9636

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-10-1-76

Office No. H-9636

LOCALITY

State .... ALASKA

General Locality .... PRINCE WILLIAM SOUND

Locality .... ENTRANCE TO PORT FIDALGO

....

19 76

CHIEF OF PARTY

C. ANDREASEN

LIBRARY & ARCHIVES

DATE 3-31-77

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

9636

area 6
Chts
8519
8551

NOAA FORM 77-28
(11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9636

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-1Ø-1-76

State: Alaska

General locality: Prince William Sound

Locality: Entrance to Port Fidalgo

Scale: 1:1Ø,ØØØ Date of survey: 2Ø July - 27 July 1976

Instructions dated: 25 June 1976 Project No.: OPR-999

Vessel: Ship DAVIDSON & Launches DA-1 (3131) and DA-2 (3132)

Chief of party: C. Andreasen, CDR NOAA

Surveyed by: Ship's Officers

Soundings taken by echo sounder, hand lead, pole: Ross Fineline, Model 5ØØØ

Graphic record scaled by: Ship's Personnel

Graphic record checked by: Ship's Personnel

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

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

Soundings in fathoms and tenths ~~XXXX~~ at ~~XXXX~~ MLLW

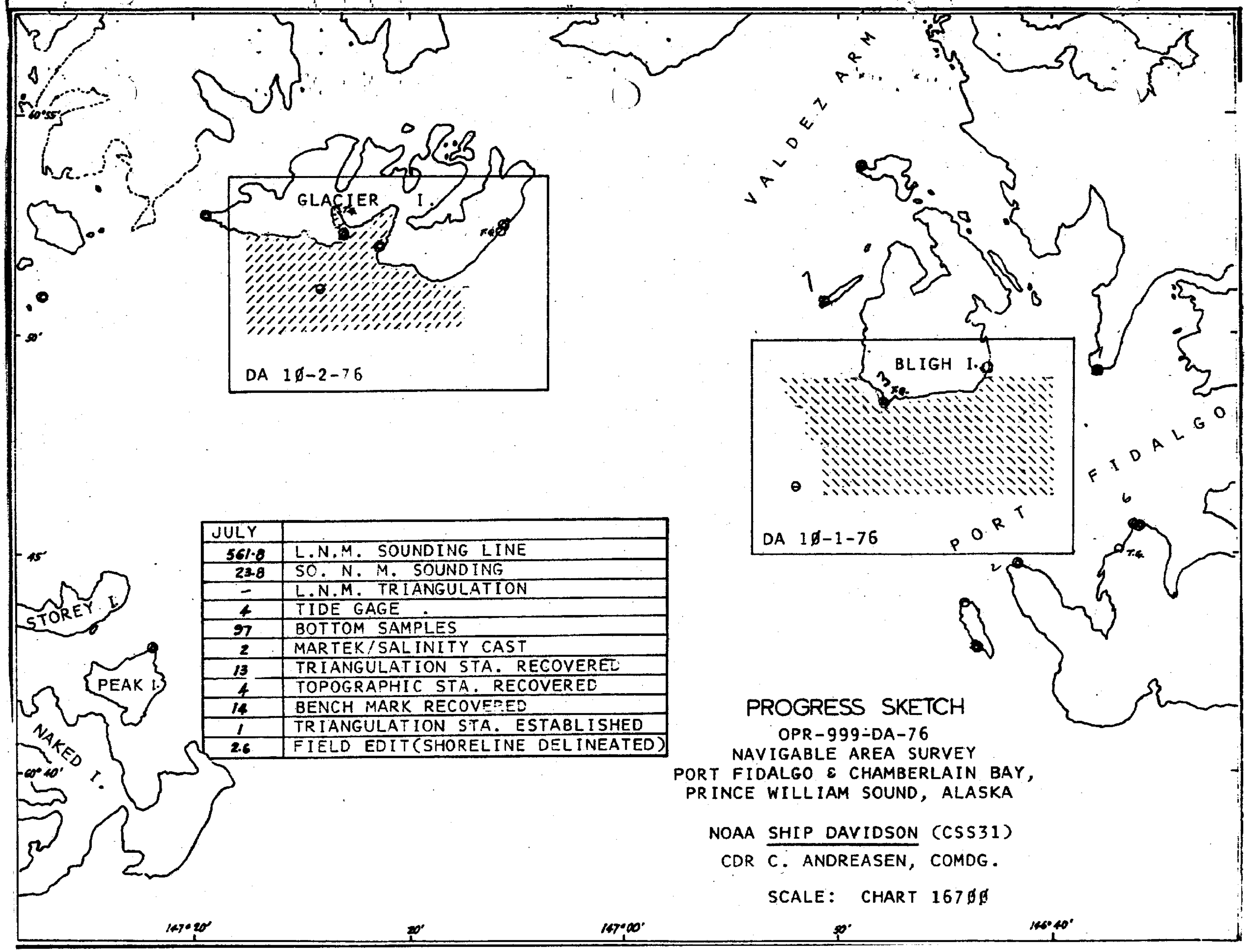
REMARKS: Survey Time Zone: ØØØ° GMT

Mean Survey Longitude: 146°46.Ø'W

Field Sheet is complete.

Applied to stds 7/7/77

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



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 16700

Descriptive Report

to accompany Navigable Area Survey
DA-10-1-76

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 was at the entrance to Port Fidalgo, Prince William Sound. The survey is bounded on the north by Bligh Island and latitude 60°49'00"N, on the east by longitude 146°40'00"W, on the south by latitude 60°46'15"N, and on the west by the lines drawn between the following points: latitude 60°46'15"N, longitude 146°50'30"W; latitude 60°47'30"N, longitude 146°50'48"W; latitude 60°47'45"N, longitude 146°51'52"W; and latitude 60°49'00"N, longitude 146°52'53"W.

The survey began on 20 July and was completed on 27 July 1976.

C. SOUNDING VESSELS

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

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

D. SOUNDING EQUIPMENT

Both vessels used a Ross Fineline fathometer, Model 5000. Serial numbers are as follows:

Vessel #	Fathometer	Digitizer	Transceiver
3131	1048	1081	1036
3132	1077	1077	1077

Vessels 3131 and 3132 used their fathometers in depths ranging from approximately 1.3 to 169 fathoms. Good traces were obtained on the fathogram in depths greater than 120 fathoms. Therefore these soundings were not rejected even though they are deeper than the allowable depths for a Ross fathometer.

The fathogram initial was maintained at zero. Phase checks were made at least once daily. All fathograms were scanned and compared to digitized depths. Additions (peaks and deeps) and corrections were edited into the master data tape.

Soundings have been corrected for transducer depth and predicted tides. Tides were computed from daily predicted tides for Cordova, corrected to #1675 Snug Corner Cove, Port Fidalgo, as shown in TIDE TABLES 1976. Tide gage requirements were fulfilled by gages that were installed by NOAA Ship McARTHUR and monitored by DAVIDSON personnel. (Refer to Field Tide Note.)

Soundings have not been corrected for velocity (refer to Velocity Corrections Table). A Nansen cast was taken by DAVIDSON on 26 July 1976. Bar checks were taken twice daily, when weather permitted, to determine TRA corrections for the launches (see Velocity Correction Note appended).

E. BOAT SHEETS

The field sheet for this survey was prepared using the HYDROPLOT system on DAVIDSON. A PDP 8/e computer (S/N 09492) was linked with a COMPLOT DP3 plotter (S/N 5445-5) for computation and plotting.

One 1:10,000 scale computer sheet comprises this survey. The field number of this sheet is DA-10-1-76.

F. STATION CONTROL

MINIRANGER transponders were located at Out, 1901; Pine 2, 1976; Reef, 1942-1965; and Temporary Point, 1976. (See Horizontal Control Note appended.) Refer to the Signal List for geodetic positions of all stations.

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:

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

Transponders used:
CODE 1 S/N 723
CODE 3 S/N 772
CODE 4 S/N 773

Correctors for the MINIRANGER's were determined from baseline calibrations made on 19 July and 2 August 1976 and confirmed through field calibration checks. Field calibration checks were made by MINIRANGER comparison to a three-point visual fix and check fix, or to two three-point visual fixes, to triangulation stations. Field calibration checks were conducted at the beginning and ending of the day, or whenever a new MINIRANGER transponder pairing was used. Mean correctors derived from the pre and post project baseline calibrations have been applied to the positions on the Final Field Sheet. (Refer to Electronic Control Note.) ✓

H. SHORELINE

See shoreline report

The shoreline on this survey was initially transferred from Chart Number 16708; Prince William Sound, Port Fidalgo and Valdez Arm, to the work sheets. It was found that the transferred shoreline did not agree with the MINIRANGER fixes while running hydrography. Three-point sextant fixes were taken along the high water line to correctly delineate the shoreline. Both charted and corrected shorelines appear on the Final Field Sheet. (See Q.C. Report-item 1) ✓

I. CROSSLINES

Crosslines comprised 10.6% of the total sounding lines. Crossline soundings were in excellent agreement with main scheme hydrography.

No problems were encountered in using two different sounding vessels for crosslines and main scheme lines. Junction soundings between the launches' survey areas were in excellent agreement. ✓

J. JUNCTIONS

This survey junctions with contemporary surveys H-9382 (1973) and H-8901 (1966).

Selected soundings from these surveys are inked on the Final Field Sheet--red for H-9382 and violet for H-8901. ✓

Representative soundings from contemporary surveys H-9382 and H-8901 are in excellent agreement with the present survey.

K. COMPARISON WITH PRIOR SURVEYS

Selected soundings from the prior survey, H-2658 (1903), were inked on the field sheet in green.

see verifier's report

This survey compares satisfactorily with H-2658. Approximately 60% of the representative soundings are the same in both surveys. Another 25% agree within two fathoms. The remaining soundings agree within four fathoms except in three cases. In these three cases, at depths greater than 40 fathoms, DAVIDSON's soundings are 7-14 fathoms deeper than those of H-2658. All three soundings are approximately 0.1 mile south of similar depths found during this survey. At latitude 60°48'00"N, longitude 146°48'19"W, a 6.7 fathom sounding is shown on the prior survey. The shoalest depth found in this area when developed was approximately 11 fathoms. Since survey H-2658 is quite old, the aforementioned discrepancies could arise from present, improved surveying methods and equipment.

L. COMPARISON WITH THE CHART

The largest scale chart available of the survey area is Chart Number 16708, Prince William Sound, Port Fidalgo and Valdez Arm (Scale 1:79,291, 13th edition, 5 April 1975). Selected soundings from this chart were inked on the field sheet in brown.

see verifier's report

These representative soundings generally agree within one fathom except in five cases. These occurred in water depths greater than 40 fathoms, so the difference could be due to the older methods of surveying. On the chart a 6.5 fathom sounding is located in the general location of the aforementioned 6.7 fathom sounding from prior survey H-2658. The present survey's least depth was found to be 11 fathoms in this area.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede all prior surveys.

N. AIDS TO NAVIGATION

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

O. STATISTICS

Vessel #		Total Number of Positions	Linear Sounding Miles (N.M.)
3131		411	86.1
3132		1541	255.7
	Total	1952	341.8

The total area covered by this survey is 13.8 square nautical miles.

P. MISCELLANEOUS

Fifty-three bottom samples were taken in the project area.

All soundings, including peaks and deeps, are included on the master data tape. However, some soundings were not plotted on the Final Field Sheet in congested areas.

New significant least depths were noted in the following locations:

30 fm at 60°48'52"N/146°50'53"W
32 fm at 60°48'25"N/146°50'21"W
19 fm at 60°47'50"N/146°44'07"W
4.5 ~~5.9~~ fm at 60°48'41"N/146°42'29"W
6.6 ~~5.4~~ fm at 60°48'49"N/146°42'07"W

Q. RECOMMENDATIONS

Because of the difference found between the charted shoreline and the shoreline delineated by three-point fixes, the shoreline should be photogrametrically relocated.(See Q.C. Report-item 1)

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.

Vessel #	Digital PDP 8/e	Hydroplot Controller	HSR
3131	10756	700026	12455
3132	10744	700022	11823

The computer programs used to process this survey were:

RK 201	Grid, Signal and Lattice Plot	4/18/75
RK 211	Range-Range Plot	1/15/76
RK 300	Utility Computation	5/22/75
RK 330	Reformat and Data Check	3/12/75
RK 407	Geodetic Inverse/Direct Computation	10/23/75
RK 409	Geodetic Utility Package	9/05/73
RK 530	Layer Correction to Velocity	6/25/74
RK 561	H/R Geodetic Calibration	2/19/75
AM 500	Predicted Tides Generator	11/10/72
AM 602	Elinore--Line Oriented Editor	5/21/75

S. REFERENCES TO REPORTS

Electronic Control Note
Field Tide Note
Horizontal Control Note
Velocity Corrector Note

Submitted,

Maureen R. Kenny

Maureen R. Kenny
ENS, NOAA

Approved and forwarded,

Christian Andreasen

Christian Andreasen
CDR, NOAA
Chief of Party

APPENDIX

INDEX OF DATA

✓ PROJECTION REQUEST

✓ LATTICE REQUEST

✓ PARAMETER TAPE PRINTOUT

FIELD TIDE NOTE

CORRECTIONS TO ECHO SOUNDERS REPORT

ABSTRACT OF TIDE REQUIREMENTS

✓ PREDICTED TIDE CORRECTOR TAPE PRINTOUT

BAR CHECKS

VELOCITY CURVE/CORRECTORS

VELOCITY CORRECTOR TAPE PRINTOUT

✓ TC/TI ABSTRACT

✓ TC/TI CORRECTOR TAPE PRINTOUT

HORIZONTAL CONTROL NOTE

ELECTRONIC CONTROL NOTE

SIGNAL LIST

✓ ABSTRACT OF POSITIONS

✓ BOTTOM SAMPLE LOG SHEETS

✓ OIC COMMENTS

✓ = Checked items and additional items not listed have been removed from this D.R. and are filed in the cahier with the field records.

✓

INDEX OF DATA

8 RAW DATA PRINTOUTS

8 FATHOGRAMS

4 BOXES MASTER DATA TAPES

2 ELECTRONIC CORRECTOR TAPES

2 VISUAL CORRECTOR TAPES

1 PARAMETER TAPE

1 SIGNAL TAPE

2 TC/TI TAPE

1 VELOCITY CORRECTOR TAPE

1 FINAL FIELD SHEET

1 PREDICTED TIDE PARAMETER TAPE

3 DESCRIPTIVE REPORTS (ORIGINAL AND 2 COPIES)

1 SOUNDING VOLUME

WORKSHEETS

18 RECOVERY NOTES

FIELD TIDE NOTE

OPR-999-DA-76

JULY 1976

BLIGH ISLAND
PRINCE WILLIAM SOUND

Field tide reductions of soundings on the Final Field Sheet, DA 10-1-76, are based on Cordova predicted tides, corrected to #1675 Snug Corner Cove, Port Fidalgo. 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
Bligh Island 945-4318	60/48.3' N 146/47.9' W	18 May- 27 July
Snug Corner Cove 945-4322	60/44.9' N 146/37.6' W	8 June- 27 July

Bligh Island

Gage S/N 64A11032 and staff were installed on 18 May 1976 by NOAA ship McARTHUR personnel. That command will submit information gathered from 18 May through 18 July. McARTHUR personnel restarted the gage on 19 July 1976. The gage was set at Alaskan Standard Time at 1050 AST. DAVIDSON personnel took over the monitoring of the gage on 20 July. The paper was reset at 2030 Z, 20 July, to GMT three hours fast (set at 2330 instead of 2030 Z). On 23 July at 0015 Z the gage was still 3 hours fast with no time gain or loss. The paper was reset at 0020 Z, 23 July. The clock gained 15 minutes from 0015 Z, 24 July, until 2215 Z, 25 July. The paper was reset at 2120 Z instead of the true time, 2220 Z. When the gage was removed at 2305 Z, 27 July, the clock was 1 hour 10 minutes fast (a gain of ten minutes). Readings on the marigram are 13.7 feet higher than the staff readings.

Snug Corner Cove

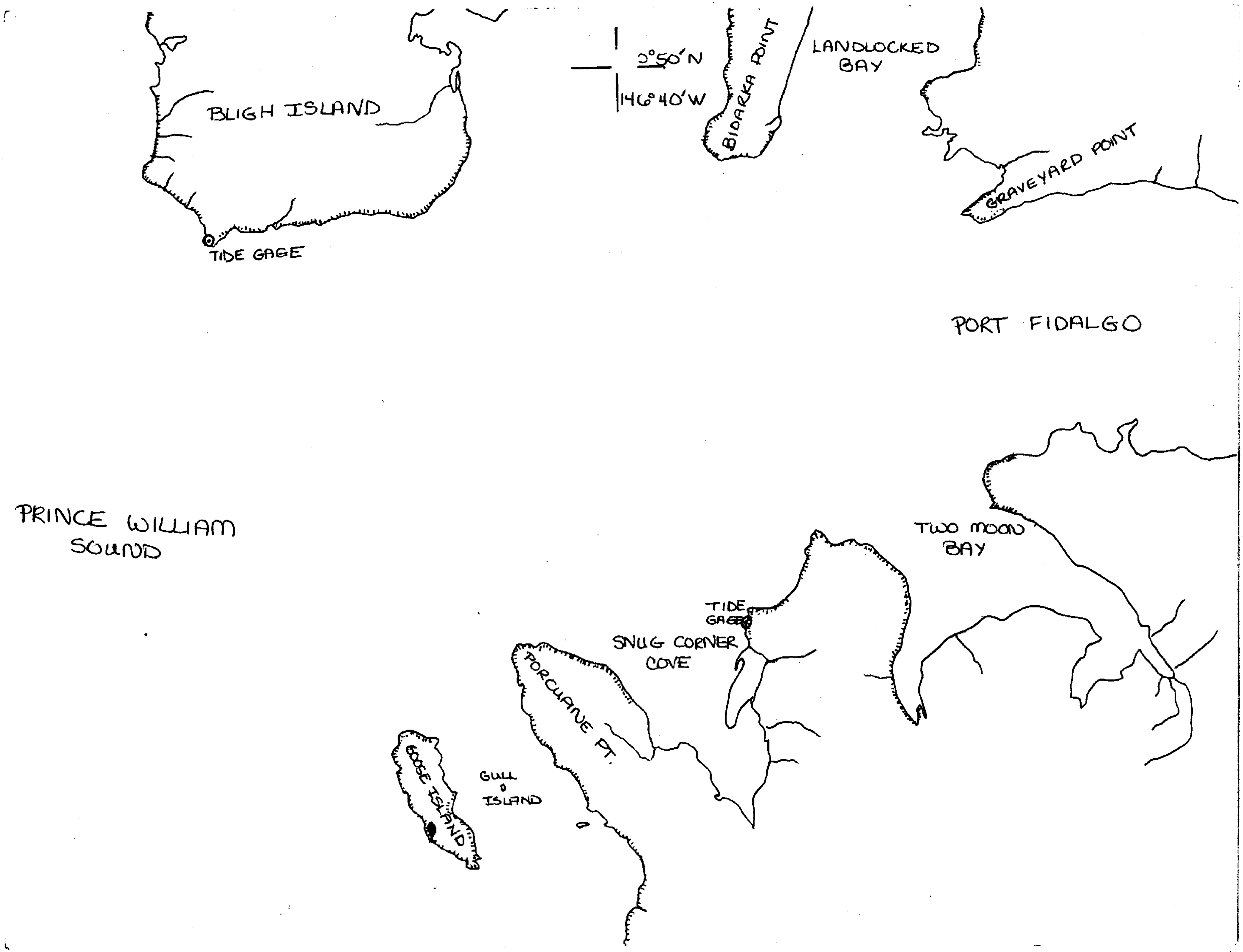
Gage S/N 68A9333 and staff were installed on 8 June 1976 by NOAA ship McARTHUR personnel. The McARTHUR has all tide information gathered from 8 June until 20 July. DAVIDSON personnel restarted the gage on 20 July, From 1620 Z to 1740 Z, 29 July, the orifice was uncovered at low tide. Twice when the tick mark was made while checking the gage the trace dropped 0.7 feet and then continued on with a smooth trace. This made staff/gage comparison difficult. The lower reading was used. Readings on the marigram from 4 staff/gage comparisons are 5.3 feet higher than the staff readings. ✓

Leveling

The Bligh Island tide staff was leveled to five bench marks. They are two newly established bench marks and three recovered bench marks. The staff was leveled to on 18 May by McARTHUR personnel and 27 July by DAVIDSON personnel. Closing leveling indicated a rise in the staff of .047 foot. ✓

The Snug Corner Cove tide staff was leveled to five newly established bench marks on 8 June by McARTHUR personnel and 28 July by DAVIDSON personnel. Closing leveling indicated no staff movement.

Respectfully submitted,	Approved and forwarded,
Maureen Kenny	Christian Andreasen
Maureen Kenny ENS, NOAA	Christian Andreasen CDR, NOAA


BLIGH ISLAND
TIDE GAGE
°50'N
146°40'W
BIDARKA POINT
LANDLOCKED BAY
GRAVEYARD POINT
PORT FIDALGO
PRINCE WILLIAM SOUND
TWO MOON BAY
TIDE GAGE
SNUG CORNER COVE
PORCUPINE PT.
GOOSE ISLAND
GULL ISLAND

CORRECTIONS TO ECHO SOUNDERS REPORT

NOAA Ship DAVIDSON

OPR-999-DA-76

BLIGH ISLAND
PRINCE WILLIAM SOUND

To provide the velocity corrections for the hydrographic survey OPR-999-DA-76, Bligh 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 10-1-76 (H-9636). The cast was taken on 26 July 1976 at latitude 60° 46' 30" N and longitude 146° 51' 48" 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 a hydrometer #6680-A. 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.

Bar check data was collected at least twice daily to calculate the TRA corrections for the sounding vessels 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 vessels 3131 (DA-1) and 3132 (DA-2) are 0.3 fathoms.

Respectfully submitted,

Gerald E. Wheaton

Gerald E. Wheaton
ENS, NOAA

Approved and forwarded,

Christian Andreasen

Christian Andreasen
CDR, NOAA
Chief of Party

VELOCITY CORRECTONS

OPR-999-DA-76

BLIGH ISLAND

From JD 202 to JD 209:

Correction (FM)	To Depth (FM)
0.0	5.0
0.2	22.0
0.4	90.0
0.6	120.0
0.8	144.0
1.0	1~~5~~60.0

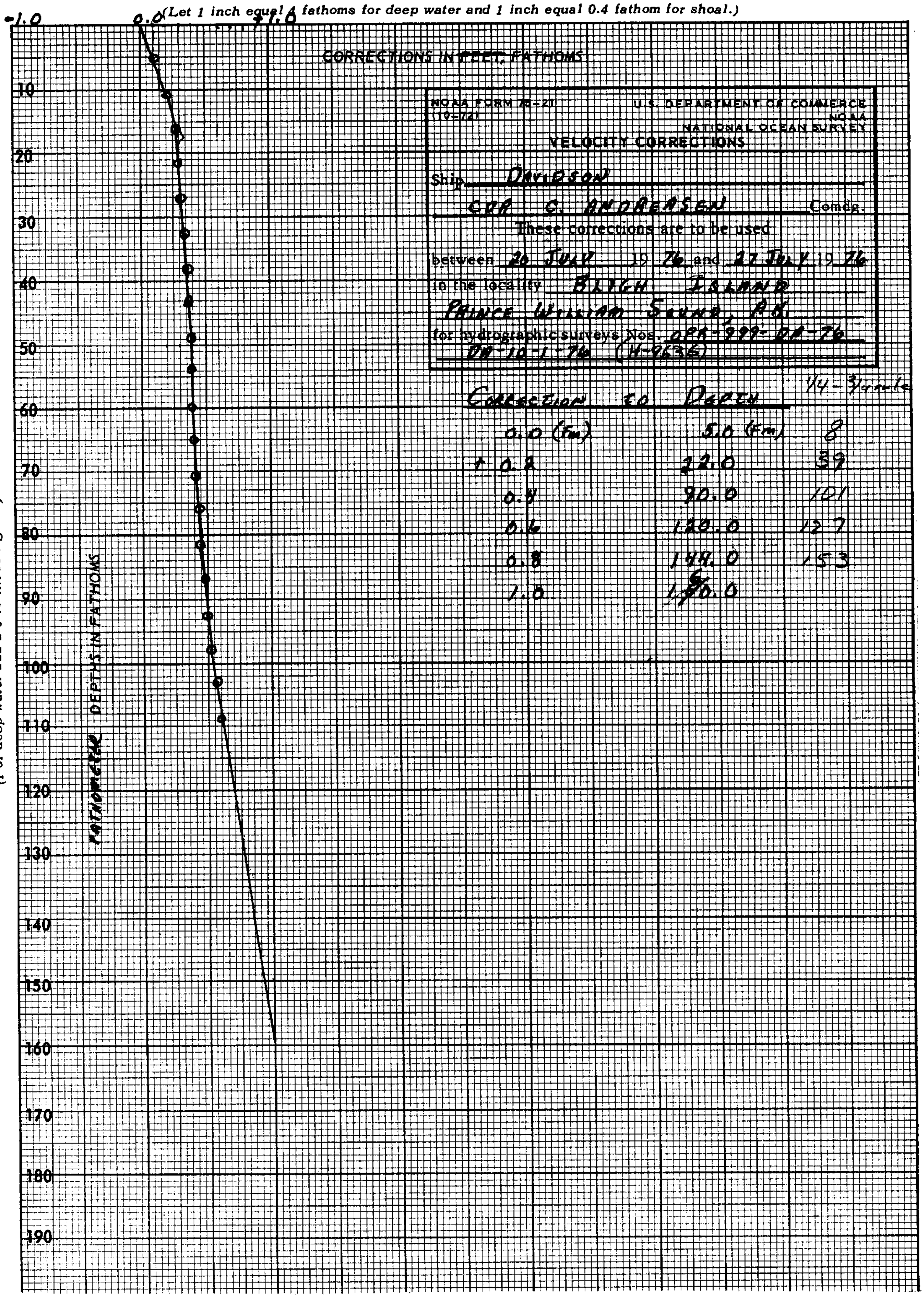
TRA CORRECTION

From JD 202 to JD 209:

Vessel	Correction (FM)	Days
DA-1 (3131)	0.36	All
DA-2 (3132)	0.37	All

OPR-999-DA-76
DA 1Ø-1-76 (H-9636)
VELOCITY CORRECTOR TAPE PRINTOUT

ØØØØ5Ø Ø ØØØØ ØØØ1 ØØ1 3131ØØ Ø1Ø176
ØØØ22Ø Ø ØØØ2
ØØØ9ØØ Ø ØØØ4
ØØ12ØØ Ø ØØØ6
ØØ144Ø Ø ØØØ8
ØØ1~~8~~5ØØ Ø ØØ1Ø
999999 Ø ØØ1Ø



NOAA FORM 75-21 (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 20 JULY 1976 and 27 JULY 1976

in the locality BLIGH ISLAND

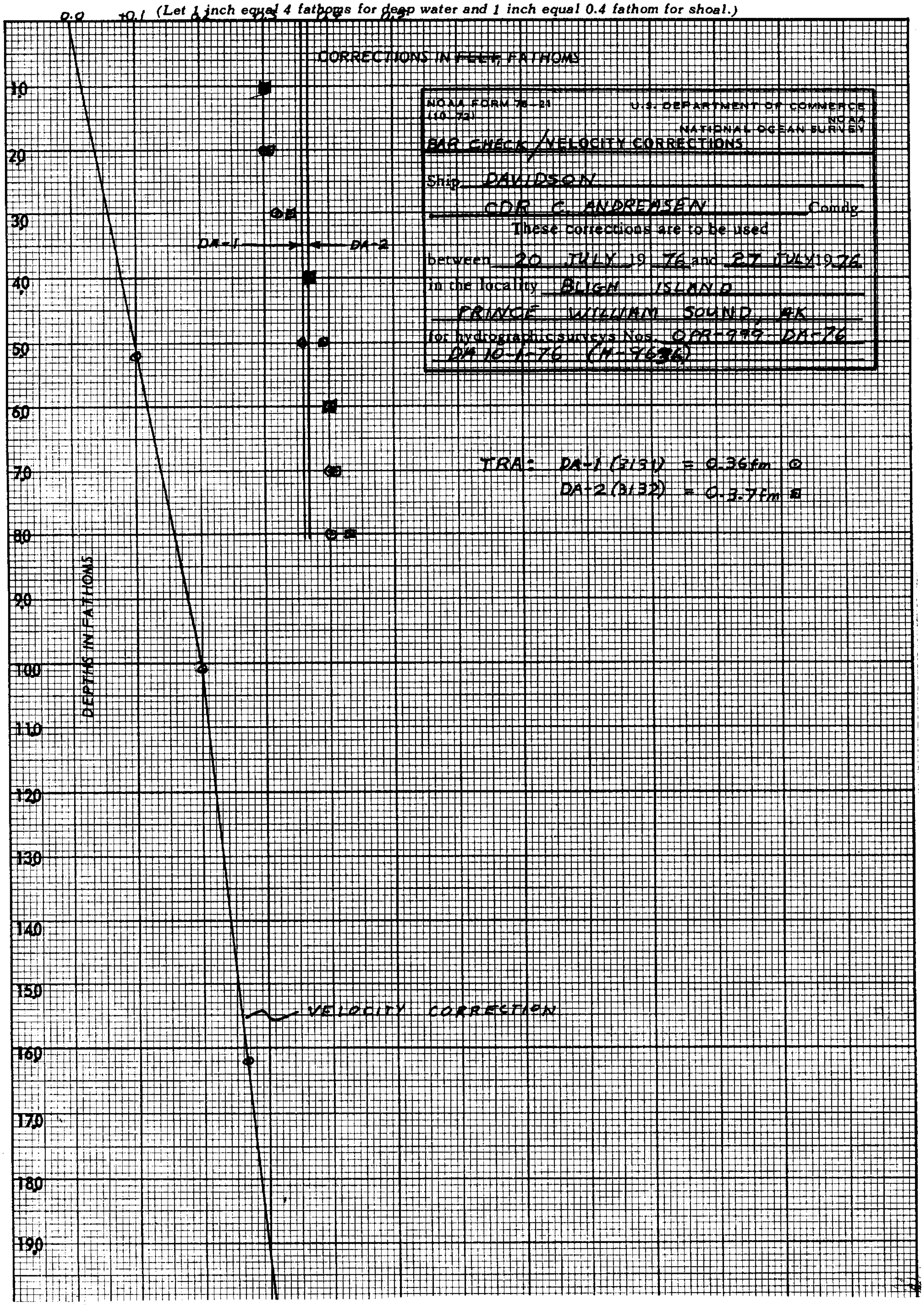
PRINCE WILLIAM SOUND, AK.

for hydrographic surveys Nos. OPR-999-DA-76

DA-10-1-76 (H-9636)

CORRECTION	TO DEPTH	1/4-3/4 scale
0.0 (Fm)	5.0 (Fm)	8
+ 0.2	22.0	39
0.4	90.0	101
0.6	120.0	127
0.8	144.0	153
1.0	160.0	

(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)

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

HORIZONTAL CONTROL NOTE

BLIGH ISLAND, PRINCE WILLIAM SOUND

OPR-999-DA-76

July 1976

see verifiers report

Most of the horizontal control in the vicinity of the entrance to Port Fidalgo, Prince William Sound, was recovered as previously described; however, when one of DAVIDSON's survey launches tried to use this control to calibrate its MiniRanger Range-Range control system, large discrepancies between visual three point fixes and check fixes indicated that something was wrong with the control. It was subsequently discovered that some of the published geographic positions were pre-1964 earthquake, and some were post-1964 earthquake. The post earthquake positions were located by a second order traverse performed by Lester H. Williams in 1972. By using one leg of the 1972 traverse as a baseline, all control in the area was updated by third order triangulation methods (see enclosed sketch).

Comparison of pre and post earthquake positions revealed a consistent three meter shift to the southeast for all stations.

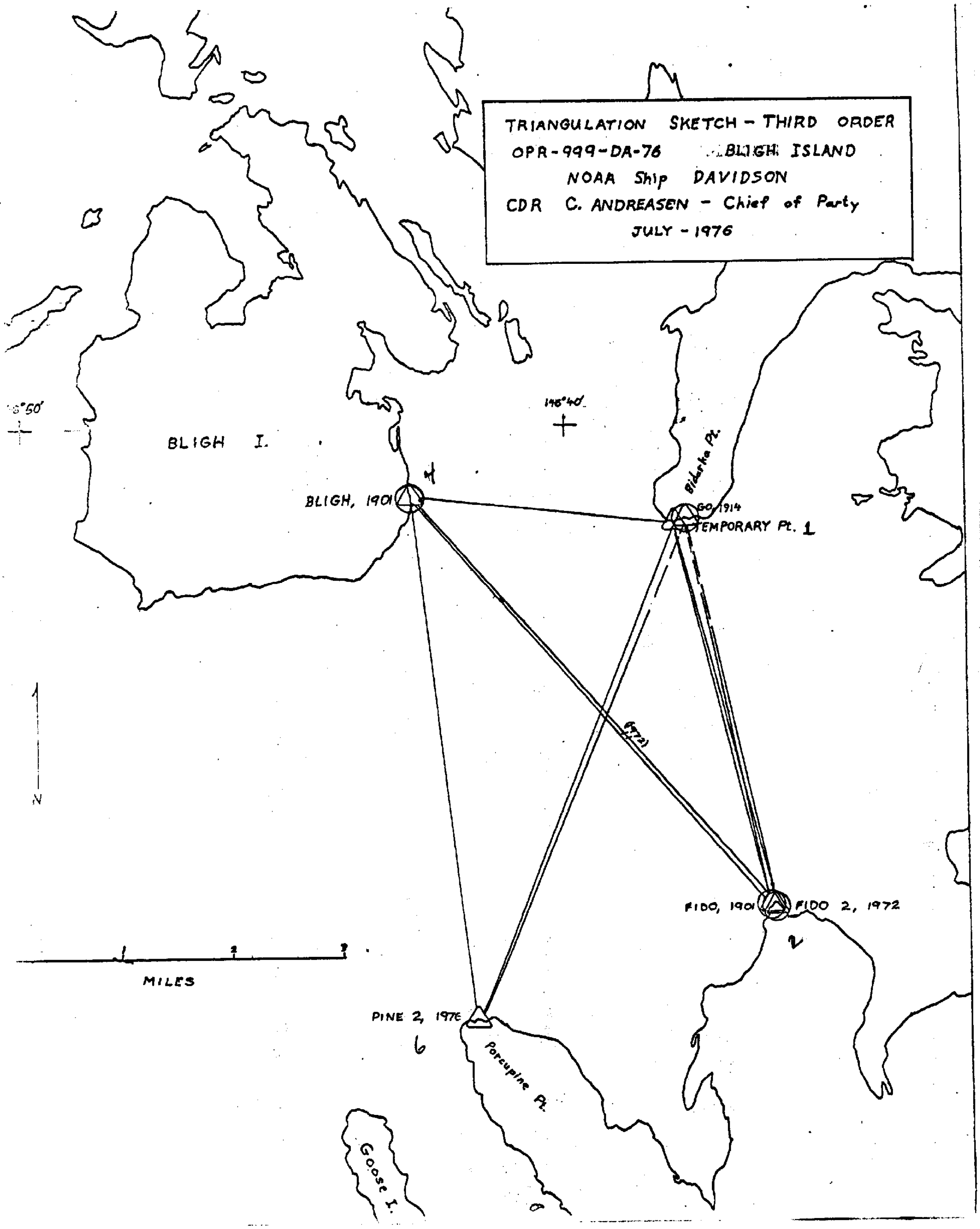
All computations were performed with a PDP8/e computer. Triangles were computed using program RK 409, Geodetic Utility Package (9/05/75). Geographic position computations and inverse computations were completed using program RK 407, Geodetic Inverse/Direct Computations (10/23/75).

Submitted by:

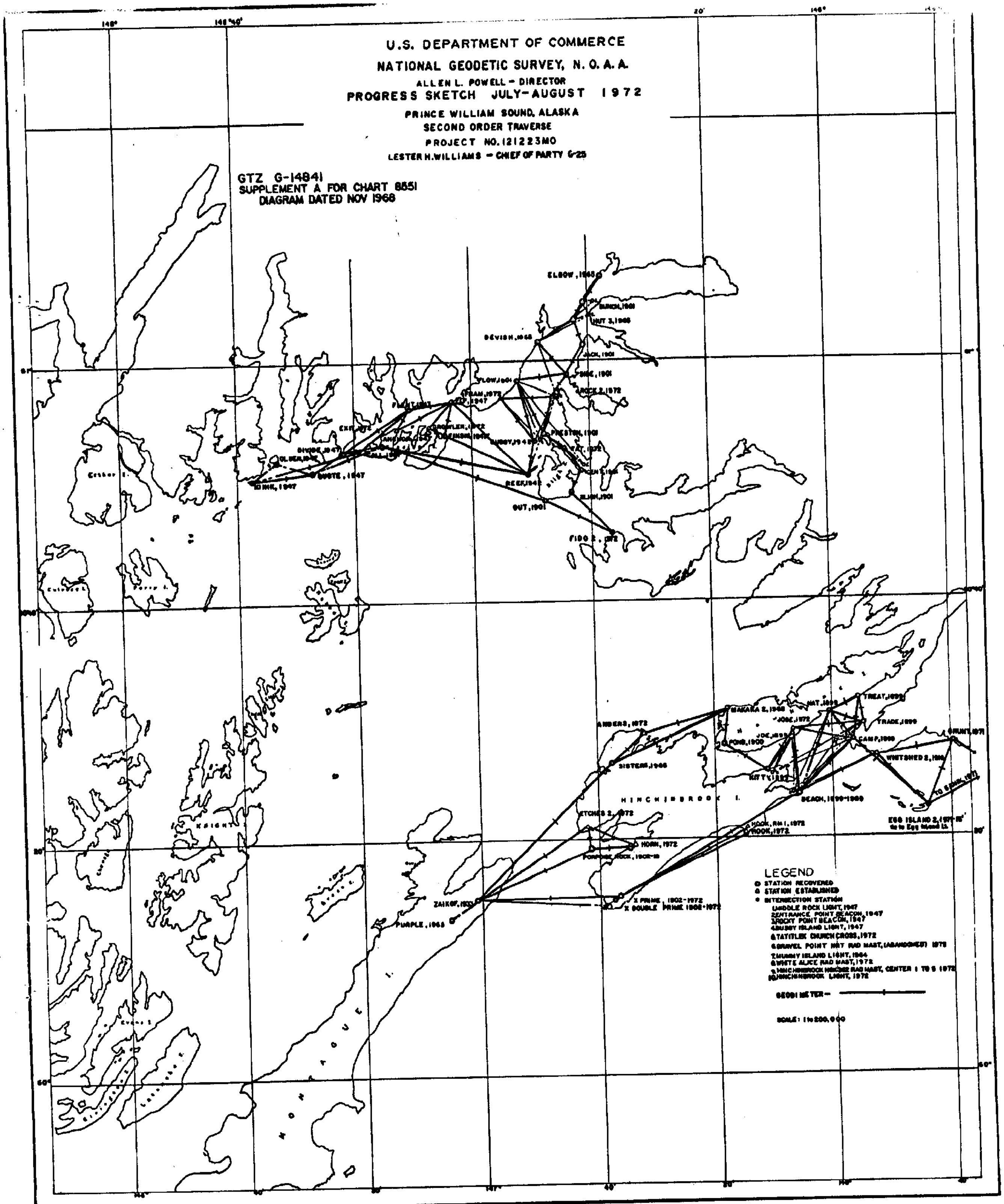
Russell C. Arnold
Russell C. Arnold
LCDR, NOAA

Approved and Forwarded by:

Christian Andreasen
Christian Andreasen
CDR, NOAA
Commanding Officer



TRIANGULATION SKETCH - THIRD ORDER
OPR-999-DA-76 BLIGH ISLAND
NOAA Ship DAVIDSON
CDR C. ANDREASEN - Chief of Party
JULY - 1976
BLIGH I.
146°40'
BLIGH, 1901
4
Bidarka Pt.
GO, 1914
TEMPORARY Pt. 1
N
FIDO, 1901
FIDO 2, 1972
2
1
2
3
MILES
PINE 2, 1976
6
Porcupine Pt.
Goose I.


U.S. DEPARTMENT OF COMMERCE
NATIONAL GEODETIC SURVEY, N. O. A. A.
ALLEN L. POWELL - DIRECTOR
PROGRESS SKETCH JULY-AUGUST 1972
PRINCE WILLIAM SOUND, ALASKA
SECOND ORDER TRAVERSE
PROJECT NO. 121223MO
LESTER H. WILLIAMS - CHIEF OF PARTY G-25
GTZ G-14841
SUPPLEMENT A FOR CHART 8551
DIAGRAM DATED NOV 1968
ELBOW, 1968
DEVISH, 1968
JACK, 1901
FLOW, 1901
PRESTON, 1901
REEF, 1947
CUT, 1901
DINK, 1947
BOOTE, 1947
HINCHINBROOK I.
ANDERS, 1972
SISTERS, 1968
POND, 1900
KITTY
TREAT, 1899
TRADE, 1899
CAMP, 1899
WHITSHED 2, 1899
BEACH
EGG ISLAND 2
ETCHES 2, 1972
HORN, 1972
HOOK, RM 1, 1972
HOOK, 1972
ZAIKOF
PURPLE, 1968
X PRIME, 1902-1972
X DOUBLE PRIME 1902-1972
LEGEND
STATION RECOVERED
STATION ESTABLISHED
INTERSECTION STATION
1. MIDDLE ROCK LIGHT, 1947
2. ENTRANCE POINT BEACON, 1947
3. ROCKY POINT BEACON, 1947
4. BUSBY ISLAND LIGHT, 1947
5. TATITLEK CHURCH CROSS, 1972
7. MUMMY ISLAND LIGHT, 1964
8. WHITE ALICE RAD MAST, 1972
10. HINCHINBROOK LIGHT, 1972
GEODIMETER
SCALE: 1 to 200,000

9270

ELECTRONIC CONTROL NOTE

NOAA Ship DAVIDSON

OPR-999-DA-76

Bligh Island
Prince William Sound

INTRODUCTION

Horizontal control of survey DA 10-1-76 was by Motorola MINIRANGER. The project area was heavily wooded and provided no reflective surfaces. As a result no multipath returns were encountered and MINIRANGER data was very clean. Maximum ranges were under eight miles. 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 OPORDER instructions. Two MINIRANGER calibrations were performed - one prior to beginning this project and one following its completion. The pre-survey and post-survey calibrations were both 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/RT units used is two meters. Field calibration checks agreed within six meters of the mean baseline calibration correctors. These values fall within the limits specified per PMC OPORDER for a 1:10,000 scale survey.

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 six meters of the mean DCC's.

Console/RT unit 707/721 with codes 1, 3, and 4, and Console/RT unit 710/719 with codes 1 and 4 were used for this survey. Shown below is the summary of baseline calibrations and daily field calibrations.

BASELINE CALIBRATION CORRECTORS

Console/RT unit S/N	Xpndr code	Corrector 19 July 76	Corrector 2 Aug. 76	Mean Corrector
3131 710/719	1	-2	-2	-2
	3	-2	0	-1
	4	0	-1	0
3132 707/721	1	+1	0	0
	3	0	0	0
	4	-1	0	0

DAILY CALIBRATION CORRECTOR ABSTRACT

Console/RT unit 710/719

Calib. No.	1	2	3	4	5	mean
Code						
1	-1	-1	-3	+1	-6	-2
4	-2	-5	+4	+2	0	0

Console/RT unit 707/721

Calib. No.	1	2	3	4	5	6	7	8	9
Code									
1	+2	+6	+4	+2	+5	+1	+1	+3	+3
3	+3	-4							
4	-6	+2	-1	-1	+2	0	+3	+3	+3

Calib. No.	10	11	12	13	14	15	16	mean
Code								
1	+3	+1	+3	-3	-4	-2	+1	+2
3								0
4	-3	+2	+2	-1	0			0

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-10-1-76 (H-9636)
SIGNAL TAPE PRINTOUT

these are not 1901 values

001	2	60	49	07109	146	37	59267	250	0000	000000	TEMP PT.
002	7	60	45	41373	146	36	14981	250	0000	000000	FIDO, 1901 3rd order
003	5	60	48	22724	146	47	47118	250	0000	000000	OUT, 1901 ✓ OK
004	5	60	49	21035	146	42	43544	139	0000	000000	BLIGH, 1901 ✓ ok
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 ✓ OK
008	5	60	45	40132	146	36	07619	139	0000	000000	FIDO 2, 1972 ✓ OK
009	5	60	42	48770	146	43	31201	139	0000	000000	GOOSE IS. LT.
010	5	60	52	21786	147	05	23874	139	0000	000000	GLACIER IS. LT.
011	5	60	53	45280	146	48	53760	139	0000	000000	BUSKY IS. LT.
012	5	60	43	48497	146	44	00440	252	0000	000000	TEMP 2
013	5	60	52	23391	147	12	52411	250	0000	000000	NERO, 1951
014	5	60	51	55899	147	11	21920	250	0000	000000	QUIZ, 1951
015	5	60	44	35318	147	24	06085	139	0000	000000	STOREY, 1947

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): Bligh Island

Period: July 22 - 28, 1976

HYDROGRAPHIC SHEET: H-9636

OPR: 999

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

Plane of reference (mean lower low water): 11.4 ft.

Height of Mean High Water above Plane of Reference is 10.9 ft.

Remarks: Zone direct.

James R Hubbard
for Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No.
H-9636

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	
BLIGH ISLAND	X									1
PORT FIDALGO	X									2
PRINCE WILLIAM SOUND	X									3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26

APPROVED

C. E. Harrington

STAFF GEOGRAPHER -C51x2

28 April 1977

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-9636

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)	15

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES			1-smooth			
CAHIERS	1-with tides, printouts		1			
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				2012
POSITIONS CHECKED		2012		
POSITIONS REVISED		57		
DEPTH SOUNDINGS REVISED		289		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		5		
Verification of Positions		10		
Verification of Soundings		124		
Smooth Sheet Compilation		18		
ALL OTHER WORK	8	4		
TOTALS	8	169		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY James S. Green	9/25/76	9/25/76
VERIFICATION BY Gordon E. Kay Stanley Otsubo — Gordon E. Kay/Stanley Otsubo	10/29/76	2/17/77
~~REVIEW BY~~ QUALITY CONTROL BY Kenneth W. Wellman 45 hrs. / Engle 10 hrs	4-1-77	4-28-77 / 6-7-77

Baumgardner 4hrs 6-23-77

U.S. G.P.O. 1972-769-562/439 REG.#6

REGISTRY NO. ________

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 REQUIRED______________ INITIALS________

REMARKS:

REGISTRY NO. H-9636

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 REQUIRED______________ INITIALS________

REMARKS:

H-9636

Information for Future Presurvey Reviews

Attention is directed to Verifier's and H.I.T. recommendations regarding development of the shoreline, foreshore, and least depths as well as additional development to permit an adequate junction with H-8901 (1966) on the northeast. During planning for future work in the area, the above recommendations should be considered for inclusion in the project instructions.

Position Index		Bottom Change Index	Use Index	Resurvey Cycle
Lat.	Long.			
604	1470	1	1	50 years
604	1465	1	1	50 years

VERIFIER'S REPORT

DA-1Ø-1-76 H-9636

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

Survey H-9636 was accomplished in accordance with the Basic Guidelines for Navigable Area Surveys dated February 24, 1976 and the Provisional Hydrographic Manual. This survey is intended to satisfy the U. S. Coast Guard's request for hydrographic surveys in proposed anchorage areas. The survey is located south of Bligh Island, with its western boundary in Prince William Sound and its south and eastern extremeties in Port Fidalgo.

NOAA Ship DAVIDSON, CSS-31, conducted this survey between 2Ø July 1976 thru 27 July 1976. Motorola MINI-RANGER III positioning system was used for control.

Projection parameters used to prepare the boatsheet have been revised to center the hydrography on the smooth sheet. These parameters and all correctors to reduce soundings used by PMC are appended in the smooth printout.

Field tide reductions of soundings are based on Cordova, AK., predicted tides corrected for No. 1675 Snug Corner Cove, Port Fidalgo, AK.

Smooth sheet soundings are reduced from a bubbler tide gage installed by NOAA Ship MCARTHUR personnel at Bligh Island. The tide data was approved by Tide Division, Rockville, MD.

This survey is an adequate navigable area survey.

II. CONTROL AND SHORELINE

This navigable area survey is bound by the north by Bligh Island, but shoreline manuscripts were not furnished and field edit was not accomplished, as per project instructions. Reference paragraph H of the Ship's Descriptive Report. The three-point sextant fixes acquired to delineate the high water line are not shown on the smooth sheet because these discrete fixes do not provide a sufficiently accurate continuous shorelines. These fixes do indicate that present charted shoreline is in error. The recommendation that the shoreline be photogrammetrically relocated, paragraph Q of the Descriptive Report, is endorsed. (See Q.C. Report-item 1)

The ship's horizontal control note did not contain adequate documentation to support the control used in this survey. The data appears to be accurate, and there was no problem in the verification of the survey. Much time and effort was used in assembling and re-constructing what had been accomplished.

In lieu of a horizontal control report, the present horizontal control note is not adequate to fulfill "Data Requirements for 1976 Field Season", dated 12 February 1976.

III. HYDROGRAPHY (See Q.C. Report-item 4)

The hydrography embodied from the 20-fathom curve out is comprehensive enough to delineate the bottom configuration and to determine least depths. Inside the 20-fathom curve, several shoal areas were not adequately investigated and determination of least depths are questionable.

There were no major problems in the verification of the main scheme soundings with crosslines in good agreement. There are 53 bottom samples on this survey.

IV. CONDITION OF SURVEY AND COMPLIANCE WITH PROJECT INSTRUCTIONS (See Q.C. Report-item 8)

Marginal notes on raw data printouts and fathograms are excellent and were helpful in the verification of this survey. The accompanying hydrographic records, overlays, smooth sheet and reports conform to the Provisional Hydrographic Manual. A junction to H-8901 (1966), as required by Project Instructions, Change No. 2, dated 25 June 1976, was not satisfied, with H-9636 falling 1/3 mile short of H-8901. There were no pre-survey review items on this survey.

V. JUNCTIONS

This survey junctions in the NNW corner with H-9382 (1973), 1:40,000 and H-9384 (1973), 1:10,000 and is in good agreement with both, with junction notes inked accordingly. This survey is tied partially to H-8901 (1966), 1:10,000 in a development area but falls short of the main scheme by 1/3 mile. No tie was made to H-9425 (1974) 1:40,000 due to time factor as per Project Instructions. (See Q.C. Report-item 5)

VI. COMPARISON WITH PRIOR SURVEYS (See Q.C. Report-item 6)

This survey was compared to H-2658 (1903) 1:20,000. Comparison soundings are in good agreement. Reference paragraph K of Ship's Descriptive Report. The 6.7 fathom sounding on the prior had been searched for and ~~11~~ 10.4 fathoms found on H-9636. Approximately ~~840~~ 320 meters N-NE, two shoal areas were located and have soundings of 4.7 and 5.6 fathoms.

Differences up to 8 fathoms that result in the comparison of the two surveys can be accounted for by new techniques in positioning data.

H-9636, smooth sheet data is adequate to supersede H-2658 prior survey over its common area.

VII. COMPARISON WITH CHART

A. Hydrography

Comparison was made with Chart 16708 (C&GS 8519), 1:79,291, 13th Edition, April 1975. with Soundings were in good agreement. Charted soundings originate ~~from H-9382 and~~ H-2658 with about 10 soundings in the western limits of H-9636 from an unknown source. (Source is H-2628 (1902), not considered during verification. See Q.C. Report - item 6)

Numerous rocks are located along the charted shoreline with no supportive investigation of these hazards supplied by the ship. These rocks should be carried forward from their source until photogrammetry and shoreline manuscripts can be obtained. (See Q.C. Report - item 1)

This survey is adequate to supersede the present charted soundings over its common areas.

B. (See Q.C. Report - item 7)

VIII. ADDITIONAL FIELD WORK

This survey is an adequate navigable area survey. Additional field work is recommended in the north northeast area to obtain continuous contemporary survey coverage. It is also recommended that shoreline area to the high water line should be photogrammetrically recompiled, as per paragraph II of Verifier's Report.

IX. NOTES TO COMPILER

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

The tide corrector printout is in fathogram and raw printout 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
March 14, 1977

Examined and approved,

James S. Green
Chief, Verification Branch

APPROVAL SHEET

FOR

SURVEY H- 9636

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: 3/4/77

Signed: [signature]

Title: Chief, Verification Branch

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY, Pacific Marine Center
18Ø1 Fairview Ave. E., Seattle, WA 981Ø2

Date: 11 March 1977

To: Eugene A. Taylor, RADM
Director, Pacific Marine Center

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

Subject: PMC Hydrographic Survey Inspection Team Report, H-9636

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

This survey, with the exception of a few least depths, adequately delineates the bottom configuration in the area of depths greater than 1Ø fathoms. Main scheme hydrography inshore of the 1Ø fathom curve indicates a highly irregular bottom configuration with numerous shoal soundings and peaks. Adequate delineation of this inshore area requires additional development over virtually the entire area.

The area of depths greater than 1Ø fathoms includes the following soundings indicating the potential for undetermined least depths:

11.1 fathoms at 6Ø°48.95'N, 146°41.12'W
11.4 fathoms at 6Ø°47.89'N, 146°44.9Ø'W
6.4 fathoms at 6Ø°47.9Ø'N, 146°46.2Ø'W
11.5 fathoms at 6Ø°47.74'N, 146°48.28'W

No questionable least depths exist outside the 2Ø fathom curve.

DAVIDSON's effort to delineate the shoreline was not intended nor is it considered to be adequate for charting purposes. This effort does, however, indicate the need for future photogrammetric delineation of the shoreline in the area.

Project Instructions specifically required effecting a junction with survey H-89Ø1. The fact that this junction was not effected is a deficiency in the survey requiring additional field work to rectify.

The inspection team finds H-9636 to be a fair navigable area survey, adequate to supersede common areas of prior surveys and charted hydrography. Additional field work is required to complete the junction with H-89Ø1 and to determine least depths. It is recommended that the chart of the area incorporate a caveat to the effect that all least depths inside the 2Ø fathom curve may not be depicted. Administrative approval is recommended.

Donald E. Nortrup

Donald E. Nortrup, LCDR

Dean R. Seidel

Dean R. Seidel, LCDR

John C. Albright

John C. Albright, LCDR

Arnold E. Eichelberger

Arnold E. Eichelberger

ADMINISTRATIVE APPROVAL
H-9636

The smooth sheet and reports of this survey have been examined and the survey found to be adequate to supersede common areas of prior surveys and charted hydrography. Additional field work is required to complete the junction with H-8901 and to determine least depths. The chart of the area should include a caveat to the effect that all least depths inside the 20-fathom curve may not be depicted.

E. A. Taylor

Eugene A. Taylor, RADM
Director
Pacific Marine Center

3/15/76
Date

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

C352

April 28, 1977

a j Patrick

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

THRU: Chief, Quality Control Branch

FROM: K. W. Wellman K.W. Wellman
Quality Evaluator

SUBJECT: Quality Control Report for H-9636 (1976), Alaska, Prince William Sound, Entrance to Port Fidalgo

A quality control inspection of H-9636 has been accomplished to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, junctions, decisions and actions by the verifier, and cartographic presentation of data.

In general, the present survey was found to conform to National Ocean Survey standards and requirements except as follows:

1. The penciled shoreline, rocks, and foul limits (added to the smooth sheet during quality control inspection) originate with incomplete photogrammetric manuscripts T-13000 and T-13001 of 1965. These T-sheets do not satisfy the "Class 1" status required in section 7.3.4 of the provisional manual; however, they comprise the best, currently available, source of topographic information and, as such, were utilized to provide topographic information for orientation purposes only.

2. A determination of the status of reference station OUT, 1901, was considered necessary due to the 3-meter displacement (attributed to the 1964 earthquake in the area) discussed in the Horizontal Control Note included in the Descriptive Report. The notes identifying stations OUT and BLIGH were incorrectly indicated on the smooth sheet. Information obtained from the National Geodetic Survey Information Center confirmed that triangulation stations OUT and BLIGH were established in 1901, recovered respectively in 1973 and 1965, and readjusted in 1972. Identifying notes on the smooth sheet and in Box 42a (smooth sheet) were revised as necessary during quality control inspection.

3. The smooth sheet position of the tide station is not in agreement with the position provided in the Field Tide Note, falling approximately 0.1

minute of latitude north of the given field position. The field position, falling in depths of 6 to 7 fathoms, and the smooth sheet position, falling approximately 80 meters offshore, are both considered questionable; however, in the absence of a more precise position or description, the smooth sheet position of the tide station was not revised.

4. Section III of the Verifier's Report (Hydrography) is lacking any reference to the adequacy of the depth curves and, therefore, does not conform to the requirements of section 6.6(8) of the provisional manual.

Section III of the Verifier's Report is supplemented by the following:

The usual depth curves in depths of 10 fathoms and greater are adequately delineated. Concomitant with the navigable area nature of the present survey, the usual depth curves in depths less than 10 fathoms are not completely delineated on the present survey.

5. The present survey junctions in the northwest corner with H-9382 (1973) and H-9384 (1973). Junctional soundings in the common area are in adequate agreement with present survey depths; however, the depth curves in the common area were not in coincidence inasmuch as the junctional smooth sheets were not available to the verifier. During quality control inspection, the affected depth curves within the common area were brought into coincidence and the junctional notes were added as necessary.

No contemporary surveys junction with the present survey on the south and east; however, present depths are in general harmony with charted depths in those areas.

6. Prior survey H-2628 (1902) was not considered during field work or verification, thus necessitating a comparison during quality control examination.

Section VI of the Verifier's Report is supplemented by the following:

H-2628 (1902) 1:20,000

A comparison between the present and prior survey reveals good general agreement of depths with scattered depth differences of as much as ± 4 fathoms, and random shoreline variations within a range of approximately 180 meters. The noted depth and shoreline differences are attributed to the less accurate methods employed on the prior surveys.

Several rocks awash in the vicinity of latitude 60°48.60', longitude 146°43.90' on H-2628 fall in present depths of 1 to 2 fathoms and in an area of shoreline variance of approximately 140 meters between the present and prior survey. Due to the noted variations, the rocks are not considered to fall in the indicated position and are likely a foreshore feature, falling in proximity to the present shoreline. The "navigable area" nature of the present survey obviates the need for any further consideration of these foreshore rocks.

The larger scale and more completely developed present survey is adequate to supersede the prior survey within the common area.

7. Section VII of the Verifier's Report is supplemented by the following:

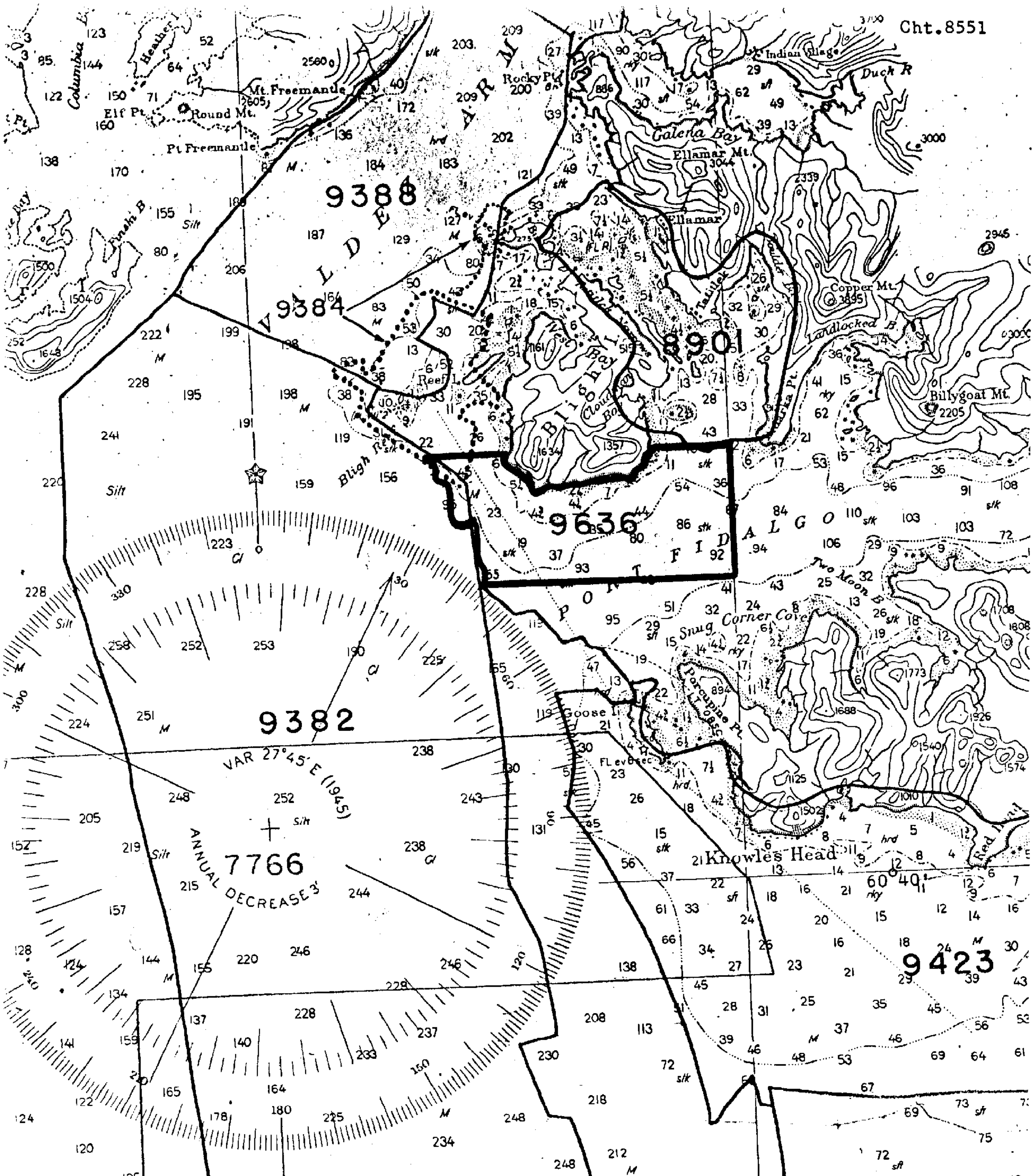
B. Aids to Navigation

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

8. Comments in the Verifier's Report pertaining to "Compliance with Instructions" should be discussed in a separate section of the Verifier's Report rather than included in the section that should be entitled "Condition of Survey " (see provisional manual--section 6.6(13) and the memorandum from the Office of Marine Surveys and Maps dated March 21, 1977, which discusses the "Verifier's Report Format").

9. Soundings are recorded and corrected to the nearest .1 fathom except for the velocity correctors which are to the nearest .2 fathom. More accurate soundings would have resulted if the velocity correctors had been determined to the nearest .1 fathom (see section 4.9.2 of the provisional manual).

cc:
C351


Cht.8551
9388
9384
8901
9636
9382
7766
9423
9425
9382
VALDEZ ARM
PORT FIDALGO
Columbia B
Heather I
Mt. Freemantle
Round Mt.
Elf Pt.
Pt Freemantle
Finski B
Rocky Pt
Galena Bay
Ellamar Mt.
Ellamar
Indian Village
Duck R
Copper Mt.
Landlocked B.
Billygoat Mt.
Bligh Island
Reef I.
Bligh R.
Cloudman Bay
Two Moon B.
Snug Corner Cove
Porcupine Pt.
Goose I.
Knowles Head
Red Head
VAR 27°45'E (1945)
ANNUAL DECREASE 3'
147° 00'
146°40'
60°40'

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

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9636

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 (16708)	9/22/77	H.J. Brawski	Full ~~Part Before~~ After Verification Review Inspection Signed Via Drawing No. Q/C Survey, Fully appl'd all hydro data
16700	/77	Mark Friese	Full ~~Part Before~~ After Verification Review Inspection Signed Via Drawing No. 21 Fully app'd thru 16708 #16
16013	8-30-83	L.A. Simmons	Full ~~Part Before~~ After Verification Review Inspection Signed Via Drawing No. 27. Exam thru 16700 #21. No Corr. Area cleared of sndgs.
500	9-13-83	L.A. Simmons	Full ~~Part Before~~ After Verification Review Inspection Signed Via Drawing No. 5 Revised depth curves thru Hydro
50	9-13-83	L.A. Simmons	Full ~~Part Before~~ After Verification Review Inspection Signed Via Drawing No. 2 Exam thru 500 #5. No Correction
			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.