

7991

~~CONFIDENTIAL~~

Diag. Cht. No. 9400

320

Form 504 U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE DESCRIPTIVE REPORT	
Type of Survey <u>HYDROGRAPHIC</u>	
Field No. <u>ARW-4152</u>	Office No. <u>H-7991</u>
LOCALITY	
State <u>ALASKA</u>	
General locality <u>ARCTIC COAST</u>	
Locality <u>CAPE HALKETT</u>	
<hr/> 19 <u>4</u> 52	
CHIEF OF PARTY	
<u>M. G. Ricketts</u>	
LIBRARY & ARCHIVES	
DATE <u>FEBRUARY 17, 1953</u>	

B-1870-1 (1)

7991

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

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-7991

Field No. ARW-4152

State ALASKA

General locality NORTH ARCTIC COAST

Locality ~~HARRISON BAY~~ CAPE HALKETT

Scale 1:40,000 Date of survey 23 July - 27 August 1952

Instructions dated 1 February 1952

Vessel Arctic Field Party

Chief of party Max G. Ricketts

Surveyed by K.R. Pinckney, J.W. Flint, H.R. Lippold

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

Fathograms scaled by R.G.G. N.H.

Fathograms checked by J.W.F. H.R.L. C.H.F.

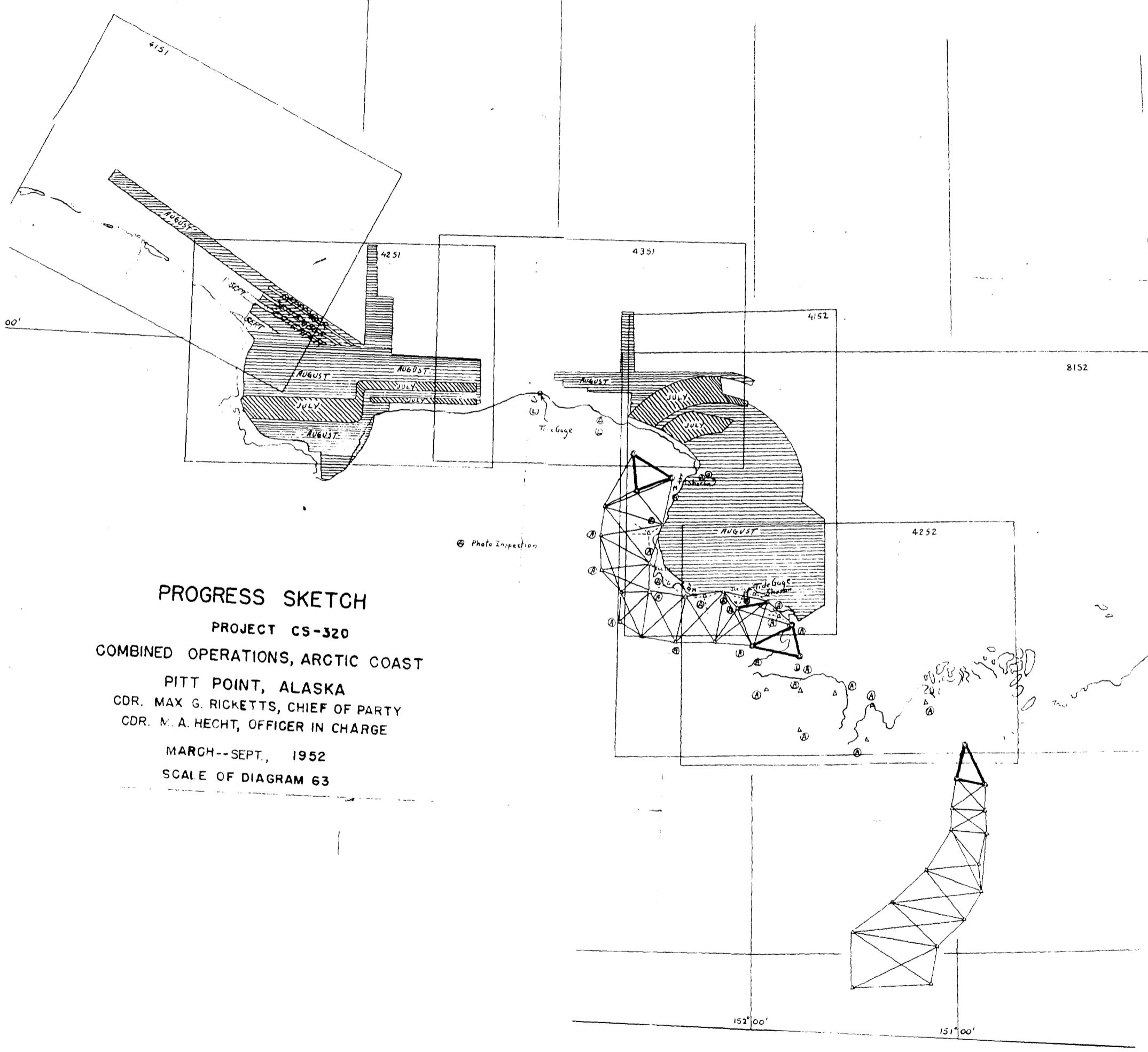
Protracted by J.W. Flint

Soundings penciled by K.R. Pinckney, & C.W. Mooney

Soundings in ~~fathoms~~ feet at ~~MHW~~ MLLW *and are based on a velocity of sound of 800 fm/sec.*

REMARKS:

202



PROGRESS SKETCH
 PROJECT CS-320
 COMBINED OPERATIONS, ARCTIC COAST
 PITT POINT, ALASKA
 CDR. MAX G. RICKETTS, CHIEF OF PARTY
 CDR. M. A. HECHT, OFFICER IN CHARGE
 MARCH--SEPT., 1952
 SCALE OF DIAGRAM 63

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-7991 (FIELD NO. ARW-4152)
NORTH ARCTIC COAST OF ALASKA
HARRISON BAY
PROJECT CS-320 SCALE 1:40,000

Max G. Ricketts Chief, Arctic Field Party
Maurice A. Hecht Officer in Charge, West Unit
K.R. Pinckney, J.W. Flint, H.R. Lippold Hydrographers

A: PROJECT

The authority for this survey is contained in Supplemental Instructions for Project CS-320, dated 1 February 1952.

B: SURVEY LIMITS AND DATES

This survey covers the area on the North Arctic Coast between Longitude $151^{\circ} 38'W$ and $152^{\circ} 38'W$, about 100 miles east of Point Barrow off Cape Halkett in the western end of Harrison Bay.

This survey was started on 23 July 1952 and completed on 27 August 1952.

C: VESSELS AND EQUIPMENT

Two converted 35-foot Navy rearming boats were used to execute this survey. They were Launch No. 14 and Launch No. 15. Each launch was equipped with an 808 J fathometer; Launch No. 14 used fathometer No. 106-S and Launch No. 15 used fathometer No. 73-S.

The turning radius of the rearming boats was 7 to 8 meters and standard speed was 7.5 knots at 2000 RPM.

D: TIDE AND CURRENT STATIONS

Tidal reducers for this sheet were taken from the data obtained at the portable automatic tide gages at Pitt Point and Saktuina.

Time and range factors were not applied to the tidal data in reducing the soundings.

There were no current stations observed on this sheet.

E: SMOOTH SHEET

The projection was made by hand at the Seattle Processing Office. Plotting of the control, plotting and protraction of soundings was done by personnel of the Arctic Field Party.

F: CONTROL STATIONS

Basic control for this survey was established in the 1951 and 1952 triangulation by Max G. Ricketts.

Shoran station "RADIO" was located by sextant angles and a measured distance. Station "HAL" was located by a measured distance on line between triangulation stations POINT and HALKETT. Station "SAK" was erected over triangulation station "SAKTUI".

Hal is shown as fourth order

For further information on the station locations refer to the Special Report already submitted "Shoran Report 1952".

G: SHORELINE AND TOPOGRAPHY

The aerial photographs are being compiled by the Portland Photogrammetric Office and were not available when this sheet was plotted.

see review for source of shoreline.

H: SOUNDINGS

Soundings were obtained by 808J type recording fathometers equipped with calibrated velocity reeds of 800 fathoms per second. Refer to Special Report "Fathometer Corrections, 1952".

filed with H-7991

I: CONTROL

Control of the hydrography was entirely by shoran fixes. Refer to Special Report "Shoran Report, 1952".

J: ADEQUACY OF SURVEY

This survey is considered adequate for the area covered.

The eastern limit of the sheet was not completed and the existing hydrography was ragged because of the ice pack that remained in this area throughout the season. It is planned to complete this part of the sheet during the 1953 Season.

completed in 1953 - see H-8059 (1953)

K: CROSSLINES

About 7% crosslines were run and satisfactory crossings were made.

see review for crossings

L: COMPARISON WITH PRIOR SURVEYS

There are no previous surveys in this area.

M: COMPARISON WITH CHARTS

The existing charts in this area, USC&GS Chart No's 9400 & 9403 are on too small a scale for an adequate comparison. However, there was no indication of the shoal shown at Latitude $70^{\circ} 46'N$, Longitude $151^{\circ} 48'W$ on chart 9403. *The shoal has been removed from the charts.*

N: DANGERS AND SHOALS

The only important shoal was found at Latitude $70^{\circ} 42.2'N$ and Longitude $151^{\circ} 57.5'$ where a least depth of $2^{3.0}$ feet was recorded. This shoal runs northeast and southwest and is five miles long. The depth comes up from an average depth of nine feet.

considered
to be
Pacific shoal

This may be the shoal discussed in section "M" and listed on the charts as Pacific Shoal.

O: COAST PILOT

Refer to Coast Pilot Report, Arctic Field Party, 1952.

P: AIDS TO NAVIGATION

Refer to Form 567, Aids to Navigation, Arctic Field Party, 1952 previously submitted.

Q: LANDMARKS FOR CHARTS

Refer to report, Landmarks for Charts, 1952 previously submitted.

R: GEOGRAPHIC NAMES

All Geographic Names were printed on this sheet.

Refer to Geographic Names Report, Arctic Field Party, 1952 previously submitted.

S: TABULATION OF APPLICABLE DATA

1. Fathometer Report, 1952 *filed with H-7991*
2. Shoran Report, 1952
3. Coast Pilot Report, 1952
4. Geographic Names Report, 1952
5. List of Geographic Positions, 1952
6. Landmarks for Charts and Aids to Navigation, 1952

T: ATTACHMENTS

1. List of Shoran Stations
2. Statistics
3. Tidal Note
4. Progress Sketch Showing Sheet Layout
5. Approval Sheet

Respectfully submitted,

Curtis W. Mooney
Curtis W. Mooney
Ensign, USC&GS

APPROVED & FORWARDED:

Max G. Ricketts

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

ATTACHMENT 1

LIST OF SHORAN STATIONS

HYDROGRAPHIC SURVEY H-7991
FIELD NO. ARW-4152

<u>STATION</u>	<u>SOURCE</u>
RADIO	* 1952 by traverse
HAL	* 1952 by traverse
SAK	SAKTUI 1952

* See Shoran Report 1952

ATTACHMENT 2

STATISTICS

HYDROGRAPHIC SURVEY H-7991
FIELD NO. ARW-4152

LAUNCH NO.	DATE 1952	VOL. NO.	DAY LTR	NO. OF POSITIONS	STATUTE MILES SDG.	Bottom Characteristics
						HAND LEAD
14	7/23/52	2	a	17	3.5	
14	7/27/52	2	b	47	18.4	
14	7/28/52	2	c	69	28.6	
14	7/29/52	2&4	d	90	36.2	2
14	7/30/52	4	e	112	45.8	
14	7/31/52	4&6	f	108	44.9	
14	8/1/52	6	g	86	39.1	
14	8/2/52	6&8	h	108	48.2	
14	8/3/52	8	j	25	9.2	
14	8/4/52	8	k	47	10.6	3
14	8/6/52	8&10	l	60	21.1	1
14	8/8/52	10	m	147	61.7	
14	8/9/52	10&12	n	127	54.1	
14	8/10/52	12&14	p	145	60.1	
14	8/11/52	14	q	103	42.0	
14	8/12/52	14&16	r	158	67.9	
14	8/13/52	16&18	s	151	63.2	
14	8/14/52	18&20	t	150	61.9	
14	8/15/52	20	u	134	54.6	
14	8/16/52	22	v	93	31.5	
14	8/21/52	22&24	w	125	51.5	1
14	8/22/52	24	x	143	58.7	1
14	8/23/52	24&26	y	33	13.2	
14	8/25/52	26	z	85	23.6	6
14	8/26/52	28	aa	169	63.7	
14	8/27/52	28&29	ba	158	60.4	
TOTALS				2688	1073.7	14

5 8-24-53 7(H-805B) 5 (green) 35 15.8

STATISTICS

HYDROGRAPHIC SURVEY H-7991
FIELD NO. ARW-4152

*Bottom
Characteristics*

LAUNCH NO.	DATE 1952	VOL. NO.	DAY LTR	NO. OF POSITIONS	STATUTE MILES SDG.	HAND LEAD
15	7/23/52	I	a	42	12.8	
15	7/27/52	I	b	48	19.3	
15	7/28/52	I	c	61	24.3	
15	7/29/52	III	d	103	43.3	6
15	7/30/52	III	e	67	28.6	1
15	7/31/52	V	f	41	15.5	
15	8/1/52	V	g	57	21.9	4
15	8/7/52	V & VII	h	127	51.4	
15	8/8/52	VII	j	108	23.0	
15	8/9/52	IX	k	12	4.0	
15	8/10/52	IX	l	53	20.0	
15	8/11/52	IX	m	62	26.0	
15	8/12/52	IX & XI	n	169	67.7	
15	8/13/52	XI & XIII	p	165	67.5	
15	8/14/52	XIII & XV	q	84	35.6	
15	8/15/52	XV	r	137	56.5	
15	8/16/52	XVII	s	16	6.9	
15	8/20/52	XVII	t	97	39.7	
15	8/21/52	IXX	u	144	54.0	
15	8/22/52	IXX & XXI	v	174	68.2	
15	8/23/52	XXI	w	23	9.3	
15	8/25/52	XXI	x	105	24.5	
15	8/26/52	XXIII & XXV	y	160	56.8	
15	8/27/52	XXV	z	130	32.2	
TOTALS				2185	809.0	11

TOTALS FOR THE SHEET

Number of Positions	4873
Statute Miles of Sounding Line	1882.7
Number of Hand Lead Soundings	25
Square Statute Miles of Sounding	333.0

ATTACHMENT 3

TIDAL NOTE

HYDROGRAPHIC SURVEY H-7991
FIELD NO. ARW-4152

The tide gage and staff used to obtain tidal data for this sheet was located at Saktuina Point, Latitude $70^{\circ} 34.18$, Longitude $152^{\circ} 02.17$. MLLW is 0.9 feet above the zero of the tide gage staff.

For the short period of hydrography accomplished before this gage was in operation, tide reducers were obtained from the tide station at Pitt Point Camp (Latitude $70^{\circ} 54.197$, Longitude $153^{\circ} 04.155$) known as Pitt Pt. No. 2. MLLW on this staff was 1.8 feet above the zero on the staff. The Pitt Pt. No. 2 data was used until August 6th when the Saktuina gage was put in operation.

No time or range corrections were applied to the tidal data from either gage. All marigrams from both tide stations have been submitted to the Washington Office.

ATTACHMENT 5

APPROVAL SHEET

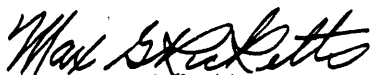
HYDROGRAPHIC SURVEY H-7991
FIELD NO. AEW-4152

The sheet and records have been examined and are approved.

Holidays on the eastern limit of this sheet caused by ice blocking areas in 1952 will be covered by junction surveys in 1953 if ice conditions permit.

completed in 1953, see H-8059 (1953)

The survey is considered adequate for the area covered.



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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~DIVISION OF COASTAL SURVEY~~

16 March 1953

Division of Charts: R. H. Carstens

Plane of reference approved in 29
volumes of sounding records for

HYDROGRAPHIC SHEET 7991

Locality Arctic Coast, Alaska

Chief of Party: M. G. Ricketts in 1952

Plane of reference is mean lower low water, reading

1.8 ft. on tide staff at Pitt Point

19.3 ft. below B. M. CAMP (1951)

0.9 ft. on tide staff at Saktuina Point

7.0 ft. below B. M. 1 (1952)

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

Pitt Point = 0.4 foot

Saktuina Point = 0.7 foot

Condition of records satisfactory except as noted below:

E. C. McKay

Section of Tides

Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES

Survey No. H-7991

Name on Survey	On Chart No.	On previous survey No.	On U. S. Quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List	
	A	B	C	D	E	F	G	H	K
<u>Alaska</u>		} for title							1
<u>Arctic Coast</u>									2
<u>Beaufort Sea</u>		(across top of sheet: not Arctic Ocean)						R.G. by	3
<u>Harrison Bay</u>								"	4
<u>Cape Halkett</u>								"	5
<u>Pacific Shoal</u>		(apply name to shoal area centering 70°42' / 151°58')						"	6
<u>Apalitvik Inlet</u>									7
<u>Point Comfort</u>									8
<u>Saktuina Point</u>									9
<u>Eskimo Islands</u>									10
<u>Kogru River</u>									11
<u>Atigaru Point</u>									12
									13
									14
<u>Cameron Point</u>									15
<u>Garry Creek</u>									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Names underlined in red are approved 3-11-58. L. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7991....

Records accompanying survey:

Boat sheets .2...; sounding vols. .29...; wire drag vols.;
 bomb vols.; graphic recorder rolls 35 Eny;
 special reports, etc. 1. Descriptive Report; 1. Smooth Sheet; 1. Cabier...
 Fathometer Report;.....

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

	Preliminary Verification	Verification
Number of positions on sheet	2688	...
Number of positions checked	30	318
Number of positions revised	5	16
Number of soundings revised (refers to depth only)	40 sq. mi.	11
Number of soundings erroneously spaced	—	22
Number of signals erroneously plotted or transferred	—	—
Topographic details	Time 8 hr.	—
Junctions	Time 16 hr.	—
Verification of soundings from graphic record	Time 32 hr.	8

Preliminary Verification -- R.E. Elkins -- 168 hrs

Verification by J.M. Rodgers... Total time 118 hrs. Date 10-30-56

Reviewed by R.E. Elkins... Time 16 Date 5-24-54

Review Addendum by G.R. Johnson 54 9-9-63

DIVISION OF CHARTS
REVIEW SECTION - NAUTICAL CHART BRANCH
REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7991

FIELD NO. ARW-4152

Alaska, Arctic Coast, Cape Halkett

Project No. CS-320

Surveyed - July and Aug., 1952

Scale 1:40,000

Soundings:

Control:

808 Fathometer

Shoran

Chief of Party - Max G. Ricketts
Surveyed by - K. R. Pinckney, J. W. Flint, H. R. Lippold
Protracted by - J. W. Flint
Soundings plotted by - K. R. Pinckney, C. W. Mooney
Preliminary Verification by - R. E. Elkins
Verified and inked by - *J.M. Rodgers*
Reviewed by - R. E. Elkins 5-24-54
Inspected by - R. H. Carstens

1. Shoreline and Control

The origin of the signals is given in the Descriptive Report. The shoreline is from reviewed photogrammetric manuscripts T-9757, T-9764, T-9765 (1947-⁵³~~51~~) and T-9769, T-9771, T-9772 (1947-⁵⁴~~52~~).

2. Sounding Line Crossings

Depths at crossings are in good agreement. The crossing discrepancies of 2-ft. with junctional soundings on H-7922, were eliminated during preliminary verification by applying fathometer speed corrections to depths from fathometer 106-S used in developing the northwest part of H-7991.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated, except for the low-water curve. In accordance with Project Instructions, curves in shoal flat areas were not completely developed.

The bottom is smooth except for a few shoals and minor irregularities in 10-to 30-ft. depths 8 miles southeast of Cape Halkett.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-8058 (1953) and H-8059 (1953) on the east. After revising about 40 square miles of soundings obtained with fathometer 106-S on H-7991, an adequate junction was effected with H-7922 (1951-53) on the west. The area on the north is unsurveyed and no soundings are shown on Chart 9403 in the area immediately adjacent to the present survey.

See
review
addendum

5. Comparison with Prior Surveys

There are no prior surveys in the area by this Bureau.

6. Comparison with Arctic Coast Chart 19 (Print date 5-25-53)
Arctic Coast Chart 20 (Print date 4-20-53)
Arctic Coast Chart 21 (Print date 4-20-53)

A. Hydrography

The charted hydrography is from the present survey before preliminary verification. Numerous charted soundings have been revised 1 and 2 ft. on the smooth sheet, especially in the area northwestward of Cape Halkett. During preliminary review, bare spots were added on the sand bar 2 miles eastward of Cameron Point. The 3-ft sounding in lat. $70^{\circ}53.92'$, long. $152^{\circ}34.90'$, and the 5-ft. sounding in lat. $70^{\circ}39.32'$, long. $152^{\circ}08.20'$ were erroneously plotted and have been removed from the smooth sheet. The small area which bares at low water off Cape Halkett and is shown in lat. $70^{\circ}48.00'$, long. $152^{\circ}08.40'$ on T-9765 from 1947 photographs, was found to have moved southwestward about 300 meters by 1952, to the position shown on the present survey.

See review
addendum

B. Aids to Navigation

There are no aids charted within the area of the present survey.

7. Condition of Survey

- a. The sounding records are complete except that insufficient leadline comparisons were taken to check the operation of the fathometers and time as measured by the fathograms was recorded instead of clock time. Crossing discrepancies with sounding lines of H-7922 run in 1951, 1952 and in 1953, were eliminated during preliminary verification by applying corrections amounting to as much as 2-ft to the soundings from fathometer 106-S, which was used in developing the

northwest area of H-7991. It is probable that the conflict in depths was caused by improper speed of fathometer 106-S or similarly varying error. As the use of time, recorded from the fathometer instead of a clock, precludes the usual check on fathometer speed, the corrections applied, were derived from differences with depths from other fathometers which were satisfactorily verified by vertical casts.

The Descriptive Report covers the important items of this survey except that no summary of corrections applied to the soundings is included, and no mention is made of discrepancies remaining between soundings of the various fathometers.

- b. The preliminary verification indicated that the smooth plotting, was in general, well done, however, no attempt to rectify crossing differences during smooth plotting is evident from the records. Several shoal soundings, not substantiated by the sounding records were erroneously penciled on the smooth sheet, and many position numbers are inked so close to the position dots, that inking a legible sounding on the position will be interfered with.
- c. The preliminary verification of this sheet was confined to crossing discrepancies, critical soundings, and depth curve delineation. Soundings in the northwest part of the survey as well as several lines covering the general area have been verified and inked. Completion of the verification and inking is deferred until some future date, at which time the shoreline will be checked, junctional soundings on the east will be transferred, and the inspection of the depth curves will be made.

see review
addendum

8. Compliance with Project Instructions

This survey adequately complies with the Project Instructions except that fathometer instrumental errors were not determined for the greater part of the range of depths surveyed, however, the survey after adjustment as mentioned in paragraph 7a, is considered to be of standard accuracy.

9. Additional Field Work

This survey is considered basic for the area.

Examined and approved

H. R. Edmonston

H. R. Edmonston
Chief, Nautical Chart Branch

E. R. McCarthy

E. R. McCarthy
Acting Chief, Division of Charts

G. R. Fish

G. R. Fish
Chief, Hydrography Branch

Earl O. Heaton

Earl O. Heaton
Chief, Division of Coastal Surveys

ADDENDUM TO REVIEW
H-7991 (1952)

Verification completed by-----J. M. Rodgers
Review addendum by-----G. R. Johnson
Inspected by-----R. H. Carstens

The verification of this survey has been completed. Soundings and depth curves have been inked, and the shoreline has been checked.

Junctions with Contemporary Surveys

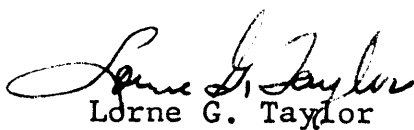
Adequate junctions were made with H-7922 (1951-53) on the west and with H-8059 (1953) on the east.

The junction with H-8058 (1953) on the southeast will be considered in the review of that survey.

Comparison with Chart 9467 (latest print date 4-16-56)
Chart 9468 (latest print date 4-15-56)
Chart 9469 (latest print date 4-16-56)

The charted hydrography originates with the present survey after complete verification and before final review. A comparison between the chart and the present survey reveals only a few minor differences of 1 ft.

Approved:



Lorne G. Taylor
Chief, Nautical Chart Division

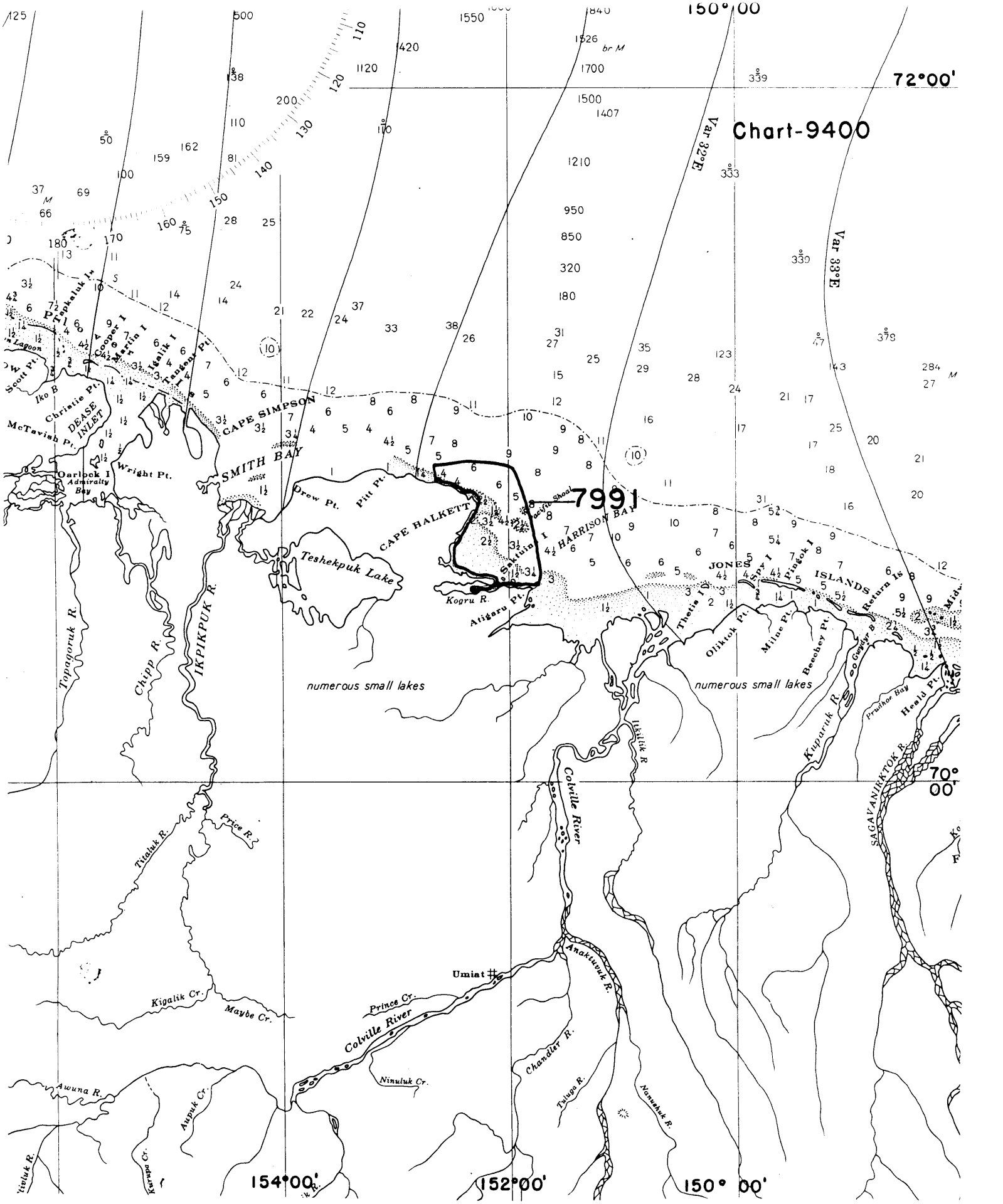


Chart-9400

7991

numerous small lakes

numerous small lakes

