

H11348

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC**

Field No. **RA-10-13-04**

Registry No. **H-11348**

LOCALITY

State **Alaska**

General Locality **Eastern Prince William Sound**

Sublocality **Tongue Point to Sawmill Bay**

.....
2004
.....

CHIEF OF PARTY
.....
CDR John W. Humphrey, NOAA

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET**H-11348**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 10-13-04State AlaskaGeneral Locality Eastern Prince William SoundSublocality Tongue Point to Sawmill BayScale 1:10,000Date of Survey 8/22/2004 - 9/13/2004Instructions Date 7/20/2004Project No. OPR-N132-RA-04NOAA Ship Rainier, RA1 (1101),Vessel RA2 (1103), RA3 (1021), RA4 (1016), RA5 (1006)Chief of Party Commander John W. Humphrey, NOAASurveyed by Rainier PersonnelSoundings taken by echo sounder, hand lead, pole Elac 1180, Reson SeaBat 8101, 8125Graphic record scaled by RAINIER PERSONNELGraphic record checked by RAINIER PERSONNELEvaluation by R. Shipley Automated plot by HP Design Jet 1050CVerification by E. Domingo, R. ShipleySoundings in Fathoms at MLLWREMARKS: All times are UTC.**Revisions and annotations appearing as endnotes were****generated during office processing.****All seperates 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 MLLW unless****otherwise noted. UTM Projection (zone 6).**

Descriptive Report to Accompany Hydrographic Survey H11348

Project OPR-P132-RA-04
Eastern Prince William Sound, AK
Scale 1:10,000
August – September, 2004
NOAA Ship RAINIER
Chief of Party: Commander John W. Humphrey, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-P132-RA-04, dated July 20, 2004, Draft Standing Project Instructions dated March 21, 2001, and NOS Hydrographic Specifications and Deliverables dated March 2003. The survey area is Sawmill Bay to Tongue Point, Prince William Sound, Alaska. This survey corresponds to sheet A in the sheet layout provided with the Letter Instructions.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area in waters 8 meters and deeper. In 4-8 meters of water 100% SWMB coverage was obtained as much as possible and to acquire least depths over significant features or shoals, as appropriate for this survey. Vertical-beam echo sounder (VBES) data were acquired in depths from 4 to 20 meters to define the four-meter curve and to aid in the planning of SWMB data acquisition.¹

Data acquisition was conducted from DN 235 to 257.

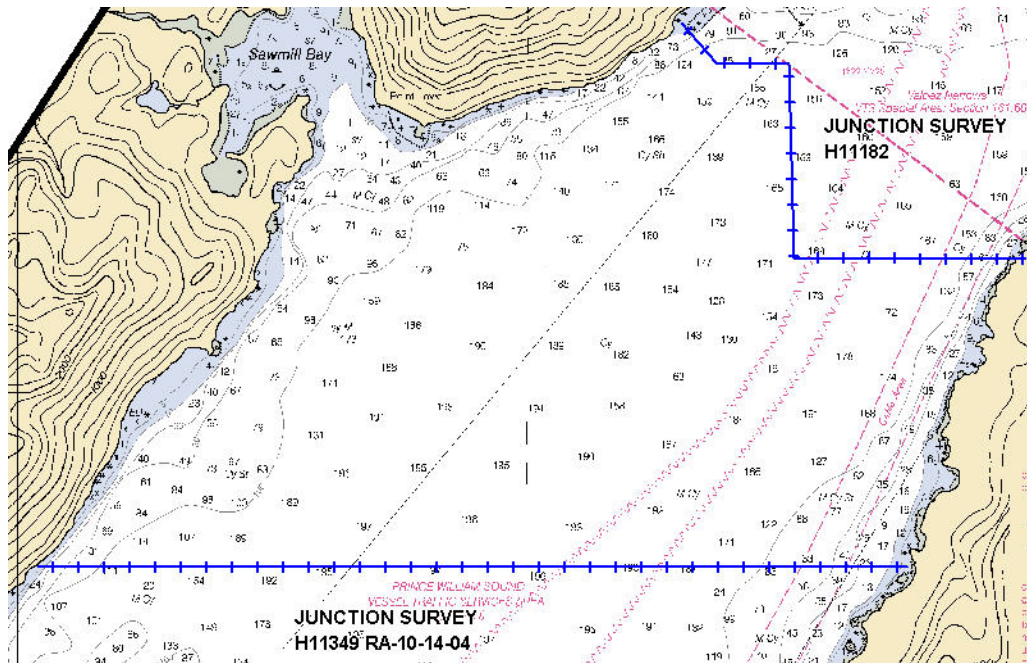


Fig. 1: H11348 Survey Limits and Junctions shown on chart 16707

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *OPR-P132-RA-04 Data Acquisition and Processing Report (DAPR)*², submitted under separate cover. Items specific to this survey, and any deviations from the aforementioned report are discussed in the following sections.

B1. Equipment and Vessels

Data were acquired by launches 1006, 1021, 1101, and 1103. Launches 1006 and 1021 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Launches 1101 and 1103 were used to acquire vertical-beam echo soundings (VBES) and detached positions (DPs) for shoreline verification.

No unusual vessel configurations were used for data acquisition.³

B2. Quality Control

Crosslines

Vertical Beam Echo Sounder (VBES) crosslines including buffer lines totaled 11.75 nautical miles, comprising 87.69% of mainscheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

Shallow-Water Multibeam (SWMB) crosslines totaled 8.71 nautical miles, comprising 9.60% of SWMB hydrography. The mainscheme bathymetry was manually compared to the XL nadir beams in CARIS subset mode. All crosslines agreed well with differences averaging approximately 0.5 meters for Reson 8101 data. Crosslines for ELAC 1180 data correlated well, but differences were notably greater in the deepest areas of the sheet. Due to the extreme depth and the functional limitations of the ELAC 1180 system, this is not unexpected.

A statistical Quality Control Report was generated for RESON SWMB data acquired on the Lake Washington Reference Surface at the start of the season to validate launch offsets and sonar biases. A copy of this report is included in the OPR-P132-RA-04 DAPR.

A Pydro Checkpoint Report was created on representative RESON 8101 and ELAC 1180 data. A copy of this report is included in the OPR-P132-RA-04 DAPR.

Through manual examination of the data and statistical analysis of data accuracy standards for this survey have been met.⁴

Junctions

The following contemporary surveys junction with H11348 (see Figure 1):

<u>Registry #</u>	<u>Scale</u>	<u>Date</u>	<u>Junction side</u>
H11182	1:10,000	2002	Northeast
H11349	1:10,000	2004	South

A junction comparison with H11182 was made. In general, the depths in inshore areas agree to within one meter by comparing shoal-biased excess depths. In the deeper areas of the junction, depths were often over five meters shoaler on H11182 than on H11348. The areas in question on H11348 were reexamined in CARIS subset mode, with no questionable cleaning noted. The CARIS data for H11182 was not available for further examination.⁵

A junction comparison with H11349 was made, and in general, the depths agree to within two meters by comparing shoal-biased excess depths. Comparison of lines via subset mode in CARIS showed close correlation, with differences in depth averaging less than one meter.

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.⁶

Data Quality Factors

Due to a large influx of fresh water from river runoff, sharp demarcations of water masses were observed, particularly in the inner portion of Sawmill Bay. After application of sound velocity correctors, many lines still exhibited the characteristic “smiles” and “frowns” indicative of inaccurate sound velocity correction. Correctors were applied using the nearest in distance algorithm for this area, but the problem did not noticeably improve. Due to the lack of improvement, the previous in time method was used in the end. The outer beams of these lines were rejected in CARIS subset editor. This did not adversely affect the data coverage in this area.⁷

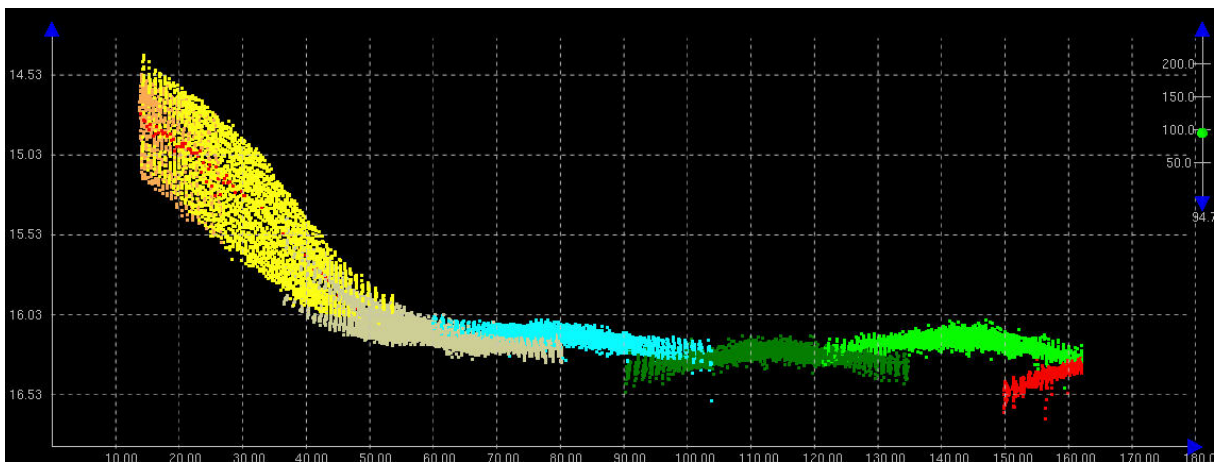


Fig. 2: Typical data from Sawmill Bay exhibiting inaccurate sound velocity correction

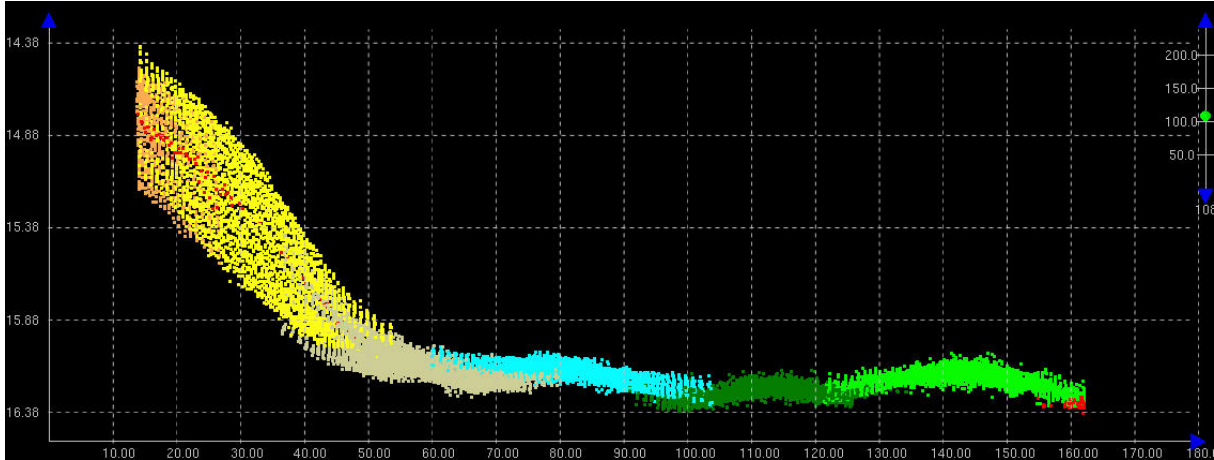


Fig. 3: Typical result of subset cleaning

Similar problems were noted in very deep portions of the sheet as well.⁸ Cleaning the worst cases of this produced several gaps in data coverage in the southern portion of the channel, one of which is quite large. The prevailing depths in the surrounding area of these gaps is approximately 360 m. After consulting with the FOO and noting that there were no signs of shoaling in the vicinity, it was decided that another boat day could not be justified for the sake of these holidays.

Eel grass was noted in Sawmill Bay, generally in areas both close to shore and shoaler than four meters.⁹ Since this vegetation may obscure underlying features, these returns were not rejected. As a result, the shoaler areas of Sawmill Bay may be deeper than indicated by the data.

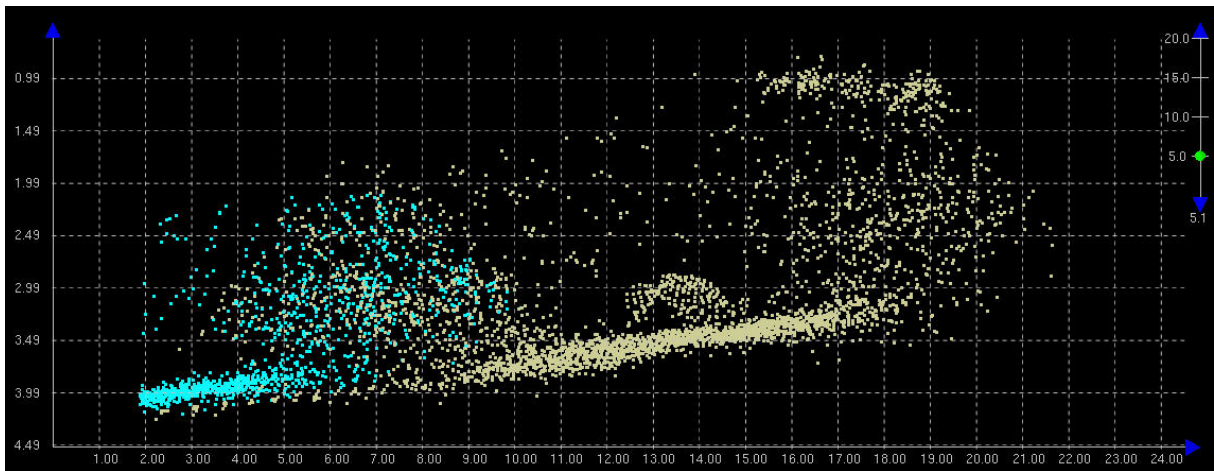


Fig. 4: Eel grass in close-to-shore areas of Sawmill Bay

B3. Data Reduction

Data reduction procedures for survey H11348 conform to those detailed in the OPR-P132-RA-04 *DAPR*.

C. VERTICAL AND HORIZONTAL CONTROL

A summary of horizontal and vertical control for this survey follows.¹⁰

Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections from U.S. Coast Guard beacon at Potato Point (298 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks using U.S. Coast Guard beacon at Cape Hinchinbrook (292 kHz) as the check station were performed in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the Supplemental Correspondence section of this descriptive report.

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Valdez, AK (945-4240) served as control for datum determination and as the primary source for water level reducers for survey H11348.

No secondary gauges were required.

All data were reduced to MLLW using unverified observed tides from station Valdez, AK using the tide file 9454240.tid and time and height correctors using the zone corrector file P132RA2004CORP.zdf.

The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing. A request for delivery of final approved (smooth) tides for survey H11348 was forwarded to N/OPS1 on 17 September 2004. A copy of the request is included in Appendix IV.¹¹

D. RESULTS AND RECOMMENDATIONS

D.1 Automated Wreck and Obstruction Information System (AWOIS) Investigations

There were no AWOIS items located within the limits of H11348.¹²

D.2 Chart Comparison

Survey H11348 was compared with chart 16707 (11th Ed., Sept., 2004, 1:40,000), chart 16708 (26th Ed., Oct., 2004, 1:79,291).

Chart 16707

Depths from survey H11348 were generally within one to two fathoms of depths on chart 16707. There are a number of areas, however, that were found to be significantly deeper than charted. The 10 fathom contour according to the survey tends to be much closer to shore than is charted. However, the ten fathom curve has migrated seaward by approximately 150m at the mouth of Sawmill Bay. This survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. This can be attributed to increased bottom coverage using SWMB methods.¹³

The two rocks marked ED at position 61°02'22.67" N 146°47'06.5" W ; (510107.53 , 6765083.5) were not found during shoreline verification. 100% SWMB coverage exists at this location, and it is recommended that these rocks be removed.¹⁴

The seven rocks marked ED at position 61°03'44.6" N 146°46'47.78" W ; (511878.81 , 6769756.41) were not noted due to their location and the low tide stage at the time of shoreline verification. As no information was collected regarding these features, it is recommended that they remain as currently charted.¹⁵

Chart 16708

In deeper areas, depths from survey H11348 were generally within one to three fathoms on chart 16708. In more shallow areas, however, the survey and the chart do not agree well. The survey found the seafloor to drop off much faster than is depicted on the chart. This can be attributed to the small scale of the chart.

The charted reef centered at position 61°02'30.5" N 146°46'00.61" W ; (512594.27 , 6767466.33) was found to be considerably smaller than charted, and very closely represented by the reef depicted on chart 16707 at this location. At chart scale, however, the feature would be very small at its true size. It is therefore recommended that the feature be maintained as currently depicted.¹⁶

The four rocks marked ED at position 61°03'43.73" N 146°46'49.26" W ; (511856.77 , 6769729.49) were not noted due to their location and the low tide stage at the time of shoreline verification. As no information was collected regarding these features, it is recommended that they remain as currently charted.¹⁷

Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.¹⁸

D.3 Shoreline

Shoreline Source

Vector photogrammetric projects GC10539 and GC10540 were supplied by N/NGS3 in the form of cartographic feature files (CFF). RAINIER conducted limited shoreline verification of the CFF. In the absence of CFF MHW or CFF MLLW, RAINIER personnel digitized the largest scale charts in MapInfo and displayed in HYPACK for field verification. In addition, features shown on the current editions of charts 16707, 16708, and 16700 that were not depicted on the shoreline source document were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.

Shoreline Verification

Limited shoreline verification was conducted near predicted low water in accordance with the Standing Project Instructions and FPM sections 6.1 and 6.2. Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms, and processed in Pydro. These indicate revisions to features and features not found on the verified shoreline. In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline. DP forms are included in Section I of the *Separates to be Included with Survey Data*.¹⁹

A detailed Detached Position and Bottom Sample plot in MapInfo format is provided showing all detached positions and bottom samples with notes relating to each feature. The updated shoreline and features are also depicted on the final sounding plot. Verified CFF shoreline that did not require revision is in MapInfo table H1348_CFF_SHORELINE and shown in black. New MLLW features and changes to the MLLW shoreline, CFF or charted, are displayed in pink on the “H11348_SHORELINE_UPDATES” MapInfo table. Charted shoreline, when used for reference purposes or when source data were not available, is depicted in the MapInfo table “H11348_CHD_SHORELINE” and displayed in brown.

Source Shoreline Changes and New Features

Items for survey H11348, that needed further discussion and are associated with a detached position, have been flagged “Report” in Pydro in H11348.pss. Investigation/survey methods and recommendations are listed in the Remarks and Recommendation tabs. A report with these items was generated (H11348_Shoreline_Report.pdf). The report is located in the supplemental correspondence section of the descriptive report appendices in both digital and hard copy. Items not associated with a detached position are discussed below.

Charted Features

The charted (16700) rock at position 61°02'53.47" N 146°44'03.15" W ; (514353.72 , 6768183.57) was disproved with 100% SWMB coverage.²⁰

The charted (16700) rock at position 61°01'53.62" N 146°47'12.71" W ; (511516.13 , 6766321.61) was disproved with 100% SWMB coverage. It is likely, however, that this rock represents a noted rock from chart 16707 and has been moved out from shore.²¹

The charted (16708) rock at position 61°02'38.86" N 146°46'27.76" W ; (512186.01 , 6767723.54) was disproved with 100% SWMB coverage. It is likely, however, that this rock represents a noted rock from chart 16707 and has been moved out from shore.²²

Charted (16707) rocks were disproved with 100% SWMB coverage at the following positions:

61°02'38.8" N 146°46'28.35" W ; (512173.53 , 6767722.83)²³
61°02'35.76" N 146°46'14.43" W ; (512385.63 , 6767631.11)²⁴
61°02'42.37" N 146°46'30.83" W ; (512143.33 , 6767833.44)²⁵
61°02'48.56" N 146°46'34.07" W ; (512088.46 , 6768024.17)²⁶
61°01'14.66" N 146°48'44.72" W ; (510138.69 , 6765111.88)²⁷
61°01'12.79" N 146°48'49.67" W ; (510064.48 , 6765053.85)²⁸
61°00'35.2" N 146°41'17.48" W ; (516859.27 , 6763916.7)²⁹
61°01'05.76" N 146°40'56.38" W ; (517171.64 , 6764863.54)³⁰

The charted (16707) rock at position 61°02'47.31" N 146°47'10.5" W ; (511537.27 , 6767988.92) was not noted during shoreline verification or during a three minute , 40 meter VBES star search pattern in calm seas with four meter visibility.³¹

The VBES buffer is MLLW at the following positions:³²

61°02'45.62" N 146°44'37.66" W ; (513833.61 , 6767933.88)
61°03'06.77" N 146°46'45.12" W ; (511879.41 , 6768601.22)
61°03'18.06" N 146°46'43.91" W ; (511938.72 , 6768961.98)
61°03'06.18" N 146°47'52.63" W ; (510905.08 , 6768562.33)
61°02'39.25" N 146°47'28.92" W ; (511273.82 , 6767737.56)

The VBES buffer is the extent of new extent of foul areas at the following positions:³³

61°02'37.4" N 146°46'16.22" W ; (512452.66 , 6767614.86)
61°03'14.53" N 146°47'19.65" W ; (511438.29 , 6768803.49)
61°02'54.77" N 146°47'46.78" W ; (511007.95 , 6768235.06)
61°02'37.22" N 146°47'51.04" W ; (510943.65 , 6767651.19)
61°02'46.86" N 146°47'11.64" W ; (511518.1 , 6767972.36)
61°01'04.67" N 146°48'58.77" W ; (509927.42 , 6764797.18)
61°03'08.2" N 146°47'30.48" W ; (511196.6 , 6768634.74)

The charted (16707) rock at position 61°02'51.58" N 146°46'32.08" W ; (512125.34 , 6768120.98) was found to be the seaward extent of a new ledge.³⁴

New ledges were found at the following locations:

61°03'06.83" N 146°47'27.26" W ; (511301.7 , 6768593.53)³⁵
61°02'45.69" N 146°47'07.1" W ; (511587.34 , 6767939.18)³⁶

The VBES buffer is the extent of charted (16707) ledges at the following locations:

61°01'32.28" N 146°48'01.57" W ; (510784.86 , 6765661.8)³⁷

61°01'26.6" N 146°40'44.72" W ; (517331.45 , 6765500.45)³⁸

61°01'48.86" N 146°40'27.17" W ; (517622.43 , 6766270.46)³⁹

The VBES buffer is the extent of a new ledge at position 61°01'34.18" N 146°40'38.99" W ; (517443.09 , 6765765.44).⁴⁰

The CFF islet at position 61°01'28.86" N 146°40'39.35" W ; (517441.24 , 6765583.65) was found to be connected to shore at MLLW.⁴¹

The CFF rock at position 61°00'45.71" N 146°41'08.47" W ; (516993.1 , 6764242.26) was found to be the high point of the charted (16707) islet at this position.⁴²

The CFF rocks at the following positions were found to be the high point of charted (16707) ledges:⁴³

61°01'20.88" N 146°40'51.03" W ; (517249.63 , 6765331.98)

61°01'36.38" N 146°40'30.67" W ; (517553.05 , 6765812.87)

The charted shoreline at positions 61°03'18.62" N 146°47'53.44" W ; (510901.46 , 6768950.05) and 61°03'19.53" N 146°47'54.14" W ; (510893.11 , 6768977.53) were not able to be verified.⁴⁴

Recommendations

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample and final sounding Mapinfo digital file supersede and complement shoreline information compiled on the CFF and charts as noted.⁴⁵ In addition, field notes made by the Hydrographer, including verification of source features or charted features if no source shoreline was available are submitted in the digital MapInfo file "H11348_SHORELINE_NOTES."

D.4 Dangers to Navigation

There were no dangers to navigation found within the limits of H11348.⁴⁶

D.5 Aids to Navigation

No aids to navigation (ATONs) are located within the limits of H11348.⁴⁷

D.6 Miscellaneous

No bottom samples were taken within the limits of H11348.⁴⁸

E. APPROVAL

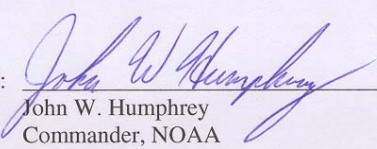
As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this survey in accordance with the Hydrographic Manual, Fourth Edition, Hydrographic Survey Guidelines, Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2003.

The digital data and supporting records have been reviewed by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.


Survey H11348 is complete and adequate to supersede charted soundings⁴⁹ in their common areas. No additional work is required for this survey.⁵⁰

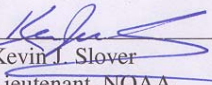
Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for OPR-P132-RA-04	Feb. 16, 2005	N/CS34
Tides and Water Levels Package for OPR-P132-RA-04	Feb. 15, 2005	N/OPS1
Coast Pilot Report for OPR-P132-RA-04	Feb. 15, 2005	N/CS26

Approved and Forwarded: 
 John W. Humphrey
 Commander, NOAA
 Commanding Officer

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Sheet Manager: 
 Michael J. Stevenson
 Ensign, NOAA

Field Operations Officer: 
 Kevin J. Slover
 Lieutenant, NOAA

Revisions Compiled During Office Processing and Certification

¹ Concur.

² Filed with the Project Records.

³ Concur.

⁴ Concur with hydrographer's statements.

⁵ Concur with clarification. A PHB review of the data in CARIS showed the data meets IHO Order 1 specifications.

⁶ Concur with clarification. Junction comparisons were made with H11182 and H11349 during office processing. Sounding and depth curves are in good agreement and a "Joins" note has been added to the smooth sheets.

⁷ Data was analyzed during office processing and found to contain no significant differences. Data was found to be acceptable to supercede chart within common area.

⁸ See previous endnote.

⁹ Concur. Eel grass has been portrayed on the smooth sheet in areas designated by the hydrographer.

¹⁰ A complete description of vertical and horizontal control for survey H11348 can be found in the OPR-P132-RA-04 *Horizontal and Vertical Control Report* filed with the Project Records.

¹¹ Appendix IV is filed with the hydrographic records. Approved Tide Note dated May 9, 2005 is attached.

¹² Concur.

¹³ Concur with hydrographer's statements.

¹⁴ Concur.

¹⁵ Concur.

¹⁶ Concur.

¹⁷ Concur.

¹⁸ During office processing, survey H11182 was compared to chart 16707 (12th Ed., Dec 01, 2005). In addition to the hydrographer's findings, the evaluator recommends retaining the charted cable areas within the common area and to retain the designated anchorage symbol in Sawmill Bay.

¹⁹ Attached to report.

²⁰ Concur.

²¹ Concur.

²² Concur.

²³ Concur.

²⁴ Concur.

²⁵ Concur.

²⁶ Concur.

²⁷ Concur.

²⁸ Concur.

²⁹ Concur.

³⁰ Concur.

³¹ Concur. Delete charted rock. Chart area based on the current survey information.

-
- ³² Concur.
- ³³ Concur.
- ³⁴ Ledge shown as rock at chart scale.
- ³⁵ Ledge shown as rock at chart scale.
- ³⁶ Ledge shown as rock at chart scale.
- ³⁷ Concur.
- ³⁸ Concur.
- ³⁹ Concur.
- ⁴⁰ Concur. Chart using survey information.
- ⁴¹ Concur.
- ⁴² Concur.
- ⁴³ Concur. The evaluator recommends to depict these rocks as part of ledges on the next chart edition.
- ⁴⁴ Concur. Retain shoreline as charted.
- ⁴⁵ Concur with clarification. Shoreline verification has been analyzed during office processing and shown on the smooth sheet as warranted.
- ⁴⁶ Concur.
- ⁴⁷ Concur.
- ⁴⁸ Concur. Charted bottom samples were retained on the Hdrawing.
- ⁴⁹ and features
- ⁵⁰ Concur with hydrographer's statements.

H11348 Shoreline Report

Registry Number: H11348
State: Alaska
Locality: Eastern Prince William Sound
Sub-locality: Tongue Point to Sawmill Bay
Project Number: OPR-P132-RA-04
Survey Dates: 8/22/2004 - 9/13/2004

Charts Affected

Number	Version	Date	Scale
16707	10th Ed.	09/29/2001	1:40000
16708	25th Ed.	10/06/2001	1:79291
16700	28th Ed.	07/01/2003	1:200000
16013	29th Ed.	11/01/2003	1:969761
531	22nd Ed.	03/01/2004	1:2100000
500	8th Ed.	06/01/2003	1:3500000
50	6th Ed.	06/01/2003	1:10000000

Features

Feature Type	Survey Depth	Survey Latitude	Survey Longitude
Rock	1.75 m	61° 01' 15.693" N	146° 40' 55.063" W
Rock	0.08 m	61° 02' 42.057" N	146° 45' 14.583" W
Rock	0.36 m	61° 02' 37.831" N	146° 45' 36.922" W
Rock	0.52 m	61° 02' 38.224" N	146° 46' 17.057" W
Sounding	0.38 m	61° 02' 51.732" N	146° 46' 31.482" W
Rock	0.84 m	61° 03' 01.832" N	146° 46' 41.927" W
Rock	-0.21 m	61° 03' 06.087" N	146° 46' 45.390" W
Sounding	-0.82 m	61° 03' 07.004" N	146° 47' 26.977" W
Sounding	3.91 m	61° 02' 48.370" N	146° 46' 33.851" W
Sounding	7.33 m	61° 02' 42.182" N	146° 46' 30.607" W
Sounding	14.53 m	61° 02' 38.604" N	146° 46' 28.128" W
Sounding	9.86 m	61° 02' 35.569" N	146° 46' 14.204" W

Rock	-1.74 m	61° 01' 06.315" N	146° 48' 57.492" W
Rock	-3.42 m	61° 01' 35.350" N	146° 48' 00.088" W
Sounding	0.73 m	61° 02' 45.691" N	146° 47' 07.526" W
Sounding	7.85 m	61° 02' 47.115" N	146° 47' 10.277" W

1 - New Features

1.1) 1101_242_1533

Survey Summary

Survey Position: 61° 01' 15.693" N, 146° 40' 55.063" W
Least Depth: 1.75 m
Timestamp: 2004-242.15:57:11.000 (08/29/2004)
DP Dataset: h11348 / 1101_nonechosounder_dp / 2004-242 / dp_1101_242
Profile/Beam: 1/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

1fm (16708_1, 16700_1, 16013_1)

-1fm 0ft (16707_1, 531_1)

1.7m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
QUASOU - 1:depth known
TECSOU - 1:found by echo-sounder
VALSOU - 1.754 m
WATLEV - 3:always under water/submerged

Office Notes

New rock is part of charted ledge.

1.2) 1103_242_265

Survey Summary

Survey Position: 61° 02' 42.057" N, 146° 45' 14.583" W
Least Depth: 0.08 m
Timestamp: 2004-242.15:46:03.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 1/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

cff rock verified

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0fm (16708_1, 16700_1, 16013_1)

0fm 0ft (16707_1, 531_1)

.1m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - cff rock verified
QUASOU - 1:depth known
STATUS - 1:permanent
VALSOU - 0.083 m
WATLEV - 1:partly submerged at high water

Office Notes

Concur. Chart rock.

1.3) 1103_242_269

Survey Summary

Survey Position: 61° 02' 37.831" N, 146° 45' 36.922" W
Least Depth: 0.36 m
Timestamp: 2004-242.15:56:08.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 2/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16708_1, 16700_1, 16013_1)

0fm 1ft (16707_1, 531_1)

.3m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
QUASOU - 1:depth known
VALSOU - 0.357 m
WATLEV - 3:always under water/submerged

Office Notes

Concur. Chart rock covers 1ft at MLLW as shown on the smoothsheet.

1.4) 1103_242_271

Survey Summary

Survey Position: 61° 02' 38.224" N, 146° 46' 17.057" W
Least Depth: 0.52 m
Timestamp: 2004-242.16:04:38.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 3/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16708_1, 16700_1, 16013_1)

0fm 1ft (16707_1, 531_1)

.5m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
QUASOU - 1:depth known
STATUS - 1:permanent
VALSOU - 0.517 m
WATLEV - 3:always under water/submerged

Office Notes

Concur. Chart rock covers 1ft at MLLW as shown on the smoothsheet.

1.5) 1103_242_273

Survey Summary

Survey Position: 61° 02' 51.732" N, 146° 46' 31.482" W
Least Depth: 0.38 m
Timestamp: 2004-242.16:12:00.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 4/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

CHD (16707) RK IS EXT NEW LDG

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16708_1, 16700_1, 16013_1)

0fm 1ft (16707_1, 531_1)

.4m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CHD (16707) RK IS EXT NEW LDG
QUASOU - 1:depth known
VALSOU - 0.378 m
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart ledge as isolated rock based on chart scale.

1.6) 1103_242_283

Survey Summary

Survey Position: 61° 03' 01.832" N, 146° 46' 41.927" W
Least Depth: 0.84 m
Timestamp: 2004-242.16:49:26.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 5/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (16708_1, 16700_1, 16013_1)

0fm 2ft (16707_1, 531_1)

.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
QUASOU - 1:depth known
STATUS - 1:permanent
TECSOU - 5:found by lead-line
VALSOU - 0.837 m
WATLEV - 3:always under water/submerged

Office Notes

Concur. Chart rock covers 2ft at MLLW as shown on the smoothsheet.

1.7) 1103_242_285

Survey Summary

Survey Position: 61° 03' 06.087" N, 146° 46' 45.390" W
Least Depth: -0.21 m
Timestamp: 2004-242.16:53:45.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 6/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0fm (16708_1, 16700_1, 16013_1)

0fm 0ft (16707_1, 531_1)

-.2m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
VALSOU - -0.212 m
WATLEV - 2:always dry

Office Notes

Concur. Chart rock uncovers 1ft at MLLW as shown on the smoothsheet.

1.8) 1103_242_289

Survey Summary

Survey Position: 61° 03' 07.004" N, 146° 47' 26.977" W
Least Depth: -0.82 m
Timestamp: 2004-242.17:36:24.000 (08/29/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 7/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

SWM EXT NEW LDG

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (16708_1, 16700_1, 16013_1)

0fm 2ft (16707_1, 531_1)

-.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - SWM EXT NEW LDG
VALSOU - -0.817 m
WATLEV - 2:always dry

Office Notes

Concur with clarification. Charted rock portrays ledge at chart scale.

1.9) 1103_242_275

Survey Summary

Survey Position: 61° 02' 48.370" N, 146° 46' 33.851" W
Least Depth: 3.91 m
Timestamp: 2004-242.16:18:40.000 (08/29/2004)
DP Dataset: h11348 / 1103_echosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 1/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

CHD (16707) RK DISPROVAL, 100% SWMB
VBES STAR PATTERN, 5 MIN., 50M RADIUS, .5M VIS. 100% SWMB COVERAGE.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

2fm (16708_1, 16700_1, 16013_1)
2fm 1ft (16707_1, 531_1)
3.9m (500_1, 50_1)

S-57 Data

[None]

Office Notes

Concur. Remove charted rock.

1.10) 1103_242_276

Survey Summary

Survey Position: 61° 02' 42.182" N, 146° 46' 30.607" W
Least Depth: 7.33 m
Timestamp: 2004-242.16:26:06.000 (08/29/2004)
DP Dataset: h11348 / 1103_echosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 2/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

CHD (16707) RK DISPROVAL, 100% SWMB
VBES STAR PATTERN, 5 MIN. SEARCH, 0.5M VIS, 45M RADIUS. 100% SWMB.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

4fm (16708_1, 16700_1, 16013_1)
4fm 0ft (16707_1, 531_1)
7.3m (500_1, 50_1)

S-57 Data

[None]

Office Notes

Concur. Remove charted rock.

1.11) 1103_242_278**Survey Summary**

Survey Position: 61° 02' 38.604" N, 146° 46' 28.128" W
Least Depth: 14.53 m
Timestamp: 2004-242.16:29:09.000 (08/29/2004)
DP Dataset: h11348 / 1103_echosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 3/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

CHD (16708) RK DISPROVAL, 100% SWMB VBES STAR PATTERN; 5MIN. SEARCH, 1M VIS., 45M RADIUS. 100% SWMB COVERAGE

Hydrographer Recommendations**Cartographically-Rounded Depth (Affected Charts):**

8fm (16708_1, 16700_1, 16013_1)
7fm 5ft (16707_1, 531_1)
14.5m (500_1, 50_1)

S-57 Data

[None]

Office Notes

Concur.

1.12) 1103_242_280

Survey Summary

Survey Position: 61° 02' 35.569" N, 146° 46' 14.204" W
Least Depth: 9.86 m
Timestamp: 2004-242.16:41:56.000 (08/29/2004)
DP Dataset: h11348 / 1103_echosounder_dp / 2004-242 / h11348_1103_242
Profile/Beam: 4/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

CHD (16707) rk disproval 100% SWMB STAR PATTERN VBES LINE 000_1636, 1M VIS, 50M RADIUS.
100% SWMB COVERAGE

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

5 ¼fm (16708_1, 16700_1, 16013_1)
5fm 2ft (16707_1, 531_1)
9.8m (500_1, 50_1)

S-57 Data

[None]

Office Notes

Concur.

1.13) 1103_257_84

Survey Summary

Survey Position: 61° 01' 06.315" N, 146° 48' 57.492" W
Least Depth: -1.74 m
Timestamp: 2004-257.16:42:12.000 (09/13/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-257 / dp_1103_257
Profile/Beam: 1/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK IS N EXT NEW FOUL

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

1fm (16708_1, 16700_1, 16013_1)

0fm 5ft (16707_1, 531_1)

-1.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK IS N EXT NEW FOUL
QUASOU - 1:depth known
STATUS - 1:permanent
VALSOU - -1.742 m
WATLEV - 2:always dry

Office Notes

Concur. Chart foul area and rock as shown on the smoothsheet.

1.14) 1103_257_86

Survey Summary

Survey Position: 61° 01' 35.350" N, 146° 48' 00.088" W
Least Depth: -3.42 m
Timestamp: 2004-257.16:58:54.000 (09/13/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-257 / dp_1103_257
Profile/Beam: 2/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

NEW RK

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

-1 ¾fm (16708_1, 16700_1, 16013_1)
-1fm 5ft (16707_1, 531_1)
-3.4m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
QUASOU - 1:depth known
STATUS - 1:permanent
VALSOU - -3.417 m
WATLEV - 2:always dry

Office Notes

Concur with clarification. Rock is part of ledge. Chart ledge as shown on smoothsheet.

1.15) 1103_257_92

Survey Summary

Survey Position: 61° 02' 45.691" N, 146° 47' 07.526" W
Least Depth: 0.73 m
Timestamp: 2004-257.17:34:34.000 (09/13/2004)
DP Dataset: h11348 / 1103_nonechosounder_dp / 2004-257 / dp_1103_257
Profile/Beam: 3/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

EXT NEW LDG

CHD (16708) RK IS EXT NEW LDG

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16708_1, 16700_1, 16013_1)

0fm 2ft (16707_1, 531_1)

.7m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - EXT NEW LDG CHD (16708) RK IS EXT NEW LDG
VALSOU - 0.729 m
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart ledge as isolated rock based on chart scale.

1.16) 1103_257_91

Survey Summary

Survey Position: 61° 02' 47.115" N, 146° 47' 10.277" W
Least Depth: 7.85 m
Timestamp: 2004-257.17:28:40.000 (09/13/2004)
DP Dataset: h11348 / 1103_echosounder_dp / 2004-257 / dp_1103_257
Profile/Beam: 1/1
Charts Affected: 16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

CHD (16707) RK DISPROVAL

CHARTED (16707) ROCK AT POSN 61°02'47.305"N , 146°47'10.499"W (511543.96E , 6767982.65N) WAS DISPROVED DURING SHORELINE VERIFICATION BY A 3MIN, 40M VBES STAR SEARCH PATTERN IN CALM SEAS WITH 4M VISIBILITY.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

4 ¼fm (16708_1, 16700_1, 16013_1)

4fm 1ft (16707_1, 531_1)

7.8m (500_1, 50_1)

S-57 Data

[None]

Office Notes

Concur.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : May 9th, 2005

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P132-RA-2004
HYDROGRAPHIC SHEET: H11348

LOCALITY: Tongue Point to Sawmill Bay, Prince William Sound, AK
TIME PERIOD: August 22 - September 13, 2004

TIDE STATION USED: 945-4240 Valdez, AK
Lat. 61 7.5' N Long. 146 21.7' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.417 meters

TIDE STATION USED: 945-4374 Busby Island, AK
Lat. 60 53.9' N Long. 146 46.9' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.360 meters

MARKS: RECOMMENDED ZONING

Use zone(s) identified as: PWS67 & PWS68

Refer to attachments for zoning information.

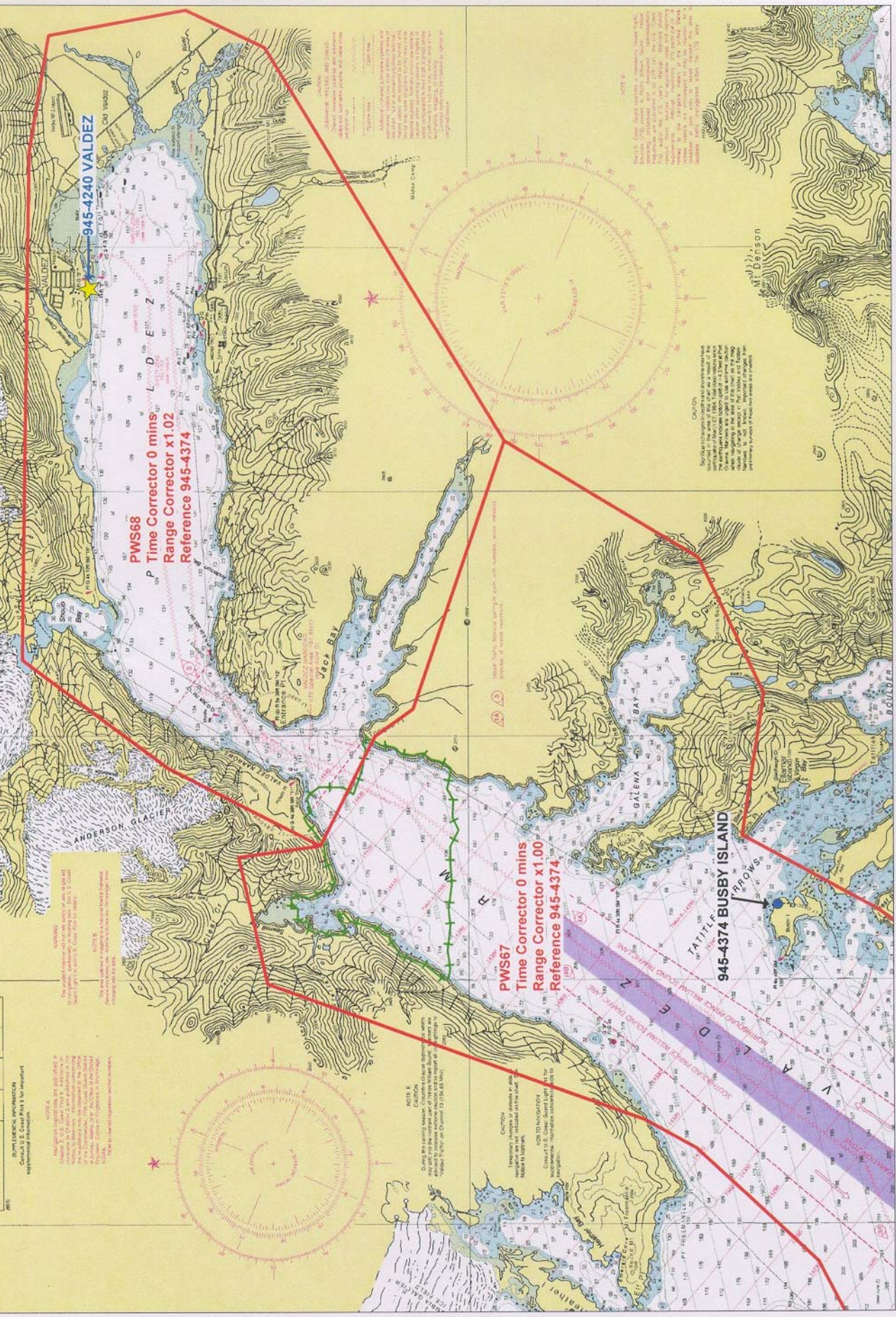
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the Tidezone corrector file (*.ZDF). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available.

Thomas V. Meo 5/16/05
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



Final Tidal Zoning for OPR-P132-RA-2004 Eastern Prince William Sound - Sheet H11348



PWS68
Time Corrector 0 mins
Range Corrector x1.02
Reference 945-4374

PWS67
Time Corrector 0 mins
Range Corrector x1.00
Reference 945-4374

NOTE E
During the period of maximum tidal range, the water level in the sound may be 1.5 to 2.0 feet higher than the normal high tide level. This is due to the effect of the wind and the shape of the sound. The water level in the sound may also be affected by the wind and the shape of the sound. The water level in the sound may also be affected by the wind and the shape of the sound.

CAUTION
Temporary changes of depths in area shown on this chart may occur. Consult U.S. Coast and Geodetic Survey for the latest information. Distances shown on this chart are approximate. Distances shown on this chart are approximate.

CAUTION
Special attention should be given to the information on this chart. The information on this chart is for general information only. The information on this chart is for general information only. The information on this chart is for general information only.

Final tide zone node point locations for OPR-P132-RA-2004, H11348

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

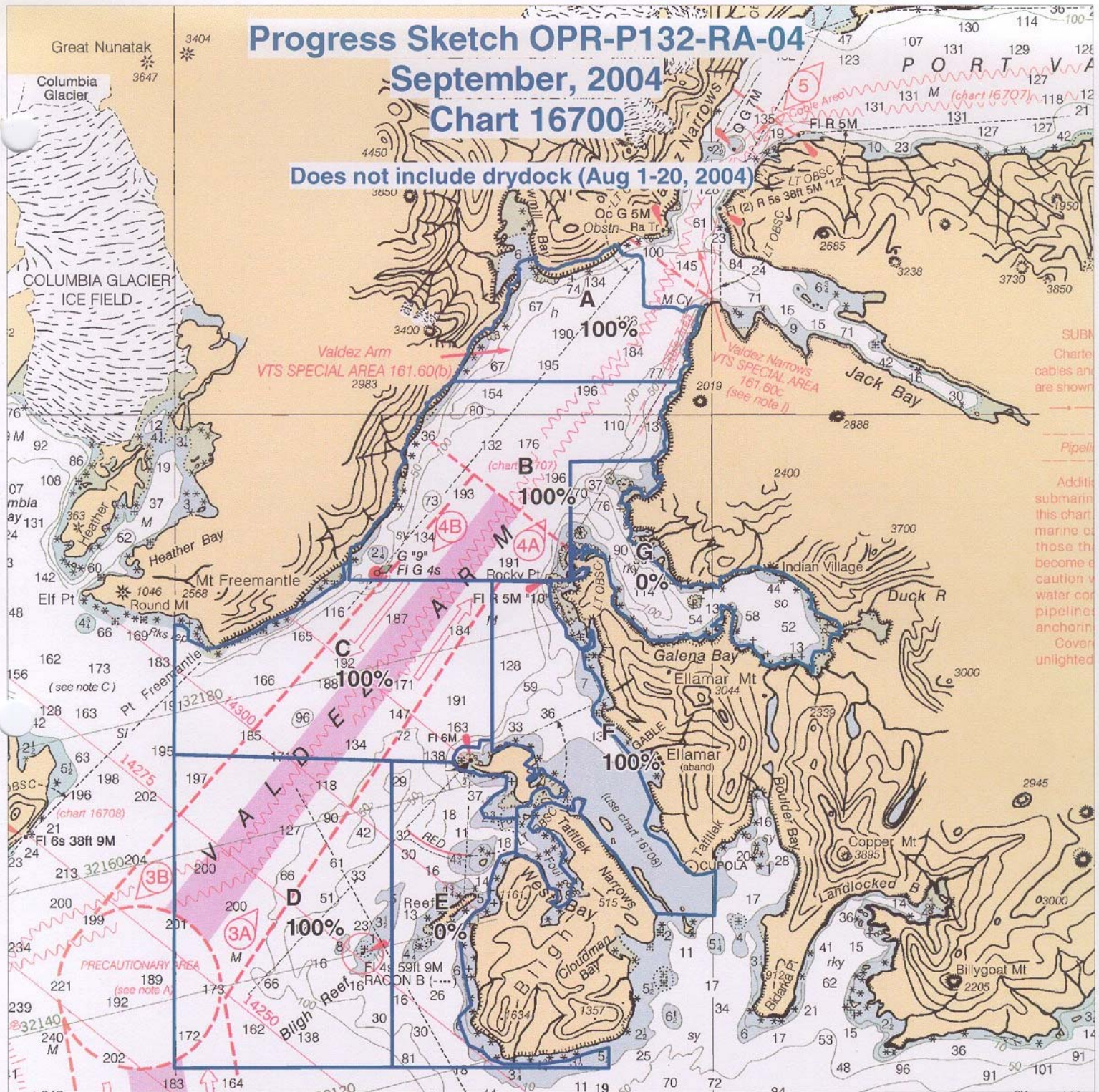
	Tide Station Order	AVG Time Correction	Range Correction
Zone PWS67	945-4374	0	1.00
-147.1433 60.855198	945-4240	0	0.98
-147.025646 60.885186			
-146.948102 60.925559			
-146.928717 60.942475			
-146.835761 61.066624			
-146.749176 61.076016			
-146.741526 61.049043			
-146.666789 61.03092			
-146.648105 61.018294			
-146.465267 60.987839			
-146.544989 60.924153			
-146.637467 60.902731			
-146.734514 60.910021			
-146.76628 60.881842			
-146.784771 60.8652			
-146.793773 60.859141			
-146.732848 60.815648			
-146.791093 60.808252			
-147.1433 60.855198			
Zone PWS68	945-4374	0	1.02
-146.741526 61.049043	9454240	0	1.00
-146.666789 61.03092			
-146.648105 61.018294			
-146.465267 60.987839			
-146.197016 61.066831			
-146.171659 61.092688			
-146.189008 61.137885			
-146.268432 61.14418			
-146.614604 61.146727			
-146.688437 61.099171			
-146.741526 61.049043			

Progress Sketch OPR-P132-RA-04

September, 2004

Chart 16700

Does not include drydock (Aug 1-20, 2004)



Project	Sheet Letter	H_num	HQ_Est_SNM	CumIPercCompPrev	CumIPercCompCu	SNM_CompCurf	CumSNMcom
P132-04	C	H11368	16	20	100	13	16
P132-04	D	H11366	22	0	100	22	22
P132-04	E		9	0	0	0	0
P132-04	B	H11349	14	75	100	4	14
P132-04	A	H11348	7	85	100	1	7
P132-04	G	H11350	7	0	0	0	0
P132-04	F	H11351	10	65	100	4	10

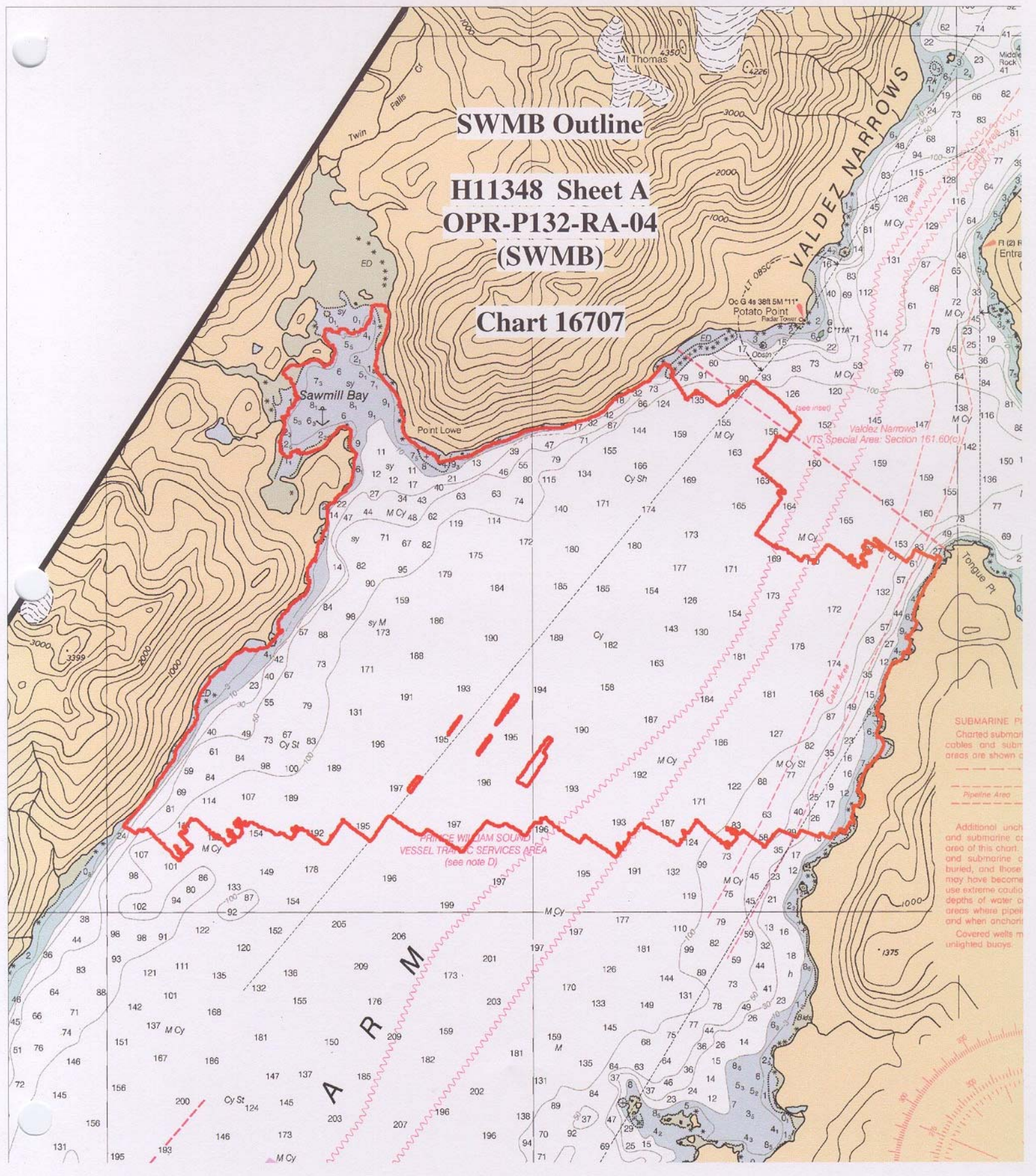
Project	Month	LNM_Hydr	LNM_MB	SV_Casts	Bottom_Sam	AWOIS_Items	Tide_Guage_Inst	DAS	DTime equip_H	DTime_Weather_	D_Time_other_f	Inport_H
OPR-P132	August	63.35	316.35	36.00	0.00	4.00	1.00	11.00	3.30	0.00	0.00	0.00
OPR-P132	September	25.96	343.43	27.00	0.00	5.00	0.00	14.00	3.50	0.00	1.25	72.00

SWMB Outline

H11348 Sheet A
OPR-P132-RA-04

(SWMB)

Chart 16707



SUBMARINE PIPELINES
Charted submarine cables and submarine pipeline areas are shown on this chart.

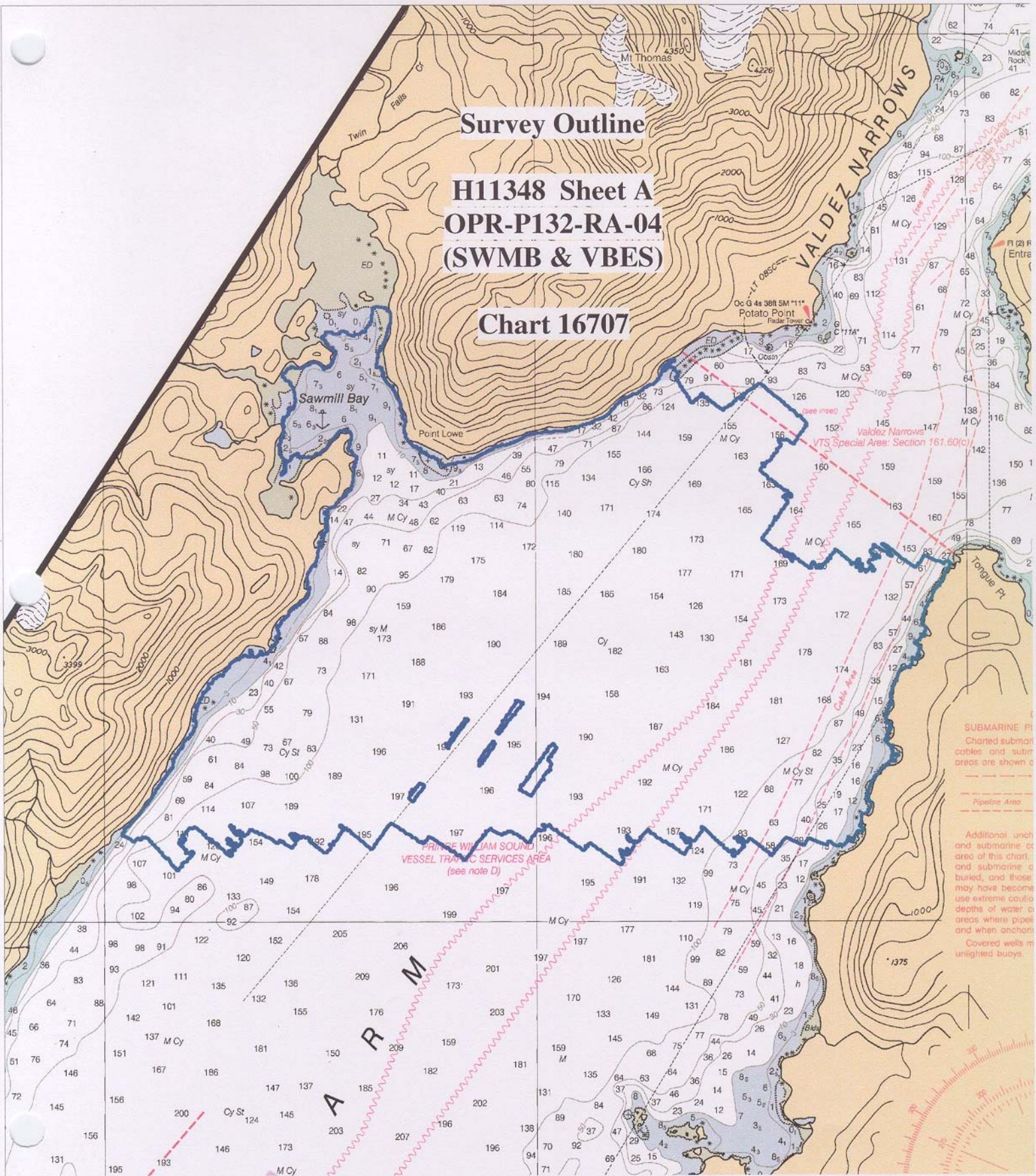
Pipeline Area

Additional uncharted and submarine cables and submarine pipelines may be buried, and those may have become covered wells or unlighted buoys.

Survey Outline

H11348 Sheet A
OPR-P132-RA-04
(SWMB & VBES)

Chart 16707



SUBMARINE PIPELINES
Charted submarine cables and submarine pipelines are shown as dashed lines.

Pipeline Area

Additional uncharted and submarine cables and submarine pipelines may have become buried, and those may have become unusable due to depths of water or areas where pipelines are covered wells marked with unlighted buoys.

APPROVAL SHEET
H11348

Initial Approvals:

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The survey records and digital data comply with NOS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

Bruce A. Olmstead Date: 8/28/2007

Bruce Olmstead
Cartographer, Cartographic Team
Pacific Hydrographic Branch

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

David O. Neander Date: 9/11/07

David O. Neander
CDR, NOAA
Chief, Pacific Hydrographic Branch

