

H10841

NOAA FORM 75-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-10-17-98
Registry No. H-10841

LOCALITY

State Alaska
General Locality Southwest Prince William Sound
Sublocality Bay of Isles

1998

CHIEF OF PARTY
CAPT Alan D. Anderson, NOAA

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DATE OCT 18 1999

HYDROGRAPHIC TITLE SHEET

H-10841

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.

RA-10-17-98

State Alaska

General locality Southwest Prince William Sound

Locality Bay of Isles

Scale 1:10,000 Date of survey 9/8/98 - 10/13/98

Instructions dated July 10, 1998 Project No. OPR-P139-RA

Change #1 dated Sept. 8, 1998
Vessel RA-1 (2121), RA-2 (2122), RA-3 (2123), RA-4 (2124), RA-5 (2125), RA-6 (2126)

Chief of party CAPT Alan D. Anderson, NOAA

Surveyed by RAINIER Personnel

Soundings taken by echo sounder, hand lead, and DFS-6000N, Knudsen 320M, RESON SEABAT 8101 (SWMB)

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: I. Almacen Automated plot by HP Design Jet 650C

Verification by M. Bigelow, R. Mayor, E. Domingo, I. Almacen, LCDR J. Ferguson

Soundings in fathoms ~~feet~~ at MLW ~~MLLW~~ MLLW (data collected in Meters) and tenths

REMARKS: All times are UTC, revisions and marginal notes in black were
generated during office processing. All separates are filed
with the hydrographic data, as a result page numbering may be
interrupted or non-sequential.
All depths listed in this report are referenced to mean lower
low water unless otherwise noted.

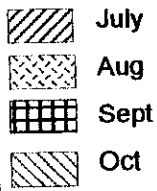
Awsis / SURF 9/30/99
mcR

PROGRESS SKETCH

OPR-P139-98
Prince William Sound, AK
October

Capt A. D. Anderson
Commanding

Chart 16705_1



Sheet E
13.80 sq nm
100%

Sheet D
7.97 sq nm
100%

Sheet W
126.9 sq nm
100%

Sheet V
16.78 sq nm
100%

Sheet U
17.50 sq nm
100%

Sheet X
28.49 sq nm
100%

Sheet Z
21.18 sq nm
100%

Sheet Y
17.53 sq nm
100%

Sheet AA
12.92 sq nm
100%

Sheet AB
24.50 sq nm
100%

Sheet F
10.15 sq nm
100%

Sheet G
10.67 sq nm
100%

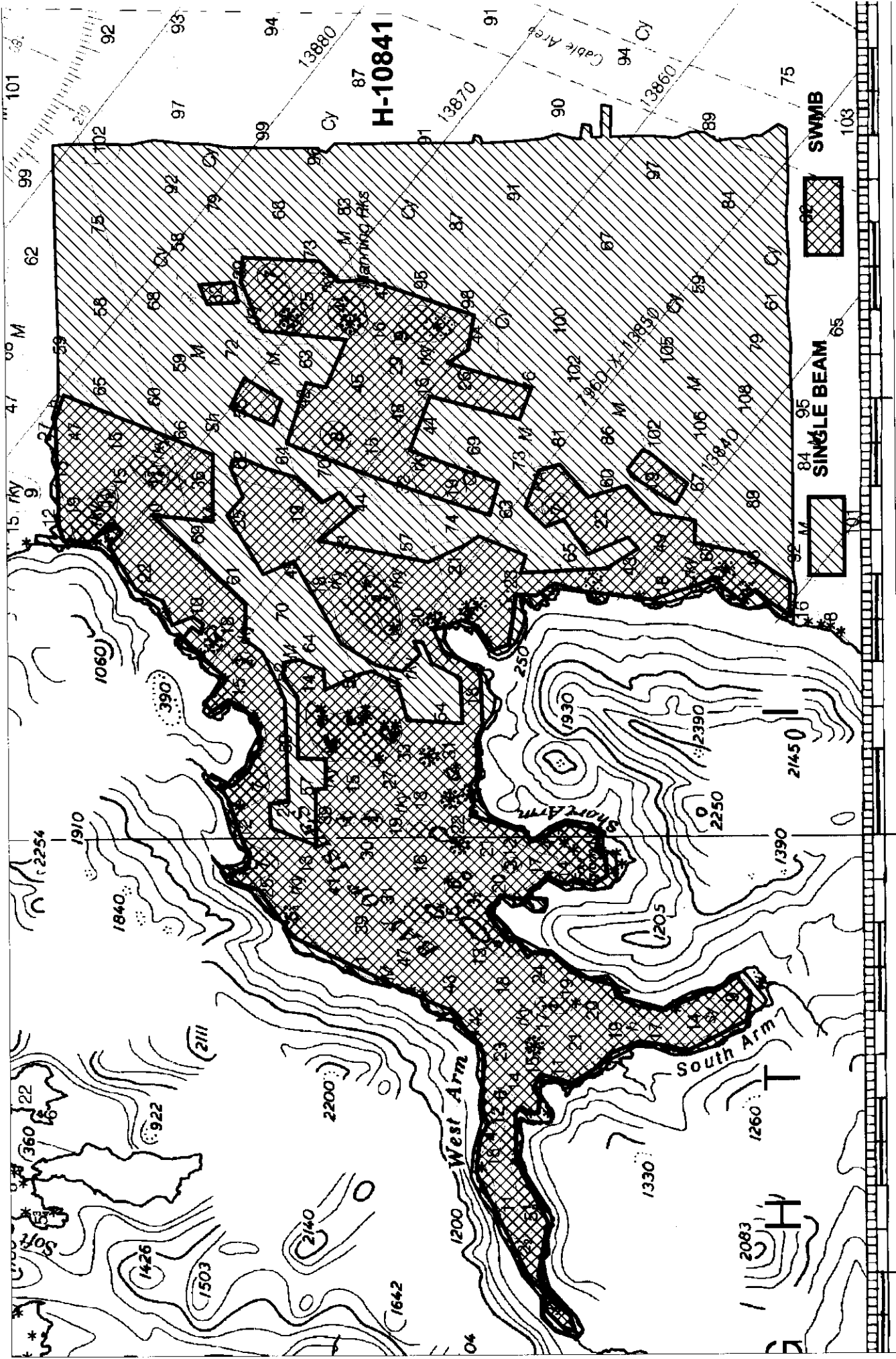
Accomplished	July	Aug	Sept	Oct
LNM Hydro	618.57*	969.99	2045.14	1676.19
LNM SSS	0	0	0	0
SQ NM	17.16	20.95	63.92	195.69
AWOIS Invest.	0	6	2	6
Other Invest.	0	1 dive	3 dives	5 dives
LNM Multibeam	86.5	310.01**	429.9**	1113.9**

Sheet	Reg No	Started	Percent	Completed	Submitted	SQNM
G	H-10827	7/25	100	9/15		10.67
F	H-10829	7/28	100	9/15		10.15
E	H-10826	7/21	100	10/9		13.80
D	H-10838	8/23	100	9/6		7.97
Y	H-10837	8/21	100	10/14		17.53
U	H-10840	9/6	100	10/7		17.50
AA	H-10841	9/8	100	10/13		12.92
V	H-10843	9/10	100	10/19		16.78
W	H-10849	9/24	100	10/28		126.9
X	H-10846	9/19	100	10/26		28.49
AB	H-10847	9/21	100	10/26		24.50
Z	H-10855	10/21	100	10/28		21.18

* Does not include SWMB
** Includes both SWMB & IDSSS

Downtime Type	July	Aug	Sept	Oct
Weather - Hr	0	20	0	22
Mechanical -Hr	0	7	22	8
Electronic -Hr	0	7	0	0

H-10841



Descriptive Report to Accompany Hydrographic Survey H-10841

Field Number RA-10-17-98

Scale 1:10,000

September 1998

NOAA Ship RAINIER

Chief of Party: Captain Alan D. Anderson, NOAA

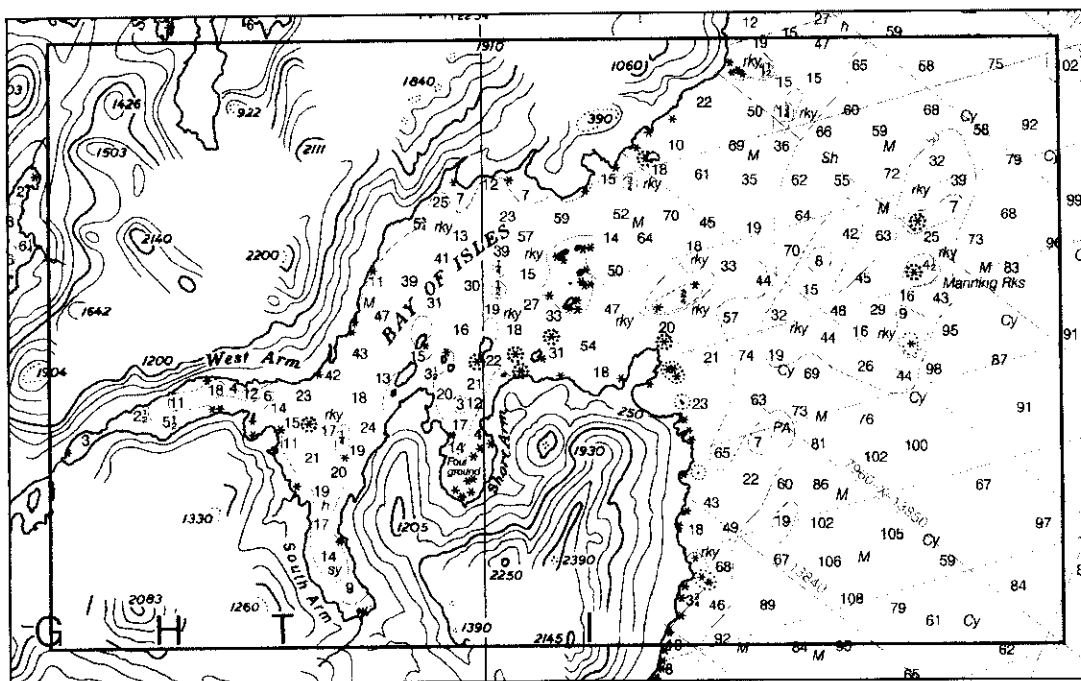
A. PROJECT ✓

This basic hydrographic survey was completed in the southwest portion of Prince William Sound, Alaska as specified by Project Instructions OPR-P139-RA dated July 10, 1998 and change #1 dated September 8, 1998. Survey H-10841 corresponds to sheet AA as defined in the sheet layout. This survey will provide data to supersede prior surveys performed from 1903 through 1949 and will affect Charts 16700, 16701, and 16705. Requests for hydrographic surveys and updated charts in this area have been received from the National Imagery and Mapping Agency (NIMA), the U.S. Coast Guard, the Southwest Alaska Pilot's Association, cruise ship lines, and local fishermen.

Significant changes in depths and shoreline may have occurred in the project area as a result of the earthquake of March 27, 1964.

B. AREA SURVEYED. (See EVAL RPT., Sec. B)

The survey area is Bay of Isles (H-10841). Survey limits are shown below on a detail of Chart 16701 (Northern limit $60^{\circ} 25' 38''$ N, Southern limit $60^{\circ} 21' 30''$ N, Western limit $147^{\circ} 48' 00''$ W, Eastern limit $147^{\circ} 32' 00''$ W). Data acquisition was conducted from September 9 to October 13, 1998 (DN 251 to DN286). Marine traffic was not observed in the survey area.



C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches (vessel numbers 2121, 2122, 2123, 2124, 2125 and 2126) as noted in the Survey Information Summary print out appended to this report.

This project included the use of a new vessel configuration. Launches 2121, 2123, and 2126 were recently configured with a Reson SeaBat 8101 Shallow Water Multibeam (SWMB) system. (See Section F., Sounding Equipment, for details.) The center of the launch keels were cut and modified to house the transducers. The originally installed DSF-6000N single beam transducers remained installed as before.

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Single beam echosounder data were acquired using HYPACK version 7.1a from Coastal Oceanographics and processed using Hydrographic Processing System (HPS). Shallow water multibeam (SWMB) echosounder data were acquired using the Reson SeaBat 8101 with ISIS version 3.41 and processed using CARIS software. Raster image and shoreline data in MapInfo facilitated charted and prior survey comparisons. Final Detached Positions and soundings based on predicted tides were saved in MapInfo 4.5 format. A complete listing of software for HYPACK and HPS is included in Appendix VI. *

E. SONAR EQUIPMENT ✓

Side Scan Sonar (SSS) equipment was not used on this survey. ^{Concur.} However, it should be noted that the Reson Seabat 8101 SWMB system provides a low-resolution digital SSS record of the SWMB swath. This SSS imagery is primarily used to aid in final processing of the SWMB depth data but can also be used to provide imagery of features such as wrecks, rocks, and obstructions. *Concur.*

F. SOUNDING EQUIPMENT ✓

Two different categories of echosounder systems were used and are described below. The individual system(s) chosen for use in a given area were decided at the discretion of the Hydrographer using the guidance stated in the Project Instructions and depended upon the limitations of each system, the bottom topography, the water-depth, and the ability of the platform vessel to safely navigate the area.

1. Launch Singlebeam (VN 2122, 2124, 2125):

The singlebeam sounding instruments for this survey were the Raytheon DSF-6000N and Knudsen 320M, which are dual frequency (100 kHz, 24 kHz), digital recording singlebeam fathometers with analog paper traces. Soundings were acquired in meters using the High + Low, high frequency digitized setting, but in depths over 300 meters, low frequency was scanned in place of the high when the fathometer lost its high frequency trace. Serial numbers are included in the Separates.* Singlebeam launches were used to collect mainscheme hydrography and to perform all shoreline verification. *Concur.*

2. Launch Shallow Water Multibeam (SWMB) (VN 2121, 2123, 2126):

The Reson SeaBat 8101 is a multibeam echosounder system that measures relative water depths across a wide swath perpendicular to the vessel's path. The Reson SeaBat 8101 ensonifies the seafloor with a 150° swath consisting of 101 individual 1.5° x 1.5° beams. The system was designed to meet International Hydrographic Organization standards to measure the seafloor at a maximum range of 320 meters. The system's maximum depth range under actual field conditions has proven to be much less. RAINIER has discovered that maximum attainable depths are approximately 80-150 meters, depending on sea conditions and bottom topography. Serial numbers are included in the Separates.* SWMB launches were used to collect full-bottom coverage of select areas identified during singlebeam hydrography, generally all areas determined to be less than 60 meters deep that could safely be investigated without the risk of damaging the SWMB transducer. SWMB launches were not use for shoreline verification due to the extremely high risk of damaging the SWMB transducers on submerged rocks. *Concur.*

* Filed with the hydrographic data.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Sound Velocity Correctors:

Sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated January 27, 1998, and (S/N 2543), calibrated January 10, 1998 and (S/N 2477), calibrated February 6, 1998. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 3.1 (1997), in accordance with Field Procedures Manual (FPM) section 2.1.2 and Hydrographic Survey Guideline (HSG) No. 69. See MapInfo workspace "AA_SVcasts.WOR" (Appendix VII. MapInfo Tables). *

For singlebeam launches, sound velocity correctors were applied to the raw sounding data in HPS during post-acquisition processing. For SWMB launches, sound velocity correctors were applied in Caris during post-acquisition processing. *concur. Velocity casts were taken within the survey area at interval that varies from 3 to 4 hours between casts.*

Vessel Offset Correctors

The following table shows when the vessel offset correctors used for this survey were last measured:

Vessel No.	Date of static draft and transducer offset measurements	Method of Settlement and Squat Measurement	Date of Settlement and Squat Measurement	Location of Settlement and Squat Measurement
2121	March 26, 1998	OTF	July, 1998	Shilshole, WA
2122	March 26, 1998	Rod leveling	June 11, 1998	Shakan Strait, AK
2123	March 26, 1998	OTF	July, 1998	Shilshole, WA
2124	March 26, 1998	Rod leveling	June 11, 1998	Shakan Strait, AK
2125	March 26, 1998	Rod leveling	June 21, 1998	Chilkat Inlet, AK
2126	March 26, 1998	OTF	July, 1998	Shilshole, WA

Settlement and squat correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2, using FPM Fig. 2.4, and are included with project data for OPR-P139-RA-98. *All offset tables* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables # 1-6 correspond to the last digit of the vessel number. For singlebeam launches, offset tables were applied to the raw sounding data in HPS during post-acquisition processing. For SWMB launches, offsets were applied during Caris processing.

The offset tables are included with project data for OPR-P139-RA-98.

Predicted Tidal Correctors: ✓

The Oceanographic Products and Services Division, User Services Branch (N/CS41), through N/CS31, provided predicted tides for the project on diskette for the Cordova reference station (945-4050). The predicted tides at Cordova were entered into HPS.

Zone Station	Time Corrector (min)	Range Ratio	HPS Tide Table No.
PWS 37	0	x0.94	Table No. 1

For Launch Singlebeam soundings, HPS tide tables were applied to raw sounding data during shipboard processing in HPS.

For Launch SWMB soundings, six-minute interval predicted tide data from the Cordova reference station (945-4050) were imported directly into CARIS (without adjusting for zoning) from commercial Tides and Currents software and applied to raw sounding data during shipboard processing in CARIS.

* Filed with hydrographic data.

Real Tidal Correctors: ✓

The operating tide stations at Cordova (945-4050) and Valdez (945-4240) served as control for datum determination. A Next Generation Water Level Measurement System (NGWLMS) Aquatrak is the only sensor at these stations. Consequently, RAINIER was not required to inspect or perform leveling of these stations.

The following Sutron 8200 Bubbler tide stations were established for this survey in order to provide information on zoning, tidal datums (reducers), and harmonic constants for predictions:

Station name	Station Number	GOES XMTR	Type of gauge	Date Established	Date Removed
Seal Island	945-4564	Yes	30-day	8-5-98	10-30-98
South Arm	945-4652	No	3-day	8-5-98	10-22-98
Snug Harbor	945-4662	No	30-day	8-5-98	10-30-98

*
Refer to the Field Tide Notes and supporting data in Appendix V for individual gauge performance and level closure information. Raw waterlevel data from these gauges has been forwarded to N/CS41 in accordance with HSG 50 and FPM 4.7 where it will be processed into final approved (smooth) tides. The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing. A request for delivery of final approved (smooth) tides to the Pacific Hydrographic Branch has been forwarded to N/OES23 in accordance with FPM 4.8. *Approved Tide Note dated March 25, 1999 is attached to this report.*

H. HYDROGRAPHIC POSITION CONTROL (See EVAL RPT., Secs H & I)

The horizontal datum for this project is NAD 83. Station ROCK was used to verify and establish local geodetic control for this survey. See the OPR-P139-RA-98 Horizontal Control Report for more information. *A list of control stations used on this survey is included in this report.*

All soundings were positioned using differential GPS (DGPS). The VHF differential reference station at TUFT and SEAL were the primary source for differential correctors for this survey. The USCG beacons located at Cape Hinchinbrook, AK, Kenai, AK, and Potato Point, AK were used when the VHF reference station was unavailable.

Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two different DGPS base stations while the launches were rafted together with their GPS antennae within 2-3 meters of each other. RAINIER also used SHIPDIM, version 2.2R (April 1996) with a Trimble Centurion P-code receiver and an Ashtech sensor (both differentially-corrected) to monitor the performance of the USCG Beacon. Periodic comparisons and occasional performance checks were logged with the SHIPDIM system. Some outliers were noted, but none indicated systematic or continuous errors in the beacons. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P139-RA-98.

I. SHORELINE (See EVAL RPT., Sec. J)

N/NGS3 supplied photogrammetric shoreline in MapInfo format for DM-10297 for use as source shoreline. The DM shoreline was imported into Hypack for field verification. In addition, features shown on the current editions of Charts 16700, 16701, and 16705 that are not depicted on the provided DM shoreline were traced in MapInfo by RAINIER personnel and were also imported into Hypack for field verification.

* Filed with the hydrographic data.

Limited shoreline verification was conducted in accordance with the Project Instructions and FPM 6.2. For this survey, the NALL (Navigable Area Limit Line) was defined by the limit of safe navigation of a survey launch during a period of extreme low (negative) tide. The NALL runs at a distance of 5-50 meters offshore of the apparent low water line. Depths along the NALL are generally 2-15 m MLLW. Features seen offshore of the NALL were positioned with the launch's DGPS by taking Detached Positions. Features seen inshore of the NALL were not positioned. *and/or.*

Shoreline manuscript and field features were compared to an enlargement of charts 16700, ed. 25th, 16701, ed. 16th, and 16705, ed. 17th. There was general agreement between the charted and manuscript shoreline and what the hydrographer found on this survey. There are, however, numerous differences (approximately 146) when analyzing the present features such as rocks, islets, ledges, and reefs. The differences fall into three categories: mis-charted rocks, uncharted features, and mis-named digital manuscript features. The launches disproved mis-charted rocks by taking fixes at the charted locations at negative tide levels and observing the surrounding water for indications of rocks near the surface. It is likely that these rocks were either mis-positioned initially or moved by the cartographer for representation purposes. The reason for the discovery of numerous uncharted features is uncertain. It is possible that portions of the initial survey were performed during positive tides when the rocks were submerged; the digital shoreline photography was flown at positive tides when the rocks were submerged; or this area has risen since the initial survey, due to the effects of the 1964 earthquake, exposing new rocks. The mis-named digital manuscript features were likely the result of the different perspectives of the hydrographer and the digitizer. Discrepancies between charted and field shoreline should thus be resolved in favor of the manuscript shoreline and field work as shown on the final field Detached Position and Bottom Sample plot provided to PHB. *Handwritten notes and features shown on the accompanying SHORELINE NOTES plot are the hydrographer's representation of the features seen in-shore of the NALL while slowly transiting along the shore, and are intended to aid chart compilation. Field data has been analyzed during office processing and features shown on the smooth sheet as warranted.*

The digital shoreline (DM 10297) features matched the shoreline observed during the current survey, except for the following discrepancies:

Fix #	Shoreline Manuscript Feature	Geographic Location		Observed Feature
10004	Rock	60° 23' 22.044" N	147° 42' 14.478" W	Change Feature from DM Rock to Ledge ✓
22952		60° 22' 47.855" N	147° 40' 8.043" W	Change Feature from DM Rock to Broken Reef ✓ (2)
24263		60° 21' 56.084" N	147° 36' 53.175" W	Change Feature from DM Rock to Reef ✓
41922		60° 23' 23.022" N	147° 39' 29.158" W	Change Feature from DM Rock to Reef ✓ (10)
21283	None	60° 23' 17.112" N	147° 43' 10.474" W	Ledge ✓
42001		60° 23' 4.299" N	147° 40' 37.118" W	Ledge ✓
42002		60° 22' 51.130" N	147° 39' 56.077" W	Ledge ✓
42019		60° 22' 48.253" N	147° 40' 30.132" W	Ledge ✓ (8)
20065	None	60° 23' 56.364" N	147° 38' 46.198" W	* Reef * <i>Cov 2k</i>
20154		60° 23' 36.798" N	147° 39' 48.852" W	<i>Subm</i> Reef
21494		60° 21' 55.928" N	147° 41' 46.461" W	Reef (2)
40013		60° 21' 42.547" N	147° 37' 9.664" W	Reef (1)
41899		60° 23' 19.069" N	147° 38' 27.099" W	Reef (2)
42012	None	60° 22' 48.286" N	147° 40' 17.340" W	Reef (3)
42013		60° 22' 48.504" N	147° 40' 15.951" W	[DP# 42012-42014
42014		60° 22' 47.156" N	147° 40' 16.864" W	refers to the same feature] ✓
50035	None	60° 25' 23.329" N	147° 36' 35.606" W	Reef (2)
50036		60° 25' 27.291" N	147° 36' 35.267" W	[DP# 50035, 50036, 50038
50038		60° 25' 21.975" N	147° 36' 27.831" W	refers to the same feature] ✓
51157	None	60° 24' 46.104" N	147° 38' 15.943" W	Reef Ledge

Fix #	Shoreline Manuscript Feature	Geographic Location		Observed Feature
51201	None	60° 24' 44.895" N	147° 39' 40.472" W	Reef (3) ✓
51202		60° 24' 39.262" N	147° 39' 41.261" W	[DP# 51201-51203 refers ✓
51203		60° 24' 38.959" N	147° 39' 37.745" W	to the same feature]
51204	None	60° 24' 41.910" N	147° 39' 34.538" W	Reef (3)
51205	DM Rock	60° 24' 40.655" N	147° 39' 38.119" W	Change Feature from DM Rock to Reef [DP# 51204-51205 refers to the same feature] ✓
10006	None	60° 23' 55.977" N	147° 38' 49.279" W	Rock (Charted) * (6) ✓
10007		60° 23' 46.580" N	147° 37' 37.452" W	Rock (Charted) * (5) ✓
20002		60° 24' 1.252" N	147° 34' 7.381" W	(Subm) Rock (Charted) 2' Rk ✓
20003		60° 24' 1.872" N	147° 34' 7.049" W	(Subm) Rock (Charted) 1 Rk ✓
20005		60° 23' 33.453" N	147° 34' 10.136" W	Rock cov 2' ✓
20006		60° 23' 34.099" N	147° 34' 10.849" W	Rock * (1) ✓
20009		60° 23' 29.564" N	147° 34' 8.953" W	Rock cov 1' ✓
20035		60° 24' 12.569" N	147° 38' 27.375" W	Rock cov 1' ✓
20064		60° 23' 58.743" N	147° 38' 42.500" W	Rock * (3) ✓
20114		60° 23' 28.838" N	147° 39' 7.111" W	(Subm) Rock 0' Rk ✓
21237		60° 23' 17.846" N	147° 40' 36.055" W	Rock * (4) ✓
21348		60° 22' 58.633" N	147° 45' 10.779" W	Rock * (6) ✓
21414		60° 22' 54.266" N	147° 42' 43.937" W	Rock * (4) ✓
21417		60° 23' 1.792" N	147° 42' 45.050" W	(Subm) Rock (Charted) 12 Rk ✓
21419		60° 23' 0.590" N	147° 42' 22.470" W	(Subm) Rock (Charted) 1 Rk ✓
21420		60° 22' 59.715" N	147° 42' 22.374" W	Rock * (2) ✓
21421		60° 22' 57.526" N	147° 42' 19.292" W	Rock (Charted) * (2) ✓
21798		60° 23' 7.342" N	147° 43' 23.607" W	Rock * (7) ✓
22427		60° 23' 6.624" N	147° 41' 22.969" W	Rock * (4) ✓
22428		60° 23' 28.656" N	147° 40' 22.377" W	Rock * (1) ✓
22490		60° 22' 51.477" N	147° 41' 56.655" W	Rock * (3) ✓
24091		60° 23' 43.442" N	147° 39' 7.540" W	Rock * (6) ✓
24092		60° 23' 54.080" N	147° 39' 6.380" W	Rock * (6) ✓
24093		60° 23' 54.511" N	147° 39' 5.814" W	Rock * (6) ✓
40119		60° 23' 32.258" N	147° 37' 26.166" W	Rock (Charted) * (4) ✓
40123		60° 23' 47.200" N	147° 37' 34.823" W	Rock (Charted) * (3) ✓
40124		60° 23' 47.156" N	147° 37' 36.508" W	Rock (Charted) * (4) ✓
41866		60° 23' 57.034" N	147° 37' 4.409" W	Rock (Charted) * (6) ✓
41884		60° 23' 20.238" N	147° 38' 5.520" W	Rock * (6) ✓
41897		60° 23' 16.430" N	147° 38' 32.604" W	Rock * (3) ✓
41924		60° 23' 21.182" N	147° 39' 38.668" W	Rock * (5) ✓
41934		60° 23' 18.612" N	147° 39' 49.825" W	Rock * (1) ✓
41947		60° 23' 0.417" N	147° 40' 6.189" W	Rock * (3) ✓
43024		60° 24' 40.284" N	147° 39' 58.859" W	Rock * (2) ✓
45754		60° 24' 53.088" N	147° 37' 7.565" W	Rock: Reported as DTON * (1) ✓
47022		60° 24' -1.445" N	147° 34' 8.380" W	(Subm) Rock (Charted) 05 Rk ✓
47090		60° 23' 56.793" N	147° 37' 6.060" W	Rock (Charted) * (1) ✓
47091		60° 23' 56.762" N	147° 37' 4.611" W	Rock (Charted) (Same Rk as #47866) ✓
47199		60° 23' 54.311" N	147° 34' 7.379" W	Rock: Reported as DTON cov 3' ✓
47501		60° 23' 46.047" N	147° 37' 37.065" W	(Subm) Rock (Charted) 4' Rk (crossed) ✓
47502		60° 23' 47.902" N	147° 37' 37.320" W	(Subm) Rock (Charted) 5 Rk ✓
47503		60° 23' 54.958" N	147° 37' 20.571" W	Rock * (1) ✓
47504		60° 23' 55.202" N	147° 37' 12.004" W	Rock * (1) ✓
47505		60° 23' 56.263" N	147° 37' 6.483" W	Rock (Charted) cov 1' ✓

Fix #	Shoreline Manuscript Feature	Geographic Location		Observed Feature
47507	None	60° 23' 54.272" N	147° 34' 9.318" W	Rock * (3) ✓
47510		60° 24' 1.446" N	147° 34' 6.930" W	(Subm) Rock (Charted) 1 Rk ✓
50001		60° 25' 22.843" N	147° 36' 9.274" W	Rock * (0) ✓
50078		60° 25' 2.710" N	147° 37' 25.184" W	Rock 07 Rk ✓
50093		60° 24' 52.417" N	147° 37' 57.415" W	Rock cov 1' ✓
50104		60° 24' 55.852" N	147° 37' 33.534" W	Rock * (5) ✓
51156		60° 24' 44.433" N	147° 38' 25.939" W	Rock * (1) ✓
51158		60° 24' 40.988" N	147° 38' 23.840" W	Rock cov 1' ✓
51189		60° 23' 13.254" N	147° 39' 18.668" W	Rock * (3) ✓
22883	None	60° 22' 35.026" N	147° 40' 31.484" W	Wreck XZ (3) ✓
22884	Wreck	60° 22' 37.634" N	147° 40' 26.668" W	Charted wreck not found after 5-min. visual search at low water [5m visibility, 30m-search radius].

No wreck was found at this position. Likely some wreck is found at Fix # 22883

Charted features (Charts 16700, 16701, 16705) are also in general agreement with the surveyed area. The charted shoreline features matched the shoreline as observed during the current survey except for the following:

Fix #	Charted Feature	Geographic Location		Observed Feature
24263	Rock	60° 21' 56.084" N	147° 36' 53.175" W	Do not contour Change Feature from charted Rock to Reef ✓ Chart rock at scale
41922	Rock	60° 23' 23.022" N	147° 39' 29.158" W	Do not contour Change Feature from charted Rock to Reef ✓ Chart rock (10) at scale
22952	None	60° 22' 47.855" N	147° 40' 8.043" W	Broken Reef ✓ (2) Chart rocks
40094	None	60° 23' 6.315" N	147° 37' 15.173" W	Rock Islet (DM) chart
41923		60° 23' 21.700" N	147° 39' 43.149" W	Islet (DM) 0 (8) chart islet
10004	None	60° 23' 22.044" N	147° 42' 14.478" W	Ledge ✓ (10) Chart rock
21283		60° 23' 17.112" N	147° 43' 10.474" W	Ledge ✓ Chart rock
42001		60° 23' 4.299" N	147° 40' 37.118" W	Ledge ✓ Chart rock
42002		60° 22' 51.130" N	147° 39' 56.077" W	Ledge ✓ Chart rock
42019		60° 22' 48.253" N	147° 40' 30.132" W	Ledge ✓ (8) Chart rock
20065	None	60° 23' 56.364" N	147° 38' 46.198" W	(Subm rk) Reef ✓ cov rk
20154		60° 23' 36.798" N	147° 39' 48.852" W	(Subm rk) Reef ✓ 2' Rk
21494		60° 21' 55.928" N	147° 41' 46.461" W	Reef ✓ (2) Chart rock
40013		60° 21' 42.547" N	147° 37' 9.664" W	Reef (1) Chart rock covers
41899		60° 23' 19.069" N	147° 38' 27.099" W	Reef (2) Chart rock
42012	None	60° 22' 48.286" N	147° 40' 17.340" W	Reef (3) Chart rock
42013		60° 22' 48.504" N	147° 40' 15.951" W	[DP# 42012-42014 refers to the same feature] ✓
42014		60° 22' 47.156" N	147° 40' 16.864" W	
50035	None	60° 25' 23.329" N	147° 36' 35.606" W	Reef (4) Chart rock.
50036		60° 25' 27.291" N	147° 36' 35.267" W	[DP# 50035, 50036, 50038 refers to the same feature] ✓
50038		60° 25' 21.975" N	147° 36' 27.831" W	
51157	None	60° 24' 46.104" N	147° 38' 15.943" W	Reef / ledge Chart rock
51201	None	60° 24' 44.895" N	147° 39' 40.472" W	Reef (3) Chart rock
51202		60° 24' 39.262" N	147° 39' 41.261" W	[DP# 51201-51203 refers to the same feature]
51203		60° 24' 38.959" N	147° 39' 37.745" W	
51204	None	60° 24' 41.910" N	147° 39' 34.538" W	Reef (2) Chart rock.
10001	None	60° 25' 5.528" N	147° 37' 21.601" W	Rock (DM) * (2) Chart rock
20005	None	60° 23' 33.453" N	147° 34' 10.136" W	(Subm) Rock 05 Rk
20006		60° 23' 34.099" N	147° 34' 10.849" W	Rock * (1) Chart subm rk.
20009		60° 23' 29.564" N	147° 34' 8.953" W	Rock * cov 1' Chart as subm rk.

Fix #	Charted Feature	Geographic Location		Observed Feature
20035	None	60° 24' 12.569" N	147° 38' 27.375" W ✓	Rock * <i>cov 1'</i> ✓
20064		60° 23' 58.743" N	147° 38' 42.500" W ✓	Rock * (3) ✓
20096		60° 23' 36.866" N	147° 39' 2.408" W ✓	Rock (DM) * (10) ✓
20114		60° 23' 28.838" N	147° 39' 7.111" W ✓	(Subm) Rock <i>0° Rk</i> ✓
20116		60° 23' 30.055" N	147° 39' 32.848" W ✓	Rock (DM) * (11) ✓
21237		60° 23' 17.846" N	147° 40' 36.055" W ✓	Rock * (4) ✓
21348		60° 22' 58.633" N	147° 45' 10.779" W ✓	Rock * (6) ✓
21414		60° 22' 54.266" N	147° 42' 43.937" W ✓	Rock * (4) ✓
21420		60° 22' 59.715" N	147° 42' 22.374" W ✓	Rock * (2) ✓
21798		60° 23' 7.342" N	147° 43' 23.607" W ✓	Rock * (7) ✓
22427		60° 23' 6.624" N	147° 41' 22.969" W ✓	Rock * (2) ✓
22428		60° 23' 28.656" N	147° 40' 22.377" W ✓	Rock * (1) ✓
22490		60° 22' 51.477" N	147° 41' 56.655" W ✓	Rock * (3) ✓
24091		60° 23' 3.442" N	147° 39' 7.540" W ✓	Rock * (6) ✓
24092		60° 23' 54.080" N	147° 39' 6.380" W ✓	Rock * (6) ✓
24093		60° 23' 54.511" N	147° 39' 5.814" W ✓	Rock * (6) ✓
40120		60° 23' 23.736" N	147° 37' 27.792" W ✓	Rock (DM) * (2) ✓
41884		60° 23' 20.238" N	147° 38' 5.520" W ✓	Rock * (6) ✓
41897		60° 23' 16.430" N	147° 38' 32.604" W ✓	Rock * (3) ✓
41924		60° 23' 21.182" N	147° 39' 38.668" W ✓	Rock * (5) ✓
41934		60° 23' 18.612" N	147° 39' 49.825" W ✓	Rock * (0) ✓
41947		60° 23' 0.417" N	147° 40' 6.189" W ✓	Rock * (2) ✓
43024		60° 24' 40.284" N	147° 39' 58.859" W ✓	Rock * (2) ✓
45754		60° 24' 53.088" N	147° 37' 7.565" W ✓	✓ Rock: Reported as DTON * (0) ✓
47199		60° 23' 54.311" N	147° 34' 7.379" W ✓	✓ Rock: Reported as DTON <i>cov 2'</i> ✓
47503		60° 23' 54.958" N	147° 37' 20.571" W ✓	Rock * (1) ✓
47504		60° 23' 55.202" N	147° 37' 12.004" W ✓	Rock * (0) ✓
47507		60° 23' 54.272" N	147° 34' 9.318" W ✓	Rock * (3) ✓
50001		60° 25' 22.843" N	147° 36' 9.274" W ✓	Rock * (0) ✓
50078		60° 25' 2.710" N	147° 37' 25.184" W ✓	(Subm) Rock <i>0° Rk</i> ✓
50093		60° 24' 52.417" N	147° 37' 57.415" W ✓	Rock * <i>cov 1'</i> ✓
50104		60° 24' 55.852" N	147° 37' 33.534" W ✓	Rock * (5) ✓
51156		60° 24' 44.433" N	147° 38' 25.939" W ✓	Rock * (1) ✓
51158		60° 24' 40.988" N	147° 38' 23.840" W ✓	Rock <i>cov 1'</i> ✓
51189		60° 23' 13.254" N	147° 39' 18.568" W ✓	Rock * (2) ✓
22883	None	60° 22' 35.026" N	147° 40' 31.484" W ✓	Wreck * (3) ✓
10003	Rock ✗	60° 24' 41.618" N	147° 39' 40.613" W ✓	Charted rock not found after 5-min. visual search at low water [5m visibility, 15m-search radius]. (See #57205)
10005		60° 22' 46.951" N	147° 40' 10.082" W ✓	Chart rock uncovers * (Surrey found rock) Charted rock not found after 5-min. visual search at low water. Change position to DM rock (DP 22952). Chart rock to north * (2) from smooth sheet.
10008		60° 23' 22.557" N	147° 34' 3.206" W ✓	Charted rock not found after 5-min. visual search at low water. Change position to DP 10124 7m west Found a rock 150 meters north of charted rock. Chart #: Charted rock not found after 5-min. visual search at low water [3m visibility, 50m-search radius]. (See #20001) Delete charted rock symbol from chart.
20000		60° 24' 22.557" N	147° 34' 3.206" W ✓	
20001		60° 24' 22.425" N	147° 34' 7.131" W ✓	Charted rock not found after 5-min. visual search at low water [3m visibility, 50m-search radius]. Cenaur
20007		60° 23' 32.384" N	147° 34' 9.318" W ✓	Charted rock not found after 5-min. visual search at low water. New rock DP'd 35m NNW. (See #20005, 20006) Chart rock as shown on SS. * uncovers iff.
20008		60° 23' 30.515" N	147° 34' 12.343" W ✓	Charted rock not found after 5-min. visual search at low water. New rock DP'd 60m E. (See #20009) Chart new rock to south as shown on SS. (* covers iff)

* Many of the charted rocks were found by the present survey at slightly different positions. H-10841
OPR-PI39-RA

Fix #	Charted Feature	Geographic Location		Observed Feature *
20036	Rock	60° 24' 15.123" N	147° 38' 29.431" W	Charted rock not found after 5-min. visual search at low water. New rock DP'd 80m E. (See # 20036) Chart new rock as shown on SS. (CNOIS 174)
20094		60° 23' 58.664" N	147° 38' 55.508" W	Charted rock not found after 5-min. visual search at low water [5m visibility, 50m-search radius].
20095		60° 23' 55.924" N	147° 38' 58.977" W	There are no rocks to disprove of these locations. Smooth sheet depicts rocks 100 meters to southwest. Charted rock not found after 5-min. visual search at low water [5m visibility, 50m-search radius].
20097		60° 23' 36.238" N	147° 39' 6.317" W	Charted rock not found after 5-min. visual search at low water. Change position to DM rock (DP 20096) Chart rock to east. * (10) as shown on smooth sheet
20115		60° 23' 29.041" N	147° 39' 34.763" W	Charted rock not found after 5-min. visual search at low water. Change position to DM rock (DP 20116) Chart rock as shown on SS. * (11)
21416		60° 23' 0.844" N	147° 42' 44.280" W	Charted rock not found after 5-min. visual search at low water. Change charted position to DP'd position 21417 32m NNW. Chart 0.8, as shown on SS, 100 meters north of DP 21417
21418		60° 23' 1.280" N	147° 42' 23.695" W	Charted rock not found after 5-min. visual search at low water. Change charted position to DP'd position 21419 28m SSE. Chart rock to south * (2) as shown on smooth sheet
21422		60° 22' 58.330" N	147° 42' 19.473" W	Charted rock not found after 5-min. visual search at low water. Change charted position to DP'd position 21421 25m S. Chart rock to south * (4) as positioned on smooth sheet.
22429		60° 23' 25.577" N	147° 40' 6.855" W	Charted rock not found after 5-min. visual search at low water. DM rock located 40m NE, within foul limit. Chart rock as shown on SS.
24271		60° 21' 57.096" N	147° 37' 3.115" W	Charted rock not found after 5-min. visual search at low water [3m visibility, 30m-search radius]. Chart as rock of scale. Present survey found reef close to charted rock.
40069		60° 22' 39.822" N	147° 37' 6.316" W	Charted rock not found after 5-min. visual search at low water [3m visibility, 15m-search radius]. Chart the area based on the present survey.
40093		60° 23' 8.755" N	147° 37' 18.191" W	Charted rock not found after 5-min. visual search at low water [3m visibility, 15m-search radius]. Delete feature, chart the area based on present survey.
40122		60° 23' 33.868" N	147° 37' 31.696" W	Smooth sheet verified DM islet. Charted rock not found after 5-min. visual search at low water [3m visibility, 15m-search radius]. Chart rock to SE. * (4) as shown on smooth sheet.
42018		60° 22' 47.196" N	147° 40' 30.322" W	Charted rock not found after 5-min. visual search at low water [3m visibility, 15m-search radius]. (See # 42019) Ledges located. Chart as rock. * (8)
50002		60° 25' 22.032" N	147° 36' 25.224" W	Charted rock not found after 5-min. visual search at low water. New reef DP'd 40m W. (See # 50039) Chart reef limits with rock quassa symbols. as part of main reef.
50037		60° 25' 25.677" N	147° 36' 29.007" W	Charted rock not found after 5-min. visual search at low water [3m visibility, 15m-search radius]. Chart as rock search. Part of reef as shown on the smooth sheet.
50070		60° 25' 9.837" N	147° 37' 15.690" W	Charted rock not found after 5-min. visual search at low water [3m visibility, 15m-search radius]. Chart rock * (9) 100 meters SW as on smooth sheet.

* Many of the charted rocks were found by the present survey at slightly different positions.

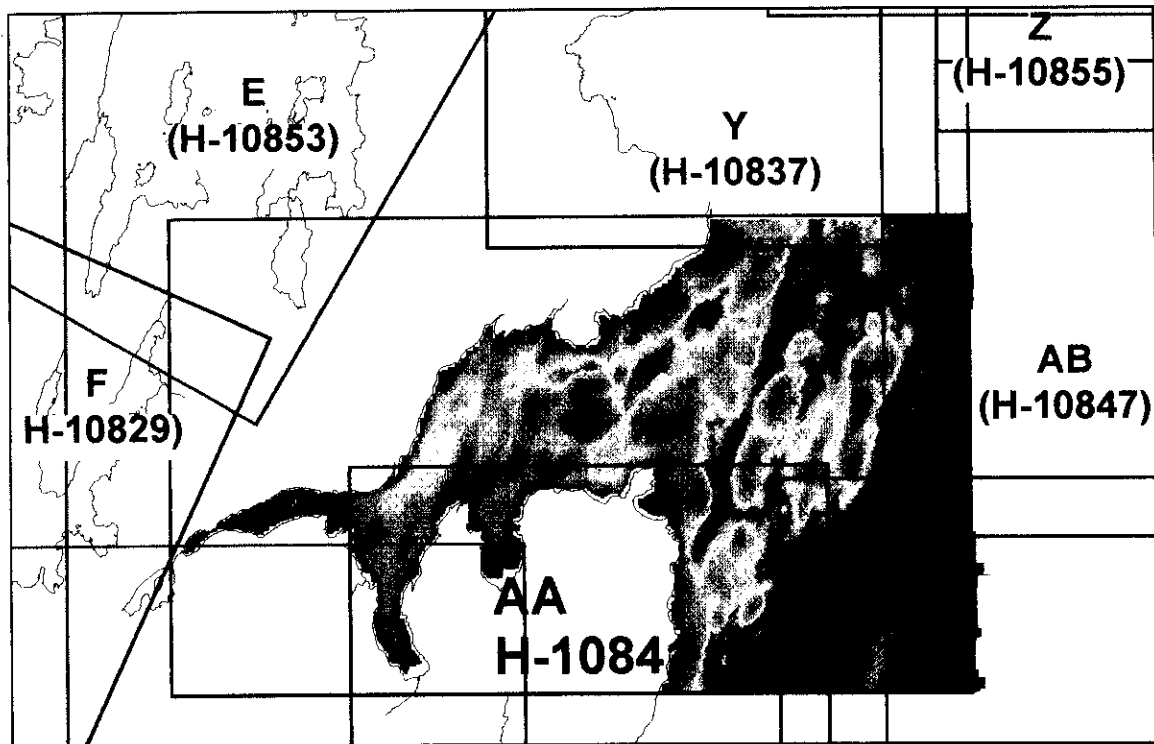
J. CROSSLINES ✓

Crosslines agreed very well with mainscheme hydrography. Depths generally agreed within one meter. *Concur.* There were a total of 21.75 nautical miles of crosslines, comprising 8.0% of mainscheme hydrography.

K. JUNCTIONS (See EVAL RPT., Sec. L)

The following contemporary surveys junction with H-10841:

Registry #	Scale	Date	Junction side
H-10837	1:10,000	1998	North
H-10847	1:20,000	1998	Northeast



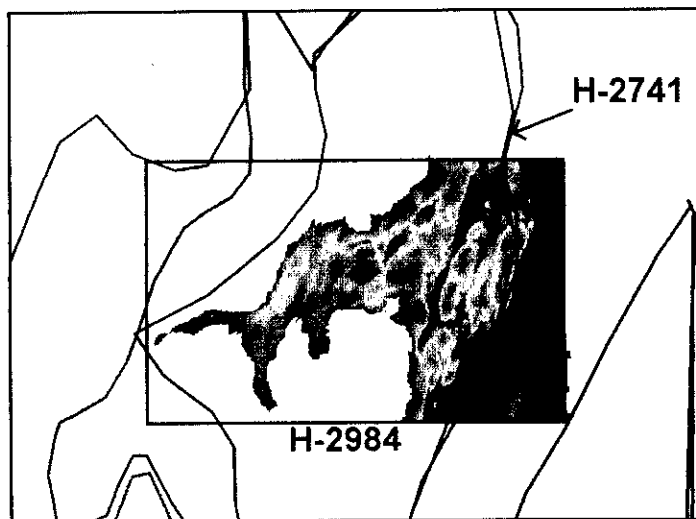
Soundings on these 1998 surveys were found to be in good agreement, matching within 1 fathom. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

L. COMPARISON WITH PRIOR SURVEYS (See EVAL RPT., Sec. M)

The following prior surveys share common area with H-10841:

Registry #	Scale	Date	Area covered
H-2984	1:20,000	1908	Entire Survey
H-2741	1:40,000	1911	Eastern end

} VALDEZ DATUM



The prior surveys H-2984 and H-2741 combined cover the entire area of present survey H-10841. No comparison was made with H-2741, since the provided digital version was not legible. *Do not compare. H-2741 raster is fairly legible for comparison purposes.*

.5-3.0 fms.

The prior soundings from H-2984 agreed well, with soundings found to be equal to or 2-50 feet deeper than the current survey. Several significant differences were found comparing the prior and the current survey and are as follows:

Prior Survey Registry Number	Prior Depth Feet /FM	H-10841 Depth Feet (meters)/FM	Geographic Location	
H-2984	112/18.7	18 (5.5)/3.0	60° 23' 14.320" N	147° 43' 33.937" W ✓
H-2984	85/14	15 (4.6)/2.5	60° 22' 51.047" N	147° 40' 25.996" W ✓
H-2984	14/2.3	12 (3.6)/2.0	60° 22' 52.894" N	147° 45' 31.255" W ✓
H-2984	39/6.5	51 (15.5)/8.5	60° 23' 4.726" N	147° 42' 20.238" W ✓
H-2984	72/12	34 (10.6)/5.5	60° 22' 13.426" N	147° 42' 3.401" W ✓
H-2984	54/9	102 (31.2)/17	60° 24' 29.793" N	147° 40' 23.387" W ✓
H-2984	262/43	247 (75.5)/41	60° 23' 48.836" N	147° 41' 8.456" W ✓
H-2984	3/0.5	9 (2.7)/1.5	60° 23' 55.181" N	147° 39' 45.823" W ✓
H-2984	75/12	10 (3.3)/1.5	60° 24' 11.600" N	147° 38' 27.489" W ✓
H-2984	640/106	627 (191.1)/104	60° 22' 2.097" N	147° 35' 19.326" W ✓
H-2984	442/73	307 (93.7)/51	60° 23' 0.145" N	147° 35' 27.676" W ✓
H-2984	95/16	69 (21.0)/11.5	60° 24' 9.744" N	147° 35' 31.123" W ✓
H-2984	27/4.5	506 (148.5)/6.3	60° 24' 1.450" N	147° 33' 58.525" W ✓
H-2984	416/69	410 (125.0)/68	60° 25' 22.405" N	147° 34' 47.594" W ✓

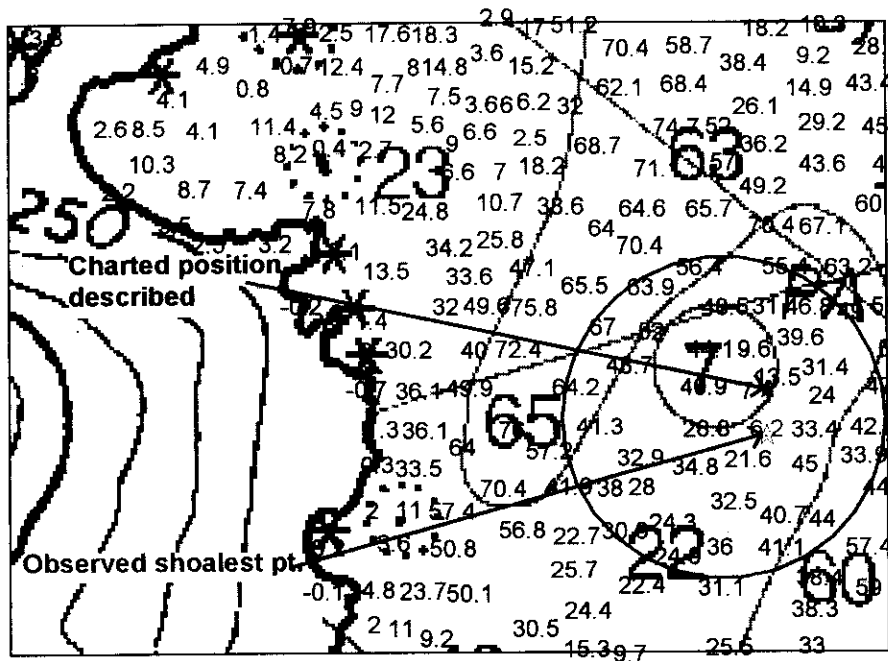
The shoreline of H-2984 agreed fairly well with the present survey. Differences between the current survey and prior surveys can probably be attributed to improved modern positioning and sounding equipment. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey *Concur*

M. ITEM INVESTIGATIONS ✓

AWOIS #: 52428 ✓	DN: 279
CHART #: 16700 (1:200,000, 25 th ed. 9/25/96) 16701 (1:81,436, 16 th ed. 6/1/96) 16705 (1:80,000, 17 th ed. 9/27/98)	VESNO: 2122
ITEM DESCRIPTION: Pinnacle (7 fathom sounding)	
SOURCE: NOAA Ship "Fairweather"	

Geographic Position

	LATITUDE	LONGITUDE	POSITION #
CHARTED:	60° 22.9" N	147° 36.1" W	N/A
OBSERVED:	60° 22' 50.318" N ✓	147° 36' 6.033" W ✓	27776 ✓
POSITIONED BY:	DGPS	DATUM:	MLLW (NAD 83)
METHOD OF INVESTIGATION: Mainscheme/50m split SB coverage; 100% SWMB coverage			
FINDINGS: Echosounder mainscheme development on DN 279 determined that a shoaler depth of 6.2 fathoms occurred south of the charted 7 fathom Position Approximate. <i>CONCUR</i> .			



Charting Recommendations ✓

A shoal sounding of 6.2 fathom is located approximately 120 m south of the described AWOIS location. *CONCUR*
 The hydrographer recommends removing the charted Position Approximate of 7 fathoms at 60° 22.9" N, 147° 36.1" W, and chart the current depth and position of the shoalest point at 60° 22' 50.318" N, 147° 36' 6.033" W. *CONCUR.*

N. COMPARISON WITH THE CHART (See EVAL RPT., Sec. O)

Chart 16700	Chart 16701	Chart 16705
25 th Ed. September 21, 1996	16 th Ed. June 1, 1996	17 th Ed. September 27, 1998
Scale: 1:200,000	Scale: 1:81,436	Scale: 1:80,000

The survey was compared with charts 16700, 16701, and 16705. In general, soundings on the contemporary survey agree, or are shoaler by several fathoms. Areas of significant differences are listed as DTONs or have been investigated as the AWOIS item described above. It is suggested that the 10 fathoms curve on Chart 16701 be changed to reflect the contemporary survey. *CONCUR* The shoreline for the charts listed above should be adjusted as well. *CONCUR* It is recommended that soundings from survey H-10841 supersede all prior, and charted soundings. *CONCUR* Final sounding comparisons will be made at PHB after reduction to final vertical datum.

Dangers to Navigation See Eval Rpt., Section O.

13 dangers to navigation were reported to the Seventeenth Coast Guard District on November 10, 1998. Copies of the correspondence *are included* can be found in Appendix I of this report.

O. ADEQUACY OF SURVEY (See EVAL RPT., Sec. P)

Survey H-10841 is complete and adequate to supersede prior soundings and features in their common areas. *CONCUR* As a general rule, areas shoaler than 70 meters were ensounded with SWMB producing 100% bottom coverage. Care was taken to conduct all shoreline investigations during times of negative tides.

P. AIDS TO NAVIGATION (See EVAL RPT., Sec. Q)

No navigational aids exist within the survey area. *CONCUR.*

Q. STATISTICS ✓

Refer to the Survey Information Summary attached to this report.

R. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents or magnetic variations were found during this survey.

S. RECOMMENDATIONS (*See EVAL RPT., Sec. T*)

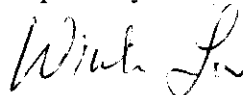
It is apparent, based on the number of rocks that did not appear on the digital shoreline maps, that the related photogrammetry was not tide coordinated. It is recommended that shoreline manuscripts be compiled from photographs taken at MLLW. It allows for quicker progression of shoreline verification and drastically reduces the complexity of the survey field records. *Concur*.

T. REFERRAL TO REPORTS ✓

The following supplemental reports contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
OPR-P139-RA-1998 Horizontal Control Report	November 1, 1998	N/CS34
Project related data for OPR-P139-RA	Incremental	N/CS34

Respectfully Submitted,



Winli Lin
Senior Survey Technician

Approved and Forwarded,



Alan D. Anderson
Captain, NOAA
Commanding Officer

Survey Information Summary

Project: OPR-P139-RA Project Name: PRINCE WILLIAM SOUND

Instructions Dated: 7/10/98 Project Change Info:

Change #	Dated
1	9/8/98

Sheet Letter: AA Registry Number: H-10841

Sheet Number: RA-10-17-98

Survey Title: Bay of Isles

Data Acquisition Dates: From: 08-Sep-98 251 To: 13-Oct-98 286

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2121	1	1				1		
2122	5	5			4	5		
2123								
2124	3	4		1	3	5		
2125	3	2		1	2	2	2	
2126								

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
6		248	289	60/29/55	249-259
				147/30/55	
8		251	94.3	60/23/36	249-ldh
				147/41/30	
9		261	294.2	60/30/20	260-264
				147/31/15	
10		265	286.2	60/30/18	265-278
				147/31/36	
11		279	241.6	60/21/50	279-298
				147/35/40	

(SWMB SV casts) { 266, 281, 285, 286 } 96.0, 123.0, 113.0, 161.0 } SV casts were taken within the survey area.

Tide Zone Information

Zone #	Time Corr.	Height Corr.
PWS37	0 hr 0 min	0.94

Tide Gage Information

Tide Gage #	Gage Name	Installed	Removed
945-4564	SEAL ISLAND	8/5/98	10/30/98
945-4662	SNUG HARBOR	8/5/98	10/30/98
945-4652	SOUTH ARM	8/5/98	10/22/98

Statistics Summary

Type	Total:
BS	15
DP	124
MS	270.4
S/L	23.48
SPLIT	247.35
SWMB	130.53
XL	21.75

Percent XL: 8.0%

SQNM: 12.92

List of Horizontal Control Stations ✓

	NAME	STATE	TYPE	LATITUDE	LONGITUDE	SITEID	DEC_LAT	DEC_LON
*	CAPE HINCHINBROOK	AK	USCG Beacon	60 14 18	146 38 48	894	60.23833333	146.64666667
	DUKE	AK	DGPS Flyaway	60 15 37.38949	147 18 05.97751	n/a	60.26038597	148.30166042
	KENAI	AK	USCG Beacon	60 40 06	151 21 00	896	60.66833333	151.35000000
**	MATE	AK	DGPS Flyaway	60 17 54.17878	147 54 46.44082	n/a	60.29838299	147.91290023
*	POTATO POINT	AK	USCG Beacon	61 03 24	146 41 48	895	61.05666667	146.69666667
	QUAKE	AK	DGPS Flyaway	60 22 56.96011	147 50 19.81757	n/a	60.38248892	147.83883821
**	ROCK	AK	DGPS Flyaway	60 39 13.43485	147 55 58.32527	n/a	60.65373190	147.93286813
*	SEAL	AK	DGPS Flyaway	60 25 47.07484	147 24 56.82688	n/a	60.42974301	147.41578524
*	TUFT RESET	AK	DGPS Flyaway	60 37 05.94517	147 29 09.09347	n/a	60.61831810	147.48585930

*Plot outside
survey area.*

** Reference station used for the survey.*

*** Reference station used for DGPS systems check only.*



UNITED STATES DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 Office of NOAA Corps Operations
 Pacific Marine Center
 1801 Fairview Avenue East
 Seattle, Washington 98102-3767

NOAA Ship RAINIER
 November 10, 1998

Commander (mon)
 Seventeenth Coast Guard District
 Post Office Box 25517
 Juneau, Alaska 99802-5517

**ADVANCE
 INFORMATION**

Dear CDR Hamblett:

It is requested that the following dangers to navigation be included in the Local Notice to Mariners. The NOAA Ship RAINIER positioned these features while conducting hydrographic surveys in southwestern Prince William Sound, Alaska. The dangers are shown graphically on the attached chartlets and are listed below by chart without duplication. All positions are on the NAD 83 datum and depths have been corrected to Mean Lower Low Water using predicted tides.

The following dangers to navigation affect chart 16701, 17th edition, 1998, 1:81,436, chart 16705, 17th edition, 1997, 1:80,000, and chart 16700, 25th edition, 1996, 1:200,000.

Feature	Depth (fm)	Latitude (N)	Longitude (W)	Position #	Depth (m)	Survey #
Shoal	3.6	60:25:47.509	147:35:29.870	98193	6.7	H-10837
Shoal	9.9	60:24:18.109	147:40:18.955	23534	18.2	H-10841
Shoal	7.5	60:22:18.056	147:35:55.819	26835	13.8	H-10841
Shoal	3.8	60:23:30.991	147:34:49.821	40575	7.1	H-10841
Rock	0.4	60:24:53.088	147:37:07.565	45754	0.7	H-10841
Shoal	10.0	60:24:30.646	147:36:24.056	46254	18.4	H-10841
Rock	0.2	60:23:54.311	147:34:07.379	47199	0.4	H-10841
Shoal	4.9	60:23:32.613	147:35:57.377	47777	9.0	H-10841
Shoal	3.6	60:23:22.716	147:36:49.759	48006	6.6	H-10841
Shoal	5.7	60:24:20.069	147:38:08.923	53097	10.5	H-10841
Shoal	3.7	60:24:28.412	147:39:29.949	21112	6.9	H-10841
Shoal	5.9	60:24:20.931	147:33:36.670	46490	10.9	H-10841
Rock Awash	+0.6	60:22:57.526	147:42:19.292	21421	-1.1	H-10841
Shoal	6.2	60:22:50.318	147:36:06.033	27776	11.4	H-10841
Shoal	6.9	60:26:05.397	147:22:28.544	40436	12.6	H-10847
Shoal	2.0	60:25:39.547	147:23:33.973	41620	3.6	H-10847
Shoal	6.5	60:25:16.938	147:23:48.111	43496	12.0	H-10847
Shoal	6.7	60:30:24.298	147:26:00.596	51036	12.3	H-10846
Shoal	7.5	60:30:10.133	147:25:53.909	51068	13.8	H-10846
Shoal	6.0	60:30:46.134	147:23:49.449	51823	6.0	H-10846
Shoal	8.2	60:30:58.745	147:20:42.597	24322	15.1	H-10846
Rock Awash	0.0	60:31:48.779	147:18:37.474	40268	0.0	H-10846
Shoal	6.0	60:32:06.203	147:16:59.527	30495	11.1	H-10846

H-10841




**ADVANCE
INFORMATION**

The following dangers to navigation affect chart 16705, 17th edition, 1997, 1:80,000, and chart 16700, 25th edition, 1996, 1:200,000.

<u>Feature</u>	<u>Depth (fm)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Position #</u>	<u>Depth (m)</u>	<u>Survey #</u>
Shoal	4.8	60:26:54.003	147:33:39.497	103551	8.8	H-10837
Shoal	2.0	60:27:03.600	147:37:44.481	92942	3.7	H-10837
Shoal	2.3	60:28:10.662	147:37:19.334	45757	4.2	H-10837
Shoal	2.7	60:29:22.063	147:35:34.292	103697	5.0	H-10837
Shoal	4.3	60:30:22.427	147:34:57.878	94321	8.0	H-10837
Rock	1.1	60:30:47.308	147:36:04.709	61731	2.0	H-10837
Shoal	3.7	60:31:15.045	147:34:29.242	51785	6.7	H-10837
Rock	1.8	60:31:27.814	147:37:02.670	73709	3.3	H-10837
Rock Awash	0.0	60:27:58.387	147:39:49.513	20078	0.0	H-10837
Rock Awash	-0.3	60:29:30.686	147:40:21.799	20636	-0.5	H-10837

This is advance information subject to office review. Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project OPR-P139-RA-98 and Danger to Navigation message RA-11-98. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

Sincerely,


Alan D. Anderson
Captain, NOAA
Commanding Officer

Attachment

cc: NIMA
PMC
N/CS261
N/CS34

ADVANCE INFORMATION

Little Smith I

SMITH I

Rock Awash

Pennsylvania Rk

Seal I

Shoal
60:30:24.298
147:26:00.596

Shoal
60:30:46.134
147:23:49.449

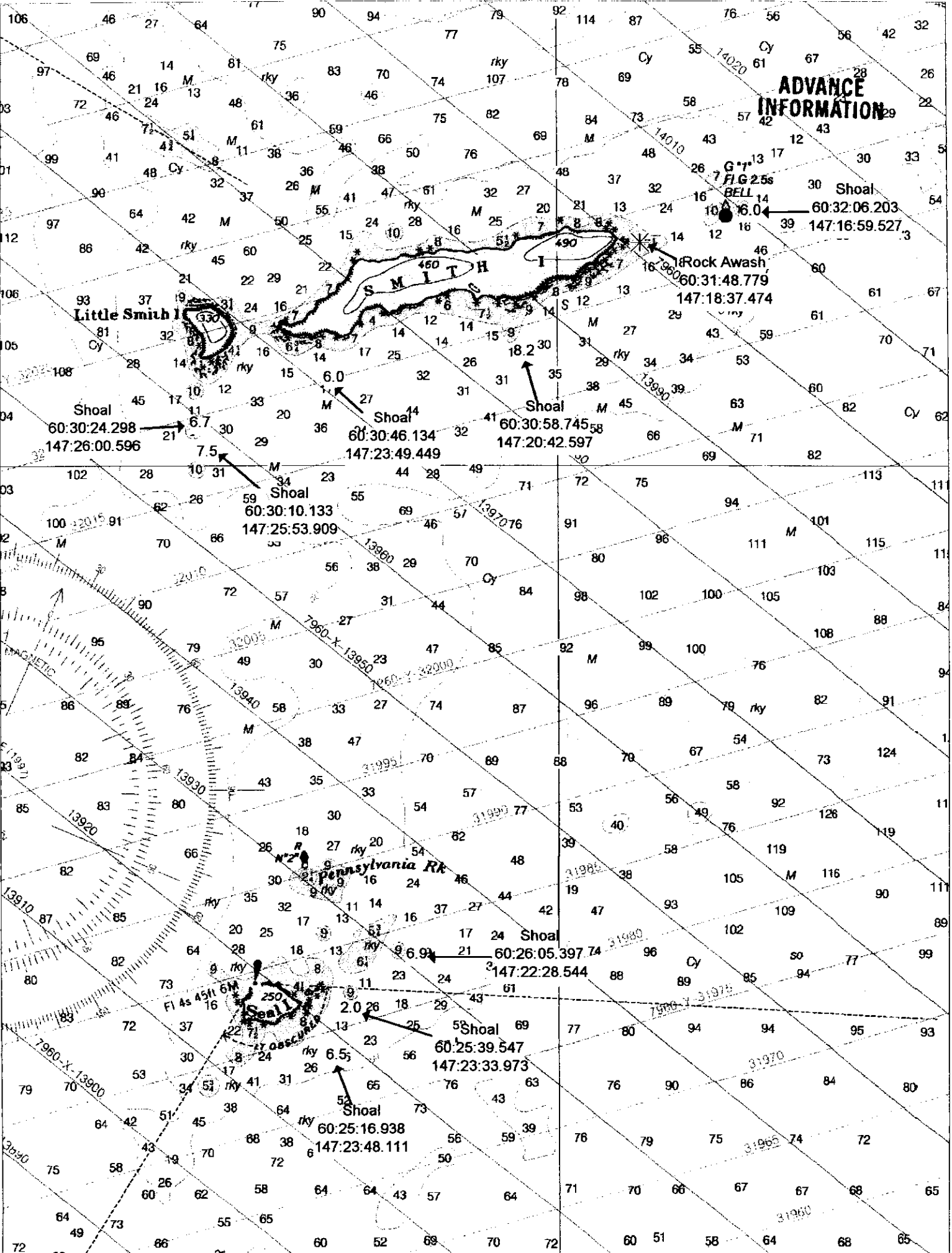
Shoal
60:30:58.745
147:20:42.597

Shoal
60:30:10.133
147:25:53.909

Shoal
60:26:05.397
147:22:28.544

Shoal
60:25:39.547
147:23:33.973

Shoal
60:25:16.938
147:23:48.111



H/10841



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF COAST SURVEY
Pacific Hydrographic Branch
Seattle, Washington 98115-0070

August 17, 1999

Commander (OAN)
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK 99802

Dear Sir:

During office review of hydrographic survey H-10841, Alaska, Southwest Prince William Sound, Bay of Isles, Twenty-seven (27) additional dangers to navigation have been identified and affects the following chart.

<u>Chart</u>	<u>Edition/Date</u>	<u>Scale</u>	<u>Datum</u>
16705	18th/March 27, 1999	1:80,000	NAD 83

The attached information is provided for publication in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6836.

Sincerely,

James C. Gardner
 James C. Gardner
 Commander, NOAA
 Chief, Pacific Hydrographic Branch

Enclosures

cc: NIMA
N/CS261



REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10759

Survey Title: State: ALASKA
 Locality: SOUTHWEST PRINCE WILLIAM SOUND
 Sublocality: BAY OF ISLES

Project Number: OPR-P139-RA, NOAA Ship RAINIER

Survey Date: September 8-October 13, 1998

Soundings are reduced to Mean Lower Low Water using approved tides and are positioned on NAD 83.

Chart affected: 16705, 18th Edition/March 27, 1999, scale 1:80,000, NAD 83

<u>DANGER TO NAVIGATION</u>	<u>LATITUDE(N)</u>	<u>LONGITUDE(W)</u>
Rock awash	60/21/42.597	147/37/10.956
Shoal, covers 7 fathoms	60/22/14.097	147/42/07.920
Shoal, covers 9 fathoms	60/22/32.206	147/36/28.439
Rock awash	60/22/58.477	147/45/10.928
Rock awash	60/23/06.727	147/41/23.172
Shoal, covers ½ fathom	60/23/08.457	147/40/17.890
Shoal, covers 1 ½ fathoms	60/23/09.629	147/42/54.234
Shoal, covers 2 ½ fathoms	60/23/13.696	147/36/44.178
Shoal, covers 3 fathoms	60/23/14.320	147/43/33.937
Rock awash	60/23/17.991	147/40/36.259
Shoal, covers 9 fathoms	60/23/20.250	147/35/58.103
Shoal, covers 2 ½ fathoms	60/23/33.063	147/37/07.567
Shoal, covers 7 ½ fathoms	60/23/39.472	147/34/46.225
Shoal, covers 8 fathoms	60/23/42.397	147/35/43.993
Shoal, covers ½ fathom	60/23/54.352	147/37/40.049
Shoal, covers 2 fathoms	60/23/54.762	147/37/53.706
Shoal, covers 1 ½ fathoms	60/23/55.203	147/39/45.810
Shoal, covers 2 ¼ fathoms	60/24/03.660	147/33/52.025
Rock Awash	60/24/04.047	147/39/42.882
Shoal, covers 1 ¾ fathoms	60/24/04.722	147/39/29.772
Shoal, covers 3 ¼ fathoms	60/24/06.677	147/35/27.966
Shoal, covers 4 ½ fathoms	60/24/11.350	147/37/02.567
Shoal, covers 1 ¾ fathoms	60/24/19.423	147/33/49.763

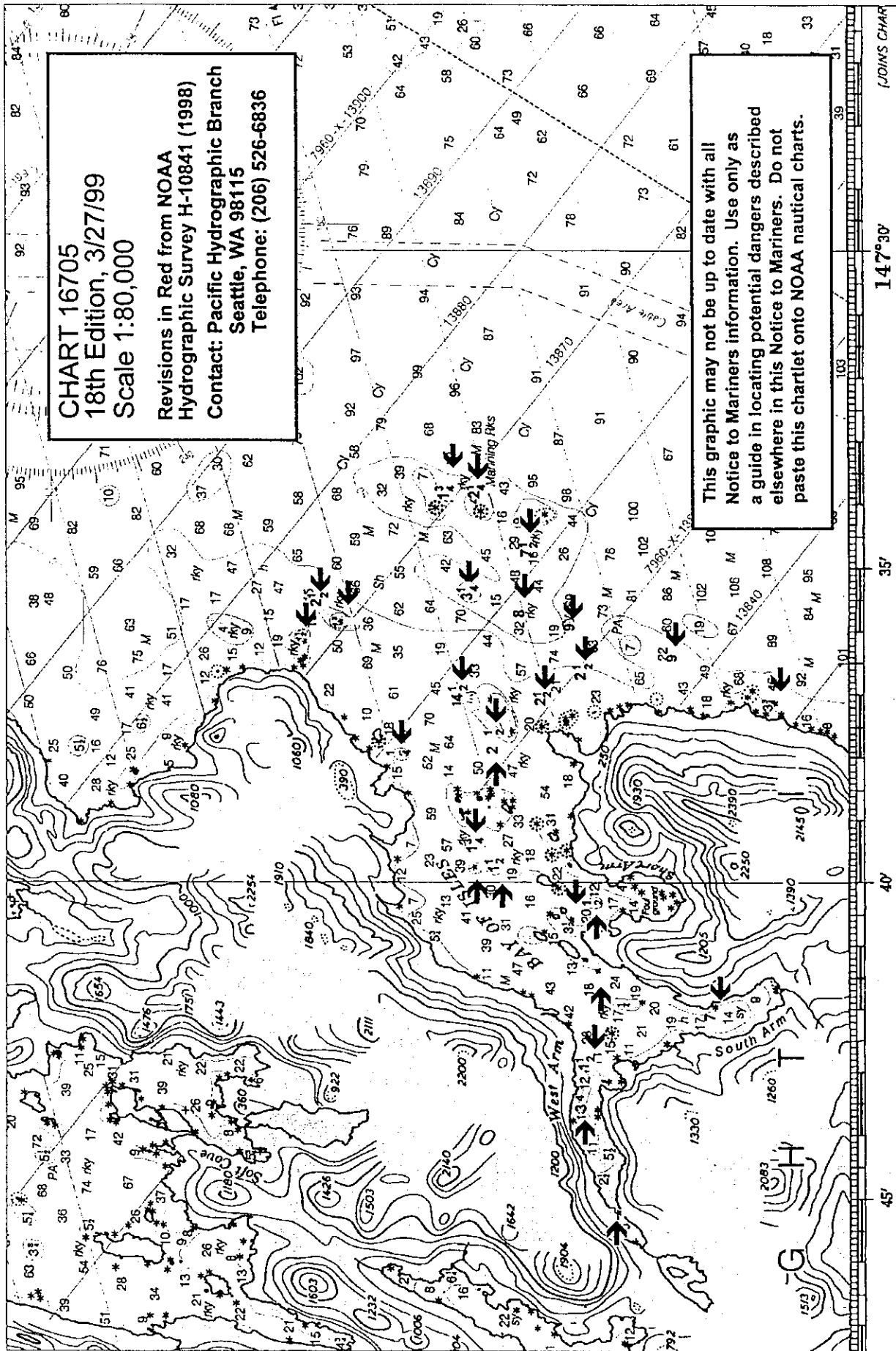
Shoal, covers $\frac{1}{4}$ fathoms	60/24/37.815	147/37/57.852
Rock awash	60/25/05.757	147/35/51.936
Shoal, covers $2\frac{1}{2}$ fathoms	60/25/16.356	147/35/36.382
Rock awash	60/25/22.552	147/36/09.933

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6836.

CHART 16705
18th Edition, 3/27/99
Scale 1:80,000

Revisions in Red from NOAA
Hydrographic Survey H-10841 (1998)
Contact: Pacific Hydrographic Branch
Seattle, WA 98115
Telephone: (206) 526-6836

This graphic may not be up to date with all
Notice to Mariners information. Use only as
a guide in locating potential dangers described
elsewhere in this Notice to Mariners. Do not
paste this chartlet onto NOAA nautical charts.



147°30'

35'

40'

45'

COASTAL CHART



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

NOAA Ship RAINIER
November 12, 1998

MEMORANDUM FOR: CDR James Gardner
Chief, Pacific Hydrographic Branch

THROUGH: RADM John Albright
Director, Pacific Marine Center

FROM: CAPT Alan D. Anderson
Commanding Officer

SUBJECT: Survey Data Transmittal Delay

There will be a delay in the transmission of survey data for project OPR-P139-RA-98. The transmission of data will exceed four weeks from completion of field work.

The surveys affected are H-10853 (RA-10-11-98), H-10852 (RA-10-12-98), H-10829 (RA-10-13-98), H-10837 (RA-10-14-98), H-10838 (RA-10-15-98), H-10840 (RA-10-16-98), and H-10841 (RA-10-17-98). There are numerous reasons for this delay including, but not limited to, use of untested software for the acquisition of data, lack of experienced personnel, and the need to efficiently use the vessels as acquisition platforms while processing data already collected.

The four week submittal of survey data recommendation noted in the Field Procedures Manual (FPM) does not reflect knowledge of current data acquisition and processing timelines. As you know, the shallow water multibeam (SWMB) systems allow for extremely large data sets to be collected in a very short amount of time. The processing of these data sets takes a much longer amount of time than does the processing of single beam data. In fact, the ratio of time processing SWMB data to time collecting SWMB data is 6:1. In comparison, the ratio of processing single beam data to the collection of single beam data is 1:3. The FPM should be updated to recognize the larger amount of time needed to process SWMB data by the field units. It is recommended that the FPM be changed to allow eight weeks for the submittal of survey data from the date of field work completion.

The anticipated transmittal date for the above mentioned surveys is the middle of December 1998.



APPROVAL SHEET

for

H-10841

RA-10-17-98

Standard field surveying and processing procedures were followed in producing this survey in accordance with the Hydrographic Manual, Fifth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual, as updated for 1998.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Approved and Forwarded,



Alan D. Anderson
Captain, NOAA
Commanding Officer
NOAA Ship RAINIER

GEOGRAPHIC NAMES

H-10841

Name on Survey	ON CHART NO. 16701, 16705		ON PREVIOUS SURVEY		FROM LOCAL INFORMATION		ON LOCAL MAPS		P.O. GUIDE OR MAP		RAND McNALLY ATLAS		U.S. LIGHT LIST	
	A	B	C	D	E	F	G	H	K					
ALASKA (title)	X		X											1
BAY OF ISLES	X		X											2
KNIGHT ISLAND	X		X											3
MANNING ROCKS	X		X											4
PRINCE WILLIAM SOUND	X		X											5
SHORT ARM	X		X											6
SOUTH ARM	X		X											7
WEST ARM	X		X											8
														9
														10
														11
														12
														13
														14
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														24
														25

Approved:

Dennis J. Ramsey
Chief Geographer
MAY 29 1992



TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 25, 1999

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P139-RA-98

HYDROGRAPHIC SHEET: H-10841

LOCALITY: Prince William Sound, AK
Bay of Isles

TIME PERIOD: Sep 08 - Oct 13, 1998

TIDE STATION USED: 945-4050 Cordova, AK

Lat. $60^{\circ} 33.5'N$ Lon. $145^{\circ} 45.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.529 meters

TIDE STATION USED: 945-4240 Valdez, AK

Lat. $61^{\circ} 07.5'N$ Lon. $146^{\circ} 21.7'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.389 meters

TIDE STATION USED: 945-4564 Seal Island, AK

Lat. $60^{\circ} 25.8'N$ Lon. $147^{\circ} 25.3'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.310 meters

TIDE STATION USED: 945-4652 South Arm, Knight Island, AK

Lat. $60^{\circ} 21.9'N$ Lon. $147^{\circ} 41.7'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.320 meters

REMARKS: RECOMMENDED ZONING

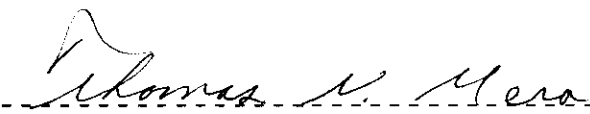
Use zone(s) identified as: PWS37.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.



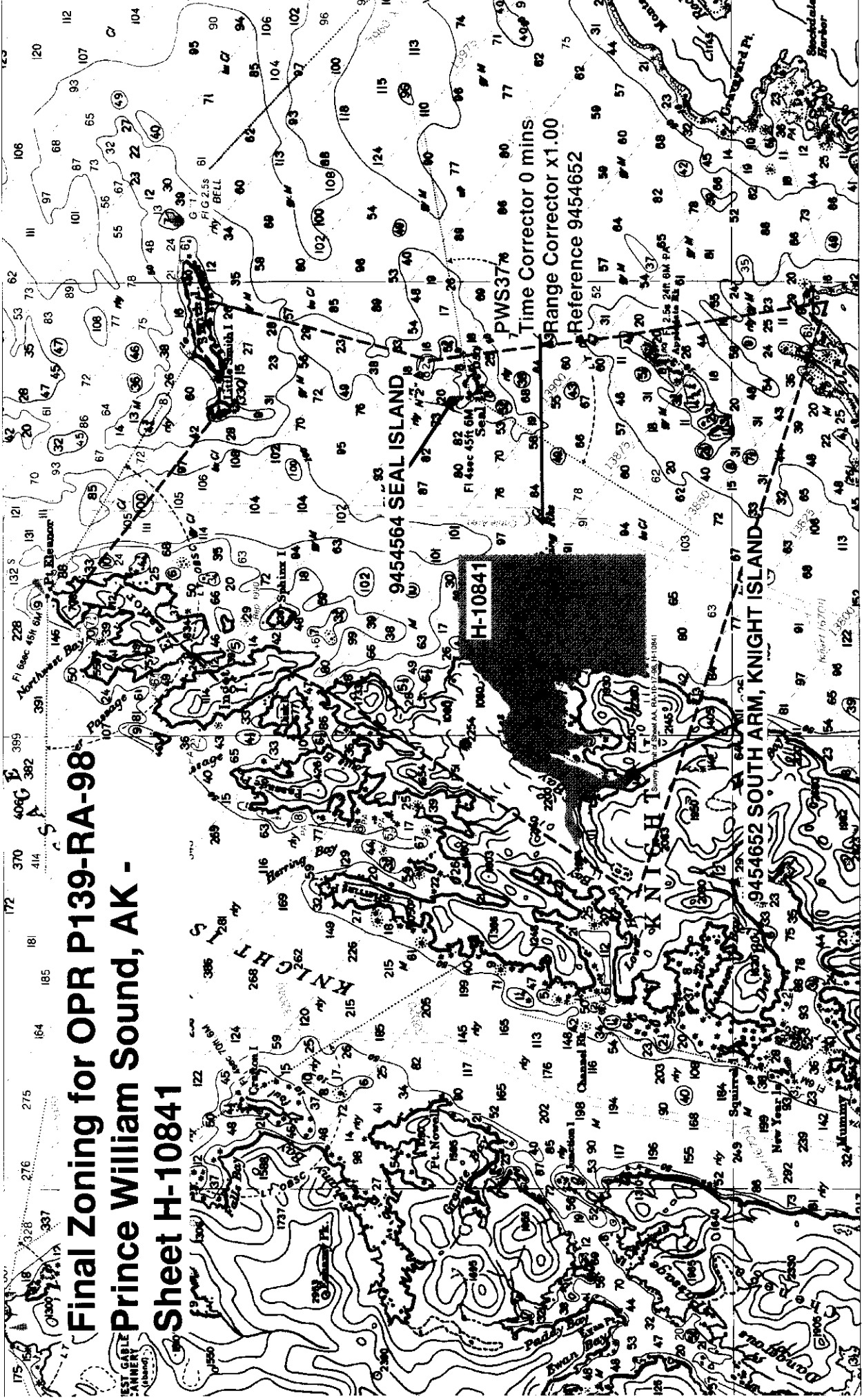
Note 2: Use tide data from the appropriate station for each zone according to the order in which they are listed in the Tidezone corrector files (note: this may not be the same order as presented on the Tide Note). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available. All zones within a survey sheet may not have the same order of applicable tide stations.


----- 3/25/99
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR P139-RA-98,
 Sheet H-10841.

Format: Longitude in decimal degrees (negative value denotes
 Longitude West),
 Latitude in decimal degrees
 Tide Station (in recommended order of use)
 Average Time Correction (in minutes)
 Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone PWS37			
-147.348 60.293559	9454564	0	1.00
-147.373205 60.367377	9454652	0	1.00
-147.391163 60.437636	9454240	0	0.97
-147.344431 60.522683	9454050	0	0.93
-147.381578 60.52174			
-147.401054 60.514056			
-147.428357 60.514658			
-147.567302 60.56881			
-147.578232 60.539507			
-147.626594 60.514644			
-147.618284 60.490075			
-147.634898 60.474627			
-147.667831 60.449911			
-147.785618 60.363112			
-147.348 60.293559			



Final Zoning for OPR P139-RA-98
Prince William Sound, AK -
Sheet H-10841

PWS376
Time Corrector 0 mins
Range Corrector x1.00
Reference 9454652

9454564 SEAL ISLAND

9454652 SOUTH ARM, KNIGHT ISLAND

H-10841

EST. GARLICK
ANNEX
LABOR

HYDROGRAPHIC SURVEY STATISTICS

H-10841

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		NA
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		NA
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS: SOURCE DOCUMENTS
ACCORDION FILES	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA	
SHORELINE MAPS (List):	DM-10297
PHOTOBATHYMETRIC MAPS (List):	None
NOTES TO THE HYDROGRAPHER (List):	None
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	16705, 18th Edition, March 27, 1999

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			
POSITIONS REVISED			
SOUNDINGS REVISED (Selected)			41,685
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS			
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION-VERIFICATION			
COMPILATION OF SMOOTH SHEET	239.0		239.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		28.0	28.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		44.0	44.0
GEOGRAPHIC NAMES			
OTHER (Chart Compilation)		51.0	51.0
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	239.0	123.0
			362.0

Pre-processing Examination by M. Bigelow	Beginning Date 4/7/99	Ending Date 4/9/99
Verification of Field Data by M. Bigelow, R. Mayor, E. Domingo, I. Almacen, LCDR Ferguson	Time (Hours) 239.0	Ending Date 8/23/99
Verification Check by B. Olmstead	Time (Hours) 13	Ending Date 8/19/99
Evaluation and Analysis by I. Almacen	Time (Hours) 72.0	Ending Date 8/26/99
Inspection by B. Olmstead	Time (Hours) 8	Ending Date 8/27/99

EVALUATION REPORT

H-10841

A. PROJECT

The hydrographer's report contains a complete discussion of the project information.

B. AREA SURVEYED

The survey area is adequately discussed in the hydrographer's report

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line (NALL) throughout the survey. Charted features and soundings inshore of this limit line which have not been specifically addressed during survey operations should be retained as charted. Page-size plots of the charted area depicting the specific limits of supersession accompanies this report as Attachment 1.

The bottom consists mainly of mud. Depths range from 0 to 109 fathoms.

C. SURVEY VESSELS

The hydrographer's report contains adequate information relating to survey vessels.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The acquisition and processing of data in the field has been adequately discussed in the hydrographer's report, section D.

Office processing of survey data was conducted using the same Computer Aided Resource Information System (CARIS), and Hydrographic Processing System (HPS) used by the hydrographer and MicroStation 95.

Shallow Water Multibeam data sets were processed to reject beams 1,2,3,4,98,99,100 and 101 during office processing. In addition, the beam angle filter was used to reject all data outside of a 65 degree angle from nadir. Refer to the memorandum for the record from the Multibeam Processing Officer dated March 26, 1999 included in the survey records.

Digital data for this survey exists in the standard HPS format, a database format using the .dbf extension. In addition, the smooth sheet drawing is filed in the MicroStation format, i.e., dgn extension. Copies of these files have been forwarded to the Hydrographic Surveys Division and a backup copy retained at PHB. Database records forwarded are in the Internal Data Format (IDF) and are in compliance with specifications in existence at the time of survey processing.

The drawing files necessarily contain information which is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by Hydrographic Survey Guideline No. 35 and No. 75.

The data is plotted using a Modified Transverse Mercator (MTM) projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side Scan Sonar was not utilized during this survey.

F. SOUNDING EQUIPMENT

Sounding equipment has been adequately addressed in the hydrographer's report.

G. CORRECTIONS TO SOUNDINGS

Soundings and elevations have been reduced to Mean Lower Low Water (MLLW) or Mean High Water (MHW) as appropriate, with approved tide correctors obtained from the Center For Operational Oceanographic Products and Services. The approved tide correctors are zoned from Seal Island, Alaska, gage 945-4564.

Other sounding reducers include corrections for static draft, dynamic draft, sound velocity, heave, roll and pitch. These reducers have been reviewed and are consistent with NOS specification.

H. CONTROL STATIONS

Sections H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

The positions of horizontal control stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD27 adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -2.172 seconds (-67.228 meters)
Longitude: 7.168 seconds (109.768 meters)

I. HYDROGRAPHIC POSITION CONTROL

Hydrographic position control is adequately discussed in the hydrographer's report.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 4.0 was computed for survey operations. The maximum (HDOP) allowable limit has not been exceeded during this survey and the quality of data obtained is good. During Shallow Water MultiBeam (SWMB) data gathering, satellite configuration as indicated by HDOP and the number of satellites, is monitored visually on HYPACK. The final positions are provided by the POS-MV which combines the DGPS position with inertial navigation information. In the event that the differential GPS corrector signal is lost, the POS-MV will continue to provide positions based on inertial navigation. Data was analyzed during processing to ensure it contains no significant errors. The reference site confirmation test and daily DGPS performance checks were conducted in the field and found adequate.

NAD 83 is used as the horizontal datum for plotting and position computations.

Additional information concerning specific control system type, calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and correction to position data.

J. SHORELINE

Shoreline map DM 10297, scale 1:20,000 was compiled on NAD83 and applies to this survey. Shoreline drawn on the smooth sheet in black originates from this digital data as provided by the Coastal Mapping Program. The shoreline data and the hydrographic data were merged in MicroStation during the compilation of the smooth sheet. There were no revisions to the Mean High Water Line (MHWL).

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10841 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10837	1998	1:10,000	Northern Limit
H-10847	1998	1:10,000	Northeastern Limit

The junction with surveys H-10837 and H-10847 are complete. "Joins" notes have been added to the smooth sheet at the junction areas of the survey. The soundings and depth curves between the surveys are in satisfactory agreement.

M. COMPARISON WITH PRIOR SURVEYS

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Datum</u>
H-2984	1908	1:20,000	Valdez
H-2741	1911	1:40,000	Valdez

The prior surveys H-2741 and H-2984 cover the Bay of Isles area. The registration and legibility of these prior surveys to the present survey were good, contrary to the comment on section L of the hydrographer's report. With the exception of a few significant differences noted in the hydrographer's report, comparison of depths reveals that the present survey is generally shoaler by about 0.5-3.0 fathoms than the prior surveys. Aside from the effects of frequent earthquake activities around the area, the differences in depths may well be attributed to improved positioning and sounding methods, including the relative accuracy of the data acquisition process employed during this recent survey.

A more thorough coverage of the area utilizing the Shallow Water Multibeam system has revealed more significantly shallower depths not detected during the earlier surveys.

In accordance with the Hydrographic Guideline No. 39, the effect of the 1964 Prince William Sound earthquake were considered in the comparison of this survey. Prince William Sound experienced a bottom uplift of 4-32 feet during the 1964 earthquake. However, due to the differences in data acquisition methods, no reasonable adjustment value for prior soundings could be determined.

Additional information regarding prior survey comparison is found in the hydrographer's report, section M.

Survey H-10841 is adequate to supersede the prior surveys within the area of common coverage.

N. ITEM INVESTIGATIONS

AWOIS Items #52428 was investigated during this survey. The disposition of this feature was adequately addressed in section M of the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10841 was compared with the following chart.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16705	18th	March 27, 1999	1:80,000	NAD 83

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys. The prior surveys have been adequately addressed in section M and require no further discussion.

The application of this survey to charts of a scale less than 1:40,000 may require the generalization of features such as ledges and reefs. The recommended charting disposition of specific ledges or reefs is their depiction as isolated rocks. The application of this survey to charts of a scale greater than 1:40,000 may be accomplished without generalization of features. Features from survey H-10841 have been generalized on chart 16705 along the shoreline where applicable.

Survey H-10841 is adequate to supersede charted hydrography within the common area.

b. Dangers to navigation

Thirteen (13) dangers to navigation were discovered during survey operations. These dangers were reported to the USCG, NIMA and N/CS1 on November 10, 1998. Twenty-seven (27) additional dangers were identified during office processing and were reported to the USCG for inclusion to the Local Notice to Mariners. A copy of both reports are attached.

P. ADEQUACY OF SURVEY

The hydrography contained on survey H-10841 is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the required depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1998 Edition with the following exceptions.

The field unit submission of survey data exceeded the four weeks period from the completion of field work as required in the Field Procedures Manual (FPM). However, the Chief of Party submitted a written explanation for the delay indicating the anticipated transmittal date to the Chief, Pacific Hydrographic Branch, through the Director, Pacific Marine Center. A copy of the letter dated November 12, 1998 is attached. Fieldwork for survey H-10841 was completed October 13, 1998 and received for office processing on December 18, 1998.

Q. AIDS TO NAVIGATION

There are no fixed and floating aids to navigation within the survey area.

There were no features of landmark value found during this survey.

R. STATISTICS

Statistics are adequately itemized in the hydrographer's report.

S. MISCELLANEOUS

Miscellaneous information is adequately discussed in the hydrographer's report.

T. RECOMMENDATIONS

Survey H-10841 is a good hydrographic survey. No additional work is recommended.

U. REFERRAL TO REPORTS

Referral to reports is adequately discussed in the hydrographer's report.



Isagani A. Almacén
Cartographer

APPROVAL SHEET
H-10841

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 8/30/99
Bruce A. Olmstead
Senior Cartographer, Cartographic Section
Pacific Hydrographic Branch

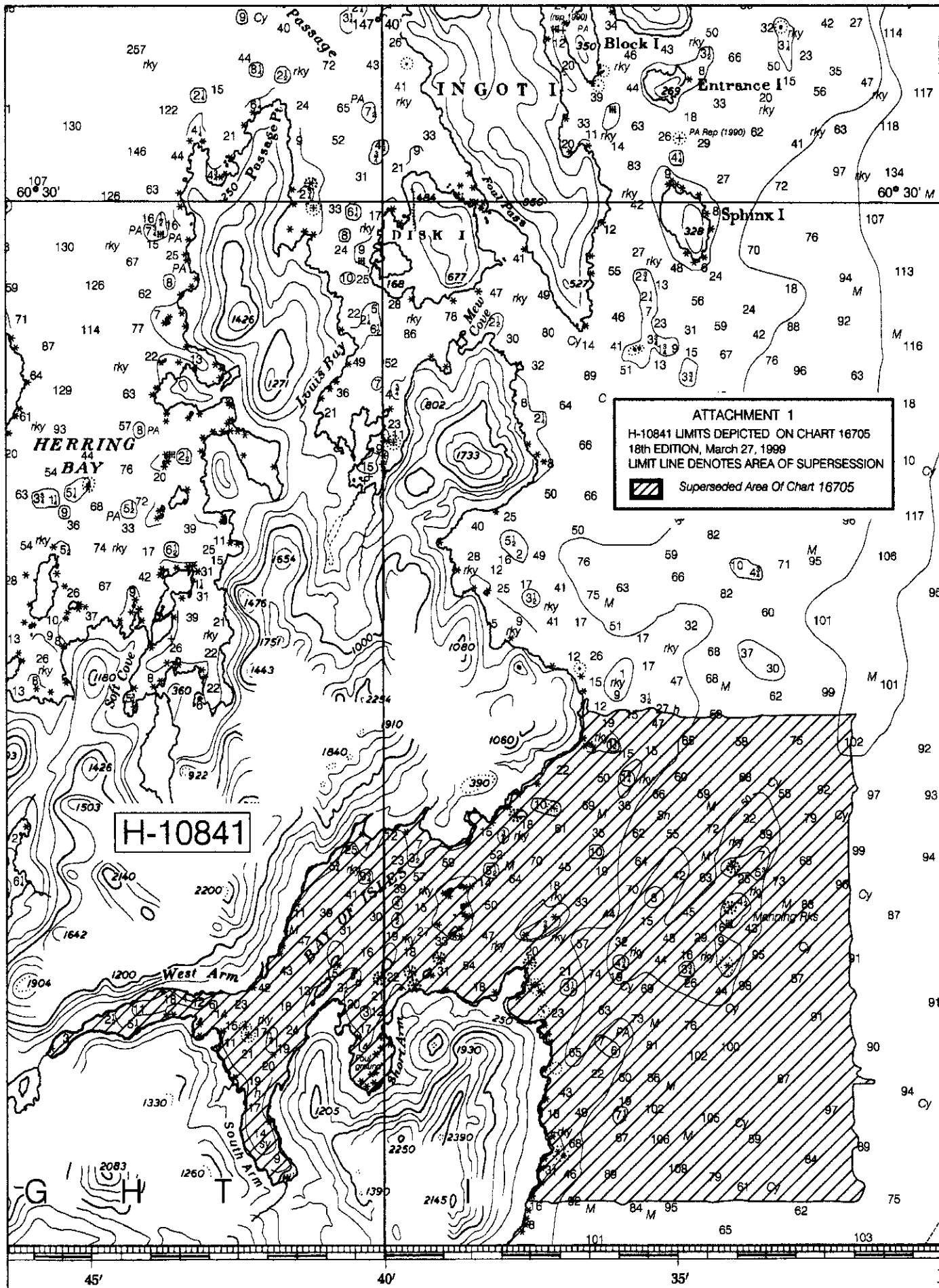
I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.


James C. Gardner Date: 9-21-99
James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Samuel P. De Bow Date: 10-18-99
Samuel P. De Bow
Commander, NOAA
Chief, Hydrographic Surveys Division



ATTACHMENT 1
 H-10841 LIMITS DEPICTED ON CHART 16705
 18th EDITION, March 27, 1999
 LIMIT LINE DENOTES AREA OF SUPERSESION
 Superseded Area Of Chart 16705

H-10841

