. Feet
0 to 20	0.0	-0.5	-0.5
20 to 49	-0.2	-0.5	-0.7
49 to 67	-0.4	-0.5	-0.9

"B" and "C" scale corrections same as "A" scale (0.0)

- -

SUPPLEMENTARY LIST OF SIGNALS
HYDROGRAPHIC SURVEY NO. H-7760
FIELD NO. ARN-2649

NAME	SOURCE
Pal	G.P. 1950
Erg	G.P. 1950
Dink	G.P. 1950
Ed	Shoran Report 1950
Smit	Shoran Report 1950
Tube	Shoran Report 1950
Jim	Shoran Report 1950

GEOGRAPHIC NAME LIST
HYDROGRAPHIC SURVEY NO. H-7760
FIELD NO. ARN-2649

BEAUFORT SEA

MIDWAY ISLANDS

REINDEER ISLAND

ARGO ISLAND

CROSS ISLAND

DINKUM SANDS

APPROVAL SHEET

H-7760

During the 1950 season, field records received periodic inspections, and the field work was supervised personally by the undersigned officer. As officer in charge of processing records, the smooth sheet and the field records of this survey have been inspected and they are approved for transmission to the Washington Office.

The survey is considered adequate and no additional work is recommended.

J. T. Jarman
Lt. Comdr. USC&G Survey
OinC, North Unit

It was not possible for the Chief of Party to make frequent inspections of all widely separated units engaged on hydrographic surveys, such inspections during the field season being assigned to the officer in charge of field work in each base camp.

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

R. A. Earle,
Commander, USC&G Survey
Chief of Party

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 20 March 1951

Division of Charts: R. H. Carstens

Plane of reference approved in 7
volumes of sounding records for

HYDROGRAPHIC SHEET 7760

Locality Cross Island, Arctic Coast

Chief of Party: R. A. Earle in 1950
Plane of reference is mean lower low water, reading
3.8 ft. on tide staff at Cross Island
5.8 ft. below B. M. 1 (1949)

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

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756675

GEOGRAPHIC NAMES

Survey No. H-7760

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Alaska			(for title)							1
Arctic Coast			"	"						2
										3
Beaufort Sea	200	1							USCB	4
Cross Island	120-0		(location of tide staff)							5
Reindeer Island	120-0									6
Argo Island	120-0									7
Midway Islands	175-1									8
										9
										10
				Names underlined in red are approved 3.28.50 L. Heck						11
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										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7760. (1950 work)

Records accompanying survey:

Boat sheets .....; sounding vols. 7...; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 6 env.

special reports, etc. .....

.....

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

Number of positions on sheet		1486
Number of positions checked		14
Number of positions revised		1
Number of soundings revised (refers to depth only)		19
Number of soundings erroneously spaced		10
Number of signals erroneously plotted or transferred		0
Topographic details	Time	2
Junctions	Time	1
Verification of soundings from graphic record	Time	10

Verification by A.M. WARREN Total time 85 HRS. Date JULY 16 '51

Reviewed by..... Time ..... Date .....

M-2232-1

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7760 FIELD NO. ARN-2649

Alaska, Arctic North Coast, Cross Island to Midway Islands

Project No. CS-320

Surveyed in August and September 1949 - July and August 1950
Scale 1:20,000

Soundings:

808-J Fathometers

Control:

Visual fixes on shore signals
Shoran

Chief of Party - R. A. Earle
Surveyed by - H. D. Nygren
Protracted by - H. D. Nygren
Soundings plotted by - H. D. Nygren
Verified and inked by - A. M. Warren
Reviewed by - G. F. Jordan, 22 July 1951
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline is from unreviewed manuscript copies of T-9340 and T-9341, except that shoreline revisions in red are from the boat sheet of the present survey.

The control for this survey is discussed fully in the Descriptive Reports of the 1949 and 1950 work.

2. Bottom Configuration and Depth Curves

A large portion of the survey covers a submerged ridge lying between the ocean and the mainland. Cross and Midway Islands are exposed portions of this ridge. The sloping bottom is subjected to gouging by ice packs and is irregular. The bottom north of the ridge in depths greater than 40 ft. and south of the ridge in depths greater than 20 ft. is fairly smooth.

With the exception of the low-water line the depth curves could be adequately drawn for charting purposes. The low-water line around the islands was not determined.

3. Crossline Depths

The depths at sounding-line crossings are in adequate agreement.

4. Adjoining Surveys

Junctions with H-7761 (1949-50) on the east and south and with H-7856 (1950) on the west will be considered in the reviews of those surveys. There are no surveys adjoining on the north.

5. Comparison with Prior Surveys

There are no prior surveys made by this Bureau in the area of the present survey.

6. Comparison with Arctic Chart No. 11 (Print of 51-5/14)
No. 12 (Print of 51-5/14)

A. Hydrography

The hydrography on these special charts was compiled entirely from the present survey before verification. Only minor revisions are necessary to bring agreement with hydrography on the completed smooth sheet. A few charted soundings were revised 1 ft. in depth during verification.

B. Aids to Navigation

There are no floating aids to navigation charted within this area. The survey and charted positions of the Navy beacon on Cross Island and the tower on Reindeer Island are in agreement.

7. Condition of the Survey

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

b. The survey was accurately and neatly smooth-plotted.

8. Compliance with Project Instructions

The survey complies adequately with the project instructions.

9. Additional Field Work

Although several shoal areas were not completely developed, no additional field work is recommended. The bottom is subject to changes caused by ice-gouging and the area is considered to be adequately covered by the present survey.

Examined and approved:

H. R. Edmonston
Chief, Nautical Chart Branch

H. Arnold Karo
Chief, Division of Charts

L. S. Hubbard
Chief, Section of Hydrography

W. M. Scaife
Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7760

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
20 Sept 50	Artic #11	Forrest H Dell	Before ~~After~~ Verification and Review Rechecked Survey for critical changes
"	Artic #12	" "	Before ~~After~~ Verification and Review
5/20/51	1403	[illegible]	Before ~~After~~ Verification and Review Thru Arctic F/2
			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
			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.

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7760

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
27 Mar 51	Arctic #12	Lawrence H Bell	Before ~~After~~ Verification and Review (1950 work)
13 Apr 52	Arctic #11	[illegible]	Before Ver & Rev. Thru Chart Arctic #12, 1950 work.
[illegible] 9 54	Arctic 12	F-H-Bell	~~Before~~ After Verification and Review Partial
			29' sdg added @ 70°-30.5 148°-18.5 HPS
8-1-54	9472	Goodrich	~~Before~~ After Verification and Review
apr '55	9403	Wallace Swen	~~Before~~ After Verification and Review Thru chart 9472
			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.

Applied to Arctic Chart # 12 3/9/50 ARS
Applied to Arctic Chart # 11 before verification MMR 3/1950
Applied to Chart 9403 - NWB 3/1950 - before verification