

10445

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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-10-7-92

Registry No. H-10445

LOCALITY

State Alaska

General Locality..... Prince William Sound

Sublocality Northern Portion of Esther
Passage

19 92

CHIEF OF PARTY

CAPT T.W. Richards

LIBRARY & ARCHIVES

DATE June 14, 1994

Master Diagram No. 8551-4

P/L

CHARTS

CP9

16705

16703

16700

16013 NC

HYDROGRAPHIC TITLE SHEET

H-10445

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-10-7-92

State Alaska

General locality Prince William Sound

Locality Northern Portion of Esther Passage

Scale 1:10,000 Date of survey 10/19/92 - 10/29/92

Instructions dated July 7, 1992 Project No. OPR-P125-RA

Vessel RA-3 (2123), RA-5 (2125), RA-6 (2126), RA-7 (2127)

Chief of party CAPT Thomas W. Richards, NOAA

Surveyed by LT Waddell, LTJG Nelson, LTJG Simmons, ENS Ramos, ENS Pitts

Soundings taken by echo sounder, ~~hand lead, pole~~ ^{dive} DSF-6000N, Pneumatic Gage.

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by: Bruce A. Olmstead Automated plot by PHS Xynetics Plotter

Evaluation by: Bruce A. Olmstead

Soundings in meters and decimeters at ~~MLLW~~ MLLW

REMARKS: * Change No. 1 dated August 21, 1992

Time in 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.

AWOIS + SURF 7/29/94 MLR

*SP12-13-96
K.W.W. 8/8/94*

Descriptive Report to Accompany Hydrographic Survey H-10445

Field Number RA-10-7-92

Scale 1:10,000

October 1992

NOAA Ship RAINIER

Chief of Party: Captain Thomas W. Richards

A. PROJECT ✓

This basic hydrographic survey was completed in Northwestern Prince William Sound, Alaska, as specified by Project Instructions OPR-P125-RA dated July 7, 1992, and Change Number One dated August 28, 1992.

Survey H-10445 corresponds to "Sheet F" as defined in the Project Instructions.

This survey is one in a series that will update existing nautical charts. Requests for hydrographic surveys and updated charts have been received from the Defense Mapping Agency, cruise ship lines, Southwest Alaska Pilots Association, and local fishermen.

B. AREA SURVEYED See Eval Rpt., Section 1

The survey is located in Esther Passage, northwest Prince William Sound, 20 NM east northeast of Whittier, Alaska. The survey's southern limit is latitude 60°52'43.5"N, while the northwest limit is defined by latitude 60°56'31"N to the north and longitude 148°06'03"W to the west. The remaining boundaries are comprised of the mainland.

Data acquisition was conducted from October 19, Day Number (DN) 293, through October 29, DN 303.

C. SURVEY VESSELS ✓

Data were acquired by NOAA Ship RAINIER's three survey launches and the Boston Whaler, RA-7, as noted below:

| <u>Vessel</u> | <u>EDP No</u> | <u>Operation</u> |
|---------------|---------------|--|
| RA-3 | 2123 | Hydrography Shoreline Verification |
| RA-5 | 2125 | Hydrography Shoreline Verification Bottom Samples Velocity Cast |

| | | |
|------|------|--|
| RA-6 | 2126 | Hydrography Shoreline Verification Dive Investigations |
| RA-7 | 2127 | Shoreline Verification |

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Data acquisition and processing were accomplished with the following HDAPS programs:

| <u>Program Name</u> | <u>Version</u> | <u>Date Installed</u> |
|---------------------|----------------|-----------------------|
| AUTOST | 2.00 | 4/14/92 |
| BACKOLD | 1.12 | 4/14/92 |
| BACKUP | 2.00 | 4/14/92 |
| BASELINE | 1.12 | 4/14/92 |
| BIGABST | 2.00 | 4/14/92 |
| CARTO | 2.02 | 4/14/92 |
| CONVERT | 3.02 | 4/14/92 |
| DAS SURV | 6.21 | 4/14/92 |
| DAS SURV | 6.23 | 7/02/92 |
| DIAGNOSTIC | 3.00 | 4/14/92 |
| DISC UTIL | 1.00 | 4/14/92 |
| DP | 2.11 | 7/02/92 |
| DP | 2.00 | 4/14/92 |
| EXCESS | 3.04 | 4/14/92 |
| FILESYS | 2.16 | 4/14/92 |
| GLOBAL | 1.12 | 4/14/92 |
| INVERSE | 1.51 | 4/14/92 |
| LISTAWOIS | 2.01 | 4/14/92 |
| LOADNEW | 1.50 | 4/14/92 |
| MAKEFIX | 1.02 | 4/14/92 |
| MANU DATA | 1.12 | 4/14/92 |
| NEWCONT | 1.17 | 4/14/92 |
| PLOTALL | 2.02 | 4/14/92 |
| POSTSUR | 5.21 | 4/14/92 |
| PREDICT | 1.11 | 4/14/92 |
| PRINTOUT | 3.00 | 4/14/92 |
| QUICK | 1.20 | 4/14/92 |
| RAMSAVER | 1.00 | 4/14/92 |
| READPROJS | 1.08 | 4/14/92 |
| REAPPLY | 1.33 | 4/14/92 |
| REJECT | 1.05 | 4/14/92 |
| SOFTCHECK | 1.13 | 4/14/92 |
| SURVEY | 6.11 | 4/14/92 |
| SYMBOLS | 1.00 | 4/14/92 |
| ZOOMEDIT | 1.10 | 4/14/92 |

Velocity corrections were determined using:

| <u>Program Name</u> | <u>Version</u> | <u>Date Installed</u> |
|---------------------|----------------|-----------------------|
| VELOCITY | 1.11 | 09 Mar 1990 |

E. SONAR EQUIPMENT ✓

Side scan sonar operations were not performed on this survey.

F. SOUNDING EQUIPMENT ✓

All survey launches were equipped with the Raytheon DSF-6000N echo sounders shown below. The echo sounders were operated in the HIGH + LOW (HIGH DIGITIZED) function, using manual gain controls on both high and low frequencies to obtain the best analog trace. Soundings were recorded in meters and tenths of meters. Six-meter bar checks were conducted and recorded daily, using both the LOW and the HIGH + LOW (HIGH DIGITIZED) functions. The echo sounders were operated in accordance with the Provisional Instructions "Raytheon DSF-6000N Echo-Sounder Operating and Processing Instructions", dated July 5, 1983, and the Field Procedures Manual for Hydrographic Surveying (FPM).

Raytheon DSF-6000N Echo Sounders

| <u>Vessel</u> | <u>Serial No.</u> | <u>DN</u> |
|---------------|-------------------|-----------|
| 2123 | B044N | 293-301 |
| 2125 | B039N | 293-302 |
| 2126 | A117N | 293-303 |

The echo sounders were continuously monitored during data acquisition. All sounding data were scanned at least two times, to ensure all significant peaks were inserted, and to verify the digitized depths.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Corrections to echo soundings were determined for static draft, velocity of sound through water, settlement and squat. Predicted tides were used for all plots. Sounding correctors apply to both narrow and wide beams of the DSF-6000N echo sounder. Supporting data and computations for all corrections to echo soundings are included in the "Fall 1992 Corrections to Echo Sounding Data Package for OPR-P125-RA."

Sound Velocity ✓

Correctors for the velocity of sound through water were determined from the cast listed below:

| <u>Velocity Table No.</u> | <u>Cast No.</u> | <u>Deepest Depth (m)</u> | <u>Applicable DN</u> | <u>Cast Position</u> | <u>Day</u> |
|---------------------------|-----------------|--------------------------|----------------------|-----------------------------|------------|
| 11 | 18 | 512.6 | 292-304 | 60°52'32"N * 148°11'23"W | 298 |

* Cast is outside survey limits.

The sound velocity cast was acquired with a SBE SEACAT Profiler, S/N 811, which was calibrated at the Northwest Regional Calibration Center in Bellevue, WA, on March 3, 1992.

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program are included in the "Fall 1992 Corrections to Echo Sounding Data Package for OPR-P125-RA."

Static Draft ✓

The distance from the transducer face to the gunwale was measured with a large metal square for all launches. Static draft measurements were then determined by dropping a lead line from the gunwale to the water and subtracting this distance from the distance measured with the square. The measurements from the gunwale to the waterline were conducted with the fuel tanks averaging 3/4 full and three people aboard. A transducer depth of 0.6 meter was determined for launches 2123, 2125 and 2126 on March 21-22, 1992.

Settlement and Squat ✓

Settlement and squat correctors were determined in Shilshole Bay, WA, for launch 2123 on March 11, and 2125 and 2126 on March 18, 1992. Tests were conducted over a hard bottom in depths well exceeding 7 times the vessels' drafts. Both sea and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument to a rod held vertically on deck, directly over the transducer. Correctors were computed in accordance with Hydrographic Manual 4.9.4.2., using FPM Fig. 2.2 and 2.3, and are included in the "Fall 1992 Corrections to Echo Sounding Data Package for OPR-P125-RA." Revised settlement and squat correctors were received from Pacific Marine Center on October 21. These revised correctors were applied to the data on sheet F.

Offset Tables ✓

| <u>Vessel</u> | <u>Offset Table No.</u> |
|---------------|-------------------------|
| 2123 | 3 |
| 2125 | 5 |
| 2126 | 6 |

Heave ✓

Data acquired during periods of significant sea action were check scanned to remove any errors introduced into the digital data by vessel heave.

Pneumatic Depth Gage ✓

The 3D Instrument, Inc. Depth Gauge S/N 8504192N was calibrated by Pacific Operations Section on February 25, 1992. The depth gauge was calibrated against a Digiquartz 0-45 PSI Transducer #1107. In addition, field systems checks were performed via comparison with diver depth gauges each time the pneumatic gauge was used. Calibration data and correctors are included in the Fall 1992 Corrections to Echo Sounding Package for OPR-P125-RA.

Bar Check and Lead Lines ✓

Bar check and lead lines were calibrated by RAINIER personnel on February 19, 1992 at PMC. Calibration forms are included in the "Fall 1992 Corrections to Echo Sounding Package for OPR-P125-RA."

Tide Correctors ✓

A 0 hr 0 min time correction and a x0.96 range ratio were applied to predicted tides for the Cordova, Alaska, reference station (945-4050). These correctors were provided in the Project Instructions for sheet F's tidal zone.

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V* of this report.

Tide gages were installed and maintained by RAINIER personnel at Whittier (945-4949) and Granite Mine, Port Wells (945-4806). The control station was Valdez, Alaska (945-4240). Opening levels were completed by POS personnel in June, 1992. Closing levels were completed by RAINIER personnel on October 16, 1992.

The station descriptions, field tide records, and Field Tide Notes have been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. Requests for approved tides have been forwarded to N/OES2. Copies of the Field Tide Notes and the request for approved tides are included in Appendix V.* *The approved Tide Note is attached to this report.*

H. CONTROL STATIONS *See Eval Rpt., Section 2*

Geographic positions for all control stations are based on the North American Datum of 1983 (NAD83) and the Geodetic Reference System 1980 Ellipsoid.

A listing of the geodetic stations used to control this survey is included in ~~Appendix III~~ of this report.

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual. New stations were positioned via

* Filed with the survey data

traverse methods to meet third-order class I standards. Further information can be found in the "Fall 1992 Horizontal Control Report for OPR-P125-RA."

I. HYDROGRAPHIC POSITION CONTROL ✓

Method of Position Control

Soundings, bottom samples, and detached positions were positioned using either Ashtech Differential GPS, or Motorola Mini Ranger Falcon 484 microwave system.

Falcon 484

A Mini Ranger LOP was manually recorded on the raw master printout to allow a positional check for each DGPS detached position taken.

Ashtech GPS

Accuracy requirements as stated in the FPM were met. Occasionally, the data from the Ashtech was interrupted due to extreme corrector age. The HDAPS dead reckons the launch position during short periods of data interruption. The data were retained if the interruption lasted for only one or two soundings and was bracketed by good positions. No editing was performed if the soundings plotted on line. If they plotted off line, they were smoothed during processing.

Serial numbers for Falcon R/T units, RPU's and Ashtech equipment are annotated on the data printouts. Lists of all positioning equipment serial numbers are included in the "Fall 1992 Electronic Control Data Package for OPR-P125-RA."

Calibrations & Systems Check Methods ✓

Falcon 484 ✓

Baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. Calibrations were performed at the MATTHEWS PARK BEACH BASELINE on May 21-28, 1992 (DN 142-149). Calibration data and a description of the baseline is included in the "Fall 1992 Electronic Control Data Package for OPR-P125-RA." Reference letter dated April 8, 1992 (attached.)

In accordance with FPM 3.1.3.3, formal system checks were not documented for multiple LOP hydrography. Data acquired with two LOP's were always bracketed by multiple LOP data acquired with ECR and maximum residuals within acceptable limits, which served as critical system checks.

Ashtech GPS ✓

A VHF Differential shore station was established at station PREP. After the station was established, a remote sensor was directly connected to the MXII shore station and its antenna was collocated with the shore station. The computed position was transmitted back to the ship via VHF radio modem link. The difference between the computed location and the station's published position were recorded by the MONITOR program on a PC. Data from a 24-hour period were recorded and

examined for signs of multi-path signal reflection, which was not evident at the station.

Launch system checks were made by a direct comparison of the Falcon position with the GPS position. HDAPS Survey Screen Two was used for this comparison, and was dumped to the system printer to record the results. Three such dumps were made for each system check. System checks were made at the beginning and end of each day.

Problems ✓

The differential GPS station on PREP ran without problems for sheet F.

Offset ✓

The launch GPS antenna is mounted on the mast of the Falcon R/T unit. Antenna offsets are stored in the HDAPS Offset Tables as listed in Section G.* Copies of the Offset Tables are included in the "Separates to be Included with Survey Data, III.* Horizontal Position Control and Corrections to Position Data."

J. SHORELINE See Eval Rpt., section 2

Shoreline map (T-sheet) used to transfer shoreline detail to the final sheet was DM-10063 (1:10,000, NAD83). ✓

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1. Shoreline verification was accomplished by assigning sequential reference numbers and taking detached positions (DPs) as explained later in this section. ✓

Inshore hydrography shows that photogrammetric and hydrographic positioning are in excellent agreement. ✓

Shoreline and T-sheet features verified via visual inspection were assigned sequential reference numbers, described, and recorded in the field using sounding volumes and corresponding 1:20,000 photocopies of the T-sheet. Reference numbers, descriptions, and heights corrected to MLLW using predicted tides, are recorded in the sounding volume. Corresponding notes were annotated on the photocopies of the T-sheet when deemed necessary. The annotated photocopies of the T-sheet are attached to the sounding volumes which are included with the survey data. ✓

DPs taken during shoreline verification were recorded on the master printouts and indicate significant T-sheet features, features not found on the T-sheet, and locations of disprovals. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the master printouts. ✓

T-sheet features which were verified were retained and shown on the final field sheets (FFS). Verified shoreline and new features are shown in black on the FFS, ✓ changes to the shoreline are shown in red, while unverified shoreline are shown in blue. There was no hydrographic revision to the mean high water line. Several shoreline manuscript rocks have been revised to islets on the smooth sheet and shown in red. There was no unverified shoreline within the survey limits.

* Filed with the survey data

A detailed 1:10,000 paper plot showing all DPs and reference numbers and notes relating to each feature are included with the sheets submitted with this survey. The HDAPS DP Program requires that cartographic codes be assigned to all DPs. These cartographic codes were not plotted because the majority of DPs describe features that are offset slightly from the DP. Position numbers for all DPs are plotted on the DP overlay. Heights are recorded in meters and are corrected to predicted MLLW.

Disprovals

The vicinity of the T-sheet rock at 60°55'31"N, 148°03'21"W was inspected (Pos. No. 5) during a 1.0 meter tide and the rock was not seen. The water visibility was 2.5 m and the average water depth was 2.0 meters. The search was conducted for 15 minutes and the search radius was 50 meters from the DP. ✓

The vicinity of the T-sheet rock at 60°53'43"N, 147°57'06"W was inspected (Pos. No. 8498) and the rock was not seen. The average water depth was 3.0 meters while the water visibility was 2.0 meter. The search was conducted for 10 minutes and the search radius was 30 meters from the DP. ✓

The vicinity of the T-sheet rock at 60°55'27"N, 148°01'21"W was inspected (Pos. No. 6600) and the rock was not seen. The search was conducted for 10 minutes and the search radius was 100 meters from the DP. The bottom is characterized by a gradually sloping bathymetry, from an average depth of 4.0 m to the shoreline. The area was too shoal to obtain the DP on the T-sheet position. ✓

Recommendation: The hydrographer recommends that details seaward of the HWL from this survey be used to supersede DM-10063 in the common area. Concur

Changes

Position No. 6599 describes a change in the shoreline. The T-sheet rock shown on the T-sheet is actually a small islet. The islet is connected to the shoreline at low water by a small sand spit. Horizontal control station "TION" is located on this islet. The new shoreline has been shown on the final field sheet (FFS) at latitude 60/55/21.05 N, longitude 148/01/13.39 W. Smooth Sheet ✓

Reference No. R5-2 describes a change in the shoreline. The T-sheet rock shown on the T-sheet as a single rock is actually the high point of a small ledge. The new shoreline has been shown on the FFS. This feature has been shown on the smooth sheet as a ledge with a high point of 1.8 meters at MLLW at latitude 60/54/33.50N, longitude 147/59/20.0W. ✓

Reference No. R6-18 describes a change in the shoreline. The T-sheet rock shown on the T-sheet as a single rock is actually the outermost part of a ledge. The new shoreline has been shown on the FFS. This feature has been shown on the smooth sheet as a ledge with a high point of 2 meters at MLLW at latitude 60/54/12.0N, longitude 147/57/31.50W.

Recommendation: The hydrographer recommends that shoreline changes from this survey be used to supersede prior shoreline information. Concur

Unverified Feature

A T-sheet rock located in the vicinity of 60°53'19.5"N, 147°55'54.0"W was searched (visually) for, however, predominantly high tides during the survey at the end of the fall field season prevented the hydrographer from examining the area thoroughly. This unverified feature is shown on the FFS. A search radius of thirty meters during high tide, on DN 303, was conducted with negative results. In addition, position 8407-8408, DN 296, was run in the vicinity of the rock at high tide with no significant contacts seen on the echogram. T-sheet rock has been transferred to the smooth sheet. Reference the recommendation by hydrographer, page 9.

A fish trap located in the vicinity of 60°54'15"N, 147°56'30"W was searched for throughout the duration of the survey and was never seen. Upon RAINIER's return to Seattle, the State of Alaska Fish and Game's regional office in Cordova was contacted (907-424-3212) to obtain more information on the existence and or seasonal use of the fish trap. Mr. Wayne Donaldson, of the Cordova Fish and Game office, had no knowledge of the fish trap and suggested that RAINIER contact the Prince William Sound Aquaculture Corporation (970-424-7511). Mr. Rob Torell, from PWS Aquaculture Corp. which operates a fish hatchery at the southern end of Esther Island, was contacted. However, Mr. Torell had never heard of the fish trap.

Recommendation: The hydrographer recommends retaining the unverified T-sheet rock and deleting the fish trap noted on DM-10063. ~~Concur ~~Shading manuscript rock.~~~~
~~was verified during survey operations at latitude 60°54'00"N, longitude 147°56'19"W as uncovering 1.6 meters at 1442g.~~

K. CROSSLINES ✓

Crosslines were used for comparisons with mainscheme hydrography. These totaled 8.82 nautical miles, representing 7.66 % of the total hydrography; this percentage does not reflect developments run during additional investigations.

Crossline soundings agree to within 2.0 meters with mainscheme soundings in areas that were not steep slopes. These differences are believed to be attributable to predicted tides or bottom slope.

The vessels acquiring crossline data did not always acquire the corresponding mainscheme data.

L. JUNCTIONS See Eval Rpt., Section 5

This survey junctions with survey H-10443 (1:20,000, 1992) to the northwest. No irregularities were found when comparing soundings and depth curves. Agreement between overlapping soundings is less than 3 meters. ✓

M. COMPARISON WITH PRIOR SURVEYS See Eval Rpt., Section 6

Not Applicable.

N. COMPARISON WITH THE CHART See Eval Rpt., Section 7

This survey was compared to NOS chart 16700, 24th Edition, Jan 11, 1992, 1:200,000 (NAD83) and to NOS chart 16705, 15th Edition, Sept 1, 1990, 1:80,000 (NAD 83).

| <u>Position Number</u> | <u>Charted Sounding</u> | <u>Survey Sounding</u> | <u>Recommendation</u> |
|------------------------|-------------------------|-------------------------------|-----------------------|
| 8030-8030/1 | 8.25 fm | 14.70m 14.8 fm (27.1 m) 26.9m | Use present survey |
| 8082-8282/1 | 6 fm | 12.46m 14.3 fm (26.1 m) 22.8m | Use present survey |
| 8167-8133/3 | 5 fm | 6.88m 6.8 fm (12.5 m) 12.6m | Use present survey |
| 8223-6534/6 | 10 fm | 7 fm 11.9 fm (21.7 m) 12.8m | Use present survey |

| | | | |
|------------------------|--------|---|--------------------|
| 6707-6281/2 | 7.5 fm | 20.2 fm (37.0 m) | Use present survey |
| 6714-6112/3 | 11 fm | 13.01 fm 13.3 fm (24.4 m) 23.8 m | Use present survey |
| 67358461/5 | 13 fm | 13.55 fm 22.6 fm (59.0 m) 24.8 m | Use present survey |
| 6770-8435/3 | 32 fm | 38.2 fm 24.1 fm (44.0 m) 70 m | Use present survey |
| 61986171/1 | 38 fm | 13.25 fm 15.7 fm (28.7 m) 24.2 m | Use present survey |
| 61786168/1 | 69 fm | 69.4 fm 68.9 fm (126.0 m) 127 m | Use present survey |
| 6169-6160/6 | 66 fm | 65.6 fm (120.0 m) | Use present survey |

Although there has been a reconnaissance investigation in the area, Esther Passage has never been surveyed. Subsidence from the 1964 earthquake is clearly evident and has an effect on the accuracy of pre-earthquake blue print data in the area. Dead trees along the shoreline and horizontal control stations that cover at higher stages of tide are evidence of the submergence. The bottom has been relatively stable since the 1964 earthquake.

Recommendation: Sounding data from the present survey should be used to supersede prior soundings. *Concur*

Disproval

The vicinity of the charted rock at 60°55'47"N, 148°02'55"W was inspected (Pos. No. 4) and the rock was not seen. The water depth ranged between 10 and 15 meters, with 2.5 meters of visibility. The search was conducted for 15 minutes and the search radius was 30 meters from the DP. However, a rock uncovering 1.3 meters at MLLW, at latitude 60/55/46.2N, longitude 148/02/25.5W, was found approximately 30 meters east of charted rock.

Recommendation: The hydrographer recommends that shoreline detail from this survey be used to supersede prior shoreline information. *Concur*

AWOIS Item 51967: U.S. Forest Service public use mooring buoy was reported at 60°51'09"N, 147°56'30"W (NAD 27). * The area was investigated visually and the buoy was located (Pos. No. 6440). * This position is not correct. The geographic position (charted) for this AWOIS item is lat 60/54/03N, Long. 147/56/37.5W (NAD 83)

Recommendation: The hydrographer recommends position data from the present survey be used to supersede AWOIS item 51967. *Concur* Mooring buoy was found at latitude 60/54/06.43N, longitude 147/56/22.04W.

Dangers to Navigation

Four dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District and DMAHTC. Copies of the radio message and correspondence are included in Appendix I of this report. Three additional dangers were generated during office processing (attached).

O. ADEQUACY OF SURVEY ✓

This survey is complete and adequate to supersede the blue print data in the common areas. *Concur*

P. AIDS TO NAVIGATION ✓

No fixed or floating aids to navigation are located on this survey. *Concur*

Q. STATISTICS ✓

| <u>Vessel:</u> | <u>2123</u> | <u>2125</u> | <u>2126</u> | <u>Total</u> |
|----------------|-------------|-------------|-------------|--------------|
| # of Pos | 191 | 807 | 508 | 1506 |
| NM Hydro | 33.28 | 55.99 | 34.74 | 124.01 |

| | | | |
|-----------------------------|------|----------------|----|
| NM ² Hydrography | 2.77 | Velocity Casts | 1 |
| Detached Positions | 22 | Tide Stations | 2 |
| Reference Numbers | 102 | Bottom Samples | 15 |

R. MISCELLANEOUS ✓

Loran C comparisons were sent to DMAHTC and U.S. Coast Guard in accordance with the Project Instructions.

Bottom samples were not sent to the Smithsonian Institution in accordance with the Project Instructions.

S. RECOMMENDATIONS ✓

Mapping and Charting Branch should produce a preliminary 1:100,000 scale metric chart of this area as soon as possible to serve the needs of Southwest Alaska Pilots Association, recreational boaters, and numerous cruise ships that frequent this area.

A large scale inset of Esther Passage is recommended for chart 16700.

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> |
|--|------------------|---------------|
| Fall 1992 Horizontal Control Report for OPR-P125-RA | November 1992 | N/CG2333 |
| Fall 1992 Electronic Control Data Package for OPR-P125-RA | November 1992 | N/CG245 |
| Fall 1992 Corrections to Echo Soundings Data Package for OPR-P125-RA | December 1992 | N/CG245 |
| Fall 1992 Coast Pilot Report for OPR-P125-RA | December 1992 | N/CG245 |

Fall 1992 User Evaluation Report
for OPR-P125-RA

December 1992

N/CG245

Cruising Guide to Prince William Sound;
Jim & Nancy Lethcoe, Valdez, Alaska

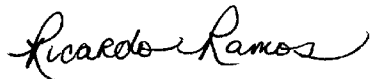
October 1992

N/CG241

USGS Preliminary Bathymetric
Maps, 1980

See Section J

Respectfully Submitted,



Ricardo Ramos
Ensign, NOAA

Approved and Forwarded,



Thomas W. Richards
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 28 Oct 1992

| No | Type | Latitude | Longitude | H | Cart | Freq | Vel | Code | MM/DD/YY | Station Name |
|----------------|------|---------------|---------------|----|------|------|-----|------|----------|-----------------------------------|
| 100 | F | 061:04:13.341 | 147:56:49.572 | 44 | 250 | 0.0 | 0.0 | C | 08/16/92 | COGHILL(GPS) 1947 |
| 101 | F | 061:08:24.394 | 147:55:01.669 | 4 | 250 | 0.0 | 0.0 | 2 | 08/16/92 | HOLY 1992 |
| 102 | F | 061:03:11.820 | 148:00:04.900 | 5 | 250 | 0.0 | 0.0 | B | 08/16/92 | IORD 1992 |
| 103 | F | 061:06:34.024 | 147:52:56.711 | 9 | 250 | 0.0 | 0.0 | 6 | 08/27/92 | UPPER 1947 |
| 104 | F | 061:11:57.292 | 147:49:44.750 | 5 | 250 | 0.0 | 0.0 | 9 | 08/19/92 | VASS 1992 |
| 105 | F | 061:12:20.473 | 147:45:41.198 | 4 | 250 | 0.0 | 0.0 | 1 | 08/27/92 | COLLEGE 1947 |
| 106 | F | 061:00:20.003 | 148:05:28.784 | 5 | 250 | 0.0 | 0.0 | 1 | 09/02/92 | HAM 1947 <i>Off sheet limits</i> |
| 107 | F | 061:00:07.172 | 148:10:38.719 | 5 | 250 | 0.0 | 0.0 | B | 09/02/92 | BARRY RMI 1947 |
| 108 | F | 061:02:20.039 | 148:07:02.598 | 4 | 250 | 0.0 | 0.0 | 7 | 09/02/92 | ORDER 1947 |
| 109 | F | 060:56:03.207 | 148:03:32.090 | 56 | 250 | 0.0 | 0.0 | 4 | 10/20/92 | PREP(GPS) 1992 |
| 110 | F | 061:04:44.163 | 148:08:27.593 | 11 | 250 | 0.0 | 0.0 | 0 | 09/10/92 | GLASS 1947 |
| 111 | F | 061:04:08.365 | 148:09:53.474 | 4 | 250 | 0.0 | 0.0 | 4 | 09/10/92 | DORAN RMI 1947 |
| 112 | F | 061:02:42.590 | 148:09:51.591 | 4 | 250 | 0.0 | 0.0 | 3 | 09/10/92 | BARN 1992 |
| 113 | F | 061:05:58.301 | 148:09:12.319 | 8 | 250 | 0.0 | 0.0 | A | 09/13/92 | ACUTE 1947 |
| 114 | F | 061:05:09.058 | 148:11:28.016 | 6 | 250 | 0.0 | 0.0 | E | 09/13/92 | LIND 1992 |
| 115 | F | 060:48:05.062 | 148:10:45.275 | 7 | 250 | 0.0 | 0.0 | | 09/15/92 | PORT(GPS) 1914 |
| 116 | F | 061:03:20.244 | 148:15:14.930 | 7 | 250 | 0.0 | 0.0 | D | 09/15/92 | JOINT 1947 |
| 117 | F | 061:00:07.990 | 148:21:21.276 | 10 | 250 | 0.0 | 0.0 | 6 | 09/22/92 | GNOME 1992 |
| 118 | F | 061:03:28.730 | 148:20:28.179 | 6 | 250 | 0.0 | 0.0 | 7 | 09/22/92 | SUPR 1992 |
| 119 | F | 061:02:25.699 | 148:21:40.950 | 8 | 250 | 0.0 | 0.0 | 8 | 09/22/92 | FAIRY 1992 |
| 120 | F | 061:04:33.081 | 148:18:12.690 | 6 | 250 | 0.0 | 0.0 | 5 | 10/06/92 | SERP 1992 |
| 121 | F | 060:59:07.956 | 148:22:25.717 | 29 | 250 | 0.0 | 0.0 | 2 | 10/06/92 | CALVE 1992 |
| 122 | F | 060:59:27.312 | 148:25:26.823 | 7 | 250 | 0.0 | 0.0 | 3 | 09/28/92 | ROAR 1992 |
| 123 | F | 061:01:05.907 | 148:22:25.927 | 17 | 250 | 0.0 | 0.0 | 3 | 10/07/92 | HARR 1992 |
| 124 | F | 060:46:37.188 | 148:40:34.304 | 6 | 250 | 0.0 | 0.0 | 4 | 10/10/92 | MARGIN 1956 |
| 125 | F | 060:47:59.465 | 148:40:06.242 | 4 | 250 | 0.0 | 0.0 | E | 10/10/92 | TRIP 1914 |
| 126 | F | 060:46:48.574 | 148:39:26.332 | 4 | 250 | 0.0 | 0.0 | A | 10/10/92 | PUNT 2 1956 |
| 127 | F | 060:57:29.915 | 148:13:01.522 | 45 | 250 | 0.0 | 0.0 | 6 | 10/19/92 | TESC 1992 <i>Off sheet limits</i> |
| 128 | F | 060:56:09.124 | 148:03:20.681 | 47 | 250 | 0.0 | 0.0 | 7 | 10/19/92 | PARA 1992 |
| 129 | F | 060:54:48.628 | 147:59:03.402 | 4 | 250 | 0.0 | 0.0 | 8 | 10/21/92 | BERM 1992 |
| 130 | F | 060:55:21.619 | 148:01:13.320 | 4 | 250 | 0.0 | 0.0 | C | 10/23/92 | TION 1992 |
| 131 | F | 060:53:31.788 | 147:57:06.079 | 5 | 250 | 0.0 | 0.0 | 5 | 10/23/92 | JELY 1992 |
| 132 | F | 060:52:07.247 | 147:54:38.850 | 4 | 250 | 0.0 | 0.0 | D | 10/23/92 | WISP 1951 |
| 133 | F | 060:51:02.341 | 147:54:57.598 | 6 | 250 | 0.0 | 0.0 | 9 | 10/23/92 | TOTAL 1947 |



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 23, 1992

Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, DC 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Prince William Sound, Alaska, NOAA Ship RAINIER discovered four dangers to navigation. They have been reported to DMAHTCNAVWARN and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,


Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, MD 20852-3019

OFFICE OF NOAA CORPS OPERATIONS

NOAA Ship RAINIER
1801 Fairview Avenue East
Seattle, WA 98102


November 23, 1992

Commander
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, AK 99802-5517

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,


Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures

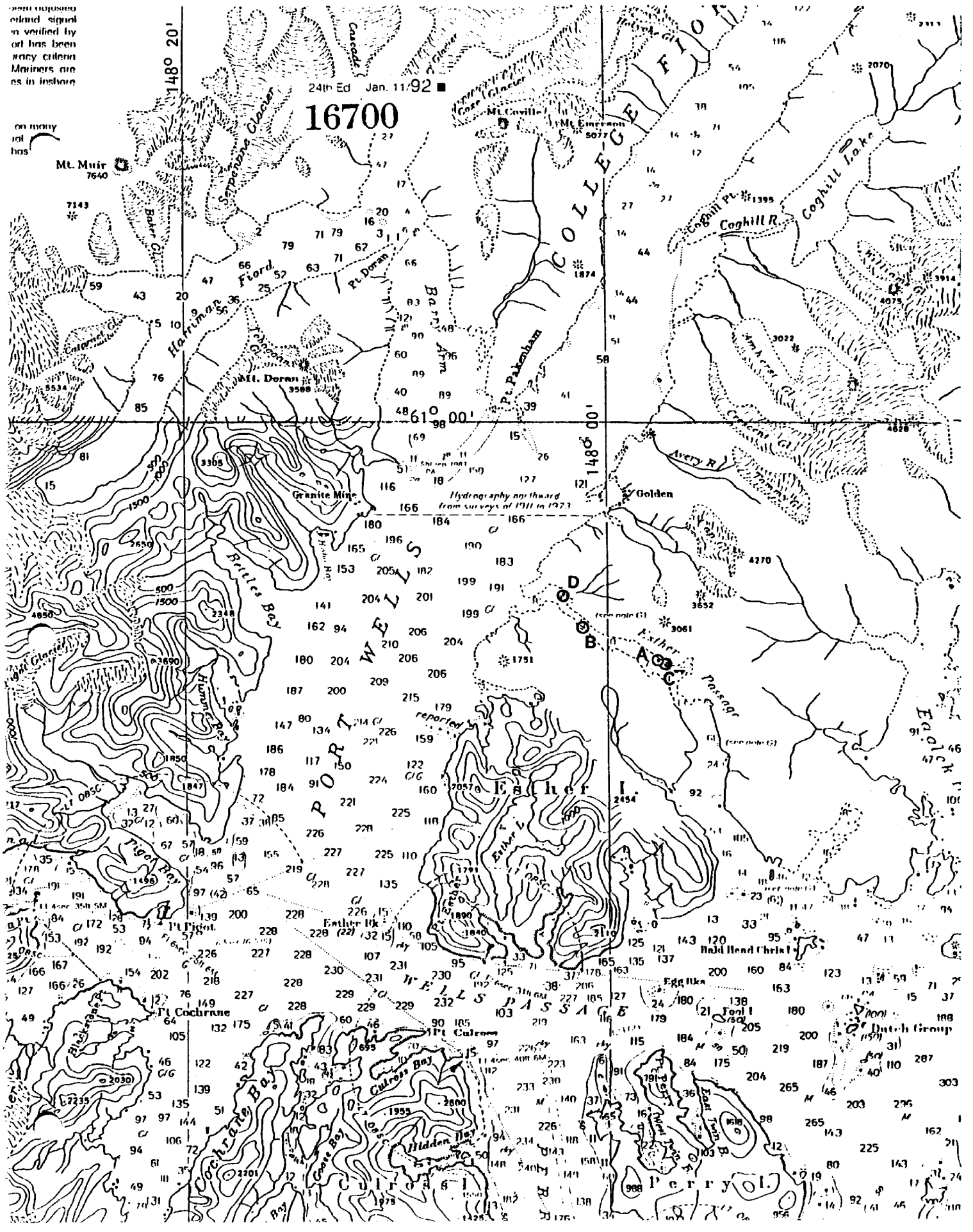
cc:

DMAHTC
N/CG221
PMC



When depicted
colored signal
is verified by
or has been
way criteria
Mariners are
as inshore

24th Ed Jan. 11/92
16700



ZCZC

NC

NC DE OA

011930Z DEC 92

FM NOAAS RAINIER

TO CCGDSEVENTEEN JUNEAU AK

DMAHTCNAVWARN WASHINGTON DC//MCNM//

INFO ZEN/NOAAMOP SEATTLE WA

ACCT CM-VCAA

BT

UNCLAS

1. NOAA SHIP RAINIER HAS FOUND 4 DANGERS TO NAVIGATION IN PRINCE WILLIAM SOUND, ALASKA (PROJECT OPR-P125-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10445 NORTHERN APPROACH OF ESTHER PASSAGE. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 161700 24TH ED JAN 11/92 1:200,000 NAD83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICATED TIDES.

| ITEM | DANGER | DEPTH | LATITUDE | LONGITUDE |
|------|------------------|----------|--------------|---------------|
| A. | SHOAL | 1 1/2 FM | 60/54/09.84N | 147/56/59.90W |
| B. | ROCK COVERS | 1/2 FM | 60/55/07.95N | 148/01/04.52W |
| C. | ROCK UNCOVERS | 1/2 FM | 60/54/15.50N | 147/57/19.00W |
| D. | SHOAL | 1/2 FM | 60/55/50.58N | 148/02/00.26W |

CAUSE OF THE SMALL SCALE OF CHART 16700 IT IS RECOMMENDED THAT THESE DANGERS BE REPORTED IN THE LOCAL NOTICE TO MARINERS AS DEGREES AND DECIMAL MINUTES.

QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO:
COMMANDING OFFICER, NOAAS RAINIER, 1801 FAIRVIEW AVE E. SEATTLE WA.
98102-3767. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.

BT

NNNN

**ADVANCE
INFORMATION**

February 8, 1993

Commander
Seventeenth Coast Guard District
Post Office Box 3-5000
Juneau, Alaska 99802

Dear Sir:

During the office processing of hydrographic survey H-10445 in Prince William Sound, Alaska one additional danger to navigation has been discovered. This danger affects the following chart:

| <u>Chart</u> | <u>Edition/Date</u> | <u>Datum</u> |
|--------------|---------------------|--------------|
| 16700 | 24th Ed., 1/11/92 | NAD83 |

It is recommended that this additional danger to navigation be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

Sincerely,

151
Douglas G. Hennick
Commander, NOAA
Chief, Pacific Hydrographic Section

Enclosure

cc: DMA/TC
PMC
RAINIER
N/CG221

Hydrographic Survey Registry Number: H-10445

Survey Title: State: Alaska
 Locality: Prince William Sound
 Sublocality: Northern Approach of Esther Passage

Project Number: OPR-P125-RA

Survey date: October 1992

Features are reduced to Mean Lower Low Water using predicted tides.

Affected Nautical Chart:

Chart Edition/date
16700 24th Ed., 1/11/92

Datum
NAD83

Danger to Navigation
Shoal, 3.9 Fathoms

Latitude (N)
60/53/39.6
(60/53.66)

Longitude (W)
147/56/59.7
(147/57.0)

Due to the small scale of chart 16700, it is recommended that this danger be reported in the Local Notice to Mariners as degrees and decimal minutes.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

January 28, 1994

Commander (OAN)
 Seventeenth Coast Guard District
 Post Office Box 3-5000
 Juneau, Alaska 99802

Dear Sir:

During office processing of hydrographic survey H-10445 in Prince William Sound, two additional dangers to navigation have been discovered. These potential dangers affect the following nautical chart.

| Chart Number | Edition No. | Date | Horizontal Datum |
|-----------------|----------------|---------|---------------------|
| 16700 | 24th Ed., | 1/11/92 | NAD83 |

It is recommended that this information be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

Sincerely,

Douglas G. Hennick
 Commander, NOAA
 Chief, Pacific Hydrographic Section

Enclosure

cc: DMA/HTC
 PMC
 RAINIER
 N/CG221

FILE COPY

| CODE | SURNAME | DATE | CODE | SURNAME | DATE |
|-------|---------|---------|------|---------|------|
| | Roo | 1/28/94 | | | |
| CG249 | Hwy | 1/28/94 | | | |
| | | | | | |

Report of Danger to Navigation

Hydrographic Survey Registry Number: H-10445

Survey Title:

State: Alaska

General Locality: Prince William Sound

Sublocality: Northern Approach to Esther Passage

Project Number: OPR-P125-RA

The following items were discovered during office processing.

Affected nautical chart:

| <u>Chart Number</u> | <u>Edition No. Date</u> | <u>Survey Depth</u> | <u>Horizontal Datum</u> | <u>Geographic Position Latitude(N) Longitude(W)</u> | |
|-------------------------|--------------------------------|-------------------------|-----------------------------|---|-------------|
| 16700 | 24th Ed., 1/11/92 | Shoal 7 Fathoms | NAD 83 | 60/54/44.7 | 147/59/51.0 |
| 16700 | 24th Ed., 1/11/92 | Rock uncov 1/2 FM | NAD 83 | 60/55/46.2 | 148/02/25.5 |

Features are reduced to Mean Lower Low Water using approved tides.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Seattle, Washington 98115-0070

May 23, 1994

Commander
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK 99802-5517

Dear Sir:

During office processing of hydrographic survey H-10445, Northern Approach of Esther Passage, Prince William Sound, Alaska, it was determined that a depth previously reported by this office on February 8, 1993 is shoaler than reported. This potential danger affects the following nautical chart.

| <u>Chart</u> | <u>Edition</u> | | <u>Horizontal</u> |
|---------------|----------------|-------------|-------------------|
| <u>Number</u> | <u>No.</u> | <u>Date</u> | <u>Datum</u> |
| 16700 | 24th | 1/11/92 | NAD83 |

It is recommended that this information be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

Sincerely,

Douglas G. Hennick
Commander, NOAA
Chief, Pacific Hydrographic
Section

Enclosure

cc: DMAH/TC
N/CG221



Report of Danger to Navigation

Hydrographic Survey Registry Number: H-10445

Survey Title:

State: Alaska

General Locality: Prince William Sound

Sublocality: Northern Approach of Esther Passagae

Project Number: OPR-P125-RA

The following was discovered during hydrographic survey operations:

A shoal previously reported covered 3.9 fathoms has been determined to be covered by 3.7 fathoms at MLLW.

Affected nautical chart:

| Chart Number | Edition No. | Survey Date | Horizontal Depth | Horizontal Datum | Geographic Position Latitude Longitude | |
|-----------------|----------------|----------------|---------------------|---------------------|---|--------------|
| 16700 | 24th | 1/11/92 | 3.7 fm | NAD83 | 60/53/39.6N | 147/56/59.7W |

Depths have been reduced to Mean Lower Low Water.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, MD 20852-3019

OFFICE OF NOAA CORPS OPERATIONS

NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102

April 8, 1992

MEMORANDUM FOR: Lieutenant Commander John D. Wilder, NOAA
Chief, Operations Section

FROM: *Thomas W. Richards*
Captain Thomas W. Richards, NOAA
Commanding Officer, NOAA Ship RAINIER

SUBJECT: Base-line Calibration

The Field Procedures Manual (FPM) states in section 3.1.3.2 that base-line calibrations shall be performed 1) at the beginning of a project or 2) at intervals not exceeding 6 months.

RAINIER is scheduled to work in Northern Cook Inlet from June 2 until August 24. Operations will then immediately shift to Northwest Prince William Sound until November 6. RAINIER's minirangers require considerable time to recalibrate. This calibration time will detract from time available for data acquisition and increase electronic control paperwork.

RAINIER requests that the required base-line calibration between these two back-to-back projects be waived since they encompass an interval of less than 6 months. The correctors applied to minirangers during the Northern Cook Inlet project would also be applied to the Northwest Prince William Sound project. The remaining portions of FPM's section 3.1.3.2 will be adhered to throughout the field season.

cc: PMC1X2





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Rockville, Maryland 20852

APR 16 1992

*FAO 12 PAS KAT...
FAO 12 OK to me
CO
Please return
to FOD.*

MEMORANDUM FOR: Captain Thomas W. Richards, NOAA
Commanding Officer, NOAA Ship RAINIER

FROM: Lieutenant Commander John D. Wilder, NOAA
Chief, Operations Section

SUBJECT: Base-line Calibration Waiver

Your request for a waiver of the ^{back}required Mini-Ranger base-line calibrations between two back-to-projects (OPR-P319-RA, Northern Cook Inlet and OPR-P125-RA, Northwest Prince William Sound) is approved. Adhere to the remaining portions of the Field Procedures Manual section 3.1.3.2 throughout the 1992 field season.

cc: PMC1
N/CG245



TWR
FOO 13

0:11. Wednesday, 9 September 1992
tPostOUT : McDaniel

:
:
R 082300Z SEP 92
FM NOAA S RAINIER
TO NOAA MDP SEATTLE WA

BT

UNCLAS

RA-PMC-126-153-147-148-149-150.

SUBJ: HYDROGRAPHY CONTROLLED BY PRINCE WILLIAM SOUND TIDE GAGES
PASS TO PMC1X2

1. RAINIER WOULD LIKE PERMISSION TO ACQUIRE DATA ON SHEET F, NORTH
PORTION OF ESTHER PASSAGE, WITHOUT INSTALLING THE OLSEN ISLAND
TIDE GAGE.

2. GRANITE MINE TIDE GAGE, WHICH IS CURRENTLY OPERATIONAL, IS
APPROXIMATELY 6 NM FROM THE AREA IN QUESTION.

3. IF TIDE DATA IS NECESSARY AT THE SOUTH END OF ESTHER PASSAGE,
RAINIER SUGGESTS A SITE IN THE SOUTH ENTRANCE TO THE PASSAGE WOULD
BE APPROPRIATE. SUCH A SITE WOULD ALSO BE EASIER TO SUPPORT THAN
ONE AT OLSEN ISLAND.

BT

*1WR
FOO*

21:28, Friday, 11 September 1992
tPostIN : McDaniel

R 101830Z SEP 92
FM NOAAAMOP SEATTLE WA
TO NOAAAS RAINIER
BT
UNCLAS
PMC-RA-158-128/PMC1X2/PMC1
SUBJ: TIDE CONTROL
REF: A. UR 082300Z SEP 92

1. PER E-MAIL N/CG241 (WILDER): AS LONG AS WHITTIER (945-4949)
GAGE IS RUNNING, DATA ON SHEET F CAN BE ACQUIRED WITHOUT OLSEN
ISLAND TIDE GAGE.
BT

APPROVAL SHEET

for

H-10445

(RA-10-7-92)

Standard procedures were followed in accordance with the Hydrographic Manual (Fourth Edition), the Hydrographic Survey Guidelines, and the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheets and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.



Thomas W. Richards
Captain, NOAA
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: May 21, 1993

MARINE CENTER: Pacific

OPR: P125-RA

HYDROGRAPHIC SHEET: H-10445 (amended)

LOCALITY: Northern Approach of Esther Passage,
Prince William Sound, Alaska

TIME PERIOD: October 19 - 29, 1992

TIDE STATION USED: 945-4806 Granite Mine, Port Wells, Alaska
Lat. $60^{\circ} 57.0'N$ Lon. $148^{\circ} 12.8'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 8.61 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.2 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Granite Mine (945-4806).

Note:

Hourly heights are tabulated in **Greenwich Mean Time.**


CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10445

Name on Survey

A ON CHART NO. 16700 - 16705
B ON PREVIOUS SURVEY NO.
C ON U.S. QUADRANGLE MAPS D-3
D FROM LOCAL INFORMATION
E ON LOCAL MAPS
F P.O. GUIDE OR MAP
G RAND McNALLY ATLAS
H U.S. LIGHT LIST
I DM-10063

| Name on Survey | A | B | C | D | E | F | G | H | I |
|---------------------------------|---|---|---|---|---|---|---|---|----|
| ALASKA (TITLE) | X | | X | | | | | X | 1 |
| ESTHER ISLAND | X | | X | | | | | X | 2 |
| ESTHER PASSAGE | X | | X | | | | | X | 3 |
| PORT WELLS | X | | X | | | | | X | 4 |
| PRINCE WILLIAM SOUND (title) | X | | | | | | | | 5 |
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Approved:

Charles E. Harting
Chief Geographer - N/CG215

NOV 29 1993

HYDROGRAPHIC SURVEY STATISTICS

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

| RECORD DESCRIPTION | | AMOUNT | RECORD DESCRIPTION | | AMOUNT |
|--------------------|-------------------|----------------------|------------------------------------|-----------|----------------------------|
| SMOOTH SHEET | | 1 | SMOOTH OVERLAYS: POS., ARC, EXCESS | | 1 |
| DESCRIPTIVE REPORT | | 1 | FIELD SHEETS AND OTHER OVERLAYS | | |
| DESCRIPTION | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR-GRAMS | PRINTOUTS | ABSTRACTS/SOURCE DOCUMENTS |
| ACCORDION FILES | | | | | |
| ENVELOPES | | | | | |
| VOLUMES | 4 | | | | |
| CAHIERS | 1 | | | | |
| BOXES | | | | | |

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

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 | | | 1535 | |
| POSITIONS REVISED | 11 | | 11 | |
| SOUNDINGS REVISED | 162 | | 162 | |
| CONTROL STATIONS REVISED | | | | |
| | TIME-HOURS | | | |
| | VERIFICATION | EVALUATION | TOTALS | |
| PRE-PROCESSING EXAMINATION | | | | |
| VERIFICATION OF CONTROL | | | | |
| VERIFICATION OF POSITIONS | 48 | | 48 | |
| VERIFICATION OF SOUNDINGS | 143 | | 143 | |
| VERIFICATION OF JUNCTIONS | 2 | | 2 | |
| APPLICATION OF PHOTOBATHYMETRY | | | | |
| SHORELINE APPLICATION/VERIFICATION | 12 | | 12 | |
| COMPILATION OF SMOOTH SHEET | 58 | | 58 | |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | | 2 | 2 | |
| EVALUATION OF SIDE SCAN SONAR RECORDS | | | | |
| EVALUATION OF WIRE DRAGS AND SWEEPS | | | | |
| EVALUATION REPORT | | 28 | 28 | |
| GEOGRAPHIC NAMES | 1 | | 1 | |
| OTHER* | | | | |
| *USE OTHER SIDE OF FORM FOR REMARKS | TOTALS | 264 | 30 | 294 |
| Pre-processing Examination by | Beginning Date | Ending Date | | |
| | 12/11/92 | 2/5/93 | | |
| Verification of Field Data by | Time (Hours) | Ending Date | | |
| B.A. Olmstead | 264 | 1/20/94 | | |
| Verification Check by | Time (Hours) | Ending Date | | |
| J.S. Green | 6 | 3/16/94 | | |
| Evaluation and Analysis by | Time (Hours) | Ending Date | | |
| B.A. Olmstead | 30 | 3/15/94 | | |
| Inspection by | Time (Hours) | Ending Date | | |
| D. Hill | 4 | 5/27/94 | | |

EVALUATION REPORT

H-10445

1. INTRODUCTION

Survey H-10445 is a basic hydrographic survey accomplished by the NOAA Ship Rainier under the following Project Instructions.

OPR-P125-RA, dated July 7, 1992
CHANGE NO. 1, dated August 21, 1992

The purpose of this survey was to provide contemporary hydrographic data in Prince William Sound, Alaska, to support requests by the Alaska Pilots Association, local fishermen, and commercial cruise lines. This survey is six nautical miles in length and covers the Northern Portion of Esther Passage to include the entrance into the channel of Port Wells. The surveyed limits extend from latitude 60/52/43N to latitude 60/56/31N and from longitude 147/54/51W to longitude 148/06/03W. The survey area is characterized by a narrow constricted channel averaging 250-700 meters wide with numerous isolated rocks (awash, submerged) and islets fringing the shoreline. Depths at the northwest and southeast portions of the survey are over 100 meters but quickly shoal to under 15 meters approximately two nautical miles into the passage when entering from Port Wells. The mariner should be aware that there are several rocks which are situated very near the navigable portions of this passage. The bottom consists primarily of mud, shells and pebbles.

Predicted tides for Cordova, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Granite Mine, Port Wells, Alaska, gage number 945-4806, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 83 is used as the horizontal datum for plotting and position computations. The velocity and other offset correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

Depth curves depicted on chart 16700 in fathom units have been drawn on the smooth sheet at the equivalent metric depth. A note and associated table have been added to the smooth sheet to define this situation.

A digital file has been generated for this survey as required by Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning. Additional detailed information on horizontal control is found in the Horizontal Control Report for OPR-P125-RA, dated November 1992.

Positions of horizontal control stations used during hydrography are published and 1992 field values based on NAD 83. The smooth sheet and accompanying overlays are 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: - 2.042 seconds (-63.198 meters)
Longitude: 7.414 seconds (111.735 meters)

The year of establishment of control stations shown on the smooth sheet originates with the previously mentioned horizontal control report and the hydrographer's signal list.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. Survey specifications and accuracy requirements using DGPS were in accordance with the Field Procedures Manual. However, the quality of several positions exceed limits in terms of horizontal dilution of precision (HDOP). A review of the data, however, indicates 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 data. These fixes are considered acceptable.

The following shoreline map was compiled on NAD 83 and applies to this survey.

| <u>Photo</u> | <u>Date</u> | <u>Scale</u> |
|--------------|-----------------|--------------|
| DM-10063 | Jun., July 1989 | 1:20,000 |

Several rocks compiled on the shoreline map were investigated during survey operations and found to bare at mean high water. These features have been revised on the smooth sheet to islets and are shown in solid red at the positions listed below. These revisions are adequate to supersede the shoreline map within the common areas.

| <u>Latitude(N)</u> | <u>Longitude(W)</u> |
|--------------------|---------------------|
| 60/53/19 | 147/55/21 |
| 60/53/21 | 147/55/22 |
| 60/53/21 | 147/55/36 |
| 60/54/51 | 147/59/31 |
| 60/55/21 | 148/01/13 |
| 60/55/18 | 148/04/37 |

Several rocks originating from the shoreline map have been transferred to the smooth sheet without supporting positional data and have been subsequently digitized.

3. HYDROGRAPHY

With the exceptions noted in this report, hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard 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.

4. CONDITION OF SURVEY

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, March 1992 Edition, except as follows.

The charted rock at latitude 60/55/47N, longitude 148/02/55W, was searched for and not found. However, this charted rock is likely the feature found approximately 300 meters further east at latitude 60/55/46.2N, longitude 148/02/25.5W. This rock uncovers 1.3 meters at MLLW and is part of a larger shoal rising 8-12 meters above the surrounding depths. This feature was submitted as a danger to navigation during office processing.

AWOIS item 51967, a mooring buoy charted at latitude 60/54/03N, longitude 147/56/37.5W, was found and located by the hydrographer during survey operations. However, the geographic position in the descriptive report is shown with a three minute error in latitude.

5. JUNCTIONS

Survey H-10445 junctions with the following survey.

| <u>Survey</u> | <u>Year</u> | <u>Scale</u> | <u>Area</u> |
|---------------|-------------|--------------|-------------|
| H-10443 | 1991 | 1:20,000 | Northwest |

As documented in section 1, the standard metric curves have not been shown on the present survey. Survey H-10443 has been completed under earlier processing guidance and a formal junction could not be accomplished.

There is no contemporary survey to the southeast. A comparison with this survey and the charted depths reveals adequate agreement.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys common to the present survey.

There are no AWOIS items originating from prior surveys.

7. COMPARISON WITH CHART

Chart 16700, 24th edition, dated Jan. 11, 1992; scale 1:200,000

Chart 16705, 15th edition, dated Sept. 1, 1990; scale 1:80,000

a. Hydrography

Both charts listed above are compiled on NAD 83. Chart 16700 covers most of the survey area. Charted hydrography originates from miscellaneous sources, (USGS reconnaissance surveys conducted from 1973-78). Comparison with the present survey and the limited charted data, generally reveals a 3-5 meter difference in depths. However, there is not enough comparative information to state whether the northern portion of Esther Passage has deepened, shoaled or remained stable. In addition, significant differences are noted between the present digital shoreline source document and the chart.

In accordance with Hydrographic Survey Guideline No. 39, the effects of the 1964 Prince William Sound earthquake were considered in the comparison of these surveys. No reasonable adjustment value for prior soundings could be determined.

Survey H-10445 is adequate to supersede charted hydrography within the common area.

b. AWOIS

AWOIS item 51967, a mooring buoy, presently charted at latitude 60/54/03N, longitude 147/56/37.5W, was located during hydrographic operations and is discussed in the descriptive report, section N.

c. Controlling Depths

There are no charted channels with controlling depths within the limits of this survey.

d. Aids to Navigation

There are no fixed or floating aids and or features of landmark value within the survey area.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

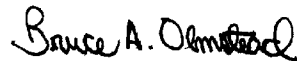
A total of four dangers to navigation were generated during survey operations. Three additional dangers were generated during office processing. Copies of all reports are attached.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10445 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. No additional field work is recommended.


Bruce A. Olmstead
Senior Cartographer

APPROVAL SHEET
H-10445

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 digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Dennis Hill

Date: 5/27/94

Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

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.

Douglas G. Hennick

Date: 5/27/94

Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:

J. Austin Yeager

Date: 8/8/94

J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10445

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 | 6/22/94 | Bruce A. Olmstead | Full Part Before After Marine Center Approval Signed Via Drawing No. <i>Full Application of soundings and features from smooth sheet.</i> |
| 16700 | 6/22/94 | Bruce A. Olmstead | Full Part Before After Marine Center Approval Signed Via Drawing No. <i>Full Application of soundings and features from smooth sheet.</i> |
| 16013 | 6/22/94 | Bruce A. Olmstead | Full Part Before After Marine Center Approval Signed Via Drawing No. |
| 531 | 6/22/94 | Bruce A. Olmstead | Full Part Before After Marine Center Approval Signed Via Drawing No. <i>Examined, no corrections and soundings applied.</i> |
| 500 | 6/22/94 | Bruce A. Olmstead | Full Part Before After Marine Center Approval Signed Via Drawing No. <i>Examined, no correction and soundings applied</i> |
| 50 | 6/22/94 | Bruce A. Olmstead | Full Part Before After Marine Center Approval Signed Via Drawing No. |
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED