H11013

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-10-12-00

Registry No. H11013

LOCALITY

State Alaska

General Locality Southwest Prince William Sound

Sublocality **Sawmill Bay to Point Grace**

2000

CHIEF OF PARTY
Commander D.R. Herlihy, 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-11013

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-10-12-00

State: Alaska

General Locality: Southwest Prince William Sound

Sublocality: Sawmill Bay to Point Grace

Scale: 1:10,000 Date of Survey: 9/27 -10/26/00

Instructions Date: 8/25/00 Project No.: OPR-P139-RA-00

Vessel: NOAA Ship RAINIER-2120 and Launches 2122, 2124, 2125, and 2127

Chief of Party: Commander D. R. Herlihy, NOAA

Surveyed by: Ship personnel and physical scientists from Pacific Hydrographic Branch

Soundings taken by echo sounder, hand lead, pole: Knudsen 320M, Reson 8101, Seabeam 1180

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: R. Davies Automated plot by: HP DesignJet 1050C

Verification by: E. Domingo, R. Mayor, K. Sampadian, Russ Davies

Soundings in: Fathoms and tenths at: MLLW

REMARKS: Time in UTC.

Revisions and annotations appearing as endnotes were generated during office processing.

All depths listed in this report are referenced to mean lower low water unless otherwise noted.

Descriptive Report to Accompany Hydrographic Survey H11013

Project OPR-P139-RA-00 Southwest Prince William Sound
Scale 1:10,000
September - October, 2000
NOAA Ship RAINIER
Chief of Party: Commander Daniel R. Herlihy, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-P139-RA-00, dated August 25, 2000, and the Draft Standing Project Instructions dated April 6, 1998. This project responds to requests from the National Imagery and Mapping Agency (NIMA), the U.S. Coast Guard, the Southwest Alaska Pilot's Association, cruise ship lines, and local fishermen to provide updated charts for the southwest Prince William Sound area. Marine traffic throughout this area consists of commercial fishing vessels, fishing charter boats, Alaska Marine Highway ferries, and barge traffic.

The survey area is located in Southwest Prince William Sound, Alaska from Sawmill Bay to Point Grace. The survey's northern limit is latitude 60°07'17.01"N and the southern limit is latitude 60°00'2.6"N. The survey's western limit is longitude 148°04'01.7"W and the eastern limit is longitude 147°49'12.7"W.

Data acquisition was conducted from September 27 to October 26, 2000 (DN 271 to 300).

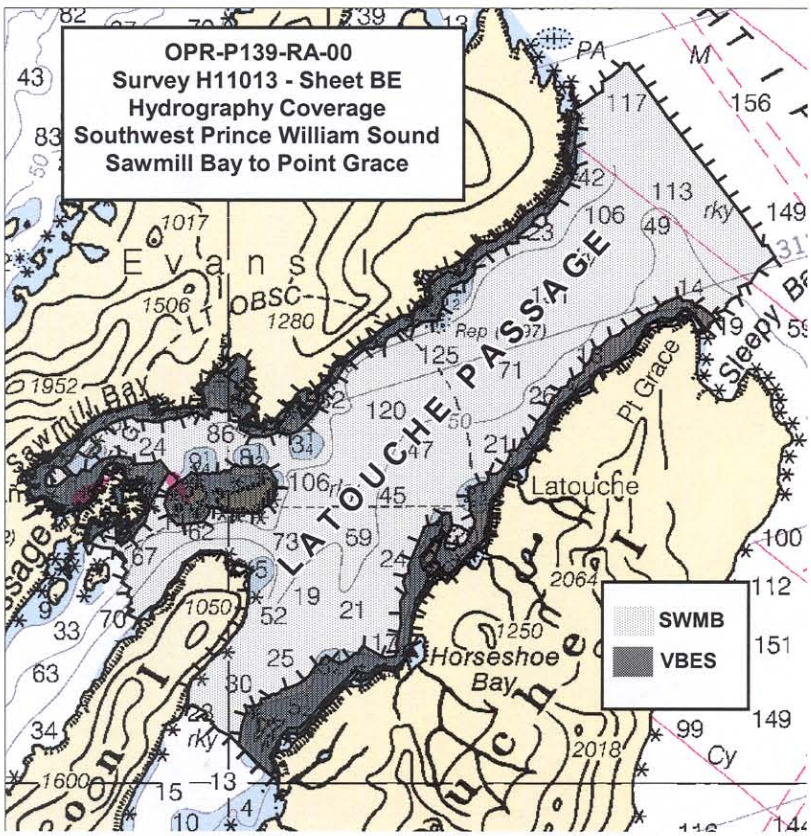


Figure 1. H11013 Survey Coverage

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-P139-RA-00 Data Acquisition and Processing Report* 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 RAINIER survey launches (vessel numbers, 2122, 2124, 2125, and 2127). Vessel 2124 and was used to acquire shallow-water multibeam soundings and sound velocity profiles. Vessels 2122 and 2125 were used to acquire vertical-beam echo soundings. Vessel 2125 was also used to collect bottom samples. Vessel 2122, 2125, and 2127 were used to obtain detached positions during shoreline verification. No unusual vessel configurations or problems were encountered on this survey.[1]

B2. Quality Control

Crosslines

VBES crosslines totaled 18.23 nautical miles, comprising 27.99% of mainscheme hydrography. Crosslines agreed within one fathom of mainscheme hydrography. [2]

SWMB crosslines totaled 35.43 nautical miles, comprising 10.97 % of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the RESON checkline file averaged 82.796%, and the Quality Control Report (CARIS HIPS) for the Seabeam checkline file averaged 74.712%. See Appendix V [3]for the detailed reports. Each report had a depth tolerance factor of 0.013, which conforms to International Hydrographic Organization Order I specifications as detailed in Special Publication S-44, Edition 4; and NOAA depth accuracy standards as set forth in the NOS Hydrographic Surveys Specification and Deliverables Manual (HSSDM). Given the steep and irregular topography of the survey, the lower averages were expected.

Junctions

The following contemporary surveys junction with H11013:[4]

Registry #	Scale	Date	Junction side
H11017	1:10,000	2000	South
H11005	1:40,000	2000	Northern
H11012	1:10,000	2000	Northeastern

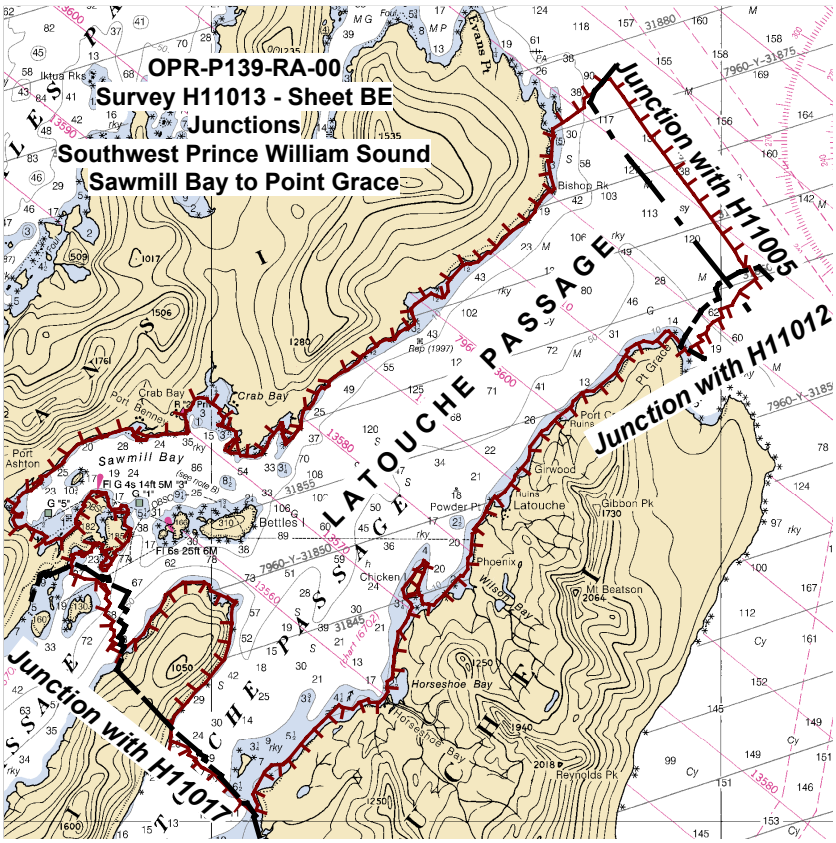


Figure 2. H11013 Junctions

Survey H11005 junctions well with this survey, with depths generally agreeing within one fathom or less.[5]

Survey H11012 junctions well with this survey, with depths generally agreeing within one fathom or less.[6]

At the time of this report, processing of H11017 was not complete. Comparisons with H11017 will be discussed in the Descriptive Report for H11017.[7]

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.[8]

Data Quality Factors

Several eelgrass beds were found in shoal areas of 10 meters or less. The Hydrographer noted the eelgrass visually in the field, on the VBES echosounder trace, and on the Detached Position and Bottom Sample Plot. [9] The evidence of eelgrass was found during SWMB processing as heavy noise. When possible, the noise was removed during processing; however, it was often difficult to ascertain if there were features concealed underneath the eelgrass. In those instances, the noise was left in. On average, the noise measured one meter in height above the bottom.[10]

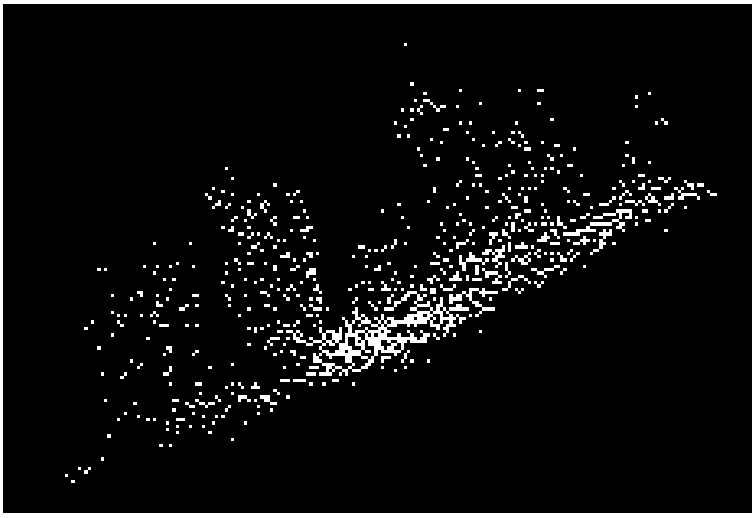


Figure 3. Image from CARIS depicting eelgrass obscuring detection of the bottom

B3. Data Reduction

Data reduction procedures for survey H11013 conform to those detailed in the *OPR-P139-RA-00 Data Acquisition and Processing Report* [11].

B. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11013 can be found in the *OPR-P139-RA-00 Horizontal and Vertical Control Report* submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

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 beacons at Potato Point, AK (ID #895), and Cape Hinchinbrook, AK (ID #894) were utilized during this survey. Launch-to-launch DGPS performance checks were performed weekly in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in *OPR-P139-RA-00 Horizontal and Vertical Control 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 stations at Cordova, Alaska (945-4050) and Valdez, Alaska (945-4240) serve as control for datum determination. RAINIER personnel installed Sutron 8200 "bubbler" tide gauges at the following subordinate stations in accordance with the Project Instructions:

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Perch Point	945-4561	30-day	12 September 2000	26 October 2000
Latouche	945-4713	30-day	12 September 2000	27 October 2000
Point Elrington	945-4814	30-day	25 September 2000	25 October 2000

Heavy surf and foul shoreline precluded the installation of a new station in San Juan Bay, Montague Island, as required by the Letter Instructions. After consultation with N/CS31 and N/OPS1, the following historical station was reoccupied in lieu of a new station at San Juan Bay:

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
MacLeod Harbor	945-4674	30-day	21 September 2000	27 October 2000

Raw water level data from these gauges were forwarded to N/OPS1 throughout the project period, with the final package submitted on November 27, 2000 in accordance with HSG 50 and FPM 4.7. The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing. [12] A request for delivery of final approved (smooth) tides for survey H11013 was forwarded to N/OPS1 on November 1, 2000 in accordance with FPM 4.8 [13].

C. RESULTS AND RECOMMENDATIONS [14]

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

A total of 10 AWOIS items were located within the limits of H11013 and investigated during this survey. Investigation methods, results, and charting recommendations have been entered into the Microsoft Access AWOIS database and are submitted with the digital data. Printouts of the AWOIS Database forms are included in this report.[15]

D.2 Chart Comparison

Survey H11013 was compared with chart 16701 (17th Ed.; 28 July 1998, 1:81,436) [16] and chart 16702 (10th Ed.; 13 June 1998, 1:40,000).[17]

Depths from charts 16701 and 16702 adequately agree with the current survey; the survey revealed depths generally two to eight fathoms shoaler than charted. [18] Notable differences are addressed below. All of the items discussed were covered with 100% shallow-water multibeam.[19]

In the vicinity of a charted (16701, 16702) 60-fathom sounding, the present survey revealed a depth of 46 fathoms (Pos. #546144) at 60°02'49.173"N, 147°57'50.733"W (446302.7E, 6657036.1N).[20]

In the vicinity of a charted (16701, 16702) 38-fathom sounding, the present survey revealed a depth of 29 fathoms (Pos. #315622) at 60°02'35.981"N, 147°59'22.054"W (444883.8E, 6656648.9N).[21]

In the vicinity of a charted (16701, 16702) 62-fathom sounding, the present survey revealed a depth of 51 fathoms (Pos. #309858) at 60°02'31.331"N, 148°00'52.273"W (443485.7E, 6656526.2N).[22]

In the vicinity of a charted (16701, 16702) 68-fathom sounding, the present survey revealed a depth of 56 fathoms (Pos. #534923) at 60°03'58.252"N, 147°55'08.867"W (448836.6E, 6659137.3N).[23]

In the vicinity of a charted (16701, 16702) 34-fathom sounding, the present survey revealed a depth of 24 fathoms (Pos. #561400) at 60°03'34.462"N, 147°55'25.555"W (448568.3E, 6658405.0N).[24]

In the vicinity of a charted (16701, 16702) 77-fathom sounding, the present survey revealed a depth of 73 fathoms (Pos. #704741) at 60°02'34.404"N, 148°01'45.461"W (442664.2E, 6656634.0N).[25]

In the vicinity of a charted (16701, 16702) 25-fathom sounding, the present survey revealed a depth of 15.7 fathoms (Pos. #388331) at 60°01'17.034"N, 147°58'59.465"W (445197.0E, 6654201.6N).[26]

In the vicinity of a charted (16701, 16702) 78-fathom sounding, the present survey revealed a depth of 67 fathoms (Pos. #325217) at 60°02'29.694"N, 147°59'57.276"W (444335.9E, 6656462.6N).[27]

In the vicinity of a charted (16702) 87-fathom sounding, the present survey revealed a depth of 25 fathoms (Pos. #359495) at 60°02'16.978"N, 147°58'26.500"W (445734.7E, 6656048.3N).[28]

In the vicinity of a charted (16702) 31-fathom sounding, the present survey revealed a depth of 15.0 fathoms (Pos. #367041) at 60°02'01.645"N, 147°58'28.245"W (445700.7E, 6655574.4N).[29]

In the vicinity of a charted (16702) 35-fathom sounding, the present survey revealed a depth of 20.1 fathoms (Pos. #622293) at 60°01'08.439"N, 147°58'49.781"W (445343.0E, 6653933.5N).[30]

References to an uplift of 7.0 feet in Sawmill Bay on chart 16701 (Note B) and 16702 (Caution) generally agree with the depths found by the current survey.[31]

Several oil boom buoys were found in Sawmill Bay that are not on charts 16701 or 16702. The Hydrographer recommends charting these buoys as depicted on the Detached Position and Bottom Sample plot. [32]

Many of the bottom samples obtained from this survey do not match those on the chart (16701, 16702). The Hydrographer recommends that the bottom samples depicted on the Detached Position and Bottom Sample plot supersede the chart.[33]

Final sounding comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.[34]

D.3 Shoreline

N/NGS3 supplied photogrammetric shoreline data in MapInfo format for DM-10302 for use as source shoreline. The digital manuscript (DM) vector data were used in Hypack for field verification. In addition, features shown on the current edition of charts 16700, 16701, and 16702 were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.

Shoreline verification was conducted near predicted low water in accordance with the Project Instructions and FPM 6.1 and 6.2. For this survey the general limit of safe navigation of a survey launch was five to twenty meters offshore of the apparent low-water line. Water depths along this limit of safe navigation are approximately four meters at Mean Lower Low Water (MLLW). Features unreachable by survey launch are the Hydrographer's approximate representation of the shoreline.

Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms, and processed in HPS. These indicate revisions to features, and features not found on the digital manuscript or chart. In addition, annotations describing shoreline were recorded on hard copy plots of digitized shoreline. DP forms are included in Section I of the *Separates to be Included with Survey Data.*

A detailed Detached Position and Bottom Sample plot, in both paper copy and 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.[35]

Source Shoreline Changes and New Features

The features found during this survey generally matched those of the source shoreline. DM rocks were often identified as high points or extents of ledges. Changes and new features were found and are depicted on the Detached Position and Bottom Sample plot.[36]

The DM stream at 60°05'07.590"N, 147°56'14.990"W (448061.9E, 6661215.0N) created new stream deposits that extend 170 meters offshore. The extent of these deposits (i.e. the approximate MLLW line) was determined by an echo sounder investigation (Pos. #20435-20447) during shoreline verification. The least depth in this area was -0.8 meters (Pos. #20175). The Hydrographer recommends charting the approximate MLLW line as depicted on the Detached Position and Bottom Sample plot.[37]

A new small boat harbor dock was found in southwest Crab Bay in the vicinity of 60°03'58.890"N, 148°00'32.250"W. The northwest (Pos. #20976), northeast (Pos. #20975), eastern (Pos. #20974), and southern (Pos. #20973) extents of the dock have been defined. The western edge of the dock is lined with numerous small boat slips, and the eastern edge is open for mooring. Along the northeast side of the dock is a floating pier (Pos. #20985) at 60°03'59.085"N, 148°00'30.182"W (443868.9E, 6659235.5N) where float planes moor. The Hydrographer recommends adding these features to the chart.[38]

A State Ferry pier was found in the vicinity of 60°03'48.400"N, 148°00'31.640"W. The corners of the pier were positioned to third order standards using static GPS (Pos. #5000-5002, 20966). Refer to the *OPR-P139-RA-00 Horizontal and Vertical Control Report* for positioning methods and detailed results. Just north of the pier is the Chenega Bay boat ramp (Pos. #20970, 20971) at 60°03'50.450"N, 148°00'30.510"W. The Hydrographer recommends adding these features to the chart.[39]

Charted Features

The charted rock (16701) at 60°03'47.874"N, 148°00'50.425"W (443550.6E, 6658893.5N) was disproved after conducting a 5-minute visual and echo sounder search (Pos. #20988-20995) within a 50-meter radius. The area was also covered with 100% shallow-water multibeam. The depth in this area was 4.8 meters (Pos. #21133). The Hydrographer recommends removing this rock from the chart. [40]

The charted rock (16701, 16702) at 60°03'26.929"N, 147°53'58.941"W (449904.6E, 6658153.5N) was disproved after conducting a 5-minute echo sounder search (Pos. #50112 – 50129) within a 50-meter radius. The area was also covered with 100% shallow-water multibeam. A depth of 0.9 meters (Pos. #197635) was found at 60°03'24.446"N, 147°53'59.035"W (449902.1E, 6658076.7N), 60 meters away. The Hydrographer determined this depth (Pos. #197635) was a rock after analysis in CARIS swath and subset editors. The Hydrographer recommends removing the charted rock at 60°03'26.929"N, 147°53'58.941"W, and charting the rock at 60°03'24.446"N, 147°53'59.035"W. [41]

The charted rock (16701, 16702) at 60°03'01.687"N, 148°02'37.296"W (441875.5E, 6657490.5N) was disproved after conducting a 5-minute visual and echo sounder search (Pos. #21271-21275) within a 100-meter radius. The area was also covered with 100% shallow water multibeam. The depth in this area was 14.7 meters (Pos. #21276). The Hydrographer recommends removing this rock from both charts.[42]

The charted rock (16701, 16702) at 60°00'28.065"N, 147°59'32.636"W (444660.7E, 6652694.5N) was disproved after conducting a 5-minute echo sounder search (Pos. #50967-50973) within a 60-meter radius.

The area was also covered with 100% shallow water multibeam. A depth of 0.2 meters (Pos. #174863) was found at 60°00'25.765"N, 147°59'32.922"W (444655.2E, 6652623.4N), 70 meters away. The Hydrographer determined this depth (Pos. #174863) was a rock after analysis in CARIS swath and subset editors. The Hydrographer recommends removing the charted rock at 60°00'28.065"N, 147°59'32.636"W, and charting the rock at 60°00'25.765"N, 147°59'32.922"W. [43]

The charted rock (16702) at 60°01'16.754"N, 147°56'33.384"W (447458.6E, 6654160.0N) was disproved after conducting a 5-minute echo sounder search (Pos. #50840-50846) within a 50-meter radius. The area was also covered with 100% shallow water multibeam. The depth in this area was 13.3 meters (Pos. #50845). The Hydrographer recommends removing the rock from the chart.[44]

Recommendations

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample plot and final sounding plot supersede and complement shoreline information compiled on the DM as noted. [45] These revisions are recorded in the MapInfo digital files named "H11013_Shoreline" and "H11013_ShorelineUpdates". In addition, field notes made by the Hydrographer, including verification of source features and descriptions of shoreline classification, are submitted in the digital MapInfo files named "H11013_ShorelineNotes" and "H11013_ShorelineNotesInset".[46]

D.4 Dangers to Navigation

One danger to navigation was found and submitted to the U.S. Coast Guard on October 3, 2000. Twenty-six additional dangers to navigation were found and reported to the Pacific Hydrographic Branch for verification and submission to the U.S. Coast Guard on March 16, 2001. Copies of the Danger to Navigation Reports are included in this report. The final second report will be inserted by the Pacific Hydrographic Branch following verification and submission to the U.S. Coast Guard.[47]

D.5 Aids to Navigation

All aids to navigation within the survey limits were found to be correctly charted and serve their intended purpose.[48]

D.6 Miscellaneous

A new town named Chenega Bay was found in the vicinity of 60°03'54.420"N, 148°00'39.920"W. The towns of Crab Bay and Port Benney no longer exist. The Hydrographer recommends removing the geographic names of Crab Bay and Port Benney on the chart (16701, 16702) and replacing them with Chenega Bay.[49] Form 76-155 is included in Appendix II [50].

A number of new cultural features exist in Sawmill Bay. The new State Ferry pier discussed in section D.3 has increased vessel traffic in the area. The Hydrographer recommends creating a larger scale inset on chart 16702.[51]

E. APPROVAL

As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; the Field Procedures Manual, and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2000.

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 H11013 is complete and adequate to supersede charted soundings and features in their common areas. There is no additional work required on this survey. [52]

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

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-P139-RA-00	November 25, 2000	N/CS34
Horizontal and Vertical Control Report for OPR-P139-RA-00	TBD	N/CS34
Tides and Water Levels Package for OPR-P139-RA-00	November 27, 2000	N/OPS1
Coast Pilot Report for OPR-P139-RA-00	TBD	N/CS26

Approved and Forwarded:

Daniel R. Herlihy
Commander, NOAA
Commanding Officer

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

Survey Sheet Manager:

for Lisa N. Cooper
Ensign, NOAA

Field Operations Officer:

Edward J. Van Den Ameele
Lieutenant, NOAA

Revisions Compiled During Office Processing and Certification

[1] Concur
[2] Concur
[3] Filed with the hydrographic data
[4] PHB Revision – Survey H10715, scale 1:10,000, year 1995, Junction side North, should be added to the list below. This survey adjoins the present survey because the survey was done in 1995. The soundings agree within 1 fathom.
[5] Concur
[6] Concur
[7] PHB Revision - H-11017 has been submitted to PHB and the junction is complete, generally agreeing within one fathom or less.
[8] PHB Revision – All junctions are considered complete.
[9] PHB Revision – All eelgrass notations on the field sheets were transferred to the smooth sheet.
[10] PHB Revision – In all areas of eelgrass, depths ranged from 0 to 1 fathom. Depths within these areas were compared and no significant discrepancies were found.
[11] Concur
[12] PHB Revision – Final tides were applied to the survey during office processing. See attached tide note dated February 13, 2001.
[13] Filed with the hydrographic data
[14] The present survey was compared to the following prior surveys.

Survey	Year	Scale	Datum
H2833	1906	1:20,000	Unknown
H4679	1927	1:10,000	NAD27
H4723	1927	1:10,000	NAD27
H4776	1927	1:10,000	NAD27
H8913	1967	1:10,000	NAD27

The above prior surveys were conducted using early echo sounder technology, leadlines, and visual positioning. Present survey depths reflect a consistent shoal bias of 1-3 fathoms. These depth differences can be attributed to present state-of-the-art positioning, sounding, and data acquisition techniques. Any remaining differences with the prior surveys can likely be attributed to past earthquake activity in Prince William Sound. In accordance with the Hydrographic Guideline No. 39, the effects of the 1964 Prince William Sound earthquake were considered in the comparison of this survey. Prince William Sound experienced a bottom uplift of 4-32 feet during the 1964 earthquake. However, due to differences in data acquisition methods, no reasonable adjustment value for prior soundings could be determined. The uninvestigated rocks originating from prior surveys H02964, H04937, H04949, and H04950 were transferred to the present survey. With the transfer of the rocks, the present survey is adequate to supersede all prior surveys within the common area.
[15] Concur
[16] PHB Revision – A comparison with Chart 16701, scale 1:81436, was not accomplished because the present survey falls within area of chart 16702 which is at a smaller scale of 1:40,000.
[17] PHB Revision – Office chart comparison was made to the 11th edition of chart 16702, dated July 1, 2003. This chart has been updated with the dangers to navigation submitted by the hydrographer.
[18] Concur
[19] PHB Revision – Chart the following areas based on the present survey information.
[20] Concur
[21] Concur
[22] Concur
[23] Concur
[24] Concur
[25] Concur
[26] Concur
[27] Concur
[28] Concur
[29] Concur
[30] Concur

[31] PHB Revision – In most areas, 7 ft difference is correct but differences of up to 2 fathoms do exist in others areas of Sawmill Bay. The caution note in reference to Sawmill Bay on chart 16702 should be revised. It no longer applies because the present survey (2000) will be used to update soundings and features in Sawmill Bay.
[32] Concur with clarification, Chart the oil boom buoys as shown on the smooth sheet.
[33] Concur
[34] Concur with recommendation, Chart the bottom characteristics as shown on the smooth sheet.
[35] Concur. Changes on the DP and BS plots have been shown on the smooth sheet as warranted.
[36] Concur. DP and BS plot is filed with the hydrographic data.
[37] Concur, see smooth sheet for the depiction of the area.
[38] Concur. Chart this area based on the present survey information.
[39] Concur. Chart this area based on the present survey information.
[40] Concur.
[41] Concur. Chart area as shown on the smooth sheet.
[42] Concur. Chart area as shown on the smooth sheet.
[43] Concur. Chart area as shown on the smooth sheet.
[44] Concur. Chart area as shown on the smooth sheet.
[45] Concur. Changes on the DP and BS plots have been shown on the smooth sheet as warranted.
[46]
[47] PHB Revision – The approved dangers to navigation letter are attached to this report.
[48] Concur with clarification, changes on the DP and BS plots have been analyzed during office processing and shown on the smooth sheet
[49] Concur
[50] PHB Revision – Form 76-155 was not included with this survey.
[51] Concur
[52] Concur

RECRD: 52601 | VESSLTERMS: OBSTRUCTION | CHART: 16702 | AREA: P

CARTOCODE: 0094 | SNDINGCODE: | DEPTH:

LAT83	60 06 10.63	LONG83	147 53 16.54	NATIVDATUM	31
LATDEC:	60.102952777778	LONDEC:	147.88792777778	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	30	INIT	MCR	ASSIGNED	8/10/00

TECNIQ: VS,MB,ES

Techniqnote: ALONG WITH ROUTINE VERIFICATION OF DM ROCKS, ADDRESS DISCREPANCIES WITH CHARTED ROCKS AND DETERMINE SEAWARD EXTENT AND LEAST DEPTH OF ROCKY AREA

History:

HISTORY
H2833/06--OFFSHORE ROCK (BISHOP ROCK) USED AS HYDROGRAPHIC POSITION CONTROL STATION.
DM10302/1992-- NOS, DIGITAL TOPO COMPILATION; TWO ROCKS AWASH AND ONE BARE ROCK (OR ISLET) SHOWN AND NOW CHARTED. SEAWARD MOST ROCK AWASH IS CHARTED WITH AN OFFSET, 15M TO THE SE IN POS.60-06-10.63 N 147-53-16.54 W NAD 83.

Fieldnote:

INVESTIGATION

DATE(S): 09/27/00 (DN:271)

VN: RAINIER Survey launch 2122 TIME: 16:37:23.00, 16:40:18.00

INVESTIGATION METHODS USED: VS, ES

OBSERVED POSITION: LAT. 60/06/10.657N LON. 147/53/17.091W (Pos. #20096)
LAT. 60/06/11.199N LON. 147/53/18.161W (Pos. #20097)

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A rocky ledge was found 15 meters from the charted position through a VBES and visual search. Two detached positions were taken: Pos. #20096 marks the extent and Pos #20097 marks the high point of the ledge. The investigation found a least depth (corrected with observed zoned tides) of -15.2 meters. Two digital photos were taken of the area named "20096_AWOIS52601" and "20097_AWOIS52601" and are included with the digital data.

CHARTING RECOMMENDATION: Retain Bishop Rock and its associated rocks as charted.

EVALUATOR COMMENTS: Concur with clairfication, retain Bishop Rock as charted and chart a ledge that extents offshore from the MHWL to the islet.

Proprietary

YEARSUNK: NIMANUM:

Print Record

RECRD	52602	VESSLTERMS	OBSTRUCTION	CHART	16702	AREA	P
		CARTOCODE	0085	SNDINGCODE		DEPTH	

LAT83	60 04 46.8	LONG83	147 55 54	NATIVDATUM	31
LATDEC:	60.079666666667	LONDEC:	147.93166666667	GPQUALITY	Low
				GPSOURCE	Direct

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	300	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	MB,VS				

Technignote

History

HISTORY
CORRESPONDENCE FROM USCGC SWEETBRIER--A FISHING VESSEL STRUCK A SUBMERGED ROCK AND SUNK OFF EVANS ISLAND IN 150 FEET OF WATER. FOLLOW UP INVESTIGATION AT -2.8 FOOT TIDE OBSERVED A ROCK AWASH IN LAT.60.04.78N, LONG.147-55.90W. TWO ROCKS WERE SIGHTED WITHIN 15 YARDS OF EACH OTHER, BUT NEITHER ROCK IS VISIBLE AT MOST TIDES. THE ROCK IS UNCHARTED AND IS SEAWARD OF THE 20 FM CURVE, 300 YARDS FROM THE NEAREST POINT OF LAND.
LNM39/97--17TH CGD, 9/24/97--ADD ROCK REPORTED IN POS. 60-04-42N, 147-55-54W, NO OTHER INFORMATION GIVEN. GP IS MORE GENERALIZED THAN ONE PROVIDED IN THE FOLLOW UP INVESTIGATION REPORT ABOVE.

Fieldnote

INVESTIGATION

DATE(S): 09/27/00 - 10/20/00 (DN:271-294)

VN: RAINIER Survey launchs 2121, 2122, 2123, 2124, 2126 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: MB, ES, DI

OBSERVED POSITION: LAT. 60/04/46.255N LON. 147/55/58.179W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A large rock was found 146 meters from the charted position through a dive investigation . Two positions were taken noting the high points and extent of the irregular rock: Pos. #48940 marks the northern extent/high point with a least depth (corrected with approved tides) of 0.6 fathoms at 60/04/46.255N, 147/55/58.179W; and Pos #48941 marks the southern extent/high point with a least depth (corrected with approved tides) of covered 2 ft at 60/04/46.829N, 147/55/56.953W. Vertical beam echosounder and 100% shallow-water multibeam was also conducted in this area.

CHARTING RECOMMENDATION: Remove the rock and "Rep (1997)" at 60/04/42.16N, 147/55/54.54W from the chart. Add a rock covered 2 ft at MLLW at 60/04/46.255N, 147/55/58.179W to the chart.

EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52603	VESSLTERMS	SOUNDING	CHART	16702	AREA	P
		CARTOCODE	0130	SNDINGCODE	130	DEPTH	2.6

LAT83	60 02 55.5	LONG83	147 55 11	NATIVDATUM	22
LATDEC:	60.04875	LONDEC:	147.91972222222	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	100	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	MB,ES				

Techniqnote

History

HISTORY
H2833/1906--SHOAL WITH 2.6 FM LEAST DEPTH SHOWN.

Fieldnote

INVESTIGATION

DATE(S): 10/20/00 - 10/24/00 (DN:294-298)

VN: RAINIER Survey launchs 2121, 2123, 2126 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: MB

OBSERVED POSITION: LAT. 60/02/53.850N LON. 147/55/06.948W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A shoal was found 76 meters from the charted position through 100% shallow-water multibeam. A least depth (corrected with approved tides) of 3/4 fathoms was found (Pos. #198420).

CHARTING RECOMMENDATION: Remove the 2-1/2 fathom shoal at 60/02/55.5N, 147/55/11.0W from the chart. Chart the least depth from H11013 at the above position.

EVALUATOR COMMENTS: Concur, Chart 3/4 fm sounding as shown on the smooth sheet.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52604	VESSLTERMS	SOUNDING	CHART	16702	AREA	P
		CARTOCODE	0130	SNDINGCODE	130	DEPTH	3.3

LAT83	60 03 26	LONG83	147 58 35.7	NATIVDATUM	06
LATDEC:	60.057222222222	LONDEC:	147.97658333333	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	50	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	MB,ES				

Techniqnote

History

HISTORY
H8913/1966-- SHOAL WITH A LEAST DEPTH OF 3 .3 FM DEPTH SHOWN IN 60-03-28.48 N 147-58-27.78 W NAD 27.

Fieldnote

INVESTIGATION

DATE(S): 10/04/00 - 10/24/00 (DN:278-298)

VN: RAINIER Survey launchs 2121, 2124 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: MB, DI

OBSERVED POSITION: LAT. 60/03/25.147N LON. 147/58/34.276W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A shoal was found 35 meters from the charted position through 100% shallow-water multibeam and a dive investigation. Divers obtained two depths on the large sloping shoal: Pos. #48931 marks a depth of 3.9 fathoms at 60/03/25.83N, 147/58/34.35W; Pos. #48932 marks a depth of 3.4 fathoms at 60/03/25.85N, 147/58/35.96W. A least depth (corrected with approved tides) of 2.2 fathoms was found (Pos. #115302) through 100% shallow-water multibeam at 60/03/25.147N, 147/58/34.276W.

CHARTING RECOMMENDATION: Remove the 3-1/4 fathom shoal at 60/03/26.0N, 147/58/35.7W from the chart. Chart the least depth from H11013 at the above position.

EVALUATOR COMMENTS: Concur, chart 2 1/4 fm sounding as shown on the smooth sheet.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52605	VESSLTERMS	OBSTRUCTION	CHART	16702	AREA	P
		CARTOCODE	0085	SNDINGCODE		DEPTH	

LAT83	60 03 22	LONG83	148 03 18.7	NATIVDATUM	06
LATDEC:	60.056111111111	LONDEC:	148.05519444444	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	30	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	VS,MB,ES,DI				

Techniqnote

History

HISTORY
H8913/1966--DOLPHIN SHOWN, USED AS HYDROGRAPHIC CONTROL STATION "TAN".

Fieldnote

INVESTIGATION

DATE(S): 09/29/00 - 10/25/00 (DN:273-299)

VN: RAINIER Survey launch 2122 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: VS, ES

OBSERVED POSITION: LAT. 60/03/22.020N LON. 148/03/18.194W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A pile was found through an echo sounder and visual search. One detached position was taken (Pos. #21914) marking its position. The pile's least depth (corrected with approved tides) was -1 foot at MLLW. A digital photo was taken of the pile named "21914_AWOIS52605" and is included with the digital data.

CHARTING RECOMMENDATION: Retain the pile as charted. Remove the "Dol" notation on the chart at 60/03/22N, 148/03/18.7W. Add a "Pile" notation to the chart at 60/03/22N, 148/03/18.7W.

EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52606	VESSLTERMS	OBSTRUCTION	CHART	16702	AREA	P
		CARTOCODE	0085	SNDINGCODE		DEPTH	

LAT83	60 03 14.7	LONG83	148 03 45	NATIVDATUM	31
LATDEC:	60.054083333333	LONDEC:	148.0625	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	30	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	VS,MB,ES,DI				

Technignote

History

HISTORY
H8913/1966--DOLPHIN SHOWN, HYDROGRAPHIC CONTROL STATION "OFF"

Fieldnote

INVESTIGATION

DATE(S): 10/04/00, 10/25/00 (DN:278,299)
VN: RAINIER Survey launch 2122 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: VS, ES

OBSERVED POSITION: LAT. 60/03/15.579N LON. 148/03/46.507W (Pos. #20950)
LAT. 60/03/14.443N LON. 148/03/45.960W (Pos. #21771)

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A small pier and a rock were found 39 meters and 18 meters, respectively, from the charted dol position through an echo sounder and visual search. A disproval of the dol was conducted through a 5-minute visual and echo sounder search (Pos. #21905-21910). The new pier (Pos.#20950) was found at 60/03/15.579N, 148/03/46.507W. The new rock (Pos. #21771) was found at 60/03/14.443N, 148/03/45.960W. A pile was observed on the beach, next to the new pier.

CHARTING RECOMMENDATION: Remove the dol from the chart. Add the new pier at 60/03/15.579N, 148/03/46.507W to the chart. Add the new rock at 60/03/14.443N, 148/03/45.960W to the chart.

EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD 52607 VESSLTERMS OBSTRUCTION CHART 16702 AREA P

CARTOCODE 0085 SNDINGCODE DEPTH

LAT83 60 03 07.8 LONG83 148 03 47.1 NATIVDATUM 06

LATDEC: 60.052138888889 LONDEC: 148.06305555556 GPQUALITY High

GPSOURCE Scaled

PROJECT OPR-P139-00 ITEMSTATUS Assigned SEARCHTYPE Full

RADIUS 0 INIT MCR ASSIGNED 8/10/00

TECNIQ VS,MB, ES

Technqnote SEARCH 30M ABOUT EACH OF THE NAD 83 POSITIONS GIVEN BELOW.

History

HISTORY
H8913/1966--DOLPHINS SHOWN IN POS. 60-03-07.8 N 148-03-47.1 W AND 60-03-06.1 N 148-03-57.0 W

Fieldnote

INVESTIGATION

DATE(S): 09/29/00-10/05/00 (DN:273-279)
VN: RAINIER Survey launchs 2121, 2122 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: VS, ES, MB

OBSERVED POSITION: LAT. 60/03/08.197N LON. 148/03/46.774W (Pos. #20951)
LAT. 60/03/06.427N LON. 148/03/55.806W (Pos. #20952)
LAT. 60/03/04.969N LON. 148/03/56.257W (Pos. #20953)
LAT. 60/03/04.693N LON. 148/03/58.343W (Pos. #20954)
LAT. 60/03/03.836N LON. 148/04/00.436W (Pos. #20955)
LAT. 60/03/03.607N LON. 148/03/56.763W (Pos. #20956)
LAT. 60/02/58.715N LON. 148/03/50.011W (Pos. #20960)
LAT. 60/02/59.808N LON. 148/03/50.758W (Pos. #20961)
LAT. 60/03/01.074N LON. 148/03/44.140W (Pos. #20962)
LAT. 60/02/59.788N LON. 148/03/43.168W (Pos. #20963)

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Six dolphins (Pos. #20951-20956) were found within 200 meters from the charted position through an echo sounder and visual search. The charted fish pen which was also within the 30-meter search radius for this investigation was found in the vicinity of 60/02/59.83N, 148/03/47.16W (Pos.#20960-20963). 100% shallow-water multibeam was also conducted in this area.

CHARTING RECOMMENDATION: Retain the dols as charted. Add a new dol to the chart at 060/03/04.693N, 148/03/58.343W. Remove the fish pen from the chart. Add the fish pen to the chart at 60/02/59.83N, 148/03/47.16W.

EVALUATOR COMMENTS: Concur with clarification, remove all charted dolphins and chart all dolphins found on this survey. See above positions for all dolphins and smooth sheet for the depiction of the area. Remove charted fish pen and chart fish pen at the above position.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52608	VESSLTERMS	OBSTRUCTION	CHART	16702	AREA	P
		CARTOCODE	0085	SNDINGCODE		DEPTH	

LAT83	60 02 54.7	LONG83	148 03 52.5	NATIVDATUM	06
LATDEC:	60.048527777778	LONDEC:	148.06458333333	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	30	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	VS,MB, ES				

Technignote

History

HISTORY
H8913/1966--DOLPHIN SHOWN

Fieldnote

INVESTIGATION

DATE(S): 10/04/00-10/25/00 (DN:278-299)
VN: RAINIER Survey launch 2121, 2122 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: VS, ES, MB

OBSERVED POSITION: NOT FOUND

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: A disproval of the dol was conducted through a 5-minute visual and echo sounder search (Pos. #21887-21903). A detached position (Pos. #21904) revealed a least depth of 6.1 meters at 60/02/55.069N, 148/03/53.172W. 100% shallow-water multibeam was also conducted in this area.

CHARTING RECOMMENDATION: Remove the dol from the chart.

EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK | NIMANUM

Print Record

RECRD	52609	VESSLTERMS	OBSTRUCTION	CHART	16702	AREA	P
		CARTOCODE	0085	SNDINGCODE		DEPTH	

LAT83	60 02 47.8	LONG83	148 03 25.3	NATIVDATUM	06
LATDEC:	60.046611111111	LONDEC:	148.05702777778	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	30	INIT	MCR	ASSIGNED	
TECNIQ	VS,MB, ES				

Techniqnote

History

HISTORY
H8913/1966--DOLPHIN SHOWN

Fieldnote

INVESTIGATION

DATE(S): 09/29/00 (DN:273)
VN: RAINIER Survey launch 2122 TIME: 16:34:57.00

INVESTIGATION METHODS USED: VS, ES

OBSERVED POSITION: LAT. 60/02/47.878N LON. 148/03/24.648W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Pier ruins (Pos. #21237) were found 12 meters from the charted position through an echo sounder and visual search. The least depth (corrected for observed tides) was 0.3 meters. A digital photo was taken of the area named "AWOIS52609" and is included with the digital data.

CHARTING RECOMMENDATION: Remove the charted dol. Add pier ruins to the chart at 60/02/47.878N, 148/03/24.648W.

EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52610	VESSLTERMS	OBSTRUCTION	CHART	16702	AREA	P
		CARTOCODE	0085	SNDINGCODE		DEPTH	

LAT83	60 02 44.17	LONG83	148 03 14.96	NATIVDATUM	06
LATDEC:	60.045602777778	LONDEC:	148.05415555556	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-P139-00	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	0	INIT	MCR	ASSIGNED	8/10/00
TECNIQ	VS,MB, ES				
Techniqnote	SEARCH 30M ABOUT EACH OF THE POSITIONS GIVEN IN THE HISTORY BELOW.				

History

HISTORY
H8913/1966-- THREE DOLPHINS SHOWN. IN POS.
60-02-44.17 N 148-03-14.96 W SEAWARD MOST
60-02-41.58 N 148-03-17.34 W
60-02-39.61 N 148-03-20.44 W INSHORE

Fieldnote

INVESTIGATION

DATE(S): 10/05/00,10/25/00 (DN:279,299)
VN: RAINIER Survey launchs 2122,2126 TIME: Investigated over several days of acquisition

INVESTIGATION METHODS USED: VS, ES, MB

OBSERVED POSITION: LAT. 60/03/08.197N LON. 148/03/46.774W (Pos. #21820)
LAT. 60/03/06.427N LON. 148/03/55.806W (Pos. #21821)

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Two dols (Pos. #21820-21821) were found at their charted positions through an echo sounder and visual search. The charted dol at 60/02/43.995N, 148/03/14.996W was disproved through a 5-minute visual and echo sounder search (Pos. #21875-21886). 100% shallow-water multibeam was also conducted in this area. A digital photo was taken of the area named "AWOIS52610" and is included with the digital data.

CHARTING RECOMMENDATION: Remove the dol at 60/02/43.995N, 148/03/14.996W on the chart. Retain the two charted dols at 60/02/41.688N, 148/03/16.532W and 60/02/39.996N, 148/03/19.846W.

EVALUATOR COMMENTS: Concur with clarification, remove all three charted dols and chart two dols at the positions above.

Proprietary

YEARSUNK NIMANUM

Print Record

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

NOAA Ship RAINIER
October 3, 2000

ADVANCE
INFORMATION

Commander (mon)
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, Alaska 99802-5517

Dear Sir or Madam:

It is requested that the following danger to navigation be included in the Local Notice to Mariners. The NOAA Ship RAINIER positioned this feature while conducting hydrographic survey H11013 in Prince William Sound, Alaska, in September 2000. The danger is shown graphically on the attached chartlet.

The following danger to navigation affects the following charts:

Chart	Scale	Edition	Date
16700	1:200,000	26th	19 September 1998
16701	1: 81,436	17th	25 July 1998
16702	1: 40,000	10th	13 June 1998

The position is on the North American Datum of 1983 (NAD83) datum and depths have been corrected to Mean Lower Low Water (MLLW) using predicted tides.

Feature	Depth(fm)	Latitude	Longitude	Depth (m)
Reef	Awash	60° 04' 22.630" N	147° 52' 27.140" W	Awash

This is advance information subject to office review. Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project OPR-P139-RA-00 and Danger to Navigation message RA-10-09-00. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

Sincerely,

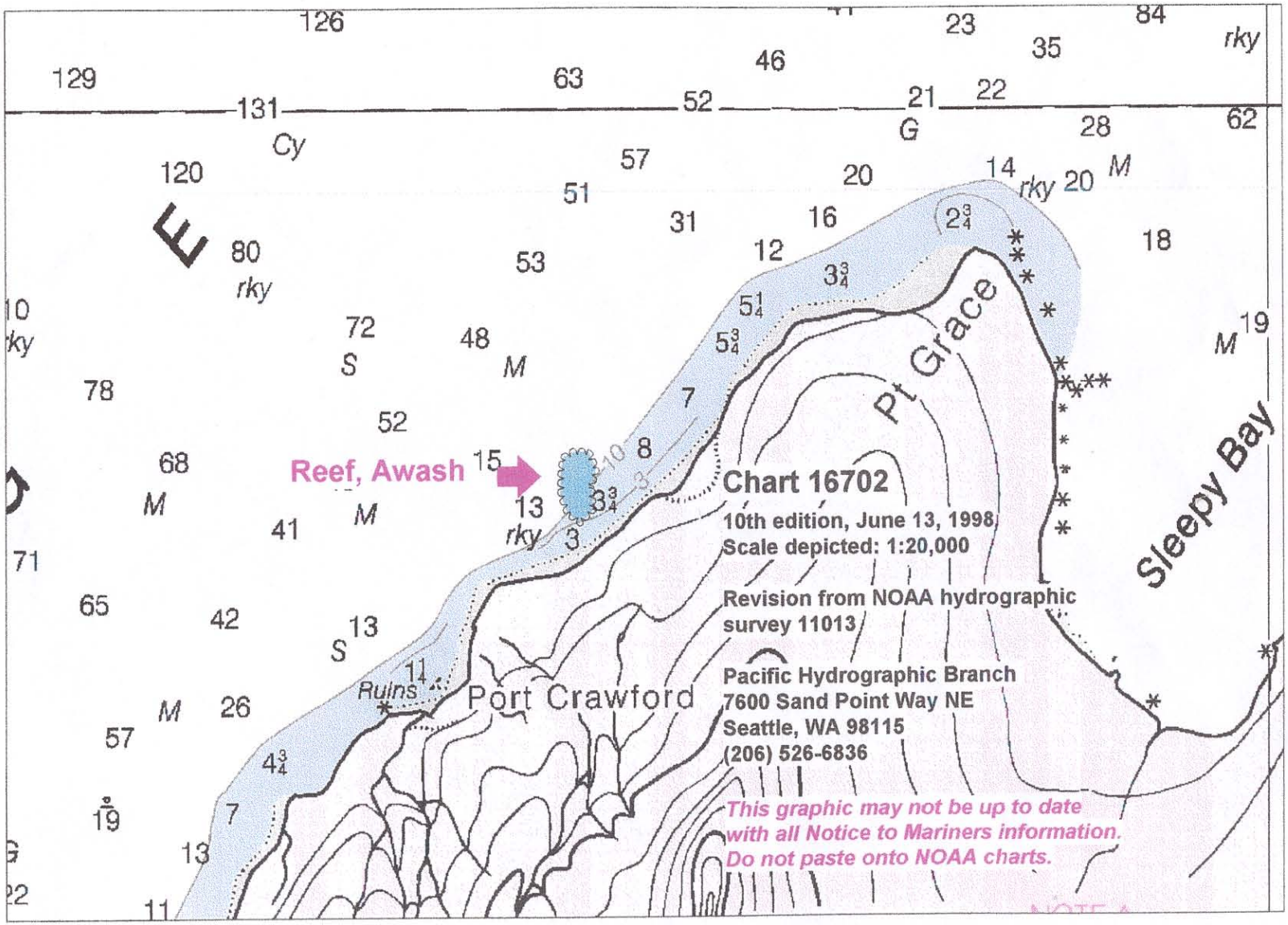
Daniel R. Herlihy

Daniel R. Herlihy
Commander, NOAA
Commanding Officer

Attachment

cc: NIMA
N/CS261
MOP
N/CS34

ADVANCE INFORMATION



REPORT OF DANGERS TO NAVIGATION

ADVANCE INFORMATION

Hydrographic Survey Registry Number: H11013

Survey Title: State: Alaska
Locality: Prince William Sound
Sub-locality: Sawmill Bay to Point Grace

Project Number: OPR-P139-RA-00

Survey Dates: September - October 2000

Depths are reduced to Mean Lower Low Water using verified tides.
Positions are based on the NAD83 horizontal datum.

CHARTS AFFECTED:

CHART	EDITION	DATE	SCALE
16702	10th	6/13/1998	1:40,000
16701	17th	7/25/1998	1:81,436
16700	26th	9/19/1998	1:200,000

DANGERS:

FEATURE	DEPTH (fathoms)	LATITUDE(N)	LONGITUDE(W)
Rock	-1½	60° 00' 22.5"	147° 59' 28.8"
Sounding	0¼	60° 01' 07.3"	147° 58' 09.1"
Sounding	1¼	60° 02' 53.8"	147° 55' 06.9"
Sounding	1½	60° 00' 32.1"	147° 59' 09.8"
Sounding	1¾	60° 00' 48.4"	147° 58' 33.9"
Sounding	1¾	60° 01' 50.8"	147° 56' 24.7"
Sounding	2¼	60° 03' 25.1"	147° 58' 34.3"
Sounding	2½	60° 00' 41.2"	147° 59' 10.0"
Sounding	2½	60° 01' 59.5"	147° 56' 24.1"
Sounding	2¾	60° 02' 36.2"	147° 55' 42.9"
Sounding	2¾	60° 01' 10.1"	147° 57' 28.2"
Sounding	2¾	60° 02' 20.7"	147° 59' 59.0"
Sounding	3½	60° 02' 04.7"	147° 56' 27.6"
Sounding	3¾	60° 02' 26.1"	148° 02' 13.7"
Sounding	3¾	60° 05' 49.4"	147° 53' 45.0"
Sounding	4¼	60° 00' 58.8"	147° 58' 17.4"
Sounding	4½	60° 01' 21.6"	147° 57' 19.2"
Sounding	4½	60° 03' 35.3"	147° 58' 42.8"
Sounding	4¾	60° 00' 38.5"	147° 58' 43.7"
Sounding	6½	60° 02' 42.1"	147° 55' 39.4"
Sounding	7½	60° 03' 10.1"	148° 00' 37.1"
Sounding	7½	60° 01' 33.1"	147° 57' 07.9"
Sounding	7¾	60° 02' 38.5"	148° 00' 56.1"
Sounding	8½	60° 02' 11.3"	147° 59' 21.0"
Sounding	9¼	60° 02' 50.9"	147° 55' 33.2"

Compiled by NOAA Ship RAINIER March 16, 2001

REPORT OF DANGERS TO NAVIGATION

Sounding	9¼	60° 04' 03.4"	147° 53' 20.1"

COMMENTS:

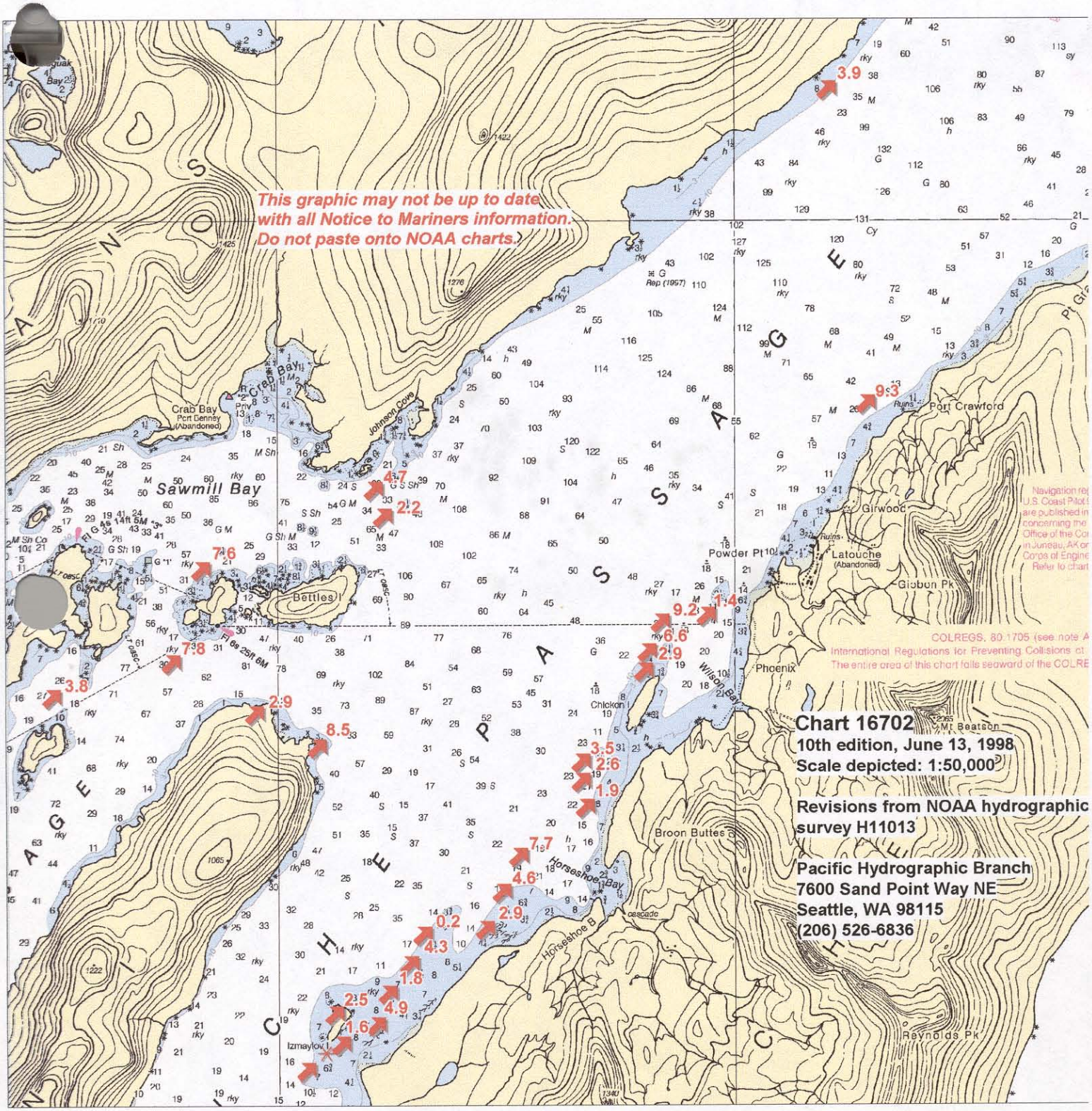
ADVANCE INFORMATION

To view chartlet click here

Questions concerning this report should be directed to the Pacific Hydrographic Branch (N/CS34) at (206) 526-6836.

Compiled by NOAA Ship RAINIER March 16, 2001

ADVANCE
INFORMATION



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 13, 2001

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P139-RA-2000
HYDROGRAPHIC SHEET: H-11013

LOCALITY: Prince William Sound, AK
TIME PERIOD: September 27 - October 26, 2000

TIDE STATION USED: 945-4713 LaTouche, AK
Lat. 60° 3.2'N Lon. 147° 54.4'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.210 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PWS14, PWS15, PWS16 & PWS23.

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.

Thomas N. Mero 2/13/01

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-P139-RA-2000,
Sheet H-11013.

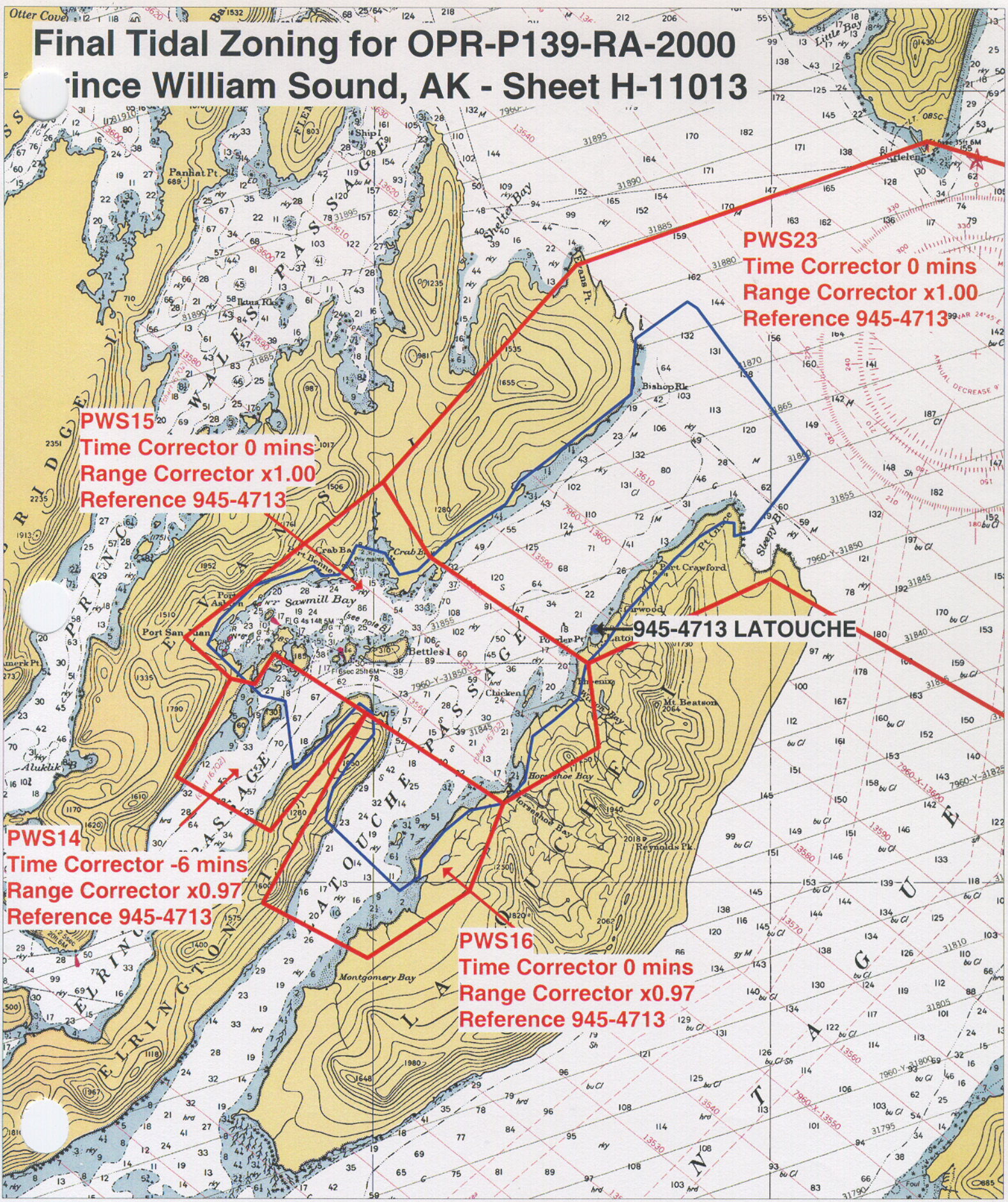
Format: Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone PWS14			
-148.041876 60.047949	945-4713	-6	0.97
-148.04989 60.04162			
-148.060097 60.042801			
-148.082975 60.022212			
-148.043431 60.010746			
-148.003257 60.035518			
-148.041876 60.047949			
Zone PWS15			
-147.976527 60.06845	945-4713	0	1.00
-147.996234 60.084179			
-148.079254 60.051473			
-148.060097 60.042801			
-148.04989 60.04162			
-148.041876 60.047949			
-148.003257 60.035518			
-147.945334 60.016621			
-147.905273 60.028414			
-147.909718 60.046036			
-147.976527 60.06845			
Zone PWS16			
-148.046422 59.995503	945-4713	0	0.97
-148.003257 60.035518			
-147.945334 60.016621			
-147.959618 59.998027			
-148.002476 59.983918			
-148.046422 59.995503			

Zone PWS23

-147.430708 60.080034	945-4713	0	1.00
-147.614981 59.99982			
-147.833691 60.063871			
-147.909718 60.046036			
-147.976527 60.06845			
-147.996234 60.084179			
-147.915026 60.129755			
-147.767908 60.155922			
-147.602299 60.130868			
-147.430708 60.080034			

Final Tidal Zoning for OPR-P139-RA-2000
rince William Sound, AK - Sheet H-11013



NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H11013

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	4

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	1					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			
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			209
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT			25
GEOGRAPHIC NAMES			
OTHER: (Chart Compilation)			22
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS			256

Pre-processing Examination by	*Beginning Date*	*Ending Date*
Verification of Field Data by E. Domingo, R. Davies	*Time (Hours)* 209	*Ending Date*
Verification Check by	*Time (Hours)*	*Ending Date*
Evaluation and Analysis by R. Davies	*Time (Hours)* 25	*Ending Date* 05/28/2004
Inspection by B. Olmstead	*Time (Hours)* 26	*Ending Date* 08/11/2004

U.S. GOVT. PRINTING OFFICE 1983: 764-006/6061

APPROVAL SHEET
H11013

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: 8/24/04

Bruce Olmstead
Cartographer
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.

LCDR/NOAA Date: 30 Aug 04

Donald W. Haines
LCDR, NOAA
Chief, Pacific Hydrographic Branch

Kyle R. Ward

Digitally signed by Kyle R. Ward
DN: CN = Kyle R. Ward, C = US, O = HSD, OU = OPS
Reason: AWOIS and SURF check
Date: 2004.10.14 14:18:59 -04'00'

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-11013

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
16702	5/18/04	Russ Davies	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings, curves and
			features from 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
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.