H10837

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ....Hydrographic.....

Field No. .....RA-10-14-98.....

Registry No. .....H-10837.....

LOCALITY

State .....Alaska.....

General Locality Southwest. Prince. William. Sound

Sublocality Eleanor. Island. to. North. Part. of...

.....Knight. Island.....

1998

CHIEF OF PARTY

.....CAPT. A.D. Anderson.....

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10837

HYDROGRAPHIC TITLE SHEET

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-10-14-98

State: Alaska

General locality: Southwest Prince William Sound

Locality: Eleanor Island to North Part of Knight Island

Scale: 1:10,000 Date of survey: 8/21/98-10/14/98

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

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, ~~xxxxxxxxxxxx~~ Multibeam DSF-6000, Knudsen 320M,RESON 8101 Multibeam

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: B.A. Olmstead Automated plot by: HP-650C

Verification by: B.A. Olmstead, M. Bigelow, J. Ferguson

Soundings in fathoms ~~feexx~~ at ~~MKWx~~ MLLW and tenths

REMARKS: All times are UTC, revisions and marginal noted 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.

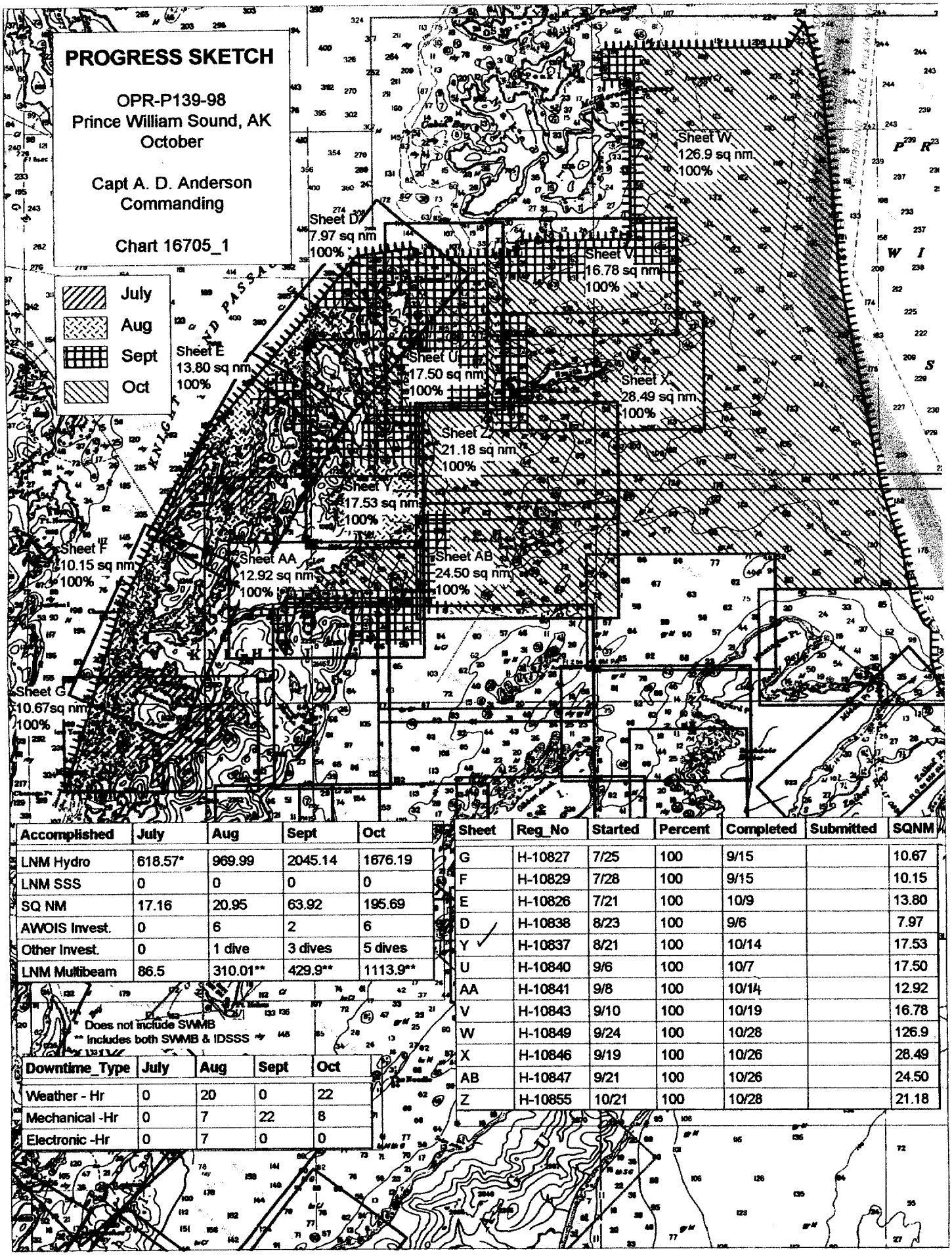
*Change #1 dated September 8, 1998 AWOIS/SURF 11/19/99 MCR

SMOOTHSHEET PARAMETERS:

TRANSVERSE MERCATOR, CENTRAL MERIDIAN 147°30'00"W
SCALING FACTOR: 0.99998

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

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215

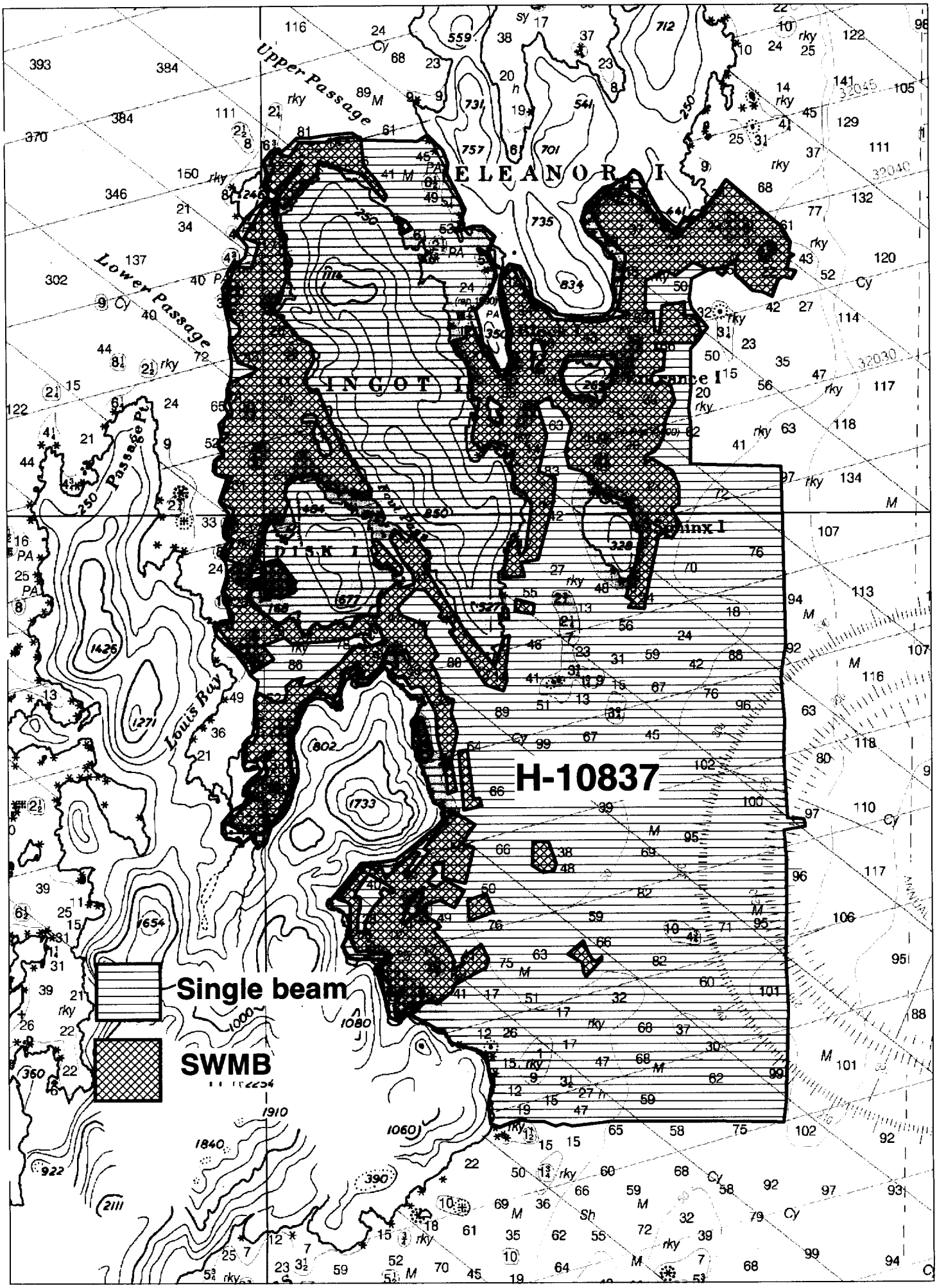


Accomplished	July	Aug	Sept	Oct
LNM Hydro	618.57*	969.99	2045.14	1676.19
LNM SSS	0	0	0	0
SQ NM	17.16	20.95	63.92	195.69
AWOIS Invest.	0	6	2	6
Other Invest.	0	1 dive	3 dives	5 dives
LNM Multibeam	86.5	310.01**	429.9**	1113.9**

* 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

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	10/14		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


H-10837
Single beam
SWMB
Upper Passage
Lower Passage
Louis Bay
ELEANOR I
DISK I
Sphinx I

Descriptive Report to Accompany Hydrographic Survey H-10837

Field Number RA-10-14-98
Scale 1:10,000
October 1998
NOAA Ship RAINIER
Chief of Party: Captain Alan D. Anderson, NOAA

A. PROJECT

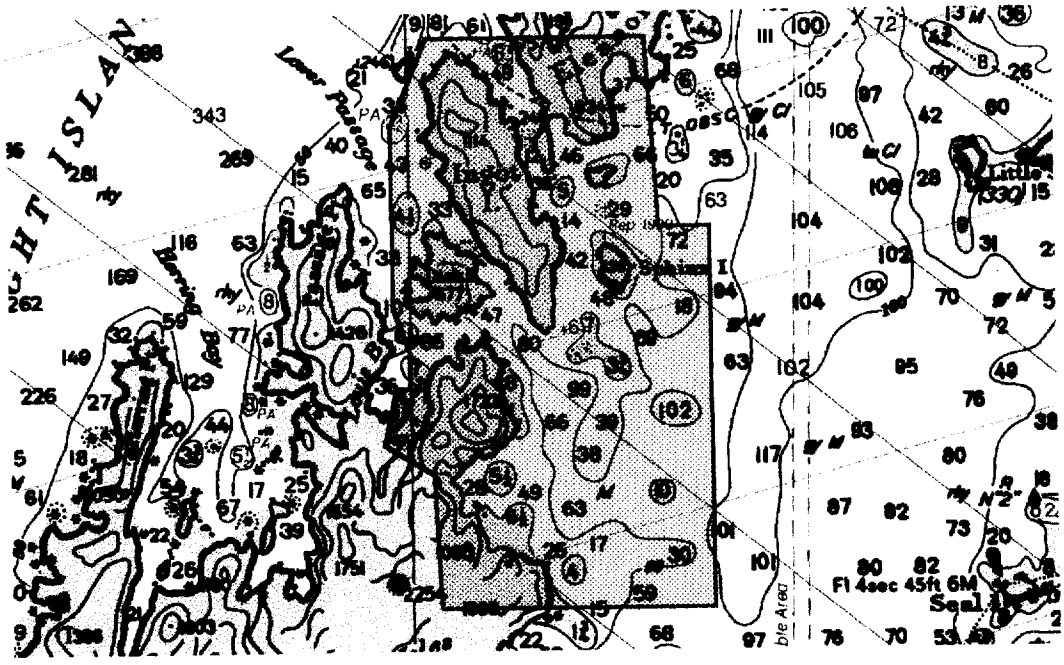
This basic hydrographic survey was completed in the southwest portion of Prince William Sound, Alaska as specified by Project Instructions OPR-P139-RA dated July 10, 1998 and change #1 dated September 8, 1998. Survey H-10837 corresponds to sheet Y as defined in the sheet layout. This survey will provide data to supersede prior surveys performed from 1908 through1909 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.

Within the 1998 project area is the western side of Knight Island, which is transited by 850-foot cruise line vessels drawing 30 feet of water, and carrying more than 2000 tourists. The Seventeenth U.S. Coast Guard District reported that large cruise ships presently sail through Knight Island Passage an average of three times a week from May to September. Cruise ship traffic is projected to increase 34-percent in the next five years. Due to this type of traffic, the Southwest Alaska Pilots Association has expressed concern over the age and lack of charted soundings in Knight Island Passage.

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 Evel Rpt., Section B

The survey area is Eleanor Island to Knight Island (H-10837). Survey limits are shown below on a detail of chart 16700 (Northern limit 60° 32' 20" N, Southern limit 60° 25' 30" N, ~~Western~~ Eastern limit 147° 32' 20 W, ~~Eastern~~ Western limit 147° 39' 20" W). Data acquisition was conducted from August 21 – October 14 1998 (DN 233-287). Occasional commercial and recreational marine traffic was observed anchoring in Louis Bay and transiting Lower Passage.



C. SURVEY VESSELS ✓

2121 ✓

Data was acquired by the Rainier survey launches (vessel numbers 2122, 2123, 2124, 2125 and 2126) as noted in the Survey Information Summary, included with 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 (installed September 15, '98), 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. 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 frequencies, with high frequency the digitized setting. Serial numbers are included with the Separates.* Singlebeam launches were used to collect mainscheme hydrography, and were also used to perform all shoreline verification.

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 the Hydrographic Survey Guideline (HSG) No. 69. 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

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 in CARIS during multi-beam 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/CS44) 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 (mins)	Range Ratio	HPS Tide Table No.
PWS 37	0	x0.94	Table No. 1
PWS 38	0	x0.94	Table No. 1

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

* Filed with the hydrographic data.

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. Concur

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 project 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
Herring Point	945-4691	Yes	30-day	7-20-98	10-16-98
Louis Bay	945-4642	Yes	3-day	7-26-98	10-15-98
Seal Island	945-4564	Yes	30-day	8-5-98	10-30-98
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/CS41 in accordance with FPM 4.8. Approved Tide Note dated March 25, 1999 is attached.

H. HYDROGRAPHIC POSITION CONTROL See Eval Rpt., Section H.

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.

All soundings were positioned using differential GPS (DGPS). The VHF differential reference station TUFT and SEAL, were the primary source for differential correctors for this survey. The USCG beacons located at Cape Hinchinbrook, Kenai 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., Section J.

N/NGS3 supplied photogrammetric shoreline in MapInfo format for DM-10294 and DM-10297 for use as source shoreline. The DM shoreline was imported into Hypack for field verification. 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

* Filed with the hydrographic data.

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 off-shore of the NALL were positioned with the launch's DGPS by taking Detached Positions. Features seen inshore of the NALL were not positioned.

Shoreline manuscript and field features were compared to an enlargement of charts 16700, 16701 and 16705. There was general agreement between the charted and manuscript shoreline and what the hydrographer found on this survey. There are, however, numerous differences (approximately 87) when analyzing the present features such as rocks, islets, ledges, and reefs. The differences fall into two categories: mis-charted rocks and uncharted 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. 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. Shoreline verification conducted by the hydrographer has been analyzed during office processing and shown on the smooth sheet as warranted.
The digital shoreline (DM 10294, 10297) features matched the shoreline as observed during the current survey, except for the following.

Concur

Shoreline Manuscript Feature	Fix#	Geographic Location	Observed Features *
None	20014	60:28:14.5 N, 147:40:00.9 W	Subm Rock 1.2 RK
	20078	60:27:58.3 N, 147:39:49.5 W	Rock Cov 1FT
	20081	60:27:55.9 N, 147:40:07.8 W	Subm Rock 2.1 RK
	20082	60:27:56.5 N, 147:40:08.7 W	Subm Rock 1.3 RK
	20083	60:27:53.4 N, 147:40:10.9 W	Rock (0)
	20090	60:27:38.8 N, 147:40:14.4 W	Subm Rock 0.9 RK
	20092	60:27:46.1 N, 147:39:59.4 W	Subm Rock 0.5RK
	20094	60:27:46.5 N, 147:39:55.0 W	Subm Rock 1.4 RK
	20095	60:27:49.5 N, 147:39:56.1 W	Rock (6)
	20531	60:30:15.0 N, 147:39:05.6 W	Rock (0)
	20560	60:30:02.4 N, 147:38:30.6 W	Subm Rock 1 RK
	20620	60:29:33.8 N, 147:39:56.0 W	Rock (4)
	20636	60:29:30.6 N, 147:40:20.7 W	Rock (1)
	23782	60:30:18.0 N, 147:36:15.8 W	Rock (0)
	23806	60:31:20.1 N, 147:36:51.7 W	Rock (6)
	23847	60:31:55.0 N, 147:36:43.5 W	Rock Cov 2FT
	23848	60:31:48.8 N, 147:36:40.8 W	Rock Cov 1FT
	24730	60:32:05.6 N, 147:35:03.1 W	Rock Cov 1FT
	24753	60:31:47.4 N, 147:34:40.3 W	Rock Cov 1FT
	40021	60:32:26.1 N, 147:38:27.1 W	Rock (2)
	40031	60:32:18.6 N, 147:38:12.7 W	Rock (2)
	40036	60:32:13.8 N, 147:38:02.0 W	Subm Rock 0.7RK
	40098	60:31:20.4 N, 147:37:07.7 W	Rock (5)
	40116	60:30:49.7 N, 147:36:51.4 W	Rock Cov 1FT
	40188	60:29:18.0 N, 147:36:21.5 W	Rock (0)
	40210	60:28:53.5 N, 147:36:41.7 W	Subm Rock 1.2RK

* Based on approved tides.

Shoreline Manuscript Feature cont.	Fix#	Geographic Location	Observed Features *	
	40235 ✓	60:28:41.0 N, 147:35:48.8 W ✓	Rock (2)	
	40236 ✓	60:28:45.2 N, 147:35:34.6 W ✓	Rock (1)	
	40238 ✓	60:30:00.1 N, 147:36:07.9 W ✓	Rock (8)	
	40644 ✓	60:29:21.2 N, 147:37:12.8 W ✓	Rock (4)	
	40680 ✓	60:29:54.3 N, 147:38:17.4 W ✓	Rock (5)	
	40713 ✓	60:30:46.5 N, 147:39:05.3 W ✓	Rock (5)	
	40727 ✓	60:30:59.8 N, 147:39:23.9 W ✓	Rock (2)	
	40735 ✓	60:31:05.3 N, 147:39:15.2 W ✓	Rock (2)	
	40750 ✓	60:31:16.5 N, 147:39:36.5 W ✓	Subm Rock 1.2Rk	
	40763 ✓	60:31:14.1 N, 147:39:29.6 W ✓	Rock 1.5Rk	Exposed for -0.7 & 0.6 tides
	47471 ✓	60:32:06.4 N, 147:39:46.0 W ✓	Subm Rock 1.5Rk	
	47482 ✓	60:32:13.6 N, 147:39:44.6 W ✓	Rock (0)	
	47483 ✓	60:32:13.1 N, 147:39:45.5 W ✓	Subm Rock 0.9Rk	- Exposed
	47484 ✓	60:32:15.7 N, 147:39:45.0 W ✓	Subm Rock 1.4Rk	
	47492 ✓	60:32:19.8 N, 147:39:33.2 W ✓	Rock (4)	
	47500 ✓	60:32:22.7 N, 147:39:29.4 W ✓	Rock ~~Cov 27~~	
	48725 ✓	60:28:40.9 N, 147:37:46.3 W ✓	Rock (2)	
	48761 ✓	60:27:58.9 N, 147:37:27.4 W ✓	Rock (5)	
	48779 ✓	60:27:45.7 N, 147:37:14.7 W ✓	Rock (4)	
	48827 ✓	60:27:05.4 N, 147:38:46.9 W ✓	Rock (4)	
	48856 ✓	60:26:43.8 N, 147:38:10.2 W ✓	Rock (0)	
	48890 ✓	60:26:13.3 N, 147:37:24.1 W ✓	Rock (1)	
	50990 ✓	60:28:49.4 N, 147:38:04.7 W ✓	Rock (6)	
	51888 ✓	60:29:12.9 N, 147:39:37.6 W ✓	Rock (2)	
	51950 ✓	60:25:45.5 N, 147:36:35.3 W ✓	Rock (3)	
	70003 ✓	60:30:12.6 N, 147:35:08.4 W ✓	Rock ~~Cov 27~~	
	70006 ✓	60:30:50.2 N, 147:35:21.6 W ✓	Rock (4)	
	70008 ✓	60:32:02.7 N, 147:37:07.5 W ✓	Rock ~~Cov 17~~	
	70009 ✓	60:32:28.7 N, 147:37:19.7 W ✓	Rock (11)	
	73709 ✓	60:31:27.8 N, 147:37:02.6 W ✓	Rock 0.8Rk	
Rock	70001 ✓	60:29:29.8 N, 147:34:41.0 W ✓	DM rock not found after 5 min. visiual search at low water [5m visibility, 35m search radius] Concur	
Rock	24679 ✓	60:32:06.5 N, 147:34:00.8 W ✓	DM rock not found after 5 min. visiual search at low water [8m visibility, 30m search radius] Concur	
None	20079 ✓	60:28:00.4 N, 147:40:03.9 W ✓	Ledge	
	20084 ✓	60:27:46.3 N, 147:40:24.5 W ✓	Ledge (6)	
	20087 ✓	60:27:41.5 N, 147:40:26.4 W ✓	Ledge	
	20088 ✓	60:27:40.1 N, 147:40:19.9 W ✓	Ledge (12)	
	20542 ✓	60:30:09.9 N, 147:38:52.3 W ✓	Ledge } (1)	
	20543 ✓	60:30:09.5 N, 147:38:52.0 W ✓	Ledge }	
	70004 ✓	60:29:51.2 N, 147:34:22.0 W ✓	Ledge (7)	

* Based on approved tides.

Shoreline Manuscript Feature cont.	Fix#	Geographic Location	Observed Features *
	70007	60:31:02.4 N, 147:35:37.8 W	Ledge (4)
	47459	60:31:54.4 N, 147:39:40.4 W	~~Rock~~ ~~Ledge~~ (2)
	47460	60:31:58.0 N, 147:39:41.2 W	~~Rock~~ ~~Ledge~~ (2)
	47461	60:32:00.2 N, 147:39:41.4 W	Ledge (3)
	48735	60:28:31.1 N, 147:37:38.6 W	Ledge (5)
Rock	47437	60:31:32.6 N, 147:39:51.7 W	Change Feature from DM Rock to Ledge Do not concur — Depict Rock (1)
None	20091	60:27:36.2 N, 147:40:05.2 W	Islet (25)
	50905	60:27:40.0 N, 147:40:19.4 W	Islet Concur
Islet	70002	60:29:30.7 N, 147:34:42.3 W	DM islet not found after 5 min. visiual search at low water [5m visibility, 35m search radius] — Delete Islet
None	48828	60:27:00.9 N, 147:38:44.3 W	Reef (0)
	51891	60:29:32.4 N, 147:37:51.8 W	Ledge ~~Reef~~ ? (8)
	51892	60:29:30.2 N, 147:37:53.4 W	Ledge ~~Reef~~ ?
Rock	21502	60:29:10.3 N, 147:38:47.5 W	Change feature from DM Rock to ~~Reef~~ Ledge (6)

Charted feature's (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.

Charted Feature	Fix #	Geographic Location	Observed Features *
None	20078	60:27:58.3 N, 147:39:49.5 W	Rock Cov 1FT
	20531	60:30:15.0 N, 147:39:05.6 W	Rock (0)
	20620	60:29:33.8 N, 147:39:56.0 W	Rock (4)
	20636	60:29:30.6 N, 147:40:20.7 W	Rock (1)
	23782	60:30:18.0 N, 147:36:15.8 W	Rock (0)
	40021	60:32:26.1 N, 147:38:27.1 W	Rock (2)
	40031	60:32:18.6 N, 147:38:12.7 W	Rock (2)
	40036	60:32:13.8 N, 147:38:02.0 W	Subm Rock 0TRK
	40098	60:31:20.4 N, 147:37:07.7 W	Rock (5)
	40188	60:29:18.0 N, 147:36:21.5 W	Rock (0)
	40235	60:28:41.0 N, 147:35:48.8 W	Rock (2)
	40750	60:31:16.5 N, 147:39:36.5 W	Subm Rock 1.2RK
	47482	60:32:13.6 N, 147:39:44.6 W	Rock (0)
	47483	60:32:13.1 N, 147:39:45.5 W	Subm Rock 0.9RK — Excessed
	47484	60:32:15.7 N, 147:39:45.0 W	Subm Rock 1.4RK
	47492	60:32:19.8 N, 147:39:33.2 W	Rock (4)
	47500	60:32:22.7 N, 147:39:29.4 W	Rock Cov 2FT
	48725	60:28:40.9 N, 147:37:46.3 W	Rock (2)
	48827	60:27:05.4 N, 147:38:46.9 W	Rock (4)
	48890	60:26:13.3 N, 147:37:24.1 W	Rock (1)
	50990	60:28:49.4 N, 147:38:04.7 W	Rock (6)
	51888	60:29:12.9 N, 147:39:37.6 W	Rock (2)
	51950	60:25:45.5 N, 147:36:35.3 W	Rock (3)
	70008	60:32:02.7 N, 147:37:07.5 W	Rock Cov 1FT

* Based on approved tides

Charted Feature cont.	Fix #	Geographic Location	Observed Features	
Rock	20089	60:27:40.9 N, 147:40:14.9 W	Charted rock not found after 5 min. visiual search at low water [5m visibility, 15m search radius]	Do not concur Islet and ledge found.
Rock	23807	60:31:26.6 N, 147:36:56.6 W	Charted rock not found after 5 min. visiual search at low water [3m visibility, 15m search radius]	concur 0.8 Rk found 100 meters to West which maps rock PA reported 1990.
Rock	24836	60:30:58.8 N, 147:36:19.6 W	Charted rock not found after 5 min. visiual search at low water [4m visibility, 30m search radius]	Dm rocks inshore of charted rock.
Rock	24837	60:31:06.2 N, 147:36:14.4 W	Charted rock not found after 5 min. visiual search at low water [4m visibility, 30m search radius]	Concur Dm rock likely generalized offshore
Rock	24844	60:28:45.8 N, 147:35:38.1 W	Charted rock not found after 5 min. visiual search at low water. "new" rock DP'd 40m away. * (1)	Concur
Rock	50904	60:27:51.4 N, 147:40:00.3 W	Charted rock not found after 5 min. visiual search at low water [5m visibility, 25m search radius]	Concur Rock (6) found 100 meters to southeast.
Rock	50907	60:27:47.1 N, 147:40:00.7 W	Charted rock not found after 5 min. visiual search at low water [5m visibility, 25m search radius]	Survey found 0.8 Rk
Rock	70005	60:30:32.2 N, 147:34:56.5 W	Charted rock not found after 10 min. visiual search at low water [5m visibility, 35m search radius]	Concur See 4 WDFG Item 52427
None	48735	60:28:31.1 N, 147:37:38.6 W	Ledge (5)	
	70007	60:31:02.4 N, 147:35:37.8 W	Ledge (4)	
Rock	47437	60:31:32.6 N, 147:39:51.7 W	Change Feature from chd Rock to Ledge	Do not concur Depict rock (7)
None	48828	60:27:00.9 N, 147:38:44.3 W	Reef (2)	
	51891	60:29:32.4 N, 147:37:51.8 W	Ledge ~~Reef~~ (8)	
	51892	60:29:30.2 N, 147:37:53.4 W	Ledge ~~Reef~~	
Islet	50906	60:27:40.0 N, 147:40:24.3 W	Charted islet not found after 5 min. visiual search at low water [5m visibility, 25m search radius]	Concur Dm islet plots 100 meters northeast.

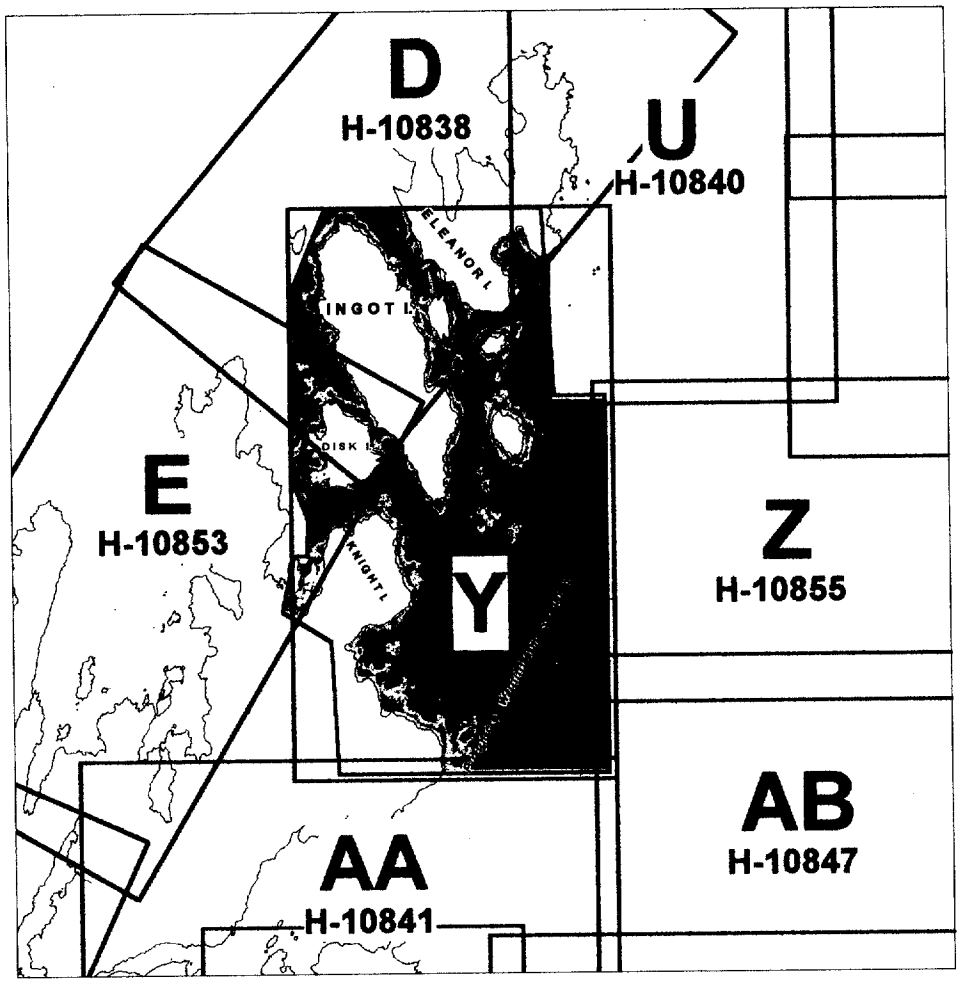
J. CROSSLINES ✓

Crosslines agreed very well with mainscheme hydrography. Depths generally agreed within one meter. Minor exceptions occur in areas of extremely steep bathymetry, where relatively small differences were seen, as expected due to the inherent differences in the various measurement systems used. There were a total of 19.1 nautical miles of crosslines, comprising 5.9% of mainscheme hydrography.

K. JUNCTIONS See Eval Rpt., Section L

The following contemporary surveys junction with H-10837:

Registry #	Scale	Date	Junction side
H-10838 ✓	1:10,000	1998	North
H-10840 ✓	1:10,000	1998	Northeast
H-10855 ✓	1:10,000	1998	East
H-10847 ✓	1:10,000	1998	Southeast
H-10841 ✓	1:10,000	1998	South
H-10853 ✓	1:10,000	1998	West

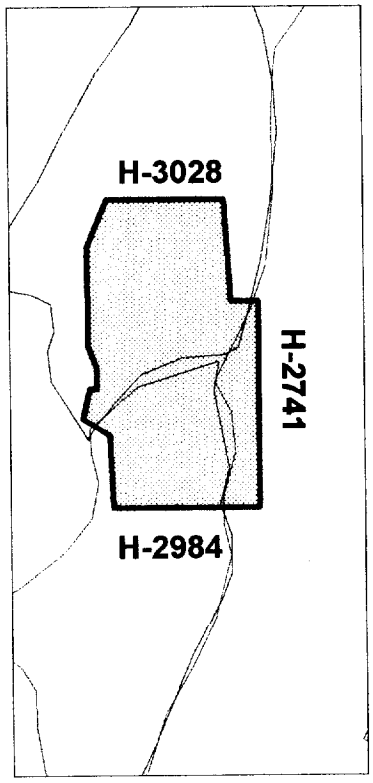


Soundings on these 1998 surveys were found to be in good agreement, generally matching within 1 fathom. Concur
Minor exceptions occur in deep water, where the single beam data differs with the Rainier's multibeam soundings from H-10855. These differences can be explained by the difference of beam width, power output, and angle of incidence between the two systems. The deeper multibeam soundings are more accurate, thus the hydrographer recommends using data from H-10855* in areas where H-10837 overlaps with H-10855. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum. The junction soundings with H-10855 agree very well (0.2 FMS) in depths that range from 70-100 fathoms. Selection of depths are acceptable from either survey.

* Do not Concur

L. COMPARISON WITH PRIOR SURVEYS See Eval Rpt., Section M

Registry Number	Scale	Date	Area Covered
H-3028	1:20,000	1909	Northern Half
H-2741	1:40,000	1911	Eastern Quarter
H-2984	1:20,000	1908	Southern Half



The prior surveys H-3028, H-2741 and H-2984 combined cover the entire area of survey H-10837. No comparison was made with H-2741, since the provided digital version was not legible. The prior surveys H-3028 and H-2984 were consistently equal to or deeper than the current survey, with soundings generally found to be 5-30 fathoms deeper. Differences between the current survey and priors can probably be attributed to scale and improved modern positioning and sounding equipment. Several significant differences were found between the priors and current survey, examples are as follows: Concur

Prior Survey Registry Number	Prior Depth Feet	H-10837 Depth Feet	Geographic Location
H-3028	674	602(183.5m)	60:28:20.5 N, 147:36:34.2 W
H-3028	477	425(129.7m)	60:28:52.7 N, 147:39:50.7 W
H-3028	258	161(49.1m)	60:31:09.0 N, 147:40:15.1 W
H-3028	250	145(44.2m)	60:32:27.5 N, 147:38:10.6 W
H-3028	110	71(21.8m)	60:30:44.4 N, 147:34:51.6 W
H-3028	88	15 (4.5m)	60:29:14.1 N, 147:35:27.5 W
H-3028	30	6(1.8m)	60:30:47.3 N, 147:36:04.9 W
H-3028	27	6(1.8m)	60:30:24.7 N, 147:40:04.3 W
H-2984	566	511(155.9m)	60:27:58.0 N, 147:34:29.4 W
H-2984	386	298(90.8m)	60:27:41.9 N, 147:36:01.5 W
H-2984	114	71(21.6m)	60:28:49.5 N, 147:35:12.7 W
H-2984	103	71(21.6m)	60:25:59.9 N, 147:36:29.7 W
H-2984	48	25(7.7m)	60:28:52.9 N, 147:35:36.9 W
H-2984	35	22(6.7m)	60:26:37.7 N, 147:37:37.6 W
H-2984	33	12(3.6m)	60:27:03.6 N, 147:37:44.5 W
H-2984	24	4(1.2m)	60:25:29.5 N, 147:35:55.3 W

Comparing H-3028 and H-2984 with the current survey's shoreline is in good agreement. Differences between the current survey and prior surveys can probably be attributed to scale and improved modern positioning. 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 ✓

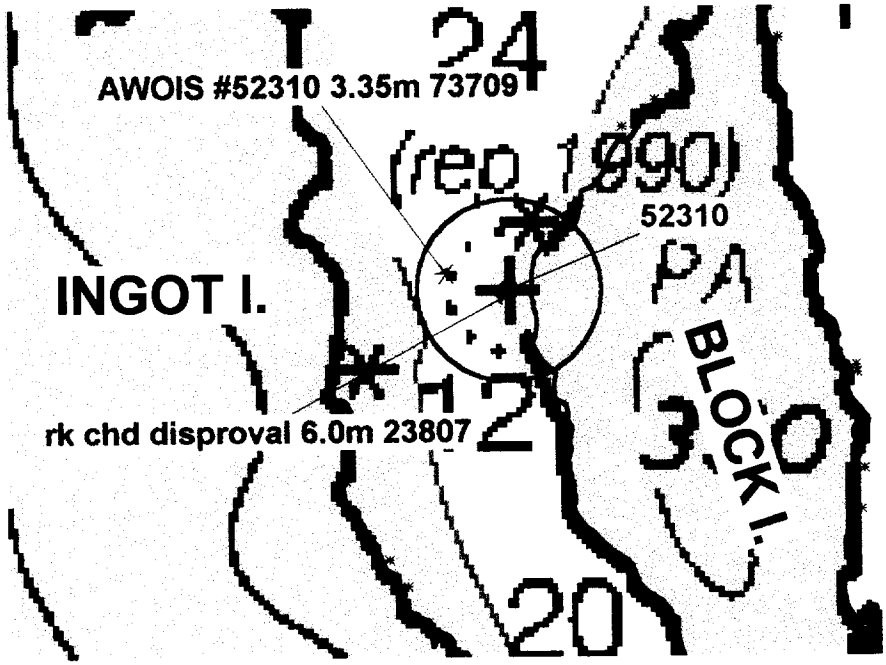
There were four AWOIS items assigned for survey H-10837.

Item Investigation #1

AWOIS#: 52310	**DN:** 266
CHART #: 16705 (1:80,000 17th ed. 9/27/97) 16700 (1:200,000 25th ed. 9/25/96)	**VESSEL #:** 2124
ITEM DESCRIPTION: Obstruction (2 Fathom sounding)	
SOURCE: Tug "Arctic Salvor"	

Positioning

		GEOGRAPHIC POSITION	**POSITION #**
CHARTED:		60:31:27.00 N, 147:36:56.00 W	
OBSERVED:		60:31:27.81 N, 147:37:02.67 W	Fix# 73709
POSITIONED BY:	DGPS	**DATUM:** MLLW	
METHOD OF INVESTIGATION: Visual Search, Dive Investigation			
FINDINGS: Submerged Rock ~~3.35~~ 0.6m Fms (After application of approved tide correctors)			



Charting Recommendations

AWOIS item number 52310 was located approximately 110 meters to the north-west of the described AWOIS location. The hydrographer recommends removing the charted rock at 60° 31' 27".00 N 147° 36' 56".00 W, and chart a dangerous submerged rock of known depth at 60° 31' 27".81 N 147° 37' 02".67 W, as determined with MOD III least depth gauge (SN# 68333) at ~~3.35m~~ 1.6m*. Concur Chart 68 Pk

* After application of approved tide correctors.

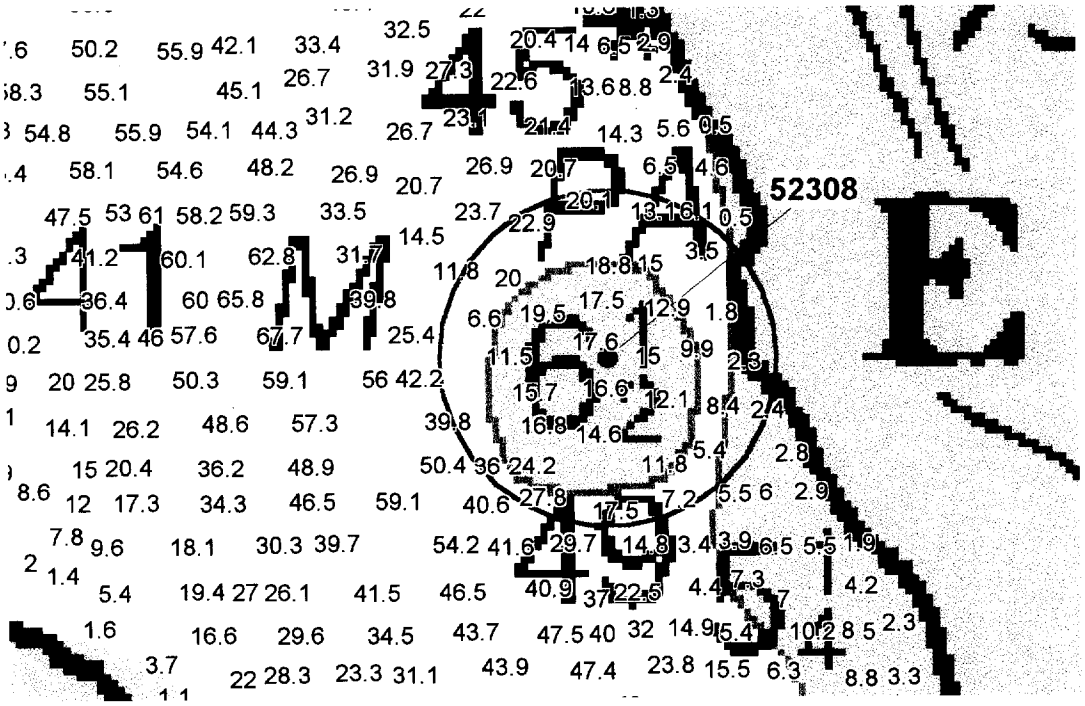
Item Investigation #2

AWOIS#: 52308 **DN:** 280
CHART #: 16705 (1:80,000 17th ed. 9/27/97) **VESSEL #:** 2121
16700 (1:200,000 25th ed. 9/25/96)
ITEM DESCRIPTION: Sounding (6.5 Fathom shoal)
SOURCE: NOAA Ship Rainier reconnaissance survey

Positioning

	GEOGRAPHIC POSITION	POSITION #
CHARTED:	60:32:26.78 N, 147:37:28.15 W	
OBSERVED:	60:32:28.36 N, 147:37:37.69 W	Fix#100007
POSITIONED BY:	**DGPS** **DATUM:** MLLW	

METHOD OF INVESTIGATION: 100% SWMB coverage, mainscheme/50m split SB coverage
FINDINGS: 6.5 Fathom sounding (After application of approved tides)



Charting Recommendations

AWOIS item number 52308 was located approximately 150 meters to the north-west of the described AWOIS location. The hydrographer recommends that the 6.5 fathom shoal be moved offshore to reflect the current surveyed position. Concur with clarification. Remove charted 6 ½ Fm sounding. Chart 6 ¼ Fm sounding from present survey.

Item Investigation #3

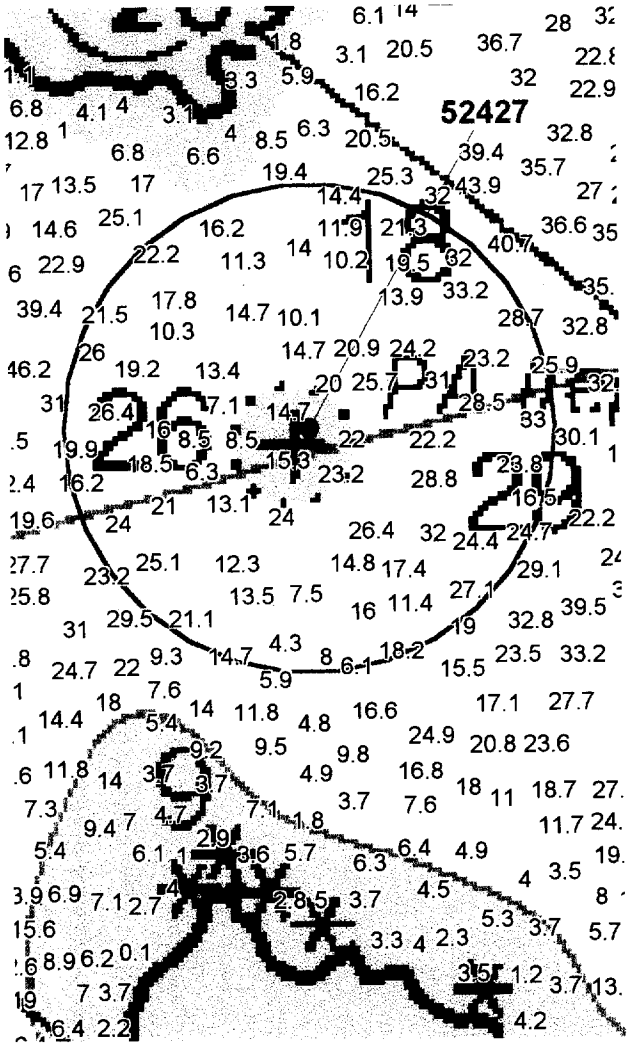
AWOIS#: 52427	**DN:** 260
CHART #: 16705 (1:80,000 17th ed. 9/27/97)	**VESSEL #:** 2126
16700 (1:200,000 25th ed. 9/25/96)	
ITEM DESCRIPTION: Obstruction (Uncharted rock)	
SOURCE: Tug "Arctic Salvor"	

Positioning

	GEOGRAPHIC POSITION	POSITION #
CHARTED:	60:30:33.74 N, 147:34:55.10 W	
OBSERVED:	60:30:31.54 N, 147:35:06.52 W	Fix# 62020
POSITIONED BY:	**DGPS** **DATUM:** MLLW	

METHOD OF INVESTIGATION: 100% SWMB coverage, mainscheme/50m split SB coverage

FINDINGS: Shoal 6.3 Fathoms (After application of approved tides)



Charting recommendations

AWOIS item number 52427 was located approximately 190 meters to the south-west of the described AWOIS location. The hydrographer recommends removing the charted dangerous underwater rock of uncertain depth at 60° 30' 33".74 N 147° 34' 55".10 W, and chart the current depths to reflect this survey, with the shoalest point at 60° 30' 31".54 N 147° 35' 06".52 W of 6.3 Fathoms. Concur chart 6 ½ Fm Sounding.

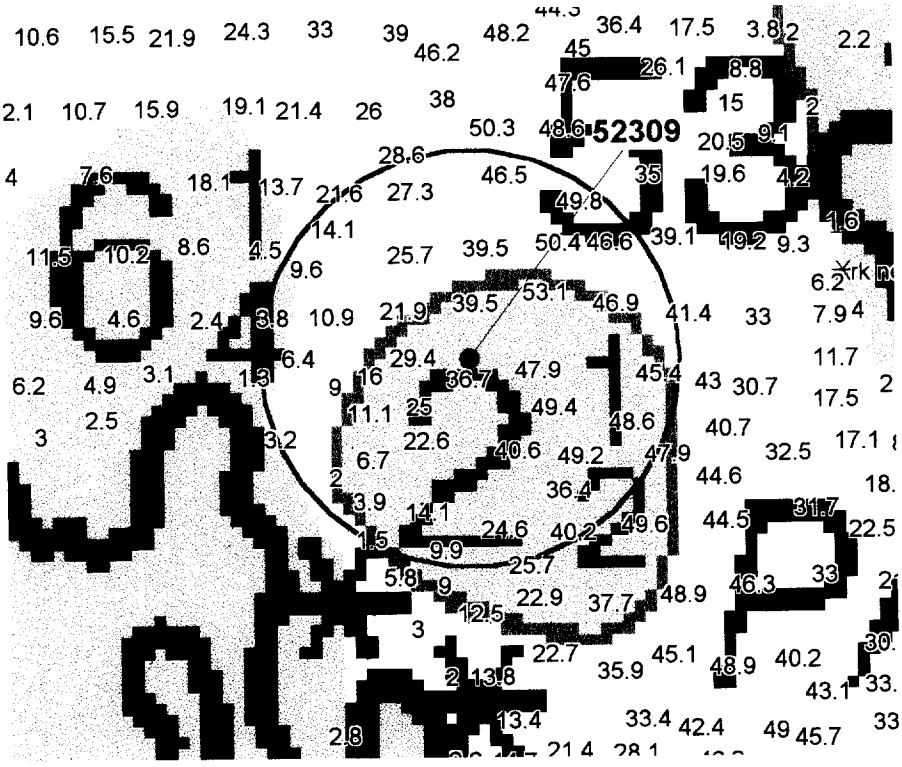
Item Investigation #4

AWOIS#: 52309 ✓ **DN:** 280
CHART #: 16705 (1:80,000 17th ed. 9/27/97) **VESSEL #:** 2121
16700 (1:200,000 25th ed. 9/25/96)
ITEM DESCRIPTION: Sounding (2.5 Fathom shoal)
SOURCE: NOAA Ship Rainier reconnaissance survey

Positioning

	GEOGRAPHIC POSITION		POSITION #
CHARTED:	60:32:00.77 N,	147:37:25.15 W	
OBSERVED:	60:31:58.04 N,	147:37:31.49 W	Fix# 40056
POSITIONED BY:	**DGPS**	**DATUM:** MLLW	

METHOD OF INVESTIGATION: 100% SWMB coverage, mainscheme/50m split SB coverage
FINDINGS: Shoal sounding disproved by hydrography Concur



Charting Recommendations ✓

A 2 Fathom shoal sounding is ~~located~~ charted 60 meters east of the shore of Ingot I., and is not unusual for near shore bathymetry. The hydrographer recommends removing the 2.5 fathom shoal, and chart the current depths to reflect this survey. Concur

N. COMPARISON WITH THE CHART See Eval Rpt, section O

Chart 16700
25th ed. September 25, 1998 ✓
Scale: 1:200,000

Chart 16701
17th ed. July 25, 1998 ✓
Scale: 1:81,436

Chart 16705
16th ed. September 27, 1997 ✓ Largest scale chart with full coverage
Scale: 1:80,000

This 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 DTON's or have been investigated as the AWOIS items described above. It is recommended that soundings from survey H-10837 supersede all prior, and charted soundings. Final sounding comparisons will be made at PHB after reduction to final vertical datum. Concur

Dangers to Navigation: ✓
Sixteen dangers to navigation were reported to the Seventeenth Coast Guard District on November 12, 1998 and December 9, 1998 in two separate messages. Copies of the correspondence can be found in ~~Appendix I of~~ this report.

O. ADEQUACY OF SURVEY

Survey H-10837 is complete and adequate to supersede prior soundings and features in their common areas. As a general rule, areas shoaler than 70 meters were ensonified with SWMB producing 100% bottom coverage. Care was taken to conduct all shoreline investigations during times of negative tides.

P. AIDS TO NAVIGATION ✓
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 ✓

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:

Title	Date Sent	Office
OPR-P139-RA-1998 Horizontal Control Report	11/1/98	N/CS34
Project related data for OPR-P139-RA	Incremental	N/CS34

Respectfully Submitted,

Mike Stecher
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: Y **Registry Number:** H-10837

Sheet Number: RA-10-14-98

Survey Title: ELEANOR ISLAND TO KNIGHT ISLAND

Data Acquisition Dates: **From:** 21-Aug-98 233 **To:** 14-Oct-98 287

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2121								
2122	5	4		1	4	4		
2123	1	1						
2124	7	4			5	5		1
2125	5	4		1	2	3	1	
2126		2						

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
3		216	701.8	60/31/24	216-234
				147/47/40	
5		235	850.2	60/32/24	235-248
				147/42/42	
6		248	289	60/29/55	249-259
				147/30/55	
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	

Tide Zone Information

Zone #	Time Corr.	Height Corr.
PWS37	0 hr 0 min	0.94
PWS38	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
945-4642	LOUIS BAY	7/26/98	10/15/98
945-4662	SNUG HARBOR	8/5/98	10/30/98
945-4691	HERRING POINT	7/20/98	10/16/98

Statistics Summary

Type	Total:
BS	18
DIVE	3
DP	105
MS	324.66
S/L	35.89
SPLIT	287.16
SWMB	114.64
XL	19.1

Percent XL:	5.9%
SQNM:	17.53

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

ADVANCE INFORMATION

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

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

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.

Feature	Depth (fm)	Latitude (N)	Longitude (W)	Position #	Depth (m)	Survey #
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.

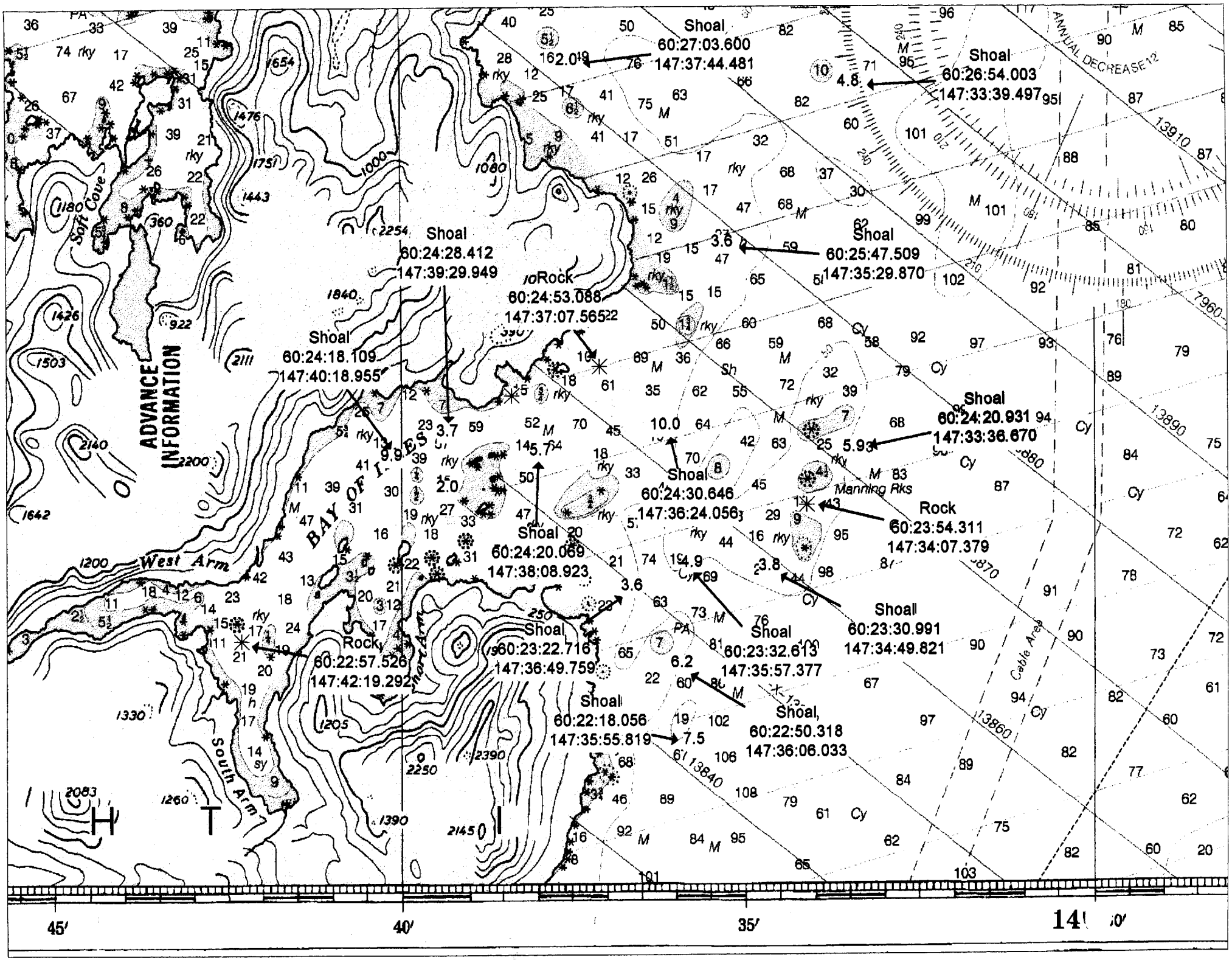
Sincerely,

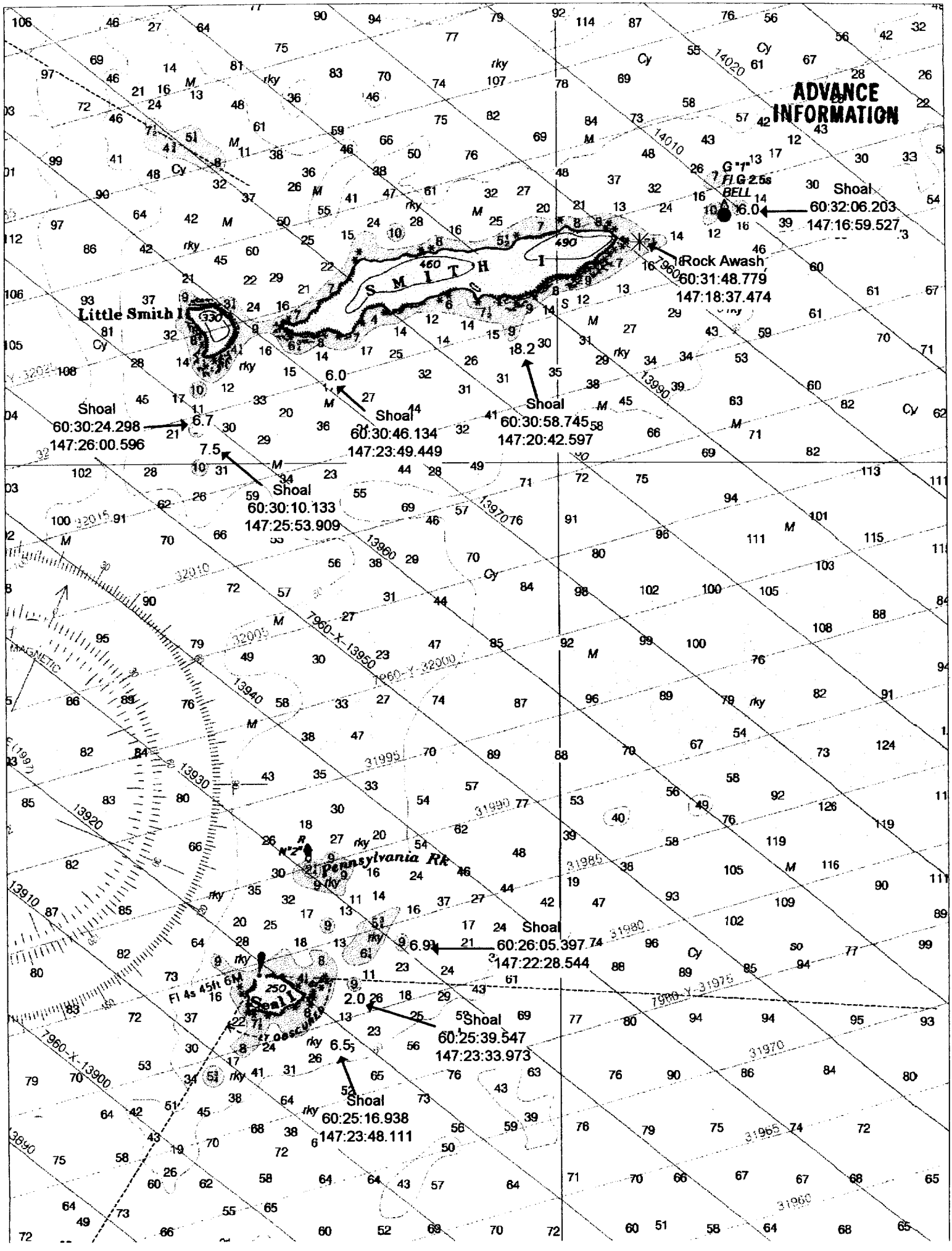
Alan D Anderson

Alan D. Anderson
Captain, NOAA
Commanding Officer

Attachment

cc: NIMA
PMC
N/CS261
N/CS34


Shoal
60:27:03.600
147:37:44.481
Shoal
60:26:54.003
147:33:39.497
Shoal
60:24:28.412
147:39:29.949
Rock
60:24:53.088
147:37:07.565
Shoal
60:25:47.509
147:35:29.870
Shoal
60:24:18.109
147:40:18.955
Shoal
60:24:20.931
147:33:36.670
Shoal
60:24:30.646
147:36:24.056
Rock
60:23:54.311
147:34:07.379
Shoal
60:24:20.069
147:38:08.923
Shoall
60:23:30.991
147:34:49.821
Shoal
60:23:22.716
147:36:49.759
Shoal
60:23:32.613
147:35:57.377
Rocky
60:22:57.526
147:42:19.292
Shoal
60:22:18.056
147:35:55.819
Shoal,
60:22:50.318
147:36:06.033
ADVANCE INFORMATION
BAY OF ISLES
West Arm
South Arm
Soft Cove
Manning Rks
Cable Area
ANNUAL DECREASE
45'
40'
35'


ADVANCE INFORMATION
Shoal
60:32:06.203
147:16:59.527
6.0
Rock Awash
60:31:48.779
147:18:37.474
18.2
Shoal
60:30:58.745
147:20:42.597
6.0
Shoal
60:30:46.134
147:23:49.449
6.7
Shoal
60:30:24.298
147:26:00.596
7.5
Shoal
60:30:10.133
147:25:53.909
Little Smith I
SMITH I
Pennsylvania Rk
6.9
Shoal
60:26:05.397
147:22:28.544
2.0
Shoal
60:25:39.547
147:23:33.973
6.5
Shoal
60:25:16.938
147:23:48.111
Seal I
7960-X-13950
7960-Y-32000
7960-X-13900
7960-Y-31975
MAGNETIC

ADVANCE INFORMATION

Lotus cc:Mail for FOO Rainier

To: lnm@cgalaska.uscg.mil
cc: dhill@pachydro.noaa.gov, navinfonet@nima.mil, Lynn [NDS-NCG22] Preston, Chief Survey Technician Rainier, CO Rainier, Jim [PHS-NCG245] Gardner, jgardner@pachydro.noaa.gov
Priority: Normal
Subject: Dangers to Navigation for PWS 1998

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. 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

The following dangers to navigation affect 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	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.

/s/ Alan D. Anderson
Captain, NOAA

Commanding Officer

Attachment

cc: NIMA
PMC
N/CS261
N/CS34

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
December 9, 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 should 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. The following dangers to navigation affect chart 16705, 17th edition, 1997, 1:80,000 and chart 16700, 25th edition, 1996, 1:200,000. All positions are on the NAD 83 datum and depths have been corrected to Mean Lower Low Water using predicted tides.

FEATURE	DEPTH (fm)	Latitude (N)	Longitude (W)	DEPTH (m)	Survey #
Shoal	1 3/4	60:28:45.788	147:35:14.902	3.3	H-10837
Shoal	2 1/4	60:29:12.128	147:35:27.493	4.0	H-10837
Shoal	2 1/2	60:29:00.722	147:38:05.087	4.7	H-10837
Shoal	3 1/2	60:26:37.748	147:37:37.591	6.7	H-10837
Shoal	1	60:25:59.504	147:35:55.314	2.1	H-10837

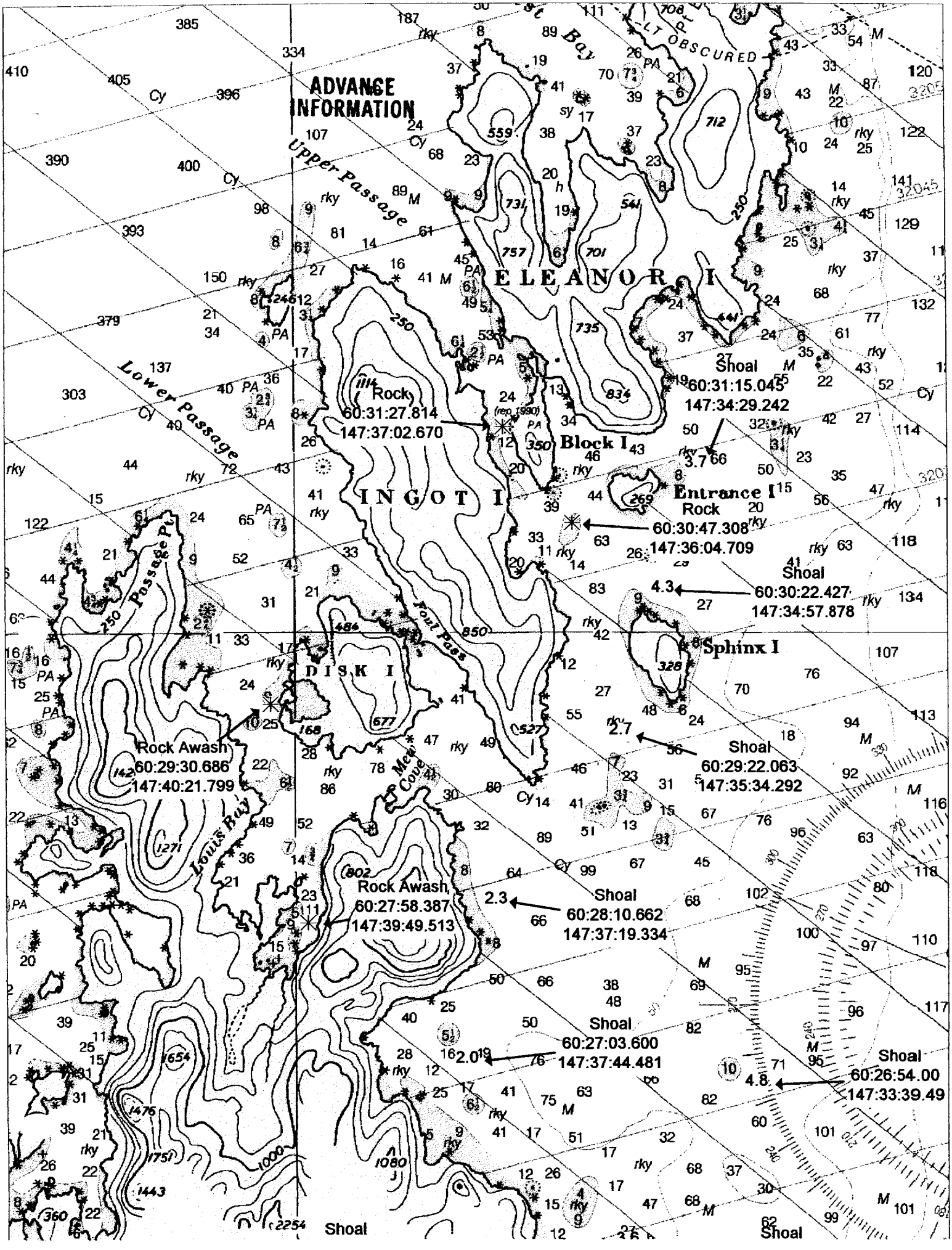
This is advance information subject to office review. Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project OPR-P139-RA-98 and Danger to Navigation message RA-12-98. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

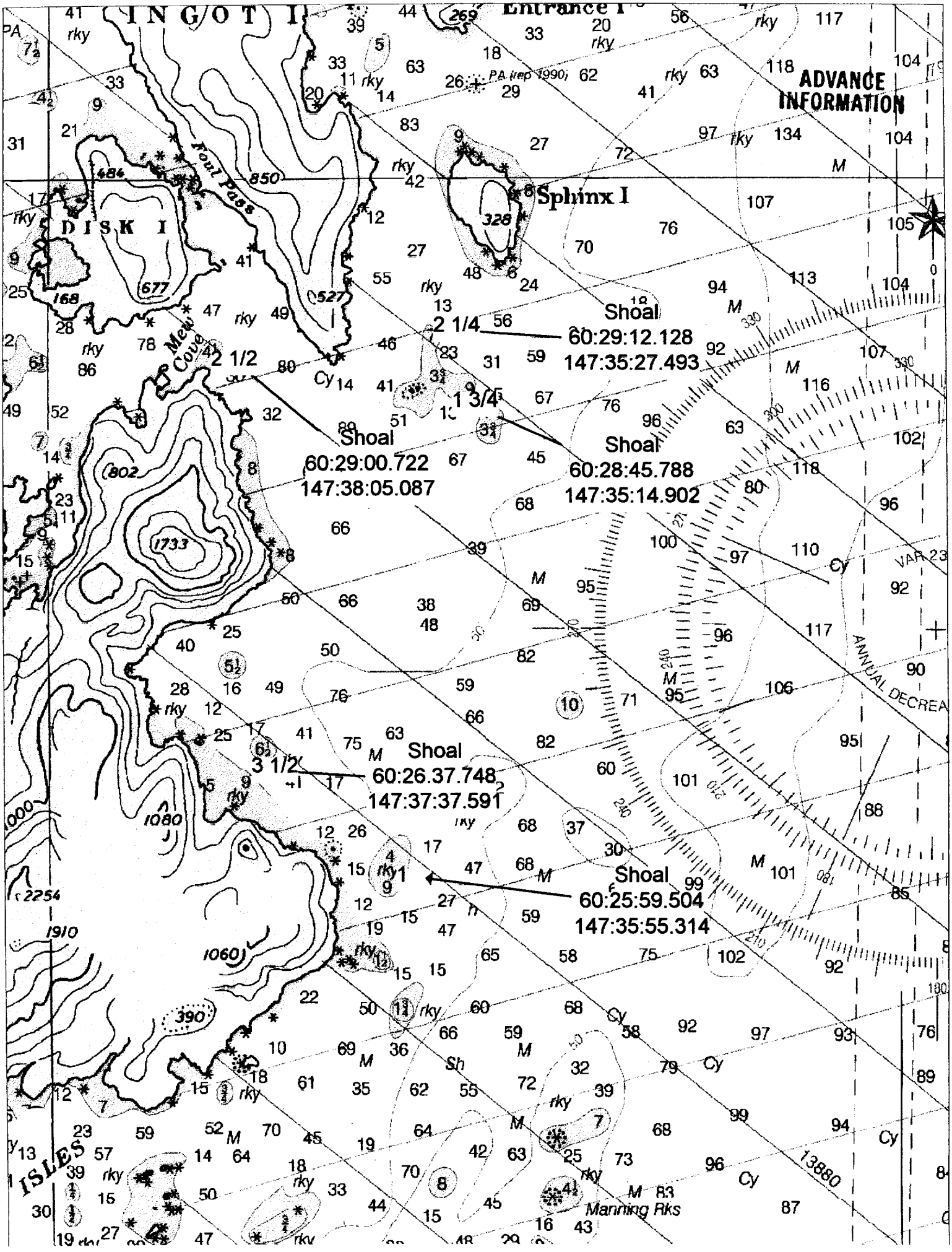
Sincerely,

Alan D. Anderson
Captain, NOAA
Commanding Officer

Attachment

cc: NIMA
PMC
N/CS261
N/CS34


ADVANCE INFORMATION
Upper Passage
Lower passage
Passage Pt
ELEANOR I
INGOT I
DISK I
Block I
Entrance I
Sphinx I
Four Pass
Mew Cove
Louis Bay
LT OBSCURED
Rock
60:31:27.814
147:37:02.670
Shoal
60:31:15.045
147:34:29.242
3.7
Rock
60:30:47.308
147:36:04.709
Shoal
4.3
60:30:22.427
147:34:57.878
Rock Awash
60:29:30.686
147:40:21.799
Shoal
2.7
60:29:22.063
147:35:34.292
Rock Awash
60:27:58.387
147:39:49.513
Shoal
2.3
60:28:10.662
147:37:19.334
Shoal
2.0
60:27:03.600
147:37:44.481
Shoal
4.8
60:26:54.00
147:33:39.49
Shoal
Shoal


ADVANCE INFORMATION
Sphinx I
Shoal
60:29:12.128
147:35:27.493
2 1/4
Shoal
60:29:00.722
147:38:05.087
2 1/2
Shoal
60:28:45.788
147:35:14.902
1 3/4
Shoal
60:26.37.748
147:37:37.591
3 1/2
Shoal
60:25:59.504
147:35:55.314
1
Mew Cove
Foul Pass
DISK I
ISLES
Manning Rks
PA (rep 1990)
ANNUAL DECREA
VAR 23

ADVANCE INFORMATION

Date: 12/9/98
Sender: FOO Rainier
To: lnm@cgalaska.uscg.mil
cc: dhill@pachydro.noaa.gov, jgardner@pachydro.noaa.gov, navinfonet@nima.mil, Lynn [NDS-NCG22] Preston, Chief Survey Technician Rainier, CO Rainier
Priority: Normal
Subject: DTON message for Prince William Sound (RA-12-98)

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

Dear CDR Hamblett:

It is requested that the following dangers to navigation should 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 following dangers to navigation affect chart 16705, 17th edition, 1997, 1:80,000 and chart 16700, 25th edition, 1996, 1:200,000. All positions are on the NAD 83 datum and depths have been corrected to Mean Lower Low Water using predicted tides.

FEATURE	DEPTH (fm)	Latitude (N)	Longitude (W)	DEPTH (m)	Survey #
Shoal	1 3/4	60:28:45.788	147:35:14.902	3.3	H-10837
Shoal	2 1/4	60:29:12.128	147:35:27.493	4.0	H-10837
Shoal	2 1/2	60:29:00.722	147:38:05.087	4.7	H-10837
Shoal	3 1/2	60:26:37.748	147:37:37.591	6.7	H-10837
Shoal	1	60:25:59.504	147:35:55.314	2.1	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-12-98. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

Sincerely,

/s/ Alan D. Anderson
Captain, NOAA
Commanding Officer

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

October 7, 1999

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

Dear Sir:

During office review of hydrographic survey H-10837, Alaska, Southwest Prince William Sound, Eleanor Island to North Part of Knight Island, thirty one (31) additional dangers to navigation have been identified and affects the following chart.

Chart	Edition/Date	Scale	Datum
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
Commander, NOAA
Chief, Pacific Hydrographic Branch

Enclosures

cc: NIMA
N/CS261
Navigation Advisor, Alaska

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10837

Survey Title: State: ALASKA
Locality: SOUTHWEST PRINCE WILLIAM SOUND
Sublocality: ELEANOR ISLAND TO NORTH PART OF KNIGHT ISLAND

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

Survey Date: August 21 to October 14, 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

DANGER TO NAVIGATION	LATITUDE(N)	LONGITUDE(W)
Shoal, covers 3.3 fathoms	60/32/20.0	147/37/21.0
Shoal, covers 2.3 fathoms	60/32/11.9	147/39/54.0
Shoal, covers 3.9 fathoms	60/32/14.9	147/34/39.5
Shoal, covers 7.0 fathoms	60/32/06.5	147/33/20.0
Shoal covers 4.7 fathoms	60/32/10.0	147/33/02.0
Shoal, covers 3.9 fathoms	60/32/01.0	147/33/06.0
Shoal, covers 4.1 fathoms	60/31/36.5	147/34/29.0
Shoal, covers 1.7 fathoms	60/31/39.0	147/39/45.0
Shoal, covers 4.5 fathoms	60/31/23.5	147/35/56.0
Shoal, covers 4.8 fathoms	60/31/00.0	147/36/42.5
Shoal, covers 1.7 fathoms	60/30/29.5	147/40/09.0
Shoal, covers 7.1 fathoms	60/30/04.0	147/40/11.0
Shoal, covers 6.5 fathoms	60/30/21.0	147/39/42.0
Shoal, covers 5.9 fathoms	60/30/27.0	147/39/26.0
Rock Awash	60/30/15.0	147/39/06.0
Shoal, covers 3.5 fathoms	60/30/34.5	147/36/19.0
Shoal, covers 4.5 fathoms	60/30/00	147/34/17.0
Shoal, covers 3.4 fathoms	60/30/15.5	147/35/12.0
Shoal, covers 6.9 fathoms	60/29/41.0	147/40/20.0
Shoal, covers 2.1 fathoms	60/29/46.0	147/38/09.5
Shoal, covers 8.7 fathoms	60/29/41.0	147/35/30.0
Shoal, covers 2.8 fathoms	60/29/50.5	147/34/13.0

Shoal, covers 3.4 fathoms	60/28/55.0	147/40/10.5
Shoal, covers 6.5 fathoms	60/28/48.0	147/36/41.5
Shoal, covers 7.2 fathoms	60/28/33.5	147/35/33.0
Shoal, covers 4.1 fathoms	60/28/29.0	147/40/02.0
Shoal, covers 2.5 fathoms	60/28/22.0	147/37/30.0
Shoal, covers 2.2 fathoms	60/26/51.5	147/37/57.5
Shoal, covers 10.5 fathoms	60/26/44.0	147/35/18.0
Shoal, covers 6.3 fathoms	60/26/13.0	147/36/42.0
Shoal, covers 2.8 fathoms	60/25/42.0	147/35/51.5

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

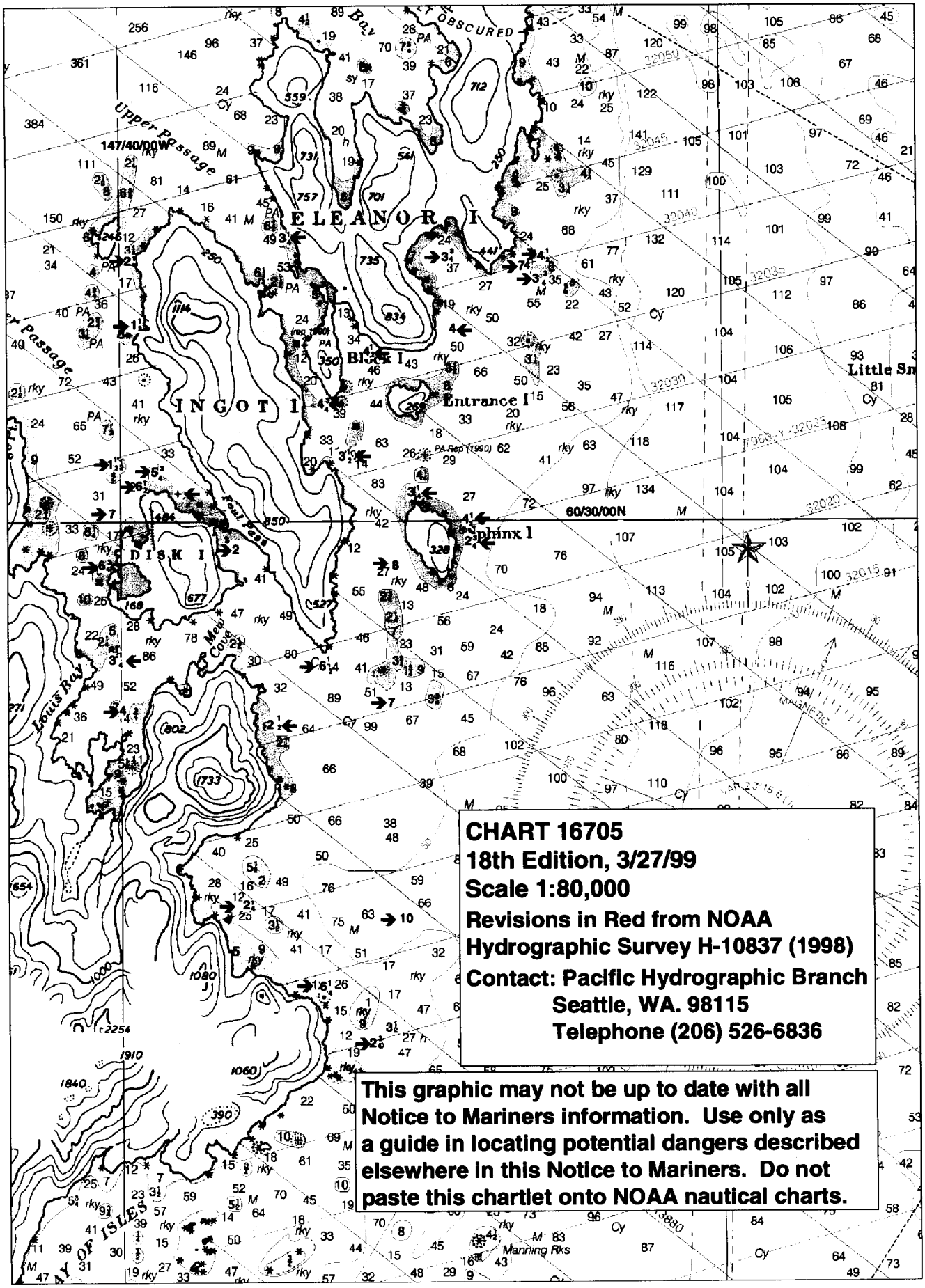


CHART 16705
18th Edition, 3/27/99
Scale 1:80,000
Revisions in Red from NOAA Hydrographic Survey H-10837 (1998)
Contact: Pacific Hydrographic Branch
Seattle, WA. 98115
Telephone (206) 526-6836

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.

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10837

Name on Survey	A ON CHART NO. 16705	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ALASKA (title)	X		X							1
BLOCK ISLAND	X		X							2
DISK ISLAND	X		X							3
ELEANOR ISLAND	X		X							4
ENTRANCE ISLAND	X		X							5
FOUL PASS	X		X							6
INGOT ISLAND	X		X							7
KNIGHT ISLAND	X		X							8
LOUIS BAY	X		X							9
LOWER PASSAGE	X		X							10
MEW COVE	X		X							11
PRINCE WILLIAM SOUND	X		X							12
SPHINX ISLAND	X		X							13
UPPER PASSAGE	X		X							14
					Approved:					15
										16
					Dennis J. Kane					17
					Chief Cartographer				FEB 12 1999	18
										19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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~~	~~147.83863821~~
~~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

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 25, 1999

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P139-RA-98
HYDROGRAPHIC SHEET: H-10837

LOCALITY: Prince William Sound, AK
Eleanor Island to Knight Island
TIME PERIOD: Aug 21 - Oct 14, 1998

TIDE STATION USED: 945-4050 Cordova, AK
Lat. 60° 33.5'N Lon. 145° 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° 07.5'N Lon. 146° 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° 25.8'N Lon. 147° 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° 21.9'N Lon. 147° 41.7'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.320 meters

TIDE STATION USED: 945-4691 Herring Point, Knight Island, AK
Lat. 60° 28.4'N Lon. 147° 47.6'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.326 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PWS37, PWS38 & PWS38A.

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.

Thomas K. Meo

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR P139-RA-98,
Sheet H-10837.

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			
Zone PWS38			
-147.785618 60.363112	9454691	0	1.00
-147.667831 60.449911	9454240	0	0.98
-147.696614 60.466536	9454050	0	0.94
-147.695431 60.508907			
-147.656563 60.531857			
-147.626594 60.514644			
-147.578232 60.539507			
-147.567302 60.56881			
-148.101183 60.592465			
-148.114598 60.574838			
-148.128786 60.481602			
-148.012385 60.476742			

1998-245/hdcs

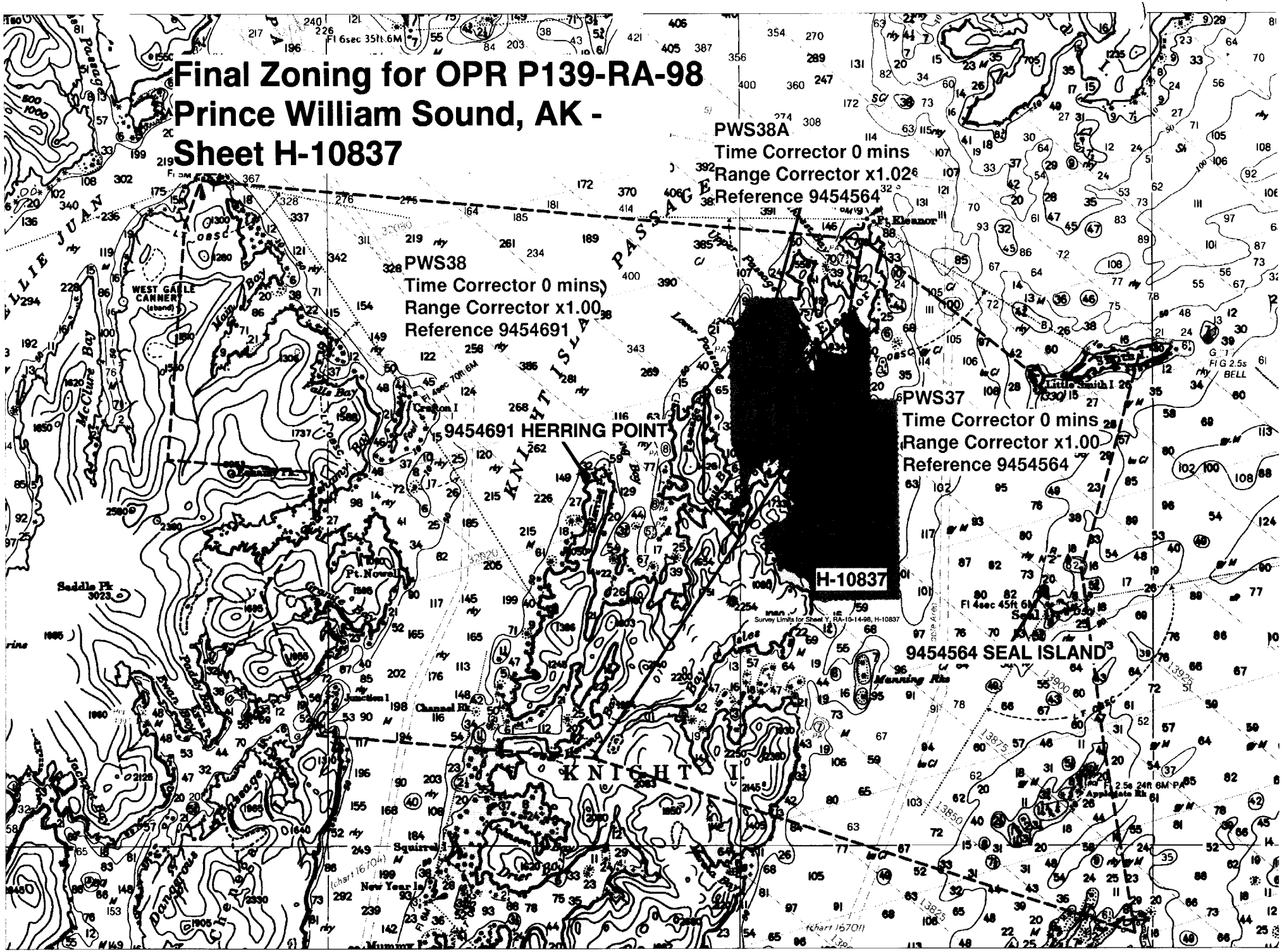
1200
1207
8-20-98
10-15-98

-148.011446 60.457767
-148.054039 60.428791
-148.008357 60.372318
-147.785618 60.363112

Zone PWS38A

-147.618284 60.490075	9454564	0	1.02
-147.634898 60.474627	9454691	0	1.01
-147.667831 60.449911	9454240	0	0.99
-147.696614 60.466536	9454050	0	0.95

-147.695431 60.508907
-147.656563 60.531857
-147.626594 60.514644
-147.618284 60.490075


Final Zoning for OPR P139-RA-98
Prince William Sound, AK -
Sheet H-10837
PWS38A
Time Corrector 0 mins
Range Corrector x1.026
Reference 9454564
PWS38
Time Corrector 0 mins
Range Corrector x1.00
Reference 9454691
PWS37
Time Corrector 0 mins
Range Corrector x1.00
Reference 9454564
9454691 HERRING POINT
9454564 SEAL ISLAND
H-10837
KNIGHT I.
PASSAGE
KNIGHT ISLAND
Survey Limits for Sheet Y, RA-10-14-98, H-10837

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-10837

RA-10-14-98

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

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

NOAA FORM 77-27(H) (9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10837

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

DESCRIPTION	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-10294, DM-10297

PHOTOBATHYMETRIC MAPS (List): NA

NOTES TO THE HYDROGRAPHER (List): NA

SPECIAL REPORTS (List): NA

NAUTICAL CHARTS (List): Chart 16705, 18th Ed., 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			
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	175		175
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		24	24
GEOGRAPHIC NAMES			
OTHER* (Chart Compilation)		45	45
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	175	69	244

Pre-processing Examination by M. Bigelow	*Beginning Date* December 18, 1998	*Ending Date* January 12, 1999
Verification of Field Data by B.A. Olmstead	*Time (Hours)* 175	*Ending Date* 9/30/99
Verification Check by	*Time (Hours)*	*Ending Date*
Evaluation and Analysis by B.A. Olmstead	*Time (Hours)* 24	*Ending Date* 9/30/99
Inspection by D. Hill	*Time (Hours)* 2	*Ending Date* 10/15/99

EVALUATION REPORT
H10837

A. PROJECT

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

B. AREA SURVEYED

The survey area is adequately described 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 area. Charted features and soundings inshore of this limit line have not been specifically addressed during survey operations and should be retained as charted. A page-size plot of the charted area depicting the specific limits of supersession accompanies this report as Attachment 1.

The bottom consists mainly of mud, gravel and pebbles with rocky pinnacles scattered throughout the survey area. Depths generally range from one fathom along the shoreline and in areas of shoal developments, to 120 fathoms along the eastern limits of the survey area.

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 addressed 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 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 23, 1999 included in the survey records.

Processed 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 that is not part of the HPS data set such as geographic name 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 are plotted using a Transverse Mercator (TM) projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar equipment was not used during survey H-10837.

F. SOUNDING EQUIPMENT

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

G. CORRECTIONS TO SOUNDINGS

Soundings and elevations below Mean High Water (MHW) have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for an actual tide, dynamic draft, and sound velocity. Additional reducers for multibeam survey data include heave, pitch and roll. These reducers have been reviewed and are consistent with NOS specifications.

Predicted tides were used for reduction of soundings during field processing. During office processing, soundings and elevations have been reduced to Mean Lower Low Water (MLLW) or Mean High Water (MHW) as appropriate with verified tide correctors obtained from the Center for Operational Oceanographic Products and Services (CO-OPS). The correctors are zoned from tide gages: Seal Island, Alaska, 945-4564 and Herring Point, Knight Island, Alaska, 945-4691.

H. CONTROL STATIONS

Section 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 and field values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD 27-adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections:

Latitude: -2.208 seconds (-68.341 meters)
Longitude: 7.140 seconds (109.028 meters)

All of the prior survey work in common with the present survey is plotted on Valdez datum. To convert from the Valdez datum to NAD 83 the user must apply +8.28 seconds to the latitude and -21.12 seconds to the longitude.

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 4.0 for 1:10,000 was computed for survey operations. The quality of some positions exceeded limits in terms of HDOP. These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable. NAD 83 is used as the horizontal datum for plotting and position computations.

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 contained no significant errors.

DGPS performance checks were conducted in the field and found adequate. 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 corrections to position data.

J. SHORELINE

Shoreline maps DM 10294, and DM 10297, scale 1:20,000, were compiled on NAD 83 and apply to this survey. Shoreline drawn on the smooth sheet in black originates from the above digital data as provided by

well be attributed to improved positioning and sounding methods. Additional information regarding prior survey comparison is found in the hydrographer's report, section L.

A more thorough coverage of the area utilizing the shallow water multibeam system (SWMB) has revealed significant shoal depths not detected during the earlier prior 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 depths of water and the differences in data acquisition methods, no reasonable adjustment value for prior soundings could be determined.

Survey H-10837 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

The four AWOIS items assigned for investigation within the survey area were adequately investigated and addressed in the hydrographer's report, section N.

O. COMPARISON WITH CHART

Survey H-10837 was compared with the following chart.

Chart	Edition	Date	Scale
16705	18th	March 27, 1999	1:80,000

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys and miscellaneous source data and has been adequately addressed in section M of the evaluation report and in the hydrographer's report, section N. No additional discussion is required.

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.

Survey H-10837 is adequate to supersede charted hydrography within the common area.

b. Dangers to Navigation

Sixteen dangers to navigation were identified during survey operations. These dangers were reported to the USCG, NIMA, and N/CS261 on November 10, 1998 and December 9, 1998. A 3.6-fathom shoal reported at latitude 60/25/47.509N, longitude 147/35/29.870W by the NOAA Ship Rainier on November 10, 1998 is an erroneous depth. This sounding was gathered by an outer beam during shallow water multibeam operations and was rejected during office processing. Thirty-one additional dangers to navigation were found during office processing and reported to NIMA, N/CS261, and the NOAA Navigation Advisor, Alaska. Copies of these reports are attached.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10837 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.

With the exception of the following, 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.

The field submission of survey data exceeded the four-week period from the completion of fieldwork 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-10837 was completed on October 14, 1998 and received for office processing on December 18, 1998.

Several charted items were discussed in section I of the hydrographer's report. The appropriate place to discuss these items is in Section N, Comparison with Chart. Reference the Field Procedures Manual, Figure 5-3, Descriptive Report Checkoff List, Item 4.

Q. AIDS TO NAVIGATION

There are no fixed and or floating aids to navigation within the survey area. There were no features of landmark value located and or recommended for charting within the area of 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. No additional miscellaneous items were noted during office processing.

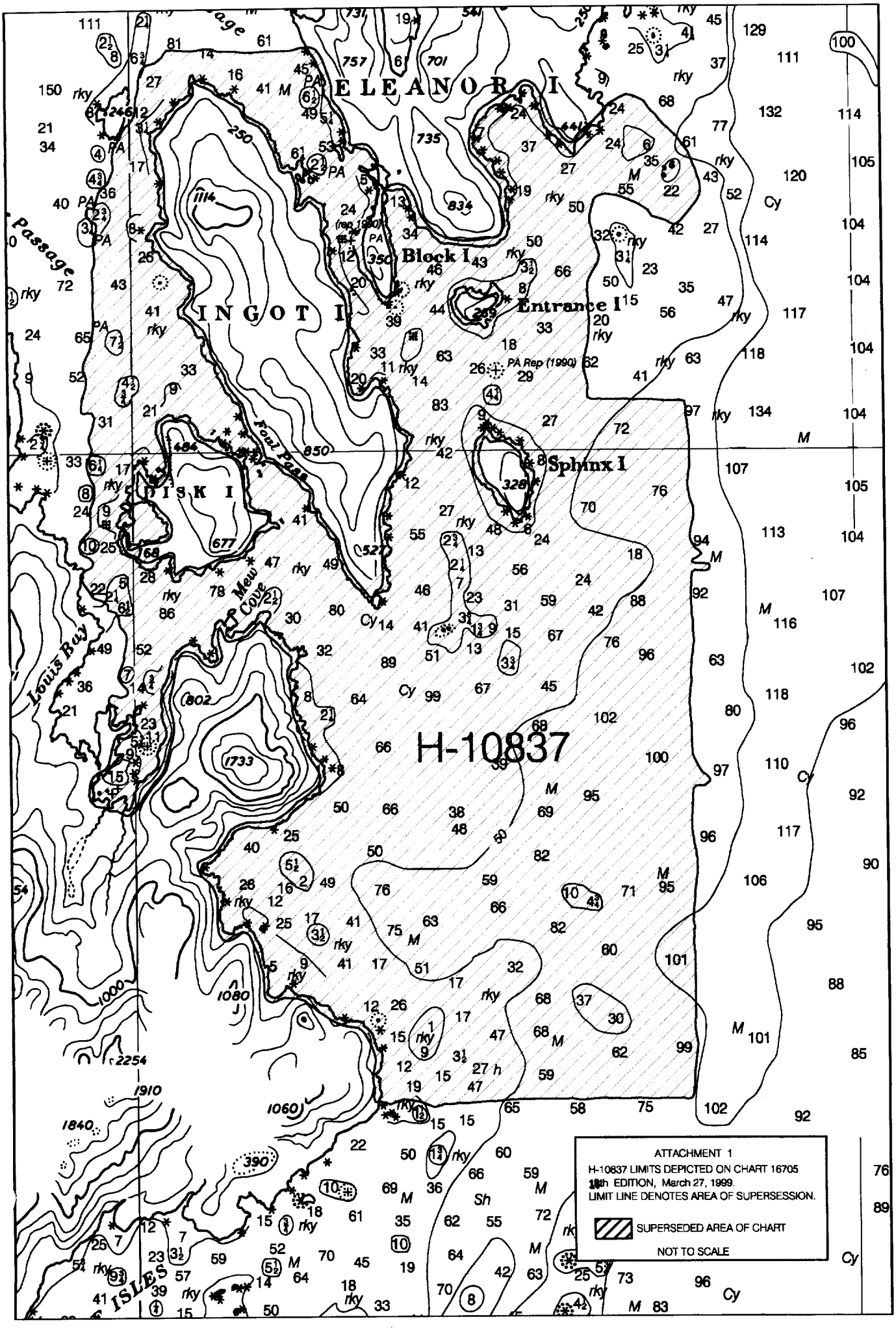
T. RECOMMENDATIONS

This 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.

Bruce A Olmstead
Senior Cartographer


H-10837
ELEANOR I
INGOT I
Block I
Entrance I
Sphinx I
DISK I
Foul Pass
Mew Cove
Louis Bay
ISLES
ATTACHMENT 1
H-10837 LIMITS DEPICTED ON CHART 16705
18th EDITION, March 27, 1999.
LIMIT LINE DENOTES AREA OF SUPERSESSION.
SUPERSEDED AREA OF CHART
NOT TO SCALE

APPROVAL SHEET
H-10837

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.

Dennis Hill Date: 10-28-99

Dennis J. Hill
Chief, Cartographic Team
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: 10-28-99

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

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Final Approval

Approved:

Samuel P. De Bow Jr. Date: January 9, 2000

Samuel P. De Bow Jr.,
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10837

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
16705	10/1/99	Bruce A. Ommstead	Full Part ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings and features from smooth sheet
16705	2/28/00	J. Dixon	
			Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. full application of Soundings and features from BP 170428 and smoothsheet
16701	3/2/00	J. Dixon	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. ~~full application of soundings, curves and features~~ thru 16705
16700	3/2/00	J. Dixon	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. full application of soundings, Curves and features thru 16705
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED