

10443

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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-20-6-92

Registry No. H-10443

LOCALITY

State Alaska

General Locality Prince William Sound

Sublocality Port Wells

19 92

CHIEF OF PARTY

CAPT. T.W. Richards

LIBRARY & ARCHIVES

DATE July 6, 1994

Master Diagram 8551-4

8551-4

8551-4

P/L
CHTS
CP9
16703
16705
16700
16013NC

H-10443

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-20-6-92

State Alaska

General locality Prince William Sound

Locality Port Wells

Scale 1:20,000 Date of survey 10/27/92 - 11/28/92

Instructions dated 7/7/92 Change No. 1-8/28/92 Project No. OPR-P125-RA

Vessel NOAA Ship RAINIER

Chief of party CAPT Thomas W. Richards, NOAA

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

Soundings taken by echo sounder, ~~hand lead, pole~~

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by: E. Brown, S. Otsubo Automated plot by PHS Xynetics Plotter

Evaluation by: J. Green

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

REMARKS: Time is UTC. Revisions and marginal notes in black were generated during office processing. Separates are filed with the hydrographic data.

AWOIS & SURE, MCR 8/8/94

LC12-13-96

T.W.W. 8/29/94

Descriptive Report to Accompany Hydrographic Survey H-10443

Field Number RA-20-6-92

Scale 1:20,000

September - 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-10443 corresponds to "Sheet D" 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

The survey is located in Port Wells, northwest Prince William Sound, 20 NM northeast of Whittier, Alaska. This survey junctions with survey H-10438 to the north at 60°58'00"N and survey H-10445 to the east at the entrance to Esther Passage. The southern limit is 60°50'00"N and the remaining boundaries are comprised of the mainland. Topographical relief consists of steep U-shaped glaciated valleys, and numerous bays and inlets. The receding glaciers have left several terminal and medial moraines, depicted as submerged shoal areas. ✓

Data acquisition was conducted from September 27, Day Number (DN) 271, through October 28, DN 302. ✓

C. SURVEY VESSELS

Data were acquired by the NOAA Ship RAINIER, four survey launches, and the Monark (Ra-9) as noted below:

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Bottom Samples Velocity Casts
RA-3	2123	Hydrography Shoreline Verification ✓
RA-4	2124	Hydrography Shoreline Verification

RA-5	2125	Hydrography Shoreline Verification Bottom Samples Velocity Casts
RA-6	2126	Hydrography Shoreline Verification Dive Operations
RA-9	2129	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
DIAGNOSTIC	3.00	4/14/92
DISC UTIL	1.00	4/14/92
DP	2.11	7/02/92
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	280-300
2124	A103N	271-297
2125	B039N	272-298
2126	A117N	272-302

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 casts 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>
7	13	483.0	265-276	60°55'48"N 148°06'35"W	270
10	16	529.5	279-290	60°51'05"N 148°11'47"W	284
10 11	18	512.6	292-304	60°52'32"N 148°11'23"W	298

The sound velocity casts were 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, 2124, 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, 2124 on March 16, 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 D.

Offset Tables

<u>Vessel</u>	<u>Offset Table No.</u>
2123	3
2124	4

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. ✓

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 D'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. ✕ ✓

H. CONTROL STATIONS

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 ^{attached} ~~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 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." ✓

✕ filed with the survey records

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

The Falcon station(s) were ~~not~~ used to position data collected during the survey, ^{by 2124 on Day 286.} Falcon stations were used in conjunction with differential GPS as a cross reference in daily critical system checks.

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." ✓

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. ^{A critical systems check was accomplished immediately preceding the Falcon 484 data.} Ashtech GPS

VHF Differential shore stations were established at station PORT and station PREP. After each 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 normally made each day, and days with no system checks were always bracketed by days with good checks. ✓

Problems

The differential GPS stations on PORT and PREP ran without problems for sheet D. ✓

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

Shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets were DM-10062 (1:20,000, NAD83) and DM-10063 (1:10,000, NAD83). Chart 16700 (1:20,000 enlargement, 1992) was used to augment the existing registered shoreline manuscripts. *Shoreline on smooth sheet is from the shoreline maps and hydrographic data.*

Unpublished United States Geological Survey (USGS) bathymetric maps developed in 1980 by Austin Post were used to augment rock information shown on the existing registered shoreline manuscripts. Copies of these bathymetric maps were borrowed from Nancy and Jim Lethcoe in Valdez, Alaska and returned later during the project. Of the 4 USGS rocks shown on the studies, 1 rock was verified as a new feature while the remaining 3 rocks were disproved by taking a DP and including full disapproval descriptions in the raw master print out. These rocks are discussed later in this section. ✓

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 disapprovals. Where possible, positions of some T-sheet features were

* Filed with the survey records.

verified during inshore mainscheme hydrography and annotated on the master printouts.

T-sheet features which were verified were retained and shown on the ^{smoothsheet.} final field sheets (FFS). Verified shoreline and new features are shown in black on the FFS, while changes to the shoreline are shown in red. See Eval Rpt, sect 2

Detailed 1:20,000 paper plots 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. Refer to the smoothsheet for the results of this survey.

Disprovals Disprovals not shown on the smoothsheet. Disregard this list.

Item	Source	Scaled Position	Position Number	Average Water Depth(m)	Water Vis. (m)	Time Spent (mins)	Search Radius (m)	Tide (m)
Rock	T-Sheet	60°57'12"N 148°14'18"W	8085	7.0	4.0	10	40	-0.6
Rocks	T-Sheet	60°56'37"N 148°16'10"W	8287	5.0	4.0	10	30	-1.2
Rock	USGS	60°57'30"N 148°14'18"W	3039	3.0	4.0	10	50	-0.7
Rock	T-Sheet	60°53'05"N 148°17'35"W	2413	16.0	3.0	10	25	-0.7
Islet	T-Sheet	60°52'55"N 148°17'55"W	2787	8.0	8.0	10	50	-0.8
Rock	T-Sheet	60°53'23"N 148°18'12"W	2839	25.0	8.0	10	50	-0.7
Rock	T-Sheet	60°53'24"N 148°17'38"W	2837	10.0	8.0	10	50	-0.7
Rock	T-Sheet	60°54'02"N 148°17'45"W	6728	2.5	5.0	8	30	-0.9
Rock	USGS	60°54'03"N 148°18'08"W	2838	8.0	8.0	10	50	-0.7
Islet	T-Sheet	60°52'12"N 148°18'08"W	2476	12.0	2.5	10	50	-1.1
Islet	T-Sheet	60°51'58"N 148°18'28"W	2480	10.0	2.5	15	25	-1.1

Rock	T-Sheet	60°51'56"N 148°18'30"W	2479	2.5	2.5	13	20	-0.9
Islet	T-Sheet	60°51'35"N 148°17'25"W	2483	11.0	3.0	12	30	-1.0
Islet	T-Sheet	60°51'21"N 148°17'30"W	8837	7.0	1.0	8	20	-2.0
Islet	T-Sheet	60°51'14"N 148°17'30"W	2843	15.0	8.0	10	50	-0.8
Islet	T-Sheet	60°50'58"N 148°17'48"W	8838	7.0	1.0	5	20	-2.0
Rock	T-Sheet	60°53'58"N 148°06'20"W	8481	4.0	7.0	6	20	-0.7
Rock	T-Sheet	60°53'42"N 148°05'58"W	8489	8.0	7.0	10	20	-1.1
Rock	T-Sheet	60°52'48"N 148°05'50"W	5121	25.0	4.0	10	10	-0.9
Rock	USGS	60°52'57"N 148°06'40"W	5125	8.0	4.0	15	100	0.0
Rock	T-Sheet	60°51'35"N 148°07'55"W	2686	20.0	8.0	10	50	-0.7
Islet	T-Sheet	60°51'28"N 148°07'42"W	2685	10.0	8.0	10	50	-0.7
Rock	T-Sheet	60°51'20"N 148°07'52"W	2684	50.0	8.0	10	50	-0.8
Rock	T-Sheet	60°51'38"N 148°07'50"W	2687	10.0	6.0	10	50	-0.7
Rock	T-Sheet	60°50'39"N 148°07'58"W	4467	35.0	8.0	10	50	-0.7
Rock	T-Sheet	60°50'35"N 148°07'53"W	4468	4.0	8.0	10	50	-0.7
Rock	T-Sheet	60°50'17"N 148°08'01"W	4470	4.0	8.0	10	50	-0.7

Recommendation: The hydrographer recommends that the details seaward of the HWL from this survey be used to supersede DM-10062 and DM-10063 in the common area. *Concur, refer to the smooth sheet for features verified during this survey.*

Changes

- ✓ ~~Severe~~
Eleven T-Sheet rocks were found to be connected to the shoreline. The new shoreline has been shown on the Final Field Sheet (FFS). ✓
 - ✓ ~~Severe~~
Five T-Sheet rocks were found to be islets. The FFS reflects this change. ✓
 - ✓ ~~Severe~~
Nine T-Sheet rocks were found to be part of ledges. The FFS reflects this change. ✓
 - ✓ ~~Severe~~
Two T-Sheet islets were found to be rocks. The FFS reflects this change. ✓
 - ✓ Reference No. R9-6 describes T-sheet rocks in the vicinity $60^{\circ}56^{\prime}54''N$, $148^{\circ}06^{\prime}20''W$.
The rocks are actually a reef. The FFS reflects this change. ² ¹² 10063
smooth sheet
 - ✓ Reference No. R6-67 describes two T-sheet rocks in the vicinity $60^{\circ}53^{\prime}40''N$,
 $148^{\circ}04^{\prime}05''W$. There is only one rock present. The FFS reflects this change. 10063 ✓
smooth sheet
 - ✓ Position No. 8487, 3 and 4 mark the limits of a foul area. The foul area is
represented on the FFS. *Lat* $60^{\circ}53^{\prime}42''N$, *Long* $148^{\circ}05^{\prime}45''W$ ✓
smooth sheet
 - ✓ Position Nos. 8735 - 8742, 8744, 8745, and 8747 mark the limits of a large foul area.
The foul area is represented on the FFS. *Lat* $60^{\circ}53^{\prime}30''N$, *Long* $148^{\circ}09^{\prime}30''W$ ✓
smooth sheet
 - ✓ Position Nos. 5108 - 5116 mark the limits of a foul area. The foul area is represented
on the FFS. *Lat* $60^{\circ}52^{\prime}54''N$, *Long* $148^{\circ}06^{\prime}12''W$ ✓
smooth sheet
- An abstract of position and reference numbers listing these changes is included with the survey records. ✓
- ✓ **Recommendations:** The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information. *Concur*

New Features

- ~~Twenty-three~~^N new rocks were found throughout the survey area and are depicted on the FFS. *smooth sheet*.
- ✓ Position No. 4296 describes two piles at $60^{\circ}56^{\prime}42''N$, $148^{\circ}18^{\prime}38''W$ which are 3.0 m
apart and ~~are~~⁷ 2.5 m at MLLW. ✓
uncovered
- An abstract of position numbers listing these new features is included with the survey records. ✓
- ✓ **Recommendations:** The hydrographer recommends that the shoreline detail from this survey be used to supersede prior shoreline information. *Concur*

K. CROSSLINES

Crosslines were used for comparisons with mainscheme hydrography. These totaled 46.76 nautical miles, representing 13.1 % of the total hydrography; this percentage does not reflect developments run during additional investigations. ✓

Crossline soundings agree to within 3.0 meters with mainscheme soundings in areas that were not steep slopes. These differences are believed to be attributable to ~~the predicted tides or bottom slope roughness.~~ ✓

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

L. JUNCTIONS

This survey junctions with survey H-10445 (1:10,000, 1992) to the east and survey H-10438 (1:20,000, 1992) to the north. No irregularities were found when comparing soundings and depth curves. Agreement between overlapping soundings is within 3 meters or less. ✓

M. COMPARISON WITH PRIOR SURVEYS *See Eval Rpt, sect 6*

H-7618 (1:20,000, 1947-48)

The overall agreement between this survey and H-7618 is good, with no major discrepancies. The soundings agree to within 10% of the depth and on the average within 4 m. The soundings that do not agree within this range are in areas approaching the shore. The most probable cause for the few minor discrepancies is the shoreline morphology. The shore is very steeply sloping, nearly vertical in some regions, causing a large variation over a short lateral distance. ✓

Recommendations: The hydrographer recommends sounding data from the present survey be used to supersede that of H-7618 within their common areas. *Concur*

CL 398/47 (1:200,000, 1947)

There were ~~seven~~ ^{fifteen} soundings from this chart letter that were compared to the present survey. The soundings were located on the western ^{and eastern} region of the survey area. The soundings from the present survey were on average 80 m deeper than this prior survey work. The probable cause is due to the less accurate survey methods used in 1947. *Also in areas of steep slope.*

Recommendations: The hydrographer recommends sounding data from the present survey be used to supersede that of CL 398/47 within their common area. *Concur*

N. COMPARISON WITH THE CHART *See Eval Rpt, sect 7*

This survey was compared to NOS chart 16700, 24th Edition, Jan 11, 1992, 1:200,000 (NAD83) and NOS chart 16705, 15th Edition, Sept 1, 1990, 1:80,000 (NAD83). Subsidence from the 1964 earthquake is clearly evident and has an effect on the accuracy of pre-earthquake chart letters, T-sheets, and survey data in the area. USGS bathymetric maps show submergence as do dead trees along the shoreline and horizontal control stations that cover at higher stages of tide. The bottom has been relatively stable since the 1964 earthquake. ✓

Charted soundings originating from prior survey H-7618 (1:20,000, 1947-48) are discussed in Section M. The remaining soundings originate from CL 398/47, 1947, 1:200,000 and are also discussed in Section M. ✓

AWOIS Item 51959

✓ A charted mooring buoy in the vicinity of 60°57'32"¹N, 148°13'26"W was found and located by detached position 8086. The mooring buoy submerges at high water and is marked by an orange float. ✓

✓ **Recommendation:** The hydrographer recommends retaining the mooring buoy on the chart using the field position. *Concur.*

AWOIS Item 51960

✓ A charted mooring buoy in the vicinity of 60°52'56"N, 148°05'38"⁶W was found and located by detached position 8734. ✓

✓ **Recommendation:** The hydrographer recommends retaining the mooring buoy on the chart using the field position. *Concur*

AWOIS Item 51961

✓ A charted reef^(reported) in the vicinity 60°52'46"N, 148°08'22"W was observed. The reef was investigated using 10 m line spacing and dive operations to determine the shoalest depth and the extent of the feature. The shoalest depth is 0.7 m at MLLW and is located at 60°52'48"³N, 148°07'20"⁷W (Pos. No. 8842). 0.4 ✓

✓ **Recommendation:** The hydrographer recommends sounding data from the present survey be used to supersede AWOIS item 51961. *Concur*

OTHER

In addition to the AWOIS items there were three "notes to the hydrographer" that accompanied shoreline maps DM-10062 and DM-10063. There were two wrecks and one islet referenced. ✓

✓ The first wreck was in Hobo Bay in the vicinity of 60°57'30"N, 148°13'50"W near the charted mooring buoy AWOIS Item 51959. The area was investigated using 25 m line spacing and dive operations. A wreck was not found. ✓

✓ **Recommendation:** The hydrographer believes the charted mooring buoy was misidentified on the shoreline map as a wreck. The feature to be charted is a buoy. No wreck exists. *Concur*

✓ The second wreck was in Granite Bay at the same location as charted mooring buoy AWOIS item 51960. The area was investigated using 25 m line spacing. No wreck was found. ✓

✓ **Recommendation:** The hydrographer believes the charted mooring buoy was misidentified on the shoreline map as a wreck. The feature to be charted is a buoy. No wreck exists. *Concur*

✓ The charted islet was located in Hummer Bay in the vicinity of 60°53'45"N, 148°18'38"W. The islet was investigated visually and with 25 m line spacing. Soundings with an average depth of 40 m were found in the locality. ✓

A islet was not found. ✓

✓ **Recommendation:** The hydrographer recommends sounding data from the present survey be used to supersede prior soundings and that the islet be removed from the chart. *Concur*

Dangers to Navigation

Five 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.~~ *attached to* ✓

O. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the T-sheets, chart letters, and prior survey H-7618 in the common areas. *Concur*

P. AIDS TO NAVIGATION

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

Q. STATISTICS

<u>Vessel:</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
# of Pos	1217	1127	1121	884	4349 3992
NM Hydro	173.18	149.26	180.48	88.54	591.46
NM ² Hydrography	41.30	Velocity Casts	3		
Detached Positions	374	Tide Stations	2		
Reference Numbers	244	Bottom Samples	14		

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 ^{1:80,000} ~~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. *Recommendation forwarded to NICE22. See attached memo*

A large scale inset of Granite Bay should be considered for charting. *Concur. See attached memo.*

T. REFERRAL TO REPORTS

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

Title	Date Sent	Office
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	November 1992	N/CG245
Fall 1992 Coast Pilot Report for OPR-P125-RA	November 1992	N/CG245
Fall 1992 User Evaluation Report for OPR-P125-RA	November 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,

Dede L. Pitts

Dede L. Pitts
Ensign, NOAA

Approved and Forwarded,

Thomas W. Richards

Thomas W. Richards
Captain, NOAA
Commanding Officer

~~APPENDIX I~~

DANGERS TO NAVIGATION REPORTS



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 S221

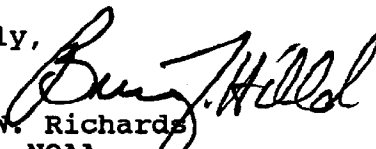
December 8, 1992

Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, D.C. 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Prince William Sound, Alaska, NOAA Ship RAINIER discovered 5 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,

for 
Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures





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 S221


December 8, 1992

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

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,

for 
Thomas W. Richards
Captain, NOAA
Commanding Officer

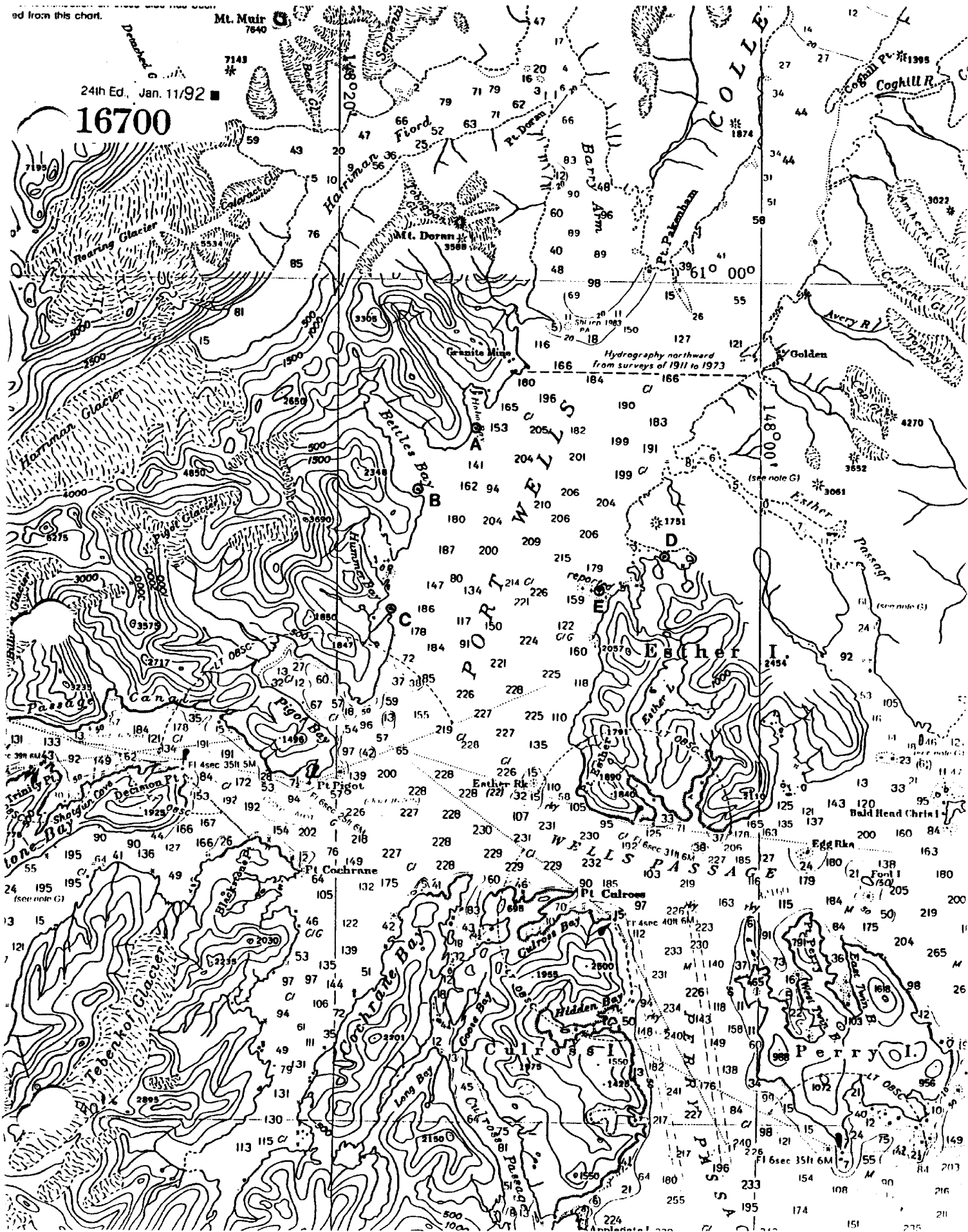
Enclosures

cc: DMAHTC
N/CG221
PMC



24th Ed. Jan. 11/92

16700



ZCZC

**ADVANCE
INFORMATION**

E OA
R 072130Z DEC 92
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO ZEN/NOAAMOP SEATTLE WA
ACCT CM-VCAA

BT
UNCLAS

NOAA SHIP RAINIER HAS FOUND 5 DANGERS TO NAVIGATION IN PRINCE WILLIAM SOUND ALASKA (PROJECT OPR-P125-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10443, PORT WELLS. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN THE LOCAL NOTICE TO MARINERS:

CHART AFFECTED: 16700 24TH ED. JAN 11/92 1:200,000 NAD83
16705 15TH ED. SEP 01/90 1:80,000 NAD83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	DEPTH	LATITUDE	LONGITUDE
A.	SHOAL	5 FM	60/56/41 N	148/13/34 W
B.	SHOAL	4 FM	60/55/06 N	148/16/00 W
C.	SHOAL	2 1/4 FM	60/52/12 N	148/17/21 W
D.	SHOAL	1/2 FM	60/53/29 N	148/04/22 W

PREVIOUSLY REPORTED REEF AT 60/52/39 N, 148/07/27 W IS NOW CONFIRMED WITH A LEAST DEPTH OF 1/4 FM .

BECAUSE OF THE SMALL SCALE OF CHARTS 16700 AND 16705 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, NOAA SHIP RAINIER, 1801 FAIRVIEW AVE. E., SEATTLE, WA 98102-3767 OR VIA RADIO CONTACT 2182 MHZ OF VHF CHANNELS 13 AND 16. CALL LETTERS WTEF. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.

BT
NNNN

Copies of this message sent to:

- PMC1 [] PMC1X1 [] PMC1X2 [] ~~PMC1X3~~ [] PMC1X4 []
- PMC2 [] PMCX3 [] PMCX4 [] PMCX5 [] PMC2 []
- PMC3 [] NCX1 [] NC3 [] NCG224 [] N/CG241 []



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

June 15, 1994

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

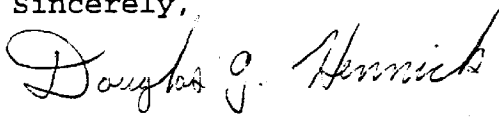
Dear Sir:

During office processing of hydrographic survey H-10443, Port Wells, Prince William Sound, Alaska, it was determined that depths previously reported by NOAA Ship RAINIER on December 8, 1992 are shoaler than reported. These potential dangers affect the following nautical charts.

<u>Chart</u> <u>Number</u>	<u>Edition</u> <u>No.</u>	<u>Date</u>	<u>Horizontal</u> <u>Datum</u>
16700	24th	1/11/92	NAD83
16705	15th	9/1/90	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-10443

Survey Title:

State: Alaska

General Locality: Prince William Sound

Sublocality: Port Wells

Project Number: OPR-P125-RA

The following was discovered during hydrographic survey operations:

A shoal previously reported covered 4 fathoms has been determined to be covered by 3 fathoms at MLLW.

A shoal previously reported covered 2 1/4 fathoms has been determined to be covered by 2 fathoms at MLLW.

A shoal previously reported covered 1/2 fathom has been determined to be a rock, uncovering at MLLW.

Affected nautical charts:

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Survey Depth</u>	<u>Horizontal Datum</u>	<u>Geographic Position</u>	
					<u>Latitude</u>	<u>Longitude</u>
16700	24th	1/11/92	3 fm	NAD83	60/55/06N	148/16/00W
16700	24th	1/11/92	uncov 1 1/2 ft	NAD83	60/53/29N	148/04/22W
16700	24th	1/11/92	2 fm	NAD83	60/52/12N	148/17/21W
16705	15th	9/1/90	2 fm	NAD83	60/52/12N	148/17/21W

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.

~~APPENDIX III~~

LIST OF HORIZONTAL CONTROL STATIONS

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	061:03:11.020	148:00:04.900	5	250	0.0	0.0	0	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	147:45:41.190	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
107	F	061:00:07.172	148:10:38.719	5	250	0.0	0.0	B	09/02/92	BARRY RM1 1947
108	F	061:02:20.039	148:07:02.590	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 RM1 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	0	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	061:03:20.730	148:20:28.179	6	250	0.0	0.0	7	09/22/92	SUPA 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	061:04:33.001	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	CAVE 1992
122	F	060:59:27.312	148:25:26.023	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
128	F	060:56:09.124	148:03:20.681	47	250	0.0	0.0	7	10/19/92	PARA 1992
129	F	060:54:40.620	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	147:54:38.050	4	250	0.0	0.0	0	10/23/92	WISP 1951
133	F	060:51:02.341	147:54:57.590	6	250	0.0	0.0	9	10/23/92	TOTAL 1947

~~APPENDIX IV~~

GEOGRAPHIC NAMES

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 16700 B ON PREVIOUS SURVEY NO. C ON U.S. QUADRANGLE MAPS D-3, D-4 D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RANDOMLY H ATLAS K U.S. LIGHT LIST										
	A	B	C	D	E	F	G	H	K		
ALASKA (TITLE)	X		X								1
BETTLES BAY	X		X								2
ESTHER ISLAND	X		X								3
GRANITE BAY			X								4
HOBO BAY	X		X								5
HUMMER BAY	X		X								6
PIRATE COVE			X								7
PORT WELLS	X		X								8
PRINCE WILLIAM SOUND (title)	X		X								9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved:

Charles P. Harrington
Chief Geographer - N109245

SEP 28 1993

~~APPENDIX V~~

TIDES AND WATER LEVELS

ORIGINAL



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Rockville, Maryland 20852

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 15, 1993

MARINE CENTER: Pacific

OPR: P-125-RA

HYDROGRAPHIC SHEET: H-10443

LOCALITY: Port Wells, Prince William Sound, Alaska

TIME PERIOD: September 27 - October 28, 1992

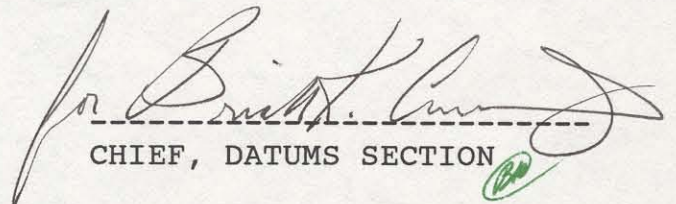
TIDE STATION USED: 945-4949 Whittier, Passage Canal
Lat. $60^{\circ} 46.5'N$ Long. $148^{\circ} 41.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 945-4949 = 10.41 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 945-4949 = 11.2 ft.

REMARKS: RECOMMENDED ZONING

Apply a x0.99 range ratio correction to hourly heights.

NOTE: Hourly heights are tabulated on Greenwich Mean Time.


CHIEF, DATUMS SECTION



~~APPENDIX VI~~

SUPPLEMENTAL CORRESPONDENCE



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

APR 16 1992

*1 APR 22 1992
FENS KEAT
Please return to me
CO
Please return to FOO.*

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





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



~~APPENDIX VII~~

APPROVAL SHEET

APPROVAL SHEET


for

H-10443

(RA-20-6-92)

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.


for Thomas W. Richards
Captain, NOAA
Commanding Officer

HYDROGRAPHIC SURVEY STATISTICS

H-10443

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES	3				
ENVELOPES					
VOLUMES	6				
CAHIERS					
Bound Vol. EXHIBIT				2	

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			3992	
POSITIONS REVISED				
SOUNDINGS REVISED	3		3	
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	22		22	
VERIFICATION OF SOUNDINGS	215		215	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	130		130	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		11	11	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		15	15	
GEOGRAPHIC NAMES				
OTHER:				
USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	367	26	393

Pre-processing Examination by LT J. Griffin	Beginning Date 12/14/92	Ending Date 1/29/93
Verification of Field Data by B. Brown, S. Otsubo	Time (Hours) 367	Ending Date 1/14/94
Verification Check by J. Green	Time (Hours) 4	Ending Date 2/10/94
Evaluation and Analysis by J. Green	Time (Hours) 22	Ending Date 2/10/94
Inspection by D. Hill	Time (Hours) S	Ending Date 5/26/94

EVALUATION REPORT H-10443

1. INTRODUCTION

Survey H-10443 is a basic hydrographic survey accomplished by the NOAA Ship *Rainier*, under the following Project Instructions.

OPR-P125-RA, dated June 30, 1992
CHANGE NO. 1, dated August 28, 1992

This survey was conducted in Alaska, in northwest Prince Williams Sound, and covers an area in Port Wells centered approximately 20 nautical miles northeast of Whittier. The survey extends from latitude 60/58/00N in the north, south to latitude 60/50/00N. The survey is bounded on the east and west by the mainland, between approximate longitudes 148/02/00W to the east and 148/19/30W to the west. The sea floor consists primarily of gray mud and silt. Depths range from zero along the shore to 421 meters in mid-channel near the southern limit of this survey.

Predicted tides zoned for the survey area from Cordova, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Whittier, Passage Canal, Alaska, gage 945-4949, 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 dynamic draft, sound velocity and electronic control correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain feature 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 and the Fall 1992 Horizontal and Electronic Control Reports for OPR-P125-RA, dated November 1992, contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1992 field and published values based on NAD 83. The smooth sheet and accompanying overlays are annotated with NAD 27 an adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet using the NAD 83 projection by applying the following correction.

Latitude:	-2.104 seconds	(-65.113 meters)
Longitude:	7.448 seconds	(112.293 meters)

The year of establishment of control stations shown on the smooth sheet originates with the previously listed horizontal control report and the published data.

Several positions were located by DGPS with high HDOP values. These positions were verified by ensuring consistency with surrounding data and are considered acceptable. No critical soundings or dangers to navigation were positioned with DGPS with unacceptable HDOP values.

There were no positions located by Mini-Ranger with weak control for this survey.

The following final reviewed digitally compiled shoreline maps apply to this survey.

<u>Number</u>	<u>Photography Date</u>	<u>Scale</u>	<u>Datum</u>
DM-10062	June 1989	1:20,000	NAD 1983
DM-10063	June, July 1989	1:20,000	NAD 1983

The following changes to the shoreline map high-water line are shown in red on the smooth sheet. These changes are considered adequate to supersede the common photogrammetrically delineated shoreline.

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
✓ High Water Line	✓ 60/57/45	✓ 148/19/00
✓ High Water Line	✓ 60/57/30	✓ 148/18/48
✓ High Water Line	✓ 60/57/13	✓ 148/13/22
✓ High Water Line	✓ 60/56/37	✓ 148/18/08
✓ High Water Line	✓ 60/56/15	✓ 148/17/42

More than two hundred rocks were transferred to the smooth sheet from the shoreline maps without supporting hydrographic position information. These rocks have been manually digitized into the hydrographic file.

3. HYDROGRAPHY

Except as noted below, 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.

Several standard depth curves could not always be drawn continuously because of the steep slope encountered in the survey area.

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.

5. JUNCTIONS

Survey H-10443 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10438	1992	1:20,000	North
H-10445	1992	1:10,000	Northeast

The junctions with surveys H-10438 and H-10445 are complete.

6. COMPARISON WITH PRIOR SURVEYS

Survey H-10443 was compared with the following prior surveys.

H-7618 (1947-48), scale 1:20,000

H-7187 (1947), scale 1:10,000

Prior survey H-7618 covers the central off-shore portion of present survey area. Prior survey soundings fall in water depths generally deeper than 300 meters, except for the southwest corner of this survey, where depths as shallow as 69 meters are shown. The center of the survey area generally agrees to about 10 meters, with the present survey usually deeper. The differences in the areas of steep slope are greater. Differences in sounding depths are attributed to positioning and sounding techniques used on survey H-7618, coupled with the effects of the 1964 earthquake.

Prior survey H-7187 is the charting source for two soundings in the extreme southwest corner of the survey area. The soundings on the present survey in the vicinity of these two soundings are approximately 10 fathoms shoaler than found on the prior survey.

In accordance with Hydrographic Survey Guideline 39, the effects of the 1964 earthquake were considered in the comparison with these surveys. A reasonable adjustment value for prior soundings could not be determined.

There are no AWOIS items for investigation from these prior surveys.

Survey H-10443 is adequate to supersede these prior surveys within the common area.

There are no registered hydrographic surveys for the inshore areas covered by this survey.

7. COMPARISON WITH CHART

Survey H-10443 is compared to the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16700	24th	January 11, 1992	1:200,000	NAD 83
16705	15th	September 1, 1990	1:80,000	NAD 83

Chart 16705 provides the largest scale coverage of the survey area south of latitude 60/53/00N. Chart 16700 provides the largest scale coverage for the northern two-thirds of the survey area.

a. Hydrography

Charted hydrography in the center portion of the area covered by these charts originate with the prior survey H-7718. Inshore soundings originate from Chart Letter 398/47. These soundings have been discussed in section M of the hydrographer's report and section 6 of this report. See section N of the hydrographer's report for the comparison with charted features.

Survey H-10443 adequate to supersede charted hydrography within the common area.

b. AWOIS

There are three AWOIS items within the limits of this survey. These items are adequately discussed and disposed of by the hydrographer in his report, section N.

c. Controlling Depths

There are no channels with controlling depths on survey H-10443.

d. Aids to Navigation

There are no fixed or floating aids to navigation located within the limits of this survey.

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

Five dangers to navigation were reported by the hydrographer during this survey. These dangers were reported to the Seventeenth Coast Guard District, DMAHTC and N/CG221.

During office processing three of the reported items were revised. This information was also reported as above.

Copies of the correspondence are attached.

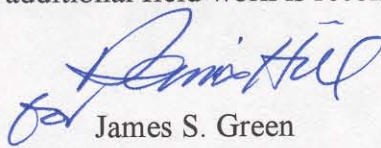
No additional dangers were found during the office processing of this survey.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10443 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

A handwritten signature in blue ink, appearing to read "James S. Green".

James S. Green
Supervisory Cartographer

APPROVAL SHEET
H-10443

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: 6/15/94

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: 6/15/94

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

Final Approval

Approved:

J. Austin Yeager

Date: 8/24/94

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. 10443

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	6/14/94	Attel	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>Full application of soundings and features from smooth sheet.</i>
16700	6/14/94	Attel	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>Full application of soundings and features from smooth sheet.</i>
16013	6/14/94	Attel	Full Part Before After Marine Center Approval Signed Via Drawing No.
531	6/14/94	Attel	Full Part Before After Marine Center Approval Signed Via Drawing No.
500	6/14/94	Attel	Full Part Before After Marine Center Approval Signed Via Drawing No.
50	6/14/94	Attel	Full Part Before After Marine Center Approval Signed Via Drawing No.
16711	8/23/96	ANGELA WILLS	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>1, 1st Ed. Fully APPLIED 9/20/96 KCO</i>
			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.