H11001

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-10-06-00

Registry No. H-11001

LOCALITY

State Alaska

General Locality Southwest Prince William Sound

Sublocality Western Coast of Montague Island - 4 Miles South of Green Island

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

H11011

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-10-06-00

State: Alaska

General Locality: Southwest Prince William Sound

Sublocality: Western Coast of Montague Island - 4 miles South of Green Island

Scale: 1:10,000 Date of Survey: Sept. 13 - Oct 20, 2000

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

Vessel: Rainier Launches 2121, 2122, 2123, 2124, 2125, 2126

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

Surveyed by: NOAA Ship Rainier and PHB personnel

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

Graphic record scaled by: Ship personnel

Graphic record checked by: Ship personnel

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

Verification by: E. Domingo, R Davies

Soundings in: Fathoms and tenths at MLLW

REMARKS: Time in UTC.

Revisions and annotations appearing as footnotes 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 H11001

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. The survey area is located on the west side of Montague Island, approximately four miles south of Green Island. The survey's northern limit is latitude 60°13'36.21"N and the southern limit is latitude 60°09'25.35"N. The survey's western limit is longitude 147°29'33.15"W and the eastern limit is longitude 47°19'09.25"W. Data acquisition was conducted from September 13 to October 20, 2000 (DN 257 to 294).

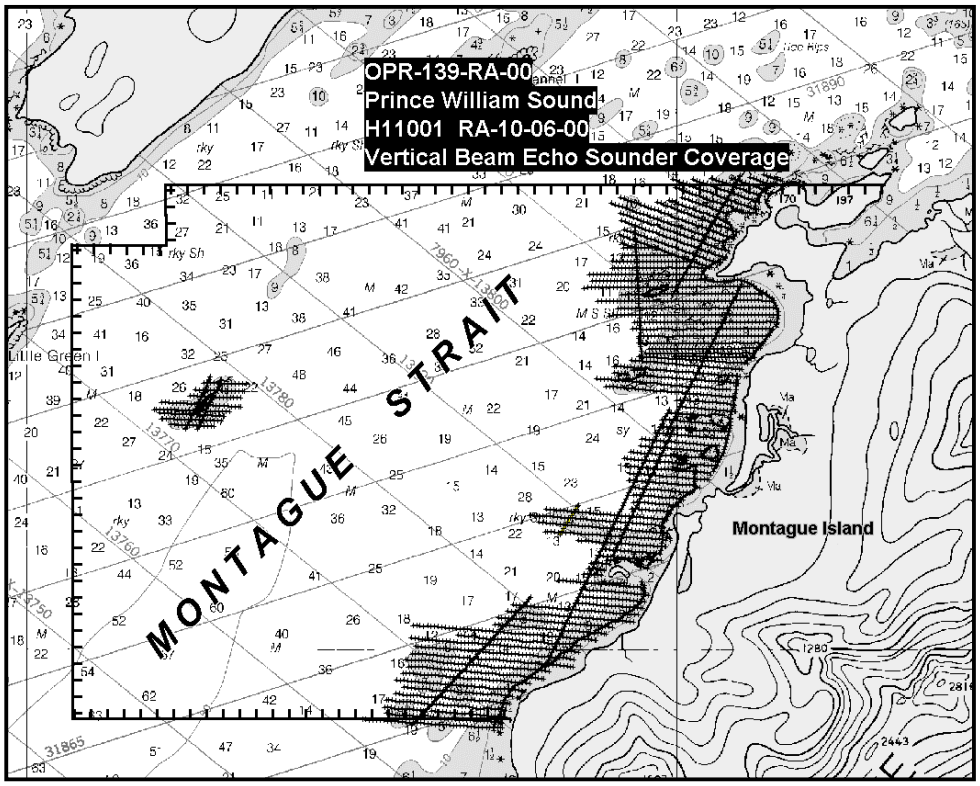


Figure 1. Extent of vertical beam echo sounder hydrography for H11001.

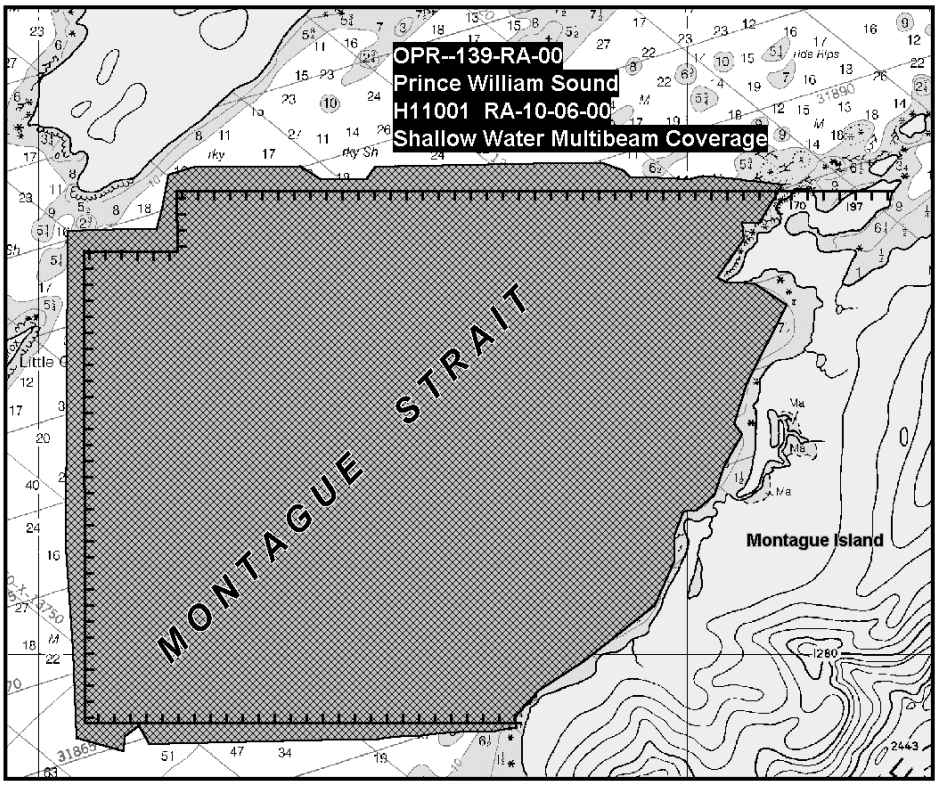


Figure 2. Extent of shallow-water multibeam coverage for H11001

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: 2121, 2122, 2123, 2124, 2125 and 2126). Vessels 2121, 2123, 2124 and 2126 were used to acquire shallow-water multibeam soundings and sound velocity profiles. Vessels 2122 and 2125 were used to acquire vertical-beam echo soundings and detached positions. Vessel 2125 was also used to collect bottom samples. No unusual vessel configurations or problems were encountered on this survey. [1]

B2. Quality Control

Crosslines

Vertical-beam echo sounder (VBES) crosslines totaled 9.14 nautical miles, comprising 9.8% of mainscheme hydrography. Crosslines agreed within one meter of mainscheme hydrography. [2]

Shallow-water multibeam (SWMB) crosslines totaled 27.28 nautical miles, comprising 5.3% of multibeam hydrography. The Quality Control Report (CARIS HIPS) for the RESON checkline file

averaged 91.812%, and the Quality Control Report (CARIS HIPS) for the Seabeam checkline file averaged 92.85%. 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). [4]

Junctions

The following contemporary surveys junction with H11001:

Registry #	Scale	Date	Junction side
H11003	1:10,000	2000	South
H10922	1:10,000	1999	North
H10928	1:10,000	1999	Northwest
H10919	1:10,000	1999	North
H10940	1:10,000	1999	West

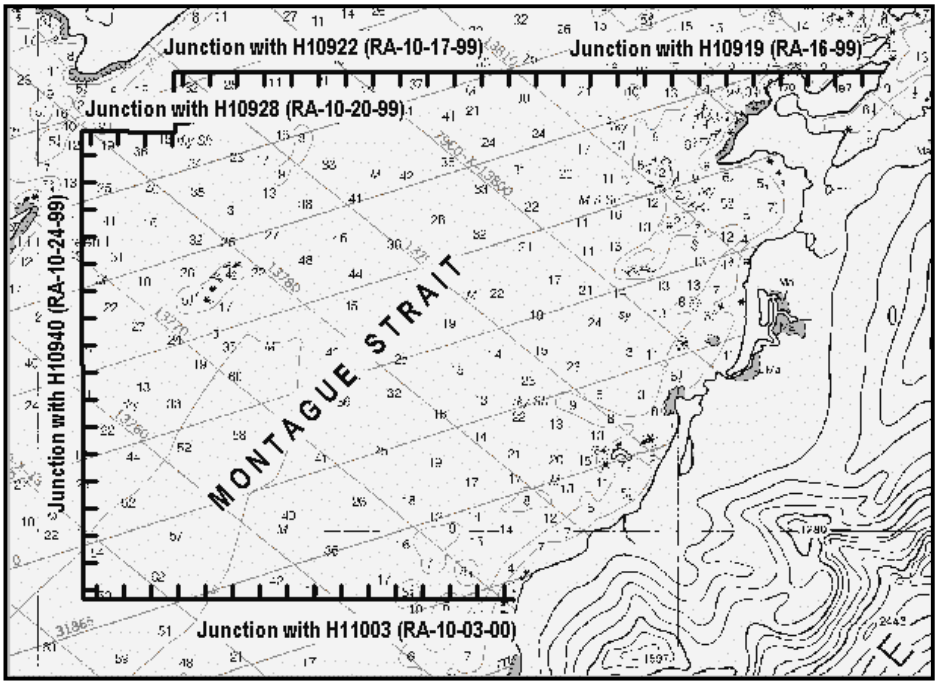


Figure 3. H11001 survey junctions

Contemporary surveys H10919, H10920, H10928, H10940 and H11003 junction well with H11001, with differences generally one half-fathom or less. [5]

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

Data Quality Factors

In several areas near shore in depths 10 meters and shoaler, thick eelgrass often obscured the detection of the bottom. On the VBES analog trace, acoustic returns from eelgrass usually appeared as a faint trace

clearly separated from the bottom that had a darker, more definitive trace. In these cases, the VBES digital data were edited as necessary to reflect the true bottom. In the SWMB data, removal of soundings obtained over eelgrass was not possible in HDCS SwathEdit, as there is no definitive way to determine if a sounding is on a feature such as a rock, or on eelgrass. In HDCS Subset Mode, in some instances, it was possible to discern the true bottom, as eelgrass often appeared as soundings "disconnected" from the continuous bottom. In these instances, soundings over eelgrass were rejected. However, when unable to clearly distinguish between the bottom and eelgrass, the eelgrass was not rejected. The height of apparent eelgrass above the bottom was generally one meter. Areas with eelgrass were noted by the Hydrographer during shoreline verification, and are also indicated in the "H11001_ShorelineNotes" table of the Detached Position and Bottom Sample Plot. [6]

B3. Data Reduction

Data reduction procedures for survey H11001 conform to those detailed in the *OPR-P139-RA-00 Data Acquisition and Processing Report* with the following exception verified observed tides, corrected for the preliminary zoning scheme, were applied in HPS.

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11001 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. The U.S. Coast Guard Beacons at Potato Point, AK, and Cape Hinchinbrook, AK, were the sources of differential correctors. 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 the *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) will serve as control for datum determination. RAINIER personnel installed Sutron 8200 "bubbler" tide gauges at the following subordinate stations in accordance with 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 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. [7] A request for delivery of final approved (smooth) tides for survey H11001 was forwarded to N/OPS1 on October 31, 2000 in accordance with FPM 4.8.

D. RESULTS AND RECOMMENDATIONS

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

There were no AWOIS items assigned to this survey.[8]

D.2 Chart Comparison [9]

Survey H11001 was compared with chart 16700 (26th Ed.; September 1998, 1:200,000), chart 16701 (17th Ed.; July 1998, 1:81,436) and chart 16709 (21st Ed., June 1996, 1:80,000). In general, the current survey revealed a seaward migration of the charted (16709/16701/16700) 10-fathom contour of 100 to 300-meters. [10]

Chart 16709 (21st Ed.; June 1996; scale 1:80,000)

The current survey consistently revealed near-shore depths two to four fathoms shoaler than chart 16709. The differences in soundings can likely be attributed to better positioning accuracy and increased coverage with modern survey equipment, the rocky near-shore terrain, as well as possible changes caused by the 1964 earthquake.[11]

Chart 16701 (17th Ed.; July 1998, scale 1:81,436)

Depths from charts 16701 adequately agree with the current survey. The current survey revealed depths generally one to three fathoms shoaler than chart 16701. Notable differences are addressed below. All of the items addressed were covered with 100% shallow-water multibeam.[12]

In the vicinity of a charted 17-fathom sounding, the present survey revealed a depth of 11.7 fathoms (Pos. # 117,508) at 60º12’54.1”N, 147º26’32.13”W (475,492.3 E, 6,675,440.9 N).[13]

In the vicinity of a charted 20-fathom sounding, the present survey revealed a depth of 15.4 fathoms (Pos. # 642,391) at 60º10’32.97”N, 147º21’53.73”W (479,753.5 E, 6,671,048.5 N). [14]

In the vicinity of a charted 19-fathom sounding, the present survey revealed a depth 13.8 fathoms (Pos. # 583,253) at 60º11’41.44”N, 147º22’11.01”W (479,499.1 E, 6,673,168.2 N). [15]

In the vicinity of a charted 23-fathom sounding, the present survey revealed a depth of 15.9 fathoms (Pos. # 281,142) at 60º12’53.62”N, 147º26’53.43”W (475,164.3 E, 6,675,428.1 N). [16]

In the vicinity of a charted 22-fathom sounding, the present survey revealed a depth of 16.9 fathoms (Pos. # 464,355) at 60º11’51.42”N, 147º22’47.45”W (478939.6 E, 6,673,480.2 N). [17]

In the vicinity of a charted 26-fathom sounding, the present survey revealed a depth of 19.0 fathoms (Pos. # 553,381) at 60º12’00.57”N, 147º27’38.0”W (474,466.7 E, 6,673,791.6 N). [18]

In the vicinity of a charted 26-fathom sounding, the present survey revealed a depth of 21 fathoms (Pos. # 264,078) at 60º10’12.25”N, 147º24’59.38”W (476,888.3 E, 6,670,424.5 N). [19]

In the vicinity of a charted 31-fathom sounding, the present survey revealed a depth of 23 fathoms (Pos. # 524,480) at 60º12'06.45"N, 147º28'47.82"W (473,392.8 E, 6,674,981.3 N). [20]

In the vicinity of a charted 32-fathom sounding, the present survey revealed a depth of 28 fathoms (Pos. # 255,024) at 60º11'04.78"N, 147º24'26.42"W (477,406.4 E, 6,672,046.5 N). [21]

In the vicinity of a charted 35-fathom sounding, the present survey revealed a depth of 29 fathoms (Pos. # 439,125) at 60º12'51.9"N, 147º23'34.74"W (478,222.4 E, 6,675,355.5 N). [22]

In the vicinity of a charted 41-fathom sounding, the present survey revealed a depth of 36 fathoms (Pos. # 418,534) at 60º10'33.83"N, 147º25'35.68"W (476,333.1 E, 6,671,095.8 N). [23]

In the vicinity of a charted 45-fathom sounding, the present survey revealed a depth of 39 fathoms (Pos. # 239,028) at 60º11'44.24"N, 147º25'08.62"W (476,764.0 E, 6,673,271.3 N). [24]

In the vicinity of a charted 44-fathom sounding, the present survey revealed a depth of 40 fathoms (Pos. # 220,045) at 60º11'58.62"N, 147º25'01.23"W (476,880.6 E, 6,673,715.3 N). [25]

In the vicinity of a charted 27-fathom sounding, the present survey revealed a depth of 39 fathoms (Pos. # 551,754) at 60º11'24.36"N, 147º29'15.15"W (472,962.4 E, 6,672,682.2 N). [26]

In the vicinity of a charted 55-fathom sounding, the present survey revealed a depth of 55 fathoms (Pos. # 336,552) at 60º09'29.48"N, 147º28'58.53"W (473,192.5 E, 6,669,126.5 N). [27]

In the vicinity of a charted 52-fathom sounding, the present survey revealed a depth of 56 fathoms (Pos. # 343,346) at 60º10'38.76"N, 147º27'42.69"W (474,376.8 E, 6,671,261.5 N). [28]

Chart 16700 (26th Ed.; September 1998, scale 1:200,000)

Depths from charts 16700 adequately agree with the current survey, generally within two to three fathoms. Notable differences are addressed below. All of the items addressed were covered with 100% shallow-water multibeam.[29]

In the vicinity of a charted 23-fathom sounding, the present survey revealed a depth of 15.9 fathoms (Pos. # 281,142) at 60º12'53.6"N, 147º26'53.47"W (475,164.3 E, 6,675,428.1 N). [30]

In the vicinity of a charted 31-fathom sounding, the present survey revealed a depth of 28 fathoms (Pos. # 465,740) at 60º12'42.04"N, 147º22'25.60"W (479,284.9 E, 6,675,044.2 N). [31]

In the vicinity of a charted 41-fathom sounding, the present survey revealed a depth of 36 fathoms (Pos. # 421,352) at 60º10'30.16"N, 147º25'31.85"W (476,391.5 E, 6,670,981.9 N). [32]

In the vicinity of a charted 14-fathom sounding, the present survey revealed a depth of 14 fathoms (Pos. # 430,874) at 60º09'27.12"N, 147º25'42.97"W (476,207.4 E, 6,669,032.6 N). [33]

In the vicinity of a charted 63-fathom sounding, the present survey revealed a depth of 56 fathoms (Pos. # 347,408) at 60º09'26.70"N, 147º28'50.25"W (473,319.4 E, 6,669,039.7 N). [34]

D.3 Shoreline

Method of Shoreline Verification

N/NGS3 supplied photogrammetric shoreline data in raster format for T-12712, T-12714, T-12644 and T-12645 for use as source shoreline. The T-sheet raster images were registered and digitized in MapInfo by RAINIER personnel and the resultant vector data were used in Hypack for field verification. In addition, features shown on the current editions of charts 16701, 16700 and 16709 were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.

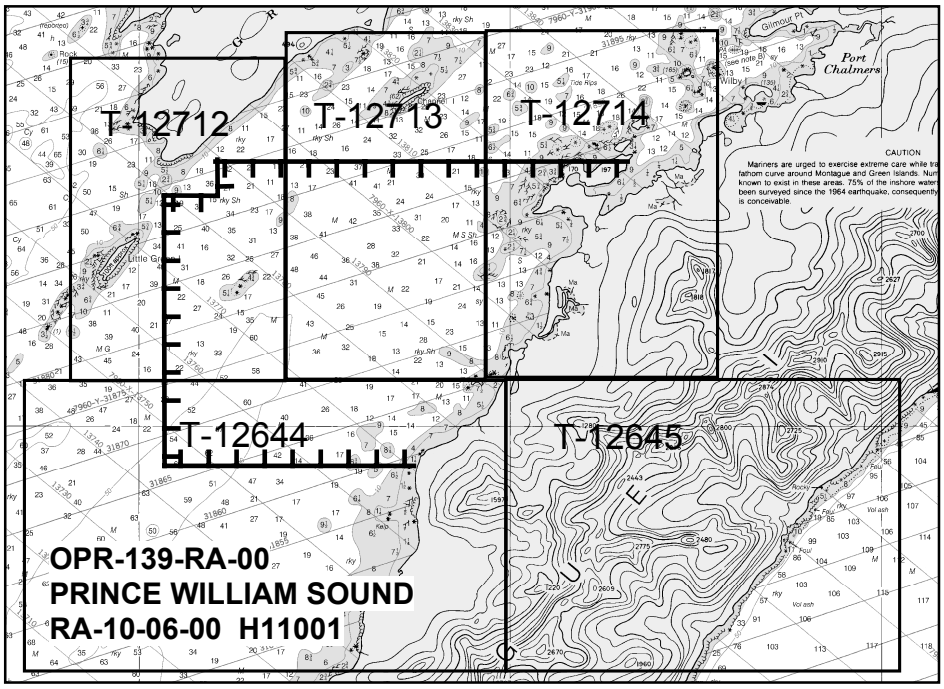


Figure 4. T-Sheet coverage for H11001

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 5-30 meters offshore of the apparent low water line. Water depths along this limit of safe navigation were approximately four meters at Mean Lower-Low Water (MLLW). Features unreachable by survey launch are depicted on the Detached Position and Bottom Sample Plot as the Hydrographer's approximate representation of the shoreline. [35]

Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms,[36] and processed in HPS. These indicate revisions to features, and features not found on the T-sheet or chart.

A detailed "DP and BS 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.[37]

Source Shoreline Changes and New Features

The features found during this survey generally matched those of the source shoreline. [38] Several changes and new features were found and are depicted on the final DP plot. T-sheet and charted rocks were often

identified as high points or extents of new ledges. Several new rocks, reefs, and revisions to T-sheet foul areas were found and are depicted on the final Detached Position and Bottom Sample plot.[39]

The following disprovals are revisions to T-sheet T-12714. All of the items addressed were covered with 100% shallow-water multibeam in addition to the search methods discussed:

The TS rock at 60°11'31.20"N, 147°19'34.72"W (481,904.738 E, 6,672,838.816 N) was disproved by conducting a 8-minute visual and echo sounder search (Pos. # 20208). Sea conditions were flat to one-foot swells. Water visibility in this area was clear to the bottom with a depth of 7.0 meters. The Hydrographer recommends removing this rock from the chart.[40]

The TS reef at 60°11'45.72"N, 147°19'48.69"W (481,691.7 E, 6,673,289.0 N) was disproved after conducting a visual and echo sounder search (Pos. # 20317). Sea conditions were flat to one foot swells Water visibility in this area was clear to the depth of three meters. The Hydrographer believes this TS reef correlates with the charted (16700) rock located 150 meters south at 60°11'40.36"N, 147°19'48.77"W, disproved after a six-minute visual and echo sounder search (Pos. # 20306) and the charted (16701/16709) rock located 70 meters southeast at 60°11'45.31"N, 147°19'43.73"W, disproved after an eight-minute visual and echo sounder search (Pos. # 20318). The shoalest depth in the area of the disprovals was 10.9 meters. The Hydrographer recommends removing the rock from all charts.[41]

The TS rock at 60°11'28.29"N, 147°20'02.04"W (481,483.4 E, 6,672,751.0 N) was disproved after conducting a visual and echo sounder search (Pos. # 50177). Sea conditions were flat to one-foot swells. Water visibility in this area was clear to a depth of three meters. The Hydrographer believes that this TS rock correlates to the charted (16701/16709) rock 100 meters southeast located at 60°11'27.15"N, 147°19'55.61"W (481,582.5 E, 6,672,715.0 N), disproved after conducting a six-minute visual and echo sounder search (Pos. #20192), and the charted (16700) rock 150 meters southeast at 60°11'22.21"N, 147°19'57.61"W (481,550.7 E, 6,672,562.5 N), disproved after conducting a visual and echo sounder search (Pos. # 50160). The shoalest depth in this area was 14.0 meters. The Hydrographer recommends removing this rock from the chart. [42]

Charted Features

The features found during this survey generally matched those of the charted shoreline.[43] All of the items addressed were covered with 100% shallow-water multibeam [44]in addition to the search methods described below:

Chart 16701 (17th Ed.; July 1998; Scale 1:81,436) and chart 16709 (21st Ed.; June 1996; Scale 1:80,000)

The charted rock at 60°11'47.38"N, 147°27'21.98"W (474,710.8 E, 6,673,382.0 N) was disproved after conducting a five-minute visual and echo sounder search (Pos. # 20021). Sea conditions were two to three-foot swells. Water visibility in this area was clear to a depth of three meters. Three new rocks were positioned in the vicinity of this charted rock (Pos. # 20015, 20019, 21748). These rocks mark the extent of a foul area with kelp. The Hydrographer recommends charting these rocks as depicted on the Detached Position and Bottom Sample Plot. These rocks are depicted in figure 5.[45]

Figure 5. Four rocks in the vicinity of 60°11'51.16"N, 147°27'18.71"W

Recommendations

The Hydrographer recommends that the shoreline as depicted on the DP and BS plot and Final Field Sheet supersede and complement shoreline information compiled on the T-sheets as noted. These revisions are recorded in the MapInfo digital files named "H11001_shoreline" and "H11001_Shoreline_Updates". In addition, field notes made by the Hydrographer, including verification of source features and descriptions of shoreline classification, are submitted in the digital MapInfo file "H11001_Shoreline_Notes."[46]

D.4 Dangers to Navigation

Fifty-nine dangers to navigation were found and reported to the Pacific Hydrographic Branch on April 16, 2001, for verification and submission to the U.S. Coast Guard. A copy of the preliminary Danger to Navigation Report is included in Appendix I.[47] The Pacific Hydrographic Branch (PHB) will insert the final report following verification and submission to the U.S. Coast Guard.[48]

D.5 Aids to Navigation

No aids to navigation are located within the limits of H11001.[49]

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.[50]

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. [51]

Survey H11001 is complete and adequate to supersede charted soundings and features in their common areas.[52] There is no additional work required on this survey. [53]

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	April 20, 2001	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	April 20, 2001	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:

Angelika G. Messer
Ensign, NOAA

Field Operations Officer:

Edward J. Van Den Ameele
Lieutenant, NOAA

AWOIS/SURF
6/15/04 mcR

[1] Concur

[2] Concur

[3] PHB revision – filed with the hydrographic survey

[4] Concur

[5] Concur

[6] PHB Revision – these notes were transferred to the smooth sheet.

[7] PHB Revision – see attached Tide note, dated Feb. 13 2001

[8] Concur

[9] PHB Revision – chart comparison in the office used the following charts: Chart 16709, 22nd Edition, Jan. 19, 2002 and Chart 16701, 19th Edition, July 7, 2003. Chart 16700 was not compared with in the office because of its small scale. The two charts, 16709 and 16701, cover the survey area at a larger scale.

[10] Concur

[11] Concur

[12] Concur

[13] Concur

[14] Concur

[15] Concur

[16] Concur

[17] Concur

[18] Concur

[19] Concur

[20] Concur

[21] Concur

[22] Concur

[23] Concur

[24] Concur

[25] Concur

[26] Concur

[27] Concur

[28] Concur

[29] Concur

[30] Concur

[31] Concur

[32] Concur

[33] Concur

[34] Concur

[35] PHB revision – see smooth sheet for depiction of area common to the survey and chart.

[36] PHB revision – filed with the hydrographic data

[37] PHB revision – see smooth sheet for depiction of area common to the survey and chart.

[38] Concur

[39] PHB revision – see smooth sheet for depiction of area common to the survey and chart.

[40] PHB revision – concur with clarification, TS rocks is part of reef, chart reef at the above position.

[41] Concur

[42] Concur

[43] Concur

[44] Concur

[45] PHB revision – concur with clarification, chart rocks as depicted on the smooth sheet.

[46]PHB revision – see smooth sheet for depiction of area common to the survey and chart.

[47] PHB revision – filed with the hydrographic data.

[48] PHB revision – The danger to navigation letter was verified and forwarded to the USCG on May 18, 2001, see attached danger to navigation letter.

[49] Concur

[50] Concur

[51]Concur

[52] PHB revision – concur with clarification, several kelp symbols in the vicinity of latitude 60/12/40.68N, longitude 147/20/9.24W should be retained as charted.

[53] Concur

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H11001

Survey Title: State: Alaska
Locality: Prince William Sound
Sub-locality: Four miles south of Green Island

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
16701	17th	7/25/1998	1:81,436
16709	21st	6/29/1996	1:80,000
16700	26th	9/19/1998	1:200,000

DANGERS:

Feature	Depth (fm)	Latitude	Longitude
Rock	Uncovers	60°13' 22.260" N	147°19' 17.600" W
Rock	Uncovers	60°13' 17.670" N	147°19' 19.610" W
Rock	Uncovers	60°12' 36.310" N	147°20' 00.860" W
Rock	Uncovers	60°12' 04.610" N	147°20' 41.200" W
Rock	Uncovers	60°12' 04.710" N	147°19' 19.610" W
Sounding	0¾	60° 12' 44.502" N	147° 20' 15.927" W
Sounding	1½	60° 11' 58.304" N	147° 26' 55.849" W
Sounding	2¾	60° 12' 32.614" N	147° 19' 23.927" W
Sounding	3½	60° 13' 03.588" N	147° 19' 52.305" W
Sounding	3¾	60° 13' 00.404" N	147° 25' 54.464" W
Sounding	4¼	60° 11' 59.705" N	147° 21' 00.200" W
Sounding	4½	60° 10' 18.280" N	147° 21' 35.161" W
Sounding	4¾	60° 10' 13.381" N	147° 22' 25.010" W
Sounding	5½	60° 09' 43.304" N	147° 23' 52.107" W
Sounding	5½	60° 11' 43.485" N	147° 20' 02.568" W
Sounding	5¾	60° 11' 00.920" N	147° 21' 52.768" W
Sounding	6¼	60° 13' 23.803" N	147° 20' 48.444" W
Sounding	7¼	60° 10' 01.094" N	147° 23' 28.800" W

REPORT OF DANGERS TO NAVIGATION

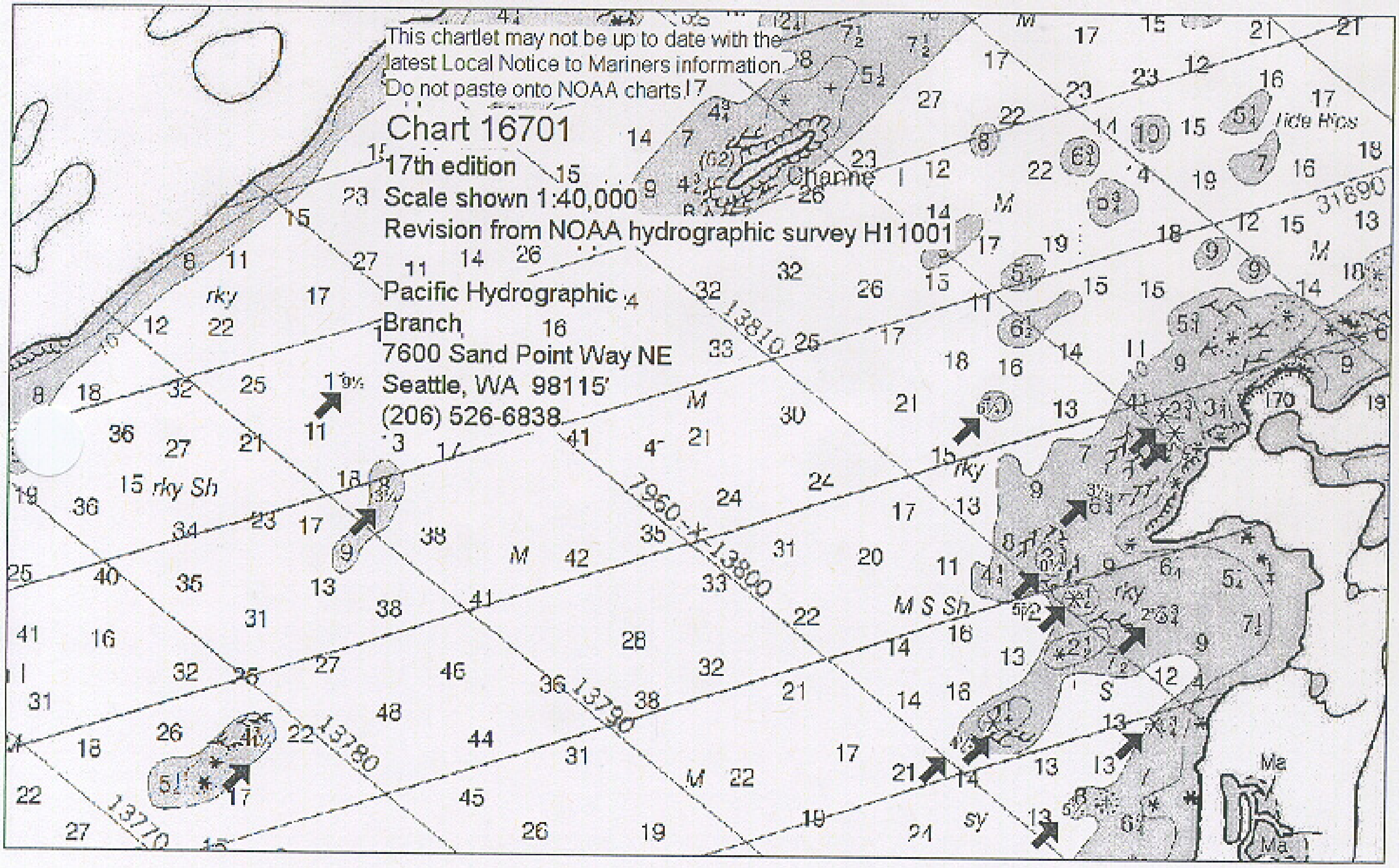
Feature	Depth (fm)	Latitude	Longitude
Sounding	7¾	60° 09' 31.242" N	147° 24' 15.062" W
Sounding	9½	60° 13' 28.637" N	147° 26' 11.016" W
Sounding	9½	60° 10' 57.626" N	147° 23' 00.462" W

COMMENTS:

To view chartlet No. 1 click here

To view chartlet No. 2 click here

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


This chartlet may not be up to date with the
latest Local Notice to Mariners information.
Do not paste onto NOAA charts
Chart 16701
17th edition
Scale shown 1:40,000
Revision from NOAA hydrographic survey H11001
Pacific Hydrographic
Branch
7600 Sand Point Way NE
Seattle, WA 98115
(206) 526-6838

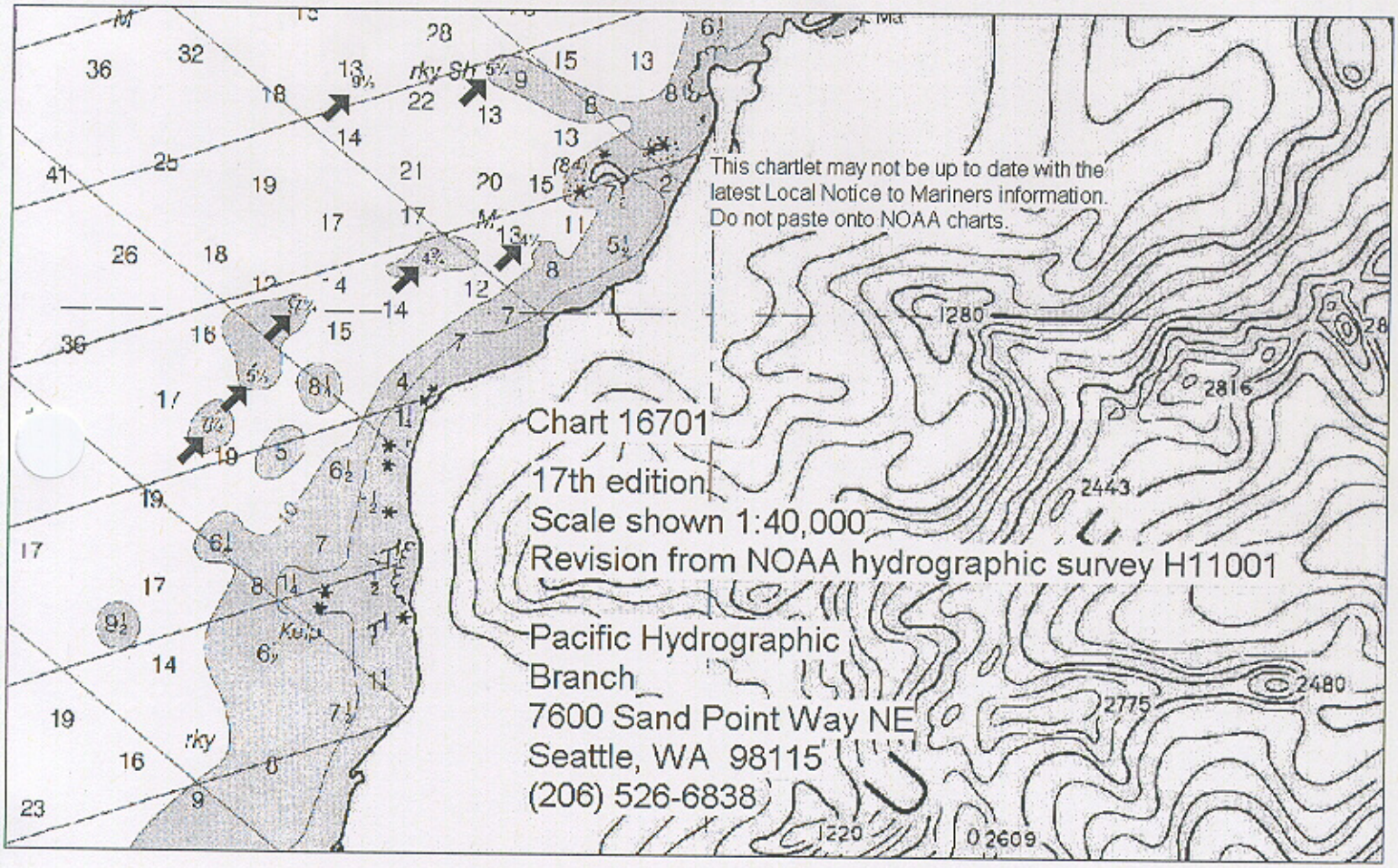

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Chart 16701
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Pacific Hydrographic Branch
7600 Sand Point Way NE
Seattle, WA 98115
(206) 526-6838
1280
2816
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2775
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02609

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-11001

LOCALITY: Prince William Sound, AK
TIME PERIOD: September 13 - October 20, 2000

TIDE STATION USED: 945-4561 Perch Point, AK
Lat. 60° 7.6'N Lon. 147° 23.7'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.254 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PWS39 & PWS41.

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 K. Mero 2/13/01

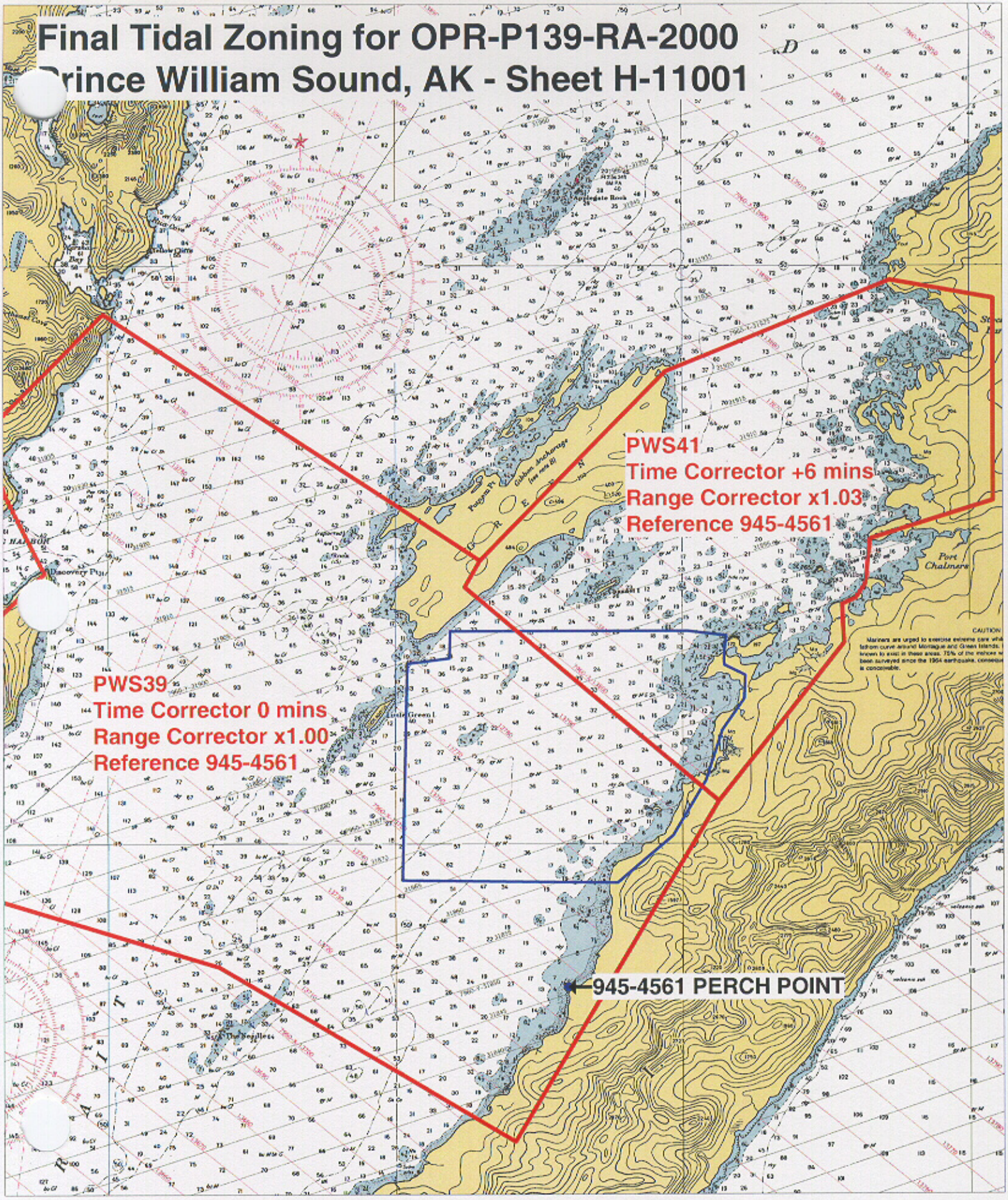
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-P139-RA-2000,
Sheet H-11001.

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 PWS39			
-147.703642 60.244653	945-4561	0	1.00
-147.738627 60.227865			
-147.804771 60.1946			
-147.781996 60.187238			
-147.767908 60.155922			
-147.602299 60.130868			
-147.430708 60.080034			
-147.312699 60.178864			
-147.459741 60.240591			
-147.450789 60.248219			
-147.669435 60.31933			
-147.73888 60.284518			
-147.726093 60.266771			
-147.703642 60.244653			
Zone PWS41			
-147.212948 60.329021	945-4561	+6	1.03
-147.343216 60.302686			
-147.450789 60.248219			
-147.459741 60.240591			
-147.312699 60.178864			
-147.240065 60.224421			
-147.241203 60.235531			
-147.233297 60.237325			
-147.227624 60.241526			
-147.224706 60.254395			
-147.153198 60.26545			
-147.15325 60.323765			
-147.212948 60.329021			

Final Tidal Zoning for OPR-P139-RA-2000
Prince William Sound, AK - Sheet H-11001



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

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H11001

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	2

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			144
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT			4
GEOGRAPHIC NAMES			
OTHER: (Chart Compilation)			49
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS			197

Pre-processing Examination by	*Beginning Date*	*Ending Date*
Verification of Field Data by R. Davies, E. Domingo, R. Mayor	*Time (Hours)* 144	*Ending Date*
Verification Check by	*Time (Hours)*	*Ending Date*
Evaluation and Analysis by R. Davies	*Time (Hours)* 4	*Ending Date* 04/27/2004
Inspection by R. Davies	*Time (Hours)* 22	*Ending Date* 04/28/2004

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

APPROVAL SHEET
H11001

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.

Russ Davies Date: 4/29/04

Russ Davies
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.

E. J. Van Den Ameele Date: 4/29/04

Edward J. Van Den Ameele
LT, NOAA
Chief, Pacific Hydrographic Branch

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-11001

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
16709	4/12/04	Russ Davies	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Full application of sndgs, features and curves from smooth sheet.
16709	4/12/04	Russ Davies	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Full application of sndgs, features and curves from smooth sheet.
16709	6/28/04	Chris Ence	Full Part Before After Marine Center Approval Signed Via Applied soundings
			Drawing No. and features from H-drawing. DN
16701	6/25/04	Chris Ence	Full Part Before After Marine Center Approval Signed Via Applied soundings
			Drawing No. and features from H-drawing. DN
16700	6/28/04	Chris Ence	Full Part Before After Marine Center Approval Signed Via Applied soundings
			Drawing No. and feature from overlap of 16701. DN
			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.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED