

9822

Diag. Cht. 8502-2 & 8556-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic.....
Field No. SU-100-1-79.....
Office No..... H-9822.....

LOCALITY

State Alaska.....
General Locality Gulf of Alaska.....
Locality Southeast of Kodiak Island.....

1979

CHIEF OF PARTY

J.G. Grunwell & B.I. Williams.....

LIBRARY & ARCHIVES

DATE Nov. 5, 1980.....

9822

531 ✓
530 ✓
50 ✓

HYDROGRAPHIC TITLE SHEET

H-9822

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.

SU-100-1-79

State ALASKA See other title page

General locality GULF OF ALASKA

Locality SOUTHEAST OF KODIAK ISLAND

Scale 1:100,000 Date of survey May 5 - 10, 1979

Instructions dated April 2, 1979 Project No. OPR-P133-SU-79

Vessel NOAA Ship SURVEYOR (S132)

Chief of party CAPT JAMES G. GRUNWELL

Surveyed by Ship's Complement

Soundings taken by echo sounder, ~~and lead, pole~~ Raytheon Universal Graphic Recorder 196C-10

Graphic record scaled by Survey Technicians

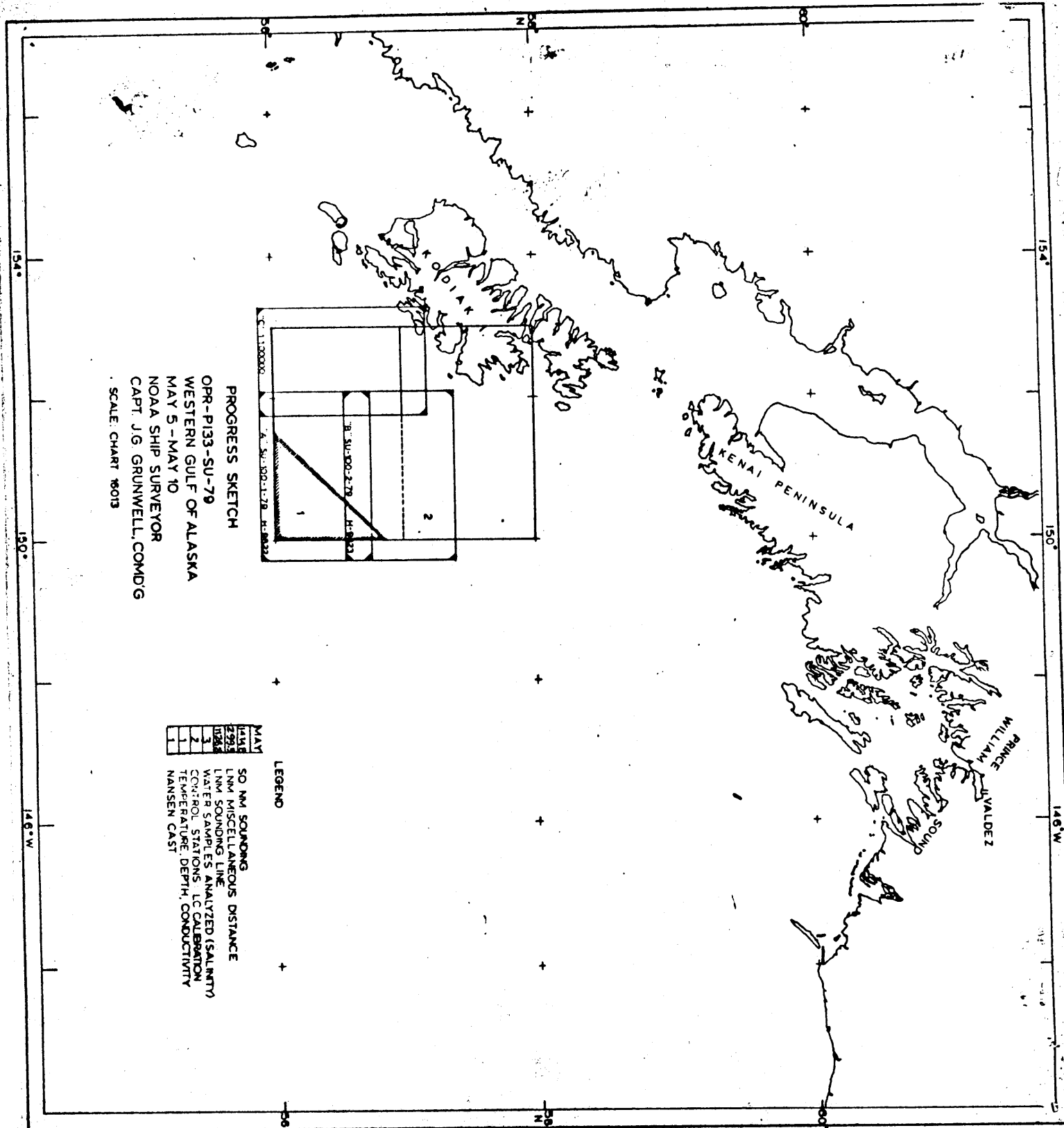
Graphic record checked by Ship's Officers and Survey Technicians

Positions verified John E. Lotshaw Automated plot by PMC Xynetics Plotter

Sounding Verification by John E. Lotshaw

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

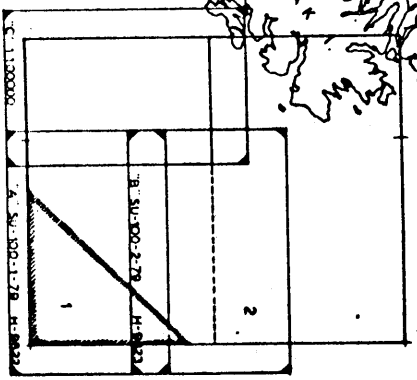
REMARKS: Para graph R, Item 6
The velocity corrections applied in the sounding sheet submitted
with this survey are obtained from the final table generated by
program RK 530. Corrections corresponding to the standard
correction intervals should be applied instead of the corrections
generated by program RK 530. The final correction tape is sub-
mitted with this project.



PROGRESS SKETCH
 OPR-P133-SU-79
 WESTERN GULF OF ALASKA
 MAY 5 - MAY 10
 NOAA SHIP SURVEYOR
 CAPT. J.G. GRUNWELL, COMD'G
 SCALE: CHART 18013

LEGEND
 SO NM SOUNDING
 LNM MISCELLANEOUS DISTANCE
 LNM SOUNDING LINE
 WATER SAMPLES ANALYZED (SALINITY)
 CONTROL STATIONS, LC CALIBRATION
 TEMPERATURE, DEPTH, CONDUCTIVITY
 NANSEN CAST

MAY
1416
2393
1034
3
2
1



A. PROJECT:

Project Instructions OPR-P133-SU-79, Western Gulf of Alaska, dated ² April 1979. The survey was executed on 5 May to 10 May 1979. ✓

B. AREA SURVEYED:

This bathymetric survey covers an area southeast of Kodiak Island, Alaska, bounded by Lat. $56^{\circ}00'N$, Long. $150^{\circ}00'W$; Lat. $56^{\circ}00'N$, Long. $151^{\circ}32.5'W$; Lat. $56^{\circ}42'N$, Long. $150^{\circ}18'W$; and Lat. $56^{\circ}42'N$, Long. $149^{\circ}59'W$. Sounding lines were run in northeasterly and southwesterly directions with spacings of 2800 meters to 3000 meters.

See Verifiers Report Para # 1

C. SOUNDING VESSEL:

NOAA Ship SURVEYOR S₁₃₂, EDP 1320. ✓

D. SOUNDING EQUIPMENT AND CORRECTIONS TO SOUNDINGS:

A 12 KHz sounding system consisting of a Raytheon Universal Graphic Recorder, model 196 C - 10, serial number 135, with a NBES, narrow beam transducer; and the same graphic recorder with a PTR 105 B wide beam transducer. The system with the narrow beam transducer was used all of the time except when it became unoperational from 0629 hours GMT, 8 May to 1532 hours 8 May. The system with the wide beam transducer was used during this interim period while the other system was being repaired. It can be concluded that no instrument error was introduced after switching transducers. ✓

Bottom depths by both recorders showed good agreement,
both before and after changing transducers. ✓

The following corrections to the echo soundings were
determined and applied:

1. Velocity of sound through water.

A Conductivity, Temperature, Depth cast from
0 to 1500 meters was done on 5 May 1979,
at Lat. $56^{\circ}04.8'N$, Long. $150^{\circ}14.1'W$, using
a calibrated Plessey CTD sensor, number 6211. ✓
For depths greater than 1500 meters, a nansen
cast with bottles at 2000 meters, 2500 meters,
3000 meters, and 4000 meters was made. Unfortunately,
there were not enough unprotected thermometers of
the required ranges to cover all of the depths. The
bottle at 2500 meters was the only one that had the
correct range.

Velocity corrections were extrapolated from
2500 meters to the deepest depth of the survey. ✓
Program RK 530, 17 May 1979, (curve fit option),
was used to compute the velocity correction.

2. A draft correction of 2.7 fathoms was applied ✓
to the soundings. No variation corrections in
the instrument initial were applied.

3. No other instrument corrections were applied. ✓

E. HYDROGRAPHIC SHEETS:

A mylar sheet at a scale of 1:100,000 with 45° skew modified mercator projection was prepared aboard ship. A Houston Complot, serial number 5637-22 was used in constructing the projection. This preliminary boat sheet was used as a position sheet during the running of the sounding lines. Proposed sounding lines at spacings of 2800 to 3000 meters were drawn on the sheet and geographic positions of waypoints along these sounding lines were precomputed and plotted on the sheet to steer the ship along the sounding lines. The ship was kept on line by the aid of a left-right indicator on the CC-2 Internav computer, serial number 20304. Geographic positions of the ship, provided by the CC-2 Internav computer were typed on a teletypewriter and plotted on the boat sheet by the Houston Complotter, using program number RK 201, Grid Signal and Lattice Plot, Version 18 April 1975. The CC-2 Internav Loran C computer uses WGS 72 datum for conversion of Loran C rates to geographic positions. Final boat sheets, consisting of position and sounding plots, on a polyconic projection, were prepared at Pacific Marine Center, using a flat bed plotter.

F. CONTROL STATIONS:

No triangulation, topographic or hydrographic stations were recovered and used to control this survey. Control for this survey was provided by Loran C station pairs 7960X and 7960Y, and 9990X and 9990Y.

G. HYDROGRAPHIC POSITION CONTROL:

Position control for this survey was provided by Loran C. Two pairs of Loran rates were recorded for each position, as well as geographic positions for each good (SM1 designation) satellite fix obtained during the survey. The best pair of Loran rates was fed automatically into an Internav CC-2 coordinate converter which produced the geographic positions by which the sounding lines were controlled. Positions by the JMR-1 satellite navigation equipment and by the Internav converter are based on a common datum. This survey was conducted on a time-available basis, so more specific discussion of control will be set forth below under the dates during which it was used.

Survey Period of 5 May to 11 May 1979

1. The JMR-1 satellite navigation equipment was malfunctioning during this period. Towards the end of this period, some "good" SM1 fixes were obtained, but they produced no consistent relationship to the corresponding Loran positions. All satellite position data obtained during this period is considered suspect and should be rejected.
2. Loran C rates 7960X and 7960Y were chosen to control this portion of the survey. This pair had previously (in April) been determined to produce the most reliable signals in the survey area, and provided consistent ground waves. This pair also intersects at acceptable angles in the area covered during this period.

3. Loran C rates 9990X and 9990Y were recorded for each position, but not used for control. The 9990X rate tended to skip to skywaves at night.
4. Three land ties were taken during this period -- one before and two after the survey. The ties were taken to features represented on Chart 16593 between Ugak Island and Cape Chiniak. For each tie, radar ranges, visual bearings, sextant angles, and Loran rates for the 7960 and 9990 pairs were recorded. Positions obtained by composite of radar ranges and bearings obtained by alidade were favored over those taken by sextant angles; imprecise features (tangents) and shadows cast by setting sun in each case made sextant sightings difficult.
5. The three land ties were compared with corresponding positions obtained from Loran C rates 7960X and 7960Y through the CC-2 converter. The average of the three ties places the Loran C geographic position used to control the survey 0.4 nautical mile bearing 175 degrees true from the GP obtained from land features. This compares very well with a tie taken on 11 April which placed the Loran position 0.4 mile south of the position obtained from land, and also with SATNAV positions obtained in the survey area during April which placed the Loran 0.43 mile bearing 169 degrees true from the SATNAV. Information on the April

See Attached
014/2PM 3x1 Letter
dtd 7-29-80



comparisons is contained in a report to Pacific Marine Center dated 12 April 1979 entitled RP-P133-SU-79; Loran C Control Appraisal.

6. The conclusion from the field, based on evaluation of our observations, is that the system of positions obtained during this survey period should be adjusted 0.4 nautical mile in the direction 355 degrees.
7. Equipment used for control during the period of 5 May to 11 May was as follows:
 - a. Internav Model LC-204 Loran Receiver,
Serial 0258A for the 7960 rates
Serial 0624B for the 9990 rates
Serial 0255A for the 9990 rates.
 - b. Internav Navigation Computer Model CC-2
Serial 20304.
 - c. JMR Doppler Survey Sets, Model JMR-1,
serials 75 210 and 75 336. JMR system
inoperative during survey period

H. SHORELINE:

None.

I. CROSSLINE:

About eight percent of the lines were run intersecting the main sounding lines at an angle of 45 degrees and 90 degrees. Soundings were in good agreement at crossings.

J. JUNCTIONS:

This sheet joins SU-100-2-79 (H-9823). There are no junction requirements for this survey.

*See Verifiers
Report, Para #1*

K. COMPARISON WITH PRIOR SURVEY:

Survey sheet H-5177 is outside the limits of the area surveyed. H-5444 was not compared as it was not provided. ✓

This sheet does not cover the area of this survey also.

L. COMPARISON WITH CHART:

Chart 16013, 21st Edition, April 8, 1978 and

Chart 16580, 7th Edition, March 11, 1978.

Recorded soundings have been checked against the charted

depths and were found to be in good agreement. Most

depths were within one percent (30 fathoms). A major ✓

exception was the charted depth of 2480 fathoms at

Lat. $56^{\circ}40.5'N$, Long. $150^{\circ}09.0'W$, which differed from

the recorded depth by 200 fathoms. This survey tends to

prove that the charted depth is mischarted in position. *concur JPS*

M. ADEQUACY OF SURVEY:

This sheet covers only about 40% of the survey area. It is considered adequate for bathymetric and basic hydro purposes for the area covered in this sheet.

*See attached DR
for additional
work OCT 30 - Nov 15*

N. AIDS TO NAVIGATION:

None.

O. STATISTICS:

Number of positions.....1024
Miles of sounding line.....1043.5 NM
Area of survey.....1354.6 SqNM
CTD casts for velocity corrections.....1
Nansen casts for velocity corrections.....1

P. MISCELLANEOUS:

1. No Presurvey Review items for this survey
2. Bottom samples are not required for this sheet.
Water is deeper than 1000 fathoms.

Q. AUTOMATED DATA PROCESSING:

Positions and soundings were logged using a DISCON Corp. thumbwheel Hydrographic Logger, Mark 3 - 1. Punched tapes were cut using an ASR-33 teletypewriter. Final data tapes are in trackline master format, program number RK 330. Raw punched tape was in non-parity and converted to parity format using ELINORE (AM-602), program version 20 May 1975.

R. RECOMMENDATIONS:

1. Adjust system of positions obtained in this survey by 0.4 nautical mile in the direction 355 degrees T true on the smooth sheet. ✓
2. Devise an automatic event marker on the UGR fathometer at selected regular time intervals for scanning and checking the fathogram. ✓
3. Devise a digital read-out for depths. Scaling of soundings on the UGR fathogram during the process of the hydrography is cumbersome. ✓
4. Program for real time plotting of position and sounding from either Loran rates or geographic position (latitude, longitude). ✓
5. Provide ship with reversing thermometers with the correct range for computations of velocity corrections. The ship should not spend for these instruments as this is specialized equipment which is used very seldom. PMC does not carry this item. ✓
6. The velocity corrector tape (used to produce the plot) generated by RK 530 does not appear to be sufficient to meet the final requirements specified by the Hydrographic Manual. A second velocity corrector tape employing the output of RK 530 and manual plotting is provided to meet this requirement. ✓

VELOCITY CORRECTOR LISTING

SU-100-1-79 (H-9822)

Ship: SURVEYOR EDP 1320
Table Number: 1
Scale: FATHOMS

*

L1.30

001	000763	0	0000	0001	001	132000	009822
002	001310	0	0005				
003	003010	0	0010				
004	004480	0	0020				
005	005570	0	0030				
006	006460	0	0040				
007	007250	0	0050				
008	008000	0	0060				
009	008750	0	0070				
010	009400	0	0080				
011	009970	0	0090				
012	010500	0	0100				
013	011030	0	0110				
014	011520	0	0120				
015	012040	0	0130				
016	012250	0	0140				
017	012890	0	0150				
018	013300	0	0160				
019	013700	0	0170				
020	014080	0	0180				
021	014460	0	0190				
022	014800	0	0200				
023	015150	0	0210				
024	015470	0	0220				
025	015830	0	0230				
026	016170	0	0240				
027	016470	0	0250				
028	016790	0	0260				
029	017110	0	0270				
030	017420	0	0280				

*

VELOCITY CORRECTOR LISTING, CONTINUED
SU-100-1-79 (H-9822)

L31, 60

031	017720	3	0290
032	018030	0	0300
033	018340	0	0310
034	018630	0	0320
035	018930	0	0330
036	019230	0	0340
037	019540	0	0350
038	019880	0	0360
039	020140	0	0370
040	020390	0	0380
041	020670	0	0390
042	020920	0	0400
043	021170	0	0410
044	021420	3	0420
045	021650	0	0430
046	021880	0	0440
047	022100	0	0450
048	022340	0	0460
049	022570	0	0470
050	022790	0	0480
051	022980	0	0490
052	023190	0	0500
053	023400	0	0510
054	023600	0	0520
055	023810	0	0530
056	024050	0	0540
057	022240	0	0550
058	024450	0	0560
059	024680	0	0570
060	024880	0	0580

*

VELOCITY CORRECTOR LISTING, CONTINUED
SU-100-1-79 (H-9822)

L61, 37

061	025080	0	0590
062	025280	0	0600
063	025480	0	0610
064	025680	0	0620
065	025880	0	0630
066	026100	0	0640
067	026290	0	0650
068	026480	0	0660
069	026680	0	0670
070	026870	0	0680
071	027060	0	0690
072	027250	0	0700
073	027440	0	0710
074	027610	0	0720
075	027800	0	0730
076	027980	0	0740
077	028140	0	0750
078	028320	0	0760
079	028500	0	0770
080	028680	0	0780
081	028870	0	0790
082	029030	0	0800
083	029190	0	0810
084	029370	0	0820
085	029550	0	0830
086	029720	0	0840
087	029880	0	0850

*

VELOCITY CORRECTION TABLE OPTIONS:

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

2

DRAFT = 02.7

DRAFT = 02.7

ACTUAL DEPTH (SURFACE) MINUS VELOCITY CORRECTION (FM)	VELOCITY CORRECTION (FM)
0005.45	0000.02
0010.89	0000.05
0016.33	0000.08
0021.77	0000.10
0027.23	0000.11
0032.69	0000.12
0038.14	0000.13
0043.60	0000.14
0049.06	0000.15
0054.52	0000.16
0059.97	0000.18
0065.41	0000.20
0070.86	0000.23
0076.30	0000.25
0081.74	0000.28
0087.19	0000.30
0092.64	0000.32
0098.09	0000.34
0103.54	0000.36
0108.98	0000.38
0114.43	0000.41
0119.87	0000.44
0125.32	0000.47
0130.76	0000.50
0136.21	0000.53
0141.65	0000.56
0147.10	0000.59
0152.54	0000.62
0158.00	0000.65
0163.44	0000.68
0168.89	0000.71
0174.33	0000.74
0179.78	0000.77
0185.22	0000.80
0190.67	0000.83
0196.11	0000.86
0201.56	0000.89
0207.00	0000.92
0212.45	0000.95
0217.89	0000.98
0223.34	0001.01
0228.78	0001.04
0234.23	0001.07
0239.67	0001.10
0245.12	0001.13
0250.56	0001.16
0256.01	0001.19
0261.45	0001.22
0266.90	0001.25
0272.34	0001.28
0277.79	0001.31
0283.23	0001.34
0288.68	0001.37
0294.12	0001.40
0299.57	0001.43
0305.01	0001.46
0310.46	0001.49
0315.90	0001.52
0321.35	0001.55
0326.79	0001.58
0332.24	0001.61
0337.68	0001.64
0343.13	0001.67
0348.57	0001.70
0354.02	0001.73
0359.46	0001.76
0364.91	0001.79
0370.35	0001.82
0375.80	0001.85
0381.24	0001.88
0386.69	0001.91
0392.13	0001.94
0397.58	0001.97
0403.02	0002.00
0408.47	0002.03
0413.91	0002.06
0419.36	0002.09
0424.80	0002.12
0430.25	0002.15
0435.69	0002.18
0441.14	0002.21
0446.58	0002.24
0452.03	0002.27
0457.47	0002.30
0462.92	0002.33
0468.36	0002.36
0473.81	0002.39
0479.25	0002.42
0484.70	0002.45
0490.14	0002.48
0495.59	0002.51
0501.03	0002.54
0506.48	0002.57
0511.92	0002.60
0517.37	0002.63
0522.81	0002.66
0528.26	0002.69
0533.70	0002.72
0539.15	0002.75
0544.59	0002.78
0550.04	0002.81
0555.48	0002.84
0560.93	0002.87
0566.37	0002.90
0571.82	0002.93
0577.26	0002.96
0582.71	0002.99
0588.15	0003.02
0593.60	0003.05
0599.04	0003.08
0604.49	0003.11
0609.93	0003.14
0615.38	0003.17
0620.82	0003.20
0626.27	0003.23
0631.71	0003.26
0637.16	0003.29
0642.60	0003.32
0648.05	0003.35
0653.49	0003.38
0658.94	0003.41
0664.38	0003.44
0669.83	0003.47
0675.27	0003.50
0680.72	0003.53
0686.16	0003.56
0691.61	0003.59
0697.05	0003.62
0702.50	0003.65
0707.94	0003.68
0713.39	0003.71
0718.83	0003.74
0724.28	0003.77
0729.72	0003.80
0735.17	0003.83
0740.61	0003.86
0746.06	0003.89
0751.50	0003.92
0756.95	0003.95
0762.39	0003.98
0767.84	0004.01
0773.28	0004.04
0778.73	0004.07
0784.17	0004.10
0789.62	0004.13
0795.06	0004.16
0800.51	0004.19
0805.95	0004.22
0811.40	0004.25
0816.84	0004.28
0822.29	0004.31
0827.73	0004.34
0833.18	0004.37
0838.62	0004.40
0844.07	0004.43
0849.51	0004.46
0854.96	0004.49
0860.40	0004.52
0865.85	0004.55
0871.29	0004.58
0876.74	0004.61
0882.18	0004.64
0887.63	0004.67
0893.07	0004.70
0898.52	0004.73
0903.96	0004.76
0909.41	0004.79
0914.85	0004.82
0920.30	0004.85
0925.74	0004.88
0931.19	0004.91
0936.63	0004.94
0942.08	0004.97
0947.52	0005.00
0952.97	0005.03
0958.41	0005.06
0963.86	0005.09
0969.30	0005.12
0974.75	0005.15
0980.19	0005.18
0985.64	0005.21
0991.08	0005.24
0996.53	0005.27
1001.97	0005.30
1007.42	0005.33
1012.86	0005.36
1018.31	0005.39
1023.75	0005.42
1029.20	0005.45
1034.64	0005.48
1040.09	0005.51
1045.53	0005.54
1050.98	0005.57
1056.42	0005.60
1061.87	0005.63
1067.31	0005.66
1072.76	0005.69
1078.20	0005.72
1083.65	0005.75
1089.09	0005.78
1094.54	0005.81
1100.00	0005.84
1105.44	0005.87
1110.89	0005.90
1116.33	0005.93
1121.78	0005.96
1127.22	0005.99
1132.67	0006.02
1138.11	0006.05
1143.56	0006.08
1149.00	0006.11
1154.45	0006.14
1159.89	0006.17
1165.34	0006.20
1170.78	0006.23
1176.23	0006.26
1181.67	0006.29
1187.12	0006.32
1192.56	0006.35
1198.01	0006.38
1203.45	0006.41
1208.90	0006.44
1214.34	0006.47
1219.79	0006.50
1225.23	0006.53
1230.68	0006.56
1236.12	0006.59
1241.57	0006.62
1247.01	0006.65
1252.46	0006.68
1257.90	0006.71
1263.35	0006.74
1268.79	0006.77
1274.24	0006.80
1279.68	0006.83
1285.13	0006.86
1290.57	0006.89
1296.02	0006.92
1301.46	0006.95
1306.91	0006.98
1312.35	0007.01
1317.80	0007.04
1323.24	0007.07
1328.69	0007.10
1334.13	0007.13
1339.58	0007.16
1345.02	0007.19
1350.47	0007.22
1355.91	0007.25
1361.36	0007.28
1366.80	0007.31
1372.25	0007.34
1377.69	0007.37
1383.14	0007.40
1388.58	0007.43
1394.03	0007.46
1399.47	0007.49
1404.92	0007.52
1410.36	0007.55
1415.81	0007.58
1421.25	0007.61
1426.70	0007.64
1432.14	0007.67
1437.59	0007.70
1443.03	0007.73
1448.48	0007.76
1453.92	0007.79
1459.37	0007.82
1464.81	0007.85
1470.26	0007.88
1475.70	0007.91
1481.15	0007.94
1486.59	0007.97
1492.04	0008.00
1497.48	0008.03
1502.93	0008.06
1508.37	0008.09
1513.82	0008.12
1519.26	0008.15
1524.71	0008.18
1530.15	0008.21
1535.60	0008.24
1541.04	0008.27
1546.49	0008.30
1551.93	0008.33
1557.38	0008.36
1562.82	0008.39
1568.27	0008.42
1573.71	0008.45
1579.16	0008.48
1584.60	0008.51
1590.05	0008.54
1595.49	0008.57
1600.94	0008.60
1606.38	0008.63
1611.83	0008.66
1617.27	0008.69
1622.72	0008.72
1628.16	0008.75
1633.61	0008.78
1639.05	0008.81
1644.50	0008.84
1649.94	0008.87
1655.39	0008.90
1660.83	0008.93
1666.28	0008.96
1671.72	0008.99
1677.17	0009.02
1682.61	0009.05
1688.06	0009.08
1693.50	0009.11
1698.95	0009.14
1704.39	0009.17
1709.84	0009.20
1715.28	0009.23
1720.73	0009.26
1726.17	0009.29
1731.62	0009.32
1737.06	0009.35
1742.51	0009.38
1747.95	0009.41
1753.40	0009.44
1758.84	0009.47
1764.29	0009.50
1769.73	0009.53
1775.18	0009.56
1780.62	0009.59
1786.07	0009.62
1791.51	0009.65
1796.96	0009.68
1802.40	0009.71
1807.85	0009.74
1813.29	0009.77
1818.74	0009.80
1824.18	0009.83
1829.63	0009.86
1835.07	0009.89
1840.52	0009.92
1845.96	0009.95
1851.41	0009.98
1856.85	0010.01
1862.30	0010.04
1867.74	0010.07
1873.19	0010.10
1878.63	0010.13
1884.08	0010.16
1889.52	0010.19
1894.97	0010.22
1900.41	0010.25
1905.86	0010.28
1911.30	0010.31
1916.75	0010.34
1922.19	0010.37
1927.64	0010.40
1933.08	0010.43
1938.53	0010.46
1943.97	0010.49
1949.42	0010.52
1954.86	0010.55
1960.31	0010.58
1965.75	0010.61
1971.20	0010.64
1976.64	0010.67
1982.09	0010.70
1987.53	0010.73
1992.98	0010.76
1998.42	0010.79
2003.87	0010.82
2009.31	0010.85
2014.76	0010.88
2020.20	0010.91
2025.65	0010.94
2031.09	0010.97
2036.54	0011.00
2041.98	0011.03
2047.43	0011.06
2052.87	0011.09
2058.32	0011.12
2063.76	0011.15
2069.21	0011.18
2074.65	0011.21
2080.10	0011.24
2085.54	0011.27
2090.99	0011.30
2096.43	0011.33
2101.88	0011.36
2107.32	0011.39
2112.77	0011.42
2118.21	0011.45
2123.66	0011.48
2129.10	0011.51
2134.55	0011.54
2140.00	0011.57
2145.44	0011.60
2150.89	0011.63
2156.33	0011.66
2161.78	0011.69
2167.22	0011.72
2172.67	0011.75
2178.11	0011.78
2183.56	0011.81
2189.00	0011.84
2194.45	0011.87
2200.00	0011.90



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

Date : 12 April 1979
To : RADM Eugene A. Taylor
Director, PMC
From : CAPT James G. Grunwell, Comdg.
NOAA Ship SURVEYOR
Subject: OPR-P133-SU-79; Loran C Control Appraisal

Attached are the results of comparisons of land ties and satellite fixes with 7960 Loran C positions. Since no satellite pass occurred during the land tie, no direct comparison could be made among the three types of control. Separate comparisons of land ties and satellite fixes versus Loran C showed similar errors therefore it appears that satellite fixes, at least on average, do agree well with land ties. ✓

The 0820 land tie with the ship dead in the water showed radar and visual fixes in exact agreement. Both differed from the LC 7960 fix being 0.4 n.mi. due north of the Loran C fix. Other combinations of rates showed greater errors. ✓

Satellite fixes showed an average difference of 0.43 n.mi. north (standard deviation = .16) and 0.21 n.mi. west (standard deviation = .51) of the D.R.s derived from 7960 fixes. ✓

Although the standard deviations of satellite fixes from Loran C suggests some instabilities, corrected Loran C appears adequate for this survey. ✓

CAPT J.G. Grunwell

JD/GMT	Satellite Fix Lat. (°/1') Long.	Loran C Position at Time of Satellite Fix Lat. (°/1') Long.	Range of Satellite from Loran C Position (NM)	Bearing of Satellite from Loran C Position (°)
130/0004	56/18.1 150/58.1	56/17.8 150/58.0	0.3	341
130/0118	56/06.9 151/17.9	56/06.4 151/17.7	0.45	348.5
130/0342	56/11.0 151/15.0	56/10.3 151/15.0	0.65	000
130/0530	56/25.3 150/49.55	56/24.8 150/49.5	0.5	001
130/0756	56/42.2 150/19.9	56/43.0 150/18.9	1.2	305
130/0840	56/45.1 150/12.5	56/45.1 150/13.1	0.4	094
130/0910	56/47.2 150/08.8	56/47.3 150/08.8	0.12	164
130/0942	56/49.9 150/06.0	56/49.75 150/04.6	0.83	281.5
130/1000	56/51.1 150/02.1	56/51.0 150/02.1	0.06	351.5
130/1426	56/13.1 150/04.6	56/12.8 150/05.0	0.4	027.5
130/1622	56/05.4 150/24.2	56/05.0 150/25.1	0.6	056

Average Range: 0.50 NM
Standard Deviation: 0.32 NM

Note: Loran C rates used: 7960X
7960Y

ABSTRACT OF POSITIONS

VESSEL: 1320

DAY	POSITIONS	REMARKS
125	1001 - 1024	Crossline
125	0001 - 0023	Crossline
126	0024 - 0229	
127	0230 - 0415	Crossline Positions 0401 - 0569
128	0416 - 0542	Switched to widebeam transducer (Positions 0484 - 0542)
128	1025 - 1120	(Positions 1025 - 1038)
129	1121 - 1322	
130	1323 - 1410	
130	0543 - 0614	Crossline Positions 0570 - 0614

*UGR number 135 with narrow beam transducer used at all times
except as indicated in remarks.

NORTHWEST REGIONAL CALIBRATION CENTER

300 - 120th Avenue Northeast
Benaroya Business Park, Building 6
Bellevue, Washington 98005
Telephone (206) 455-1999

Report Of Calibration

For: Conductivity/Temperature/Depth

Model No: 9040

Manufacturer: Plessey Environmental Systems

Serial No: 6211

Submitted by: NOAA/NOS/PMC

The conductivity, temperature, and pressure channels of this system were calibrated in accordance with "NOIC Calibration Procedure for CTD and STD Sensors (including Sound Speed)". NOIC-CP-04A, dated June, 1975.

Using the method of least squares, the transfer functions for these parameters were found to be:

$$\text{Conductivity (mS/cm)} = 1.72403 \times 10^{-2} \text{ F(Hz)} - 76.193$$

$$\text{Temperature (°C)} = 1.79304 \times 10^{-2} \text{ F(Hz)} - 40.146$$

$$\text{Pressure (PSIG)} = 1.38640 \text{ F(Hz)} - 13,463.9$$

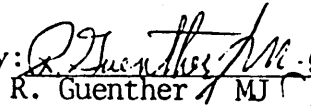
The data fit using these equations is:

<u>Parameter</u>	<u>Range</u>	<u>Standard Deviation of error to data fit</u>
Conductivity	14 to 60 mS/cm	0.017 mS/cm
Temperature	-1 to 31 °C	0.006 °C
Pressure	1 to 2187 PSIG	0.73 PSI

Additional details and data will be found in the following pages.

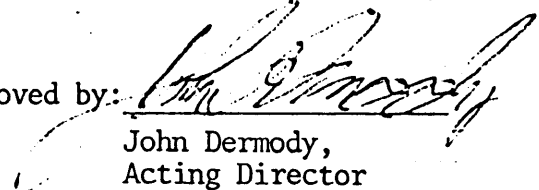
Calibration Date: January 1979
Corrected: February 1979

Calibrated by:


R. Guenther MJ

Report Number: 79062-AI

Approved by:


John Dermody,
Acting Director

Manufacturer: Plessey
 Model number: 9040
 Serial number: 6211

CONDUCTIVITY

The instrument system was exposed to known temperature and salinity conditions in large water baths. The stabilized bath temperature was measured using a calibrated platinum resistance temperature probe. The bath salinity was measured using a calibrated laboratory salinometer. The instrument conductivity sensor output was determined by measuring ten (10) consecutive period averages of the output frequency and calculating a mean output frequency. The results of these measurements are listed in the data table below.

The bath conductivity was determined from the bath temperature and salinity using UNESCO and NOIC tables and procedures. A value of conductivity of 42.896 milli-Siemens/cm at a salinity of 35‰ and a temperature of 15°C was used in this conversion. These conductivity values are listed in column 3.

A best fit straight line relating sensor output frequency and conductivity was generated using the method of least squares. This equation was found to be:

$$C(\text{mS/cm}) = 1.72403 \times 10^{-2} F(\text{Hz}) - 76.193$$

Conductivity Data Table

Bath Temp. (°C)	Bath Salinity (‰)	Bath Cond. (mS/cm)	Sensor Output (Hz)	Fitted Cond. (mS/cm)	Cond. Error (mS/cm)
30.998	35.498	60.141	7906.23	60.113	-0.028
23.013	35.498	51.627	7414.20	51.630	0.003
15.020	35.498	43.460	6941.40	43.479	0.019
7.079	35.497	35.793	6496.80	35.814	0.021
-0.988	35.497	28.530	6075.33	28.548	0.018
27.030	14.457	24.890	5862.87	24.885	-0.005
19.056	14.463	21.125	5644.85	21.126	0.001
11.062	14.463	17.534	5435.93	17.524	-0.001
3.004	14.464	14.133	5238.19	14.115	-0.018

The sensor output frequencies were substituted into this equation and the resulting computed conductivities are listed in the second to the last column. The error in the fit is determined by subtracting the true bath conductivity from the calculated values. These errors are listed in the last column.

MANUFACTURER: Plessey
 MODEL NUMBER: 9040
 SERIAL NUMBER: 6211

Temperature Data

The temperature channel of this system was calibrated in accordance with NOIC procedures. The temperature sensor was exposed to flow in a temperature stable bath of salt water. The temperature of the bath (T_1) was measured using a calibrated platinum resistance temperature standard at each calibration point. These temperatures are recorded in column 2 of the table below.

At each calibration point, ten (10) measurements were made of the period average of the sensor output frequency. The mean of these measurements was computed and converted to mean frequency. The frequency so determined is recorded in column 1 of the table.

From the data in columns 1 and 2, a best fit straight line was determined using the method of least squares. This equation was found to be:

$$T(^{\circ}\text{C}) = 1.79304 \times 10^{-2} F(\text{Hz}) - 40.146$$

The temperature in column 3 (T_c) was computed from the mean frequency in column 1 using this straight line equation. The temperature error incurred in using the equation is determined by subtracting the true temperature in column 2 from the calculated temperature in column 3. This error is tabulated in column 4 ($T_c - T_1$).

Temperature Data Table

1 Sensor Output (Hz)	2 True Temperature ($^{\circ}\text{C}$) T_1	3 Fitted Temperature ($^{\circ}\text{C}$) T_c	4 Error Temperature Fit ($^{\circ}\text{C}$) $T_c - T_1$
3967.74	30.998	30.997	-0.001
3746.75	27.030	27.035	0.005
3522.70	23.013	23.017	0.004
3301.94	19.056	19.059	0.003
3076.52	15.020	15.017	-0.003
2855.53	11.062	11.055	-0.005
2633.39	7.079	7.072	-0.007
2406.31	3.004	3.000	-0.004
2184.64	-0.988	-0.974	0.013

MANUFACTURER: Plessey
MODEL NUMBER: 9040
SERIAL NUMBER: 6211

PRESSURE DATA

The pressure channel of this system was calibrated in accordance with NOIC procedures. The pressure sensor was simultaneously exposed to flow in a temperature stable water bath and at its pressure port to pressure generated by a calibrated piston (dead weight) gage. The bath temperature was measured at each calibration point by means of a calibrated platinum resistance temperature standard.

At each calibration point, ten (10) measurements were made of the period of the sensor output frequency. The mean of these measurements was computed and converted to mean frequency. Pressures were applied at four (4) bath temperatures: 3, 11, 19 and 27°C. Pressures were applied in twenty percent increments of full scale pressure in both an increasing and decreasing direction. Pressure was maintained at the previous level during adjustment of the dead weight gage to the next level.

The mean of the four (4) frequencies measured at each applied pressure was determined and listed in column 1 of the data table. The applied pressure was determined from the calibrated mass used on the dead weight gage and its calibrated piston area with corrections made for air buoyancy, oil temperature, pressure coefficient of piston area, local gravity, and differential height between the sensor port and the gage piston. These corrected pressures are listed in column 2 of the table.

PRESSURE DATA TABLE	
Sensor Output(Hz)	Applied Pressure(Psig)
9,712.0	1.03
9,869.2	219.2
10,184.3	656.2
10,500.2	1,094.2
10,815.6	1,531.2
11,130.7	1,968.2
11,289.0	2,187.2
10,974.3	1,750.2
10,658.5	1,312.2
10,343.4	875.2
10,028.2	438.2

From the data in columns 1 and 2, a best fit straight line was determined using the method of least squares. This equation was found to be:

$$P (\text{psig}) = 1.38640 F(\text{Hz}) - 13,463.9$$

Each of the frequencies found at the 4 temperatures was then used with this equation to compute an apparent pressure. An error was determined by subtracting the dead weight gage pressure from the calculated pressure. The error at each point was converted to a depth error in psi and plotted on the attached graph in order to better display the contributions to the error of each of the error sources: hysteresis, non-linearity, and temperature.

(1)

()

()

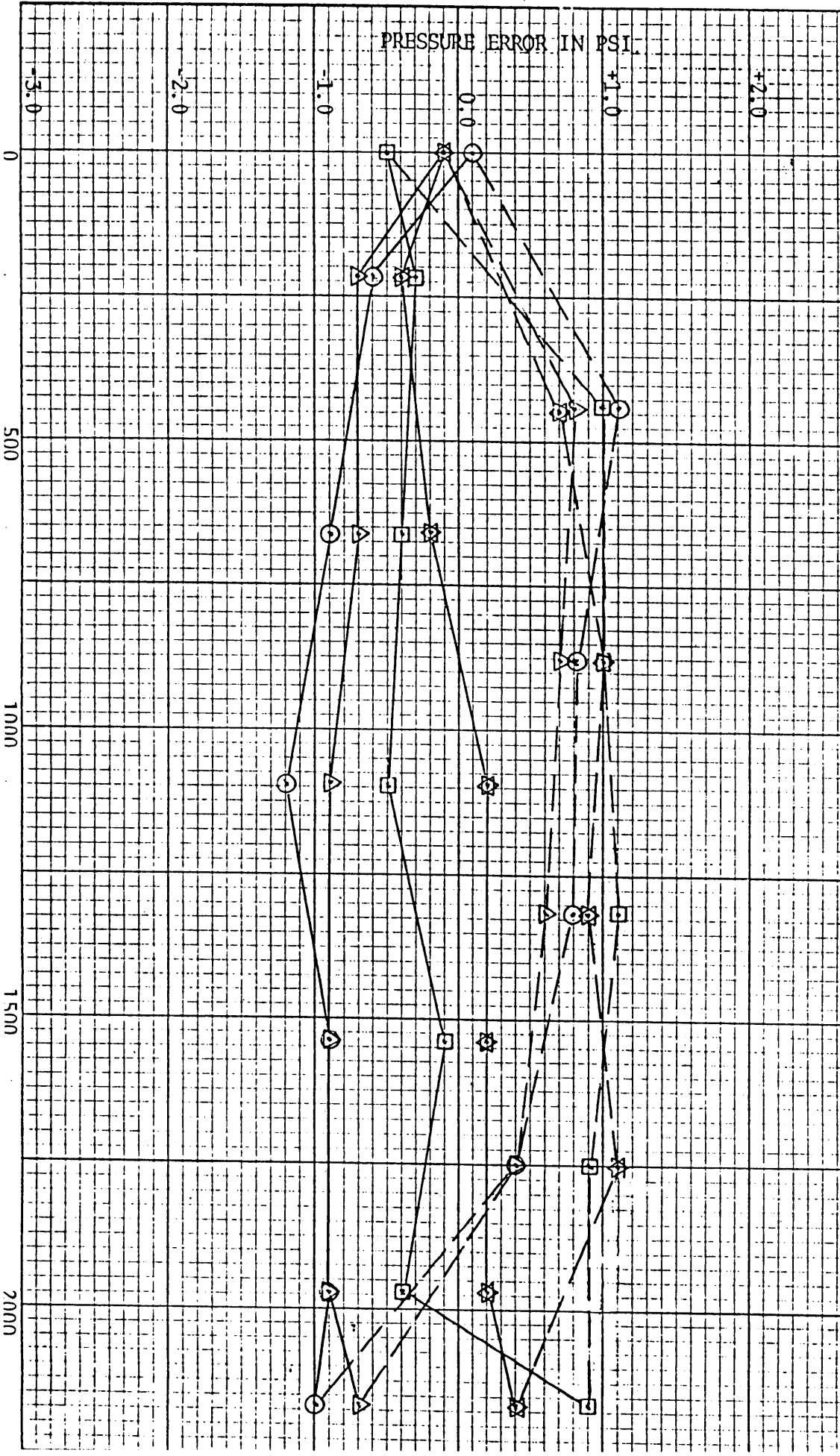
Report Number: 79B62-A1

Plessey CTD
Model No.: 9040
Serial No.: 62111

⊕ 3°C
△ 11°C
□ 19°C
⊗ 27°C

—— Increasing Pressure
- - - - Decreasing Pressure

PRESSURE ERROR IN PSI.



Charted Position Comparisons

Lat.	Position Long.	Charted Depth (Fathoms)	Measured Depth (from hydro) (Fathoms)	Difference (Fathoms)
56°31.8'	150°11.5'	2830	2870	-40
56°26.9'	150°03.3'	2820	2806	14
56°26.8'	150°24.9'	2885	2870	15
56°20.7'	150°32.9'	2830	2860	-30
56°13.3'	150°20.1'	2820	2839	-19
56°20.3'	150°08.7'	2747	2786	-39
56°18.2'	150°16.3'	2814	2814	0
56°11.1'	150°30.5'	2849	2855	-6
56°11.1'	150°08.6'	2724	2755	-31
56°05.8'	150°37.2'	2847	2880	-33
56°04.0'	150°09.7'	2765	2700	65
56°13.3'	150°48.1'	2870	2890	-20
56°02.5'	150°46.8'	2891	2897	-6
56°07.4'	150°59.9'	2880	2905	-25
56°01.1'	150°59.5'	2935	2909	24
56°00.5'	151°15.3'	2880	2916	44
56°40.5'	150°09.0'	2480	2688	-200*
56°37.2'	150°13.0'	2710	2700	10
56°29.6'	150°36.2'	2857	2882	-25
56°04.4'	151°22.6'	2914	2921	-7
56°12.9'	151°07.3'	2910	2909	1

*Excluded from averaging.

Average Difference.....-8.7 fathoms

Standard Deviation.....28.8 fathoms



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

May 10, 1979

OA/C353:GHM

TO: Commanding Officer *GH*
NOAA Ship SURVEYOR
FROM: OA/C353 - George H. Mastrogianis *George H. Mastrogianis*
SUBJECT: Assignment of Registry Number

The following hydrographic registry number, H-9822, is assigned in accordance with the information listed below:

<u>Registry No.</u>	<u>Field No.</u>	<u>Area</u>	<u>Project No.</u>
H-9822	SU-100-1-79	Gulf of Alaska	OPR-P133

Information via tel-con, CPM3, May 10, 1979.

CC:
OA/CPM3
OA/CAM3
OA/CAM1
OA/C35x1





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship SURVEYOR S132

Date: May 30, 1979

To : OA/CPM - Eugene A. Taylor

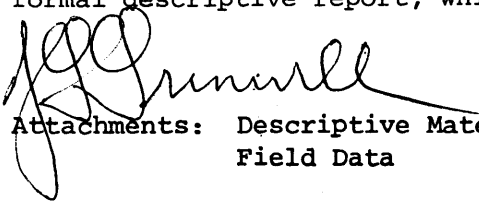
From: OA/CPM 132 - Commanding Officer
NOAA Ship SURVEYOR

Subj: Hydrographic Survey Data Report for Sheet
SU-100-1-79, H-9822

The ship conducted survey operations under OPR-P133-SU-79 for an area southeast of Kodiak Island. Under the time period allotted for these operations, approximately 40% of the sheet was completed. From my personal supervision of both the survey operations and subsequent records, I consider the area completed adequate for charting purposes. ✓

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OORDER and the Instruction Manual for Automated Hydrographic Surveys. ✓

This is an interim report intended to assist in evaluating and processing field data thus far collected. It is not intended to be the formal descriptive report, which will accompany the completed sheet. ✓


Attachments: Descriptive Material
Field Data



HYDROGRAPHIC TITLE SHEET

H-9822

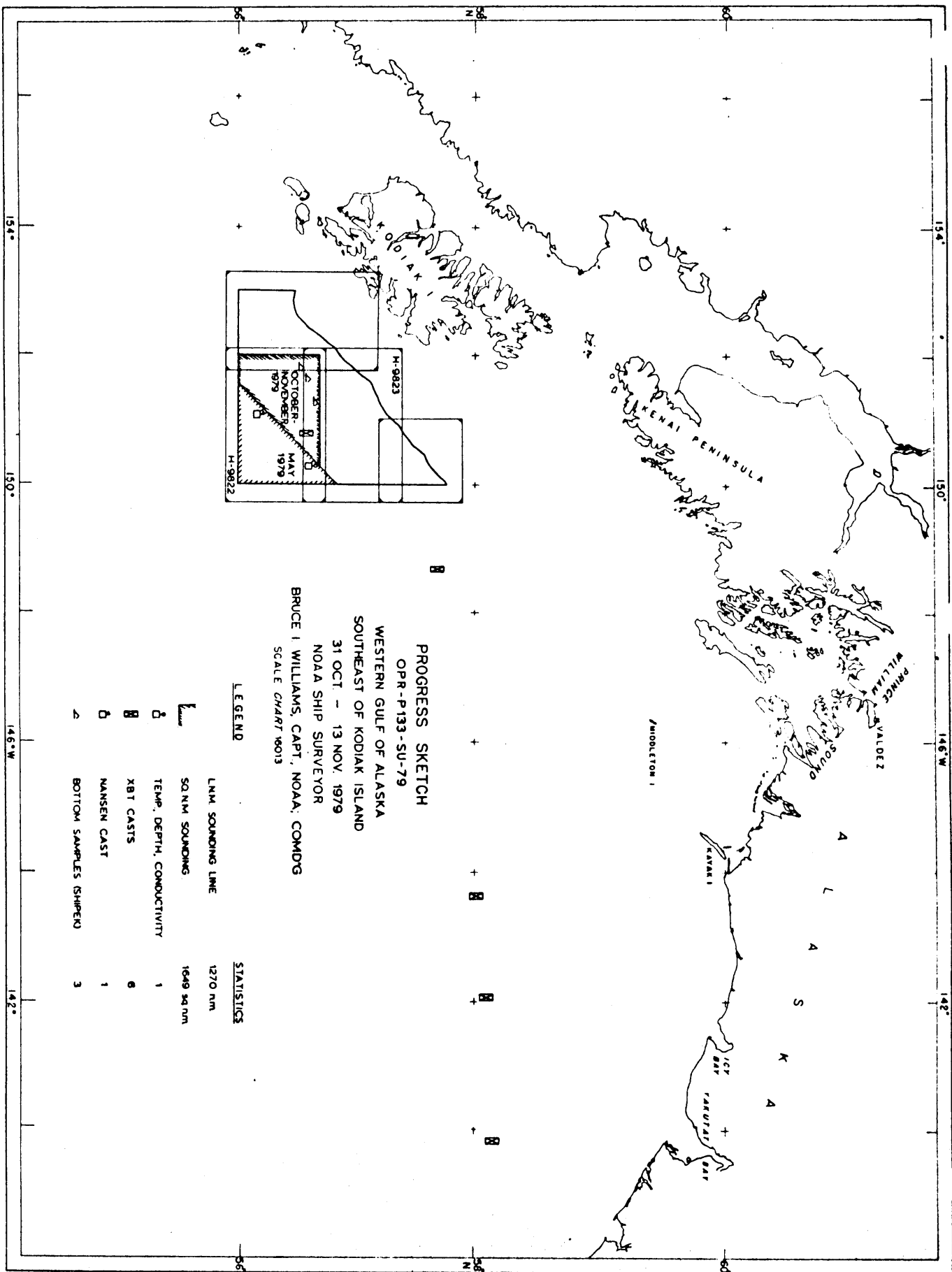
INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form,
filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

SU-100-1-79

State ALASKAGeneral locality GULF OF ALASKALocality SOUTHEAST OF KODIAK ISLANDScale 1:100,000 Date of survey Oct 30 - Nov 13, 1979Instructions dated April 2, 1979 Project No. OPR-P133-SU-79Vessel NOAA Ship SURVEYOR (S132)Chief of party CAPT BRUCE I WILLIAMS, NOAASurveyed by Ship's ComplementSoundings taken by echo sounder, ~~hand lead, pole~~ Raytheon Universal Graphic Recorder 196C-10Graphic record scaled by Ship's Officers and Survey TechniciansGraphic record checked by Ship's Officers and Survey TechniciansPositions verified John E. Lotshaw Automated plot by PMC Xynetics PlotterSounding
Verification by John E. LotshawSoundings in fathoms ~~XXX~~ at ~~MLW~~ MLLW _____REMARKS: Paragraph B.

This survey is the completion of H-9822 begun during the
period 5 - 10 May 1979. A copy of that report is attached. This
survey, completed over the period 30 October - 13 November, 1979,
consists of two field sheets at the scale of 1:100,000.



PROGRESS SKETCH
 OPR-P133-SU-79
 WESTERN GULF OF ALASKA
 SOUTHEAST OF KODIAK ISLAND
 31 OCT. - 13 NOV. 1979
 NOAA SHIP SURVEYOR
 BRUCE I WILLIAMS, CAPT., NOAA, COMDTG
 SCALE CHART 9013

LEGEND		STATISTICS	
	LNM SOUNDING LINE	1270 NM	
	SO N M SOUNDING	1649 SO NM	
	TEMP, DEPTH, CONDUCTIVITY	1	
	XBT CASTS	6	
	NANSEN CAST	1	
	BOTTOM SAMPLES (SHIPERU)	3	

A. PROJECT:

Project Instructions OPR-P133-SU-79, Western Gulf of Alaska,
dated ² April 1979.

B. AREA SURVEYED:

This portion of the survey on the sheet H-9822 covers an area bounded on the north by Lat. 56°42'N, on the west by Long. 152°00'W and by a line with end points at Lat. 56°42'N, Long. 150°23'W and Lat. 56°00'N, Long. 151°37'W.

Sounding lines were run in a northeasterly and southwesterly direction with a general spacing of 3000 meters, as shown on field sheets #1 and #2.

See Verification Report Para #1

C. SOUNDING VESSEL:

NOAA Ship SURVEYOR S132, EDP 1320.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO SOUNDINGS:

A 12KHz sounding system consisting of a Raytheon Universal Graphic Recorder, Model 196C-10, serial number 135, with a NBES, narrow beam transducer, was used throughout the survey. The UGR was run primarily in Program Mode. Running of the sounding lines during rough seas produced poor and unreliable traces or missed soundings on the fathogram. Sounding lines were run only when good and reliable traces could be scaled, where sea conditions permitted.

✓

✓

The following corrections to the echo sounding were applied:

1. Velocity of sound through water.

A Conductivity, Temperature, Depth cast from 0 to 1500 meters was done on 31 October 1979 at Lat. $56^{\circ}37.3'N$, Long. $150^{\circ}17.8'W$, using a calibrated Plessey CTD sensor, number 6211. A nansen cast for velocity correction was done on 12 November 1979 at Lat. $56^{\circ}11.3'N$, Long. $151^{\circ}03.7'W$ for depths from 1500 to 4350 meters. Program RK 530, version 17 May 1979 (curve fit option) was used for computation of the velocity corrections.

2. A draft correction of 2.7 fathoms was applied to the soundings. No variation in the instrument initial was applied.

3. No instrument corrections were applied.

E. HYDROGRAPHIC SHEETS:

Mylar plotting sheets at a scale of 1:100,000 with a 45° skew, modified mercator projection were prepared aboard ship using program number RK 201, version 18 April 1975, Grid, Signal and Lattice Plot. The Houston Complot, serial number 5637-2, was used in constructing the projections.

During the running of the sounding lines, plotting sheet #1 was used for position plot only, (using RK 201, on the Houston Complot) and plotting sheet #2 was hand plotted with positions and soundings.

Proposed sounding lines with spacings of 3000 meters for the main scheme were drawn on the sheet. Sounding lines were spaced at 1500 meters for depths between 110 and 500 fathoms, and 750 meters between 30 and 110 fathoms. Waypoints along the sounding lines were precomputed and plotted on the sheet to steer the ship along the lines. The ship was kept on line by the aid of a left-right indicator. Geographic positions of the ship were provided by the CC-2 Internav Computer. It should be noted that the CC-2 Internav Loran C Computer used WGS 72 datum. ✓

Final paper smooth field sheets composed of positions and corrected soundings were prepared aboard ship using the ship's Houston Complot and program number RK 218, undated version. Soundings transferred from chart 16013 are in red. Average spacing of position fixes on the survey sheet is 3.5 cm. at 12 minute intervals at the regular sounding speed of the vessel. Soundings were logged at 3 minute intervals. At other times when the sounding speed of the vessel had to be reduced because of weather conditions, position fixes were taken at up to 30 minute intervals and soundings logged at 6 minute intervals. on other occasions, position and sounding intervals varied to meet the requirements of section 1.4.5.1. Hydrographic Manual. ✓

F. CONTROL STATIONS:

No triangulation, topographic or hydrographic stations were recovered and used for control. Controls for this survey were provided by Loran C station pairs 7960X - 7960Y, and by SML ✓

designation satellite fixes.

G. HYDROGRAPHIC POSITION CONTROL:

For position control, two pairs of Loran C rates as well as good (SM1 designation) satellite fix, when available, were recorded in the sounding record book. The best pair of Loran C rates (7960X and 7960Y) were fed automatically into the Internav CC-2 coordinate converter which produced geographic positions for plotting on the boat sheet. A DISCON Corp. thumbwheel hydrographic logger, Mark 3-1 was used for logging. Punched tapes were cut using an ASR-33 teletypewriter. Loran C rates 7960X and 7960Y were selected to control and plot position fixes on these sheets. A brief summary and discussion of control follows:

1. Two separate shore ties were taken before the start of the survey and another two were taken after its completion. Sites were selected for obtaining a strong fix in relation with the base lines using different pairs of Loran C stations, i.e. (7960X - 7960Y) and (9990Y - 9990Z). The ship's position was simultaneously taken by means of radar ranges and visual bearings, Loran C, and satellite fix (SM1 designation) when available.
2. The second shore ties taken after the completion of the survey differed from the shore ties taken before the start of the survey and the May 1979 shore ties by approximately 100 meters and bearing of 10°. The second shore ties were taken at a time when the Coast

Guard reported sun spot activity and this may account for the discrepancies.

3. Loran C rates 7960X and 7960Y were determined to produce the most reliable signals in the survey area. Results of the comparison with radar and satellite fixes are tabulated on a separate sheet. 7960 X and Y positions were in exact relative agreement with the shore ties taken in May 1979. ✓
4. The efficacy of Loran C calibrations taken close to the origin of the net is still in question. The relative stability of the Loran C net does not necessarily imply a linear relationship in calibration out to the work site, some 80 nm offshore. From our observations, the conclusion is that the positions plotted on the boat sheet may be adjusted 742 meters north (bearing of 000°T). ✓
The same logic also applies to the data taken 5-10 May, 1979.

5. Equipment used for the control in the survey follows:

a. Internav Model LC-204 Loran Receiver;

Serial 0258A for 7960 rates,

Serial 0286A for 9990 rates.

b. Internav Navigation Computer Model CC-2,

Serial number 20304.

c. JMR Doppler Survey Sets Model JMR-1,

Serial numbers 75210 and 75336.

SHORE TIES

JD/GMT	Radar Fix		LoranC 7960X,7960Y		Range of Radar Fix from Loran Fix (meters)	Bearing of Radar Fix from Loran Fix
	Lat. (N)	Long. (W)	Lat. (N)	Long. (W)		
303/2225	57°27.0'	152°07.9'	57°26.6'	152°08.0'	749.18	007°40.6'
303/2236	57°27.2'	152°07.8'	57°26.8'	152°07.8'	742.46	000°00.0'
303/2244	57°27.4'	152°07.6'	57°27.0'	152°07.6'	742.46	000°00.0'
303/2244	Satellite Fix: 57°27.4'N, 152°06.9'W					

Range of Radar Fix from Sat Fix: 700.33 meters

Bearing of Radar Fix from Sat Fix: 270°00.3'

JD/GMT	Radar Fix		LoranC 9990Y,9990Z		Range of Radar Fix from Loran Fix (meters)	Bearing of Radar Fix from Loran Fix
	Lat. (N)	Long. (W)	Lat. (N)	Long. (W)		
304/0046	57°20.2'	152°30.6'	57°19.4'	152°29.7'	1738.19	328°40.4'
304/0057	57°20.5'	152°30.8'	57°19.7'	152°30.0'	1688.13	331°35.4'
304/0107	57°20.7'	152°31.0'	57°19.9'	152°30.1'	1738.08	328°41.5'

SHORE TIES

JD/GMT	Radar Fix		LoranC 7960X,7960Y		Range of Radar Fix from Loran Fix (meters)	Bearing of Radar Fix from Loran Fix
	Lat. (N)	Long. (W)	Lat. (N)	Long. (W)		
317/1852	57°26.7'	152°06.3'	57°26.4'	152°06.2'	565.8	349°48.6'
317/1858	57°26.7'	152°06.7'	57°26.4'	152°06.4'	632.6	331°39.8'
317/1903	57°26.75'	152°06.9'	57°26.4'	152°06.6'	715.7	355°11.6'

JD/GMT	Radar Fix		LoranC 9990Y,9990Z		Range of Radar Fix from Loran Fix (meters)	Bearing of Radar Fix from Loran Fix
	Lat. (N)	Long. (W)	Lat. (N)	Long. (W)		
317/2020	57°20.1'	152°26.6'	57°20.1'	152°26.6'	00.0	----
317/2025	57°19.8'	152°26.9'	57°19.8'	152°26.9'	00.0	----
317/2030	57°19.8'	152°27.0'	57°19.8'	152°27.0'	00.0	----
317/2030	Satellite Fix: 57°19.83'N, 152°27.3'W					

Range of Radar Fix from Sat Fix: 340.3 meters

Bearing of Radar Fix from Sat Fix: 100°28.7'

H. SHORELINE:

None. ✓

I. CROSSLINE:

About 9 percent of the main sounding lines were run as crossline. ✓
Soundings were in good agreement at crossings.

J. JUNCTIONS:

This sheet joins SU-100-2-79 (H-9823) to the north.

No overlap with the last sounding line run in May 1979 is necessary. The survey is a continuation in the same year, by the same vessel, and by the same method and equipment. ✓

*See Verifiers
Report
Para # 1*

K. COMPARISON WITH PRIOR SURVEYS:

Survey sheets H-5177 done in 1931-1932 and H-5444 done in 1933 are outside the limits of the survey area. ✓

L. COMPARISON WITH CHARTS:

Chart 16013, 21st edition, April 8, 1978.

Chart 16580, 7th edition, March 11, 1978.

Charted soundings have been compared against recorded soundings at or in the immediate vicinities of each other and were found to be in partial agreement. A tabulation of the comparison is shown in a separate sheet. ✓

M. ADEQUACY OF SURVEY:

These sheets together with the survey sheet of May 1979 covers the whole survey area of H-9822. It is considered complete and adequate for bathymetric mapping and for updating charts in the survey area. ✓

N. AIDS TO NAVIGATION:

None. ✓

O. STATISTICS:

Number of positions.....712
Nautical miles of sounding line.....1157.3
Square nautical miles of soundings.....1466.8
CTD cast for velocity correction.....1 ✓
Nansen cast for velocity correction.....1
Bottom sampling.....3

P. MISCELLANEOUS:

1. No presurvey review items for this survey. ✓
2. Bottom samples were taken in areas where depths are less than 1000 meters, at 16 km spacing. ✓

Q. AUTOMATED DATA PROCESSING:

Positions and soundings were logged using a DISCON Corp. thumbwheel hydrographic logger, Mark 3-1. Punched tapes were cut using an ✓

ASR-33 teletypewriter. Raw data tape is in Trackline Logger Tape Format. Final data tape is in Trackline Master Tape Format using program number RK 331, version 4 May 1976 and Elinore, program number AM 302, version 20 May 1975. ✓

The final smooth ~~boat~~ sheet was generated using program RK 218, Trackline Position and Sounding Plot, undated version. This program is an advance copy which the ship requested and received just prior to the start of the project. Documentation of this program is not yet finalized. A few problems were encountered at first when using the program. A brief comment on the use of the program follows. ✓

With reference to the advance copy of the program documentation of RK 218, the following are noted: ✓

Paragraph II - Program Documentation

When Option I, (Plotting of Reduced Soundings and Associated Position Numbers) was used, the program worked properly only when a multi-record corrector tape containing the day corrector for each individual day was used. The program works with a limit of 3 days per corrector tape. ✓

Paragraph III - Input Specifications

Item 1: Option I, (Plot Positions and Soundings) was used. Occasionally the program changed from position/sounding plot to position only, at day changes. ✓

Item 2: Signal Tape

No signal tape was used in this survey.

Item 3: Trackline Master Tape

The trackline master format generated by RK 330 did not work with program 218 except for the first day only. If more than one day's data is on the master trackline tape, there has to be a corrector record entered after each day record, for each separate day's data. ✓

Item 4: Trackline Corrector Tape

A corrector with a long word is needed for each day of data. Beginning with the starting line of each day. ✓

Item 5: Tide Tape

No tide corrector was used in the survey.

*see Verifiers
Report Para #1*

Item 6: Velocity Corrector Tape

When using a complete corrector tape covering all the depths in the survey area, all soundings were corrected by a constant value, irregardless of depths. No error message appeared in the teletypewriter. It was expected that an error message of TV 20, Velocity Record Limit Exceeded, would appear in the teletypewriter if the limit was exceeded. Splitting the corrector tape in two applied the proper corrections ✓

at times. However, a complete velocity table of 183 corrections worked without any problems when the corrector record was shortened in length to 3 days. ✓

Paragraph V - Operating Instructions

A. Routine Instructions

Item 4: Parity switch had to be in non-parity position for keyboard entries and inconsistently in either parity or non-parity when reading the corrector tapes. ✓

Item 5a: Load binary program tape RK 218 instead of RK 210 or RK 211. ✓

Item 10: TTY-1 types "Plot in FT, FM1, FM2, M?".

At times, FT had to be used in order to plot the soundings in fathoms. At other times, this caused the soundings to be plotted in feet. When FM1 or FM2 was used, the results again were very irregular: even though the sounding indicator on the master tape is in fathoms, the soundings might be either divided by 6, multiplied by 6 or plotted accurately in depths of fathoms. ✓

Item 15: TTY-1 which was in non-parity position had to be switched back to parity position. If not done so, an error message will appear on TTY-1. See Item 4. ✓

R. REMARKS AND RECOMMENDATIONS:

1. A considerable amount of bottom traces, *NOT SURVEY DATA*, were of poor and unreliable quality or missed altogether when sea conditions were 8 feet or more. The following are the suspected reasons:
 - a. There is at present, a crack in the forward corner of the NBES dome. This allows cavitation bubbles to enter inside the dome during the forward motion and pitching of the ship. This condition prevents or attenuates the projector's acoustic energy from being fully transmitted into the surrounding water.
 - b. The entire NBES system is in need of electrical and mechanical alignment. The pitch and mechanical roll compensator network is out of alignment.
 - c. At least one bad projector transducer and hydrophone has been found by using conventional megger readings.
 - d. The system has no Chebyshev shading in its design, only a beam amplitude steering.
2. Attached is a brief report of the ship's Electronics Technician on the present condition of the NBES system.

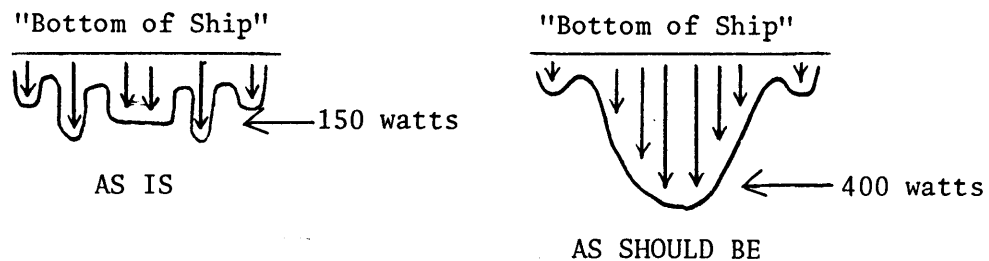
I. NBES - Narrow Beam Echo Sounder

a. Power:

Total output power per projector should be 400 watt nominal. It has been found that with the present supply voltages, the peak wattage possible on any projector is 150 watts. The entire supply voltage system for the power (transmitting) amplifiers would have to be reconfigured to bring this system up to book standards.

b. Shading of Beam:

Beam pattern of transmitting pulse is shaped as shown on the left below instead of as shown on the right.



Original Depth Range: 6000 fms

Original Power: 400 watts per projector (x20)

Surveyor has five separate beams now, instead of one, explaining our occasional 3-dimensional displays on the UGR. It is my opinion that the effective depth range has been more than halved on this system - as well as beam width increased

beyond 2 2/3 degrees.

This unacceptable beam pattern combined with the halved power is what I believe to be the major problem. On top of this is the condition of the Projector Array, due to salt water contamination. We have no idea what noisy/poor electrical coupling problems are generated there, but I am sure it is significant.



D. Lieberg
Electronics Technician
NOAA Ship SURVEYOR S-132

VELOCITY CORRECTOR LISTING
SU-100-1-79 (H-9822)

Ship: SURVEYOR EDP 1320
Table Number: *XV*
Scale: FATHOMS

001	000210	0	0000	0001	001	132000	009822
002	001360	0	0005				
003	002400	0	0010				
004	003130	0	0015				
005	003850	0	0020				
006	004500	0	0025				
007	005050	0	0030				
008	005550	0	0035				
009	006050	0	0040				
010	006510	0	0045				
011	006890	0	0050				
012	007250	0	0055				
013	007620	0	0060				
014	007990	0	0065				
015	008370	0	0070				
016	008750	0	0075				
017	009050	0	0080				
018	009330	0	0085				
019	009630	0	0090				
020	009920	0	0095				
021	010220	0	0100				
022	010530	0	0105				
023	010820	0	0110				
024	011030	0	0115				
025	011260	0	0120				
026	011490	0	0125				
027	011730	0	0130				
028	011960	0	0135				
029	012200	0	0140				
030	012440	0	0145				
031	012670	0	0150				
032	012920	0	0155				
033	013120	0	0160				
034	013310	0	0165				
035	013500	0	0170				
036	013690	0	0175				
037	013890	0	0180				
038	014080	0	0185				
039	014270	0	0190				
040	014470	0	0195				
041	014660	0	0200				
042	014860	0	0205				
043	015050	0	0210				
044	015230	0	0215				
045	015390	0	0220				
046	015550	0	0225				
047	015720	0	0230				
048	015880	0	0235				
049	016050	0	0240				
050	016210	0	0245				

051 016380 0 0250
052 016540 0 0255
053 016710 0 0260
054 016870 0 0265
055 017030 0 0270
056 017200 0 0275
057 017360 0 0280
058 017490 0 0285
059 017630 0 0290
060 017770 0 0295
061 017910 0 0300
062 018050 0 0305
063 018190 0 0310
064 018330 0 0315
065 018470 0 0320
066 018610 0 0325
067 018750 0 0330
068 018890 0 0335
069 019030 0 0340
070 019170 0 0345
071 019310 0 0350
072 019440 0 0355
073 019560 0 0360
074 019680 0 0365
075 019800 0 0370
076 019930 0 0375
077 020050 0 0380
078 020170 0 0385
079 020300 0 0390
080 020420 0 0395
081 020550 0 0400
082 020670 0 0405
083 020800 0 0410
084 020920 0 0415
085 021050 0 0420
086 021170 0 0425
087 021300 0 0430
088 021420 0 0435
089 021530 0 0440
090 021630 0 0445
091 021740 0 0450
092 021850 0 0455
093 021960 0 0460
094 022070 0 0465
095 022180 0 0470
096 022290 0 0475
097 022400 0 0480
098 022510 0 0485
099 022620 0 0490
100 022730 0 0495

101 022830 0 0500
102 022940 0 0505
103 023050 0 0510
104 023160 0 0515
105 023270 0 0520
106 023370 0 0525
107 023480 0 0530
108 023580 0 0535
109 023670 0 0540
110 023770 0 0545
111 023870 0 0550
112 023970 0 0555
113 024070 0 0560
114 024160 0 0565
115 024260 0 0570
116 024360 0 0575
117 024460 0 0580
118 024550 0 0585
119 024650 0 0590
120 024750 0 0595
121 024850 0 0600
122 024950 0 0605
123 025040 0 0610
124 025140 0 0615
125 025240 0 0620
126 025340 0 0625
127 025440 0 0630
128 025530 0 0635
129 025630 0 0640
130 025720 0 0645
131 025810 0 0650
132 025890 0 0655
133 025980 0 0660
134 026070 0 0665
135 026160 0 0670
136 026250 0 0675
137 026340 0 0680
138 026430 0 0685
139 026510 0 0690
140 026600 0 0695
141 026690 0 0700
142 026780 0 0705
143 026870 0 0710
144 026960 0 0715
145 027050 0 0720
146 027130 0 0725
147 027220 0 0730
148 027310 0 0735
149 027400 0 0740
150 027490 0 0745

151 027580 0 0750
152 027660 0 0755
153 027740 0 0760
154 027820 0 0765
155 027900 0 0770
156 027980 0 0775
157 028060 0 0780
158 028140 0 0785
159 028220 0 0790
160 028300 0 0795
161 028380 0 0800
162 028460 0 0805
163 028550 0 0810
164 028630 0 0815
165 028710 0 0820
166 028790 0 0825
167 028870 0 0830
168 028950 0 0835
169 029040 0 0840
170 029120 0 0845
171 029200 0 0850
172 029280 0 0855
173 029360 0 0860
174 029440 0 0865
175 029520 0 0870
176 029600 0 0875
177 029680 0 0880
178 029770 0 0885
179 029840 0 0890
180 029920 0 0895
181 029990 0 0900
182 999999 0 0900

001
 002
 003 VESSEL = 132
 004
 005 DATE = NOV 12 79
 006
 007
 008 TIME = 0700
 009
 010
 011 LATITUDE = 056/11/16.80
 012
 013 LONGITUDE = 151/03/38.80
 014
 015 TYPE OF OBSERVATION = CTD

020	CAST-DEPTH (SURFACE)	TEMP	SALINITY	SND VEL
021	(M)	(DEG C)	(0/00)	(M/SEC)
022				
023	0006.4	08.66	32.50	1482.30
024	0010.7	08.66	32.49	1482.36
025	0019.5	08.66	32.50	1482.50
026	0030.0	08.66	32.50	1482.68
027	0039.7	08.66	32.50	1482.84
028	0049.2	08.64	32.40	1482.78
029	0060.6	04.86	32.76	1468.44
030	0070.7	04.41	32.77	1466.74
031	0079.0	04.34	32.96	1466.83
032	0090.5	03.94	33.05	1465.46
033	0099.6	03.67	33.17	1464.62
034	0109.7	04.48	33.45	1468.58
035	0120.4	04.75	33.64	1470.13
036	0130.2	04.58	33.75	1469.73
037	0140.1	04.34	33.88	1469.08
038	0149.2	04.37	33.90	1469.38
039	0160.2	04.33	33.86	1469.33
040	0169.2	04.16	33.85	1468.76
041	0179.9	04.01	33.95	1468.44
042	0190.6	03.98	33.87	1468.37
043	0200.7	03.95	33.93	1468.50
044	0239.1	03.69	34.03	1468.16
045	0279.8	03.65	34.03	1468.67
046	0320.7	03.60	34.06	1469.17
047	0360.0	03.65	34.15	1470.14
048	0400.2	03.63	34.13	1470.70
049	0800.5	03.06	34.36	1475.21
050	1199.7	02.53	34.50	1479.77
051	1516.5	02.19	34.60	1483.76
052	2163.1	01.78	34.61	1492.96
053	2675.4	01.61	34.65	1501.06
054	3202.9	01.52	34.67	1509.84
055	4349.3	01.49	34.69	1529.91

056	MID-DEPTH	SND VEL	LAYER THICKNESS
057	(M)	(M/SEC)	(M)
058			
059	0005.00	1482.28	0010.00
060	0015.00	1482.43	0010.00
061	0025.00	1482.60	0010.00
062	0035.00	1482.76	0010.00
063	0045.00	1485.38	0010.00
064	0055.00	1475.66	0010.00
065	0065.00	1465.01	0010.00
066	0075.00	1466.79	0010.00
067	0085.00	1466.12	0010.00
068	0095.00	1464.98	0010.00
069	0105.00	1466.75	0010.00
070	0115.00	1470.01	0010.00
071	0125.00	1469.95	0010.00
072	0135.00	1469.48	0010.00
073	0145.00	1469.24	0010.00
074	0155.00	1469.53	0010.00
075	0165.00	1469.02	0010.00
076	0175.00	1468.53	0010.00
077	0185.00	1468.40	0010.00
078	0195.00	1468.43	0010.00
079	0220.00	1468.33	0040.00
080	0260.00	1468.48	0040.00
081	0300.00	1468.86	0040.00
082	0340.00	1469.62	0040.00
083	0380.00	1470.55	0040.00
084	0600.00	1472.97	0400.00
085	1000.00	1477.45	0400.00
086	1400.00	1482.25	0400.00
087	1800.00	1487.63	0400.00
088	2200.00	1493.52	0400.00
089	2600.00	1499.84	0400.00
090	3000.00	1506.42	0400.00
091	3400.00	1513.20	0400.00
092	3800.00	1520.15	0400.00
093	4200.00	1527.23	0400.00
094	4600.00	1534.30	0400.00
095	5000.00	1541.30	0400.00
096	5400.00	1548.30	0400.00
097	5800.00	1555.30	0400.00

098	ACTUAL DEPTH (SURFACE)	VELOCITY
099	MINUS VELOCITY	CORRECTION
100	CORRECTION	
101	(FM)	(FM)
102		
103	0005. 43	0000. 04
104	0010. 83	0000. 11
105	0016. 22	0000. 18
106	0021. 62	0000. 26
107	0027. 00	0000. 34
108	0032. 42	0000. 39
109	0037. 88	0000. 39
110	0043. 34	0000. 41
111	0048. 79	0000. 42
112	0054. 25	0000. 43
113	0059. 71	0000. 44
114	0065. 15	0000. 47
115	0070. 59	0000. 49
116	0076. 04	0000. 52
117	0081. 48	0000. 54
118	0086. 93	0000. 56
119	0092. 37	0000. 59
120	0097. 82	0000. 61
121	0103. 27	0000. 63
122	0108. 72	0000. 65
123	0130. 51	0000. 73
124	0152. 30	0000. 81
125	0174. 08	0000. 89
126	0195. 86	0000. 99
127	0217. 62	0001. 10
128	0434. 86	0002. 59
129	0651. 43	0004. 74
130	0867. 28	0007. 62
131	1082. 33	0011. 29
132	1296. 50	0015. 85
133	1509. 72	0021. 35
134	1721. 96	0027. 83
135	1933. 18	0035. 33
151	2143. 37	0043. 87
152	2352. 49	0053. 47
153	2560. 57	0064. 12
154	2767. 59	0075. 82
155	2973. 57	0088. 57
156	3178. 50	0102. 36

Abstract of Position

JD	Positions	Remarks
304	1401 - 1435	
305	1436 - 1505	
306	1506 - 1578	
307	1579 - 1649	
308	1650 - 1702	
309	1703 - 1821	
310	1822 - 1841	
313	1842 - 1851	
314	1852 - 1930	
315	1931 - 2021	
316	2022 - 2096 - - -	-Pos. 2079 - Nansen Cast Pos. 2041 - 2096 - Crossline
317	2097 - 2112 - - -	-Crossline Pos. 2099, 2111, 2112 - Bottom Samples

Comparisons with Charted Depths

Chart 16013 and Chart 16580

	Charted Depth (FMS)	Charted Position		Soundings in General Vicinity
		Lat. (N) (°/')	Long. (W) (°/')	
1.	2884	55 59.0	151 47.8	2915
2.	2590	56 05.7	151 59.5	2554
3.	2896	56 06.1	151 35.8	2919 to 2928 ✓
4.	2200	56 11.6	151 50.4	2429 to 2507
5.	2711	56 12.2	151 37.5	2722 to 2742
6.	2908	56 11.8	151 24.3	2888 to 2916
7.	2140	56 18.3	151 35.3	2110 to 2183
8.	2902	56 18.7	151 11.0	2578 to 2892
9.	1780	56 25.0	151 24.2	1767 to 1788
10.	1943	56 25.7	151 15.0	1920 to 2600
11.	2855	56 25.0	150 59.6	2522 to 2639
12.	1760	56 32.2	151 11.2	1724 to 1787
13.	2427	56 31.8	150 48.5	2227 to 2349
14.	1540	56 38.2	151 00.2	1492 to 1564
15.	1119	56 42.8	150 55.5	1308
16.	1803	56 37.3	150 47.0	1976 to 2359
17.	2569	56 36.7	150 35.8	2303 to 2549
18.	1963	56 42.6	150 13.3	1976 to 2050
19.	1800	56 16.6	151 52.0	1719
20.	1800	56 20.0	151 59.5	2033
21.	1777	56 19.8	151 50.0	1740
22.	1760	56 21.8	151 40.0	1720
23.	1358	56 23.7	151 59.0	1353
24.	1390	56 27.2	151 51.8	1102 to 1279
25.	1780	56 27.1	151 37.2	1651
26.	1316	56 31.0	151 42.9	1114
27.	1320	56 32.0	151 24.0	1387
28.	60	56 33.3	151 56.0	137
29.	1028	56 34.2	151 35.0	812 to 1033
30.	192	56 38.7	151 46.0	469 to 640
31.	712	56 39.0	151 32.5	596 to 625
32.	960	56 37.1	151 20.8	1120 to 1222
33.	1040	56 39.9	151 22.5	795



APR 2 1979

OA/C351:DLS

Commanding Officer
NOAA Ship SURVEYOR

PROJECT INSTRUCTIONS: OPR-P133-SU-79, Western Gulf of Alaska

1.0. GENERAL

1.1. This survey will be used primarily for bathymetric mapping in support of the BLM lease blocks. However, the data will also be used to update nautical charts of the area.

1.2. The survey is presently scheduled for the period from May 5 to May 21, 1979. This period also includes ship transit time to Seattle.

1.3. The limits of the project are indicated on the attached chartlet. For this portion of the survey, the inshore limits shall be the 100-fathom curve. The rectangles shown on the chartlet correspond to the 1:250,000-scale bathymetric maps which will be produced from this project.

1.4. The priority of survey is as indicated by "1" and "2" on the chartlet. Surveying should begin at the southeastern corner of area 1 and progress westward.

1.5. This project is expected to extend over several seasons depending on available resources and changing survey priorities. The ship is encouraged to determine a proposed progress plan for this season; however, the Commanding Officer must remember that time schedules will be self-imposed. Work that is not completed this year will be assigned to future surveys. It is imperative to the overall charting effort of the NOS that, within reasonable limits, data quality be stressed in lieu of data quantity.

2.0. HYDROGRAPHY

2.1. Hydrography shall be basic and in accordance with the Hydrographic Manual and the PMC OORDER, except as modified by these instructions.

2.2. Control: Control for the survey shall be Loran-C. This shall be supplemented and corrected by satellite navigation control as available if considered appropriate by the Commanding Officer. Guidelines for Loran-C controlled hydrography are included in section A.3.2.2 of the Hydrographic Manual. The Loran-C rates selected shall be at the discretion of the Commanding Officer to provide the strongest available fix information.



- 2.3. Scale: The scale of the project area shall be at 1:100,000.
- 2.4. Sheet Layout: A sheet layout shall be provided by PMC pending approval by OA/C351.
- 2.5. Line Spacing: Line spacing shall be in accordance with section 4.3.4.3 of the Hydrographic Manual except in no case shall it exceed 3,200 meters. It may be necessary to reduce spacing as described in the referenced section.
- 2.6. Line Orientation: In compliance with the requirements of bathymetric mapping, the sounding lines should be oriented 045°-225° (T). Although contrary to normal hydrographic methods, this orientation has proven most beneficial to bathymetric mapping.
- 2.7. Position Frequency: The position frequency shall comply with section 1.4.5.1 of the Hydrographic Manual.
- 2.8. Sounding Unit: The sounding unit for this survey shall be fathoms with rounding to the nearest fathom.
- 2.9. Field Sheets: If plotting is to be done manually, field sheets with Loran-C lattices should be requested in advance from PMC. Position data shall be recorded on NOAA Form 77-15, "Dead Reckoning Abstract," and on either magnetic or punched paper tape. If the ship opts to plot the survey with the HYDROPLOT system, the necessary programs and steps are explained in appendix 1. Any alternate method developed by the ship which produces an acceptable field sheet may be used.
- 2.10. Junctions: There are no junctioning requirements for this survey.
- 2.11. Prior Surveys: The following prior surveys shall be compared to during the course of the survey. Copies of all prior surveys are considered project records and shall be forwarded to OA/CPM3 with the survey.

<u>Registry Number</u>	<u>Scale</u>	<u>Year Surveyed</u>
H-5177	1:160,000	1931-32
H-5444	1:160,000	1933

2.12. Bottom Samples: Bottom samples are required as described in the PMC OORDER and section 1.6.3 of the Hydrographic Manual. No samples are required in waters deeper than 1,000 fathoms. The Smithsonian Institution does not require samples of this area; therefore, after identifying and logging the grab sample, it can be discarded.

2.13. Presurvey Review: There will be no Presurvey Review items for this survey.

2.14. Chart Comparisons: Comparison shall be made with the latest edition of the largest scale chart or charts covering each field sheet prior to departing the survey area. It is valuable to the final survey processing that chart blowups used for comparison be included as part of the hydrographic records for each sheet forwarded to OA/CPM3. Any discrepancies between charted soundings or features and the current survey must be resolved or explained in the Descriptive Report. Charts to be used during this survey shall be 16013--21st Edition, April 8, 1978, and 16580--7th Edition, March 11, 1978.

3.0. CORRECTIONS TO SOUNDINGS

3.1. There are no tide reducers for this survey.

3.2. Soundings shall be corrected for static draft, velocity, and instrument error as described in sections 4.9.4.1, 4.9.5, and 4.9.6 of the Hydrographic Manual.

4.0. MISCELLANEOUS

4.1. Reports shall be submitted in accordance with chapter 5 of the Hydrographic Manual.

4.2. Field operations and field data processing shall be coordinated such that all project data will be submitted to PMC within 6 weeks of termination of field operations.

4.3. Surveys conducted for this project shall be given registry numbers and be subjected to all normal processing procedures.

4.4. Data Requirements: The OA/CPM3 data requirements for this project are as follows:

a. Data tapes are to be submitted in track line master tape format. Refer to HYDROPLOT/HYDROLOG Systems Manual RK330.59 for sample format.

b. A track line post plot shall be accomplished by RK218. If RK218 is not available prior to May 5, 1979, manually plotted data on Loran-C latticed field sheets will be acceptable. Data reformation via RK321 and RK300 is not recommended as an alternative to an RK218 automated plot or a manual plot. Track line master format tapes are required regardless of which plotting method is used.

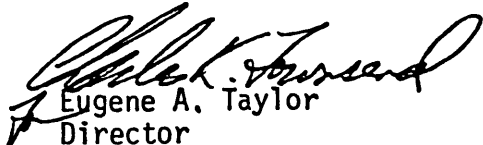
c. RK162, time and depth log, is presently not on inventory and consequently not readily available. If unavailable, NOAA Form 77-44, "Soundings," shall be used to record manually acquired hydrographic survey data.


4.5. A progress sketch indicating the sheet layout and assigned field and registry numbers shall be submitted to OA/CPM1 at the scale of chart 16013.

4.6. Accomplishments shall be reported on NOAA form 12-8b (rev. 12-76) with the guidance of the "Instructions for Completing Monthly Ship Accomplishment Report," NOAA Form 12-12 (1-77).

4.7. Submit recommendations if it appears advisable to amend these instructions.

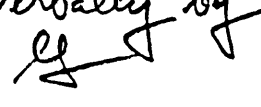
4.8. Receipt of these instructions shall be acknowledged.



 Eugene A. Taylor
 Director
 Pacific Marine Center

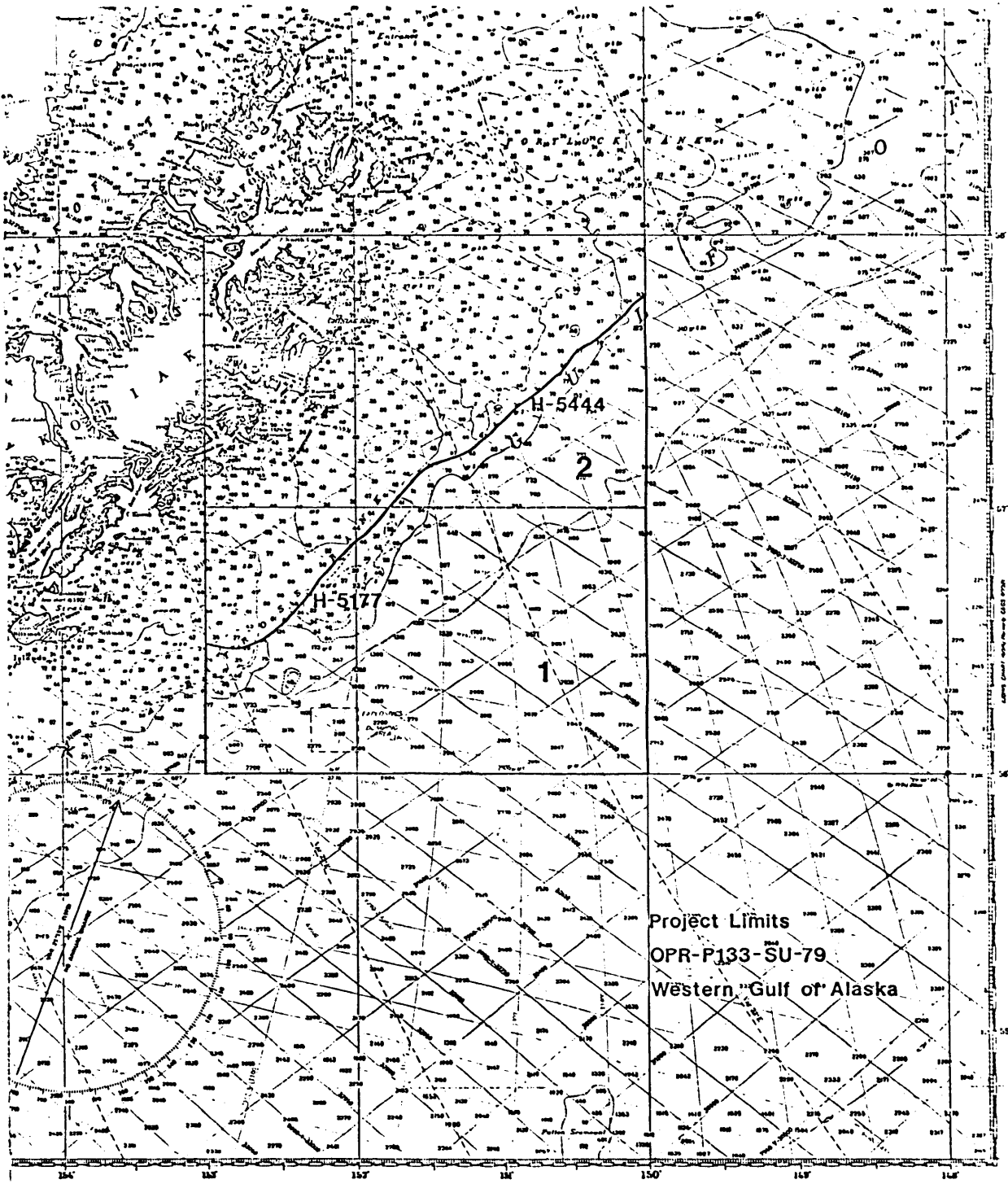

 Richard H. Houlder
 Associate Director
 Marine Surveys and Maps

Endorsement April 5, 1979

Dates of Project are hereby modified in Section 1.2 from 5 May to 21 May to 4 May to 10 May. This is in concurrence with Captain Yeager via telephone this date.

*Further modified verbally by
 CPM on 3 May. *


 Eugene A. Taylor
 Director
 Pacific Marine Center



LORAN-A coverage see reverse side

(Cape St. Elias to Shumagin Islands)

16013

(formerly CAGS 8502)

LORAN-C OVERPRINTED

APPROVAL SHEET


DESCRIPTIVE REPORT TO ACCOMPANY
BATHYMETRIC/HYDROGRAPHIC SURVEY

H-9822

SU-100-1-79

OPR-P133-SU-79

Standard procedures were observed in accordance with the Hydrographic Manual, PMC OORDER and the Instruction Manual for Automated Hydrographic Surveys in producing this sheet. The boat sheets and accompanying records have been examined by me and are considered complete and adequate for bathymetric mapping and for updating charts in the survey area and are approved.


Bruce I. Williams
Capt., NOAA

C P M 31
C P M 32
C P M 32 A
C P M 32 B ✓
C P M 32 C
C P M 33



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

July 29, 1980

OA/C73/0416:JW
1703-04-9678

TO: Distribution

FROM: OA/C732 - Jack L. Wallace *Jack L. Wallace*

SUBJECT: Loran-C Coordinates

Attached are revised Loran-C Data Sheets for the WGS-72 Datum. Corrections on this sheet are for the latitudes of the 7990M and 9970M stations.

Attachment

Distribution
OA/C54 - Fish
OA/CAM1
OA/CAM3
OA/CAM6
OA/CPM1
OA/CPM3
OA/CPM6
Internav - Bob Goddard



10TH ANNIVERSARY 1970-1980
National Oceanic and Atmospheric Administration
A young agency with a historic
tradition of service to the Nation

CHAIN *****	STATION *****	RATE (GRI) *****	STATION FUNCTION *****	CODING DELAY *****	LATITUDE *****	LONGITUDE *****	REMARKS *****
CENTRAL PACIFIC							
	SAND ISLAND	4990	M	---	16-44-43.95 N	169-30-31.20 W	
	UPOLO POINT, HI	4990	X	11000	20-14-49.16 N	155-53-09.70 W	
	KURE, HI	4990	Y	29000	28-23-41.77 N	178-17-30.20 W	
CANADIAN EAST COAST							
	CARIBOU, ME	5930	M	---	46-48-27.20 N	67-55-37.71 W	
	NANTUCKET, MA	5930	X	11000	41-15-11.93 N	69-58-39.09 W	
	CAPE RACE, NEWFNDLND	5930	Y	25000	46-46-32.18 N	53-10-28.16 W	
CANADIAN WEST COAST							
	WILLIAMS LAKE, CANADA	5990	M	---	51-57-58.78 N	122-22-02.24 W	
	SHOAL COVE, AK	5990	X	11000	55-26-20.85 N	131-15-19.65 W	
	GEORGE, WA	5990	Y	27000	47-03-47.99 N	119-44-39.53 W	
	PORT HARDY, CANADA	5990	Z	41000	50-36-29.72 N	127-21-29.35 W	
NORTH ATLANTIC							
	ANGISSOQ, DENMARK	7930	M	---	59-59-17.27 N	45-10-27.47 W	
	SANDUR, ICELAND	7930	W	11000	64-54-26.58 N	23-55-21.75 W	
	EIDHI, DENMARK	7930	X	21000	62-17-59.68 N	07-04-26.71 W	
	CAPE RACE, NEWFNDLND	7930	Z	43000	46-46-32.18 N	53-10-28.16 W	
GULF OF ALASKA							
	TOK JUNCTION, AK	7960	M	---	63-19-42.81 N	142-48-31.90 W	
	NARROW CAPE, AK	7960	X	11000	57-26-20.22 N	152-22-11.26 W	
	SHOAL COVE, AK	7960	Y	26000	55-26-20.85 N	131-15-19.65 W	
NORWEGIAN SEA							
	EIDHI, DENMARK	7970	M	---	62-17-59.68 N	07-04-26.71 W	
	SYLT, GERMANY	7970	W	26000	54-48-29.80 N	08-17-36.33 E	
	BO, NORWAY	7970	X	11000	68-38-06.15 N	14-27-47.00 E	
	SANDUR, ICELAND	7970	Y	46000	64-54-26.58 N	23-55-21.75 W	
	JAN HAYEN, NORWAY	7970	Z	60000	70-54-52.61 N	08-43-58.69 W	
SOUTHEAST U.S.							
	MALONE, FL	7980	M	---	30-59-38.74 N	85-10-09.30 W	
	GRANGEVILLE, LA	7980	W	11000	30-43-33.02 N	90-49-43.60 W	
	RAYMONDVILLE, TX	7980	X	23000	26-31-55.01 N	97-50-00.09 W	
	JUPITER, FL	7980	Y	43000	27-01-58.49 N	80-06-53.52 W	
	CAROLINA BEACH, NC	7980	Z	59000	34-03-46.04 N	77-54-46.76 W	
MEDITERRANEAN SEA							
	CATANZARO, ITALY	7990	M	---	38-52-20.59 N	16-43-06.16 E	
	LAMPEDUSA, ITALY	7990	X	11000	35-31-20.79 N	12-31-30.24 E	
	KARGA BURNU, TURK	7990	Y	29000	40-58-20.95 N	27-52-01.52 E	
	ESTARIT, SPAIN	7990	Z	47000	42-03-36.49 N	03-12-15.90 E	
GREAT LAKES							
	DANA, IN	8970	M	---	39-51-07.54 N	87-29-12.14 W	
	MALONE, FL	8970	W	11000	30-59-38.74 N	85-10-09.30 W	
	SENECA, NY	8970	X	28000	42-42-50.60 N	76-49-33.86 W	
	BAUDETTE, MN	8970	Y	44000	48-36-49.84 N	94-33-18.47 W	
U.S. WEST COAST							
	FALLON, NV	9940	M	---	39-33-06.62 N	118-49-56.37 W	
	GEORGE, WA	9940	W	11000	47-03-47.99 N	119-44-39.53 W	
	MIDDLETON, CA	9940	X	27000	38-46-56.99 N	122-29-44.53 W	
	SEARCHLIGHT, NV	9940	Y	40000	35-19-18.18 N	114-48-17.43 W	

CHAIN *****	STATION *****	RATE (GRI) *****	STATION FUNCTION *****	CODING DELAY *****	LATITUDE *****	LONGITUDE *****	REMARKS *****
NORTHEAST U.S.							
	SENECA,NY	9960	M	---	42-42-50.60 N	76-49-33.86 W	
	CARIBOU,ME	9960	W	11000	46-48-27.20 N	67-55-37.71 W	
	NANTUCKET,MA	9960	X	25000	41-15-11.93 N	69-58-39.09 W	
	CAROLINA BEACH,NC	9960	Y	39000	34-03-46.04 N	77-54-46.76 W	
	DANA,IN	9960	Z	54000	39-51-07.54 N	87-29-12.14 W	
NORTHWEST PACIFIC							
	IWO JIMA,JAPAN	9970	M	---	24-48-03.60 N	141-19-30.30 E	
	MINAMI-TORI SHIMA	9970	W	11000	24-17-07.89 N	153-58-53.23 E	
	HOKKAIDO,JAPAN	9970	X	30000	42-44-37.00 N	143-43-09.06 E	
	OKINAWA,JAPAN	9970	Y	55000	26-36-24.99 N	128-08-56.21 E	
	YAP ISLAND	9970	Z	75000	09-32-45.79 N	138-09-54.97 E	
NORTH PACIFIC							
	ST. PAUL,AK	9990	M	---	57-09-12.26 N	170-15-06.80 W	
	ATTU,AK	9990	X	11000	52-49-44.04 N	173-10-48.97 E	
	PORT CLARENCE,AK	9990	Y	29000	65-14-40.31 N	166-53-12.55 W	
	NARROW CAPE,AK	9990	Z	43000	57-26-20.22 N	152-22-11.26 W	
NORTHWEST PACIFIC RECONFIGURED							
	MINAMI-TORI SHIMA	7930	M	---	24-17-07.89 N	153-58-53.23 E	
	HOKKAIDO,JAPAN	7930	X	11000	42-44-37.00 N	143-43-09.06 E	
	OKINAWA,JAPAN	7930	Y	30000	26-36-24.99 N	128-08-56.21 E	
	YAP ISLAND	7930	Z	49000	09-32-45.79 N	138-09-54.97 E	

RECONFIGURED '9970'
 WHEN 9970 GOES DOWN,
 (NOTE: SAME GRI AS
 NORTH ATLANTIC)
 0



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SURVEY
 Pacific Marine Center
 1801 Fairview Avenue East
 Seattle, Washington 98102

July 29, 1980

OA/CPM3x1/LWM

TO: OA/CPM32 - James S. Green
 FROM: OA/CPM3x1 - Larry Mordock
 SUBJECT: Datum Shift Corrections for H09822

Marine Surveys Division requires all data in the North American Datum of 1927 (NAD27) for entry into the automated information system. Geographic positions of the ship were obtained by a CC-2 Internav computer operating on the world geodetic system of 1972 (WGS 72) datum employing Loran C chain 7960 x & y. Calibration of Loran C was accomplished by JMR Doppler satellite computing on the WGS 72 datum. Radar land ties on NAD 27 were not considered in calibration due to the proximity of the Loran C Station 7960-X, Narrow Cape, Alaska. Doppler geocentric coordinates require a scale change and origin shift in longitude to achieve coincidence with the WGS 72 datum. The magnitude of the transformation in the survey area is approximately 0.071" of latitude and -0.800" of longitude which is insignificant considering the repeatability and accuracy of Loran C in the Gulf of Alaska are 0.1 and 0.25 - 0.50 nautical miles respectively. According to Mr. Jack Wallace all NOS satellite receivers/computers accomplish this transformation internally. Therefore, Loran C calibrations by JMR Doppler satellite were considered to be accurate. The WGS 72 position on 7960-X (Narrow Cape, Alaska) employed by the Internav computer was in slight error. Values are as follows:

Employed	Corrected	Delta
57° 26' 20."210	57° 26' 20."217	0."007
152° 22' 11."220	152° 22' 11."262	0."042

The differences were considered insignificant considering Loran C accuracies, and the data was not recomputed. It was noted that calibration of the 9990 chain could not be accomplished, and therefore was not employed. The WGS 72 positions employed by the Internav computer were in considerable error which explains the problem. Correct NAD 27 positions are not yet published, but corrected WGS 72 positions are as follows:

Station	Incorrect	Corrected
9990	57° 09' 09."880	57° 09' 12."265
	170° 14' 59."810	170° 15' 06."799
9990-X	52° 49' 45."050	52° 49' 44."040
	173° 10' 52."310	173° 10' 48."974



9990-Y	65° 14' 40."120	65° 14' 40."306
	166° 53' 14."470	166° 53' 12."550

The survey data was shifted from WGS 72 to NAD 27 by transforming to geocentric coordinates on WGS 72, applying a Delta X, Y, Z, and transforming back on NAD 27. Deltas were computed using the updated coordinates of Loran C Station 7960-X (Narrow Cape, Alaska) which is in close proximity to the survey area. It should be noted that a geodetic height of 61.0 meters was assumed for station 7960-X in computing deltas for the geocentric coordinates. Respective deltas of the geocentric coordinates are:

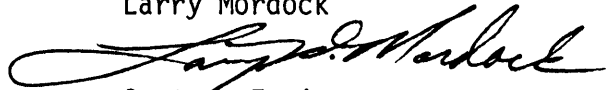
$\Delta X = -13.666$ meters
 $\Delta Y = 147.853$ meters
 $\Delta Z = 151.836$ meters

Where $\Delta \rightarrow$ WGS 72 - NAD 27.

References: "Determination of North American Datum 1983
Coordinates of Map Corners", NOAA Technical
Memorandum NOS NGS-6, Thaddeus Vincenty, October 1976.

"Determination of North American Datum 1983
Coordinates of Map Corners (Second Prediction),"
NOAA Technical Memorandum NOS NGS-16, Thaddeus
Vincenty, April 1979.

Larry Mordock



Systems Engineer
Pacific Marine Center, CPM3x1

March 19, 1980 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): 945-7283 St. Paul's Harbor, Kodiak Island, AK

Period: October 31 - November 13, 1979

HYDROGRAPHIC SHEET: H-9822

OPR: P133

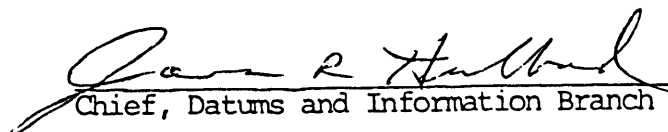
Locality: Offshore, southeast of Kodiak Island, Alaska

Plane of reference (mean lower low water): 4.0 ft.

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

REMARKS: Recommended zoning:

Apply -25 minute time correction and range ratio x0.93.


Chief, Datums and Information Branch

GEOGRAPHIC NAMES

H-9822

Name on Survey	A	B	C	D	E	F	G	H	K	
	ON CHART NO. 16012	ON PREVIOUS SURVEY NO.	CON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP ATLAS	RAND McNALLY ATLAS	U.S. LIGHT LIST		
GULF OF ALASKA	X									1
ALBATROSS BANK										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
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										22
										23
										24
										25

Approved:

Chas. E. Harrington
Chief Geographer - C3x5

3 DEC. 1980

APPROVAL SHEET

FOR

SURVEY H- 9822

- 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: 8/27/80

Signed: 

Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

H-9822

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	3 & 6
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	5

DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS			row P/O 1- & misc			
VOLUMES		2				
BOXES			1-Smooth & UGR Fathograms			

T-SHEET PRINTS (List) none

SPECIAL REPORTS (List) 1-tide plot

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			1732
POSITIONS CHECKED		1732	
POSITIONS REVISED		1	
SOUNDINGS REVISED		38	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	5		
VERIFICATION OF CONTROL		13	
VERIFICATION OF POSITIONS		17	
VERIFICATION OF SOUNDINGS		114	
COMPILATION OF SMOOTH SHEET		28	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		0	
COMPARISON WITH PRIOR SURVEYS & CHARTS		4	
VERIFIER'S REPORT		48	
OTHER		5	
TOTALS	5	229	234

Pre-Verification by James S. Green	Beginning Date 3-26-80	Ending Date 3-26-80
Verification by John E. Lotshaw	Beginning Date 5-13-80	Ending Date 8-7-80
Verification Check by A. F. Fichelberger, J. S. Green	Time (Hours) 36	Date 8-18-80
Marine Center Inspection by HIT	Time (Hours) 11	Date 9-15-80
Quality Control Inspection by F.P. Saulsbury	Time (Hours) 39	Date 11-28-80
Requirements Evaluation by Demis Hill	Time (Hours) 2	Date 1/2/81

G. Meyer done 12/11/80

REGISTRY NO. H-9822

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. _____

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:

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9822

FIELD NO. SU-100-1-79

Alaska, Gulf of Alaska, Southeast of Kodiak Island

SURVEYED: May 5 - 10, Oct 30 - Nov 13, 1979

SCALE: 1:100,000

PROJECT NO: OPR-P133-SU-79

SOUNDINGS: Raytheon Universal
Graphic recorder (196C-10)

CONTROL: Loran C

Chief of Party.....CAPT J. G. Grunwell
CAPT B. I. Williams
Surveyed by.....Ship's Complement
Automated Plot by.....Xynetics Plotter (PMC)
Verified and Inked by.....John E. Lotshaw
August 18, 1980

1. INTRODUCTION

H-9822 is a basic survey of a portion of the western Gulf of Alaska. It is bounded on the north by Latitude $56^{\circ}45'N$, on the south by Latitude $56^{\circ}00'N$, on the east by Longitude $150^{\circ}00'W$, and on the west by Longitude $152^{\circ}05'W$. There are no complete junction sheets and only fragmenting prior survey data. Work on H-9823, the projected sheet to the north of H-9822, has not progressed to the point where a junction could be made.

Processing of H-9822 was by automated plotting of fix coordinates from the Loran C navigator, as corrected in accordance with recommendations contained in paragraph G (6) of the Descriptive Report for work done during 5 - 10 May, 1979. Projection parameters for the smooth sheet are stated in terms of the NA1927 datum.

No tide correctors were used to reduce soundings on the field sheets. Tide correctors derived from the St. Paul's Harbor, AK, gage were applied to shoal soundings in the northwest corner of the sheet during processing (See zoning parameters in back of printouts for tide application.) Deeper soundings were not corrected for tides during processing.

2. CONTROL AND SHORELINE

Control for all positions on H-9822 was by the Loran C system, using readouts from the 7960 X and Y chain. Loran rates for each position were reduced to geographic coordinates by an Internav CC-2 coordinate converter. Plots of these positions comprise the position locations.

Coordinate transformations to translate the WGS based data from the Loran C navigator to NA1927 based on coordinates were accomplished at FMC. The attached CFM3xl letter, Subject: Datum Shift Correctors for H-9822, dated July 29, 1980, outlines the procedures used to accomplish these changes. The product resulting from these manipulations is a smooth sheet which contains data based on the NA1927 datum and displayed on a polyconic projection.

During verification comparison of a number of satellite fixes with related Loran C fixes was made. This comparison showed a mean deviation of 0.42 NM north of Loran positions for the satellite fixes. This compares well with the Descriptive Report recommendations of an adjustment of 0.4 NM at 355° TB. A correction of this magnitude has been applied to all data on H-9822 as a single correction to position locations.

There is no shoreline on H-9822 and no topographic data has been considered in compiling the smooth sheet.

3. HYDROGRAPHY

a. Crosslines agree with the main scheme hydrography within 1% of the depth in all cases and exactly in most cases. In view of the great depths encountered on most of the sheet, agreements at crossings are generally excellent. *CONCUR*

b. A line spacing of approximately 3000 meters is used over most of the sheet. This spacing is insufficient to allow more than generalized bottom contours to be drawn. In addition, sounding lines are run parallel to the depth contours further degrading the verifier's ability to define accurate contours. *CONCUR*

Because of the wide line spacing and the large time delay between soundings on lines, soundings displayed on H-9822 should be regarded as a series of spot elevations representative of the surrounding bottom rather than a thorough development of the area. In this respect, H-9822 is more of a reconnaissance survey of an area in which little prior survey data is available than an exhaustive analysis of its area of coverage.

c. Development of the bottom configuration is adequate for the stated purpose of this survey. There are no critical depths or presurvey review items on H-9822 which require development. *Do not concur with first sentence See Q.C. Report*

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements of the Hydrographic Manual. Survey procedures, line orientation, and line spacing conform to the Project Instructions, OPR-P133-SU-79, Western Gulf of Alaska, dated April 2, 1979. *Do not concur on line spacing See Q.C. Report*

5. JUNCTIONS

There are presently no contemporary junction sheets to H-9822. Work on H-9823, 1979, the junction sheet to the north, has been fragmentary to date. It is not anticipated that H-9823 will be finished and available for processing prior to the 1981 field season.

No other junction surveys to H-9822 exist or have been projected. Depth curves in all junction areas have been left in pencil. ✓

6. COMPARISON WITH PRIOR SURVEYS

a. There are no prior surveys in the area covered by H-9822. One prior survey, H-5177 (1:160,000) 1931-32 covers an area adjoining H-9822 at its northwest corner, but no meaningful comparison of soundings is possible. H-5444 (1:160,000) 1933 does not fall within the limits of this survey. ✓

b. There are no presurvey review items on H-9822.

7. COMPARISON WITH CHARTS 16013, 21st Ed., April 8, 1978 16580, 7th Ed., March 11, 1978

a. Hydrography

Differences of up to 250 fms were noted between H-9822 and soundings charted on 16013, 21st Ed., April 8, 1978. Curiously, the agreement in the offshore area was quite close, usually within a few fathoms. All of the very large depth differences were noted in the northwest corner of the sheet. This area was closest to land being due southeast of Kodiak Island and containing a steeply sloping bottom. The differences appear to result from inaccurate fixing techniques used in the past. *CONCUR*

Similar differences were noted in the comparison with Chart 16580, 7th Ed., March 11, 1978, with the largest differences in the inshore areas. It is also noteworthy that both charts appear to have been compiled from the same sources, but that they tend to disagree within themselves as to specific locations of soundings displayed.

The source of the charted soundings on both charts is unknown. *Probably from 7th Ed. of 16580*

Data displayed on both Chart 16013 and Chart 16580 are to be superseded by H-9822 in its area of coverage. These charts should be recompiled in the area covered by H-9822. *CONCUR*

b. Controlling Depths

There are no defined navigation channels on H-9822. ✓

c. Aids to Navigation

There are no charted aids to navigation in the area covered by survey H-9822. ✓

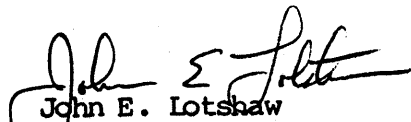
8. COMPLIANCE WITH INSTRUCTIONS

H-9822 adequately complies with Project Instructions OPR-P133-SU-79, Western Alaska, dated April 2, 1979. *Except as noted in the Q.C. Report*

9. ADDITIONAL FIELD WORK

No additional field work will be required to comply with project instructions. Additional field work would be required in any area in which a well defined bottom configuration is required. *concur*

Respectfully submitted,


John E. Lotshaw
Cartographic Technician
August 18, 1980

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 Avenue East
Seattle, Washington 98102

September 15, 1980

OA/CPM3/JWC

TO: OA/CPM - Charles K. Townsend (Acting)

FROM: OA/CPM3 - John W. Carpenter *JWC*

SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9822

This survey is a basic hydrographic survey of Western Gulf, Southeast of Kodiak Island, Alaska. This survey was conducted by NOAA Ship SURVEYOR in 1979 in accordance with Project Instructions OPR-P133-SU-79 dated April 2, 1979.

The following items were noted:

1. Although this survey was processed as a basic survey, the Project Instructions stated that the survey will primarily be used for bathymetric mapping and specified that the sounding line orientation was to be parallel to the depth gradient. This caused somewhat of a problem in defining the depth curves. *Orientation in the N.W. portion of the survey was exactly opposite of what it should have been.*
2. The TRA corrector apparently did not include the instrument corrections, a procedure error but not one of significance for this survey.
3. Although Loran C is an acceptable positioning system, it is questionable whether the positional accuracy meets the 1.5 mm accuracy at the scale of the survey. This survey does meet the requirements of the Project Instructions. *Corrections to Loran C rates were applied from Satellite fixes.*

The inspection team finds H-9822 to be a basic survey adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended.

[Signature]
John W. Carpenter

[Signature]
David B. MacFarland, Jr.

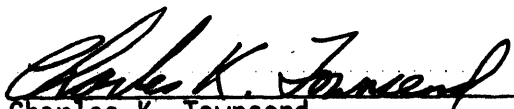
[Signature]
James W. Steensland

[Signature]
Bruce A. Olmstead



ADMINISTRATIVE APPROVAL
H-9822

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. *Charting curves should be recompiled when applied to the charts,*


Charles K. Townsend
Acting Director
Pacific Marine Center

9/15/80
date



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

OA/C352:FPS

November 28, 1980

TO: Glen R. Schaefer *GRS*
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch *gm*

FROM: F. P. Saulsbury *F.P. Saulsbury*
Quality Evaluator

SUBJECT: Quality Control Report for H-9822 (1979), Alaska, Gulf of Alaska,
Southeast of Kodiak Island

A quality control inspection of H-9822 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, 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 stated in the Verifier's Report, the HIT Report, and as follows:

As stated in the project instructions, this survey is primarily for bathymetric mapping in support of the Bureau of Land Management (BLM) lease blocks. A secondary consideration is the updating of nautical charts of the area.

Project instructions state that, "In compliance with the requirements of bathymetric mapping, the sounding lines should be oriented 045°-225° (True). Although contrary to normal hydrographic methods, this orientation has proven most beneficial to bathymetric mapping."

The preceding statement is thought to have been included in the project instructions at the request of the Bathymetric Mapping Group, Marine Chart Division. It resulted in the sounding lines being oriented parallel to the depth curves. This orientation may have been adequate for delineation of canyons incising the slope, but it was not adequate for determining the location of depth curves which delineate the slope itself. The orientation of sounding lines should have been as shown in the top illustration of figure 4-5 of the Hydrographic Manual. Future project instructions should be closely monitored to avoid similar results.



Also the project instructions state that, "Line spacing shall be in accordance with section 4.3.4.3 of the Hydrographic Manual except in no case shall it exceed 3,200 meters. It may be necessary to reduce spacing as described in the referenced section."

While maximum line spacing requirements were not violated, line spacing was not reduced as necessary to delineate the bottom configuration except in the area of the rise in latitude $56^{\circ}40.00'N$, longitude $151^{\circ}28.00'W$ where two splits were acquired.

cc:
OA/C351



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

JUN 2 1981

OA/C351:DJI

TO: OA/CPM - Charles K. Townsend

FROM: ~~F/OA/CS~~ - Roger F. Lanier

SUBJECT: H-9822 (1979), OPR-P133, Alaska, Gulf of Alaska, Southeast of Kodiak Island, Report of Compliance with Project Instructions

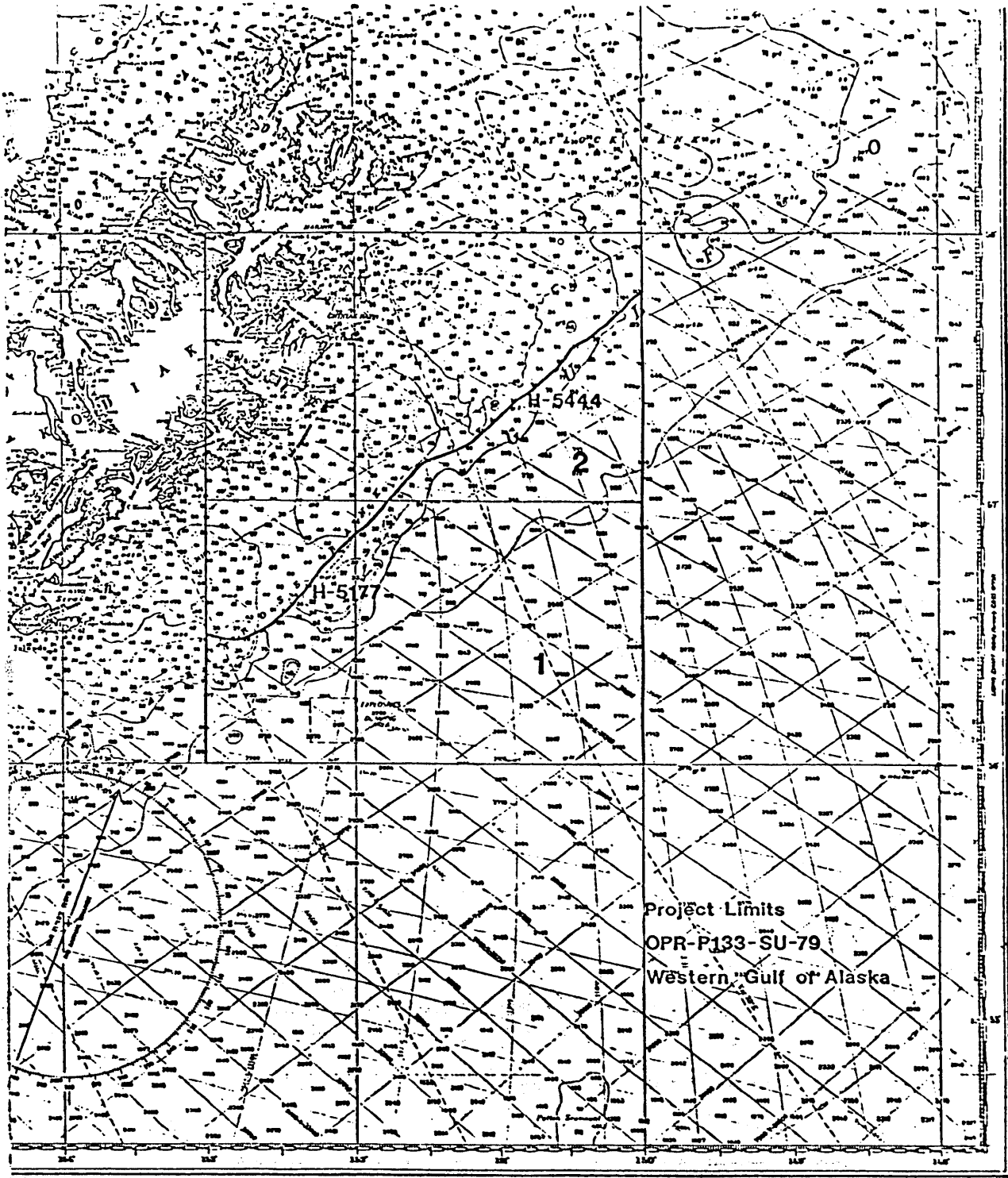
The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated November 28, 1980 (copy attached), and the Hydrographic Survey Inspection Team Report, dated September 15, 1980, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-P133-SU-79, dated April 2, 1979.

Attachment

cc:
OA/C352 w/o att.



10TH ANNIVERSARY 1970-1980
National Oceanic and Atmospheric Administration



VF-A coverage on reverse side

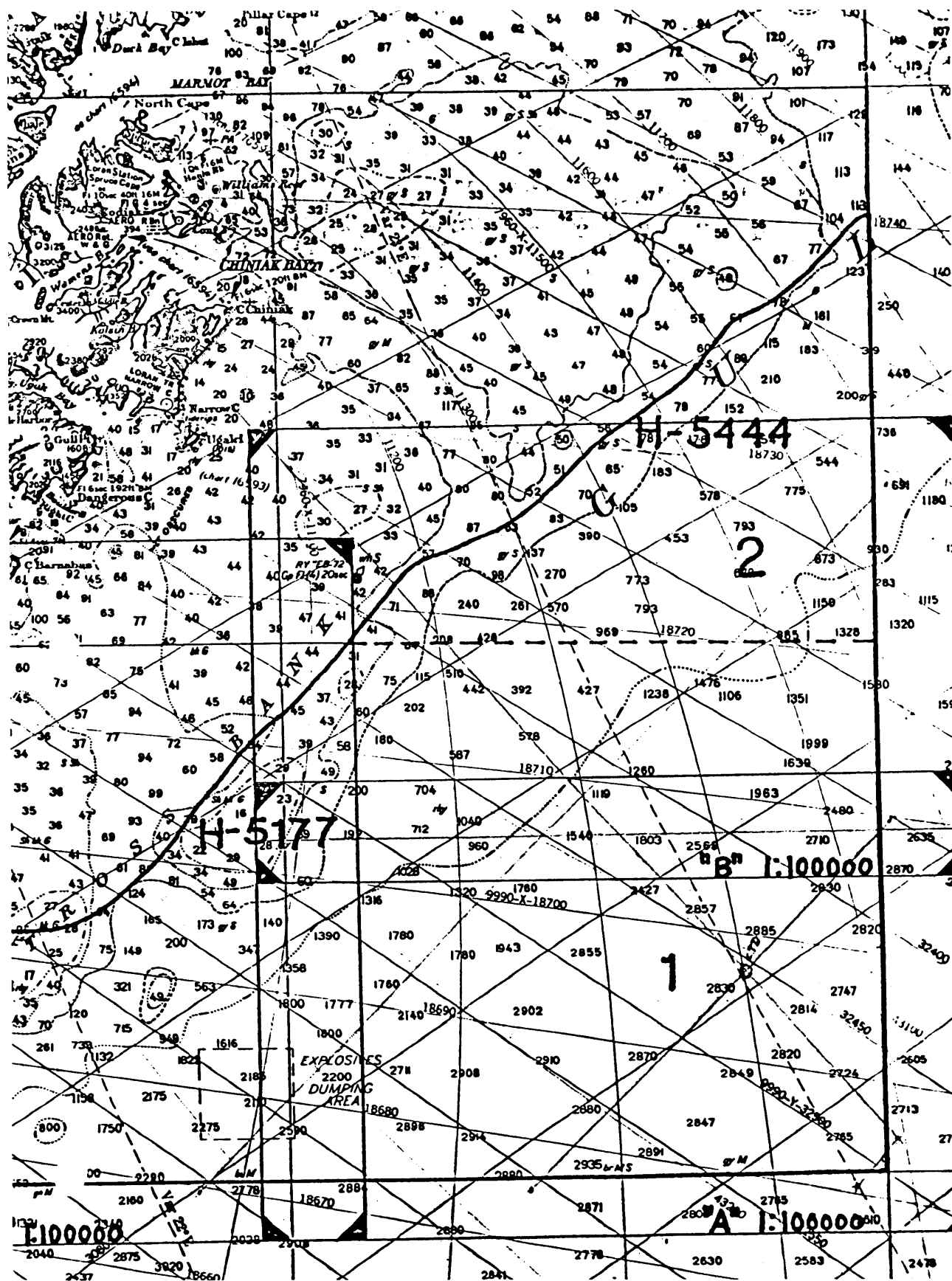
(Cape St. Elias to Shumagin Islands)

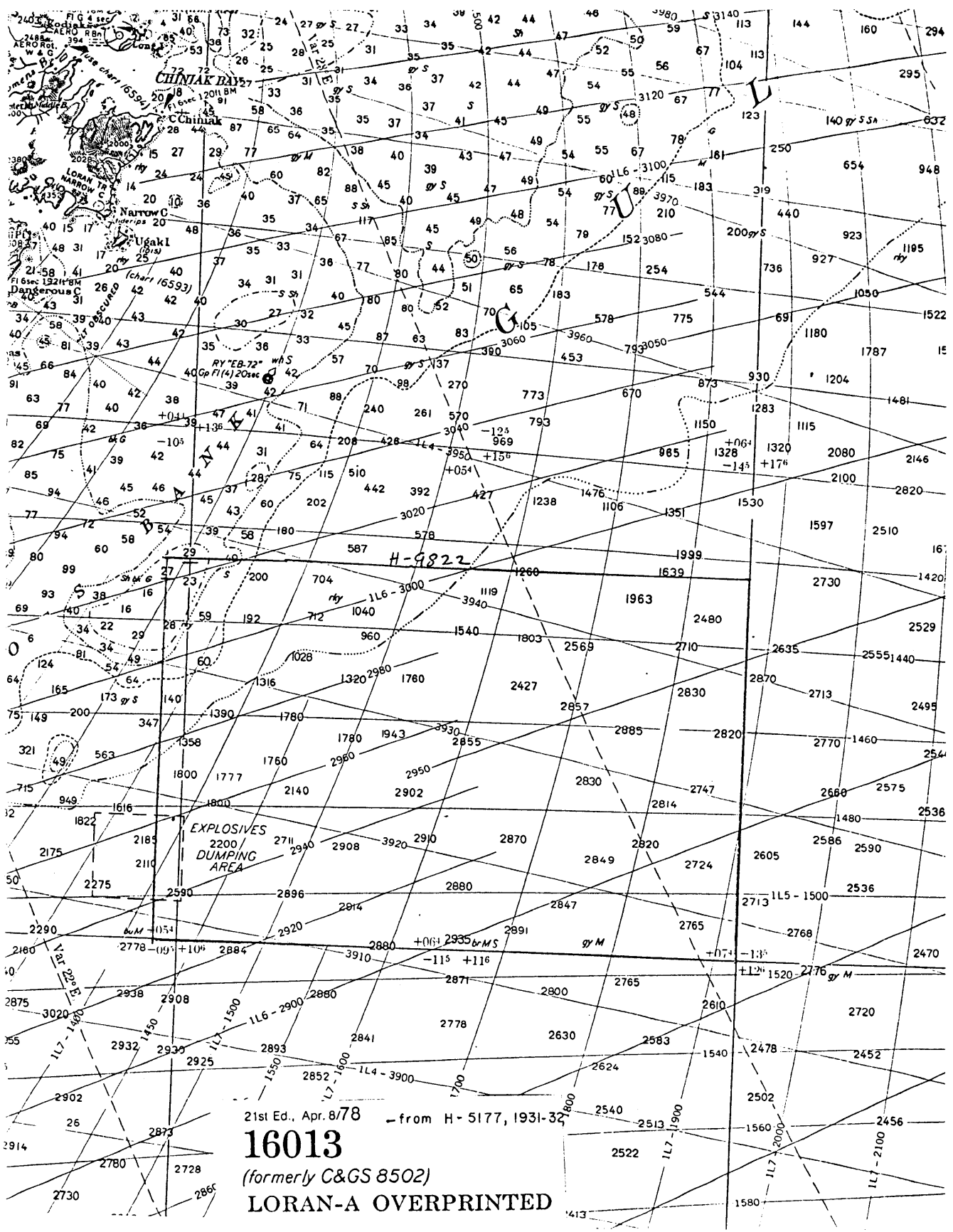
ENCLOSURE IN PAPER - SCALE 1:50,000

16013

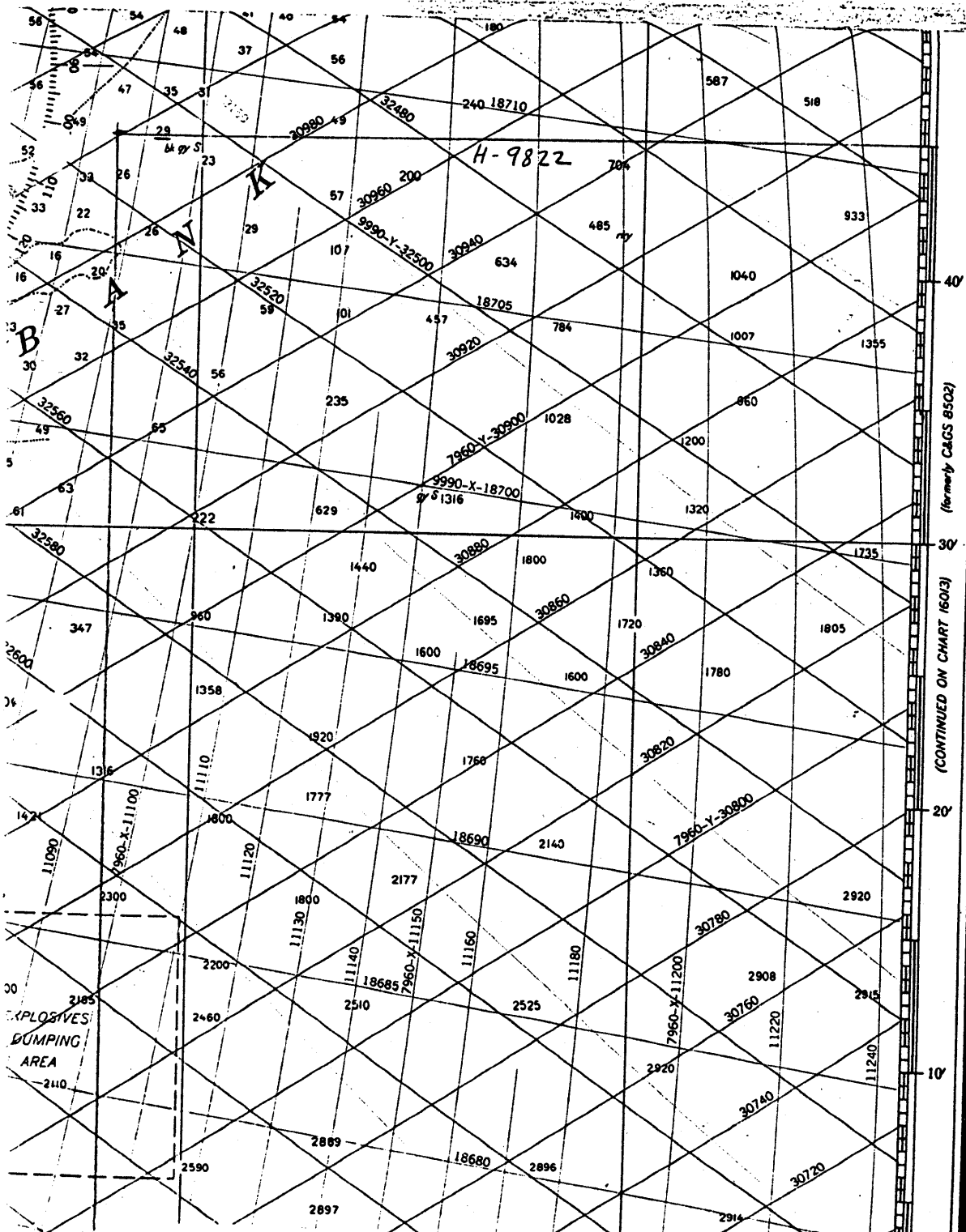
(formerly CAGS 8502)

LORAN-C OVERPRINTED





21st Ed., Apr. 8/78 - from H-5177, 1931-32
16013
(formerly C&GS 8502)
LORAN-A OVERPRINTED



(CONTINUED ON CHART 16013) (formerly C&GS 8502)

H-9822

7th Ed., Mar. 11/78 - from H-5177, 1931-32

16580
 (formerly C&GS 8556)
 LORAN-C OVERPRINTED

WEST ANCHORAGE
 CHIIRIKOF ISLAND

56°

EXPLOSIVES
 DUMPING
 AREA

2776

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9822

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
16580	6/29/81	Wann Hansen	Full Part Before After Verification Review Inspection Signed Via Drawing No. 19. Exam as a Daily Arrival Item. No Corr
16013	6/29/81	Wann Hansen	Full Part Before After Verification Review Inspection Signed Via Drawing No. 26. Exam as a Daily Arrival Item. No Corr
16580	8/27/81	R.S. House	Full Part Before After Verification Review Inspection Signed Via Drawing No. Dwg/Aid Proof 19 for <u>signature</u>
530	9/14/81	C.S. Forbes	Full Part Before After Verification Review ^{PC} Inspection Signed Via Drawing No. Examined for critical corrections only; none applied.
16013	12/2/81	R.S. House	Full Part Before After Verification Review Inspection Signed Via Drawing No. Dwg/Aid Proof #26
530	7/1/82	R. Lockman	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined for critical correction only; none applied
50	7/1/82	R. Lockman	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined for critical correction only; none applied
531	12/30/81	R.S. House	Full Part Before After Verification Review Inspection Signed Via Drawing No. 17 Applied thru chart 16013 Dwg#26
50	3/29/83	John R. Bailey	Full Part Before After Verification Review ^{PC} Inspection Signed Via Drawing No. Exam. for critical corrs. No corr.
500	1-10-83	M. Sayer	Full Part Before After Verification Review Inspection ^{PC} Signed Via Drawing No. 5. Applied thru Chart #531 Dwg #18 Revised curves and sndgs.
530 #32	8-8-83	L.A. Simmons	Fully app'd signed hydro thru chart 500 #5. Revised sndgs. and curves thru Dwg. Aid Proof 531 #17.
50	8-26-83	L.A. Simmons	Fully app'd thru 500 #5. Revised metric depth curves.