

8900 A

Diag. Cht. No 8551-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT  
(HYDROGRAPHIC)

Type of Survey ..... DEVELOPMENTAL SURVEY .....  
Field No. .... DA-20-1-76 .....  
Office No. .... E-8900A .....

LOCALITY

State ..... Alaska .....  
General Locality Prince William Sound .....  
Locality ..... Port Valdez .....

1976

CHIEF OF PARTY

C. Antreasen

LIBRARY & ARCHIVES

DATE ..... 4/7/77 .....

A  
8900

**HYDROGRAPHIC TITLE SHEET**

H-8900A

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-20-1-76

State Alaska

General locality Prince William Sound

Locality Port Valdez

Scale 1:20,000

Date of survey 2 June - 6 June 1976

Instructions dated March 17, 1976

Project No. DA-20-1-76

*Ship DAVIDSON*

Vessel Launches DA-1 (3131) and DA-2 (3132)

Chief of party C. Andreasen, CDR

Surveyed by Ship's Officers

Soundings taken by echo sounder, hand lead, pole Ross Fineline, Model 5000

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verification

~~XXXXXX~~ by Dennis L. Duffy

Automated plot by PMC/Xynetics Plotter

Soundings

Verification by Dennis L. Duffy

Soundings in fathoms feet at MLW MLLW

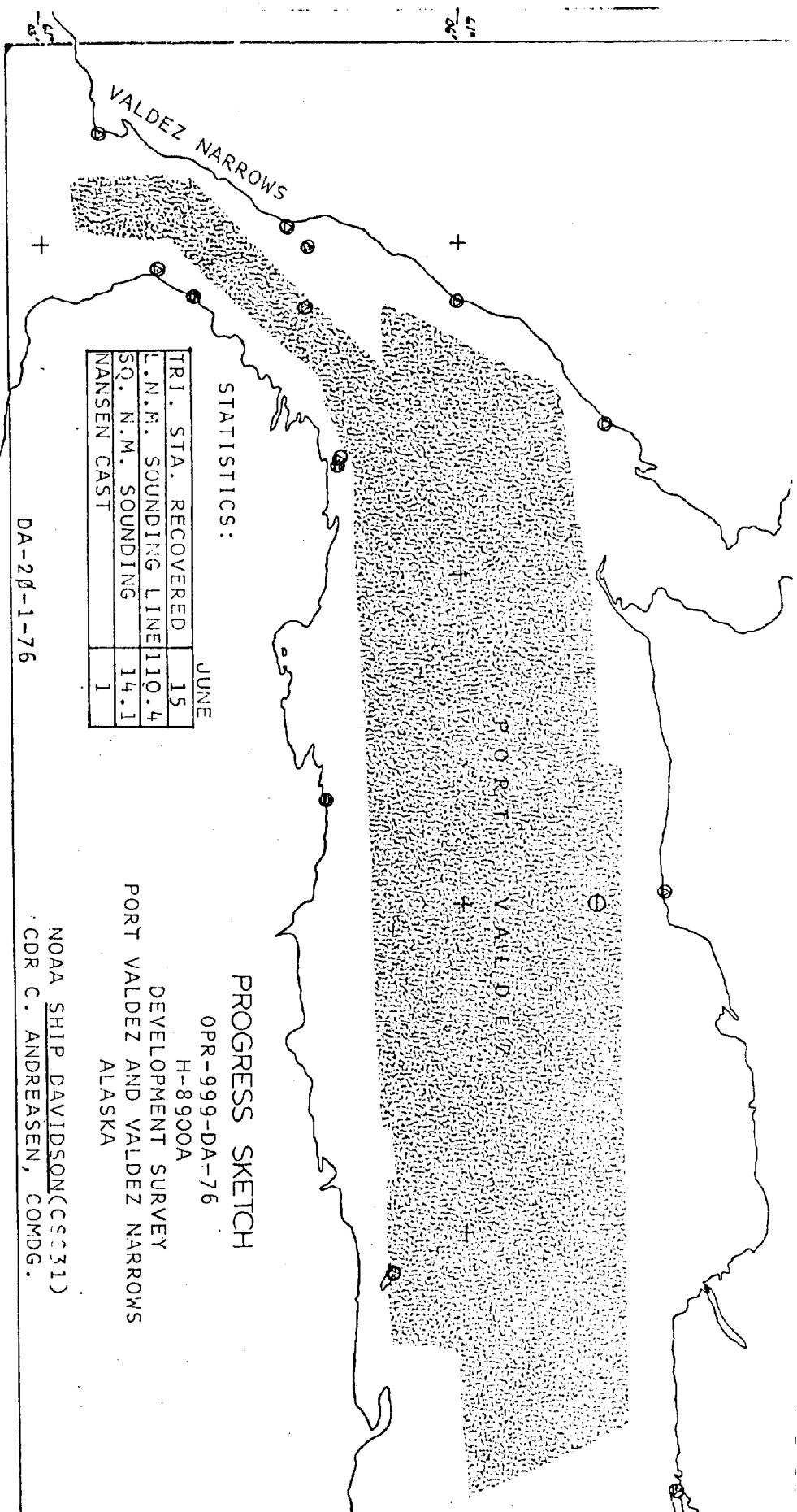
REMARKS: Survey Time Zone: 000° GMT

Mean Survey Longitude: 146°28.0'W

Boatsheet is complete.

*Survey placed in cat. 1  
Shown as Adj. wk. RMC  
on status Report 4/21/77*

*Applied to stg 4/21/77*



STATISTICS:

TRI. STA. RECOVERED	15
L.N.M. SOUNDING LINE	110.4
SQ. N.M. SOUNDING	14.1
NANSEN CAST	1

JUNE

DA-20-1-76

PROGRESS SKETCH

OPR-999-DA-76

H-8900A

DEVELOPMENT SURVEY

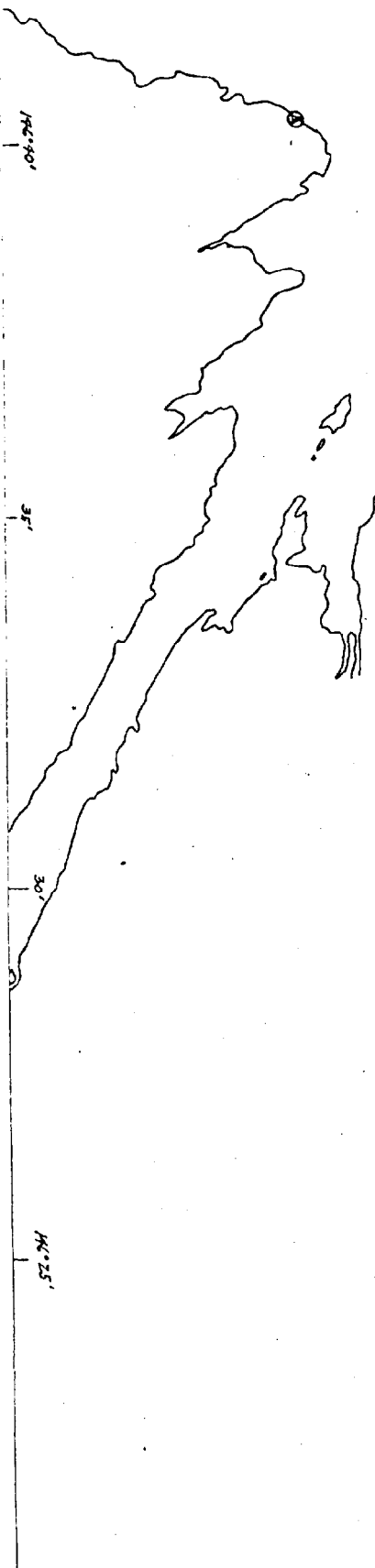
PORT VALDEZ AND VALDEZ NARROWS

ALASKA

NOAA SHIP DAVIDSON(CSC31)

CDR C. ANDREASEN, COMDG.

SCALE: CHART 16708



Descriptive Report

to accompany Developmental Survey  
DA-20-1-76

Scale ..... 1:20,000  
Year .....1976  
Vessel..... NOAA Ship DAVIDSON CSS-31  
Chief of Party.... C. Andreasen, COMDG

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A. PROJECT

This survey was accomplished in accordance with Project Instructions OPR-999-DA-76, dated 17 March 1976. These Instructions called for densification of lines on the existing survey, H-8900. The DAVIDSON was furnished a copy of H-8900, with the additional lines to be run shown in red.

B. AREA SURVEYED

The area surveyed was Port Valdez and Valdez Narrows. The survey is bounded on the east by longitude 146° 21' 15" W and on the west, north, and south by shoreline. The project extends down Valdez Narrows to latitude 61° 03' 15" N. No hydrography was run in Shoup Bay.

The survey began on 2 June and was completed on 5 June 1976.

C. SOUNDING VESSELS

Two vessels were used as sounding platforms for the survey. They are listed below with the corresponding colors which were used in data recording and preliminary computer plots.

<u>Vessel#</u>	<u>Platform</u>	<u>Color</u>
3131	DA-1	Red
3132	DA-2	Blue

D. SOUNDING EQUIPMENT

All vessels used Ross Fineline fathometers, Model 5000. Serial numbers are as follows:

<u>Vessel#</u>	<u>Fathometer</u>	<u>Digitizer</u>	<u>Transceiver</u>
3131	1048	1081	1036
3132	1077	1077	1077

Vessels 3131 and 3132 used their fathometers in depths ranging from approximately 1.6 to 140 fathoms.

Soundings have been corrected for transducer depth and predicted tides. Tides were computed from daily predicted tides for Cordova, corrected to No. 1681 Valdez, Port Valdez, as shown in TIDE TABLES 1976. No tide gages were installed by DAVIDSON. Tide gage requirements for Valdez Arm and Port Valdez were fulfilled by gages installed by NOAA Ship McARTHUR during OPR-518-MA-76.

Soundings have not been corrected for velocity (Refer to Velocity Corrections Table). A Nansen cast was taken by DAVIDSON on 5 June 1976. In addition, data from an STD cast taken by the McARTHUR on 24 May is included in the "Velocity Correction Note". Bar checks were taken at least twice daily to determine TRA corrections for the launches (See Velocity Correction Note appended).

E. BOAT SHEETS

All field sheets for this survey were prepared using the HYDROPLOT system on DAVIDSON. Computer (PDP 8/e) S/N 09492 was linked with a COMLOT DP3 plotter S/N 5445.5 for computation and plotting.

One 1:20,000 scale computer sheet comprises this survey. This sheet is referred to as DA-20-1-76. One 1:10,000 scale inset sheet was made of the southern portion of Valdez Narrows and one 1:10,000 scale inset sheet was made of the hydrography run from latitude 61° 05' 50" N to 61° 05' 30" N, longitude 146° 27' 00" W to 146° 23' 15" W because of the high density of sounding-lines.

F. STATION CONTROL

Sixteen existing triangulation stations were recovered. (Refer to signal list for those used in this survey.)

MINIRANGER Transponders were located at Range 2 RM 2, 1964; New Town, 1964; Visit, 1947; Elbow, 1965; Zebra, 1947; and Entrance Point Beacon, 1947-1972. One problem was encountered with the triangulation data. The published position (QUAD 611463 ALASKA pg. 41) of triangulation station Range 2, 1964 (Latitude 61° 07' 25.713" N, Longitude 146° 30' 00.000" W) is incorrect. Outwardly, this appears to be a typographical error in the published longitude.

Range 2, RM 2 was used as a visual and electronic control station for this survey. In computing the inverse between stations Range 2, 1964 and Held, 1901, it was found that the published Geodetic Azimuth of 265° 45' 52.8" was not in agreement with our computation, 265° 39' 10.621". Since 6' 42" error in the azimuth would only cause an error in the position of our control station at Range 2, RM 2 of about 0.02 meter, the discrepancy was ignored, assuming that the published Geodetic Azimuth was probably in error because of the "no check" nature of a hand computed inverse. Upon the commencement of field operations, the survey launch found it impossible to obtain a calibration check on the electronic control. It should be noted that

RANGE 2, 1964, RM2 is the same mark as RANGE, 1947, RM2 (See QUAD 61146 ALASKA, pg. 16). This was the only disk recovered in good condition in 1964 by F.J.B. at the time station RANGE 2 was established. Computation of the position of RM2 based on the box data and position of RANGE, 1947 yields a totally different position, for a mark that has not moved or been reset, than obtained from the box data and position of RANGE2, 1964. The computed position of RM2 based on the RANGE, 1947 data agrees with the position of RANGE 2, RM2, 1964 used by J. B. Watkins on HO-20-1-66 as published on his list of signals. The position of RANGE 2, RM2 used for this survey is based on the RANGE, 1947 data.

Computations are based on the North American 1927 Datum.

#### G. POSITION CONTROL

Motorola MINIRANGER III positioning systems were used for hydrography. MINIRANGER equipment was installed as follows:

<u>Vessel#</u>	<u>Range Console</u>	<u>R/T</u>
3131	719	710
3132	707	721

Transponders used:

CODE 1 S/N 723  
CODE 2 S/N 771  
CODE 3 S/N 772  
CODE 4 S/N 773

Correctors for the MINIRANGER's were determined by averaging the maximum and minimum errors observed with different attenuators, determined during baseline calibrations made on 5-7 May and 14 June 1976 and confirmed through field calibration checks. Field calibration checks were made by MINIRANGER comparison to a three point visual fix and check fix to triangulation stations. Calibration was conducted at the beginning and ending of hydrography run (based on any two specific transponder locations). Correctors derived from the initial baseline calibration on 5-7 May, have been applied to the positions on the field sheet. Positions have not been adjusted for the post-calibration correctors. (Refer to Electronic Control Note.)

#### H. SHORELINE

The shoreline on this survey was not verified. Shoreline features were transferred from H-8900.

#### I. CROSSLINES

Crosslines comprised 27.1% of the total sounding lines.

Crossline soundings were in excellent agreement with main scheme hydrography. ✓

J. JUNCTIONS

Project Instructions required no junctions to be made with contemporary surveys in the area. ✓

K. COMPARISONS WITH PROIR SURVEYS

Selected soundings from prior surveys were inked on the smooth field sheets as follows: H-9422 (red) and H-8900 (violet). ✓

This survey agrees well with H-8900 in most areas. Most soundings agree within one fathom. No differences greater than three fathoms were noted except in areas of very steep relief. In most all cases, the depths recorded on the present survey were deeper than those reported in H-8900. ✓

On the 1:10,000 scale inset sheet covering the southeast portion of the project area, the 100 fathom curve of the two surveys does not agree. The H-8900 survey extends its 100 fathom curve 0.05-0.10 nautical miles north of the present survey. It was because of this discrepancy, encountered during the main scheme hydrography, that this immediate area was developed. No explanation for the difference can be offered other than that this is in an area of steep relief and the sounding instruments were different, this survey being made with the Ross narrow beam echo sounder. ✓

This survey is in excellent agreement with the prior survey H-9422. Representative soundings generally agreed within one fathom. ✓

L. COMPARISON WITH CHART

The largest scale chart available of the survey area is the Prince William Sound, (C&GS 8519) chart number 16708, scale 1:79,291, 13th edition, 5 April 1975. Selected soundings from this chart were inked on the field sheets in BLUE. These representative soundings generally agreed within three fathoms or less, when compared to the present survey, except in areas of very steep relief, where somewhat greater differences were noted. ✓

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supplement previous survey H-8900. ✓



All fathograms were scanned and checked for peaks and deeps with appropriate changes made to the original records and data tapes. ✓

N. AIDS TO NAVIGATION

All fixed aids to navigation are triangulation stations, and were recovered as described except for the light on Potato Point. (Occ G 4sec 38ft 9 M). This light was not located due to the nature of the survey. The light is 1.5 meters north of Triangulation Station HUT3, 1965-1971. ✓

O. STATISTICS

<u>Vessel#</u>	<u>Total Number of Positions</u>	<u>Linear Sounding Miles (N.M.)</u>
3131	344	91.2
3132	101	19.2
Total	445	110.4

The total area covered by this survey is 14.1 square nautical miles.

P. MISCELLANEOUS

Prior survey H-8900 presurvey review item number one, a 1 3/4 fathom sounding at latitude 61° 05'37' N, longitude 146° 24.90' W, was never located when that survey was accomplished by the USC & GS HODGSON in 1966. During development of the 100 fathom curve ~~west~~<sup>south</sup> of Valdez Terminal, a 1.4 fathom sounding was found at latitude 61° 05.42' N, longitude 146° 24.88' W. This is 0.05 nautical miles south of the review item's position. This is marked by a private obstruction buoy. ✓

It should also be noted that this pinnacle is shown on the October 1969 survey, Valdez Marine Pipeline Terminal Site Bathymetry, by Tryck, Nyman and Hayes on sheet number 5 as a 7 foot sounding. Copies of this survey are enclosed. ✓

Q. RECOMMENDATIONS

Consideration should be given to making an inset of the terminal site on NOS Chart 16708, once construction of the piers has been completed. ✓

R. DATA PROCESSING PROCEDURES

Launch DA-1 (3131) and DA-2 (3132) data was gathered using a Ross 5000 digitizing fathometer and HYDROPLOT ✓

system, program RK-111 (ver. 1-30-76). The serial numbers of the equipment are listed below. ✓

<u>Vessel#</u>	<u>Digital PDP8/e</u>	<u>Hydroplot Controller</u>	<u>HSR</u>
3131	10756	700026	12455
3132	10744	700022	11823

The data was edited using AM-602 (ver. 5-21-75). The tapes were checked for format errors using RK-330 (ver. 3-12-76). Final shipboard sounding plots were made using the HYDROPLOT System with RK-211 (ver. 1-15-76). The location of Range 2 RM2, 1964 was determined using RK-407 (ver. 10-23-75). ✓

S. REFERENCES TO REPORTS

Velocity Correction Note  
Electronic Control Note

OPR-999-DA-76  
OPR-999-DA-76

Submitted,

*Maureen R. Kenny*  
Maureen R. Kenny  
ENS, NOAA

Approved and forwarded,

*Christian Andreasen*  
Christian Andreasen  
CDR, NOAA  
Chief of Party



TC/PI TAPE PRINTOUT

LAUNCH DA-1(3131)

000000 00 0003 0001 155 000000 000000  
000000 00 0003 0001 158 000000 000000

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TC/TI TAPE PRINTOUT

LAUNCH DA-2(3132)

000000 00 0003 0001 157 000000 000000  
000000 00 0003 0001 158 000000 000000





BAR CHECK AVERAGE

Valdez Arm, Alaska  
OPR-999-DA-76

DA-1 (3131) Fathoms  
-----

<u>TRUE</u>	<u>SONIC</u>	<u>TRUE-SONIC</u>
1.00	0.72	+0.28
2.00	1.69	0.31
3.00	2.69	0.31
4.00	3.69	0.31
5.00	4.63	0.37
6.00	5.64	0.36
7.00	6.65	0.35
8.00	7.63	0.37

DA-2 (3132) Fathoms  
-----

<u>TRUE</u>	<u>SONIC</u>	<u>TRUE-SONIC</u>
1.00	0.70	+0.30
2.00	1.70	0.30
3.00	2.70	0.30
4.00	3.68	0.32
5.00	4.66	0.34
6.00	5.68	0.32
7.00	6.68	0.32
8.00	7.65	0.35



TRANSDUCER DRAFT MEASUREMENT

Valdez Arm, Alaska  
OPR-999-DA-76

<u>VESSEL</u> -----	<u>DAY</u> ---	<u>TRANSDUCER DRAFT</u> -----
DA-1 (3131)	ALL	0.33 Fm
DA-2 (3132)	ALL	0.32 Fm

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# BAR CHECKS WORKSHEET 3131

TD	1	2	3	4	5	6	7	8	Quality
154	0.7	1.7	2.7	3.7	4.6	5.7	6.6		Poor
	.7	1.5	2.5	3.6	4.5	5.6			
155	AM .7	1.8	2.7	3.7	4.5	5.6	6.6	7.6	Good
	.8	1.7	2.7	3.7	4.7	5.6	6.6	7.6	
PM	.7	1.7	2.7	3.7	4.6	5.6	6.6	7.6	Good
	.8	1.7	2.7	3.7	4.6	5.6	6.7		
156	AM .7	1.7	2.7	3.7	4.6	5.7	6.7		Good
	.7	1.7	2.7	3.7	4.6	5.6	6.6		
	.8	1.7	2.7	3.7	4.7	5.6	6.7	7.7	Good
	.6	1.6	2.7	3.7	4.6	5.7	6.7		
157	AM .7	1.7	2.7	3.7	4.7	<del>4.7</del> 5.7	<del>5.7</del> 6.7	<del>6.7</del> 7.7	Good
	.7	1.7	2.7	3.7	4.7	5.7	6.7		
PM	.7	1.7	2.7	3.7	4.7	5.6	6.6	7.6	Good
	.7	1.7	2.7	3.7	4.7	5.7	6.7		
<hr/>									
Sum	9.3	23.6	37.6	51.7	64.8	79.0	86.5	115.8	
MEAN	.72	1.69	2.69	3.69	4.63	5.64	6.65	7.63	
157	0.7	1.7	2.7	3.6	4.6	5.7	6.7	7.7	Good
(712)	0.7	1.7	2.7	3.7	4.7	5.7	6.7		
157	0.7	1.7	2.7	3.65	4.65	5.65	6.6	7.6	Good
	0.7	1.7	2.7	3.7	4.6	5.65	6.7		
158	4.7	1.7	2.7	3.7	4.7				Good
	0.7	1.7	2.7	3.7	4.7				
Sum	4.8	10.8	16.2	22.05	27.95	33.7	36.7	15.3	
MEAN	0.7	1.7	2.7	3.68	4.66	5.65	6.68	2.65	

VELOCITY CORRECTION ABSTRACT

Valdez Arm, Alaska  
OPR-999-DA-76

<u>DEPTH (Fm)</u>	<u>CORRECTION (Fm)</u>
3.0	0.00
17.0	0.05
84.0	0.10
98.0	0.15
120.00	0.20

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## VELOCITY CORRECTION NOTE

VALDEZ ARM, ALASKA  
OPR-999-DA-76

One NANSEN Cast was taken in Valdez Arm, Alaska, on June 5, 1976. Nine NANSEN Bottles were used at Depths of 0, 10, 20, 30, 50, 75, 100, 150, and 200 meters as specified by the Provisional Hydrographic Manual, Section 4.9.5.2, Change No. 9-9/29/75. Eighteen protected and eight unprotected thermometers were used during the cast. No unprotected thermometer was used at the surface. The thermometers were calibrated on February 10, 1976 by the NOIC, Northwest Regional Calibration Center. Water samples were drawn and measured for density using hydrometers (S/N's 319 and 213) on the completion of the cast. The hydrometer readings were converted to salinity at 15° C. The thermometers were read after a 15 minute stabilization period. From the above temperatures and calibration values, the true temperatures and depths were calculated. The velocity corrections were determined using a PDP8/e computer (S/N 700018) and the velocity corrections were plotted and applied at 0.05 fathom intervals.

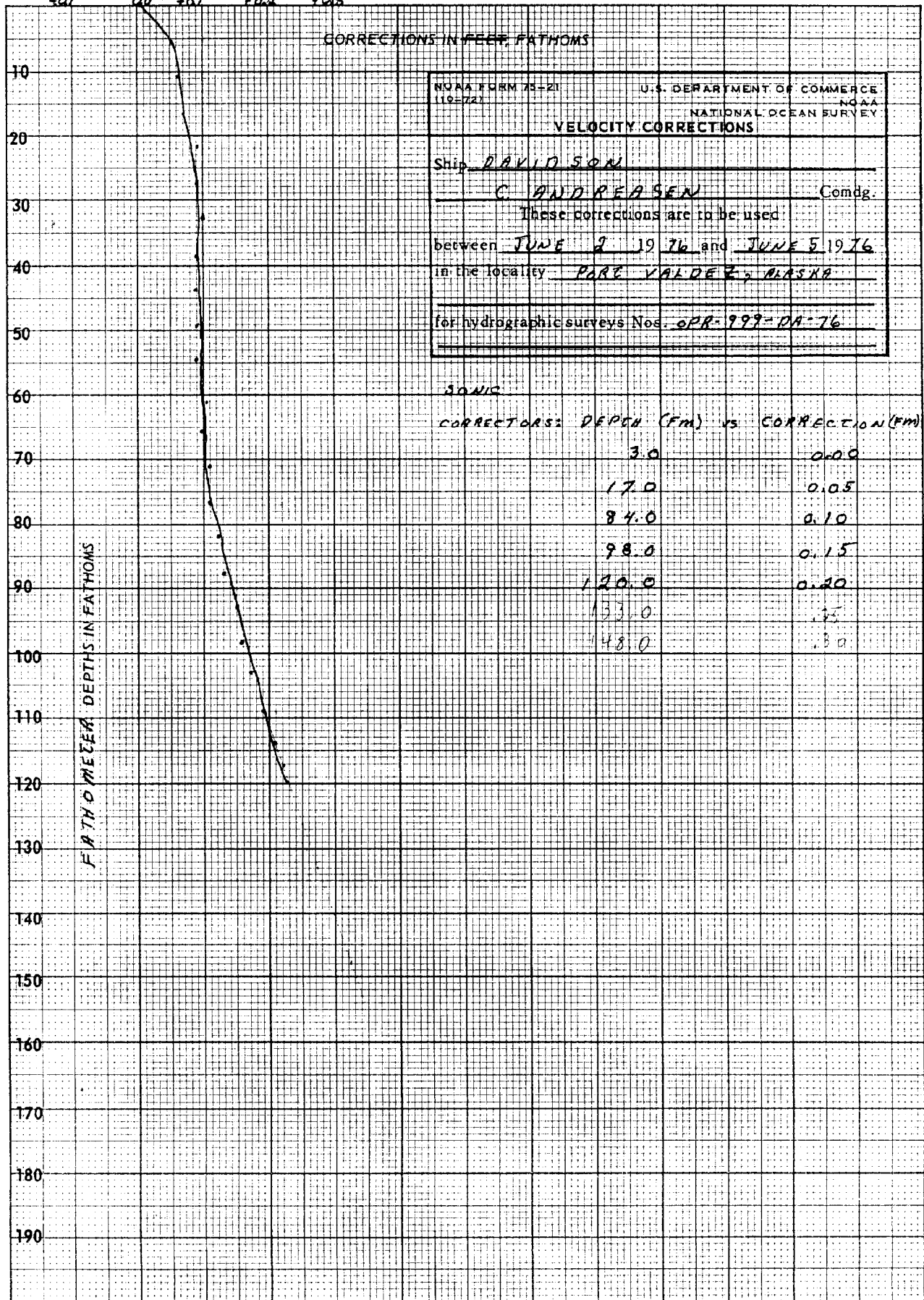
The NOAA Ship McARTHUR supplied DAVIDSON with the results of two STD casts taken in conjunction with OPR-518-MA-76. A Plessey 9060 STD meter was used for these casts, which were taken on May 24, 1976. This data is appended to this note.

Bar checks were taken in the morning and evening on a daily basis. DA-1 (3131) and DA-2 (3132) bar check averages were plotted along with upper layer velocity corrections. The TRA correction for DA-1 (3131) is 0.33 Fm., and for DA-2 (3132) is 0.32 Fm.





(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)







VELOCITY CORRECTIONS COMPUTATIONS

1) CONDUCTIVITY 2) SALINITY  
SPECIFY WHICH OPTION (1,2) 2

VESSEL = DAVIDSON

DATE = JUNE 5, 1976

TIME = 215500

LATITUDE = 61/07/00

LONGITUDE = 146/30/00

TYPE OF OBSERVATION = NANSEN CAST

CAST-DEPTH (SURFACE) (M)	TEMP (DEG C)	SALINITY (0/00)
0000.0	10.83	26.40
10.0	5.76	31.40
20.0	5.09	31.50
30.0	4.95	31.90
55.0	3.96	32.10
80.7	3.70	32.10
109.7	3.71	32.50
162.0	3.91	32.80
213.8	4.03	33.10
99999999999999999999		

DATA BANK INPUT COMPLETED

PUNCH ON? (Y)

VESSEL =DAVIDSON

DATE =JUNE, 5, 1976

TIME =215500

LATITUDE = 061/07/00.00

LONGITUDE = 146/30/00.00

TYPE OF OBSERVATION =NANSEN CAST

CAST-DEPTH (SURFACE) (M)	TEMP (DEG C)	SALINITY (0/00)	SND VEL (M/SEC)
0000.0	10.83	26.40	1482.52
0010.0	05.76	31.40	1469.51
0020.0	05.09	31.50	1467.05
0030.0	04.95	31.90	1467.16
0055.0	03.96	32.10	1463.63
0080.7	03.70	32.10	1463.30
0109.7	03.71	32.50	1464.06
0162.0	03.91	32.80	1466.17
0213.8	04.03	33.10	1467.93

1) CURVE FIT 2) NO CURVE FIT  
SPECIFY WHICH OPTION (1,2) 1

DEPTH 1 = 0.0

DEPTH 2 = 215.0

LAYER THICKNESS = 10.0

ANOTHER INTERVAL? (Y,N) N

PUNCH ON? (Y) Y

MID-DEPTH (M)	SND VEL (M/SEC)	LAYER THICKNESS (M)
0005.00	1476.02	0010.00
0015.00	1465.64	0010.00
0025.00	1467.11	0010.00
0035.00	1466.51	0010.00
0045.00	1465.05	0010.00
0055.00	1463.68	0010.00
0065.00	1462.76	0010.00
0075.00	1462.60	0010.00
0085.00	1463.14	0010.00
0095.00	1463.50	0010.00
0105.00	1463.87	0010.00
0115.00	1464.26	0010.00
0125.00	1464.67	0010.00
0135.00	1465.07	0010.00
0145.00	1465.48	0010.00
0155.00	1465.89	0010.00
0165.00	1466.28	0010.00
0175.00	1466.67	0010.00
0185.00	1467.03	0010.00
0195.00	1467.37	0010.00
0205.00	1467.68	0010.00
0212.50	1467.89	0005.00

VELOCITY CORRECTION TABLE OPTIONS:

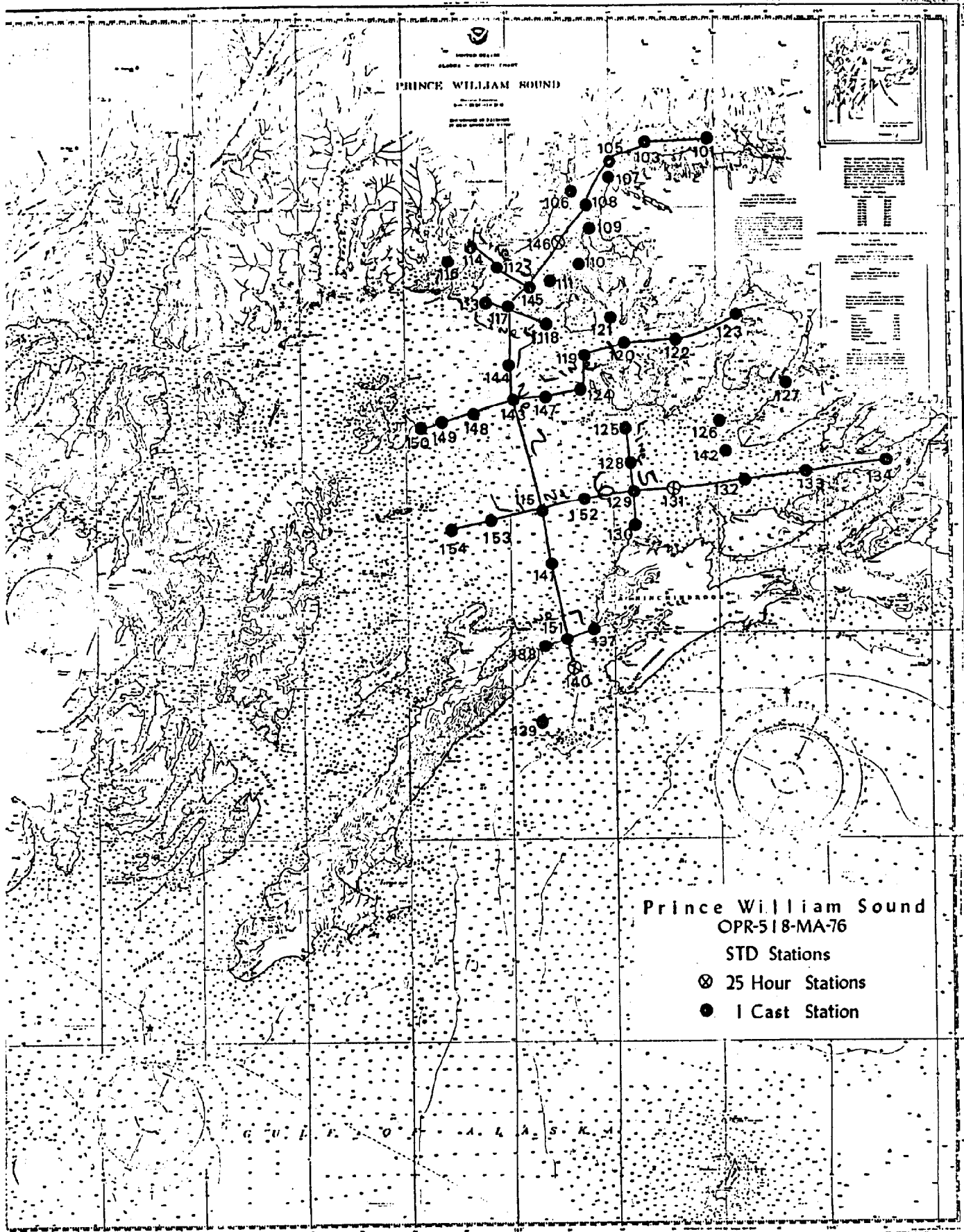
- 0) NO TABLE
- 1) IN FEET
- 2) IN FATHOMS
- 3) IN METERS

2

DRAFT = 0.0

TRUE DEPTH (SURFACE) (FA)	FATHOMETER DEPTH (FA)	VELOC CORRECTION (FA)
0005.47	0005.42	0000.05
0010.94	0010.38	0000.26
0016.40	0016.33	0000.07
0021.87	0021.79	0000.09
0027.34	0027.25	0000.09
0032.81	0032.71	0000.10
0038.28	0038.18	0000.10
0043.74	0043.65	0000.09
0049.21	0049.12	0000.09
0054.68	0054.59	0000.10
0060.15	0060.05	0000.10
0065.62	0065.51	0000.10
0071.09	0070.98	0000.11
0076.55	0076.44	0000.12
0082.02	0081.90	0000.13
0087.49	0087.35	0000.14
0092.96	0092.81	0000.15
0098.43	0098.26	0000.16
0103.89	0103.72	0000.18
0109.36	0109.17	0000.19
0114.83	0114.62	0000.21
0117.56	0117.34	0000.22

PRINCE WILLIAM SOUND



Prince William Sound  
OPR-518-MA-76

- STD Stations
- ⊗ 25 Hour Stations
- 1 Cast Station

G U L F O F A L A S K A



SURFACE SAMPLE TEMP 40.4  
SAMPLE BOTTLE NO 29

DEPTH 15-35 PPT

JD 145 1976

5810

1910-1918 GMT

TEH

ST 103

15-35 PPT

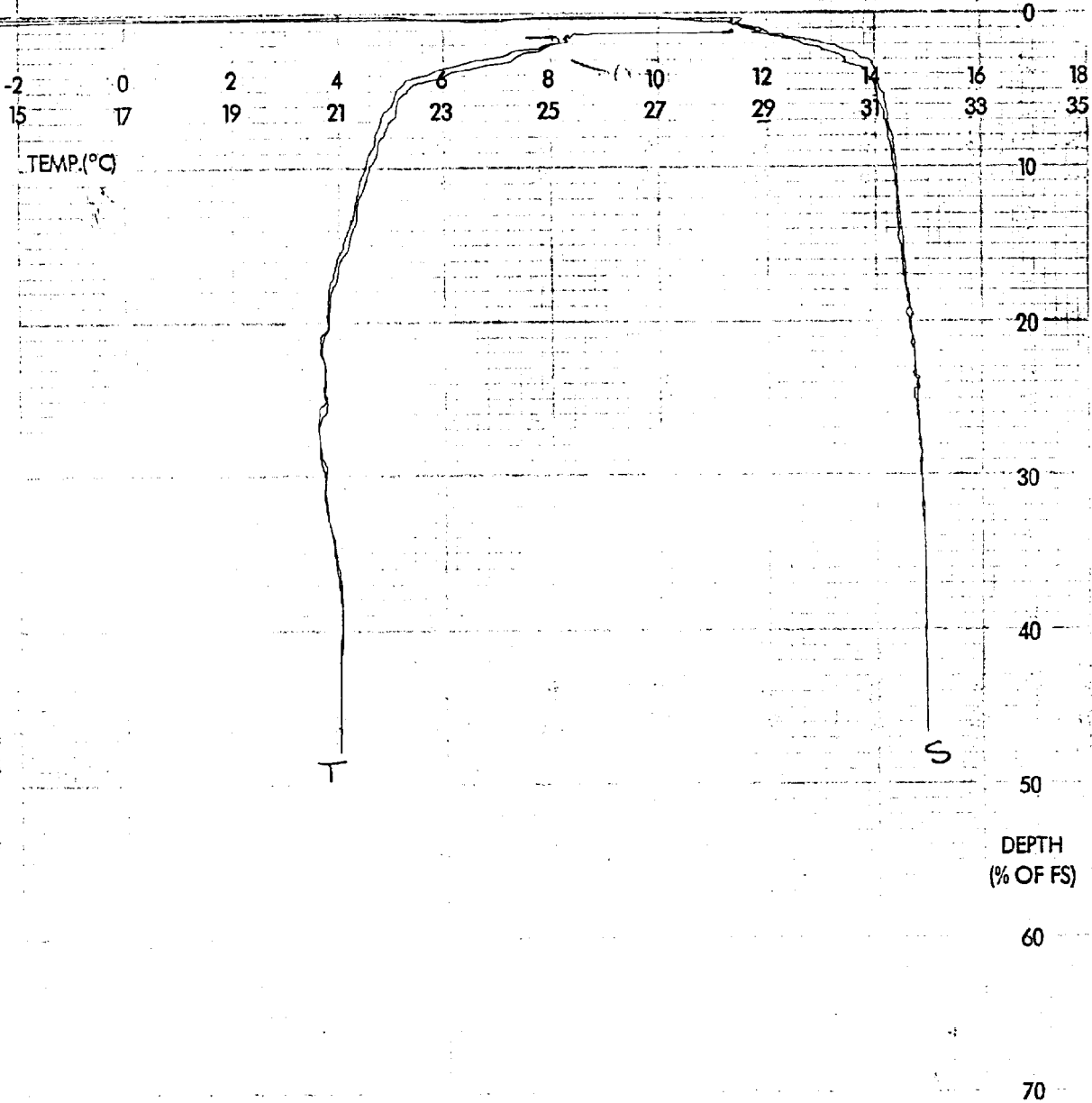
006

0-500 M

MSC

MADE IN U.S.A.

TEMPERATURE MEASUREMENT IN °C





PORT VALDEZ and VALDEZ NARROWS  
ELECTRONIC CONTROL NOTE

INTRODUCTION

Horizontal control of survey DA-20-1-76 was by Motorola MINIRANGER. The project area was heavily wooded and contained some steep slopes; however, no multipath returns and little interference were encountered. Maximum ranges were under five miles. Strong signals were received throughout the survey area. Stations were selected so as to maintain acceptable arc intersections (i.e., thirty degrees to one hundred fifty degrees). Line of sight requirements were met throughout the project area.

BASELINE CALIBRATIONS

Baseline calibrations were accomplished in accordance with PMC OORDER instructions. Two MINIRANGER calibrations were performed--one prior to beginning this project and one following its completion. The first calibration was made in Seattle, Washington on the baseline from Pier A at PMC, across water, to the Lake Union Building on 5 May, 6 May, and 7 May 1976. The end of project calibration was carried out in Cordova, Alaska from the City Pier, across water, to a site approximately 5100 meters away on Observation Island. The baseline was measured with a Tellurometer, Model Number CA-1000. The results of these calibrations are tabulated below. The maximum difference between beginning and ending correctors of the Console/R-T units used is two meters. This is within accuracy requirements and the repeatability of the MINIRANGER system.

FIELD CALIBRATION CORRECTORS

Calibrations were performed before and after each day, or portion of a day, that hydrography was run. Visual three-point sextant fixes with check angles were observed simultaneously with MINIRANGER patterns to obtain the Daily Calibration Correctors (DCC). All DCC's are within the acceptable limits set forth in the PMC OORDER for Baseline Calibration differences. Console/R-T unit 710/719 with codes 1,3, and 4; and Console/R-T unit 707/721 with codes 1,2, and 3 were used for this survey. Shown below is the summary of baseline calibrations and daily field calibrations.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 3131

SHEET : DA-20-1-76

TIME	DAY	PATTERN 1	PATTERN 2
183505	155	-500032	-500013
185040	156	-500033	-500012
182822	157	-500032	+500011
212725		+500011	-500012
232211		-500032	+500011
235959	365	+500030	+500030

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 3131

SHEET : DA-20-1-76

TIME	DAY	PATTERN 1	PATTERN 2
183505	155	-000032	-000033
185843	156	-000043	-000022
182822	157	-000032	+000001
212725		+000001	-000022
232211		-000032	+000001
235959	365	+000000	+000000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 3132

SHEET : DA-20-1-76

TIME	DAY	PATTERN 1	PATTERN 2
184937	157	<del>000000</del>	-000001 2
010532	158	+000000	-000001
235959	356	+000000	-000001

BASELINE CALIBRATION CORRECTORS

SERIAL NOS. CONSOLE/R-T UNIT	XPNDR CODE	CORRECTOR BLC 5-7 MAY 76	CORRECTOR BLC 14 June 76	MEAN CORRECTOR
710/719 #7171	1	-3	-2	-2
	3	-4	-2	-3
	4	0	+2	+1
707/721 #5130	1	0	0	0
	2	-1	-2	-2
	3	0	-2	-1

DAILY CALIBRATION CORRECTOR ABSTRACT

Console/R-T unit 710/719

Calib. No.	1	2	3	4	5	6	7	8	mean
<u>CODE</u>									
1	-4	-8	-7	-10	+1	+1	-5	-3	-4
3	+1	-3	+1	-4					-1
4	-1	-2	-10	0					-3

Console/R-T unit 707/721

Calib. No.	1	2	3	4	mean
<u>CODE</u>					
1	+4	+3			+4
2	-1	-7			-4
3	-2	+4	+7	+8	+4

Submitted by,

*Steven S. Snyder*

Steven S. Snyder  
ENS, NOAA

Approved and forwarded,

*Christian Andreasen*

Christian Andreasen  
CDR, NOAA  
Commanding Officer

OPR-999-DA-76  
DA-20-1-76  
SIGNAL TAPE PRINTOUT

001	4	61	01	52982	146	40	16137	139	0005	000000	JACK, 1901
002	4	61	03	49007	146	39	36084	250	0004	000000	ENTR. PT. BEACON, 1947-65
003	7	61	04	12426	146	39	04174	139	0000	000000	BITE, 1901
004	6	61	05	07042	146	36	42883	139	0007	000000	ENTR. IS. BEACON, 1947
005	7	61	05	07151	146	36	27030	139	0018	000000	PELLEW, 1947-65
006	6	61	05	01985	146	31	39961	250	0008	000000	VISIT, 1947
007	6	61	05	26700	146	24	29096	139	0010	000000	SAV, 1901-64
008	2	61	07	32823	146	21	08644	250	0015	000000	NEW TOWN, 1964
009	1	61	07	25795	146	30	11131	250	0000	000000	RANGE 2, RM 2, 1964
010	3	61	07	05533	146	37	11937	250	0003	000000	ELBOW, 1965
011	3	61	05	58883	146	39	08121	139	0001	000000	ULTRA, 1947
012	3	61	04	53836	146	39	03322	139	0009	000000	MID. RK. LT., 1947-65
013	3	61	04	53628	146	39	54645	139	0003	000000	BUNCH, 1901-65
014	3	61	04	44787	146	40	16426	250	0004	000000	ZEBRA, 1947
015	3	61	03	24451	146	41	40621	139	0010	000000	HUT 3, 1965

OPR-999-DA-76  
DA-22-1-76  
PARAMETER TAPE PRINTOUT

INSET 1 1:10,000

FEST=19000  
CLAT=6765000  
CNER=146/29/00  
GRID=30  
PLSCL=10000  
PLAT=61/04/00  
PLON=146/28/30  
VESNO=3131  
YR=76  
ANDIST=00.0

OPR-999-DA-76  
DA-20-1-76  
PARAMETER TAPE PRINTOUT

INSET 2 1:10.000

FEST=19000  
CLAT=6765000  
CNER=146/29/00  
GRID=30  
PLSCL=10000  
PLAT=61/02/30  
PLON=146/43/00  
VESNO=3131  
YR=76  
ANDIST=00.0



ABSTRACT OF POSITIONS: H-8900A

CONTROL RANGE-RANGE

VESSEL: 3131

DAY POSITIONS	S1	M	S2	XPNDR CODE #	
				S1	S2
155 2001-2117	006	---	009	1	- 3
156 2118-2231	009	---	006	3	- 1
157 2232-2288	006	---	010	1	- 4
2289-2299	010	---	006	4	- 1
2300-2344	014	---	010	1	- 4

VESSEL: 3132

DAY POSITIONS	S1	M	S2	XPNDR CODE #	
				S1	S2
157 4001-4051	009	---	008	3	- 2
158 4067-4116	014	---	002	1	- 3





**HYDROGRAPHIC SURVEY STATISTICS**  
**HYDROGRAPHIC SURVEY NO. H-8900A**

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT			
SMOOTH SHEET with smooth PNO & excess overlay	1	BOAT SHEETS (3 parts, mylar)	1			
DESCRIPTIVE REPORT	1	OVERLAYS	4* 7			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			1-smooth pos. & sndg.			1
CAHIERS	with printouts 1 & tides					
VOLUMES						
BOXES						

T-SHEET PRINTS (List)

N/A

SPECIAL REPORTS (List)

N/A

\* 1-copy of H-8900 (1966) included

**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				433
POSITIONS CHECKED		433		
POSITIONS REVISED		68		
DEPTH SOUNDINGS REVISED		110		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		11		
JUNCTIONS		13		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		46		
SPECIAL ADJUSTMENTS		16		
ALL OTHER WORK				
<b>TOTALS</b>	<b>6</b>	<b>86</b>		

PRE-VERIFICATION BY James S. Green, Chief, Verification Branch	BEGINNING DATE 7/7/76	ENDING DATE 7/7/76
VERIFICATION BY <i>Dennis Duffy</i> Dennis L. Duffy, Cartographic Technician	BEGINNING DATE 9/25/76	ENDING DATE 3/8/77
REVIEW BY	BEGINNING DATE	ENDING DATE

## VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H 8900A

**INSTRUCTIONS** - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

**CL - Check List Items:** should be checked as having been completed during the verification processes.

**R - Report Item:** This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<b>Note:</b> The verifier should first read the Descriptive Report for general information and problems. 1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None	X		10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are <b>SUPERSEDED</b> .	X	
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None	X		<b>Part IV - VOLUMES</b> 11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None	X	
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None	X				
<b>Part II - SHORELINE AND SIGNALS</b> Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed		II	12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features	X	
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.	X				
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None	X				
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.	X		<b>Part V - MACHINE PLOTTING</b> 13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None	X	
<b>Part III - JUNCTIONS</b> <b>Note:</b> Make a cursory comparison preliminary to inking soundings in area of overlap. 8. All junctions of contemporary or overlapping sheets were compared and overlapping curves were made identical. Remarks Required: -- None	X		14. The plotting of all unsatisfactory crossings was verified. Remarks Required: -- None	X	
9. The notation in slanted lettering "JOINS H---- (19 )" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None		V	15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	X	

Part V - PROTRACTING (Continued)	CL	R	Part VIII - AIDS TO NAVIGATION	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	X		26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey.  Remarks Required: -- Conflicts of any nature listed.	X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	X		27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification.  Remarks Required: -- None	X	
<b>Part VI - SOUNDINGS</b> 18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X		<b>Part IX - BOAT SHEET</b> 28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information.  Remarks Required: -- None	X	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		III	29. Heights of rocks awash were correctly reduced and compared with topographic information.  Remarks Required: -- Note excessive conflicts with topographic information.	N/A	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X		<b>Part X - GENERAL</b> 30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2).  Remarks Required: -- None	X	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X		31. Unnecessary pencil notes have been removed from the sheet.  Remarks Required: -- None	X	
<b>Part VII - CURVES</b> 23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.		AEE	32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet.  Remarks Required: -- None	X	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed  Remarks Required: -- None	X		33. The bottom characteristics are adequately shown.  Remarks Required: -- None	X	
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		III	<b>Part XI - NOTES TO THE REVIEWER COMPILER</b> 34. Unresolved discrepancies and questionable soundings.	X	
Verified by <i>Dennis L. Duffy</i> Dennis L. Duffy, Cartographic Technician	Date March 8, 1977		35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X	
			36. Supplemental information.	X	

## VERIFIER'S REPORT

DA-20-1-76

H-8900A

This survey was verified and plotted at the Pacific Marine Center, Seattle, Washington. Information relating to this survey is provided as specified in Chapter 6 of the Provisional Hydrographic Manual.

### I. INTRODUCTION

Field work on H-8900A, 1:20,000 (1976) was conducted by the DAVIDSON from June 2 to June 6, 1976. The area surveyed is Port Valdez, AK and Valdez Narrows south to latitude 61°03'15"N.

This survey is intended to supplement hydrography on H-8900, 1:20,000 (1966). The verified 1976 data is plotted as an overlay, for use in conjunction with H-8900 (1966) or for subsequent transfer of significant data to the existing smooth sheet.

MINI-RANGER electronic positioning equipment operating in a range-range mode was utilized for hydrographic control.

The following items not documented elsewhere in this report were encountered in the verification of H-8900A.

- a. Because calculated velocity correctors are less than .5% of all surveyed depths, a 0 corrector was used.
- b. Location of tide gages were not listed in the Ship's Report or plotted on field sheets. No field tide note was submitted by the ship. Locations were determined from Tides Branch, PMC.
- c. Electronic rate correctors were revised to agree with the mean of baseline calibration correctors as listed in the Ship's Report.

Projection parameters used to prepare the boatsheet have been revised to center hydrography on the smooth sheet. Parameters used by PMC are appended in the smooth printout. All correctors used to plot and reduce soundings on H-8900A can be located in the smooth printout.

Dates accompanying station names on the signal list were revised to show the date of establishment and recovery date only if the geographic position had changed due to the 1964 earthquake. For reference with H-8900, stations were retained on the signal list irregardless that several were not used to control this survey.

Smooth sheet soundings were reduced from observed tides from gages in Valdez Narrows and Port Valdez.

This survey is adequate to supplement survey H-89000, 1:20,000 (1966) and charted hydrography in the area.

## II. CONTROL AND SHORELINE

See Ship's Report, Sections F and G, for a description of horizontal control.

High water line was transferred in pencil for reference purposes only from prior surveys H-89000, 1:20,000 (1966) and H-9422, 1:20,000 (1974).

## III. HYDROGRAPHY

There were no major difficulties encountered in the verification of main scheme soundings.

Crosslines are in excellent agreement, within 1 fathom in most areas.

Depth curves were delineated through hydrography from both H-89000A and H-89000. In areas of disagreement depth curves were dashed to indicate the recommended location of the curve.

The zero curve was not delineated because hydrography was not conducted in inshore areas.

There are no bottom samples on this survey.

This survey, when used in conjunction with H-89000 (1966), is adequate to delineate the bottom configuration and to determine least depths.

## IV. CONDITION OF THE SURVEY AND COMPLIANCE WITH PROJECT INSTRUCTIONS

The hydrographic records, overlays, smooth sheet, and reports are adequate and conform to the requirements of the Provisional Hydrographic Manual.

This survey adequately complies with the Project Instructions dated March 17, 1976.

## V. JUNCTIONS

Project Instructions do not require junctions to be made with contemporary surveys in the area.



## VI. COMPARISON WITH PRIOR SURVEYS

This survey was compared with prior surveys H-8900, 1:20,000 (1966) and H-9422, 1:20,000 (1974).

### H-8900

Soundings on this survey are deeper by approximately 2 fathoms in 130 fathoms for most main scheme areas. Soundings and depth curves in Valdez Narrows are in generally good agreement, although soundings on H-8900A are deeper in areas of steep bottom relief.

The most serious discrepancy is in the vicinity of the 100 fathom curve in the development area at 61°05.7'N, 146°25.5'W. Soundings on this survey are from 5 to 15 fathoms deeper than those on the prior survey in this steeply sloping area. This is probably because the Raytheon DE723 fathometer was used on H-8900 and the Ross was used on this survey. Due to a more constricted transducer beam on the Ross, it is generally accepted to be more accurate than the Raytheon in steep areas. Thus, recommend that hydrography on H-8900A be considered superior to that on H-8900 in the aforementioned area of conflict.

A pre-survey review item not located in H-8900 (1966) is a 1 3/4 fathom sounding at 61°05.37'N, 146°24.90'W. This sounding was evidently superseded by a 2 fathom sounding from H-8900 charted at 61°05.4'N, 146°24.7'W on Chart 16708. H-8900A located a 1.6 fathom sounding at 61°05'24"N, 146°24'53"W. Recommend hydrography on H-8900A supersede the charted 2 fathom sounding.

Recommend this survey be accepted as a supplement to H-8900.

### H-9422

Soundings and depth curves are in generally good agreement. Soundings on H-8900A are about 3 fathoms deeper in the vicinity of the 100-fathom curve and in the shoal area at 61°03.6'N, 146°40.3'W.

Recommend that H-8900A supplement H-9422 in the area of common hydrography.

## VII. COMPARISON WITH CHART

Comparison was made with Chart 16708, formerly C&GS 8519, 1:79,291, 13th Edition, April 5, 1975.

Agreement with the chart is very good, within 2 fathoms in most areas. One noteworthy exception is a 136-fathom sounding charted at 61°06.4'N,

146° 30.6'W. H-8900 and H-8900A depict 131 and 132 fathoms respectively in this area. Recommend the 136 fathom sounding be changed to 131 fathoms.

VIII. ADDITIONAL FIELD WORK

This survey is considered a good supplemental survey and adequate to supplement charted information in the area. No additional field work is recommended.

Respectfully submitted,



Dennis L. Duffy  
Cartographic Technician  
March 08, 1977

Examined and approved,



James S. Green  
Chief, Verification Branch

II- 8900 OFF 999 Field No. NA 20-1-76

Requested by Green / by \_\_\_\_\_ Date Required \_\_\_\_\_

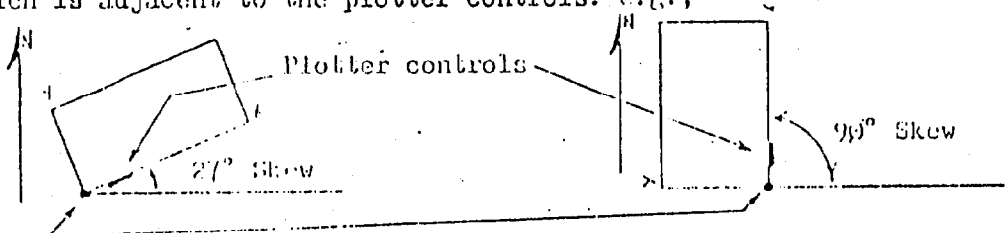
1	H	0	8	9	0	0								Alphanumeric Sheet Label.
14	1	3	6	Projection X Dimension (centimeters: 139 maximum). <sup>1</sup>										
18	0	8	1	Projection Y Dimension (centimeters: 100 maximum). <sup>1</sup>										
22	0	2	Projection Type: 01=Merc.; 02=Polyconic; 03=St. Plane; 04=Tr. Mercator.											
25	0	0	2	0	0	0	0	Scale. (e.g., 1:100,000 for 1:100,000)						
33	0	0	0	Skew. <sup>2</sup>										
37	0	0	0	0	Grid Interval: 0.00 for standard Hydrographic Manual intervals.									
42	0	6	1	Degrees: (- for South)										
46	0	1	Minutes											
49	3	5	0	Seconds										
54	0	1	4	6	Degrees: (- for East)									
59	4	3	Minutes											
62	4	0	0	Seconds										
67	1	4	6	Degrees										
71	3	0	Minutes											
74	0	0	0	Seconds										
79	Number of Insets.													
80	3 Inch Hydro. Limit Border ( 1 if desired: for ship use only).													

Latitude of Projection Origin<sup>3</sup>.

Longitude of Projection Origin<sup>3</sup>.

Longitude of Central Meridian.

<sup>1</sup>Physical size of the projection. Sheet extends 2 cm beyond projection drawn.  
<sup>2</sup>Sheet Skew: The angle of skew is the counterclockwise angle, measured at the projection origin, which the parallel of latitude makes with that edge of the paper which is adjacent to the plotter controls. e.g.,



<sup>3</sup>Projection Origin: Note, this origin is not necessarily a grid intersection.

CONTROL REQUEST attached \_\_\_\_\_ (form CPM32-3).  
 LATTICE REQUEST attached \_\_\_\_\_ (form CPM32-2).  
 INSET REQUEST attached \_\_\_\_\_ (form CPM32-4).

OPR - 999-DA-76

Field No. DA-20-1-76

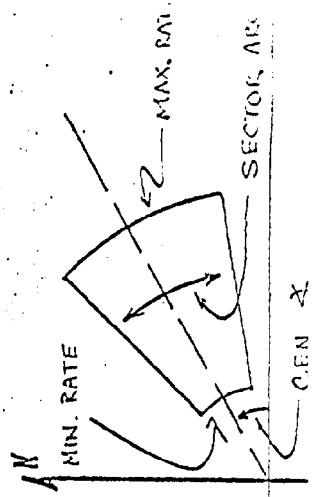
Requested by

Date Required

Station Numbers -STA 2	R-R Sector Description for Plotting CEN. $\angle$ SECTOR ARC	MIN RATE	MAX RATE	Pen Color	Station Name, Plot-lattice On Overlays
1	<del>100</del> 050, 280	2000	8000	Red	Range 2, Run 2, 1964
2	250, 105	2000	8000	Green	Visit, 1947
3	030, 240	2000	2000	Black	Elbow, 1965
4	160, 225	2000	2000	<del>Green</del>	Entrance Pt. (Bunker) 1947 (1972)
5	180, 245	4000	4000	Blue	New Tower, 1964
6	340, 225	2000	2000	Red	Zebra, 1947
7					
8					
9					
10					
11					
12					
13	I3 22-24	F8.2 30-37	F8.2 39-46	A3 48-50	For EDP Use Only

STA 2 will be blank for R/R; slave if Hyperbolic

CEN.  $\angle$  Central angle of R-R sector to be plotted (in degrees CCW from East)  
 SECTOR ARC degrees of R-R arc sector to be plotted (blank implies 360°)  
 MIN RATE to be plotted to two decimals (blank implies 0)  
 MAX RATE to be plotted to two decimals (blank implies infinity)



1/6/77

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Valdez Narrows  
Port of Valdez

Period: June 3-6, 1976

HYDROGRAPHIC SHEET: H-8900

OPR: 999

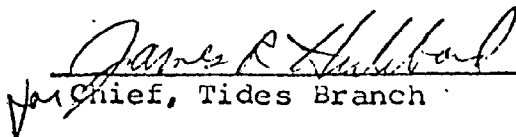
Locality: Port Valdez and Valdez Narrow, Ak.

Plane of reference (mean lower low water): 9.3ft. - Valdez Narrows  
-1.42 ft. - Port of Valdez

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

Remarks: Recommended zoning=

- (1) West of 146°35' zone direct on Valdez Narrows.
- (2) East of 146°35' Zone direct on Port of Valdez.

  
\_\_\_\_\_  
Chief, Tides Branch

1st Ed., Mar., 1906

148° 30'

25'

20'

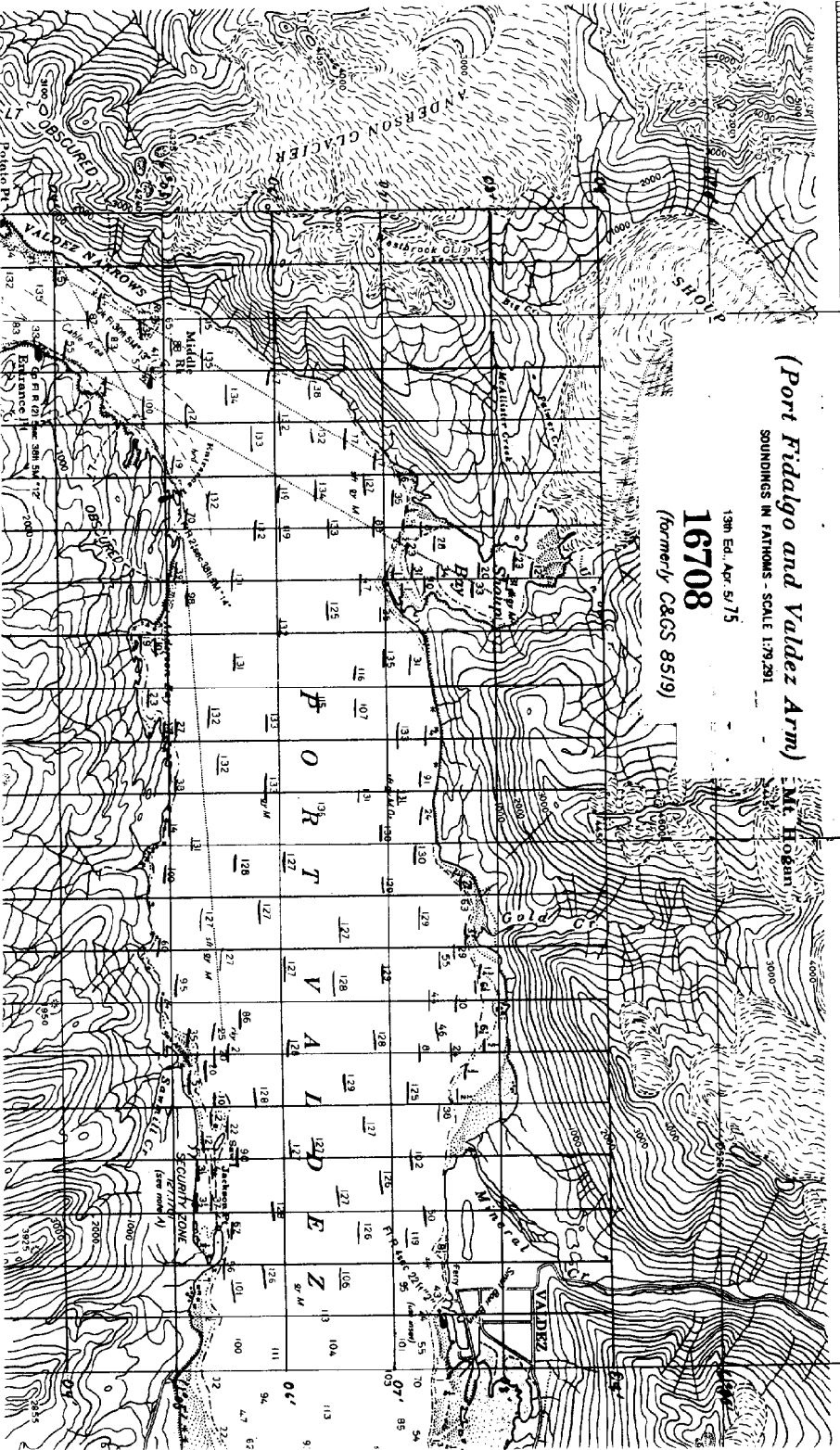
*(Port Fidalgo and Valdez Arm)*

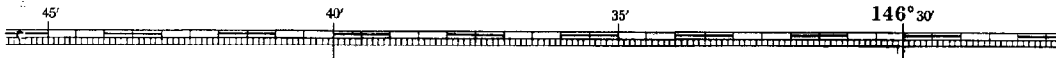
SOUNDINGS IN FATHOMS - SCALE 1:79,291

13th Ed., Apr. 5, 75

**16708**

(formerly O&GS 8519)



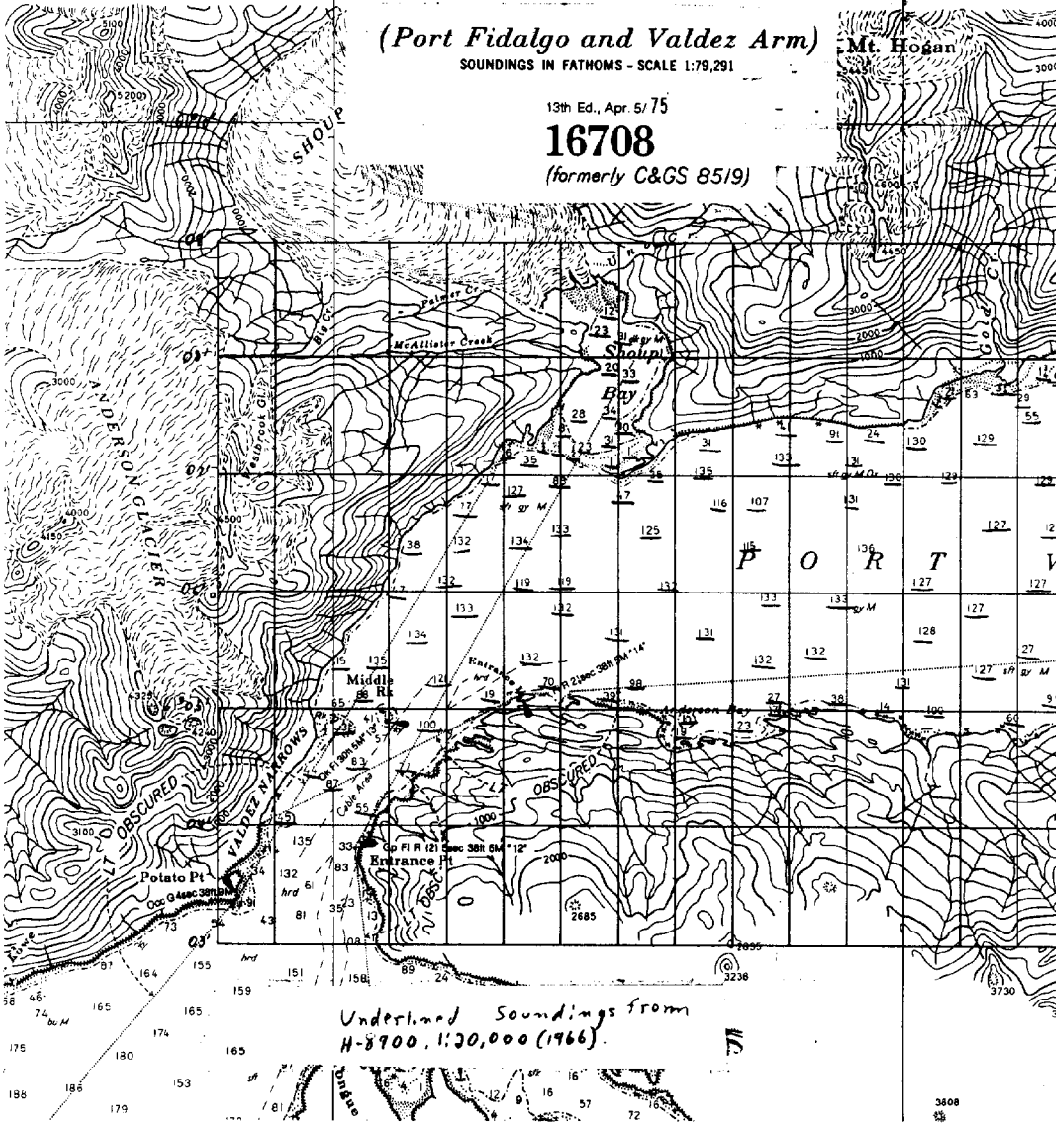


(Port Fidalgo and Valdez Arm)  
SOUNDINGS IN FATHOMS - SCALE 1:79,291

13th Ed., Apr. 5/75

**16708**

(formerly C&GS 8519)



*Underlined Soundings from  
H-8900, 1:30,000 (1966).*

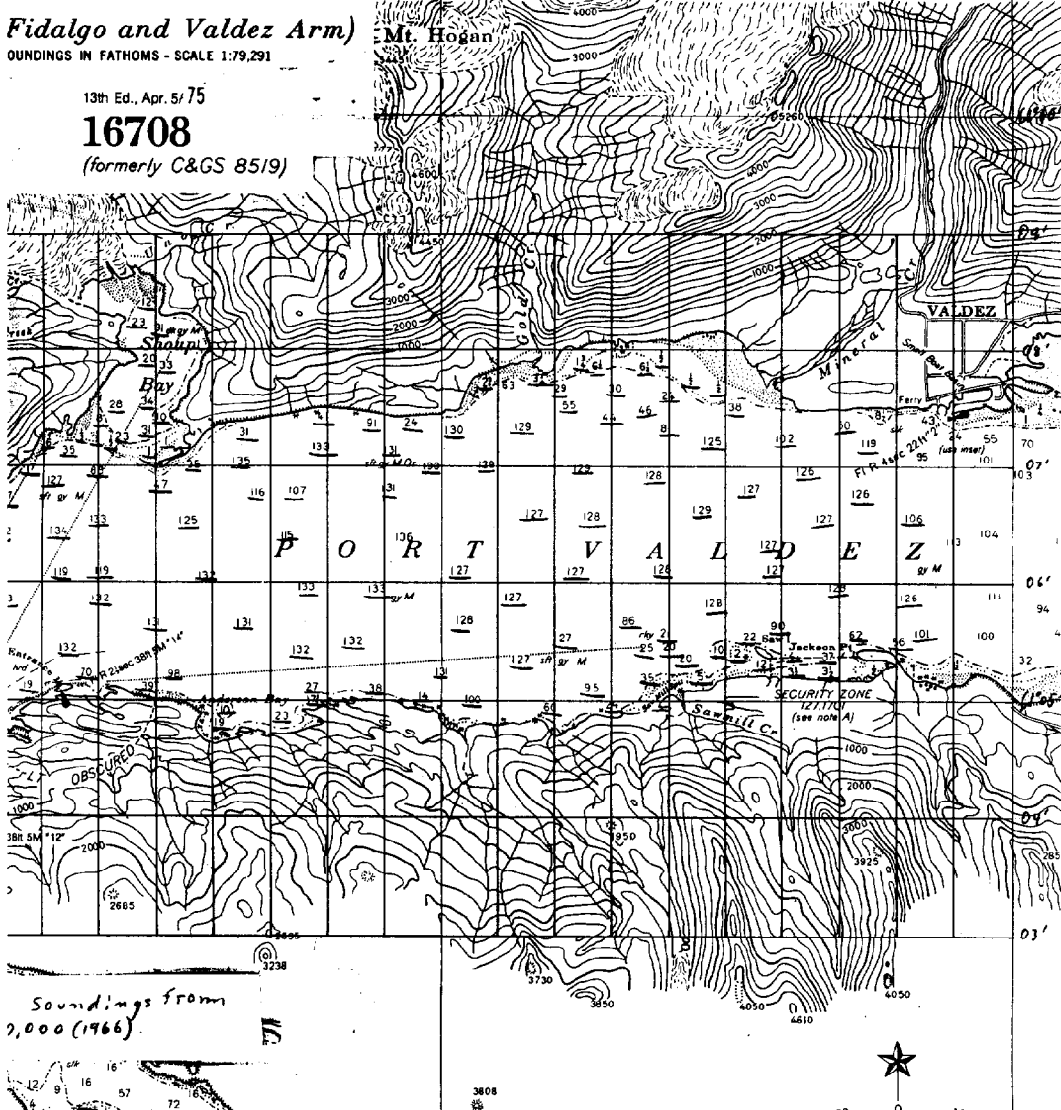
3808

**Fidalgo and Valdez Arm)**  
OUNDINGS IN FATHOMS - SCALE 1:79,291

13th Ed., Apr. 5/75

**16708**

(formerly C&GS 8519)



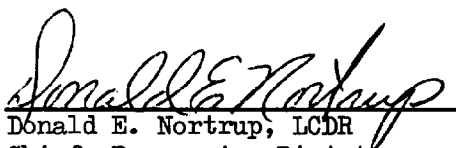


APPROVAL FOR SUBMISSION  
H-8900A

Per agreement with Marine Surveys Division, C35, this survey has not been subjected to inspection by the PMC Hydrographic Survey Inspection Team and, consequently, has not received administrative approval.

A cursory examination of the survey data, upon completion of verification, raised a question concerning the geographic position of hydrographic control station 009, Range 2, RM 2, 1964. DAVIDSON's computation of the G.P. was based on station Range, 1947 data, as discussed in Section F of the Descriptive Report. Since this is pre-earthquake data, the legitimacy of the derived G.P. was questioned. Derivation of the G.P. for Range 2, RM2 from the G.P. of station Range 2, 1964 would have provided a post-earthquake position. However, as indicated in the Descriptive Report, the published G.P. of station Range 2, 1964 is incorrect. The correct G.P. for Range 2, 1964 was obtained from NGS and is  $61^{\circ}07'25.71318''\text{N}$ ,  $146^{\circ}30'11.85664''\text{W}$ . The G.P. for Range 2, RM 2, 1964 was derived from this correct position to be  $61^{\circ}07'25.803''\text{N}$ ,  $146^{\circ}30'11.142''\text{W}$ . The difference between this G.P. and the ship's computed G.P. is 0.28 meters and is considered to be inconsequential.

Survey H-8900A is approved for submission.

  
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