

9159

Diag. Cht. No. 8201-3

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT  
(HYDROGRAPHIC)

Type of Survey ... HYDROGRAPHIC .....  
Field No. .... DA-10-5-70 .....  
Office No. .... H-9159 .....

LOCALITY

State ... ALASKA .....  
General Locality ... KEKU STRAIT .....  
Locality ... HIGH ISLAND TO HORSESHOE ISLAND .....

1970

CHIEF OF PARTY  
R. E. MOSES

LIBRARY & ARCHIVES

DATE ... 2/1/74 .....

9159

HYDROGRAPHIC TITLE SHEET

H-9159

INSTRUCTIONS - 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.

DA-10-5-70

State ALASKA

General locality Keku Strait  
~~Southeast Alaska~~

Locality High Island to Horseshoe Island  
~~Keku Strait~~

Scale 1:10,000 Date of survey 21 June - 21 August 1970

Instructions dated 23 March 1970 Project No. OPR-448

Vessel DA-1 (Launch 1), DA-2 (Launch 2), 17' Whaler (WZ3041), 12' Whaler (WZ3042)

Chief of party Cdr. Ray E. Moses

Surveyed by W.K. Taguchi, R.A. Arnold, G.L. Miller, CST A. Luceno

Soundings taken by echo sounder, ~~transducer~~ Raytheon DE-723, Nos. 919, 214, 553

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Commissioned Officers

Positions verified Richard D. Lynn Automated plot by PMC, ~~Gerber Digital Plotter~~

Soundings ~~checked~~ <sup>verified</sup> by Richard D. Lynn

Soundings in fathoms ~~XXXX~~ at ~~XXXX~~ MLLW

REMARKS:

*Chart  
8272*

*8201 NO Sdg.*

DESCRIPTIVE REPORT

DA-10-5-70

A. PROJECT

This survey was accomplished according to Project Instructions: OPR-448, KEKU STRAIT, SOUTHEAST ALASKA, dated 23 March 1970. ✓

B. AREA SURVEYED

The survey covered the area of Keku Strait in the vicinity of Horseshoe and High Islands between the latitudes  $56^{\circ} 43.0'N$  and  $56^{\circ} 48.0'N$ , and longitudes  $133^{\circ} 39.0'W$  and  $133^{\circ} 47.5'W$ . ✓  
*11.5                      6.5*

Work was accomplished between 21 June 1970 and 21 August 1970.

The survey makes a junction with the following sheets:

DA-10-4-70	H-9158 (1970)	Contemporary survey
DA-5-2-69	H-9078 (1969)	Contemporary survey

C. SOUNDING VESSEL

The following vessels were used to obtain soundings on this survey:

<u>VESSEL</u>	<u>POSITION NUMBER</u>	<u>COLOR</u>
Launch 1		Blue
Launch 2		Red
17' Whaler		Violet

Field edit positions *on boat sheet* are shown in brown. Bottom samples were taken by launch 1 and launch 2 and are shown in blue. ✓

A summary of each vessel's work by position number is attached.

D. SOUNDING EQUIPMENT

Raytheon DE-723 fathometers were used::

Launch 1	#214
Launch 2	#553
17' Whaler	#919

Echo sounder corrections were determined from bar checks taken daily by the launches. Launch and whaler fathometers were initialed at 0.0, re- ✓

quiring draft corrections for their soundings. These draft corrections are included along with the velocity corrections in the Correction to Echo Sounders - OPR-448 - 1970. A copy is attached. All soundings are in fathoms. Differences between actual and assumed initial values are compensated for with an Initial Corrections (IC/TI) tape.

E. SMOOTH SHEET

The smooth sheet will be constructed and plotted by the Processing Division, Pacific Marine Center, Seattle, Washington.

F. CONTROL

Visual three-point fixes were used for control in this survey. There were four types of visual signals used: triangulation, topographic, photo-hydro, and hydrographic. The triangulation signals were machine plotted onto the boatsheet, and then checked by the ship's Commissioned Officers. Topographic signals were located by intersection with a T-2 Wild Theodolite and plotted by intersection on the boatsheet. Photo-hydro signals were located by radial plot. The overlap on the 69E photographs was not sufficient and as a result only two rays through a signal were possible. For this reason the photo-hydro signals were checked by sextant cuts in the field. Hydrographic signals were located with sextant fixes or sextant cuts. An abstract of signals is included in the appendix.

G. SHORELINE

Shoreline and shoal area outlines were traced onto the boatsheet from the photo manuscripts (see appendix) by the ship's Commissioned Officers. Verification of the shoreline was carried out by ENS Gregory L. Miller, ENS Howard H. Herz and LTJG Warren K. Taguchi in the manuscript field edit covered by the FIELD EDIT REPORT, Keku Strait, Alaska, July-October, 1970. Features were checked in location by visual inspection, estimated distances from photo-identifiable objects, and sextant fixes. Compilation of the manuscripts was good. The low water line was defined by soundings except in isolated places where the beach was very steep.

H. CROSSLINES

The percentage of crosslines to sounding lines is 4.6% (11.3 NM compared to 247.25 NM). There is good agreement at crossings.

I. JUNCTIONS

Junctions were made with contemporary surveys DA-5-2-69 (H-9078) on the south, and DA-10-4-70 (H-9158) on the north. There is good agreement at the junctions.

(1969)

(1970)

J. COMPARISON WITH PRIOR SURVEYS

Comparison with surveys H-4765, <sup>H-4766</sup> 1927 and H-4943, 1929 was good except for the discrepancies listed below.

There are 21 areas of investigation from the Pre-survey Review.

- ✓ (1) Sounding of 18 ft. (3 fm.) <sup>from H-4765</sup> at Lat.  $56^{\circ} 43.1'N$ , Long.  $133^{\circ} 44.6'W$ . A ~~2.8~~ <sup>2.9</sup> fm. sounding was obtained in this area. ✓
- ✓ (2) Sounding of 19 ft. (3.2 fm.) <sup>from H-4765</sup> at Lat.  $56^{\circ} 43.5'N$ , Long.  $133^{\circ} 44.55'W$ . ✓  
A shoal sounding of ~~2.8~~ <sup>3.1</sup> fm. was obtained in this area.
- ✓ (3) Sounding of 38 ft. (6.2 fm.) <sup>from H-4765</sup> at Lat.  $56^{\circ} 43.7'N$ , Long.  $133^{\circ} 44.8'W$ . ✓  
A ~~5~~ <sup>5</sup> fm. sounding was obtained in this area.
- ✓ (4) Sounding of 16 ft. (2.7 fm.) <sup>from H-4766</sup> at Lat.  $56^{\circ} 47.4'N$ , Long.  $133^{\circ} 45.9'W$ . ✓  
The area was developed and a shoal sounding of ~~2.4~~ <sup>2.7</sup> fm. was obtained.
- ✓ (5) Sounding of 14 ft. (2.3 fm.) at Lat.  $56^{\circ} 47.2'N$ ; Long.  $133^{\circ} 45.8'W$ . ✓  
The area was developed and a shoal sounding of ~~2.3~~ <sup>2.3</sup> fm. was obtained.
- ✓ (6) Sounding of 13 ft. (2.1 fm.) <sup>from H-4943</sup> at Lat.  $56^{\circ} 47.3'N$ , Long.  $133^{\circ} 45.4'W$ . ✓  
The area was developed and a ~~2.3~~ <sup>2.3</sup> fm. sounding was obtained.
- ✓ (7) Sounding of 19 ft. (3.1 fm.) <sup>from H-4943</sup> at Lat.  $56^{\circ} 47.1'N$ , Long.  $133^{\circ} 45.4'W$ . ✓  
The area was developed and a shoal sounding of ~~2.8~~ <sup>2.9</sup> fm. was obtained.
- ✓ (8) Sounding of 13 ft. (2.1 fm.) <sup>from H-4766</sup> at Lat.  $56^{\circ} 47.2'N$ , Long.  $133^{\circ} 44.3'W$ . ✓  
The area was developed and leadlined as the shoal was located in the center of the main channel. A shoaler sounding of 1.6 fm. was obtained.
- ✓ (9) Sounding of 8 ft. (1.3 fm.) <sup>from H-4766</sup> at Lat.  $56^{\circ} 47.2'N$ , Long.  $133^{\circ} 44.2'W$ . ✓  
This area was also developed and leadlined as it was located in the center of the main channel. A rock was located with a shoal depth of 1.0 fm.
- ✓ (10) Sounding of 53 ft. (8.9 fm.) <sup>from H-4943</sup> at Lat.  $56^{\circ} 47.1'N$ , Long.  $133^{\circ} 43.8'W$ . ✓  
A sounding of ~~8.3~~ <sup>7.2</sup> fm. was obtained in the area.
- ✓ (11) Sounding of 6 ft. (1.0 fm.) <sup>from H-4766</sup> at Lat.  $56^{\circ} 46.9'N$ , Long.  $133^{\circ} 43.4'W$ . ✓  
Because the shoal sounding was located in the center of the main channel the area was developed and leadlined. The shoalest depth obtained was ~~0.9~~ <sup>1.1</sup> fm.
- ✓ (12) Sounding of 51 ft. (8.5 fm.) <sup>from H-4765</sup> at Lat.  $56^{\circ} 46.3'N$ , Long.  $133^{\circ} 42.8'W$ . ✓  
A sounding of ~~8.5~~ <sup>7.7</sup> fm. was obtained in the area.

- ✓ (13) Sounding of 10 ft. (1.7 fm.)<sup>from H-4765</sup> at Lat. 56° 45.8<sup>75</sup>'N, Long. 133° 42.75'W. ✓  
~~Soundings of 1.8 fms were~~ obtained in the area.  
 A \* cord 2 ft was ~~4.09~~
- ✓ (14) Sounding of 7 ft. (1.1 fm.)<sup>from H-4943</sup> at Lat. 56° 45.75'N, Long. 133° 42.4'W. ✓  
~~A sounding of 1.7 fm. was obtained.~~ A \*<sup>(2)</sup> was obtained
- ✓ (15) Sounding of 43 ft. (7.1 fm.)<sup>from H-4765</sup> at Lat. 56° 45.3<sup>35</sup>'N, Long. 133° 42.9<sup>98</sup>'W. ✓  
 A shoaler sounding of 6.8 fm. was obtained.
- ✓ (16) Sounding of 47 ft. (7.8 fm.)<sup>from H-4765</sup> at Lat. 56° 45.4<sup>36</sup>'N, Long. 133° 43.0<sup>42.91</sup>'W. ✓  
 A shoaler sounding of 5.4 fm. was obtained.
- ✓ (17) Soundings of 2.1<sup>from H-4765</sup> fm. and 1.1<sup>from H-4943</sup> fm. at Lat. 56° 45.0<sup>44.93</sup>'N, Long. 133° 42.9<sup>91</sup>'W. ✓  
~~A shoaler sounding of 0.1 fm. was obtained. Both soundings were~~  
~~obtained adjacent to a reef area. awash at MLW was found.~~
- ✓ (18) Sounding of 6 ft. (1 fm.) at Lat. 56° 44.8<sup>76</sup>'N, Long. 133° 42.8<sup>89</sup>'W. ✓  
 A deeper sounding of 1.7 fm. was obtained in this area.  
 2.1 6 ft. (1 fm.) carried forward from H-4765 (1927)
- ✓ (19) Item 9: pilings at Lat. 56° 43.7'N, Long. 133° 44.3'W. The pilings ✓  
 were searched for during low tide but were not found.  
*charted since 1927 - considered non existent*
- ✓ (20) Sounding of 8 ft. (1.3 fm.)<sup>from H-4766</sup> at Lat. 56° 46.8<sup>84</sup>'N, Long. 133° 45.0<sup>01</sup>'W. ✓  
 A shoaler sounding of 1 fm. was obtained in the area.
- ✓ (21) Sounding of 69 ft. (11<sup>5</sup> fm.)<sup>from H-4943</sup> at Lat. 56° 47.1<sup>12</sup>'N, Long. 133° 43.2<sup>43.2</sup>'W. ✓  
~~A sounding of 11 fm. was obtained.~~ 11<sup>5</sup> carried forward
- ✓ (22) Soundings of 6.1 and 4.3 fms. at Lat. 56° 46.8<sup>87</sup>'N, Long. 133° 44.0<sup>93</sup>'W. ✓  
 A sounding of 4.6 fm. was obtained in the area.  
 2.6 ft (4.3 fm) carried forward from H-4766 (1927)

Discrepancies between present survey and survey H-4765:(1927)

- ✓ (A) Rock awash at Lat. 56° 43.45'N, Long. 133° 44.3<sup>33</sup>'W should be moved to ✓  
 Lat. 56° 43.55'N, Long. 133° 44.4'W. *Not done as rocks are*  
*presently shown there. Disregard prior \**
- ✓ (B) Shoal sounding of 2.8 fm. at Lat. 56° 43.45'N, Long. 133° 44.55'W was ✓  
 not previously located.
- ✓ (C) Shoal sounding of 1.8<sup>65</sup> fm. at Lat. 56° 44.8<sup>57</sup>'N, Long. 133° 43.7<sup>63</sup>'W ✓  
 which was not previously located.
- ✓ (D) Sounding of 8.1 fm. at Lat. 56° 44.6'N, Long. 133° 43.85'W was ~~not~~ ✓  
 found, to be 7.9 fms.

Discrepancies between present survey and survey H-4943:

- ✓ (A) Shoal sounding of 5.2<sup>6</sup> fm. found at Lat. 56° 47.1<sup>09</sup>'N, Long. 133° 42.8<sup>85</sup>'W ✓  
 which was not previously located.

The present survey depths are reduced using the predicted tides for Entrance Island, Alaska.

K. COMPARISON WITH THE CHART

Comparison of this survey with C&GS chart #8272, 3rd Ed., 17 October 1966 is generally good. The discrepancies between this survey and prior surveys as listed above are the chief differences between this survey and the chart. This present survey shows greater refinement of the depth curves. The rock awash symbol at Lat. 56 43.45'N, Long. 133 44.4'W is in error and should be removed and relocated at Lat. 56 43.55'N, Long. 133 44.4'W. See boatsheet for exact location.

L. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supercede prior surveys.

M. AIDS TO NAVIGATION

The following is a list of navigational aids on this survey:

<u>LAT.</u>	<u>LONG.</u>	<u>DESCRIPTION</u>	<u>HYDRO SIGNAL NUMBER</u>
56° 42' 41.1"	133° 44' 02.5"	W "39" Daybeacon	501
56° 43' 16.6"	133° 44' 25.0"	R "40" Daybeacon	502
56° 44' 27.8"	133° 44' 13.0"	W "41" Daybeacon	528
56° 45' 51.5"	133° 43' 26.5"	R "42" Daybeacon	510
56° 46' 44.6"	133° 43' 06.5"	R "44" Daybeacon	512
56° 47' 14.0"	133° 44' 05.9"	R "46" Daybeacon	514
56° 47' 12.8"	133° 44' 39.6"	W "47" Daybeacon	515
56° 47' 19.7"	133° 45' 47.5"	W "49" Daybeacon	516
56° 47' 33.4"	133° 46' 03.0"	R "50" Daybeacon	517
56° 47' 56.2"	133° 46' 31.6"	R "52" Daybeacon	518
56° 48' 18.4"	133° 47' 47.9"	W "53" Daybeacon	519
56° 48' 39.4"	133° 47' 44.3"	R "54" Daybeacon	520

Refer also to the separate report on Landmarks for Charts & Fixed Aids to Navigation for OPR-448.

N. STATISTICS

	<u>NUMBER OF POSITIONS</u>	<u>NAUTICAL MILES SOUNDING LINES</u>	<u>BOTTOM SAMPLES</u>
Launch 1	1965	201.05	25
Launch 2	29	3.2	3
17' Whaler	749	43.0	0
Field Edit	109	0	0
	<b>2852</b>		
	<b>28</b>		
	<b>2880</b>		

The total area surveyed is 5.0 square nautical miles. There are 18 volumes ✓  
with this survey.

The tide station used for this sheet is the High Island Tide Gage on the ✓  
time meridian 105° W. The soundings on the boatsheet were reduced using  
predicted tides for Entrance Island, Keku Strait, Alaska.

Currents were observed for 30 days with Geodyne meters set at 15 foot depths  
at five sites. The sites are listed below:

- |     |                  |                    |   |
|-----|------------------|--------------------|---|
| (A) | Lat. 56° 47.2'N  | Long. 133° 44.37'W | ✓ |
| (B) | Lat. 56° 47.55'N | Long. 133° 42.80'W | ✓ |
| (C) | Lat. 56° 46.65'N | Long. 133° 43.35'W | ✓ |
| (D) | Lat. 56° 46.8'N  | Long. 133° 42.45'W | ✓ |
| (E) | Lat. 56° 44.9'N  | Long. 133° 43.75'W | ✓ |

O. LOGGING

A dual indicator format was used for logging of this survey. Both positions ✓  
and soundings are on the same tape. A sample of the format is included in  
the appendix. A HUL logger was used with the BCD code.

P. RECOMMENDATIONS

There are no recommendations for this boatsheet. ✓

Q. REFERENCES TO REPORTS

Corrections to Echo Sounders - OPR-448 - 1970  
Field Edit Report - OPR-448 - 1970  
Landmarks Report - OPR-448 - 1970  
Geographic Names - OPR-448 - 1970

Respectfully submitted

*Warren K. Taguchi*

Warren K. Taguchi  
LIJG NOAA



FATHOMETER INITIAL CORRECTION

Launch 1			17 <sup>1</sup> Whaler			Launch 2		
<u>Day</u>	<u>Time</u>	<u>Corr'n</u>	<u>Day</u>	<u>Time</u>	<u>Corr'n</u>	<u>Day</u>	<u>Time</u>	<u>Corr'n</u>
172	092800	0.0	202	100945	0.0	209	150415	0.0
	151900	0.0		152630	0.0		154100	0.0
173	095600	0.0	210	085700	0.0	<del>22</del>		
	160300	0.0		151200	0.0			
174	102000	0.0	218	091100	+0.1			
	152000	0.0		095500	0.0			
175	092500	0.0		153700	0.0			
	093900	0.0	219	084600	0.0			
181	115700	0.0		131600	-0.1			
	152900	0.0		135800	0.0			
182	090100	0.0		152415	0.0			
	150700	0.0	233	101730	0.0			
193	095300	0.0		152000	0.0			
	151900	0.0						
194	102200	0.0						
	152100	0.0						
204	092315	0.0						
	153200	0.0						
205	090500	0.0						
	150000	0.0						
206	085800	0.0						
	151600	0.0						
207	085500	0.0						
	143808	0.0						
208	085300	0.0						
	153115	0.0						
209	091000	0.0						
	135105	0.0						
220	092900	0.0						
	154100	0.0						
221	090000	0.0						
	141100	0.0						
222	090000	0.0						
	141100	0.0						
223	105445	0.0						
	165900	0.0						
230	093415	0.0						
	150430	0.0						

All times are 105° W and all corrections are in fathoms.

VELOCITY TABLE 1

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	4.0 fm	0.0 fm
4.1 fm	-	15.0 fm	0.1 fm
15.1 fm	-	27.0 fm	0.2 fm
27.1 fm	-	41.0 fm	0.3 fm
41.1 fm	-	55.0 fm	0.4 fm
55.1 fm	-	69.0 fm	0.5 fm
69.1 fm	-	84.0 fm	0.6 fm
84.1 fm	-	98.0 fm	0.7 fm
98.1 fm	-	114.0 fm	0.8 fm
114.1 fm	-	131.0 fm	0.9 fm
131.1 fm	-	147.0 fm	1.0 fm

MODIFIED BAR CHECK - TABLE 2 (Fathometer #214)

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	5.4 fm	0.1 fm
5.5 fm	-	200.0 fm	0.2 fm

MODIFIED BAR CHECK - TABLE 3 (Fathometer #553)

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	200.0 fm	0.1 fm

MODIFIED BAR CHECK - TABLE 4 (Fathometer #916)

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	200.0 fm	0.2 fm

MODIFIED BAR CHECK - TABLE 5 (Fathometer #919)

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	6.5 fm	0.1 fm
6.6 fm	-	13.4 fm	0.2 fm
13.5 fm	-	200.0 fm	0.3 fm

MODIFIED BAR CHECK - TABLE 6 (Fathometer #1276)

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	5.2 fm	0.1 fm
5.3 fm	-	200.0 fm	0.2 fm

MODIFIED BAR CHECK - TABLE 7 (Fathometer #1286)

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>CORRN.</u>
0.0 fm	-	5.2 fm	0.1 fm
5.3 fm	-	7.4 fm	0.2 fm
7.5 fm	-	200.0 fm	0.3 fm

LIST OF STATIONS ON DA-10-5-70

<u>Signal Number</u>	<u>Origin of Station</u>
501	W "39", Vol. 18, pp. 35-46
502	R "40", Vol. 18, pp. 35-46
503	HI 1927
504	Steep, Vol. 18, pp. 35-46
505	AX 1927
506	TOM 1927
507	POZ 1927
508	DIF 1927
509	GAM 1927
510	R "42", Vol. 18, pp. 35-46
511	PHI 1927
512	R "44", Vol. 18, pp. 35-46
513	DIN 1927
514	R "46", Vol. 18, pp. 35-46
515	W "47", Vol. 18, pp. 35-46
516	W "49", Vol. 18, pp. 35-46
517	R "50", Vol. 18, pp. 35-46
518	R "52", Vol. 18, pp. 35-46
519	W "53", Vol. 18, pp. 35-46
520	R "54", Vol. 18, pp. 35-46
521	PET 1927
522	WAIT 1927
523	BAR 1927
524	KEL 1927
525	NOM 1927
526	ZOP 1927
527	TEST 2, 1927
528	W "41", Vol. 18, pp. 35-46
529	Rock, Vol. 18, pp. 35-46
530	NOR 1927
531	HAY 1927
532	Vol. 5, p. 3
533	Vol. 5, p. 3
561	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 3 & 4
562	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 3 & 4
563	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 3 & 4
564	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 3 & 4
565	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 5 & 6
566	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 5 & 6
567	<del>T-12210</del> <del>FP 00210</del> , Vol. 15, pp. 5 & 6
568	T-12206
569	T-12206
570	<del>T-12205</del> <del>FP 00205</del>
571	Vol. 9, p. 35
572	T-12206
573	T-12206
574	T-12206
575	T-12206

Signal Number

Origin of Station

576  
577  
578  
579  
580  
581

T-12206  
T-12206  
Transferred from DA-10-4-70 (H-9158)  
~~T-12210~~ ~~FP-00210~~  
~~T-12210~~ ~~FP-00210~~  
~~T-12210~~ ~~FP-00210~~

TRIANGULATION STATIONS

HI 1927	56° 43'	643.0m	133° 44'	125.5m
AX 1927	56° 44'	714.3m	133° 43'	537.2m
TOM 1927	56° 44'	1270.4m	133° 43'	585.5m
POZ 1927	56° 44'	1816.8m	133° 43'	507.1m
DIF 1927	56° 45'	647.8m	133° 42'	564.7m
GAM 1927	56° 45'	1477.3m	133° 43'	90.0m
PHI 1927	56° 46'	596.9m	133° 42'	453.9m
DIN 1927	56° 47'	142.3m	133° 42'	503.3m
PET 1927	56° 47'	592.6m	133° 47'	3722.2m
WAIT 1927	56° 47'	492.3m	133° 46'	319.1m
BAR 1927	56° 46'	1611.3m	133° 45'	563.2m
KEL 1927	56° 46'	1340.2m	133° 43'	603.1m
NOM 1927	56° 45'	954.5m	133° 44'	5.7m
ZOP 1927	56° 45'	286.6m	133° 43'	1013.7m
TEST 2, 1927	56° 44'	1264.8m	133° 44'	284.0m
NOR 1927	56° 43'	1454.5m	133° 45'	471.4m
HAY 1927	56° 42'	1649.4m	133° 45'	364.4m
STEEP 1927	56° 43'	1641.2m	133° 44'	183.3m
<u>Keku Strait Daybeacon No 40</u> (1927-69)	56° 43'	511.5m	133° 44'	428.3m

LIST OF MANUSCRIPTS

<del>TP-00205</del>	<b>T-12205</b>
T-12206	
T-12209	
<del>TP-00210</del>	<b>T-12210</b>
T-12213	
T-12214	

ABSTRACT OF POSITIONS

<u>Day</u>	<u>Launch 1</u>	<u>Launch 2</u>	<u>Whaler</u>	<u>Field Edit</u>
172	1-154 (1)			
173	155-274 (1,2)			
174	274-358 (2)			
175	358-372 (3)			
181	373-478 (3)			
182	478-635 (3,4)			
193	636-715 (4)			
194	716-825 (5)			
202			3001-3160 (6)	
204	826-982 (7)			9001-9012 (18) 9087-9109 (18)
205	982-1090 (8)			9015-9020 (18)
206	1091-1222 (8)			9021-9025 (18)
207	1223-1328 (9)			
208	1329-1503 (9,10)			
209	1504-1616 (10)	2616-2645 (15)		
210			3161-3314 (6,7)	
216				9026-9057 (18)
217				9058-9080 (18)
218			3315-3481 (11)	
219			3482-3613 (12)	
220	1616-1722 (13)			
221	1724-1752 (13)	2501-2504* (18)		
222	2504-2528 (18)*			
223	1753-1888 (14)			
232	1890-1965 (16)			
233			3614-3749 (12,17)	

\* Bottom samples  
Volume numbers are in parentheses.

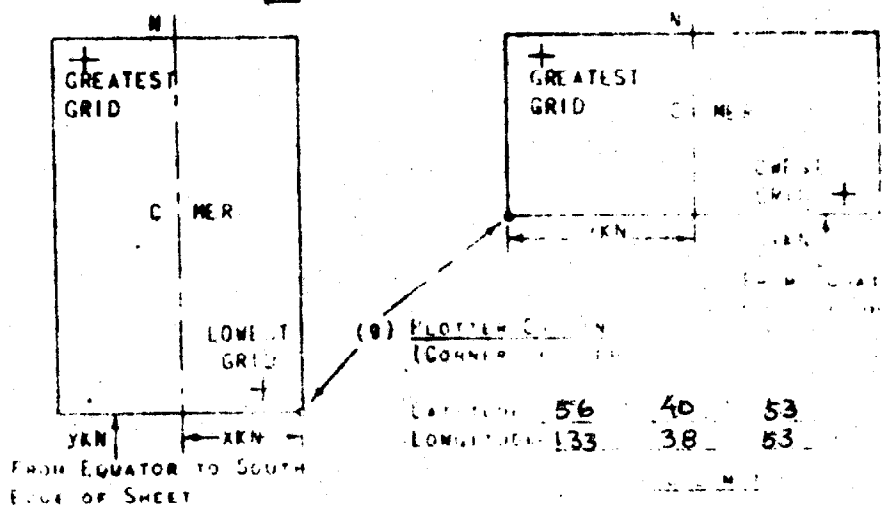
DUAL INDICATOR  
POSITION-SOUNDING TAPE

<u>Time</u>	<u>Ind</u>	<u>Sndg</u>	<u>Pos</u>		<u>Ft</u>		<u>LA</u>	<u>RA</u>	<u>LO</u>	<u>CO</u>	<u>RO</u>
			<u>Num</u>	<u>Day</u>	<u>Fm</u>						
111230	01	0015	1878	101	1	0461	50	0125	80	0201	204 206
111245	01	0020									
111300	01	0016									
111315	01	0011									
111330	01	0010	1879	101	1	0454	00	0141	40	0201	204 206

Time	Hour, min., sec.
Ind	Indicator: 00 Soundings in whole units 01 Soundings in units and tenths
Sndg	Depth in feet or fathoms
Pos Num	Position number
Day	Julian day number
Ft/Fm	Indicator: 0 Feet 1 Fathoms
LA	Left Angle
RA	Right Angle
LO	Left object
CO	Center object
RO	Right Object



- NAVY SURVEYING**
- (1) PROJECT NO. 448 (4) REQUESTED BY Commanding Officer  
 (2) H No. \_\_\_\_\_ (5) SHIP OR OFFICE USC-5655 DAVIDSON  
 (3) FIELD No. \_\_\_\_\_ (6) DATE REQUIRED 18 May 1970  
 (7) VISUAL  (8) ELECTRONIC  (FILL OUT FORM #3)  
 (10) XKN (SP 3) DISTANCE FROM CNER TO EAST EDGE (NYX = 0) 4,716 METERS  
 OR WEST EDGE (NYX = 0).  
 (11) YKN (SP 241) DISTANCE FROM EQUATOR TO SOUTH EDGE OF SHEET. 6 284 221.197 METERS  
 (12) CENTRAL MERIDIAN 133° 43' 30"  
 (13) SURVEY SCALE 1:10,000  
 (14) SIZE OF SHEET (CHECK ONE) 36x54  42x60  OTHER   
 (15) NYX, ORIENTATION OF SHEET (CHECK ONE)  
 NYX = 1  NYX = 0



LIST S.P. OF ALL STATIONS TO BE PLOTTED ON THIS PROJECTION ON THE BACK OF THIS FORM. (DEG., MIN., METERS)

- 16) GREATEST LATITUDE 56° 48' 00"  
 17) LOWEST LATITUDE 56° 41' 00"  
 18) DIFFERENCE 7' 00"  
0' 30"  
 19) GREATEST LONGITUDE 133° 47' 30"  
 20) LOWEST LONGITUDE 133° 39' 00"  
 21) DIFFERENCE 8' 30"  
0' 30"

S I G N A L P L O T T E R C A R D S

H-NO.		LATITUDE	LONGITUDE	X	Y
31050	501	70 56424112	133440259	05533	03512
31050	502	70 56431655	133442499	05923	04662
31050	503	70 56432079	133440741	05619	04800
31050	504	70 56435308	133441076	05679	05849
31050	505	70 56442308	133433159	04980	06822
31050	506	70 56444106	133433448	05031	07406
31050	507	70 56445874	133432982	04948	07981
31050	508	70 56452095	133423325	03939	08702
31050	509	70 56454775	133430530	04511	09572
31050	510	70 56455153	133432649	04889	09695
31050	511	70 56461930	133422673	03823	10597
31050	512	70 56464455	133430648	04532	11416
31050	513	70 56470459	133422962	03875	12068
31050	514	70 56471403	133440589	05591	12374
31050	515	70 56471291	133443965	06193	12338
31050	516	70 56471980	133454758	07404	12562
31050	517	70 56473342	133460273	07673	13005
31050	518	70 56475619	133463170	08189	13744
09159	519	70 56481846	133474761	09541	14469
09159	520	70 56483941	133474408	09477	15149
31050	521	70 56471917	133472191	09085	12543
31050	522	70 56471591	133461879	07960	12436
31050	523	70 56465208	133453316	07147	11662
31050	524	70 56464332	133433551	05049	11377
31050	525	70 56453084	133440035	05493	09023
31050	526	70 56450928	133435967	05481	08323
31050	527	70 56444090	133441671	05785	07401
31050	528	70 56442783	133441306	05720	06977
31050	529	70 56441681	133450235	06600	06619
31050	530	70 56434701	133452770	07052	05652
31050	531	70 56425331	133452140	06941	03908
31050	532	70 56462250	133430765	04553	10701
31050	533	70 56460139	133434209	05167	10015
31050	561	70 56430844	133430253	04461	04398
31050	562	70 56430896	133421564	03623	04416
31050	563	70 56432441	133423181	03912	04917
31050	564	70 56433049	133432293	04825	05114
31050	565	70 56442868	133423400	03952	07004
31050	566	70 56445289	133425390	04307	07791
31050	567	70 56445176	133420706	03471	07754
31050	568	70 56474290	133425102	04257	13912
09159	569	70 56475748	133424513	04152	13785
31050	570	70 56474377	133445255	06422	13340
31050	571	70 56473268	133432886	04931	12980
31050	572	70 56464280	133425677	04359	11360
31050	573	70 56460705	133420059	03357	10199

31050	574	70	56460424	133412143	02658	10108
31050	575	70	56462489	133410077	02290	10779
31050	576	70	56463317	133413627	02924	11047
31050	577	70	56463799	133415288	03220	11204
31050	578	70	56474836	133411184	02489	13490
31050	579	70	56441335	133421200	03559	06507
31050	580	70	56435748	133421423	03599	05991
31050	581	70	56434490	133420959	03516	05583

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APPROVAL SHEET


Hydrographic Survey

H-9159 DA-10-5-70

OPR-448

Keku Strait, Alaska

The field work on this survey was accomplished under my supervision. Frequent inspections were made of the boat sheet and other records.



Ray E. Moses

CDR., NOAA

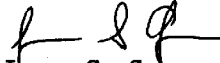
Commanding Officer

NOAA Ship DAVIDSON

APPROVAL SHEET

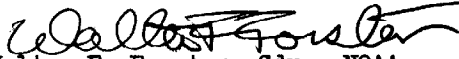
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,



James S. Green  
Supervisory Cartographic Technician

Approved and forwarded,



Walter F. Forster, Cdr., NOAA  
Chief, Processing Division  
Pacific Marine Center

U. S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY 8/16/72

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center

Hourly heights are approved for tide tape printout

Tide Station Used (NOAA Form 77-12): High Island, Alaska

Period: June 17 - September 2, 1970..

HYDROGRAPHIC SHEET H9159

OPR 448

Locality: Keku Strait, S.E. Alaska

Plane of reference (mean lower low water)= on printout is 6.1  
which is 6.1 feet on tide staff.

Height of Mean High Water above Plane of Reference is 14.0 ft.

Remarks: Hourly heights have been revised in red and verified  
as follows:

<u>Day</u>	<u>Hour</u>
June 22	1200-1600
July 12	0900-1600
July 23	0900
Aug. 4	0800-0900

Hourly heights have been inferred from the Ketchikan tide gage.

Hourly heights tapes corrected. 9-5-72 *JK*

*Robert A. Cummings*  
Chief, Tides Branch

TIDE NOTES

The tide station used for this survey was at High Island.

Location                      Lat.  $56^{\circ} 44.8'N$     Long.  $133^{\circ} 43.5'W$

Plane of Reference          MLLW

Time Meridian                 $105^{\circ} W$

Type of Gage                 Portable Bubbler

The tide height data were corrected for differences in time and height.  
MLLW was 6.13 feet on the staff.



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
 Rockville, Md. 20862

Date: December 18, 1970

Reply to  
 Attention of: C331W-288-CSS

Subject: Tidal Data - OPR 448, Keku Strait, Alaska

To: Commanding Officer  
 NOAA Ship DAVIDSON

Listed below are planes of reference time and height relationships for the four tide stations installed in 1970.

	H.W. Interval H	L.W. Interval H	Mean Range ft.	GT Range ft.	MLLW on Staff ft.
Monte Carlo I.	9.47	3.20	10.1	12.2	6.58
Eagle I.	9.41	3.40	10.3	12.5	2.25
High I.	9.64	3.38	12.5	14.9	6.13
Pup I.	9.58	3.39	12.0	14.4	2.41

The recommended zoning is acceptable. Additional zoning for Sheet DA-10-7-70 is listed below:

Northward to lat. 56°38'.5 use Eagle Island. Between lat. 56°38'.5 and 56°40'.5 the area should be divided into three zones using the following corrections on Eagle Island.

	Time of Tide		Height of Tide	
	H.W. h m	L.W. h m	H.W. ft.	L.W.
Zone 1	+0 05	+0 08	+0.6	0.0
Zone 2	+0 10	+0 17	+1.2	0.0
Zone 3	+0 15	+0 25	+1.8	0.0

L. C. Wharton  
 Tides & Currents Branch  
 Oceanography Division  
 National Ocean Survey



GEOGRAPHIC NAMES

Survey No. H-9159

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
✓ BEACON ISLAND ✓												1
✓ BERRY ISLAND ✓												2
✓ CUCUMBER REEF ✓												3
<del>ENTRANCE ISLAND</del>												4
✓ HIGH ISLAND ✓												5
✓ HORSESHOE ISLAND ✓												6
✓ KEKU STRAIT ✓												7
✓ KULU ISLAND ✓												8
✓ KUPREANOF ISLAND ✓												9
✓ ROCKY PASS ✓												10
												11
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												27

Approved by  
*Chas E. Harrington*  
 Staff Geographer  
 13 May 1974

HYDROGRAPHIC SURVEY STATISTICS  
HYDROGRAPHIC SURVEY NO. H-9159

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		5	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			*			
CAHIERS	1					
VOLUMES	18	2				
BOXES						

T-SHEET PRINTS (List)

~~T-12245 T-12246 T-12249 T-12210~~

SPECIAL REPORTS (List)

1 envelope of Season's Reports

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				2880
POSITIONS CHECKED		2880	40	
POSITIONS REVISED		213	-	
DEPTH SOUNDINGS REVISED		486	26	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		----	-	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		3	-	
	TIME (MANHOURS)			
Verification of Control		28	-	
Verification of Positions		264	20	
Verification of Soundings		402	30	
Smooth Sheet Compilation		171	100	
ALL OTHER WORK		117	258	
<b>TOTALS</b>		<b>982</b>	<b>308+9=</b>	<b>317+2=318</b>
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>Richard D. Lynn</i> Richard D. Lynn	11 January 1972		21 March 1974	
REVIEW BY <i>J. Baumgardner</i>	Jan 9, 1975		March 3, 1975	

*Log 70 Powers 77 hrs 4-24-75 Cart Jan 14 hr 9/22/75*

Reg. No. 9159

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

H-9159

Information for Future Presurvey Review

Minor differences were noticed since the prior surveys. These differences are attributed to the natural shifting of sediments and differences in survey methods, leadline on the prior work versus depth recorder soundings on the present survey.

<u>Position</u>	<u>Index</u>	<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
564	1335	2	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9159

FIELD NO. DA-10-5-70

Alaska, Keku Strait, High Island to Horseshoe Island

SURVEYED: June 21 through August 21, 1970

SCALE: 1-10,000

PROJECT NO.: OPR-448

SOUNDINGS: Raytheon DE-723 Depth  
Recorders, Leadline

CONTROL: Sextant Fixes  
on Shore  
Signals

Chief of Party .....	R. E. Moses
Surveyed by .....	W. K. Taguchi
.....	R. A. Arnold
.....	G. L. Miller
.....	A. Luceno
Automated Plot by .....	Gerber Digital Plotter (PMC)
Verified and Inked by .....	R. D. Lynn
Reviewed by .....	S. Baumgardner
.....	Date: March 3, 1975
Inspected by .....	F. B. Powers

1. Description of the Area

This survey covers a portion of Keku Strait from High Island on the south to Horseshoe Island on the north which includes the northern end of Rocky Pass.

The inshore area is foul with intermittent ledges and off-lying rocks. The bottom is very rugged with many islets, reefs, and rocky shoals offshore.

The predominant bottom characteristics are shells, pebbles, mud, and sand.

2. Shoreline and Control

The origin of control is adequately covered in Part F of the Descriptive Report.

The shoreline originates with reviewed photogrammetric manuscripts T-12205 (1961-70), T-12206 (1961-70), T-12209 (1969-70), T-12210 (1969-70), T-12813 (1961-69), T-12814 (1964-69), and chart maintenance prints B.P. 86417, 86418, 86426, 86427, 86430, and 86431.

Minor shoreline revisions in red were made by the hydrographer.

### 3. Hydrography

Depths at crossings are in good agreement. The usual depth curves were adequately delineated, except along steep slopes in close proximity to the shore. Several brown curves were added to emphasize shoal features. The development of the bottom configuration and the investigation of least depths are considered adequate.

### 4. Condition of the Survey

The sounding records, smooth plotting, various sounding printouts and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual supplemented by the Instruction Manual-Automated Hydrographic Surveys.

### 5. Junctions

Adequate junctions were effected with H-9158 (1970) on the north and H-9078 (1969) on the south.

### 6. Comparison with Prior Surveys

#### A. H-2150 (1892), 1:40,000

The reconnaissance nature of this prior smaller scale survey precludes an adequate detailed comparison with the present survey.

The present survey is adequate to supersede the prior survey within the common area.

#### B. H-4765 (1927), 1:10,000 H-4766 (1927), 1:10,000 H-4943 (1929), 1:10,000

These surveys cover the area common to the present survey. A comparison between the present and prior survey depths indicates minor differences of one fathom with the present

depths generally being shoaler. These differences are attributed to the differences in survey methods, leadline on the prior work versus depth recorder sounding on the present work.

(1) Several bottom samples, shoal soundings, and rocks awash from the above prior surveys have been carried forward to supplement the present survey information.

(2) The pilings located in latitude  $56^{\circ}43.75'$ , longitude  $133^{\circ}44.30'$  on T-4341 (1927) were not verified or disproved by the hydrographer but are considered nonexistent because of their age and should be disregarded. No indication of the piling was seen by the hydrographer at low water.

(3) The rock awash at MLLW charted in latitude  $56^{\circ}42.45'$ , longitude  $133^{\circ}44.33'$  from T-4341 (1927) is discredited by present soundings and should be disregarded. The topographic position is considered to be faulty and should probably fall 200 meters to the NW where a similar feature is found on the present survey.

(4) The rock awash charted in latitude  $56^{\circ}47.00'$ , longitude  $133^{\circ}45.88'$  from T-4340 (1927) is considered displaced in position and should fall on the present survey rock awash 35 meters to the southward.

With the additions noted, the present survey is adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 8272 (latest print date November 9, 1974)

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by the partial application of depths from the boat sheet and verified smooth sheet of the present survey.

Attention is directed to the following:

(1) A 10-foot sounding charted in latitude  $56^{\circ}45.80'$ , longitude  $133^{\circ}42.51'$  from H-4765 (1927) should be deleted from the chart, as it was misinterpreted and is a 70-foot sounding.

*Paul M  
NM 3/76  
11-17-75  
JH*

(2) The soundings listed below, charted from the boat sheet information, should be revised to agree with the final smooth sheet data:

<u>Charted Depth</u>	<u>Location</u>	<u>Final Data</u>
2 ft.	<sup>41"</sup> 56°46.78', <sup>41"</sup> 133°44.68'	<sup>6ft</sup> 0.8 fm. ✓
2 ft.	<sup>53"</sup> 56°46.88', <sup>37"</sup> 133°43.61'	<sup>6 1/2 ft</sup> 1.1 fm. ✓
18 ft.	<sup>04"</sup> 56°45.07', <sup>31"</sup> 133°42.61'	<sup>24ft</sup> 4.1 fm. ✓
18 ft.	<sup>14"</sup> 56°46.23', <sup>46"</sup> 133°41.77'	<sup>30ft</sup> 5.1 fm. ✓
Low Water Area	<sup>40"</sup> 56°44.67', <sup>42"</sup> 133°42.70'	<sup>21ft</sup> 3.6 fm. ✓
47 ft.	<sup>07"</sup> 56°46.12', <sup>19"</sup> 133°43.31'	<sup>102ft</sup> 17.0 fm. ✓

(3) Two rocks awash charted from erroneous boat sheet information (one in latitude <sup>31"</sup>56°45.34', longitude <sup>31"</sup>133°42.62', the other in latitude <sup>31"</sup>56°45.37', longitude <sup>31"</sup>133°42.65') should be deleted from the chart. ✓

(4) The high water rock charted from H-4943, in latitude <sup>41"</sup>56°44.67', longitude <sup>41"</sup>133°42.08' should be revised ✓ to a rock awash in accordance with the final smooth sheet data.

(5) The rock awash charted in latitude <sup>58"</sup>56°43.97', longitude <sup>58"</sup>133°45.4' from H-4765 (1927) should be deleted ✓ from the chart and the area revised to agree with the final smooth sheet data.

The present survey is adequate to supersede the charted information within the common area.

#### (B) Aids to Navigation

The aids to navigation on the present survey are in substantial agreement with their charted position and adequately mark the features intended.

#### 8. Compliance with Instructions

This survey adequately complies with the project instructions.



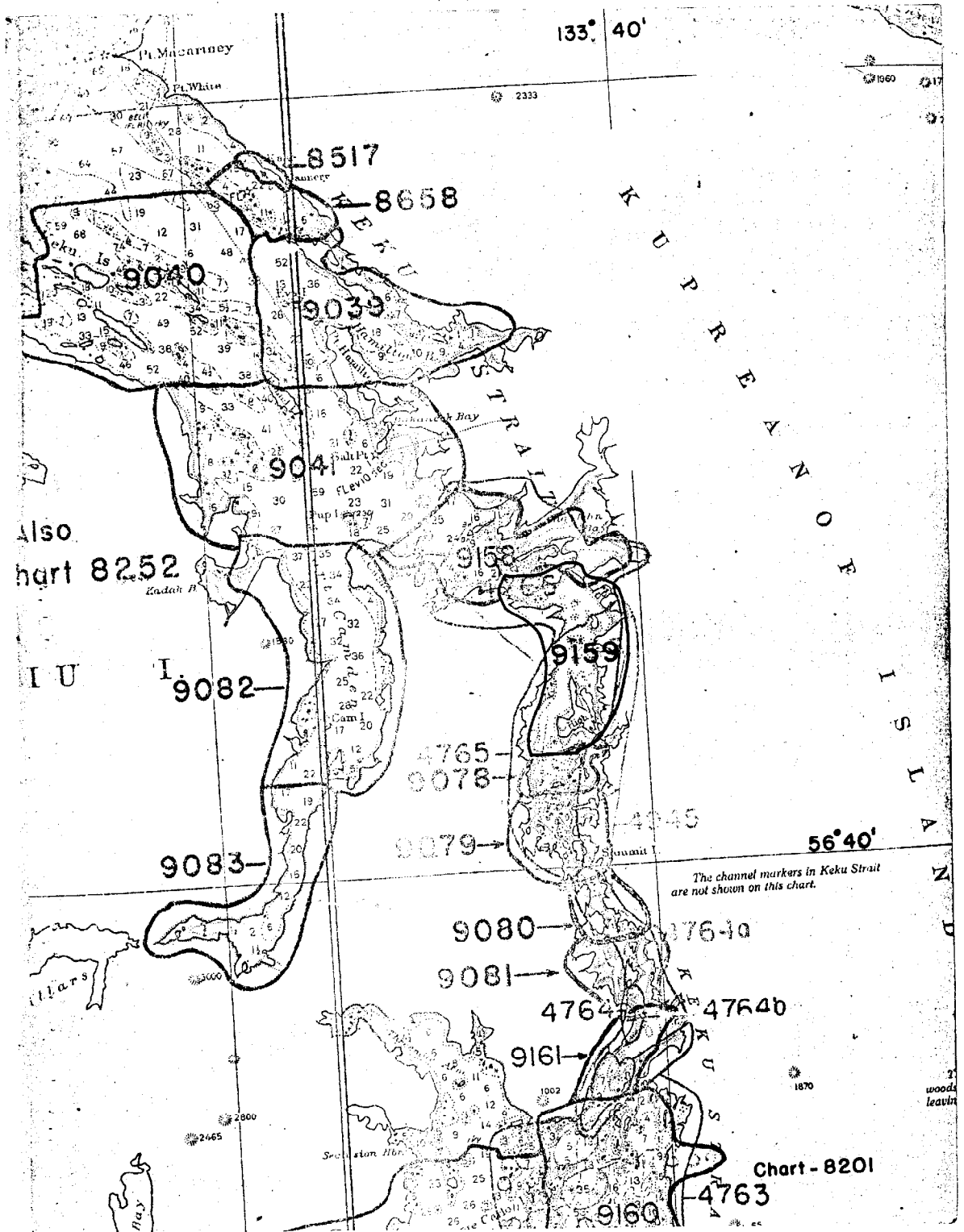
9. Additional Field Work

This is a good basic survey, and no additional field work is recommended

Examined and Approved:

*R. H. Youlton*  
Chief  
Marine Chart Division

*Robert C. Munson*  
Associate Director  
Office of Marine Surveys  
and Maps



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9159

INSTRUCTIONS

- A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
  2. In "Remarks" column cross out words that do not apply.
  3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
8272	5/14/74	E. Marky	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No. <i>Suggested Notices to Mariners on Aid</i> <i>Proof Only.</i>
8272	6/12/74	<i>M. D. King</i> <i>Reviewed 7/18/74</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No.
8272	8/7/78	<i>J. Bailey</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. <i>App'd. corr's thru Descriptive</i> <i>Report</i>
17572	8/15/89	<i>Condit</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No. <i>11, 8th Ed.</i>
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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