

H110653

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-10-21-95
Office No..... H-10653

LOCALITY

State Alaska
General Locality Prince William Sound
Locality Passage Canal

.....
1995
.....
CHIEF OF PARTY
CAPT Dean R. Seidel, NOAA

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DATE MAR 21 1997

HYDROGRAPHIC TITLE SHEET

H-10653

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-10-21-95

State Alaska

General locality Prince William Sound

Locality Passage Canal

Scale 1:10,000 Date of survey September 26-October 18, 1995

Instructions dated July 18, 1995 * Project No. OPR-P125-RA

Vessel NOAA Ship RAINIER (2120), (2122), (2123), (2124), (2125), (2126)

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by LT D.Haines, LT M.Larsen, LTJG D.Baird, LTJG C.George, ENS S.Smith, ENS N.Bennet, ENS J.Becker, ENS J.Crocker, CST F.Paranada, SST J.Fleischmann, ST S.Baum

Soundings taken by echo sounder, hand lead, pole DSF-6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: Gordon Kay Automated plot by HP Design Jet 650C

Verification by Elias Domingo

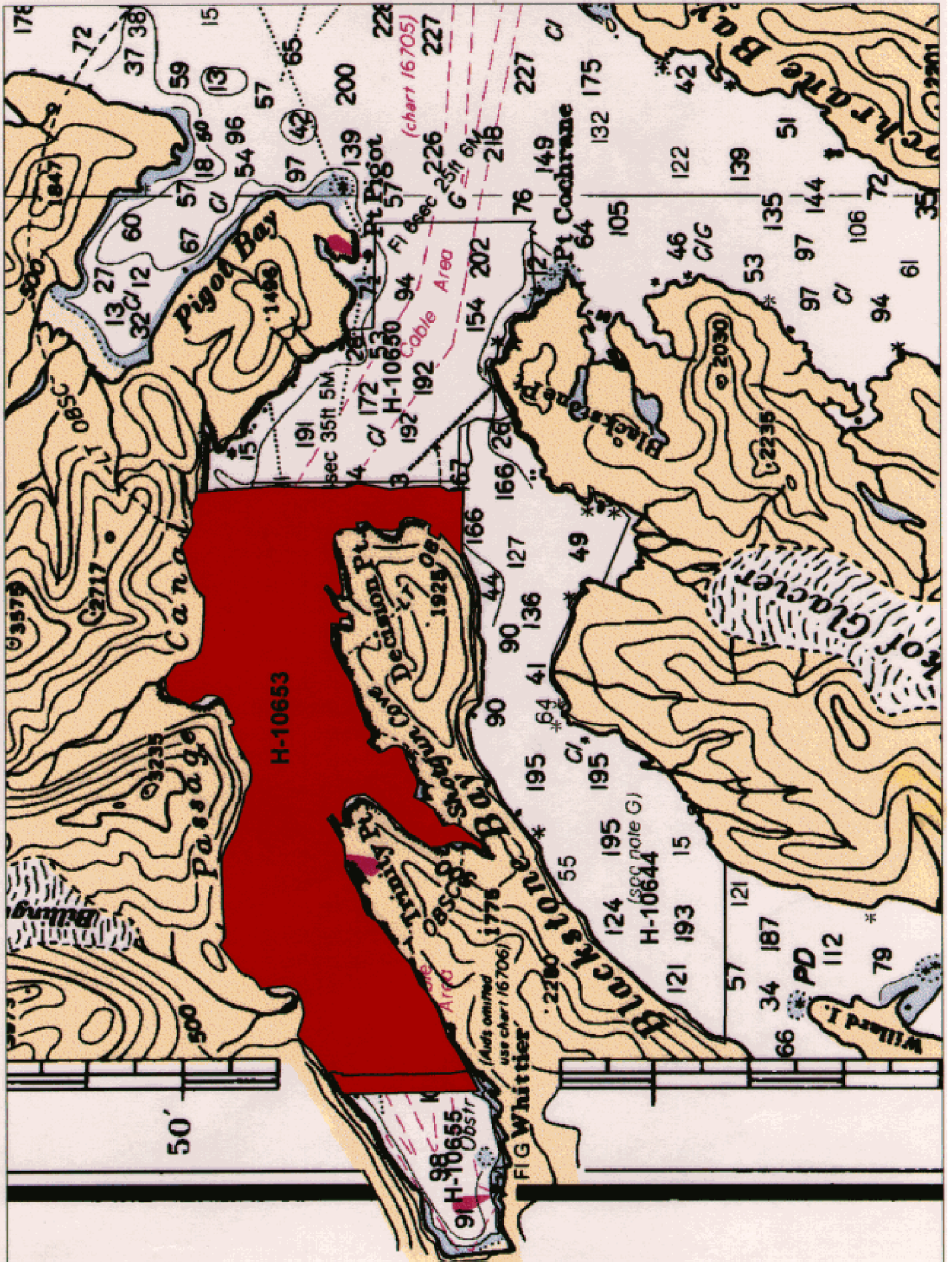
Soundings in ~~fathoms~~ ^{fathoms} ~~feet~~ at ~~MLLW~~ ^{MLLW} and tenths

REMARKS: 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.

AWAIS & SURF 3/19/97
mcr

*Change No. 1 dated 8/30/95

SC 3/25/97



Descriptive Report to Accompany Hydrographic Survey H-10653

Field Number RA-10-21-95

Scale 1:10,000

September - October 1995

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in Northwest Prince William Sound, Alaska, as specified by Project Instructions OPR-P125-RA dated July 18, 1995, and Change Number 1 dated August 30, 1995.

Survey H-10653 corresponds to "sheet AK" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts. Requests for hydrographic surveys and updated charts have been received from the Defense Mapping Agency, the Southwest Alaska Pilot's Association, and private interests such as cruise ship lines and local fishermen.

B. AREA SURVEYED *SEE Evaluation Report, section B*

The survey area is located in the Passage Canal. The survey's western limit is bounded by 148° 39.0' W, the eastern limit is bounded by 148° 26.4' W. The northern portion of the sheet is bounded by the shoreline in Passage Canal, and the south eastern corner of the sheet is bound by 60° 47.0' N and the shoreline.

Data acquisition was conducted from September 26, 1995 (DN 269) to October 18, 1995 (DN 291).

C. SURVEY VESSELS ✓

Data were acquired by RAINIER and five survey launches as noted below:

Vessel	EDP #	Operation
RAINIER	2120	Sound Velocity Casts Bottom Samples
RA-2	2122	Hydrography Shoreline Verification
RA-3	2123	Hydrography

Vessel	EDP #	Operation
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Bottom Samples Shoreline Verification
RA-6	2126	Hydrography Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING

HDAPS ✓

Data were acquired and processed using HDAPS Programs. A complete listing is included in Appendix VI. *filed with the survey records.*

Problems

None

HYPACK ✓

Data were acquired with RA-2 on DNs 269, 270, 276, 277, 278, and 280 using Coastal Oceanographics' HYPACK for Windows, v. 5.2, with the following program updates.

Program Name	Version	Date Installed
WDESIGN	8/7/95	16 August 1995
WSETUP	3/22/95	16 August 1995
WSHORE	8/2/95	16 August 1995
WSURVEY	7/14/95	16 August 1995
DSF6000.DLL	8/20/95	21 August 1995
INN_NOAA.DLL	8/9/95	21 August 1995
NMEA.DLL	7/25/95	16 August 1995

Processing was conducted using the HDAPS HP system. HYPACK for Windows files were translated to an HDAPS format using a Visual Basic program HYPMENU version 2.36 provided by N/CS32. The files were then loaded into HDAPS and processed in the same manner as HDAPS data. HYPMENU produces a conversion abstract which shows the converted depth for the first depth of each line, any positions which were dead reckoned, and any other error condition encountered during conversion. The abstracts were checked against the Raw Master Printout, and appropriate edits made. The files were then loaded into HDAPS and processed in the same manner as HDAPS data.

Problems ✓

HYPACK (Windows) Raw Master Printouts do not contain the HDOP or number of satellites used. The HDOP was monitored on-line and any time HDOP exceeded the threshold (3.75 for USCG beacon or 6.0 for fly-away stations), data acquisition was suspended. High HDOP was flagged by HDAPS during processing, and the data abstracts were checked for any suspect positions. *Data was analyzed during office processing and found to contain no significant problems.*

Velocity ✓

Velocity corrections were determined using:

Program Name	Version	Date Installed
VELOCITY	2.11	5 Mar 1995

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10653.

F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. Serial numbers are included on the headers of the daily Raw Master Printouts. No problems which affect survey data were encountered. All DSF-6000N soundings were acquired using the High + Low, high frequency digitized setting.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Correctors for the velocity of sound through water were determined from the casts listed below.

** Filed with the survey records.*

Velocity Table #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
5 *	3	262	60° 47' 38" N 148° 19' 15" W	546	269-271
6, 7 *	3, 4	276	60° 48' 06" N 148° 16' 57" W	525	276-286
9 *	5	296	60° 40' 50" N 148° 03' 02" W	572	290-291

With the exception of sound velocity table 6 which was used for RAINIER, the remaining tables were used for the launches. The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 811), calibrated 03/31/95. Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) No. 69.

A printout of the Sound Velocity Corrector Table used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections". *filed with the survey records.*

Static Draft ✓

A transducer depth was determined using FPM Fig 2.2 for RAINIER and vessels 2122-2126 in the spring of 1995. These values were entered into the offset tables* for each survey platform.

Settlement and Squat ✓

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.3, and are included with project data for OPR-P125-RA. The data for 2123-2126 were collected in Shilshole Bay, Washington in the Spring of 1995. The data for 2122 was collected in Windham Bay, Alaska, in May 1995 (OPR-O136). The data for RAINIER was determined during Southern Alaska Peninsula project (OPR-P180) in the Summer of 1994.

Offset Tables ✓

Offset tables* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 2-6 correspond to the number of the vessel. The offset tables are contained in the "Separates to be Included with Survey Data". *filed with the survey records.*

Heave ✓

The launches are not equipped with heave, roll and pitch sensors.

* Velocity casts were performed outside of survey areas.

Bar Check and Lead Lines ✓

Bar check lines were calibrated by RAINIER personnel during the winter inport 1994-1995. Calibration forms are included with project data for OPR-P125-RA. Bar checks were performed weekly and served as a functional check of the DSF-6000N.

Tide Correctors ✓

Predicted tides for the project were provided on diskette by N/OES334 through N/CS31 for the Cordova, Alaska reference station (945-4050). Tidal correctors as provided in the project instructions for sheet H-10653 are: *Project Instructions: OPR-P125-RA; dated 7/18/96*

<u>Time Correction</u>	<u>Range Ratio</u>
0 hr 0 min	X 0.96 *
0 hr 0 min	X 0.92 **

* This excludes Shotgun Cove

** This is for Shotgun Cove

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

Valdez, AK (945-4240) was used as the primary control station for datum determination at all subordinate stations.

RAINIER personnel installed an 8200 digital gage at the Whittier Munciple Boatlift Pier, Whittier, AK (945-4949) on September 25, 1995 and removed on October 18, 1995. The staff was connected to five benchmarks during the opening levels run on September 24 and 25, 1995 and closing runs on October 18 and 23, 1995. The tide gage ran without problems during data acquisition.

The station description, field tide record, field tide notes and data (Appendix V) have been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 in accordance with FPM 4.2.3. *Final tides Applied to All Soundings data Approved 4/18/96 (attached)*

H. CONTROL STATIONS *SEE Evaluation Report, section H.*

A listing of the geodetic stations used to control this survey is ~~included in Appendix III~~ *Attached to* of this report. The horizontal datum for this project is NAD 83.

DGPS stations were installed on existing stations PORT and CAB. Station PORT is located on Esther Rock, and station CAB is located on a prominent point west of Pigot Point light. These stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM.

* Filed with the survey records.

In addition, Coast Guard differential beacon stations at Cape Hinchinbrook and Potato Point were used according to specifications listed in Section 6.2 of the Project Instructions.

For further information see the "Fall 1995 Horizontal Control Report" that will be submitted at the end of the project.

I. HYDROGRAPHIC POSITION CONTROL *SEE Evaluation Report, section I*

Method of Position Control ✓

All soundings and features were positioned using differential GPS. Serial numbers for Ashtech GPS equipment are annotated on the data printouts.*

Ashtech GPS ✓

VHF differential shore stations were established at stations CAB and PORT. The difference between the computed location and the published positions at station CAB and PORT were recorded by the MONITOR 3.0 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 either station. Scatterplot results are included in the "Project related data for OPR-P125-RA".

Calibrations & Systems Check Methods ✓

System checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two independent DGPS base stations. The results were transferred to forms which are included in the project data for OPR-P125-RA. An abstract of the system checks is included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data".*

Problems ✓

None

J. SHORELINE *SEE Evaluation Report, section J*

Shoreline maps DM-10184 and DM-10185 were supplied by N/CS341 in Standard Digital Data Exchange Format (SDDEF). The digital file was projected to the survey grid with OPR-P125-RA geodetic parameters using program Shore version 2.0, provided by N/CS32, and stored in HYPACK (*.DIG) format. Shoreline was plotted at survey scale on ~~boat~~ ^{Field} sheets and processing sheets.

Method of Shoreline Verification ✓

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1 except as noted below.

Shoreline verification was accomplished by taking detached positions (DP's) and assigning sequential reference numbers.

Shoreline and DM features verified via visual inspection were assigned sequential reference numbers, described, and recorded in the field using reference forms and corresponding 1:10,000 photocopies of the ^{Field}boat sheet. Reference numbers, descriptions, and heights corrected to MLLW using predicted tides are recorded on the reference form. Corresponding notes were annotated on the ^{Field}photocopies of the ^{Field}boat sheet when deemed necessary. The annotated photocopies of the ^{Field}boat sheet and the reference forms are included with the survey data. DPs taken during shoreline verification were recorded on DP forms*. These indicate significant DM features and features not found on the ^{Field}boat sheet. Some positions of ^{Field}boat sheet features were verified during inshore hydrography and annotated on the RMPO* (ie: Line ends at cliff face, etc.).

Detailed 1:10,000 "Bottom Sample and Detached Position Plots" are provided showing all reference numbers, detached positions, and notes relating to each feature. The information from these plots was transferred to a final field plot where possible.

Verified DM features were retained and shown in black. Changes to the shoreline features are shown in red and the new features are depicted in black. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and decimeters and are corrected to predicted MLLW. *@ Field values have been changed after application of actual tides and shown on the smooth sheet in feet. Least depths on submerged features are shown on the smooth sheet in fathoms.*

Changes and New Features

There were numerous changes and new features found during shoreline verification. These are depicted on the "Bottom Sample and Detached Position Plots." DM rocks were often identified as high points of ledges or reefs. *The new features and revision have been shown on the smooth sheet as warranted. see detached pos form for wrecked ferry boat on the beach*

Disprovals ✓

A DM piling in the vicinity of 60° 47' 16"N, 148° 34' 07"W was searched for on DN 270 and not found (position 10750). For twenty minutes, visual and echo sounder searches were conducted with a search radius of 20 meters. The average depth was 0.8 meters. The hydrographer recommends deleting the piling symbol at 60° 47' 16"N, 148° 34' 07"W. *CONCUR*

Unable to determine the features represented by DM piling symbols at positions 60° 49' 51"N, 148° 28' 21"W and 60° 49' 52"N, 148° 26' 54"W, RAINIER, ~~contacted PHB. RAINIER did not receive a reply.~~ The first piling was very close to a charted islet (DP7947) which was a

* Filed with the survey records.

rock, while second piling was shown in a new foul area. In both cases, features represented by DM pilings were not found. The hydrographer recommends deleting the piling symbols at 60° 49' 51"N, 148° 28' 21"W and 60° 49' 52"N, 148° 26' 54"W. *CONCUR.*

The features were investigated AND ARE DISPROVED BY THE DATA ON THIS SURVEY. CHART AREA AS SHOWN ON THE SMOOTH SHEET.

Problems ✓

None

Recommendations ✓

The hydrographer recommends that the shoreline as depicted on the final field sheet from the survey be used to supersede shoreline information compiled on DM-10184 and DM-10185. *CONCUR*
(COMMON AREAS OF COMMON COVERAGE)

Charted Features ✓

Charted rocks were either identified as rocks, high points or extensions of DM ledges and reefs, with the following exceptions:

A charted rock in the vicinity of 60° 47' 29"N, 148° 37' 02"W was searched for on DN 284 and not found (position 5720). For ten minutes, visual and echo sounder searches were conducted with a search radius of 50 meters. The water visibility was 3 meters and the average depth was 7 meters. The charted rock was not a distinctive feature. Shoreline is composed of boulders. The hydrographer recommends deleting the rock symbol from the chart. *CONCUR*

A charted rock in the vicinity of 60° 47' 11"N, 148° 33' 44"W was searched for on DN 284 and not found (position 5726). For ten minutes, visual and echo sounder searches were conducted with a search radius of 25 meters. The bottom was visible and the average depth was 6.5 meters. The charted rock may be one of several on the beach above MHW. The hydrographer recommends deleting the rock symbol from the chart. *CONCUR*

A charted rock in the vicinity of 60° 49' 51"N, 148° 27' 59"W was searched for on DN 270 and not found (position 7946). For 5 minutes, visual and echo sounder searches were conducted with a search radius 50 meters. The visibility was less than 1 meter and the average depth was 10 to 25 meters. In addition, the charted rock was searched for in the vicinity of 60° 49' 52"N, 148° 28' 00"W on DN 284 and not found (position 8121). For fifteen minutes, visual and echo sounder searches were conducted with a search radius of 40 meters. The visibility was 8 meters and the average depth was 9 meters. The charted rock is most likely a new ledge depicted by DP 8122 and 8123. The hydrographer recommends deleting the rock symbol from the chart. *CONCUR. CHART AREA AS SHOWN ON THE SMOOTH SHEET.*

A charted rock in the vicinity of 60° 49' 55"N, 148° 27' 42"W was searched for on DN 284 and not found (position 8126). For fifteen minutes, visual and echo sounder searches were conducted with a search radius of 40 meters. The bottom visibility was 8 meters and the

average depth was 7 meters. The hydrographer recommends deleting the rock symbol from the chart. *CONCUR*

A charted rock in the vicinity of 60° 49' 52"N, 148° 27' 31"W was searched for on DN 284 and not found (position 8128). For fifteen minutes, visual and echo sounder searches were conducted with a search radius of 40 meters. The bottom visibility was 6 meters and the average depth was 7 meters. The charted rock is most likely a new ledge depicted by DP 8127. The hydrographer recommends deleting the rock symbol from the chart. *CONCUR*
CHART AREA AS SHOWN ON SMOOTH SHEET.

A charted rock in the vicinity of 60° 48' 27"N, 148° 33' 46"W was searched for on DN 269 and not found (position 3239). For five minutes, visual and echo sounder searches were conducted with a search radius of 50 meters. The bottom visibility and the average depth was not given. The hydrographer recommends deleting the rock symbol from the chart. *CONCUR*

A charted piling in the vicinity of 60° 47' 23"N, 148° 33' 20"W was searched for on DN 284 and not found (position 5728). Fifty meters of shoreline was searched on either side of the DP for the pile. The hydrographer recommends deleting the pile symbol from the chart. *CONCUR*

Two charted pilings in the vicinity of 60° 47' 29"N, 148° 33' 08"W were searched for on DN 284 and not found (position 5729). Fifty meters of shoreline were searched on either side of the DP for the piles. The hydrographer recommends deleting the two pile symbols from the chart. *CONCUR*

A charted cable area in the center of Passage Canal was not investigated and should remain as charted. *CONCUR*

Problems

Ten charted rocks and one charted islet were not addressed and should be pulled through to the chart. All of these features were very close to the shoreline and do not present offshore dangers to the mariner. They are located in the following positions (+/- 2 seconds). *Three of these charted rocks were found to plot on a ledge or near an islet as found by the present survey. Chart these four areas as shown on the smooth sheet.* *Do not concur*
(1) Charted Rocks ✓

T-9131	60° 49' 31"N, 148° 36' 15"W *	60° 48' 19"N, 148° 29' 58"W ... ledge
ledges	60° 48' 11"N, 148° 34' 37"W	60° 48' 21"N, 148° 29' 20"W ... ledge
H 7161	60° 47' 40"N, 148° 33' 37"W *	60° 48' 23"N, 148° 27' 48"W * T-9130
T-9132	60° 47' 55"N, 148° 32' 07"W *	60° 47' 58"N, 148° 27' 10"W * T-9132
T-9132	60° 48' 15"N, 148° 30' 20"W *	60° 47' 03"N, 148° 38' 42"W * T-9131

* These seven rocks originate from an ^{NOS} unknown source and should be retained on the chart.
(2) Charted Islet ✓

VICINITY OF:

60° 47' 34"N, 148° 36' 43"W

An islet bearing 344 at MLLW was found near the charted feature. Chart islet as shown on the present survey.

In addition, the chart enlargement's shoreline, NOS Chart 16706, 9th Edition, May 12, 1990; 1:20,000 (NAD 83), HWL differed from the DM's in the following areas: *SEE Evaluation Report, section M*

	60° 48.8' N, 148° 37.5' W	60° 48.0' N, 148° 35.5' W
plots off sheet →	60° 45.5' N, 148° 35.1' W	60° 48.0' N, 148° 31.7' W

In most cases, the shoreline discrepancies can be attributed to small tidal flats that can change and shift. It should be noted that this survey is post 1964 Earthquake and substantial changes in the shoreline may have occurred. The hydrographer recommends using the shoreline as it is depicted on the ~~final field~~ ^{smooth} sheet. *Compiler should use the DM as source of shoreline.*

K. CROSSLINES ✓

Crosslines were generally run in over 100 m of water and agreed to within 1 meter with mainscheme hydrography. Total mileage was 20.3 nautical miles or 13.0 % of total mainscheme hydrography.

L. JUNCTIONS ✓ *SEE Evaluation Report, section L.*

This survey junctions with surveys H-10655 (1:5,000, 1995) to the west, H-10650 (1:10,000, 1995) to the east, and H-10644 (1:10,000, 1995) to the ^{south} ~~south~~. Soundings were found to be in general agreement. Final comparison will be made at the Pacific Hydrographic Branch (PHB).

M. COMPARISON WITH PRIOR SURVEYS ✓ *SEE Evaluation Report, section M.*

Two prior surveys were compared: H-7161 (1:10,000, 1951)* and H-6981 (1:10,000, 1948). As documented in *The Prince William Sound, Alaska, Earthquake of 1964 and Aftershocks* written by the Environmental Science Services Administration, a general subsidence of 5.2 feet, about 1 fathom, occurred during the 1964 Earthquake. Taking this fact into consideration, the soundings from the prior survey were in general agreement* with the present survey. Final comparisons will be done at PHB. *Note: This hydrographer's comment is not substantiated. Coast Pilot No. 9, 1995 indicates the March 1964 earthquake caused a bottom uplift of 4-8.2 feet in Prince William Sound.*

*RAINIER received H-7161 (1:10,000, 1951) addition which was a small survey conducted in Whittier Harbor. RAINIER did not receive the main survey, H-7161 (1:10,000, 1951), which covered the western portion of H-10653 including Shotgun Cove. Consequently, final comparisons will be made at PHB. ✓

* The charted 4.5 fathom depth (rky) at Lat. 60/47/52.5N, Long. 148/36/39W, originates from H-7161 (1951) and was not specifically addressed by the hydrographer. The shoal depth found by the present survey was a 5.6 fathom depth at Lat. 60/47/52.5, Long. 148/36/39W. However 100% bottom coverage was not accomplished. The 4.5 fathom depth (rky) has been brought forward to the present survey.

N. ITEM INVESTIGATIONS

Survey H-10653 contained seven AWOIS items.

AWOIS ITEM 52229 ✓

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 47' 21.85" N ✓
Reported Longitude: 148° 33' 43.59" W ✓
Datum: NAD 83
Depth: N/A
Feature: Obstruction (Mooring Buoy)

2. Description of Source Item ✓

On May 9, 1961, the Coast Guard 17th District received a memorandum stating a 10-ton cruiser type mooring buoy described as a cylindrical tank was moored in approximate position latitude 60° 47.4' N, longitude 148° 33.6' W (NAD27).

3. Survey Requirements ✓

Verify or disprove. The required techniques to be used were visual search or salvage documentation.

4. Method of Investigation ✓

A visual search was done in the area.

5. Results of Investigation ✓

Date: DN 270
Time (UT): 1658
Feature: Buoy Consisting of Two Float Balls
Position Number: 10752 ✓
Latitude: 60° 47' 17.9" N ✓
Longitude: 148° 33' 43.5" W ✓

As reported, the buoy which was found within the search radius is not a ten-ton type mooring buoy, rather it consists of two small 1 foot in diameter float balls connected by a one inch steel cable in approximately 22 meters of water.

6. Comparison with Prior Surveys ✓

~~RAINIER did not receive the prior survey H-7161 (1:10,000, 1951); thus, comparisons will be made at PHB.~~

7. Comparison with the Chart and Charting Recommendations ✓

The buoy is charted on NOS charts 16705, 15th Edition, September 1, 1990; 1:80,000 (NAD 83) and 16706, 9th Edition, May 12, 1990; 1:20,000 (NAD83).

This investigation did not warrant a Danger to Navigation.

Recommendation ✓

The hydrographer recommends deleting the charted mooring buoy symbol at the position 60° 47' 21.9" N, 148° 33' 43.6" W, and charting a spherical buoy symbol at position 60° 47' ^{CONCUR} 17.9" N, 148° 33' 43.5" W. Present position is approximately 100 meters south of charted location.

AWOIS ITEM 52230 ✓

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 47' 39.85" N ✓
Reported Longitude: 148° 32' 19.58" W ✓
Datum: NAD 83
Depth: N/A
Feature: Obstruction (Mooring Buoy)

2. Description of Source Item ✓

On May 9, 1961, the Coast Guard 17th District received a memorandum stating a 10-ton cruiser type mooring buoy described as a cylindrical tank was moored in approximate position latitude 60° 47.7' N, longitude 148° 32.2' W (NAD27).

3. Survey Requirements ✓

Verify or disprove. The required techniques to be used were visual search or salvage documentation.

4. Method of Investigation ✓

A visual search was done in the area and echo sounder drift search.

5. Results of Investigation ✓

Date: DN 284
Time (UT): 1816
Feature: Disproval of 10-Ton Cruiser Type Mooring Buoy
Position Number: 5730
Latitude: 60° 47' 39.5" N ✓
Longitude: 148° 32' 19.3" W ✓

A white cylindrical (2.5 meter diameter) 10-ton cruiser type mooring buoy floating 0.5 meter above the water was not located at the above position. It was located at position 60° 47' 48.6" N, 148° 32' 29.2" W: *Present position is approximately 300 meters northwest of charted location.*

Date: DN 269
Time (UT): 1828
Feature: 10-Ton Cruiser Type Mooring Buoy
Position Number: 10042 ✓
Latitude: 60° 47' 48.6" N ✓
Longitude: 148° 32' 29.2" W ✓

6. Comparison with Prior Surveys ✓

~~RAINIER~~ did not receive the prior survey H-7161 (1:10,000, 1951); ~~thus~~, comparisons will be made at PHB.

7. Comparison with the Chart and Charting Recommendations ✓

The buoy is charted on NOS charts 16705, 15th Edition, September 1, 1990; 1:80,000 (NAD 83) and 16706, 9th Edition, May 12, 1990; 1:20,000 (NAD 83).

This investigation did not warrant a Danger to Navigation.

Recommendation ✓ *For Awois 52230*

The hydrographer recommends deleting the charted mooring buoy symbol at the position 60° 47' 39.9" N, 148° 32' 19.6" W, and charting a mooring buoy symbol at position 60° 47' *CONCUR* 48.6" N, 148° 32' 29.2" W.

AWOIS ITEM 52231 ✓

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 47' 45.85" N ✓
Reported Longitude: 148° 33' 19.59" W ✓
Datum: NAD 83
Depth: N/A
Feature: Obstruction (Mooring Buoy)

2. Description of Source Item

On May 9, 1961, the Coast Guard 17th District received a memorandum stating a 10-ton cruiser type mooring buoy described as a cylindrical tank was moored in approximate position latitude 60° 47.8' N, longitude 148° 33.2' W (NAD27).

3. Survey Requirements

Verify or disprove. The required techniques to be used were visual search or salvage documentation.

4. Method of Investigation

A visual search was done in the area and echo sounder drift search.

5. Results of Investigation

Date: DN 284
Time (UT): 1735
Feature: 10-Ton Cruiser Type Mooring Buoy
Position Number: 5723 ✓
Latitude: 60° 47' 44.8" N ✓
Longitude: 148° 33' 19.3" W ✓

A white cylindrical (2.5 meter diameter) 10-ton cruiser type mooring buoy floating 0.5 meter above the water was not located at the above position. ^{It} was located at 60° 47' 54.4" N, 148° 32' 40.8" W.

*CHART AREA AS SHOWN ON
SMOOTH SHEET.*

CONCUR [^] HOWEVER, A NEW BOUY

Date: DN 269
Time (UT): 1829
Feature: 10-Ton Cruiser Type Mooring Buoy
Position Number: 10043 ✓
Latitude: 60° 47' 54.4" N ✓
Longitude: 148° 32' 40.8" W ✓

6. Comparison with Prior Surveys ✓

~~RAINIER did not receive the prior survey H-7161 (1:10,000, 1951); thus, comparisons will be made at PHB.~~

7. Comparison with the Chart and Charting Recommendations ✓

The buoy is charted on NOS charts 16705, 15th Edition, September 1, 1990; 1:80,000 (NAD 83). 16706, 9th Edition, May 12, 1990; 1:20,000 (NAD 83).

This investigation did not warrant a Danger to Navigation.

Recommendation ✓ For AWOIS 52231

The hydrographer recommends deleting the charted mooring buoy symbol at the position 60° 47' 45.9" N, 148° 33' 19.6" W, and charting a mooring buoy symbol at position 60° 47' *CONCUR* 54.4" N, 148° 32' 40.8" W. *Newly located mooring buoy is approximately 600 meters northeast of presently charted buoy.*
AWOIS ITEM 52232 ✓

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 48' 26.30" N ✓
Reported Longitude: 148° 34' 19.50" W ✓
Datum: NAD 83
Depth: 5.2 fathom (9.5 meters)
Feature: Sounding

2. Description of Source Item ✓

In April of 1964, the NOAA Ship SURVEYOR reported a 5.2 fathom shoal at the above position during a RECON Survey. The position was recommended to be charted as "PD."

3. Survey Requirements *AWOIS 52232*

Verify or disprove. The required techniques to be used echo sounder search of 200% Side Scan Sonar.

4. Method of Investigation

An echo sounder search and a dive investigation was done in the area.

5. Results of Investigation

Date: DN 291
Time (UT): 1823
Feature: 5.7 meter shoal (3.7 fathom)
Position Number: 8303 ✓
Latitude: 60° 48' 24.4" N ✓
Longitude: 148° 34' 14.1" W ✓

A least depth dive investigation yielded a 5.7 meter (3.7 fathom) ^{rock} shoal in the above position. *3-Fathom shoal was located approximately 100 meters southeast of charted 5 1/4 PD.*

6. Comparison with Prior Surveys

~~RAINIER did not receive the prior survey H-7161 (1:10,000, 1951); thus, comparisons will be made at PHB.~~

7. Comparison with the Chart and Charting Recommendations

The shoal is charted on NOS charts 16705, 15th Edition, September 1, 1990; 1:80,000 (NAD 83) and 16706, 9th Edition, May 12, 1990; 1:20,000 (NAD 83).

This was reported as a Danger to Navigation.

Recommendation *For AWOIS 52232*

The hydrographer recommends charting a 3 fathom ^{rock} shoal at position 60° 48' 24.4" N, 148° 34' 14.1" W. *Concur The charted 5 1/4 PD should be removed from the chart. Chart 3 RK.*

AWOIS ITEM 52233

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 47' 48.30" N ✓
Reported Longitude: 148° 36' 31.50" W ✓
Datum: NAD 83
Depth: 7 fathom (12.8 meter) ✓
Feature: Sounding

2. Description of Source Item

In April of 1964, the NOAA Ship SURVEYOR reported a 7.0 fathom shoal surrounded by 18-32 fathom depths at the above position during a RECON Survey.

3. Survey Requirements

Verify or disprove. The required techniques to be used were echo sounder search or 200% Side Scan Sonar.

4. Method of Investigation

Echo sounder searches were conducted in the search area; 100, 50, & 25 meter line spacing was used to obtain 100% bottom coverage.

5. Results of Investigation

100% echosounder coverage in the search radius yielded depths between ^(20 to 32 fathoms) 38 to 54 meters. The search area consisted of a slope.

6. Comparison with Prior Surveys

~~RAINIER did not receive the prior survey~~ H-7161 (1:10,000, 1951); ~~thus~~, comparisons will be made at PHB.

7. Comparison with the Chart and Charting Recommendations

The 7 fathom shoal is charted on NOS chart 16706, 9th Edition, May 12, 1990; 1:²80,000 (NAD 83).

This investigation did not warrant a Danger to Navigation.

Recommendation For Awois 52234³

The hydrographer recommends deleting the 7 fathom depth at position 60° 47' 48.30" N, 148° 36' 31.50" W, and charting as depicted by this survey. ^{CONCUR} A 5.6 Fathom depth was found approximately 150 meters northwest of Awois Item at latitude 60/47/52.5N longitude 148/36/38W. This depth is 1.5 m deeper than the 4.5 Fathom (rk) depth originating from prior survey H-7161. The 4.2 fky should be retained on AWOIS ITEM 52234 ✓ the chart as 100% bottom coverage was accomplished to improve the shoal depth.

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 47' 39.20" N ✓
Reported Longitude: 148° 36' 48.00" W ✓
Datum: NAD 83
Depth: 9 fathom (16.4 meter) ✓
Feature: Sounding

2. Description of Source Item

In April of 1964, the NOAA Ship SURVEYOR reported a 9.0 fathom shoal at the above position during a RECON Survey.

3. Survey Requirements

Verify or disprove. The required techniques to be used were echo sounder search or 200% Side Scan Sonar.

4. Method of Investigation

Echo sounder searches were conducted in the search area; 100, 50, & 25 meter line spacing was used to obtain 100% bottom coverage.

5. Results of Investigation

100% echosounder coverage in the search radius yielded depths between 20 to 47 meters. ^(12 to 20 fathoms) The search area consisted of a slope.

6. Comparison with Prior Surveys

~~RAINIER did not receive the prior survey H-7161 (1:10,000, 1951); thus, comparisons will be made at PHB.~~

7. Comparison with the Chart and Charting Recommendations

The 9 fathom depth is charted on NOS chart 16706, 9th Edition, May 12, 1990 1:20,000 (NAD 83).

This investigation did not warrant a Danger to Navigation.

Recommendation *For AWOIS 52234*

The hydrographer recommends deleting the 9 fathom depth at position 60° 47' 39.20" N, 148° *CONCUR* 36' 48.00" W, and charting as depicted by this survey.

AWOIS ITEM 52235 ✓

1. Area of Investigation

State: Alaska
Locality: Passage Canal, Prince William Sound, AK
Reported Latitude: 60° 47' 27.30" N ✓
Reported Longitude: 148° 37' 47.50" W ✓
Datum: NAD 83
Depth: 14 fathom (25.6 meter) ✓
Feature: Sounding

2. Description of Source Item

In April of 1964, the NOAA Ship SURVEYOR reported a 14.0 fathom shoal at the above position during a RECON Survey.

3. Survey Requirements

Verify or disprove. The required techniques to be used were echo sounder search or 200% Side Scan Sonar.

4. Method of Investigation

Echo sounder searches were conducted in the search area; 100, 50, & 25 meter line spacing was used to obtain 100% bottom coverage.

5. Results of Investigation

100% echosounder coverage in the search radius yielded depths between 31 to 119 meters.
The search area consisted of a slope. *(16.9 to 65 fathoms)*

6. Comparison with Prior Surveys

~~RAINIER~~ did not receive the prior survey H-7161 (1:10,000, 1951); ~~thus~~, comparisons will be made at PHB.

7. Comparison with the Chart and Charting Recommendations

The 14 fathom depth is charted on NOS charts 16705, 15th Edition, September 1, 1990 1:80,000 (NAD 83) and 16706, 9th Edition, May 12, 1990 1:20,000 (NAD 83).

This investigation did not warrant a Danger to Navigation.

Recommendation For AWOIS 52235

The hydrographer recommends deleting the 14 fathom depth at position 60° 47' 27.30" N, 148° 37' 47.50" W, and charting as depicted by this survey. *CONCUR*

O. COMPARISON WITH THE CHART *SEE Evaluation Report, section O.*

This survey was compared to NOS charts 16705, 15th Edition, September 1, 1990; 1:80,000, (NAD 83) and 16706, 9th Edition, May 12, 1990; 1:20,000, (NAD 83). The charted soundings were found to be in general agreement. Final comparisons will be made at PHB. *& see detached position form for new visible wreck of ferry.*

Dangers to Navigation

Five dangers to navigation within the limits of H-10653 were reported to the Seventeenth Coast Guard District, December 18, 1995. Copies of the correspondence can be found ~~in~~ *attached to Appendix I* of this report.

P. ADEQUACY OF SURVEY ✓

Survey H-10653 is complete and adequate to supersede charted depths and features in their common areas. *CONCUR*

Q. AIDS TO NAVIGATION ✓

Two Aids to Navigation exist within the survey area: Decision Point Light (#25880) and Trinity Point Light (#25885). In both cases, the lights characteristics and arcs of visibility are as described in the *Light List*. Detailed information is ~~located in Appendix VI.~~ *attached*

R. STATISTICS ✓

NM Hydrography	278.5
Velocity Casts	3
Detached Positions	112
Selected Soundings	12296
Bottom Samples	19
Tide Stations	1
NM ² Hydrography	15.3
Dives	5

S. MISCELLANEOUS ✓

Bottom samples were collected and not retained in accordance with Project Instructions.

No unusual magnetic variations or tidal currents were noted.

RECOMMENDATIONS ✓

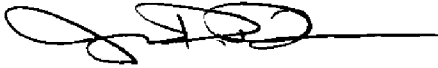
None

U. 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 1995 Horizontal Control Report for OPR-P125-RA.	December, 1995	N/CS34
Fall 1995 Coast Pilot Report for OPR-P125-RA.	December, 1995	N/CS26
Project related data for OPR-P125-RA.	Incremental	N/CS34
Secchi Disk Observations for OPR-P125-RA	November, 1995	N/CS31

Respectfully Submitted,



Joel R. Becker
Ensign, NOAA

Approved and Forwarded,



Dean R. Seidel
Captain, NOAA
Commanding Officer

NOAA SHIP RAINIER DETACHED POSITION FORM

35.0
13.2 m below creek
21.8

VESSEL: 2120 DAY: 269 FIELD SHEET: PA-10-215 OPR: P125

Position #: 10033 Time: 1805

Feature: Rock, Reef, Ledge, Islet, Other _____

Source: T-Sheet, Chart, New, AWOIS, Other _____

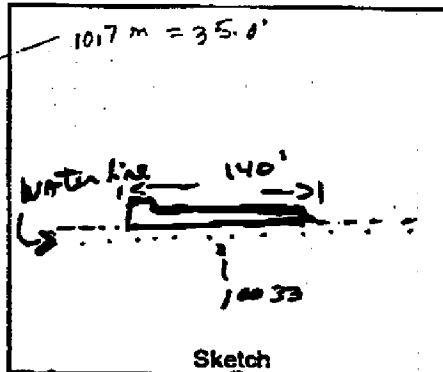
Photo Y/N _____

Depth -10.0 Ex Below Disproval Y/N _____

Tide Corr 1.5 Size 140' x 50' Meters

Corr Depth -10.5 Ex Below Range 20 Meters

Bearing 060 Mag



Description/Comments:

D.P. mid ship wrecked ferry boat (on beach)

"ST ELIAS"

Geographic Position: Latitude 60/47/42.451
Longitude 146/32/00.339
Final pos. →

Position #: 10034 Time: 1810

Feature: Rock, Reef, Ledge, Islet, Other _____

Source: T-Sheet, Chart, New AWOIS, Other _____

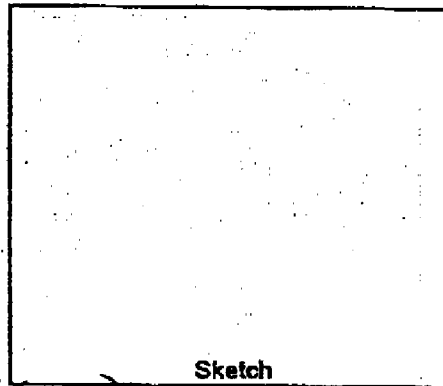
Photo Y/N _____

Depth -0.3 Ex Below Disproval Y/N _____

Tide Corr .5 Size _____ Meters

Corr Depth -1.8 Ex Below Range _____ Meters

Bearing _____ Mag



Description/Comments:

New ledge (CHARTED ROCK IS NEW LEDGE)

Position #: 10035 Time: 1813

Feature: Rock, Reef, Ledge, Islet, Other _____

Source: T-Sheet, Chart, New AWOIS, Other _____

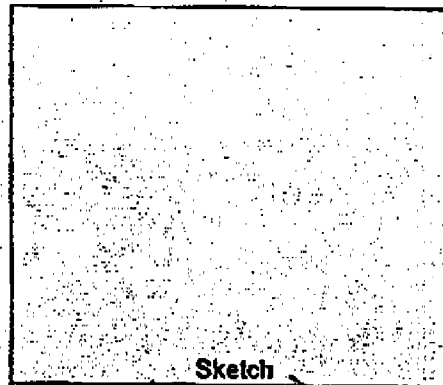
Photo Y/N _____

Depth -0.3 Ex / Below Disproval Y/N _____

Tide Corr .5 Size _____ Meters

Corr Depth -1.8 Ex Below Range _____ Meters

Bearing _____ Mag



Description/Comments:

New ledge (CHARTED ROCK IS H.P. OF NEW LEDGE)

CONTROL STATIONS as of 24 Oct 1995 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
100	F	060:14:18.000	146:38:48.000	0	250	0.0	0.0	08/22/95	CAPE HINCHINBROOK(BEACON)
101	F	061:03:24.000	146:41:40.000	0	250	0.0	0.0	08/22/95	POTATO PT(BEACON)
102	F	060:48:12.825	148:23:12.976	19	250	0.0	0.0	08/22/95	CAB 1914 (GPS STATION)
103	F	060:48:05.091	148:10:45.240	17	250	0.0	0.0	08/22/95	PORT 1914 (GPS STATION)
104	F	060:43:26.490	148:01:11.543	19	250	0.0	0.0	10/20/95	ABOVE(GPS STATION)

Section Q: Descriptive Report Insert ✓

Name of Aid: Decision Point Light

Light List #: 25880

Method of Positioning: Static GPS
Third Order

Positioning Info

	Latitude(N)	Longitude(W)	
Charted Pos.	60° 48' 22"	148° 27' 19"	
Survey Pos.	60° 48' 22" ✓	148° 27' 20" ✓	See 76-40 for exact position

Difference between Survey/Charted position: 15.1 m 270 deg T

Characteristics

Do Characteristics Match Light List? (y/n) YES
If NO, what are the characteristics? N/A

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Private (N)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert ✓

Name of Aid: Trinity Point Light

Light List #: 25885

Method of Positioning: Static GPS
Third Order

Positioning Info

Latitude(N)

Longitude(W)

Charted Pos. 60° 48' 24"

148° 34' 06"

Survey Pos. 60° 48' 23" ✓

148° 34' 06" ✓

See 76-40 for exact position

Difference between Survey/Charted position: 31.0 m 180 deg T

Characteristics

Do Characteristics Match Light List? (y/n) YES

If NO, what are the characteristics? N/A

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Private (N)

Frequency of Maintenance:

Purpose:

R. SIBBLE PERSONNEL		ORIGINATOR	
NAME		<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER	
TYPE OF ACTION		FIELD ACTIVITY REPRESENTATIVE	
OBJECTS INSPECTED FROM SEAWARD		CAPT D. R. Seidel	
POSITIONS DETERMINED AND/OR VERIFIED		OFFICE ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW		<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE	

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'
(Consult Photogrammetric Instructions No. 64)

<p>OFFICE</p> <p>1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E (C) 6042 8 - 12 - 75</p> <p>FIELD</p> <p>1. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F - 2 - 6 - L 8 - 12 - 75</p> <p>*FIELD POSITIONS are determined by field observations based</p>	<p>FIELD (Cont.)</p> <p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P - 8 - V 8 - 12 - 75 74L (C) 2982</p> <p>II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8 - 12 - 75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8 - 12 - 75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are</p>
--	--



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

NOAA Ship RAINIER

December 18, 1995

**ADVANCE
INFORMATION**

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

Dear Sir:

During the processing of hydrographic survey H-10653, in Northwest Prince William Sound five dangers to navigation have been discovered. These dangers affect the following charts:

<u>Chart</u>	<u>Edition/Date</u>	<u>Datum</u>
16705	15th Ed., Sept. 1/90 1:80,000	NAD83
16706	9th Ed., May 12/90 1:20,000	NAD83
16700	24th Ed., Jan 11/92 1:200,000	NAD83

It is recommended that these dangers to navigation be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6835.

Sincerely,

For [Signature], LT, NOAA
Dean R. Seidel
Captain, NOAA
Commanding Officer
NOAA Ship RAINIER

Enclosure

cc: DMA/HTC
PMC
N/CS26



Hydrographic Survey Registry Number: H-10653

Survey Title: State: Alaska
Locality: Prince William Sound
Sublocality: Passage Canal

**ADVANCE
INFORMATION**

Project Number: OPR-P125-RA

Survey Date: September - October, 1995

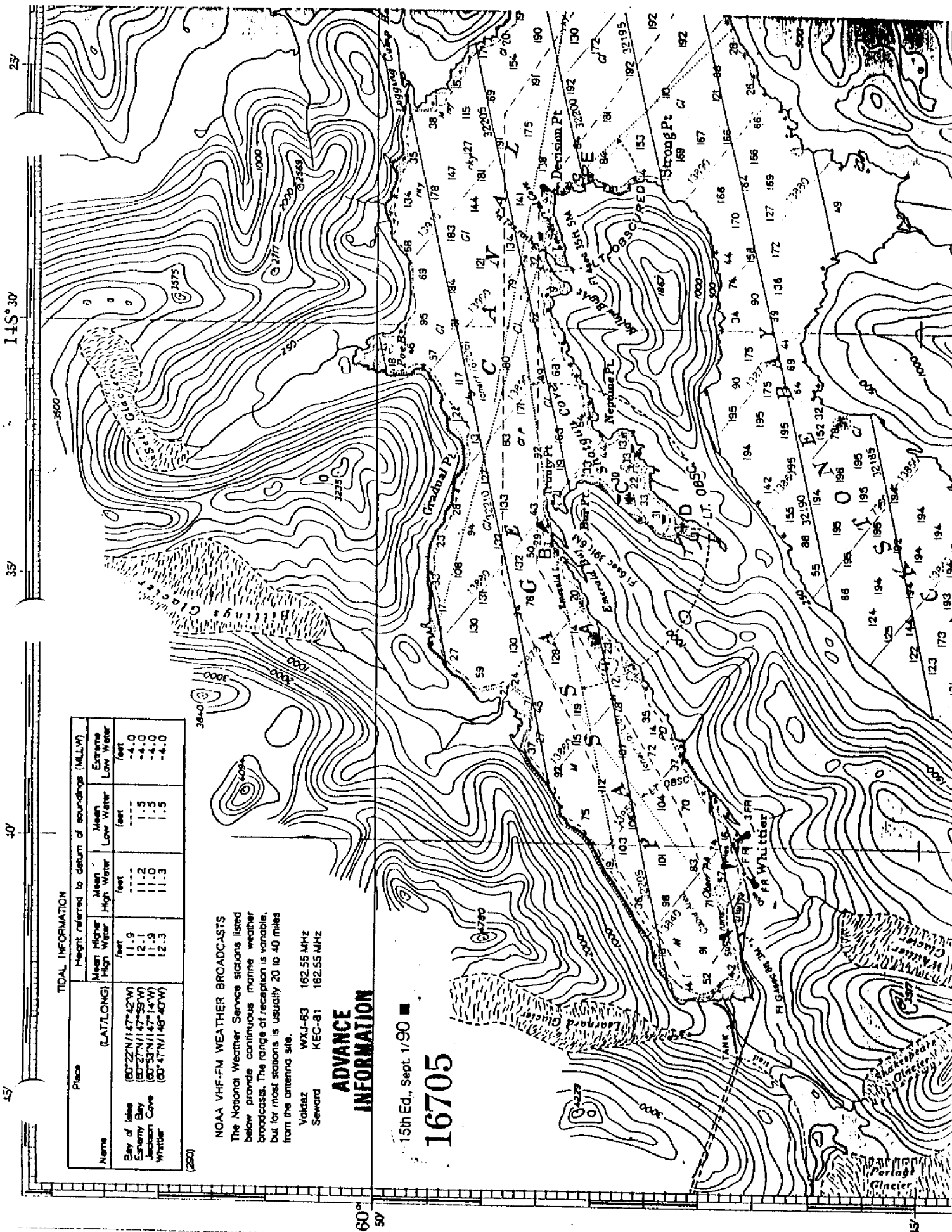
Features are reduced to Mean Lower Low Water using predicted tides.

Affected Nautical Charts:

<u>Chart</u>	<u>Edition/Date</u>	<u>Datum</u>
16705	15th Ed., Sept. 1/90 1:80,000	NAD83
16706	9th Ed., May 12/90 1:20,000	NAD83
16700	24th Ed., Jan 11/92 1:200,000	NAD83

<u>Item</u>	<u>Danger</u>	<u>Depth</u>	<u>Latitude(N)</u>	<u>Longitude (W)</u>	
A.	SOUNDING	5 1/4 FM	60/47/57.7	148/36/04.1	1165+7
B.	SOUNDING	3 FM	60/48/24.4	148/34/14.1	9303+0
C.	SOUNDING	5 3/4 FM	60/47/40.9	148/33/19.0	5974+2
D.	SOUNDING	3/4 FM	60/47/10.2	148/33/50.9	8349+2
E.	SOUNDING	3 1/4 FM	60/48/03.9	148/26/55.3	8302+0

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6835.



TIDAL INFORMATION

Name	Place (LAT/LONG)	Height referred to datum of soundings (MLLW)					
		Mean High Water	High Water	Mean Low Water	Low Water	Extreme Low Water	Extreme Low Water
Bay of Isles	(60°22'N/147°42'W)	11.9	11.9	11.2	11.2	-4.0	-4.0
Erasmus Bay	(60°27'N/147°52'W)	12.1	12.1	11.5	11.5	-4.0	-4.0
Jackson Cove	(60°53'N/147°14'W)	11.9	11.9	11.5	11.5	-4.0	-4.0
Whittier	(60°47'N/148°40'W)	12.3	12.3	11.3	11.3	-4.0	-4.0

NOAA VHF-FM WEATHER BROADCASTS
 The National Weather Service stations listed below provide continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.

- Voidez WXL-63 162.55 MHz
- Seward KEC-81 162.55 MHz

ADVANCE INFORMATION

15th Ed., Sept. 1/90
16705

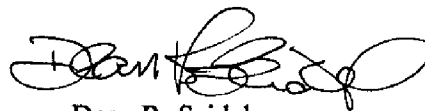
APPROVAL SHEET

for

H-10653
RA-10-21-95

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



Dean R. Seidel
Captain, NOAA
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20810

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: April 18, 1996

HYDROGRAPHIC SECTION: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10653

LOCALITY: Passage Canal, Prince William Sound, Alaska

TIME PERIOD: September 26 - October 18, 1995

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

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -0.30 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.2 ft.

TIDE STATION USED: 945-4721 Perry Island (South Bay), Ak.
Lat. $60^{\circ} 40.8'N$ Lon. $147^{\circ} 55.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -1.42 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 10.9 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Whittier, Ak. (945-4949).

If additional data are needed beyond the time period available for Whittier, Ak. (945-4949), times are direct, and apply a X1.02 range ratio to heights using Perry Island, Ak. (945-4721).

Note: Times are tabulated in Greenwich Mean Time.

William M. Johnson
CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10653

Name on Survey	A 18° STAT. NO. 16705, 16700 B ON PREVIOUS SURVEY C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND McNALLY ATLAS H U.S. LIGHT LIST K											
	ALASKA (title)	X		X								
BILLINGS CREEK	X		X									2
BLACKSTONE BAY	X		X									3
BUR POINT	X		X									4
BUSH BANKS	X											5
CHUGACH NATIONAL FOREST*	X		X									6
DECISION POINT	X		X									7
EMERALD BAY	X		X									8
EMERALD ISLAND	X		X									9
GRADUAL POINT	X		X									10
HOLLOW BIGHT (bay)	X		X									11
NEPTUNE POINT	X		X									12
PASSAGE CANAL	X		X									13
POE BAY	X		X									14
PRINCE WILLIAM SOUND	X		X									15
(title)												16
SHOTGUN COVE	X		X									17
SQUIRREL COVE	X		X									18
SQUIRREL POINT	X		X					Approved:				19
STRONG POINT	X		X					<i>Charles C. Long</i>				20
TRINITY POINT	X		X						Chief Geographer			
												22
												23
												24
* Not shown on the smooth sheet												25

APR 26 1996

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER		
HYDROGRAPHIC SURVEY STATISTICS				H-10653		
RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.						
RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION		
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	2					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						
SHORELINE DATA						
SHORELINE MAPS (List):		DM-10184, DM-10185				
PHOTOBATHYMETRIC MAPS (List):		None				
NOTES TO THE HYDROGRAPHER (List):		None				
SPECIAL REPORTS (List):		None				
NAUTICAL CHARTS (List):		16705, 15th Ed., 9/1/90, 1:80,000 & 16706, 9th Ed., 5/12/90, 1:20,000				
OFFICE PROCESSING ACTIVITIES <i>The following statistics will be submitted with the cartographer's report on the survey</i>						
PROCESSING ACTIVITY				AMOUNTS		
				VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET						
POSITIONS REVISED						
SOUNDINGS REVISED						
CONTROL STATIONS REVISED						
				TIME-HOURS		
				VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION						
VERIFICATION OF CONTROL						
VERIFICATION OF POSITIONS						
VERIFICATION OF SOUNDINGS						
VERIFICATION OF JUNCTIONS						
APPLICATION OF PHOTOBATHYMETRY						
SHORELINE APPLICATION/VERIFICATION						
COMPILATION OF SMOOTH SHEET				167		167
COMPARISON WITH PRIOR SURVEYS AND CHARTS						
EVALUATION OF SIDE SCAN SONAR RECORDS						
EVALUATION OF WIRE DRAGS AND SWEEPS						
EVALUATION REPORT					40	40
GEOGRAPHIC NAMES						
OTHER						
*USE OTHER SIDE OF FORM FOR REMARKS			TOTALS	167	40	207
Pre-processing Examination by LT P. Haines				Beginning Date 12/21/95	Ending Date 12/28/95	
Verification of Field Data by E. Domingo, D. Doles, R. Mayor				Time (Hours) 167	Ending Date 6/3/96	
Verification Check by B.A. Olmstead				Time (Hours) 8	Ending Date 9/04/96	
Evaluation and Analysis by G.E. Kay				Time (Hours) 40	Ending Date 8/7/96	
Inspection by B.A. Olmstead				Time (Hours) 18	Ending Date 9/16/96	

EVALUATION REPORT H-10653

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

Survey H-10653 is a basic survey conducted in Passage Canal two miles east of Whittier in the northwest portion of Prince William Sound. The surveyed area is bounded by the shoreline of Passage Canal to the north and by latitude 60/47/00N to the south. The eastern limit is longitude 148/26/24W and the western limit is longitude 148/39/00W.

The bottom within the survey area consists mainly of gray mud. Depths range from the zero curve out to 191 fathoms.

C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS) and AutoCad, Version 12.0.

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format which is a database format using the .dbf extension. In addition, the sounding plot was created with .dbf (extension) and enhanced using the AutoCad system, are filed both in the AutoCad drawing format, .dwg (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data transfer protocols are developed and improved.

The drawing files necessarily contain information which is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes, remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set.

Cartographic codes used to describe the digital data are those authorized by Hydrographic Survey Guideline No. 75.

The field sheet parameters have been revised to center the hydrographer on the office plot. The data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar was not used on survey H-10653.

F. SOUNDING EQUIPMENT

Sounding equipment is discussed in the hydrographer's report.

G. CORRECTIONS TO SOUNDINGS

The sounding data have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for actual tides, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications. Actual tide reductions are derived from the Whittier, Alaska, gage (945-4949) and Perry Island (South Bay), Alaska, gage (945-4721).

H. CONTROL STATIONS

Control stations are discussed in the hydrographer's report and separates. A list of control stations used on survey H-10653 is attached to this report.

The positions of horizontal control stations used during hydrographic operations are published and field values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD 27 adjustment tick based on values determined with the NGS program NADCON.

Data based on NAD 27 may be referenced to this survey by applying the following corrections:

Latitude: -2.122 seconds (-65.691 meters)

Longitude: 7.598 seconds (114.895 meters)

The year of establishment of the control stations originates with the above mentioned horizontal control report and the hydrographer's signal list.

I. HYDROGRAPHIC POSITION CONTROL

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. Several positions exceeds this limit in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly thought the survey area. 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 information. These fixes are considered acceptable. Additional information concerning calibrations and system checks can be found in the hydrographer's report and in the separates related to Horizontal Position Control and Corrections to Position Data.

J. SHORELINE

The following registered shoreline maps compiled on NAD 83 apply to this survey.

<u>Map Number</u>	<u>Photo Date</u>	<u>Scale</u>
DM-10184	July 1993	1:20,000
DM-10185	July 1993	1:20,000

The shoreline maps were supplied in a "Standard Digital Data Exchange Format." The digitized shoreline was then merged with the survey file during office ACAD processing. Alongshore and offshore features shown on the shoreline manuscript were verified and or revised as warranted during survey operations. A revision to the high water line was made at latitude 60/49/32N, longitude 148/35/27W. This change is shown on the smooth sheet in red ink.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10653 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10644	1995	1:10,000	Southeast
H-10650	1995	1:10,000	East
H-10655	1995	1:5,000	West

The junctions with surveys H-10644, H-10650 and H-10655 are complete. There is good agreement between depth curves and soundings within the common areas.

M. COMPARISON WITH PRIOR SURVEYS

Survey H-10653 was compared with the following prior surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>
H-6981	(1948)	1:10,000
H-7161	(1951)	1:10,000

The above listed prior surveys cover the entire area of Passage Canal. Comparisons with these prior surveys and the present survey work reveal general differences of 1-2 fathoms. There appears to be no consistent pattern of shoaling or an increase in depths. Differences are primarily attributed to the accuracy of present positioning and sounding methods used, more thorough bottom coverage, and the tectonic effects of the 1964 Alaskan Earthquake in Prince William Sound.

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

H-10653 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were seven AWOIS items for investigation assigned to survey H-10653. These AWOIS items originate from miscellaneous sources and have been adequately addressed in the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10653 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16706	9th	May 12, 1990	1:20,000	NAD 83
16705	15th	September 1, 1990	1:80,000	NAD 83

a. Hydrography

Charted data originates with miscellaneous source information and the prior surveys mentioned in section M. The prior surveys have been adequately discussed in section M and require no further discussion. Miscellaneous source data has been adequately addressed with the exception of those items mentioned in section J of the hydrographer's report.

Survey H-10653 is adequate to supersede the charted data within the common area.

b. Dangers to Navigation

The hydrographer reported five dangers to navigation. These dangers were reported to the local United States Coast Guard District, DMA/HTC, and N/CS26. A copy of this report is attached. No additional dangers to navigation were discovered during office processing.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10653 is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the required depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and

c. show the survey was properly controlled and soundings are correctly plotted.

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1994 Edition except as follows:

Some anomalous soundings were acquired during this survey. They originate from the poor performance of the echo sounder on steep slopes which were surveyed at excessive vessel speed. The hydrographer attempted to correct the problem by editing the raw sounding data, however, the quality of the echo sounder trace is so poor in some areas that the edits are most likely based on judgement rather than quantifiable data. Office review of the problem has determined that, with the exception of obviously erroneous depths on steep slopes, further editing is not reasonable since no corrective action can be taken to improve the quality of the trace. The judgement of the hydrographer has been accepted and generally the data was not altered during office processing. Generally, the affected depths are deep, in excess of 50 fathoms, and will have little negative effect on the quality of nautical charts if compiled at scales smaller than 1:20,000.

The hydrographer mentions in Section J. Shoreline, ("**Problems**"), that eleven features were not investigated and should continue to be charted. As H-10653 is a basic survey, the hydrographer is responsible to adhere to the requirements of the project instructions, Hydrographic Manual, 4th Edition, and the Field Procedures Manual, March 1994 edition to verify and or disprove the existence of alongshore features.

Q. AIDS TO NAVIGATION

There are two fixed aids to navigation located within the survey area. These fixed aids were located during survey operations and adequately serve their intended purpose.

There are no features of landmark value located within the area of this survey.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

Miscellaneous information is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

T. RECOMMENDATIONS

This is a good hydrographic survey. Additional work on a low priority basis is recommended to verify and or disprove the existence of those charted features that are tabulated in the hydrographer's report, Section J, "**Problems**".

U. REFERRAL TO REPORTS

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

Bruce A. Olmstead
for Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10653

Initial Approvals:

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

Bruce A. Olmstead Date: 9/16/96
Bruce A. Olmstead
Senior Cartographer, Cartographic Section
Pacific Hydrographic Branch

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

Kathy Timmons Date: 9/30/96
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: Mar 24, 1997
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10653

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
16706	12/23/96	<i>[Signature]</i>	Full Part Before After Marine Center Approval Signed Via <i>Full application of</i> Drawing No. <i>sndgs. & features from smooth sheet.</i>
16705	1/23/97	<i>[Signature]</i>	Full Part Before After Marine Center Approval Signed Via <i>Full application of</i> Drawing No. <i>sndgs. & features thru chart 16706</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.
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