H11349

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC**

Field No. **RA-10-14-04**

Registry No. **H-11349**

LOCALITY

State **Alaska**

General Locality **Eastern Prince William Sound**

Sublocality **Northwest of Rocky Point**

2004

CHIEF OF PARTY

CDR John W. Humphrey, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-11349

INSTRUCTIONS The hydrographic sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD NO.
RA 10-14-04

State **Alaska**

General Locality **Eastern Prince William Sound**

Sublocality **Northwest of Rocky Point**

Scale **1:10,000** Date of Survey **8/23/2004 - 9/13/2004**

Instructions Date **7/20/2004** Project No. **OPR-N132-RA-04**

Vessel **NOAA Ship Rainier, RA1 (1101), RA2 (1103), RA3 (1021), RA4 (1016), RA5 (1006)**

Chief of Party **Commander John W. Humphrey, NOAA**

Surveyed by **Rainier Personnel**

Soundings taken by echo sounder, hand lead, pole **Knudson 320M, Reson SeaBat 8101, 8125**

Graphic record scaled by **RAINIER PERSONNEL**

Graphic record checked by **RAINIER PERSONNEL**

Evaluation by **R. Shipley** Automated plot by **HP Design Jet 1050C**

Verification by **E. Domingo, R. Shipley**

Soundings in **Fathoms** at **MLLW**

REMARKS: **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 H11349

Project OPR-P132-RA-04
Eastern Prince William Sound, AK
Scale 1:10,000
August 23 – September 13, 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* 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 located in Valdez Arm, Alaska. This survey corresponds to Sheet B in the sheet layout provided with the Letter Instructions. (Figure 1.)

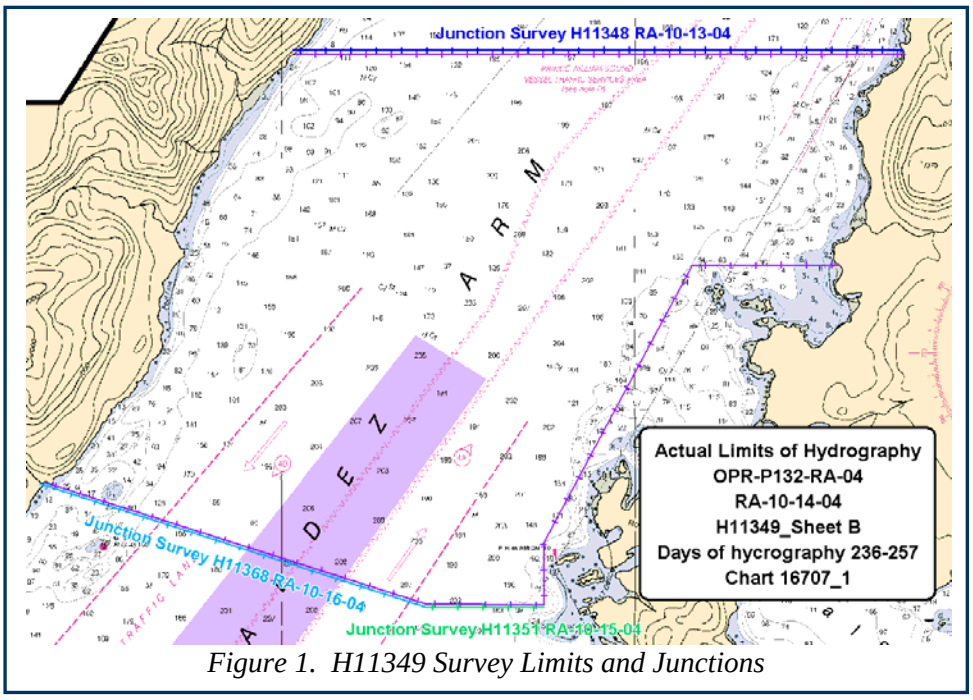


Figure 1. H11349 Survey Limits and Junctions

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area in waters 8 meters and deeper. SWMB coverage was also used in depths of 4-8 meters 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 236 to 257.

B. DATA ACQUISTION 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], which is 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 1101, 1103, 1006, 1016, and 1021. Launches 1006, 1016, and 1021 were used to acquire SWMB soundings and sound velocity profiles. Launches 1101 and 1103 were used to acquire VBES and Detached Positions (DPs).

No unusual vessel configurations were used for data acquisition.[3]

B2. Quality Control

Crosslines

VBES crosslines including buffer lines totaled 6.13 nautical miles, comprising 50% of mainscheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

SWMB crosslines totaled 19.37 nautical miles, comprising 6.59% of SWMB hydrography. The mainscheme bathymetry was manually compared to the crossline (XL) nadir beams in CARIS subset mode and agreed well with differences of 2 to 5 meters in water depths of 125 to 350 meters. In shoaler areas, differences were generally less than 1 meter.

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 Checkpoint Report was conducted using Pydro 4.9.0, and is submitted digitally in the Quality Control Folder, but is not submitted as a hard copy with this report due to its size. The report was generated using checkpoints created at the intersections of mainscheme lines and crosslines with an effort to choose survey areas with homogeneous seafloors. A total of 15 checkpoints were created in areas surveyed. Due to the steep and deep nature of this survey area, it was not possible to always choose checkpoints in level areas. For this reason, 6 of the 15 checkpoints had comparisons that did not pass IHO Order One depth accuracy standards (checkpoints 3, 6, 8, 9, 10, and 12). All of these checkpoints except number 6 were located on fairly steep slopes and can be reasonably discounted. Checkpoint 6 was 195m deep and, due to ELAC's variability in deep waters, can also be reasonably discounted.

Through manual examination of the data in CARIS subset mode and statistical analysis of data accuracy (through CARIS BASE surface), the Hydrographer believes that accuracy standards for this survey have been met.[4]

Junctions

The following contemporary surveys junction with H11349 (Figure 1):

Registry #	Scale	Date	Junction side
H11368	1:10,000	2004	Southwest
H11351	1:10,000	2004	Southeast
H11348	1:10,000	2004	North

This survey compared well with junction survey H11348 with depths generally agreeing within 1 to 2 fathoms. H11349 compared well with junction survey H11351 with depths generally agreeing within 1 to 2 fathoms. Junction survey H11368 compares well with survey H11349; areas deeper than 100 fathoms generally agree within 2 to 3 fathoms and shoaler areas generally agree within 1 fathom.

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.[5]

Data Quality Factors

Only one cast was taken by launch 1021 during this survey so no concatenated file could be made. Therefore, the single sound velocity cast acquired by launch 1021 was applied to all data collected by launch 1021.

Due to the depth of the cast taken "previous in time" to all data collected before UTM 18:59, on DN 238, by launch 1006, the single sound velocity cast *04238231.svp* was applied instead of the normal concatenated SVP file. The normal concatenated SVP file (H11349_1006_svp.svp) was applied to all other data collected by launch 1006 on DN 238.

B3. Data Reduction

Data reduction procedures for survey H11349 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.[6]

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 *Field Procedures Manual* (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 H11349.

An historical tide station 945-4429 Point Freemantle, AK was not installed according to the *Survey Letter Instructions* since no hydrographic work was done in that area this year. After being informed by the *Center for Operational Oceanographic Products and Services* (CO-OPS) that data was not currently needed from the historical tide station 945-4346 Ellamar, Tatitlek Narrows, AK, a command decision was made not to install a gauge at that location. A gauge was installed on Busby Island (945-4374) for the purpose of providing practice to new crewmembers. The data from this tide gauge was not utilized for this survey.

All data were reduced to MLLW using unverified observed tides from station 945-4240, Valdez, AK (in accordance with the *Hydrographic Survey Letter Instructions)* 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 H11349 was forwarded to N/OPS1 on September 15, 2004. A copy of the request is included in Appendix IV.[7]

D. RESULTS AND RECOMMENDATIONS

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

No AWOIS items were located within the limits of H11349.[8]

D.2 Chart Comparison

Survey H11349 was compared with charts 16707 (10th Ed.; Sept. 29, 2001, 1:40,000, corrected through 20th LNM, 2003), and 16708 (25th Ed.; Oct. 6, 2001, 1:79,291, corrected through 30th LNM, 2003).

Chart 16707

Depths from survey H11349 generally agreed with depths on chart 16707. In many instances, this survey found deeper or shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. This can be attributed to steep slopes and increased bottom coverage using SWMB methods.[9]

Chart 16708

Depths from survey H11349 generally agreed with depths on chart 16708. In some instances near shore, this survey found deeper soundings than those on the chart. This might be attributed to "cartographic license" in pulling shoaler depths out from the shore for display purposes.

Data accuracy standards and bottom coverage requirements have been met and survey data are adequate to supersede charted data in their common areas.

Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.[10]

D.3 Shoreline

Shoreline Source

Vector photogrammetric projects Ak0208 and Ak0210 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 which were then displayed in Hypack for field verification. In addition, features shown on the current editions of charts 16707 and 16708 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. 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.*[11]

A detailed *Detached Position and Bottom Sample* plot[12] in MapInfo format is provided showing all detached positions 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 "H11349_CFF_MHW" and shown in black. Changes to the MLLW shoreline, CFF or charted, are displayed in pink on the "H11349_Shoreline_Updates" MapInfo table. Charted MHW shoreline was not digitized for this survey.

Source Shoreline Changes and New Features

A new MLLW with a Northern extent of 60°58'53.42"N, 146°51'40.51"W; (507694.36, 6761573.14) and a Southern extent of 60°58'53.42"N, 146°51'40.51"W; (507766.02, 6761289.05),[13] was delineated using the VBES buffer (Figure 2).[14]

A "Foul" area was extended from it's previous southern limit of 60°58'32.41"N, 146°51'36.67"W; (507575.04, 6760161.54),[15] using the VBES buffer as it's new SWM extent.[16]

A new ledge positioned using DP 1103_257_405 marks the new southern extent of this foul area.[17]

Charted Features

The charted (16707) MLLW between positions 61°00'12.13" N, 146°50'29.63" W; (508876.73, 6763422.22) and 61°00'12.13" N, 146°50'29.63" W; (508430.92 , 6762875.35)[18] was determined to be as much as 100 m inshore of the charted location. 100% SWMB showed depths of between 4.6 and 22 fathoms well within the charted MLLW line (Fig. 3).[19]

Figure 3.

A charted rock at 60°59'15.22"N, 146°51'26.6"W; (507698.86, 6761514.56)[20] was not seen on shore nor in the water during a shoreline window (near MLLW). Hydrographers were unable to get close enough inshore during the shoreline window to disprove this rock. As this shoreline was verified on the last day of acquisition, Hydrographers were also unable to return at a high water state to disprove with SWMB. The Hydrographer recommends retaining the rock as charted.[21]

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.[22] 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 "H11349_ShorelineNotes."

D.4 Dangers to Navigation

One (1) danger to navigation (DTON) was found within the limits of H11349 and reported to the Marine Chart Division (MCD) for verification and final submission to the Seventeenth Coast Guard District on January 14, 2005 in the form of a digital XML files, "H11349_DTON1.xml." A copy of the preliminary Danger to Navigation file is included with the digital data and a hard copy of the DTON report is included in Appendix I.[23]

D.5 Aids to Navigation

No aids to navigation (ATONs) are located within the limits of H11349.[24]

D.6 Miscellaneous

Due to time constraints, no bottom samples were collected for this survey.[25]

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 H11349 is complete and adequate to supersede charted soundings[26] in their common areas. No additional work is required for this survey.[27]

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

Title	Date Sent	Office
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: - CST Ratnicr

TJW Marsha L. Wilson
Senior Survey Technician, NOAA

Field Operations Officer:

Kevin 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. Junction comparisons were made with H11348, H11351 and H11368 during office processing. Sounding and depth curves are in good agreement and a "Joins" note has been added to the smooth sheets.
[6] A complete description of vertical and horizontal control for survey H11349 can be found in the OPR-P132-RA-04 *Horizontal and Vertical Control Report* filed with the Project Records.
[7] Appendix IV is filed with the hydrographic records. Approved Tide Note dated May 9, 2005 is attached.
[8] Concur.
[9] Concur with hydrographer's statements.
[10] During office processing, survey H11349 was compared to chart 16707 (12th Ed., Dec 01, 2005). Concur with hydrographer's comments above.
[11] Attached to report.
[12] Filed with the survey data.
[13] Do not concur. The geographic positions noted above are incorrect. For the northern extent: strike 60° 58' 53.42"N, 146° 51' 40.51"W and insert 60° 59' 20.48"N, 146° 51' 28.03"W. For the southern extent: strike 60° 58' 53.42"N, 146° 51' 40.51"W and insert 60° 59' 11.30"N, 146° 51' 23.31"W.
[14] Concur. Chart area as shown on the smooth sheet.
[15] Do not concur. The geographic position noted above is incorrect. Strike 60° 58' 32.41"N, 146° 51' 36.67"W and insert 60° 58' 34.87"N, 146° 51' 36.17"W.
[16] Concur. Chart area as shown on the smooth sheet.
[17] Concur. Chart area as shown on the smooth sheet.
[18] Do not concur. The geographic positions noted above are incorrect. For the northern extent: strike 61° 00' 12.13"N, 146° 50' 29.63"W and insert 61° 00' 20.16"N, 146° 50' 09.05"W. For the southern extent: strike 61° 00' 12.13"N, 146° 50' 29.63"W and insert 61° 00' 02.52"N, 146° 50' 38.82"W.
[19] Concur. Chart area based on the current survey information.
[20] Do not concur. The geographic position noted is incorrect. Strike 60° 59' 15.22"N, 146° 51' 26.6"W and insert 60° 59' 18.59"N, 146° 51' 27.74"W
[21] Concur.
[22] Concur with clarification. Shoreline verification has been analyzed during office processing and shown on the smooth sheet as warranted.
[23] Attached to report.
[24] Concur.
[25] Concur. Charted bottom samples were retained on the Hdrawing.
[26] Insert "and features"
[27] Concur with hydrographer's statements.

1 - Danger To Navigation

2.1) Profile/Beam - 13/11 from h11349 / 1021_reson8101_hvf / 2004-241 / 002_1721

DANGER TO NAVIGATION

Survey Summary

Survey Position:	60° 59' 30.285" N, 146° 42' 01.992" W
Least Depth:	7.46 m
Timestamp:	2004-241.17:21:51.990 (08/28/2004)
Survey Line:	h11349 / 1021_reson8101_hvf / 2004-241 / 002_1721
Profile/Beam:	13/11
Charts Affected:	16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

Shoal sounding

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

4fm (16708_1, 16700_1, 16013_1)

4fm 0ft (16707_1, 531_1)

7.4m (500_1, 50_1)

Office Notes

DTON previously applied and superceded with current smoothsheet information.

H11349 Shoreline Report

Registry Number: H11349

State: Alaska

Locality: Eastern Prince William Sound

Sub-locality: Northwest of Rocky Point

Project Number: OPR-P132-RA-04

Survey Dates: 8/23/2004 - 9/13/2004

Charts Affected

Number	Version	Date	Scale
16707	10th Ed.	03/03/1933	1:40000
16708	25th Ed.	03/03/1933	1:79291
16700	27th Ed.	03/03/1933	1:200000
16013	28th Ed.	03/03/1933	1:969761
531	21st Ed.	03/03/1933	1:2100000
500	8th Ed.	03/03/1933	1:3500000
50	6th Ed.	03/03/1933	1:10000000

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
1.1	Sounding	0.58 m	60° 59' 19.238" N	146° 51' 22.322" W
1.2	Rock	0.04 m	61° 00' 25.181" N	146° 41' 25.984" W
1.3	Rock	1.20 m	61° 00' 00.495" N	146° 42' 00.076" W
1.4	Sounding	-0.10 m	60° 58' 30.273" N	146° 51' 37.869" W
2.1	Shoal	7.46 m	60° 59' 30.285" N	146° 42' 01.992" W

1 - New Features

1.1) Profile/Beam - 1/1 from h11349 / 1103_echosounder_dp / 2004-257 / dp_1103_257

Survey Summary

Survey Position:	60° 59' 19.238" N, 146° 51' 22.322" W
Least Depth:	0.58 m
Timestamp:	2004-257.16:02:33.000 (09/13/2004)
DP Dataset:	h11349 / 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 was disproved during Shoreline Verification by a 3 Min, 40 meter VBES star pattern search during calm seas with 3 meters of visibility.

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16708_1, 16700_1, 16013_1)

0fm 2ft (16707_1, 531_1)

.6m (500_1, 50_1)

Office Notes

Concur.

1.2) Profile/Beam - 1/1 from h11349 / 1101_nonechosounder_dp / 2004-242 / dp_1101_242

Survey Summary

Survey Position:	61° 00' 25.181" N, 146° 41' 25.984" W
Least Depth:	0.04 m
Timestamp:	2004-242.17:19:03.000 (08/29/2004)
DP Dataset:	h11349 / 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

[None]

Cartographically-Rounded Depth (Affected Charts):

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

0fm 0ft (16707_1, 531_1)

.0m (500_1, 50_1)

Office Notes

Concur. Chart rock as shown on the smooth sheet.

1.3) Profile/Beam - 2/1 from h11349 / 1101_nonechosounder_dp / 2004-242 / dp_1101_242

Survey Summary

Survey Position:	61° 00' 00.495" N, 146° 42' 00.076" W
Least Depth:	1.20 m
Timestamp:	2004-242.17:35:38.000 (08/29/2004)
DP Dataset:	h11349 / 1101_nonechosounder_dp / 2004-242 / dp_1101_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

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (16708_1, 16700_1, 16013_1)

0fm 4ft (16707_1, 531_1)

1.2m (500_1, 50_1)

Office Notes

Concur. Chart rock submerged at MLLW (0.4 Rk).

1.4) Profile/Beam - 1/1 from h11349 / 1103_nonechosounder_dp / 2004-257 / dp_1103_257

Survey Summary

Survey Position:	60° 58' 30.273" N, 146° 51' 37.869" W
Least Depth:	-0.10 m
Timestamp:	2004-257.15:47:46.000 (09/13/2004)
DP Dataset:	h11349 / 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:

Ext New Ldg is S Ext New Foul W/Rks

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

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

0fm 0ft (16707_1, 531_1)

-.1m (500_1, 50_1)

Office Notes

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

2 - Dangers to Navigation

2.1) Profile/Beam - 13/11 from h11349 / 1021_reson8101_hvf / 2004-241 / 002_1721

DANGER TO NAVIGATION

Survey Summary

Survey Position:	60° 59' 30.285" N, 146° 42' 01.992" W
Least Depth:	7.46 m
Timestamp:	2004-241.17:21:51.990 (08/28/2004)
Survey Line:	h11349 / 1021_reson8101_hvf / 2004-241 / 002_1721
Profile/Beam:	13/11
Charts Affected:	16707_1, 16708_1, 16700_1, 16013_1, 531_1, 500_1, 50_1

Remarks:

Shoal sounding

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

4fm (16708_1, 16700_1, 16013_1)

4fm 0ft (16707_1, 531_1)

7.4m (500_1, 50_1)

Office Notes

DTON previously applied and superceded with current smoothsheet information.

UNITED STATES DEPARMENT 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: H11349

LOCALITY: Northwest of Rocky Point, Prince William Sound, AK
TIME PERIOD: August 23 - 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

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PWS67

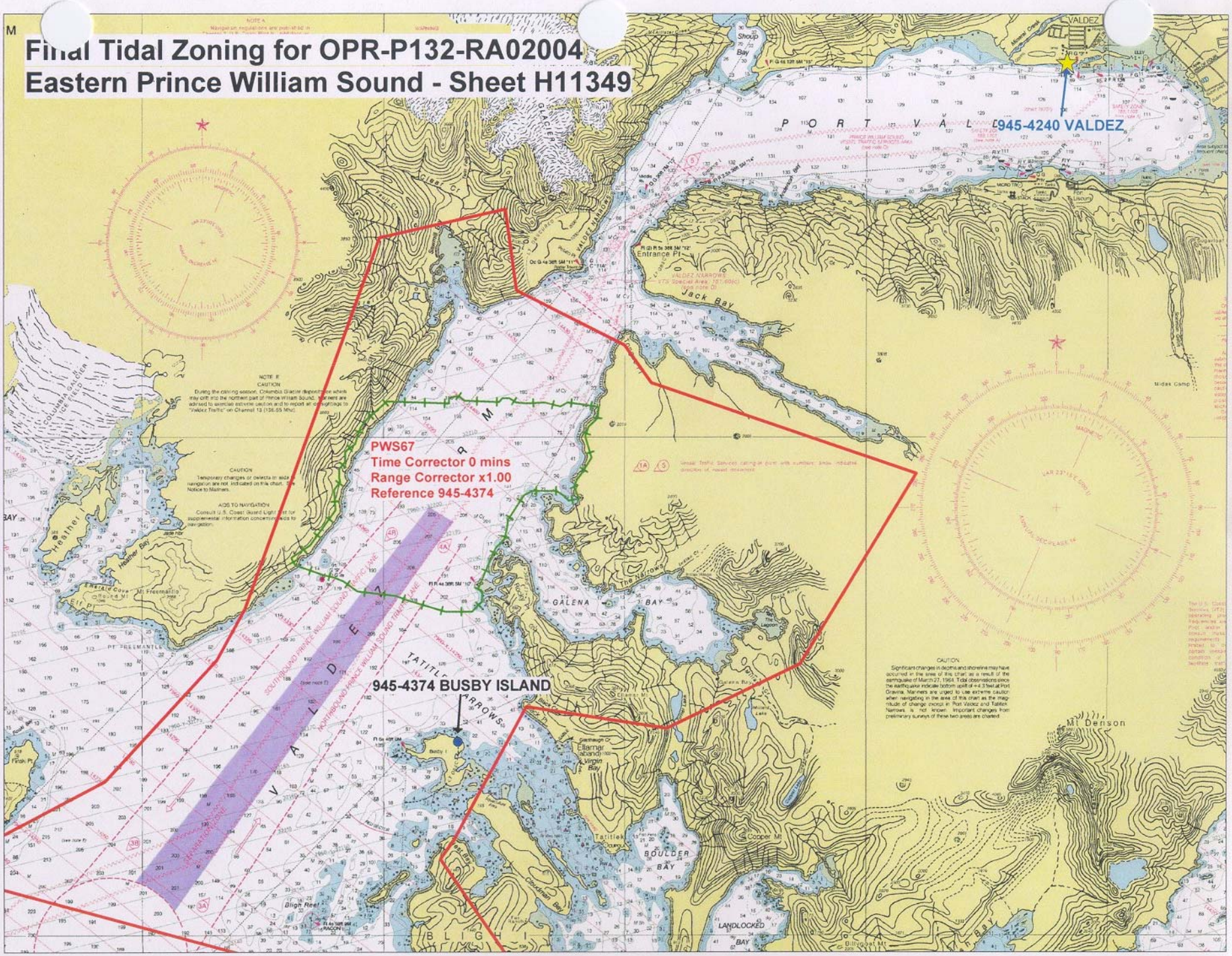
Refer to attachments for zoning information.

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 N. Neu 5/16/05
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

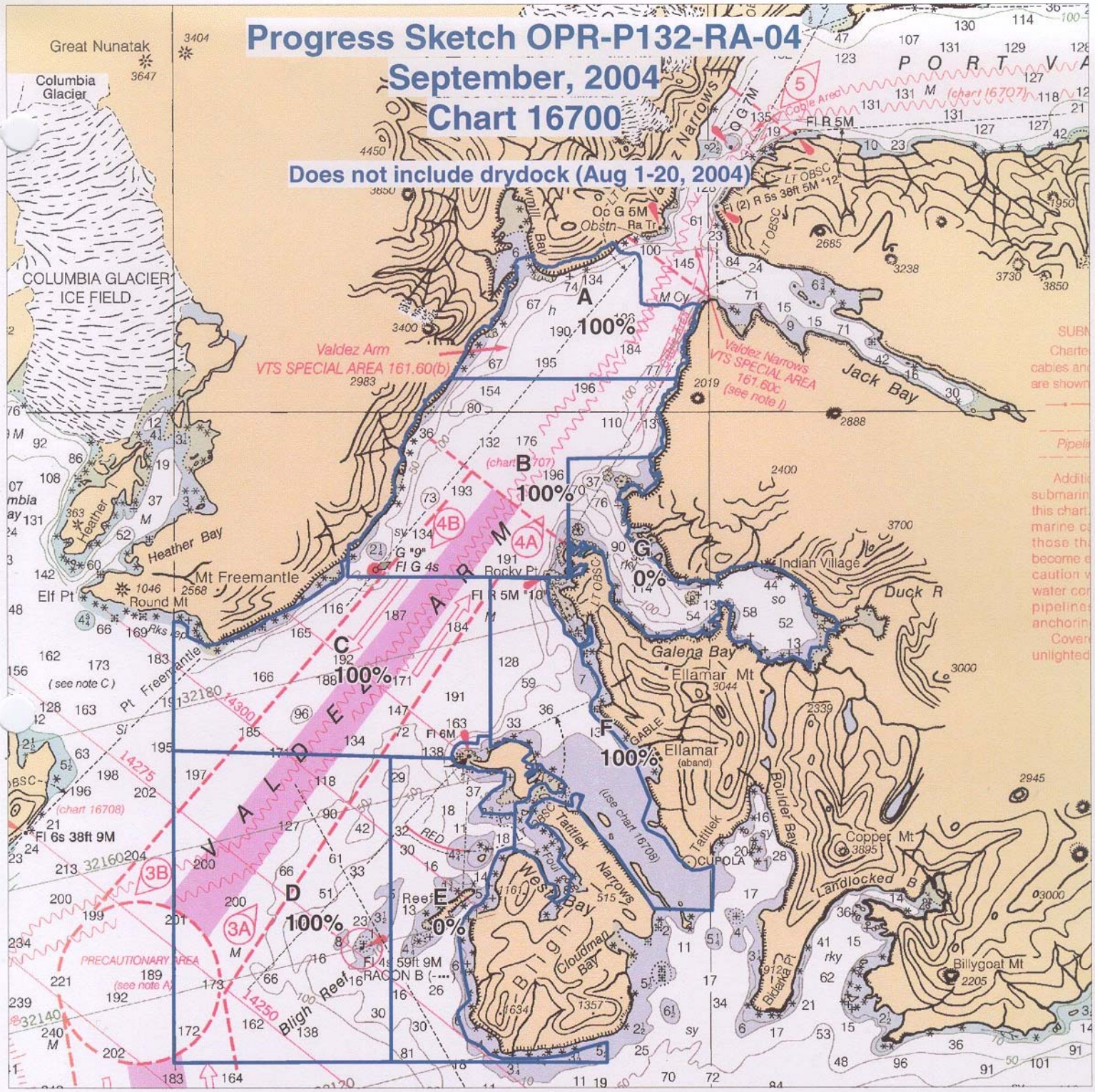
Final Tidal Zoning for OPR-P132-RA02004
Eastern Prince William Sound - Sheet H11349



Final tide zone node point locations for OPR-P132-RA-2004, H11349

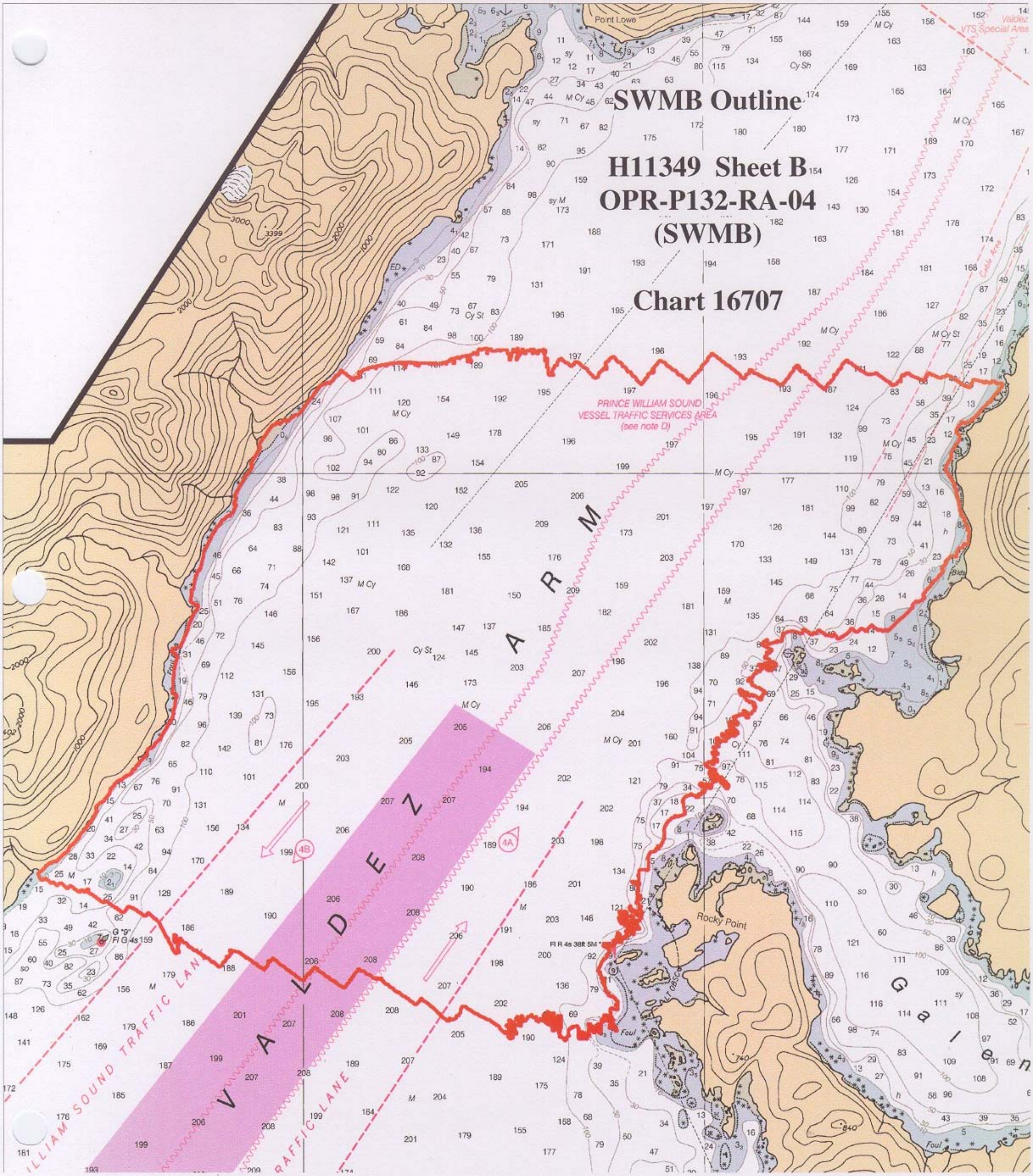
Format: Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction
Longitude in decimal degrees (negative value denotes Longitude West)
Latitude in decimal degrees

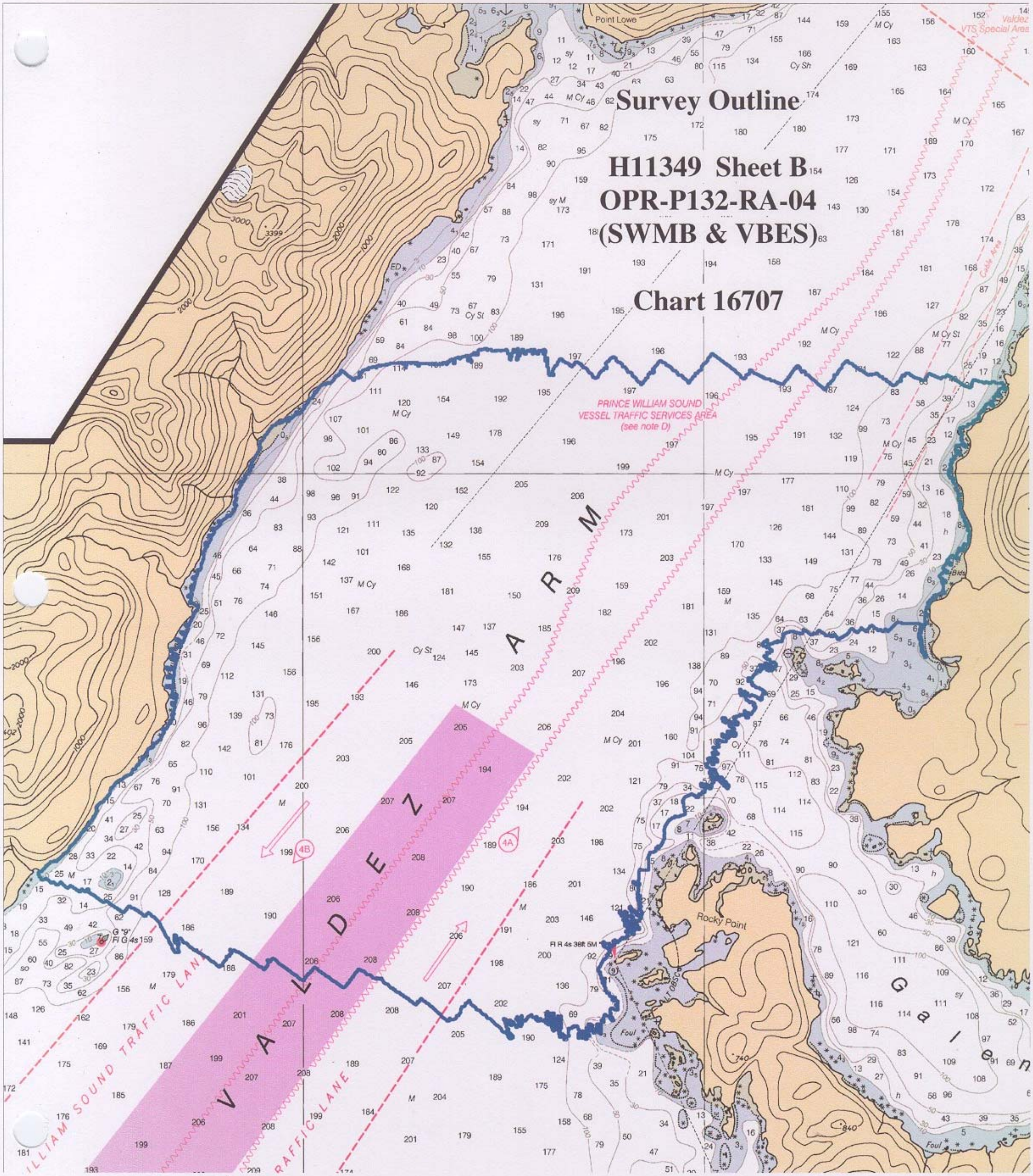
	Tide Station Order	AVG Time Correction	Range Correction
Zone PWS67	945-4374	0	1.00
-147.1433 60.855198	945-4240	0	0.98
-147.025646 60.885186			
-146.948102 60.925559			
-146.928717 60.942475			
-146.835761 61.066624			
-146.749176 61.076016			
-146.741526 61.049043			
-146.666789 61.03092			
-146.648105 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			



Project	Sheet_Letter	H_num	HQ_Est_SNM	CumlPercCompPrev	CumlPercCompCu	SNM_CompCurl	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_H	Inport_H
OPR-P13	August	63.35	316.35	36.00	0.00	4.00	1.00	11.00	3.30	0.00	0.00	0.00
OPR-P13	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
H11349 Sheet B
OPR-P132-RA-04
(SWMB)
Chart 16707
Point Lowe
PRINCE WILLIAM SOUND
VESSEL TRAFFIC SERVICES AREA
(see note D)
VTS Special Area
VALDEZ ARM
Rocky Point
Galen
Fl G 4s
Fl R 4s 38ft 5M


Survey Outline
H11349 Sheet B
OPR-P132-RA-04
(SWMB & VBES)
Chart 16707
Point Lowe
Valdez VTS Special Area
PRINCE WILLIAM SOUND
VESSEL TRAFFIC SERVICES AREA
(see note D)
VALDEZ ARM
Rocky Point
Foul
Fl R 4s 38ft 5M
G "9"
Fl G 4s

APPROVAL SHEET
H11349

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 disproval 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: 10/26/2007

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.

Gary C. Nelson for Date: 11/8/2007

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

Michael Riddle

Digitally signed by Michael Riddle
Reason: AWOIS & SURF check
Location: Operations Branch N/CS31
Date: 2007.12.14 13:29:28 -05'00'

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-11349

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
16707	9/21/07	[illegible signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via FULL APPLICATION
			Drawing No. of SOUNDINGS, CURVES AND features
			from the smooth sheet.
			~~Full Part Before After Marine Center Approval Signed Via~~
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.