9637

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 HYDROGRAPHIC

Field No. DA-10-2-76

Office No. H-9637

LOCALITY

State ALASKA

General Locality PRINCE WILLIAM SOUND

Locality SOUTH SIDE OF GLACIER ISLAND

1976

CHIEF OF PARTY
C. ANDREASEN

LIBRARY & ARCHIVES

DATE 4-1-77

☆ U.S. GOV. PRINTING OFFICE: 1975—668-353

9637

Diag. 8551/19
8551
8551

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9637

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-10-2-76

State: ALASKA

General locality: Prince William Sound

Locality: South Side of Glacier Island

Scale: 1:10,000 Date of survey: 25 July - 29 July 1976

Instructions dated: 25 June 1976 Project No.: DA-10-2-76

Vessel: Ship Davidson's Launches DA-1 (3131) and DA-2 (3132)

Chief of party: C. Andreasen, CDR. NOAA

Surveyed by: Ship's Officers S.S. Snyder G.E. Wheaton M. Kenny R.C. Arnold

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 ~~XXXXXXX~~ by: Gordon E. Kay/Stanley H. Otsubo Automated plot by: ~~PMS~~/Xynetics Plotter

Soundings Verification by: Gordon E. Kay/Stanley H. Otsubo

Soundings in fathoms ~~XXXX~~ at ~~MLW~~ MLLW ~~XXXXXX~~

REMARKS: Survey Time Zone: 000° GMT

Mean Survey Longitude: 147°11'55"W

~~Field~~ Smooth sheet is complete.

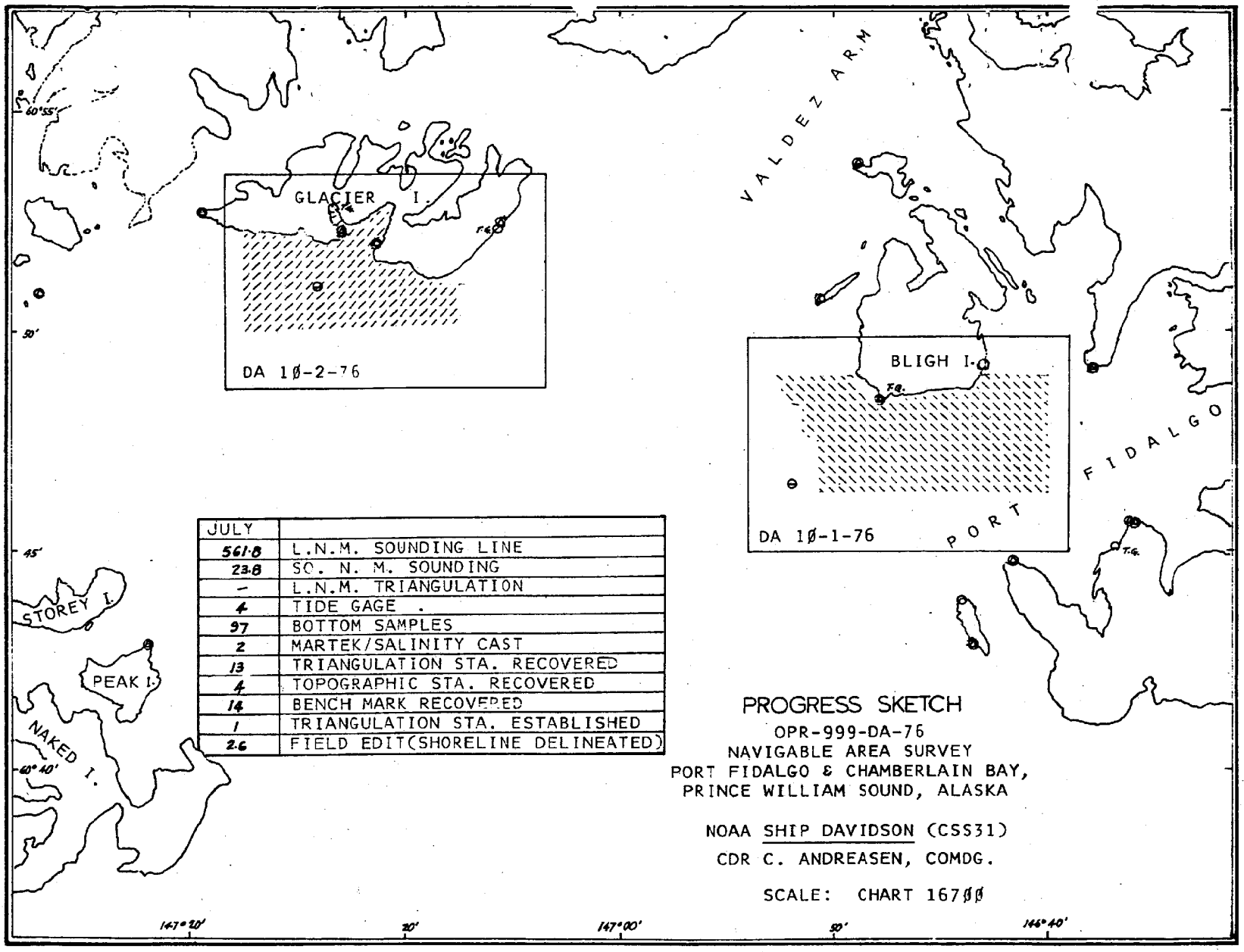
applied to stds 8/15/77

Miscell. data filed with field records.

KWW 3/7/77

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

U. S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6



JULY	
561.8	L.N.M. SOUNDING LINE
23.8	SQ. N. M. SOUNDING
–	L.N.M. TRIANGULATION
4	TIDE GAGE
97	BOTTOM SAMPLES
2	MARTEK/SALINITY CAST
13	TRIANGULATION STA. RECOVERED
4	TOPOGRAPHIC STA. RECOVERED
14	BENCH MARK RECOVERED
1	TRIANGULATION STA. ESTABLISHED
2.6	FIELD EDIT(SHORELINE DELINEATED)

PROGRESS SKETCH

OPR-999-DA-76
NAVIGABLE AREA SURVEY
PORT FIDALGO & CHAMBERLAIN BAY,
PRINCE WILLIAM SOUND, ALASKA

NOAA SHIP DAVIDSON (CSS31)
CDR C. ANDREASEN, COMDG.

SCALE: CHART 167ØØ

DESCRIPTIVE REPORT

to accompany Navigable Area Survey
DA-10-2-76 (H-9637)

Scale 1:10,000

Year 1976

Vessel ..... NOAA Ship DAVIDSON CSS-31

Chief of Party ..... C. Andreasen, COMDG

A. PROJECT

This survey was accomplished in accordance with Project Instructions OPR-999-DA-76, Change Number 2, dated 25 June 1976.

B. AREA SURVEYED

The area surveyed is located in Prince William Sound, Alaska. It is bounded on the north by Glacier Island, the south by latitude 60°50'00"N, the east by longitude 147°06'15" W, and the west by longitude 147°17'35"W.

The survey began on 25 July and was completed on 30 July 1976.

C. SOUNDING VESSELS

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

Vessel #	Platform	Color
3131	DA-1	Red
3132	DA-2	Blue

D. SOUNDING EQUIPMENT

All vessels were equipped with Model 5000 Ross Fineline fathometers. The serial numbers are as follows:

Vessel #	Recorder	Digitizer	Echo Sounder
3131	1048	1081	1036
3132	1077	1077	1077

During this survey vessels 3131 and 3132 used their fathometers in depths ranging from 0.4 to 198 fathoms.

Soundings have been corrected for transducer depth and predicted tides. Tides were computed from daily predicted tides for Cordova, corrected to No. 1683 Jackson Cove, Glacier Island, as shown in TIDE TABLES 1976. Two tide gages were installed by DAVIDSON during this survey. They were located at Jackson Cove and Glacier Island (See the Field Tide Note for details).

Soundings have not been corrected for velocity (Refer to Velocity Corrections Table). A Nansen cast was taken

by DAVIDSON on 28 July 1976. Bar checks were taken twice daily to determine TRA corrections for the launches (See Velocity Correction Note).

E. BOAT SHEETS

All field sheets for this survey were prepared using the HYDROPLOT system on DAVIDSON. A PDP8/e computer S/N 09492 was linked with a COMPLOT DP3 plotter (S/N 5445-5) for computation and plotting.

This survey, DA-10-2-76, is made up of one 1:10,000 scale field sheet.

F. CONTROL STATIONS

Five existing triangulation stations and four existing topographic stations were recovered.

STATIONS RECOVERED

Triangulation	Topographic
LUMPY, 1947	NERO, 1951
STOREY, 1947	QUIZ, 1951
GLACIER ISLAND LIGHT, 1974	SLAG, 1951
QUOTE, 1947	DICK, 1947
CALL, 1947	

During the course of the survey third-order geodetic positions were determined for two of the topographic stations: NERO, 1951 and QUIZ, 1951 (Refer to Horizontal Control Note for details).

RAYDIST stations were located at LUMPY, 1947 and at QUOTE, 1947.

Computations are based on the North American 1927 Datum.

G. POSITION CONTROL

Two systems were used for navigational control of hydrography. The majority of the work was done with a HASTINGS-RAYDIST Type DR-S medium range radio positioning system, that was operated in the range-range mode. The mean frequency used in the computer programs for the RAYDIST work is 3306.45 KHz (lane width 45.316 meters). The hydrography conducted in Jackson Cove and Chamberlain Bay was controlled using a Range-Azimuth technique. This system employed a Motorola MINI-RANGER III for range and a Wild T-2 for azimuth. Vessel number 3132 (DA-2) was the only platform used to conduct Range-Azimuth hydrography. Positioning equipment was installed as follows:

DA-1 (Vessel #3131)

Transmitter ..... Model #TA-96 ... S/N 34
Navigator ..... Model #ZA-67A ... S/N 54
Strip Chart Recorder .. Model #RB-15 ... S/N 14
Hazlow Computer-Navigation Interface ... S/N 34
28 foot whip antenna

DA-2 (Vessel #3132)

Transmitter ..... Model #TA-96 ... S/N 22
Navigator ..... Model #ZA-67A ... S/N 47
Strip Chart Recorder .. Model #RB-15 ... S/N 15
Hazlow Computer-Navigation Interface ... S/N 4
28 foot whip antenna

PEAK ISLAND

Transmitter ..... Model #AA-60A .. S/N 234
30 foot whip antenna
Red shore station: Located at triangulation station LUMPY, 1947

FAIRMOUNT ISLAND

Transmitter ..... Model #AA-60 ... S/N 15
30 foot whip antenna
Green shore station: Located at triangulation station QUOTE, 1947 (See Electronic Control Note)

H. SHORELINE

The shoreline of Glacier Island was transferred from chart 16708, Prince William Sound (scale 1:79,291, 13th edition, 4/75). It was not verified and is inked on the field sheet in blue. Sections of the shoreline in Jackson Cove and Chamberlain Bay were left in pencil in areas where the accuracy is doubtful; i.e. areas where hydrography and detached positions plotted on land.

I. CROSSLINES

Crosslines made up 10.1% of the total sounding miles run. Crossline soundings were in excellent agreement with the main scheme hydrography except for depths at the 100 fathom curve along the east side of the sheet in an area of steep relief.

J. JUNCTIONS

This survey, DA-10-2-76 (H-9637), junctioned with contemporary survey H-9382 at the eastern extremity of the survey area. Selected soundings from H-9382 were inked on the smooth field sheet in red. The junction overlap

between the two surveys is small because of the deep depths in the area. The majority of the adjoining soundings of H-9382 are in water over 150 fathoms, beyond the useable limits of the Ross fathometer.

See Ver. Report, para. III and V.

The soundings in the overlap area are in fair agreement except for one sounding which was 17 fathoms shoaler than the present survey. The differences between representative soundings may be explained by extremely steep relief in the junction area.

K. COMPARISON WITH PRIOR SURVEYS

No prior survey information was supplied for this survey.

L. COMPARISON WITH CHART

The largest scale chart available of the survey area is chart No. 16708, Prince William Sound (scale 1:79,291, 13th edition, 4/75). Representative soundings from this chart were inked on the smooth field sheet in brown. These soundings were in good agreement except in two cases where depths from the chart were 10 fathoms shoaler and one case, in an area of steep relief, where the difference was 31 fathoms.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede prior surveys. No additional field work is recommended.

N. AIDS TO NAVIGATION

There were no fixed or floating aids to navigation within the survey area.

O. STATISTICS

Hydrographic Positions: 1355
Nautical Miles of Sounding Lines: 220.2 n.m.
Area Surveyed: 8.4 n.m.^{2}
Number of Bottom Samples: 44

P. MISCELLANEOUS

The Range-Azimuth soundings in Chamberlain Bay and Jackson Cove were inadvertently plotted with the wrong MINI-RANGER corrector. The corrector used was -1m., while the proper corrector should be zero. The Range-Azimuth Corrector Tape has been changed to the proper value.

Q. RECOMMENDATIONS

The shoreline for Jackson Cove should be revised photogrammetrically to resolve the discrepancy between the presently charted shoreline and this hydrography. The upgrading of topographic stations NERO, 1951 and QUIZ, 1951 to triangulation status may benefit the photogrammetric orientation.

R. DATA PROCESSING TECHNIQUES

All field sheets were produced with a PDP8/e computer (S/N 09492) and COMPLOT plotter (S/N 5445-5). The computer programs used to process this survey were:

RK-111	Range-Range Real Time Hydroplot	1/30/76
RK-201	Grid, Signal and Lattice Plot	4/18/75
RK-211	Range/Range Plot	1/15/76
RK-212	Visual Station Table Load and Plot	4/01/75
RK-216	Range Azimuth Position and Sounding Plot	2/14/75
RK-330	Reformat and Data Check	3/12/75
RK-407	Geodetic Inverse/Direct Computation	10/23/75
RK-409	Geodetic Utility Package	9/05/75
AM-500	Predicted Tides Generator	11/10/72
AM-602	Elinore--Line Oriented Editor	5/21/75

S. REFERENCES TO REPORTS

Field Tide Note	DA-10-2-76
Velocity Correction Note	DA-10-2-76
Horizontal Control Note	DA-10-2-76
Electronic Control Note	DA-10-2-76

Submitted by:

Steven S. Snyder

Steven S. Snyder
ENS, NOAA

Approved and Forwarded by:

Christian Andreasen

Christian Andreasen
CDR, NOAA
Commanding Officer

OPR-999-DA-76
DA-10-2-76(H-9637)
SIGNAL TAPE PRINTOUT

001	2	60	42	53095	147	21	35642	250	0000	330645	LUMPY, 1947
002	7	60	50	51470	147	26	58245	250	0000	330645	QUOTE, 1947
003	5	60	48	22724	146	47	47118	250	0000	000000	OUT, 1901
004	5	60	49	21035	146	42	43544	139	0000	000000	BLIGH, 1901
006	5	60	44	40171	146	41	36504	250	0000	000000	PINE 2, 1976
007	5	60	50	43842	146	50	36747	250	0000	000000	REEF, 1942, 1965
008	5	60	45	40132	146	36	07619	139	0000	000000	FIDO 2, 1972
009	5	60	42	48770	146	43	31201	139	0000	000000	GOOSE I. LIGHT 1972
~~010~~	5	60	52	21786	147	05	23874	139	0000	000000	GLACIER I. LIGHT ✓
011	5	60	53	45280	146	48	53760	139	0000	000000	BUSBY I. LIGHT
012	5	60	43	48497	146	44	00440	252	0000	000000	TEMPORARY POINT
013	5	60	52	23391	147	12	52411	250	0000	000000	NERO, 1951-76
014	5	60	51	55899	147	11	21920	250	0000	000000	QUIZ, 1951-76
015	5	60	44	35318	147	24	06085	139	0000	000000	STOREY, 1947

✓

VELOCITY CORRECTIONS

OPR-999-DA-76

From JD 207 to JD 211: Glacier Island

Correction (FM)	To depth (FM)
0.0	5.0
+ 0.2	27.0
0.4	85.0
0.6	123.0
0.8	161.0

From JD 211 to JD 212: Chamberlain Bay

0.0	5.5
+ 0.2	10.8
0.4	84.0

From JD 211 to JD 212: Jackson Cove

0.0	5.5
+ 0.2	10.8
0.4	15.0

TRA Corrections

From JD 207 to JD 212:

Vessel	Correction (FM)	Days
DA-1 (3131)	0.3	All
DA-2 (3132)	0.3	All

BAR CHECK AVERAGES

OPR-999-DA-76

DA-1 (3131): JD 207 to JD 211

True	Sonic	True - sonic
1.0	0.7	0.3
2.0	1.7	0.3
3.0	2.7	0.3
4.0	3.7	0.3
5.0	4.7	0.3
6.0	5.7	0.3
7.0	6.7	0.3
8.0	7.6	0.4

DA-2 (3132): JD 210

1.0	0.7	0.3
2.0	1.7	0.3
3.0	2.7	0.3
4.0	3.7	0.3
5.0	4.6	0.4
6.0	5.6	0.4
7.0	6.6	0.4
8.0	7.6	0.4

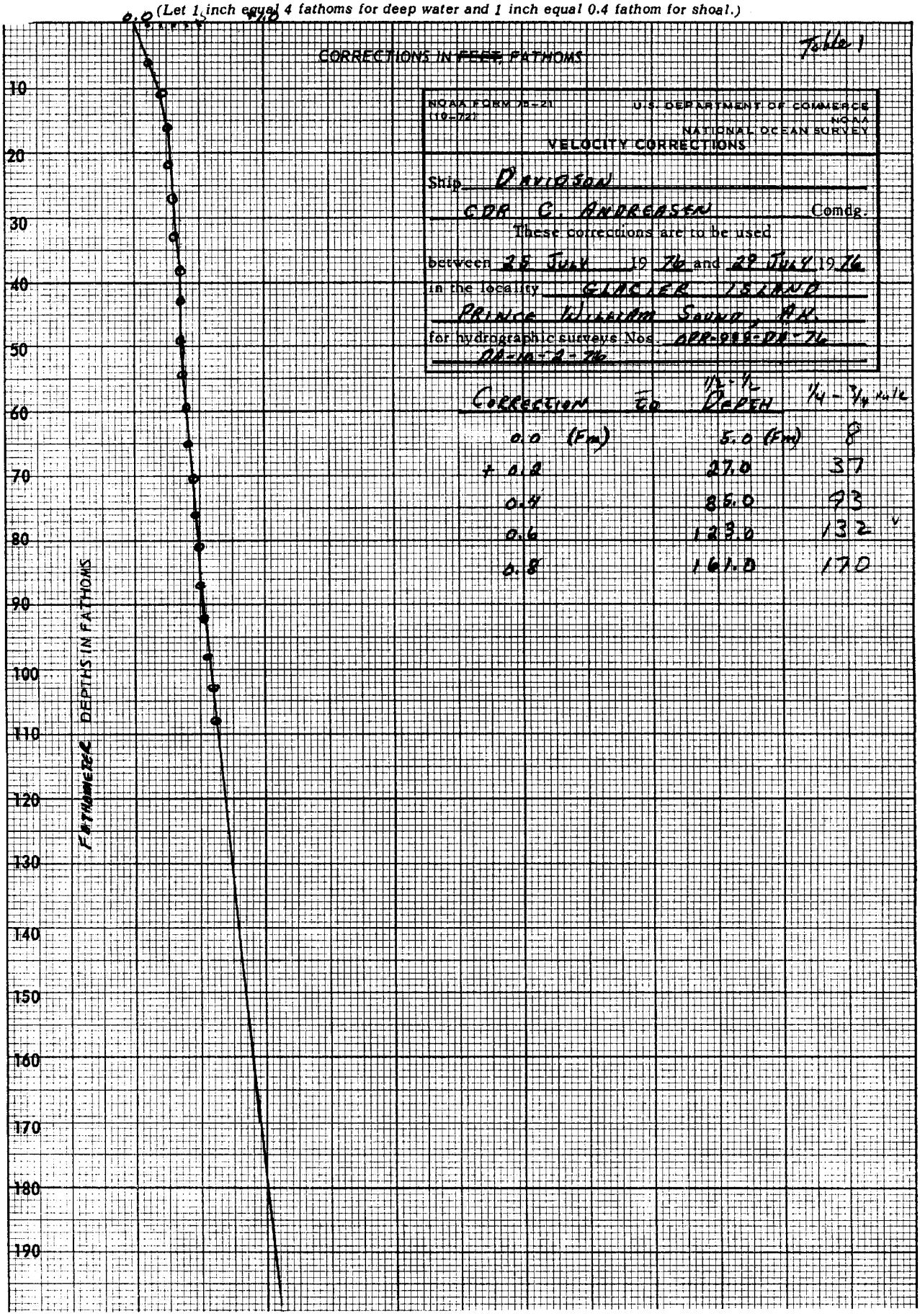
DA-2 (3132): JD 211 to JD 212 Chamberlain Bay

1.0	0.7	0.3
2.0	1.7	0.3
3.0	2.7	0.3
4.0	3.7	0.3
5.0	4.65	0.35
6.0	5.6	0.4
7.0	6.6	0.4
8.0	7.6	0.4

DA-2 (3132): JD 212 Jackson Cove

1.0	0.7	0.3
2.0	1.7	0.3
3.0	2.7	0.3
4.0	3.65	0.35
5.0	4.65	0.35
6.0	5.6	0.4
7.0	6.6	0.4
8.0	7.6	0.4

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



(For deep water add a 0 to these figures.)

Table 1

NOAA FORM 76-21 (10-72)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship DAVIDSON
CDR C. ANDREASEN Comdg.

These corrections are to be used

between 28 JUNE 19 76 and 29 JULY 19 76

in the locality GLACIER ISLAND
PRINCE WILLIAM SOUND, AK.

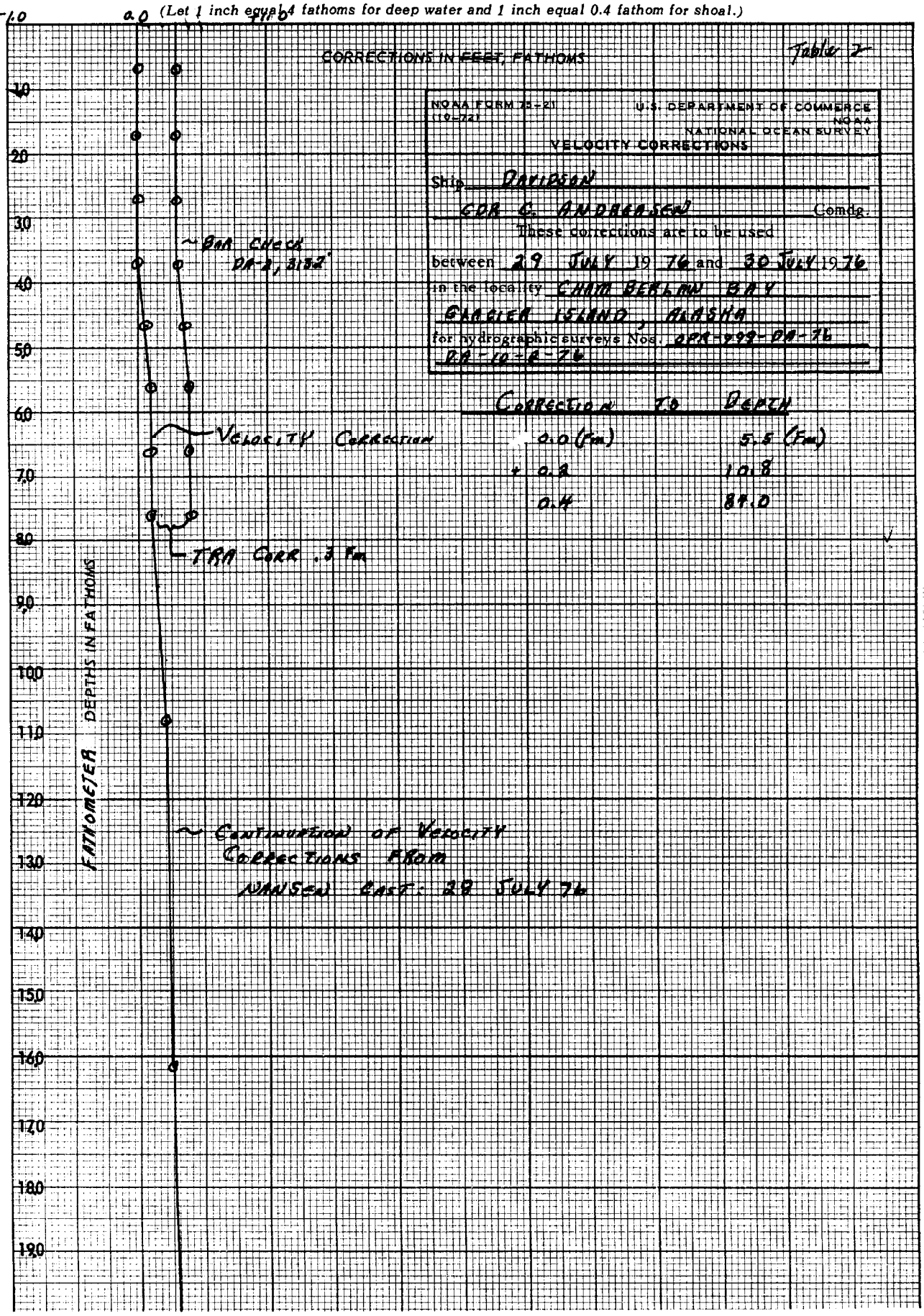
for hydrographic surveys Nos. OPR-988-DA-76
OR-10-1-76

Correction to Depth		1½-4	1/4-3/4
0.0	(Fm)	5.0 (Fm)	8
+ 0.2		27.0	37
0.4		86.0	93
0.6		123.0	132
0.8		161.0	170

K&E 20 X 20 TO THE INCH 46 1240
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

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

(For deep water add a 0 to these figures)



NOAA FORM 72-21 (10-72)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship DAVIDSON

CDR C. ANDREASEN Comdg.

These corrections are to be used

between 29 JULY 19 76 and 30 JULY 19 76

in the locality CHAM BERLAIN BAY

GLACIER ISLAND, ALASKA

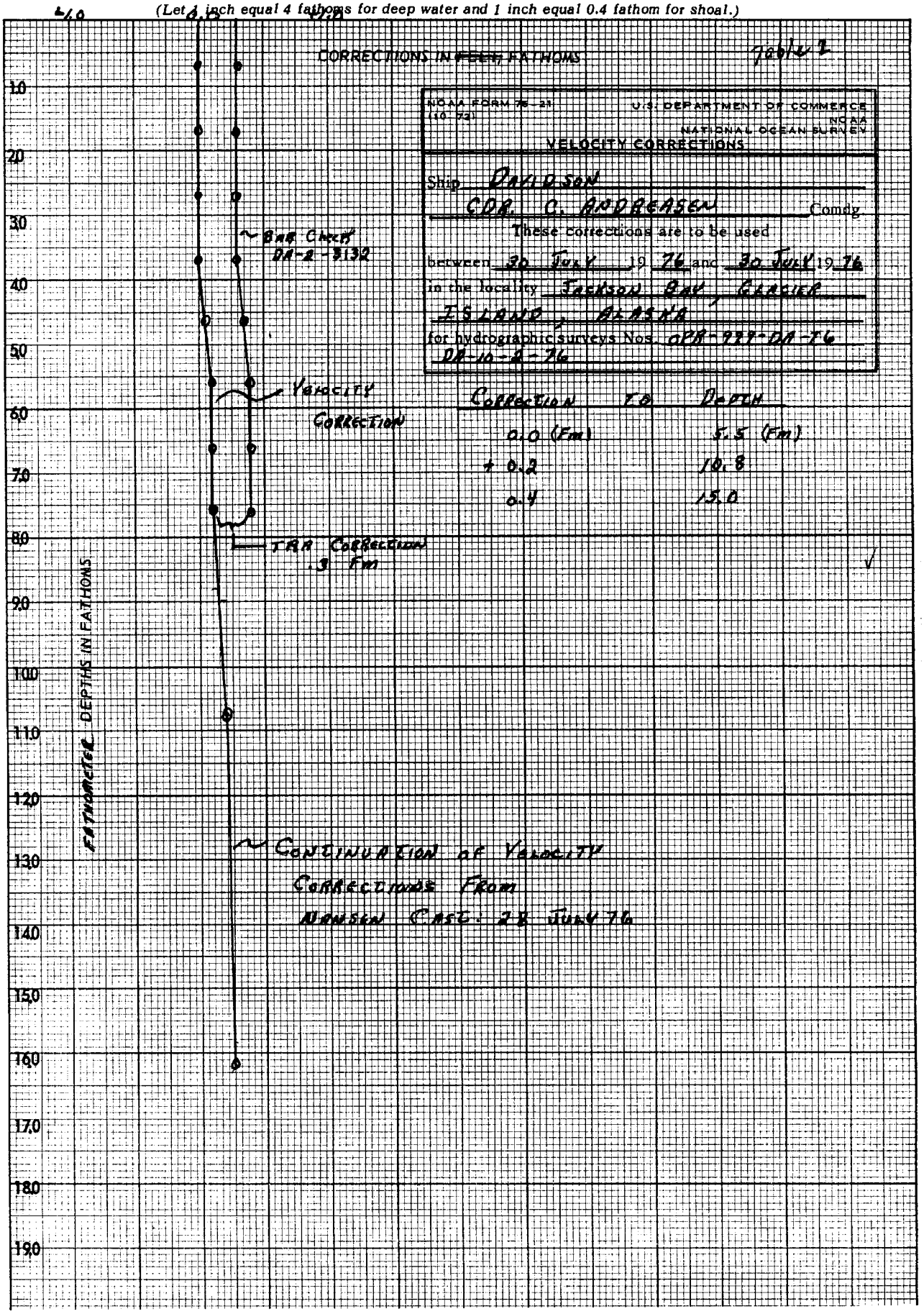
for hydrographic surveys Nos. OPR-299-DA-76

DA-10-8-76

CORRECTION	TO DEPTH
0.0 (Fm)	5.5 (Fm)
+ 0.2	10.8
0.4	89.0

K+E 20 X 20 TO THE INCH 46 1240
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

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



NOAA FORM 76-21 (10-72)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship Davidson

CDR. C. Andreasen Comdg

These corrections are to be used

between 30 July 19 76 and 30 July 19 76

in the locality Jackson Bay, Glacier Is Land, Alaska

for hydrographic surveys Nos. OPR-927-DA-76 DA-10-2-76

Correction	To Depth
0.0 (Fm)	5.5 (Fm)
+ 0.2	10.8
0.4	15.0

20 X 20 TO THE INCH 46 1240
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

HORIZONTAL CONTROL NOTE

GLACIER ISLAND, PRINCE WILLIAM SOUND

OPR-999-DA-76

July 1976

In order to update the horizontal control in the vicinity south of Glacier Island to the post-1964 earthquake datum, DAVIDSON personnel observed a small triangulation net (see enclosed sketch) using third order methods. The starting baseline for the net was the line CALL 1947 to QUOTE 1947, which was part of a second order traverse performed by Lester H Williams in 1972 (see enclosed sketch). Two C&GS Topographic Stations, QUIZ 1951 and NERO 1951, were also incorporated into the net. A bridle was secured to the bedrock at QUIZ 1951, and was used to calibrate the Raydist Range Range Control system aboard DAVIDSON's hydrographic survey launches.

Some problems were encountered during theodolite observations which resulted in excessive triangle closures. These problems were subsequently identified as a combination of refraction and curvature of the earth, resulting from trying to observe in bright, sunny weather over distances up to ten miles. By re-observing all stations on overcast days at low tide, acceptable triangle closures were obtained.

Comparison of pre and post earthquake positions revealed a consistent shift to the southeast of approximately 7 meters.

All computations were performed with a PDP8/e computer. Triangles were computed using program RK 409, Geodetic Utility Package (9/05/75). Geographic position computations and inverse computations were computed using program RK 407, Geodetic Inverse/Direct computation (10/23/75).

Submitted by:

Russell C. Arnold
Russell C. Arnold
LCDR, NOAA

Approved and Forwarded by:

Christian Andreasen
Christian Andreasen
CDR, NOAA
Commanding Officer

ELECTRONIC CONTROL NOTE

NOAA Ship DAVIDSON
OPR-999-DA-76, Change Number 2
Glacier Island

Two systems were used for navigational control of hydrography. The majority of the work was done with a HASTINGS-RAYDIST Type DR-S medium range radio positioning system, that was operated in the range-range mode. The hydrography conducted in Jackson Cove and Chamberlain Bay was controlled using a Range-Azimuth technique. This system employed a Motorola MINI-RANGER III for range and a Wild T-2 for azimuth.

The RAYDIST station sites were selected so as to obtain acceptable arc intersections (i.e., thirty degrees to one hundred fifty degrees). All signal paths to the project area were entirely over water. Strong signals were received throughout the survey area. Power to both the RAYDIST and MINI-RANGER sites was provided by storage batteries.

Minimal problems with the RAYDIST system were encountered during this project. No lane jumps were experienced. DA-2 experienced RAYDIST equipment problems during its first day of operation. The launch RAYDIST equipment was replaced and hydrography was run successfully in the afternoon.

Calibrations were performed before and after each day, or portion of a day, that hydrography was conducted. These calibrations were accomplished by maneuvering the launches into a known position (a calibration bridle at station QUIZ, 1951 for RAYDIST and MINI-RANGER calibrations, and a mark on the rock face at station NERO, 1951 for MINI-RANGER calibrations). The MINI-RANGER daily calibration checks were all within three meters of the mean of the pre and post survey baseline calibrations. The Range-Azimuth Corrector Tape reflects a mean of the pre and post survey baseline calibrations. The correctors on the Electronic Corrector Tape reflect a mean of beginning and ending daily RAYDIST system calibrations.

Baseline calibrations for the MINI-RANGERs were accomplished in accordance with PMC OPORDER instructions. Two calibrations were performed--one prior to beginning this project and one following its completion. Both of these calibrations were 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 No. CA-1000. The difference between beginning and ending correctors

of the Console/R-T unit used is one meter. Shown below is a summary of the MINI-RANGER baseline calibrations, MINI-RANGER daily field calibrations, and daily RAYDIST calibrations.

MINI-RANGER BASELINE CALIBRATION CORRECTOR
for
CONSOLE/R-T UNIT 707/721 and CODE 1

BLC 19 July 1976	BLC 2 August 1976	Mean
+1	0	0

MINI-RANGER DAILY CALIBRATION CORRECTORS

Calibration No.	1	2	3	4	Mean
XPNDR CODE 1	+2	+3	+3	0	+2

RAYDIST CALIBRATION ABSTRACT

Vessel # 3131

J.D.	Pattern I	Pattern II	Mean I	Mean II	Range Fix No.
207	-0.35	-0.14			
208	-0.36	-0.16	-0.36	-0.15	2001-2086
208	-0.25	-0.22			
208	-0.30	-0.06	-0.28	-0.14	2087-2300
209	-0.14	-0.01			
210	-0.14	0.00	-0.14	0.00	2301-2504
210	-0.20	-0.04			
211	-0.23	-0.10	-0.22	-0.07	2505-2741
211	-0.22	-0.13			
211	-0.41	-0.29	-0.32	-0.21	2742-2895

Vessel # 3132

J.D.	Pattern I	Pattern II	Mean I	Mean II	Range Fix No.
210	+0.01	0.00			
211	-0.03	-0.06	-0.01	-0.03	4001-4121

Submitted by:

Steven S. Snyder

Steven S. Snyder
ENS, NOAA

Approved and Forwarded by:

Christian Andreasen

Christian Andreasen
CDR, NOAA
Commanding Officer

CORRECTION TO ECHO SOUNDERS REPORT

NOAA Ship DAVIDSON

OPR-999-DA-76

GLACIER ISLAND
PRINCE WILLIAM SOUND

To provide the velocity corrections for the hydrographic survey OPR-999-DA-76, Glacier Island, a NANSEN cast was conducted as specified by the Hydrographic Manual, Section 4.9.5. The velocity corrections will apply to the field sheet DA 10-2-76 (H-9637). The cast was taken on 28 July 1976 at latitude 60° 50' 06" N and longitude 147° 14' 06" W.

The temperature corrections were calculated using a Culbertson slide rule. Calibration corrections supplied by the NOIC, Northwest Regional Calibration Center, determined during the February 10, 1976 calibration of the reversing thermometers, were also applied to the field data. The Sea Water Temperature and Density Reduction Tables were used to calculate salinity at 15° C from density, measured with hydrometers #6680-A and #213. The Velocity Corrections were then calculated from the reduced temperature and salinity data using program RK 530, Layer Correction to Velocity (version 6-25-74). The results were plotted, and the resulting Velocity Correction vs Depth curve was used to extract velocity correctors from the linear curve at 0.2 fathom intervals.

The velocity corrections for Jackson Cove and Chamberlain Bay, which are located on the south side of Glacier Island, were calculated by subtracting launch DA-2's (3132) TRA Correction from the mean bar checks for Julian Days 211 and 212. Again the results were plotted and the resulting curves were extrapolated from the NANSEN cast data from 7.6 fathoms to the deepest depth for each bay. The velocity corrections were extracted from the linear curve at 0.2 fathom intervals.

Bar check data was collected at least twice daily to calculate TRA Corrections as specified by the Hydrographic Manual, Section 4.9.5.1.1. The results of the bar checks were averaged for each launch. The TRA corrections for vessel 3131 (DA-1) and 3132 (DA-2) are 0.3 fathom.

Respectfully submitted,

Gerald E. Wheaton

Gerald E. Wheaton
ENS, NOAA

Approved and forwarded,

Christian Andreasen
CDR, NOAA
Chief of Party

FIELD TIDE NOTE

OPR-999-DA-76

JULY 1976

GLACIER ISLAND, PRINCE WILLIAM SOUND

Field tide reductions of soundings on the Final Field Sheet, DA 10-2-76, are based on Cordova predicted tides, corrected to #1683 Jackson Cove, Glacier Island. They were interpolated using the PDP8/e computer and program AM 500. All times of both predicted and observed tides are based on Greenwich Mean Time.

Two Bristol Bubbler tide gages were installed in the project area. Location and operational periods are as follows:

SITE	LOCATION	PERIOD
Jackson Cove 945-4507	60/52.8' N 147/13.4' W	21 July-30 July
Glacier Island 945-4469	60/52.15' N 147/05.8' W	24 July-30 July

Jackson Cove

Gage S/N 64A11028 and staff were installed and began operating on 21 July 1976. Continuous good records were obtained from this gage until removal on 30 July. Readings on the marigram are 4.2 feet higher than the staff readings.

Glacier Island

Gage S/N 723275 and staff were installed and began operating on 24 July 1976. From 0043 Z, 26 July to 1819 Z, 30 July, the clock lost approximately 35 minutes. However, continuous good records were obtained from this gage until removal on 30 July. On 29 July the staff was found destroyed, apparently by the heavy surf action. Hence, there is no closing leveling. Two staff/gage comparisons were made. Readings on the marigram are 2.3 feet higher than staff readings.

Leveling

The Jackson Cove tide staff was leveled to three existing bench marks; BM 1, BM 3, and BM 4. The staff was leveled to on 21 and 29 July. Closing leveling indicated no staff movement.

The Glacier Island tide staff was leveled to three temporary bench marks. No closing leveling was done due to the staff being destroyed.

Respectfully submitted,

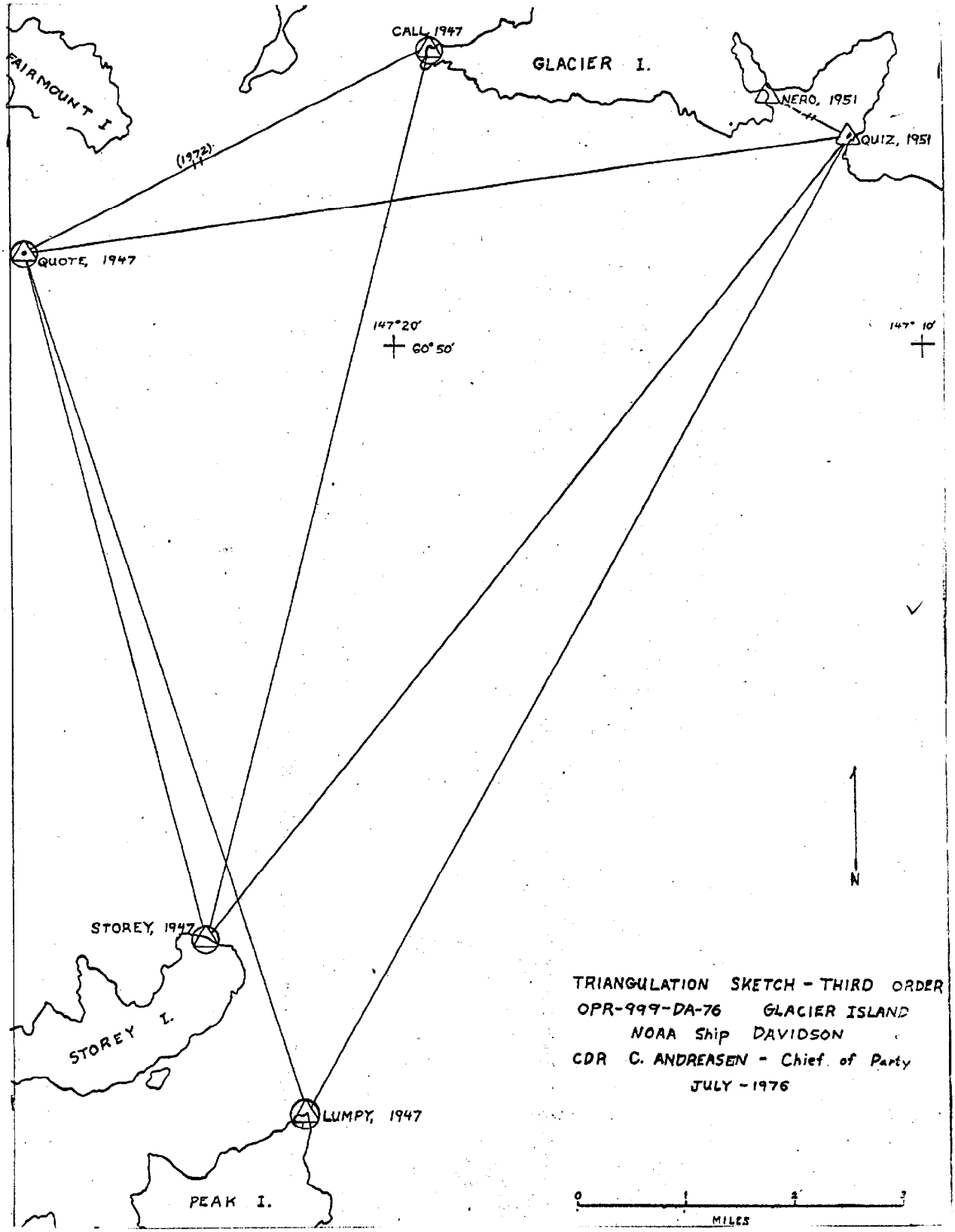
Maureen Kenny

Maureen Kenny
ENS, NOAA

Approved and forwarded,

Christian Andreasen

Christian Andreasen
CDR, NOAA


CALL, 1947
GLACIER I.
FAIRMOUNT I
NERO, 1951
QUIZ, 1951
(1972)
QUOTE, 1947
147°20'
60°50'
147° 10'
N
STOREY, 1947
STOREY I.
LUMPY, 1947
PEAK I.
TRIANGULATION SKETCH - THIRD ORDER
OPR-999-DA-76 GLACIER ISLAND
NOAA Ship DAVIDSON
CDR C. ANDREASEN - Chief of Party
JULY - 1976
0
1
2
3
MILES

11/2/76

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): Jackson Cove

Period: July 25 - August 1, 1976

HYDROGRAPHIC SHEET: H-9637

OPR: 999

Locality: Off south side of Glacier Island, Prince William Sound

Plane of reference (mean lower low water): 4.5 ft.

Height of Mean High Water above Plane of Reference is 11.0 ft.

Remarks: Zone direct.

James R Hubbard
for Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No.
H-9637

Name on Survey	A On Chart No 16708	B On previous survey No	C On U S quadrangle maps	D From local information	E On local maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
CHAMBERLAIN BAY ✓	X									1
GLACIER ISLAND ✓	X									2
JACKSON COVE ✓	X									3
PRINCE WILLIAM SOUND ✓	X									4
BULL HEAD										5
CAVE POINT										6
										7
										8
										9
										10
										11
										12
										13
										14
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										24
										25
										26

APPROVED

Chas. E. Harrington

STAFF GEOGRAPHER - C5 1x2

7 APR. 1977

APPROVAL SHEET

FOR

SURVEY H- 9637

A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 3/9/77

Signed: [illegible]

Title: Chief, Verification Branch

NOAA FORM 77-27
(9-72)
(PRESC BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9637

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 mylar	1
DESCRIPTIVE REPORT	1	OVERLAYS (preliminary)	6

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES			smooth pos.& sndg.			
CAHIERS	1 & printouts		X1			
VOLUMES	1					
BOXES						

T-SHEET PRINTS *(List)*

SPECIAL REPORTS *(List)*

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				1363
POSITIONS CHECKED		1363		
POSITIONS REVISED		42		
DEPTH SOUNDINGS REVISED		579		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		Ø		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		Ø		
	TIME (MANHOURS)			
Verification of Control	8	6		
Verification of Positions		2Ø		
Verification of Soundings		92		
Smooth Sheet Compilation		44		
ALL OTHER WORK				
TOTALS	8	162		17Ø

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY James S. Green	9/26/76	9/26/76
VERIFICATION BY Gordon E. Kay/Stanley H. Otsubo	11/16/76	3/2/77
~~REVIEW BY~~ QC Insp. R.W. DerKazarian 84hrs		4/21/77

DR Engle 10 hrs 6-17-77
Baumgardner 4 hrs 7-14-77

Reg. No. H-9637

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:

pos 2027-30
2041-43
2046-47
2060-65
2078-82
2653
4152
4131
2853

Reg. No. _____

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE_____ TIME REQ'D._____ INITIALS_____

REMARKS:

H-9637

Information for Future Presurvey Reviews

It would be desirable to extend any future survey inshore to the HWL and to develop the shoal indications noted in the HIT report.

Position Index		Bottom Change Index	Use Index	Resurvey Cycle
Lat.	Long.			
605	1472	3	1	50 years
605	1471	7	1	25 years

VERIFIER'S REPORT

DA-30-2-76 H-9637

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

I. INTRODUCTION

Survey H-9637, conducted by NOAA Ship DAVIDSON CSS-31 between 25 July 1976 and 29 July 1976, is a navigable area survey in Prince William Sound bound in the north by Glacier Island. This survey is intended to satisfy the United States Coast Guard's request for hydrographic survey in a proposed anchorage area.

Positioning equipment used was of two types. For the survey work off shore in Prince William Sound, the Hasting Raydist electronic position equipment was used. The survey work in Chamberlain Bay and Jackson Cove, was controlled by using a Range-Azimuth technique, utilizing a Wild T-2 for azimuth and a Motorola MINI-RANGER III for range, both set up over a common station, with no real problems encountered.

Boatsheet projection parameters have been revised to center the hydrography on the smooth sheet. PMC parameters are appended in the smooth printout, along with all correctors used to plot the reduced soundings.

Field tide reductions of soundings were based upon Cordova, AK. and corrected to No. 1683, Jackson Cove, Glacier Island. Smooth sheet soundings are reduced from a bubbler tide gage installed at Jackson Cove, Glacier Island, AK. and were approved by Tide Division, Rockville, MD.

This navigable area survey is adequate to supersede H-3543 over its common areas.

II. CONTROL AND SHORELINE

Shoreline Manuscripts were not available for this navigable area survey; no shoreline will appear on the smooth sheet. See Quality Control Report par 1

See Ship's report, Sections F and G for an adequate description of horizontal control.

III. HYDROGRAPHY

Numerous problems were encountered in the re-scanning of the fathograms at PMC. Part of the problem seems to be aboard the launch on the operation of equipment, which gave a poor trace. The other part of the problem is not investigating possible shoal or kelp areas near the east shore entrance

to Chamberlain Bay. These near shore areas (up to 500 meters) are questionable to their depths and should be re-investigated for an adequate delineation of the bottom. The depths portrayed on the smooth sheet were selected with consideration to the conservative reading and strength of the trace on the fathogram. See QC Report par. 2

Another problem arose off shore in an area of steep relief where the digitizer was digitizing up to 15 fathom deeper than the analog trace. A decision was made on the conservative side to change those sounding to the shoaler reading. Doing this, soundings from H-9382 coincide within 2 fathom instead of 17 fathoms as per Paragraph J of Ship's Report.

There are 44 bottom samples on this survey.

IV. CONDITION OF SURVEY AND COMPLIANCE WITH PROJECT INSTRUCTIONS

Project Instructions, Change No. 2, dated June 25, 1976 and the Provisional Hydrographic Manual requirements were met with the accomplishment of this survey and all hydrographic overlays, smooth sheet and reports, conform to said requirements.

Marginal notes on raw data printouts and fathograms tend to question kelp areas on the sub-surface, with no supportive investigation or conclusion. It is questionable of whether these areas are peaks or kelp. See QC Report Par. 2

V. JUNCTIONS

A partial junction with H-9382 (1973-74) was accomplished at the south eastern extremity of the survey. Only the end of one hydrographic line on H-9382 actually joining H-9637. A complete tie was not made as per project instructions, which required the junction on a time available basis.

VI. COMPARISON WITH PRIOR SURVEYS

This survey was compared with H-3543 1:10,000 (1913) Glacier Island - Chamberlain Bay. There is a good agreement between comparison soundings. There are no pre-survey review items for this survey. H-9637 is adequate to supersede H-3543.

VII. COMPARISON WITH CHART

Comparison was made with Chart 16708 1:79,291, 13th Edition, May 1975. Soundings were in fair agreement with present survey with differences in the range of 1-28 fms. shoaler, with the latter falling in an area of steep relief. Numerous soundings on the chart are not from the prior survey and from* unknown sources. H-9637 supersedes the charted data in areas common to both. * See QC Report par. 9

VIII. ADDITIONAL FIELD WORK

Additional field work is recommended in the area of 147°11'24"W - 147°11'48" to 60°51'21"N - 60°51'54"N to resolve questionable bottom configuration as per Paragraph III of Verifier's Report. This near shore area is considered a fair survey with the off shore work evaluated as good with no additional work recommended.

IX. NOTES TO COMPILIER

The signal list is at the beginning of the position printout.

The tide corrector printout is in the fathogram and raw data cahier.

This survey was verified by Gordon E. Kay, Rotating Cartographic Technician, a verifier trainee, under my supervision.

Respectfully submitted,

Stanley H. Otsubo
Team Leader Cartographic Technician
3 March 1977

Examined and approved,

James S. Green
Chief, Verification Branch

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY, Pacific Marine Center
1801 Fairview Ave. E., Seattle, WA 98102

Date: March 17, 1977

To: Eugene A. Taylor, RADM
Director, PMC

From: Donald E. Nortrup, LCDR
Chief, Processing Division

Subject: PMC Hydrographic Survey Inspection Team Report, H-9637

This survey is a navigable area survey of a potential anchorage area off the south side of Glacier Is., AK. The survey was conducted by NOAA Ship DAVIDSON in accordance with Project Instructions OPR-999-DA-76, Change No. 2, dated 25 June 1976.

This survey adequately delineates the bottom configuration in the area of depths exceeding 20 fathoms. Determination of least depths inside the 20 fathom curve is deficient. The more critical of the questionable least depths include soundings of:

~~13.7 at 60°51.82'N, 147°12.04'W~~
10.7 at 60°51.69'N, 147°13.80'W
13.3 at 60°51.90'N, 147°17.10'W

Additional field work is indicated to adequately determine least depths in these and other less critical areas.

Final tide reducers for this survey are derived from the gage at the head of Jackson Cove. Jackson Cove is a small bay with a relatively constricted entrance. Whether the tidal regime inside the cove is representative of the tidal regime over the bulk of the survey area, which is relatively open water, is questionable.

The inspection team finds H-9637 to be a fair navigable area survey, adequate to supersede common areas of prior surveys and charted hydrography. Additional field work to develop least depths is desirable and should be considered on an opportunity basis. Administrative approval is recommended.

Donald E. Nortrup, LCDR

Richard D. Lynn

John C. Albright, LCDR

Dean R. Seidel, LCDR

ADMINISTRATIVE APPROVAL
H-9637

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.

E. A. Taylor

Eugene A. Taylor, RADM
Director
Pacific Marine Center

3/17/77
Date

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C352

April 21, 1977

TO: A. J. Patrick
Chief, Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: Robert W. DerKazarian
Quality Evaluator

SUBJECT: Quality Control Report for H-9637 (1976), South Side of Glacier Island, Prince William Sound, Alaska

Survey H-9637 was inspected to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, it was found to conform to the National Ocean Survey's standards and requirements except as follows:

1. The penciled high water line and several rocks were transferred to the present smooth sheet from a Class III topographic manuscript TP-00265 of 1972 photographs.

2. The scanning of the fathograms discussed in paragraph III of the Verifier's Report was reconsidered during the quality control evaluation. No definite explanation can be given for the shoalest trace, but in most cases the second echo trace verified what appeared to be the normal bottom trace, thereby discrediting the existence of shoal features. The shoalest traces are considered to have been caused by echoes from vegatation. Several soundings were revised accordingly during quality control evaluation. Lead line determination would have been desirable in this area of questionable traces.

3. Of the 17 detached rocks, 11 were reduced improperly, with some as much as 4 feet in error. All rocks were properly reduced at the time of the quality control evaluation.

4. The "Hydrographic Title Sheet" did not include the list of officers conducting the survey.

5. The time was not entered onto the "Hydrographic Survey Statistics" sheet for the Hydrographic Inspection Team.

6. A sunken rock covered 4 feet at mean lower low water in latitude 60°52.08', longitude 147°10.99', located by the present survey (position 4131) has been removed from the smooth sheet. This rock plots above the high water line and is considered to be in error. An alternate acceptable position cannot be deduced from the present survey records.

7. An adequate junction with H-9382 (1973-74) was effected at the time of quality control evaluation. The note previously inked on the present smooth sheet "Soundings in blue taken from H-9382 (1973-74)" was not necessary and has been removed during the quality control evaluation. The standard junctional note given was adequate.

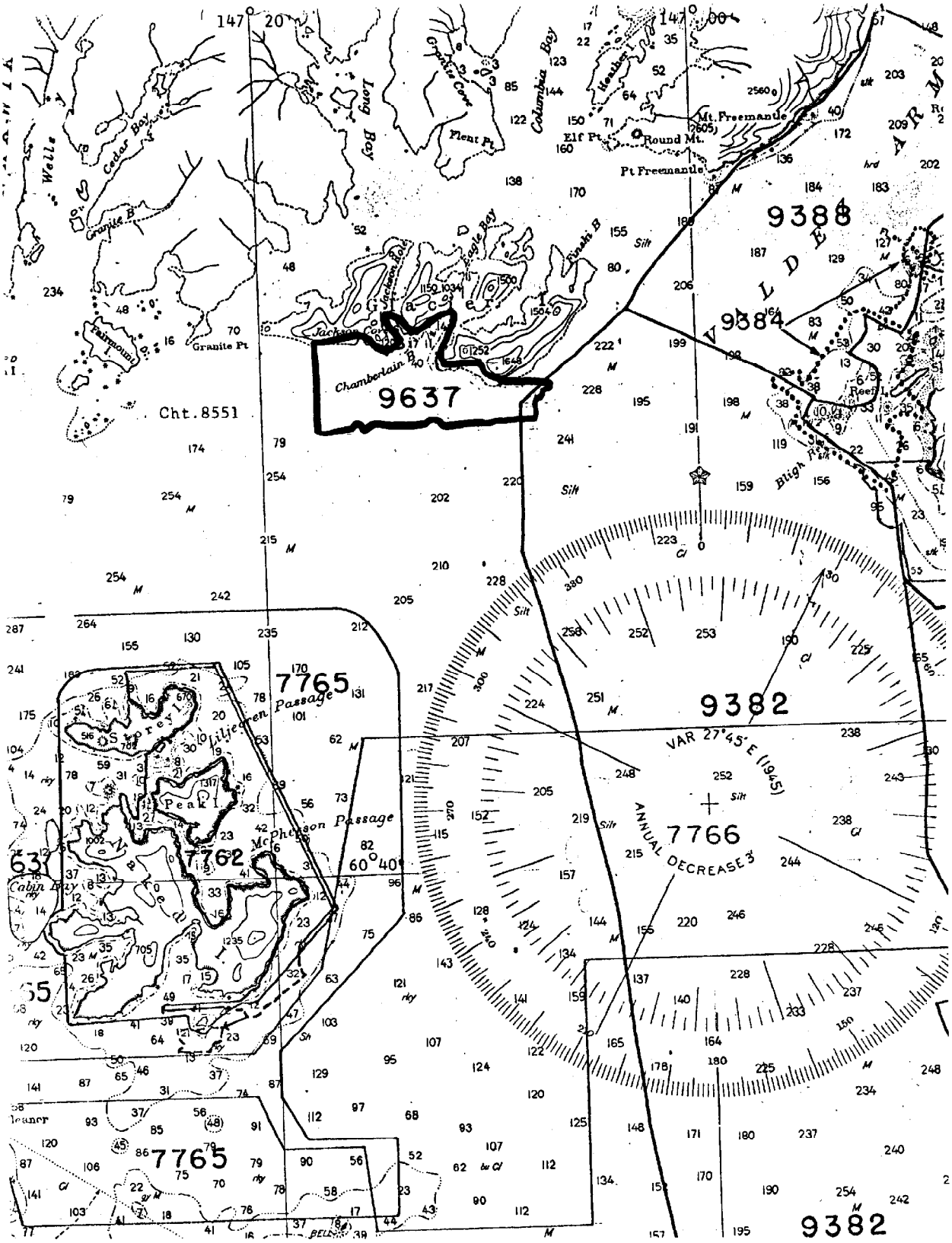
Blue ink is not commonly accepted for junctions because it does not photograph well under routine procedures and is to be limited in use to such items as tide stations, hydrographic signals, etc.

8. The two former 1951 topographic stations, NERO and QUIZ, relocated by third-order triangulation by the DAVIDSON's personnel had been shown on the smooth sheet with the 1951 date. The date was revised to 1976 during quality control evaluation and the reference station note was revised to show the G.P. of QUIZ as unadjusted.

9. This information should be noted under "Comparison with Chart": The charted hydrography originates with prior survey H-3543 and reconnaissance surveys from 1947 work of the USC&GS Ship DERICKSON (Bp-43214 and CL 469/47) which require no further consideration.

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

cc:
C351


147°20'
147°00'
Long Bay
Granite Cove
Columbia Bay
Cedar Bay
Wells
Granite B
Plent Pt
Elf Pt
Round Mt.
Mt. Freemantle
Pt Freemantle
Eagle Bay
Bush B
Jackson Cove
Chamberlain B
Granite Pt
Fairmount
Cht.8551
9637
9388
9384
9382
7765
7762
7766
Lilijestren Passage
McPherson Passage
Bligh Reef
Cabin Bay
60°40'
VAR 27°45'E (1945)
ANNUAL DECREASE 3'
Silt

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9637

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
8519	8/19/77	M.J. Friese	Full ~~Part Before~~ After Verification Review Q.C. Inspection Signed Via
			Drawing No. Consider fully app'd throughout
			common area
8551	8/26/77	M.J. Friese	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Fully app'd hydro throughout common
			area thru Chart 8519 Dwg. A.P. #16
8517	11/10/77	M.J. Friese	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Fully App'd hydro throughout common
			area thru Chart 8519 Dwg. A.P. #16
16700	12/14/78	Nitor	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 22 Reappld thru 16708 Dwg 16
			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.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63