

H11905

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-10-14-08
Registry No. H11905

LOCALITY

State Alaska
General Locality Pavlof Island
Sublocality Iliasik Passage and Vicinity

2008

CHIEF OF PARTY

..... Captain Donald W. Haines, NOAA

LIBRARY & ARCHIVES

DATE

<p style="text-align: center;">U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</p> <p style="text-align: center;">HYDROGRAPHIC TITLE SHEET</p>	<p>REGISTRY No</p> <p style="text-align: center;">H11905</p>
<p>INSTRUCTIONS – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.</p>	<p>FIELD No:</p> <p style="text-align: center;">RA-10-14-08</p>
<p>State <u>Alaska</u></p> <hr/> <p>General Locality <u>Pavlof Island</u></p> <hr/> <p>Sub-Locality <u>Iliasik Passage and Vicinity</u></p> <hr/> <p>Scale <u>1:10,000</u> Date of Survey <u>June 26, 2008 - August 1, 2008</u></p> <hr/> <p>Instructions dated <u>6/4/2008</u> Project No. <u>OPR-P184-RA-08</u></p> <hr/> <p>Vessel(s) <u>RA6 (1015), RA3 (1021), RA2 (1103), RA4 (2801), RA5 (2802), RAINIER (S221)</u></p> <hr/> <p>Chief of party <u>Captain Donald W. Haines, NOAA</u></p> <hr/> <p>Surveyed by <u>RAINIER Personnel</u></p> <hr/> <p>Soundings by <u>Reson SeaBat 8101, Reson SeaBat 7125, Seabeam/ELAC 1050D MKII, Knudsen 320M</u></p> <hr/> <p>SAR by <u>Tyanne Faulkes</u> Compilation by <u>Katie Reser</u></p> <hr/> <p>Soundings compiled in <u>Fathoms</u></p>	
<p>REMARKS: <u>All times are UTC. UTM Zones 3N and 4N.</u></p> <hr/> <p><u>The purpose of this survey is to provide contemporary surveys to update</u></p> <hr/> <p><u>National Ocean Service (NOS) nautical charts.</u></p> <hr/> <p><u>All separates are filed with the hydrographic data.</u></p> <hr/> <p><u>Revisions and end notes in red were generated during office processing.</u></p> <hr/> <p><u>Page numbering may be interrupted or non sequential.</u></p>	

Descriptive Report to Accompany Hydrographic Survey H11905

Project OPR-P184-RA-08
Pavlof Islands, Alaska
Iliasik Passage and Vicinity
Scale 1:10,000
June – August, 2008
NOAA Ship *Rainier* (s221)
Chief of Party: Commander Donald W. Haines, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Project Instructions OPR-P184-RA-08 dated June 4, 2008 and all other applicable direction¹, with the exception of deviations noted in this report. The survey area is Pavlof Islands, Alaska and the sublocality is Iliasik Passage and Vicinity. This survey corresponds to sheet “F” in the sheet layout provided with the Letter Instructions. OPR-P184-RA-08 has been assigned to provide contemporary surveys to update National Ocean Service (NOS) nautical charts and reduce the critical survey area backlog. Many charted features in the area originate from observations made prior to 1930. The Southwestern Alaska Pilots have indicated that this area is seeing increased freighter and passenger traffic.

With the exceptions noted in this report, complete multibeam echosounder (MBES) coverage was achieved in the survey area in waters 4 meters and deeper up to the assigned LIDAR survey junction. Total mileage acquired by each vessel and system is referenced in Table 1.

Limited Shoreline Verification was performed for the survey area.

Data Acquisition Type	Hull Number with Mileage (nm)							Total
	1101	1103	1015	1021	2801	2802	S221	
MBES (mainscheme)	-	-	106.35	219.93	70.73	56.47	-	453.48
Crosslines	-	-	-	0.26	-	26.59	-	26.86
Developments	-	4.63	-	-	-	6.03	-	10.66
Bottom Samples	-	-	-	-	-	-	12	12
Total Number of Items Investigated	-	1	-	-	-	-	-	1
Total Area Surveyed (sq. nm)	-	-	-	-	-	-	-	18.43

Table 1: Statistics for survey H11905

Data acquisition was conducted from June 26, 2008 to August 1, 2008 (DN 178 to 214).

¹ NOS Hydrographic Surveys Specifications and Deliverables (April 2008), OCS Field Procedures Manual for Hydrographic Surveying (May 2008), and all Hydrographic Surveys Technical Directives issued through the dates of data acquisition.

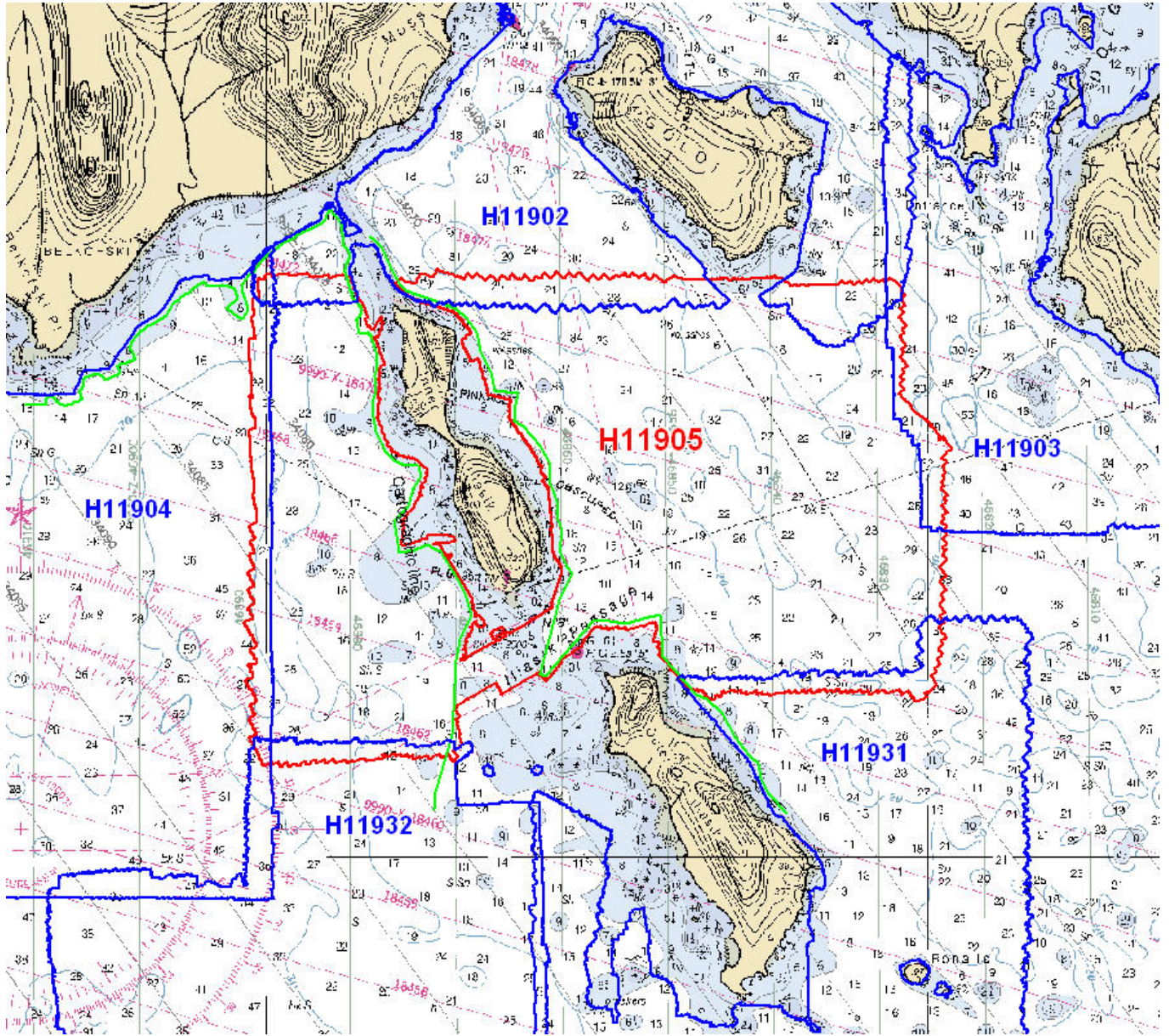


Figure 1: H11905 Survey outline overlaid on Chart 16549. Contemporary Rainier survey junctions are shown in blue and LIDAR junction is shown in green.

DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *OPR-P184-RA-08 Data Acquisition and Processing Report (DAPR)*¹, submitted under separate cover. Items specific to this survey, and any deviations from the DAPR are discussed in the following sections.

Final Approved Water Levels have been applied to this survey. See Section C. for additional information.

B1. Equipment and Vessels

Data for this survey were acquired by the following vessels:

Hull Number	Name	Acquisition Type
1103	RA-2	Vertical Beam Echosounder Detached Positions
1021	RA-3	Multibeam Echosounder
2801	RA-4	Multibeam Echosounder
2802	RA-5	Multibeam Echosounder
1015	RA-6	Multibeam Echosounder
S221	<i>Rainier</i>	Bottom Samples

Table 2. Data Acquisition Vessels for H11905.

Sound speed profiles were measured with SEACAT SBE-19+ profilers in accordance with the Specifications and Deliverables.

No unusual vessel configurations were used for data acquisition.

B2. Quality Control

Crosslines

Multibeam Echosounder (MBES) crosslines totaled 26.86 nautical miles, comprising 5.4% of main scheme MBES hydrography. The mainscheme bathymetry was manually compared to the crossline nadir beams in CARIS subset mode and agreed well with differences averaging approximately 0.07 meters and not exceeding 0.5 meters.² The more pronounced offsets between crosslines and mainscheme lines are primarily seen in areas of high sound speed errors (see Data Quality Factors for additional information on sound speed).

A statistical Quality Control Report has been conducted on representative data acquired with each system used on this survey. Results of these tests are included in the updated 2008 *Rainier* Hydrographic System Readiness Review package submitted with this survey.

Junctions

The following contemporary surveys junction with H11905³ (See Figure 1):

<u>Registry #</u>	<u>Scale</u>	<u>Date</u>	<u>Junction side</u>
H11902	1:10,000	2008	North
H11903	1:10,000	2008	East
H11904	1:10,000	2008	West
H11931	1:10,000	2008	Southeast
H11932	1:20,000	2008	Southwest
H11438	1:10,000	2005	LIDAR Survey
H11439	1:10,000	2005	LIDAR Survey

2008 Junction Surveys

All contemporary 2008 junction surveys (H11902, H11903, H11904, H11931, and H11932) were run concurrently within project OPR-P184-RA-08. Data was compared in CARIS subset mode and all agreed well. Observed offsets were typically within 0.15 to 0.25 meters, and did not exceed 0.35 meters.⁴ The areas of higher offset were often attributable to sound speed errors being present in the data.

H11438 and H11439

CARIS BASE surfaces for H11438 and H11439 were provided by Pacific Hydrographic Branch for junction comparison. These BASE surfaces were compared to H11905 CUBE surfaces in CARIS HIPS/SIPS and were found to agree well with differences averaging approximately 0.20 to 0.30 meters.⁵ Some areas did exhibit larger differences of up to 1 meter. These were typically seen in areas of sparse lidar coverage, especially within the inshore areas where kelp is prominent.

Data Quality Factors

Sound Speed Artifacts

Sound speed artifacts were often observed within survey H11905. After applying sound speed corrections in CARIS HIPS, some lines still exhibited the characteristic "smiles" and "frowns" indicative of inaccurate sound speed corrections (see figure 2 below). Sound speed casts were often taken more frequently than the standard 4 hour time interval. All cast data were compiled into a sheet-wide concatenated SVP file and applied using Nearest in Distance within Time. A minimum of 4 hours was typically used with this method. In addition, the moving vessel profiler (MVP) was used on DN178 to take additional casts in an attempt to improve sound speed measurements. On DN178 a concatenated file was created with only CTD and MVP casts taken by RA-4 (2801) on that day and applied to the 200 kHz data using Previous in Time. Despite the best efforts of the Hydrographer to conduct sufficient sound speed casts distributed both spatially and temporally, and to correct for sound speed errors in post processing through methods previously mentioned, sound velocity errors were still noticeable in several regions. To compensate, the Hydrographer, where possible, rejected soundings obviously in error on the outer beams. Despite some remaining artifacts, the acquired data is within specification and is adequate to supersede charted depths.⁶

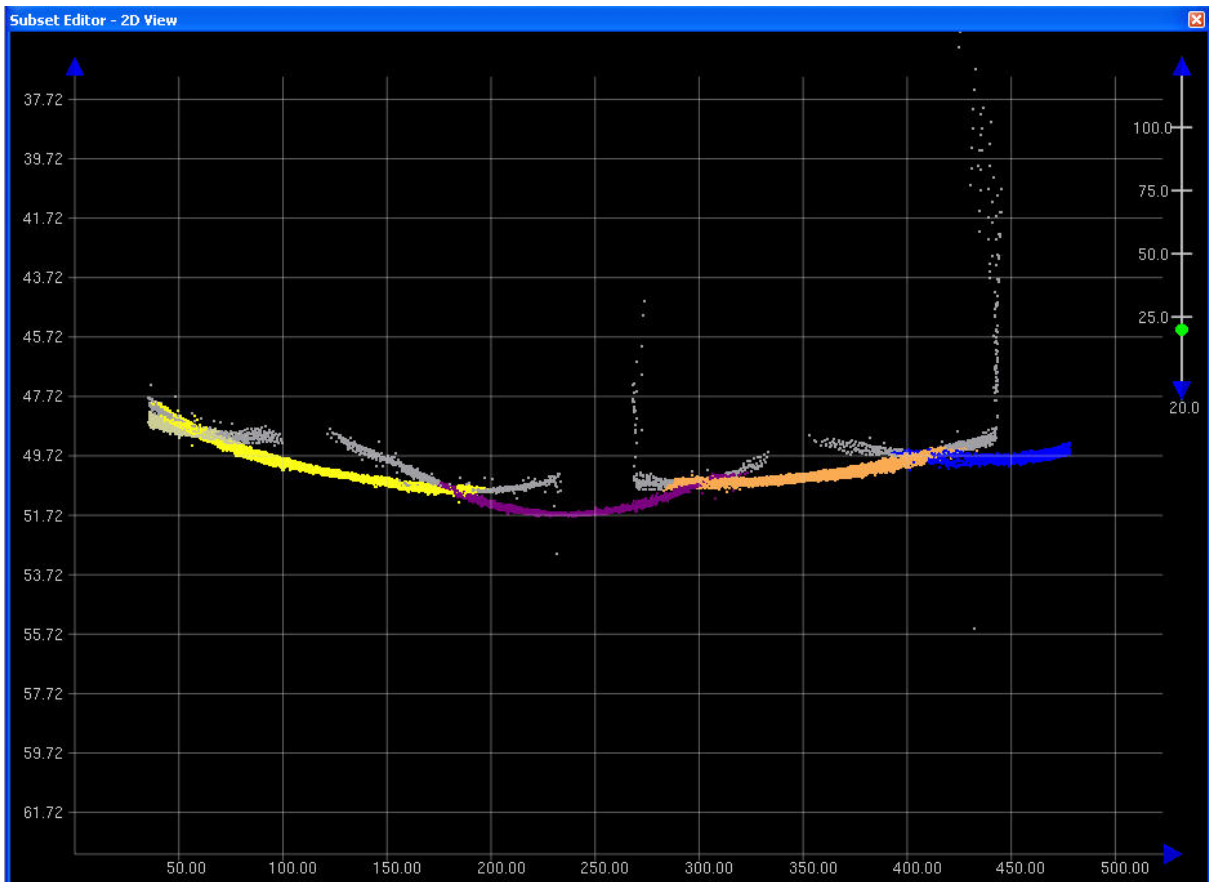


Figure 2: Example of sound speed errors observed in survey H11905 as viewed in subset mode. Errors shown are seen on DN179 during which the MVP took 21 casts in this work area.

Midnight Error Holiday

A small number of holidays appear within survey H11905. These holidays are primarily within specification of 3 nodes or less. However, a data logging issue created a larger holiday on the Northeast side of Inner Iliasik Island. This was caused by logging the .xtf file over UTC midnight. Files are coded with the Julian Day so a new file is created at 00:00 UTC if the survey launch is on line and acquiring data. The switch to a new file causes a gap in coverage during the time in which the original file stops logging and the new file begins (see figure 3 below). Although the midnight holiday is larger than 3 nodes, no significant features or shoaling were observed in the area. The hydrographer feels that the acquired data is adequate to supersede charted depths.⁷

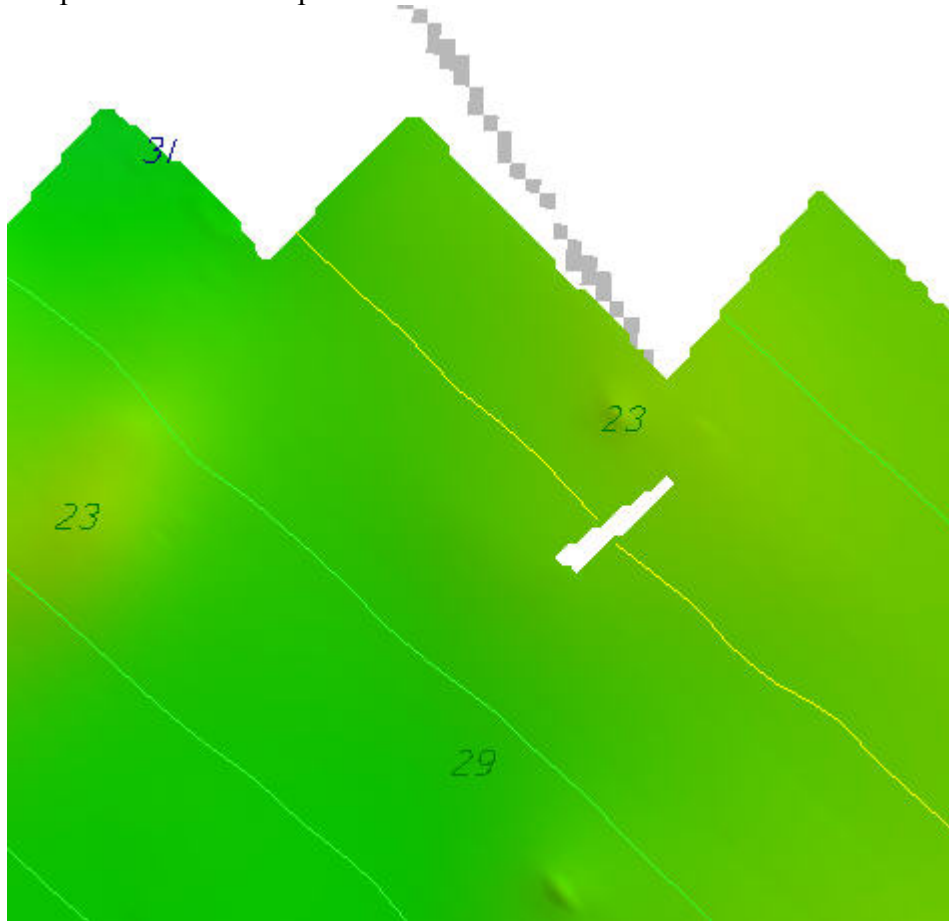


Figure 3: Holiday caused by logging through UTC midnight

POS MV Heading Accuracy

During the course of data acquisition, survey personnel on RA-4 and RA-5 noted occasional instances when POS MV heading accuracy decreased from the normal level of ≤ 0.05 to a maximum of 0.078. This phenomenon was seen almost daily, but was always self correcting after a period of approximately 15 to 20 minutes. The most likely cause of these incidents was less than optimal satellite geometry and narrower GPS antenna spacing on these two new launches compared with older survey launches on *Rainier*.⁸

Roll Error Caused by Unstable Swing Arm Mount

Data acquired with Launch 1021 (RA-3) on DN196, 197, and 198 were found to have minor roll offsets in the data. The lines were viewed in CARIS calibration editor and a separate roll error value was calculated for the HVF for those days. The data was reprocessed using the new values and was found to be much improved and within specifications.⁹ Original HVF values from 2008 patch tests were used for the remaining data acquired with Launch 1021. The hydrographer believes that the variability of roll offsets seen on different days of acquisition can be attributed to the current mount of the Reson 8101. The sonar head is mounted on an extendable arm that is retracted and extended for use on each survey day. The probability of exactly reproducing the position used during patch tests is quite low, depending on the operator on any given day and how far they tighten the arm. The survey team on board RAINIER is working to create a new standard so that positioning of the swing arm can become more constant and predictable.

B3. Data Reduction

Data reduction procedures for survey H11905 conform to those detailed in the *OPR-P184-RA-08 DAPR*.

B4. Data Representation

Many BASE surfaces were used in processing H11905. Final BASE surface resolutions and depth ranges were set according to table 3 below, with field sheets smaller than 25×10^6 nodes. CUBE surfaces processed at one meter resolution were computed using “shallow” CUBE parameters whereas CUBE surfaces with resolutions of two and four meters were computed using “deep” CUBE parameters. Vertical Beam data is submitted in a 2 meter resolution uncertainty surface and was not included in submitted CUBE surfaces. The submission Field Sheet and BASE Surface structure are shown in Figures 4, 5, and 6.

Depth Range (m)	Resolution (m)
0-21.5	1
18.5-52	2
46-115	4

Table 3: Depth range and surface resolutions for H11905

Soundings and contours were generated in CARIS HIPS from the 4m_A BASE surface for field unit review purposes. They are included for reference only and are not intended as a deliverable.

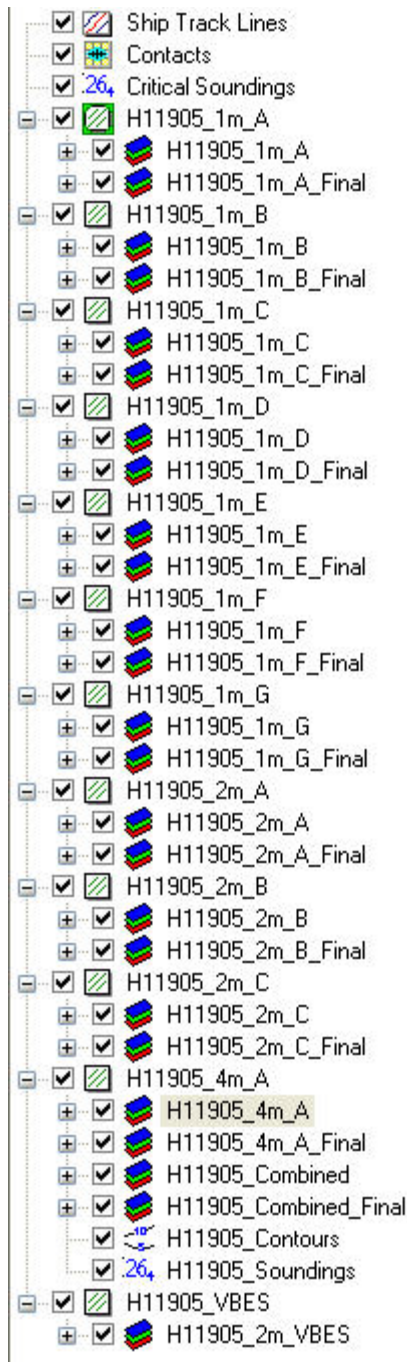


Figure 4: Field sheets and BASE surfaces submitted with H11905.

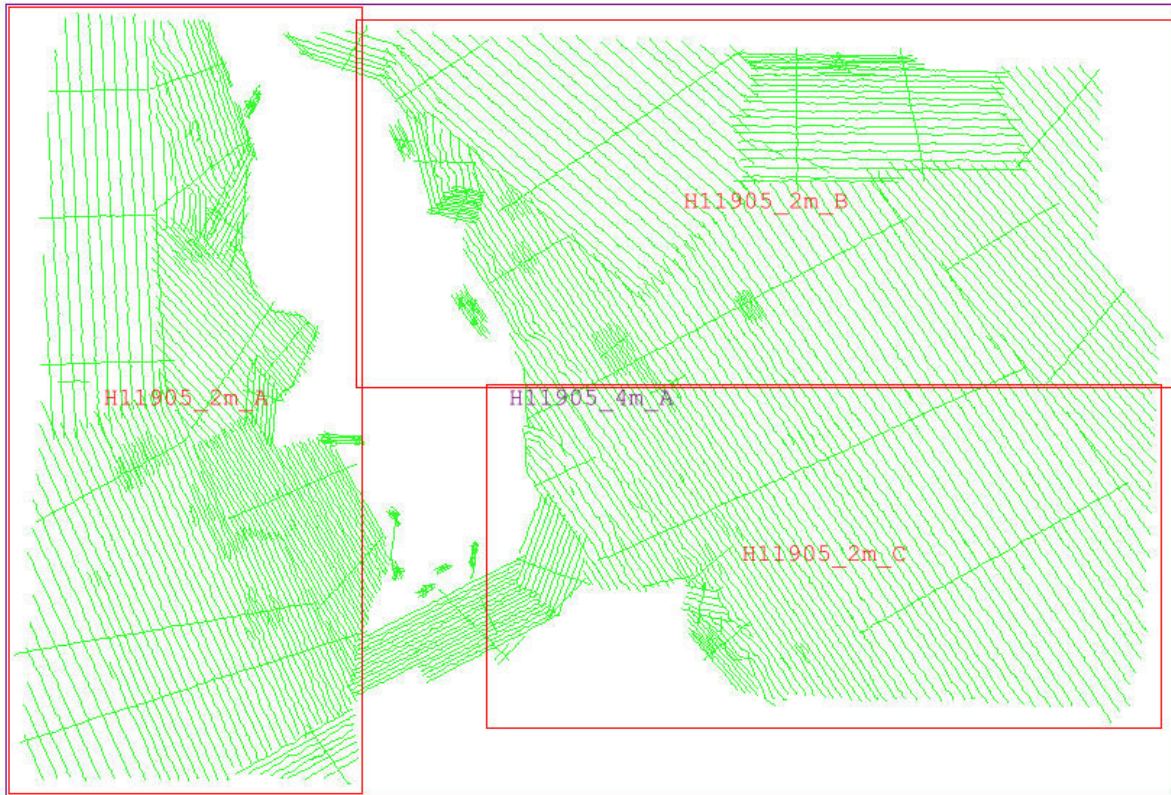


Figure 5: Layout of 4meter and 2 meter field sheets for H11905.

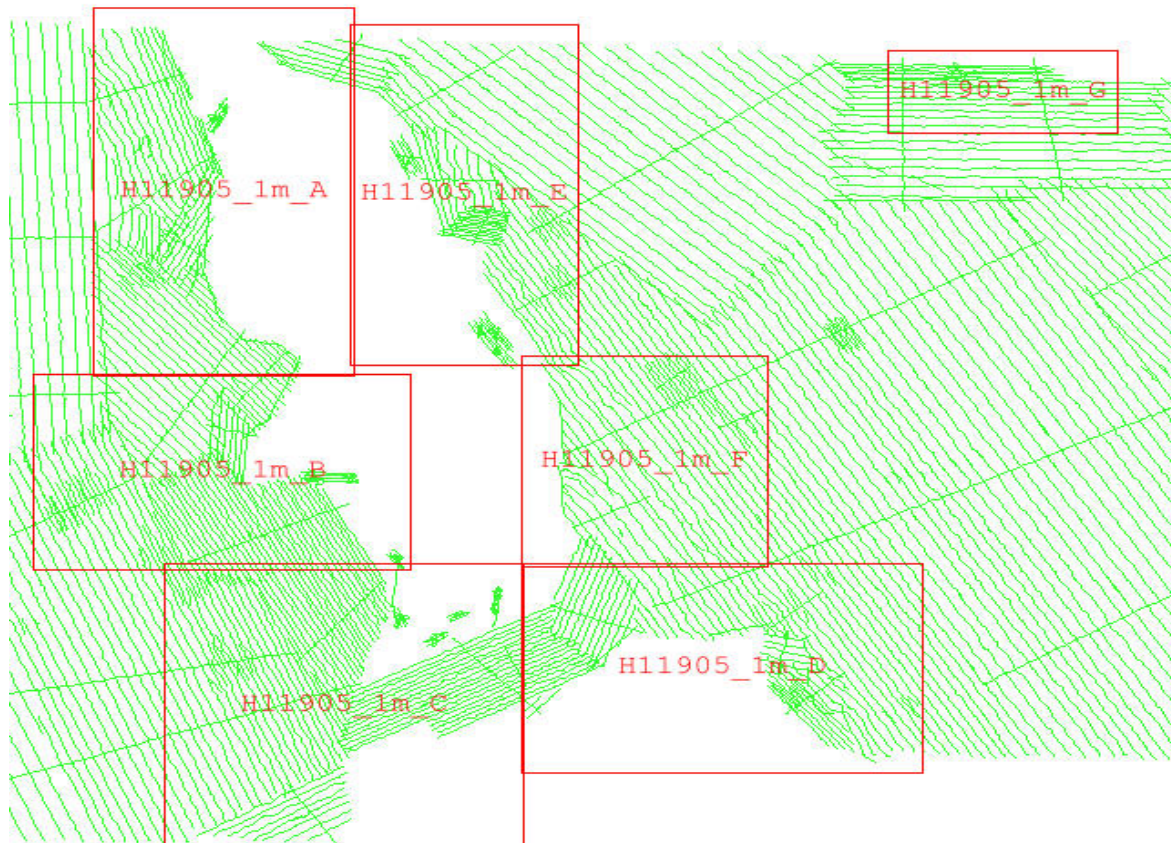


Figure 6: Layout of 1 meter field sheets for H11905

C. VERTICAL AND HORIZONTAL CONTROL

Project OPR-P184-RA-08 did not require static GPS observations or other horizontal control work, and all tide corrections were generated from CO-OPS maintained tide stations. Thus, no Horizontal and Vertical Control Report will be submitted.

Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83), UTM zone 4 North. Differential GPS (DGPS) was the sole method of positioning. The differential corrector beacon utilized for this survey is given in Table 4.

Location	Frequency	Operator	Distance	Priority
Cold Bay	289 kHz	USCG	30nm	Primary

Table 4: Differential Corrector Sources for H11905.

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 Sand Point, AK (945-9450) and King Cove, AK (945-9881) served as control for datum determination and as the primary sources for water level reducers for survey H11905.

All data were reduced to MLLW using final approved water levels from stations Sand Point, AK (945-9450) using the tide file 9459450.tid and King Cove, AK (945-9881) using the tide file 9459881.tid. Final time and height correctors were applied using the zone corrector file P184RA2008CORP.zdf.

The request for Final Approved Water Levels for H11905 was submitted to CO-OPS on August 13, 2008 and the Final Tide Note was received on August 20, 2008. This documentation is included in Appendix IV.¹⁰

D. RESULTS AND RECOMMENDATIONS

D.1. Chart Comparison

D.1.a. Survey Agreement with Chart

Survey H11905 was compared with the following raster chart:

Chart	Scale	Edition and Date	Local Notice to Mariners Applied Through
16549	1:80,000	15 th July 2003	06/07/2008

Table 5: Charts compared with H11905

With the exceptions noted in this report, depths from survey H11905 generally agreed well. Differences were found to average one to two fathoms deeper than charted depths, and occasionally up to 5 fathoms deeper than charted. In some instances, this survey did find shallower soundings between charted depths even though agreement at the position of the charted depths was good. This can be attributed to increased bottom coverage using MBES methods.¹¹

On the western edge of survey H11905, the 20 and 30 fathom charted contours were found to be offset between 150 to 500 meters from actual surveyed contours.¹²

The 5 fathom sounding at approximate position 55°03'30" N, 161°53'35" W was surveyed with complete multibeam coverage and the present survey revealed significantly deeper soundings, averaging 18 to 19 fathoms (see figure 7 below). The Hydrographer recommends removing the charted depth and charting as per digital data.¹³

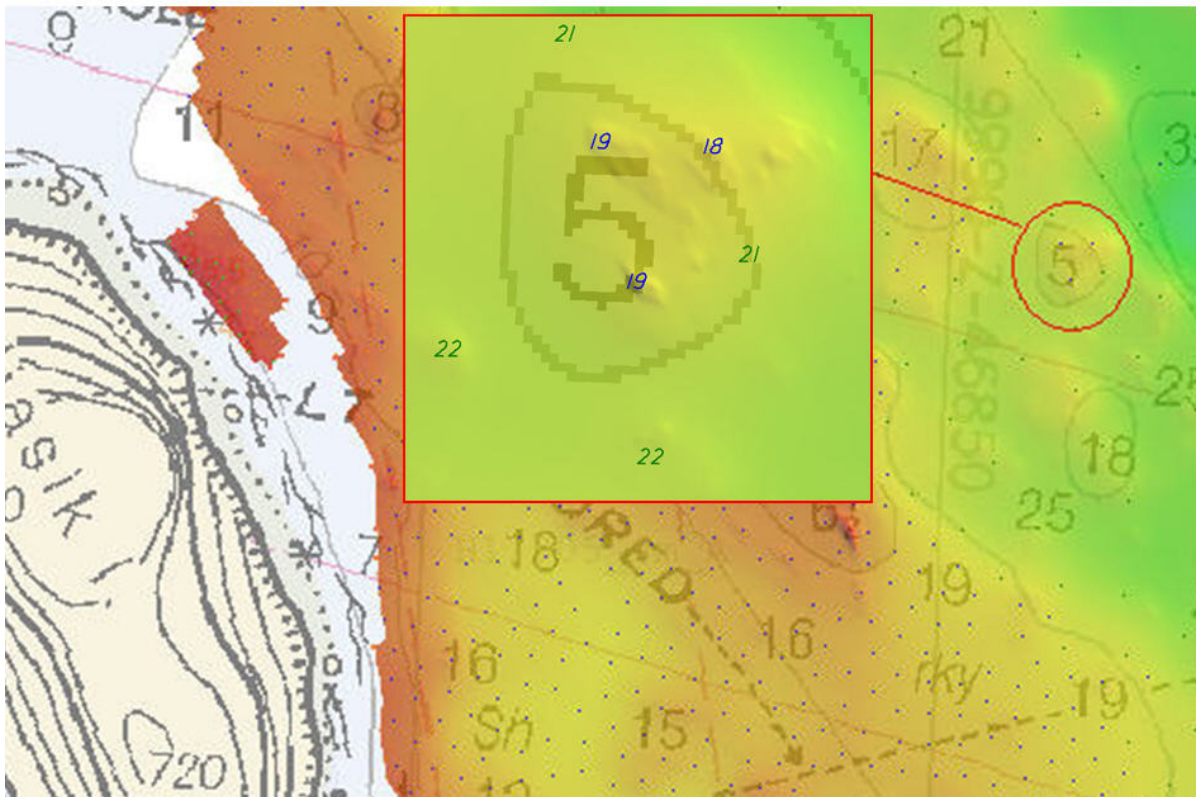


Figure 7: Mischarted shoal east of Inner Iliasik Island.

A mischarted 1 fathom sounding was discovered during survey operations for H11905 at position 55°03'15" N, 161°50'46" W (see figure 8). Complete multibeam coverage was obtained in this area and shows no indication of shoaling. This particular issue was reported directly to Marine Charting Division as an employee of MCD was on board *Rainier* at the time of discovery. It has since been addressed by MCD and was found to have been updated in LNM 29/08 but has not been corrected as of yet in the RNCs.¹⁴ The submitted discrepancy report along with further information regarding the update can be found in the Supplemental Correspondence in Appendix V.

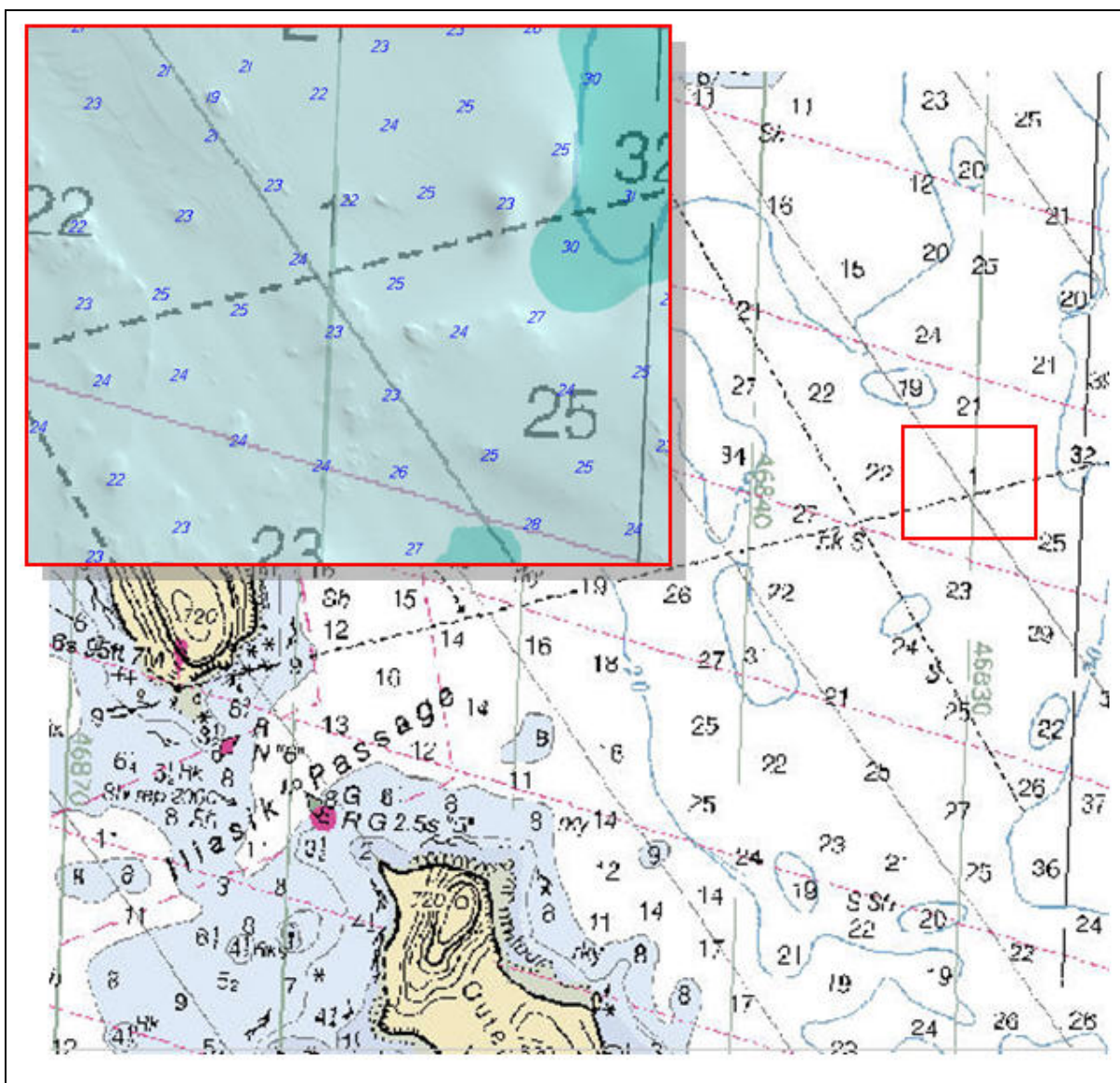


Figure 8: Mischarted 1 fathom sounding east of Iliasik Passage

The Hydrographer recommends that survey soundings supersede all prior survey and charted depths in the common area.¹⁵

D.1.b. Dangers to Navigation

One (1) danger to navigation (DTONs) was found in survey H11905 and was reported to Marine Chart Division via email on December 17, 2008.¹⁶ A shoal sounding was designated mid-channel in Iliasik Passage to update the depth and position on the assigned AWOIS item. The DTON submission package is included in Appendix I. Description of the DTON is included in the Survey Feature Report as well in Appendix I.¹⁷

D.1.c. Other Features

Automated Wreck and Obstruction Information System (AWOIS) Investigations

One (1) AWOIS items falls the within the survey limits of H11905 and was assigned for full investigation. *Rainier* reported a mid-channel shoal in Iliasik Passage while doing recon in 2006. Survey H11905 found the shoal point to be approximately 300 meters west of the previously reported position (see figure 9). The acquired data shows a least depth of 6 fathoms, 5 feet at position 55°01'46" N, 161°56'11" W. A DTON report was submitted to update current position and depth.¹⁸

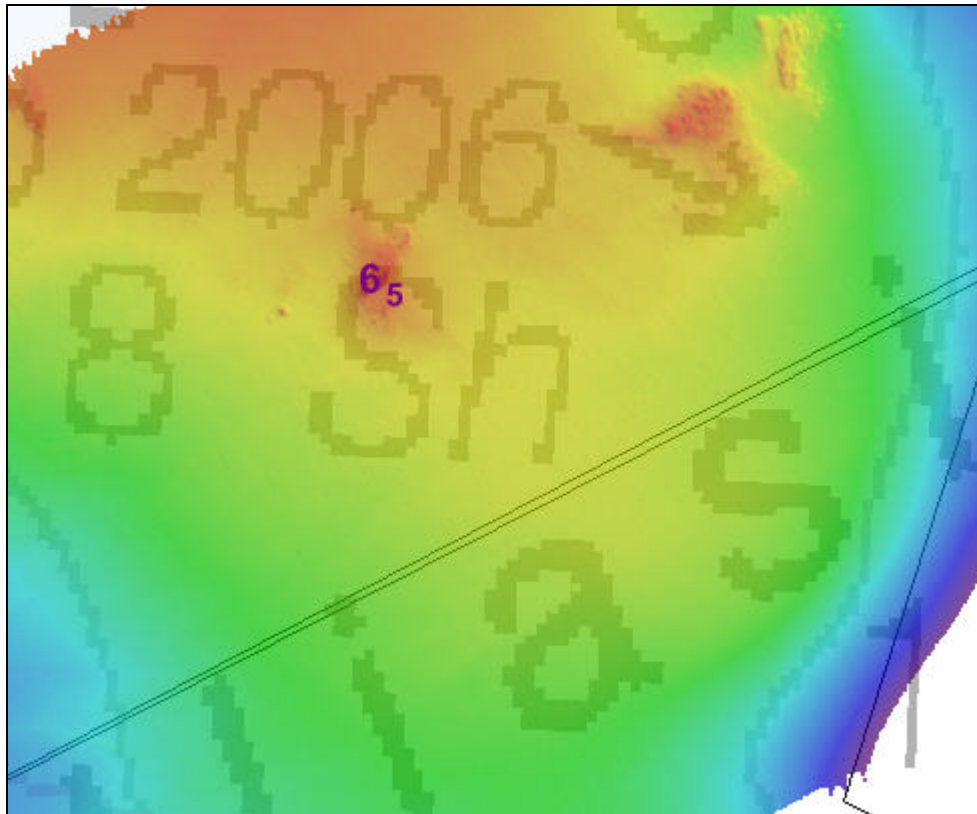


Figure 9: Designated sounding on high point of shoal in Iliasik Passage

Additional Items

Additional features investigated within the limits of H11905 are described in the Survey Feature Report in Appendix II.

D.2. Additional Results

D.2.a. Prior Survey Comparison

Prior survey comparison was not performed.

D.2.b. Shoreline Verification

Shoreline Source

The Pacific Hydrographic Branch provided *Rainier* with .HOB files containing features from LIDAR survey H11438 and H11439 selected for further investigation.¹⁹ These were provided as H11438_LI_Investigations.hob and H11439_LI_Investigations.hob.

In addition, a composite source file was provided using data from the latest ENC's as well as prior survey features. Photogrammetric survey project GC10645 has been adequately applied to ENC's used in the composite source file. This source shoreline was used for orientation purposes in Hypack and Notebook and on printed boat sheets utilized for investigation of the LIDAR items discussed above.

Shoreline Verification

Traditional "limited shoreline verification" was not required for this survey, since the near shore area was covered by junction LIDAR surveys H11438 and H11439 and thus outside the limits of H11905. The following field procedures were followed:

- H11905 LIDAR items selected for further investigation were addressed by visual, Detached Position (DP), VBES, or MBES techniques as appropriate and feasible, near predicted low water. Note that some of these features were located in areas unsafe to approach and/or were considered insignificant to navigation, and were not further investigated.
- The composite source shoreline was used for orientation and navigation while transiting between assigned H11905 items.
- All new, charted, and AWOIS items within the limits of H11905 (i.e., offshore of the limits prescribed in the Letter Instructions and discussed in Section A.) were addressed.

In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline, and transferred to the "remarks" attribute on the corresponding features in Notebook. DP forms are included in the Detached Position directory of the *Separates to be Included with Survey Data*.

Investigation methods and recommendations are described in the Pydro "Remarks" and "Recommendations" tabs. Additional information can also be found in the Pydro Feature Report included in Appendix II.²⁰

All shoreline data is submitted in Caris Notebook .hob files. The session H11905_NTBK.wrk contains the following:

HOB File	Purpose and Contents
H11905_CompSource.hob	Original Source Data and Lidar investigation items as provided for project OPR-P184-RA-08 and filtered to the limits of survey H11905
H11905_lidar_extents.hob	Extents of Lidar junction surveys H11438 and H11439
H11905_Field_Verified.hob	Field verified source features and shoreline, including bottom samples, and Lidar investigations items that were not accessible for investigation.
H11905_Deleted_Source.hob	Composite Source and Lidar Investigation items that were deleted or modified.

Table 6: List and Description of Notebook HOB files.

Source Shoreline Changes and New Features

Items for survey H11905 that require further discussion and are associated with a detached position, have been flagged “Report” in Pydro in H11905.pss. Investigation methods and recommendations are listed in the Remarks and Recommendation tabs. These features are included in the Survey Feature Report in Appendix I.

Recommendations

The Hydrographer recommends that the shoreline as depicted in the Notebook .HOB files supersede and complement shoreline information compiled on the GC, raster charts, and ENCs as described above.²¹

D.2.c. Aids to Navigation

Three aids to navigation (ATONs) fall within the survey limits of H11905. All were found to be correctly charted and serving their intended purpose.²² In addition, the natural pinnacle on the east side of Inner Iliasik Island serves as a prominent landmark for vessels headed south and should be retained as charted.²³

D.2.d. Overhead Features

There are no overhead features within the limits of survey H11905.²⁴

D.2.e. Submarine Cables and Pipelines

Survey H11905 includes one charted cable area that runs through Iliasik Passage and then turns north along the eastern side of Inner Iliasik Island. No trenches or other indications of cables were seen in the bathymetry or available backscatter imagery. The Hydrographer recommends retaining the cable areas as charted.²⁵

D.2.f. Ferry Routes

There are no ferry routes charted within the limits of survey H11905, and none were observed to be operating in the area.²⁶

D.2.g. Bottom Samples

Twelve (12) bottom samples were collected during survey H11905.²⁷ Of these, seven samples correctly matched current charted bottom type. Three samples did not match current charted bottom, and two samples were collected in areas without prior data. Bottom samples were collected with *Rainier* and logged into CARIS Notebook. The data is included in the submitted H11905_Field_verified_compsource.hob layer.


D.2.h. Other Findings

There are no other findings to report for survey H11905.




E. APPROVAL

As Chief of Party, Field operations for hydrographic survey H11905 were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports. The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual (April 2008 edition), Field Procedures Manual (May 2008 edition), Standing and Letter Instructions, and all HSD Technical Directives issued through August 2008. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required. All data and reports are respectfully submitted to N/CS34, Pacific Hydrographic Branch.

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for OPR-P184-RA-08	Nov. 26, 2008	N/CS34
Coast Pilot Report for OPR- P184-RA-08	TBD	N/CS26
		CAPT Donald W. Haines, NOAA
Approved and Forwarded:		2009.01.05 18:48:25 -08'00'
	<hr/> Captain Donald W. Haines, NOAA Commanding Officer	

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

Survey Sheet Manager:		Amy Riley I am the author of this document 2008.12.23 18:15:59 Z
	<hr/> Amy Riley Senior Survey Technician, NOAA Ship <i>Rainier</i>	
Chief Survey Technician:		James B Jacobson I have reviewed this document 2008.12.30 06:39:28 -09'00'
	<hr/> James B. Jacobson Chief Survey Technician, NOAA Ship <i>Rainier</i>	
Field Operations Officer:		I have reviewed this document 2009.01.02 14:10:53 -08'00'
	<hr/> Lieutenant Charles Yoos, NOAA Field Operations Officer	

Revisions and Corrections Compiled During Office Processing and Certification

¹ Filed with project records.

² Concur.

³ H11902, H11904, H11931 and H11932 have been compiled and common junctions were made with those surveys. A junction with H11903 will be made when that survey is compiled. H11905 also junctions with LIDAR surveys H11438 and H11439, which were compiled with this survey.

⁴ Concur.

⁵ Concur.

⁶ Concur.

⁷ Concur.

⁸ The data meets specification and is adequate to supersede charted data despite the POS/MV heading accuracy degradation.

⁹ After the HVF was modified to account for the roll bias, the data from launch 1021 meets specifications.

¹⁰ See attached Tide Note dated August 15, 2008.

¹¹ Concur.

¹² Concur. Update charted contours per survey depths.

¹³ Concur. Chart depths as depicted in the HCell.

¹⁴ The 16th Edition of Chart 16549 (3/1/2010) shows a 21 fathom sounding where the mis-charted 1 fathom was located. Update charted depths as depicted in the HCell.

¹⁵ Concur.

¹⁶ The DTON has been applied to the charts and is included in the HCell.

¹⁷ See attached DTON report.

¹⁸ The AWOIS item/DTON has been applied to the charts and is included in the HCell. See AWOIS section in attached Feature Report.

¹⁹ Where there is overlap between a multibeam and LIDAR survey, the multibeam data supersedes the LIDAR data except when there are coincident soundings with shoaler depths from LIDAR.

²⁰ See attached Feature Report. Note: the survey feature report only includes the assigned AWOIS item and LIDAR investigations from H11905. Additional features were added, some removed and some modified in CARIS Notebook after the feature report was generated from Pydro. All features included in the compilation of H11905 have come directly from CARIS Notebook, which is the official features deliverable for this survey.

²¹ Concur with clarification. The submitted hob files were used in the compilation of HCell H11905. During compilation, some modifications were made to accommodate chart scale. Chart features as depicted in the HCell.

²² Chart per latest ATONIS information.

²³ Concur.

²⁴ Concur.

²⁵ Concur.

²⁶ Concur.

²⁷ Six bottom samples from H11905 are included in the HCell. The remaining six bottom samples were not included because they conflicted with the delineated rocky seabed areas. Four charted bottom samples have been blue noted to be retained. The remaining charted bottom samples within the survey area have been blue noted to be removed.

H11905_DTON_Report

Registry Number: H11905
State: Alaska
Locality: Pavlof Island
Sub-locality: Iliasik Passage and Vicinity
Project Number: OPR-P184-RA-08
Survey Dates: June 26, 2008 - August 1, 2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16549	15th	07/01/2003	1:80,000 (16549_1)	[L]NTM: ?
16540	12th	01/01/2005	1:300,000 (16540_1)	[L]NTM: ?
16011	36th	08/01/2004	1:1,023,188 (16011_1)	[L]NTM: ?
16006	34th	05/01/2006	1:1,534,076 (16006_1)	[L]NTM: ?
513	7th	06/01/2004	1:3,500,000 (513_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	31st	06/01/2005	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Shoal	12.48 m	55° 01' 45.5" N	161° 56' 10.6" W	53550

1 - Danger To Navigation

1.1) Profile/Beam - 1638/319 from h11905 / 2801_reson7125_hf_512beams / 2008-178 / 702_1813

DANGER TO NAVIGATION

Primary Feature for AWOIS Item #53550

Search Position: 55° 01' 46.8" N, 161° 55' 53.1" W
Historical Depth: 11.52 m
Search Radius: 100
Search Technique: SWMB
Technique Notes: [None]

History Notes:

CL 979 (06); NOAA Ship RAINIER recon report ; The shoal reported is a 6.3 fathom sounding adjacent to the charted 8 fathom sounding- approx GP is 55°01'47N, 161°55'55"W. Updated 3/2/07 RS

Survey Summary

Survey Position: 55° 01' 45.5" N, 161° 56' 10.6" W
Least Depth: 12.48 m (= 40.96 ft = 6.826 fm = 6 fm 4.96 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.266 m
Timestamp: 2008-178.18:17:02.334 (06/26/2008)
Survey Line: h11905 / 2801_reson7125_hf_512beams / 2008-178 / 702_1813
Profile/Beam: 1638/319
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

least depth mid-channel in Iliasik Passage

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2801_reson7125_hf_512beams/2008-178/702_1813	1638/319	0.00	000.0	Primary
H11905_AWOIS	AWOIS # 53550	312.74	262.9	Secondary (grouped)

Hydrographer Recommendations

Update AWOIS database information with current position and least depth. Remove "Shl rep 2006" from chart(16549). Add sounding to chart based on current bathymetry.

Cartographically-Rounded Depth (Affected Charts):

6 ¾fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)

12.5m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
SORDAT - 20080801
SORIND - US, US, Survy, H11905
STATUS - 1:permanent
TECSOU - 3:found by multi-beam
VERDAT - 12:Mean lower low water

Feature Images

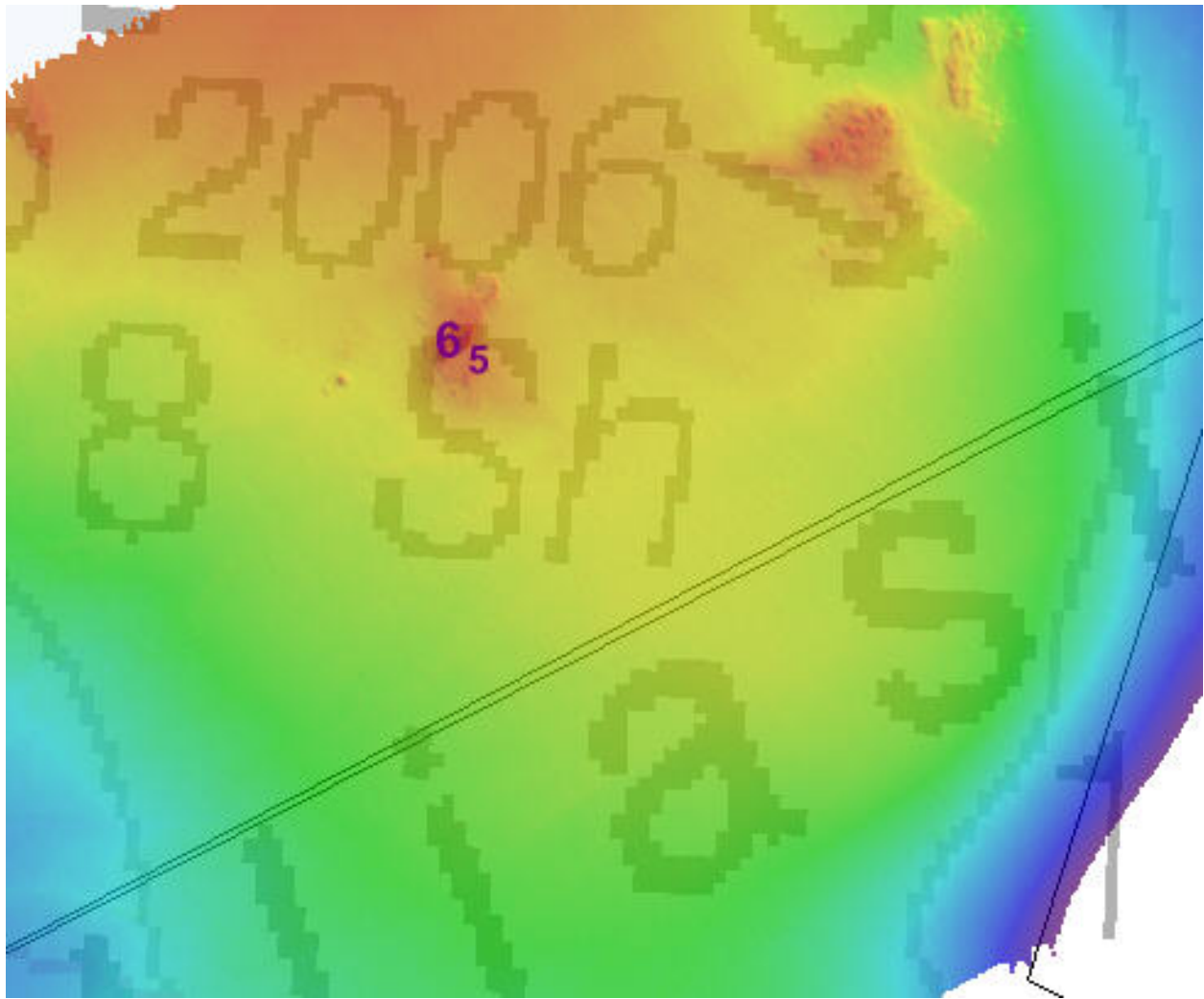


Figure 1.1.1

H11905 Survey Feature Report

Registry Number: H11905
State: Alaska
Locality: Pavlof Island
Sub-locality: Iliasik Passage and Vicinity
Project Number: OPR-P184-RA-08
Survey Dates: 06/26/2008 - 08/01/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16549	15th	07/01/2003	1:80,000 (16549_1)	[L]NTM: ?
16540	12th	01/01/2005	1:300,000 (16540_1)	[L]NTM: ?
16011	36th	08/01/2004	1:1,023,188 (16011_1)	[L]NTM: ?
16006	34th	05/01/2006	1:1,534,076 (16006_1)	[L]NTM: ?
513	7th	06/01/2004	1:3,500,000 (513_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	31st	06/01/2005	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Shoal	10.35 m	55° 03' 08.9" N	161° 54' 32.6" W	---
1.2	Shoal	10.75 m	55° 04' 50.8" N	161° 52' 46.3" W	---
1.3	Shoal	7.17 m	55° 03' 58.1" N	161° 56' 19.3" W	---
1.4	Shoal	4.33 m	55° 02' 04.4" N	161° 56' 04.0" W	---
1.5	Shoal	10.15 m	55° 01' 54.2" N	161° 56' 27.8" W	---
1.6	Shoal	11.95 m	55° 01' 59.8" N	161° 56' 44.2" W	---
1.7	Sounding	4.98 m	55° 02' 16.6" N	161° 56' 46.2" W	---
1.8	Sounding	4.24 m	55° 04' 33.5" N	161° 58' 12.4" W	---
1.9	Shoal	4.16 m	55° 04' 26.9" N	161° 58' 16.7" W	---
2.1	Shoal	11.01 m	55° 04' 19.7" N	161° 56' 52.1" W	---

2.2	Shoal	8.02 m	55° 03' 20.0" N	161° 56' 07.6" W	---
2.3	Shoal	7.13 m	55° 03' 27.2" N	161° 56' 15.1" W	---
2.4	Shoal	9.36 m	55° 03' 26.4" N	161° 56' 08.2" W	---
2.5	Shoal	7.42 m	55° 02' 08.5" N	161° 56' 02.0" W	---
2.6	Shoal	6.25 m	55° 02' 01.9" N	161° 56' 18.4" W	---
2.7	Shoal	3.53 m	55° 02' 42.9" N	161° 57' 07.6" W	---
2.8	Shoal	9.86 m	55° 02' 41.1" N	161° 57' 24.3" W	---
3.1	Shoal	12.48 m	55° 01' 45.5" N	161° 56' 10.6" W	53550

1 - Charted Features

1.1) Profile/Beam - 5244/65 from h11905 / 1015_reson8101_hvf / 2008-199 / 306_1722

Survey Summary

Survey Position: 55° 03' 08.9" N, 161° 54' 32.6" W
Least Depth: 10.35 m (= 33.96 ft = 5.660 fm = 5 fm 3.96 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.273 m
Timestamp: 2008-199.17:40:50.482 (07/17/2008)
Survey Line: h11905 / 1015_reson8101_hvf / 2008-199 / 306_1722
Profile/Beam: 5244/65
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: Updated least depth on assigned LIDAR investigation item

Lidar Note: Possible Rk in kelp. See Danger to Navigation Report. Item No. 11. Doubtful sounding.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/1015_reson8101_hvf/2008-199/306_1722	5244/65	0.00	000.0	Primary

Hydrographer Recommendations

Use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

5 ½fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)

10.4m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

1.2) Profile/Beam - 1458/80 from h11905 / 1021_reson8101_hvf / 2008-197 / 326_2047

Survey Summary

Survey Position: 55° 04' 50.8" N, 161° 52' 46.3" W
Least Depth: 10.75 m (= 35.26 ft = 5.877 fm = 5 fm 5.26 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.378 m ; **TVU (TPEv)** ± 0.292 m
Timestamp: 2008-197.20:51:47.979 (07/15/2008)
Survey Line: h11905 / 1021_reson8101_hvf / 2008-197 / 326_2047
Profile/Beam: 1458/80
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: New least depth on assigned LIDAR investigation item

Lidar Note: Possible Rk in kelp. Doubtful sounding

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/1021_reson8101_hvf/2008-197/326_2047	1458/80	0.00	000.0	Primary

Hydrographer Recommendations

Use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

5 $\frac{3}{4}$ fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)

10.7m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

1.3) Profile/Beam - 525/98 from h11905 / 1021_reson8101_hvf / 2008-198 / 310_1702

Survey Summary

Survey Position: 55° 03' 58.1" N, 161° 56' 19.3" W
Least Depth: 7.17 m (= 23.53 ft = 3.922 fm = 3 fm 5.53 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.380 m ; **TVU (TPEv)** ±0.308 m
Timestamp: 2008-198.17:03:43.788 (07/16/2008)
Survey Line: h11905 / 1021_reson8101_hvf / 2008-198 / 310_1702
Profile/Beam: 525/98
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item. 3.92 fathoms in charted 4 fathom area.
 Lidar Note: Possible Rk in kelp. See Danger to Navigation Report. Item number 9.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/1021_reson8101_hvf/2008-198/310_1702	525/98	0.00	000.0	Primary

Hydrographer Recommendations

retain as charted

Cartographically-Rounded Depth (Affected Charts):

3 ¾fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 7.2m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

1.4) Profile/Beam - 716/1 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 914_1907

Survey Summary

Survey Position: 55° 02' 04.4" N, 161° 56' 04.0" W
Least Depth: 4.33 m (= 14.20 ft = 2.367 fm = 2 fm 2.20 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.971 m ; **TVU (TPEv)** ± 0.176 m
Timestamp: 2008-214.19:08:23.276 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 914_1907
Profile/Beam: 716/1
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item, approx 4.3 meters
 Lidar Note: Possible rock in kelp, SE of large kelp area with many kelp features

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/914_1907	716/1	0.00	000.0	Primary

Hydrographer Recommendations

Use curent bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

2 ¼fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 4.3m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

1.5) Profile/Beam - 356/189 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 921_1851

Survey Summary

Survey Position: 55° 01' 54.2" N, 161° 56' 27.8" W
Least Depth: 10.15 m (= 33.29 ft = 5.548 fm = 5 fm 3.29 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.257 m
Timestamp: 2008-214.18:52:28.488 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 921_1851
Profile/Beam: 356/189
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: MBES used to acquire least depth on assigned LIDAR investigation item
 Lidar Note: Possible Rk in kelp, least depth not found

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/921_1851	356/189	0.00	000.0	Primary

Hydrographer Recommendations

retain as charted

Cartographically-Rounded Depth (Affected Charts):

5 ½fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 10.1m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

1.6) Profile/Beam - 320/299 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 924_1847

Survey Summary

Survey Position: 55° 01' 59.8" N, 161° 56' 44.2" W
Least Depth: 11.95 m (= 39.20 ft = 6.533 fm = 6 fm 3.20 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.263 m
Timestamp: 2008-214.18:47:43.952 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 924_1847
Profile/Beam: 320/299
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: MBES used to acquire least depth on assigned LIDAR investigation item.
 Lidar Note: Possible Rk in large kelp area, least depth not found

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/924_1847	320/299	0.00	000.0	Primary

Hydrographer Recommendations

use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

6 ½fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 11.9m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

1.7) Profile/Beam - 809/1 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 928_1837

Survey Summary

Survey Position: 55° 02' 16.6" N, 161° 56' 46.2" W
Least Depth: 4.98 m (= 16.34 ft = 2.724 fm = 2 fm 4.34 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.972 m ; **TVU (TPEv)** ± 0.179 m
Timestamp: 2008-214.18:38:02.064 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 928_1837
Profile/Beam: 809/1
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item, depth is approximately 2.7 fathoms
 Lidar Note: Not detected by Lidar

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/928_1837	809/1	0.00	000.0	Primary

Hydrographer Recommendations

remove charted rock, use current bathymetry to update charted depth

Cartographically-Rounded Depth (Affected Charts):

2 ¾fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 5.0m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: SORDAT - 20080801
 SORIND - US, US, Survy, H11905

1.8) Profile/Beam - 23/10 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 935_1751

Survey Summary

Survey Position: 55° 04' 33.5" N, 161° 58' 12.4" W
Least Depth: 4.24 m (= 13.90 ft = 2.317 fm = 2 fm 1.90 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.970 m ; **TVU (TPEv)** ± 0.178 m
Timestamp: 2008-214.17:51:20.186 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 935_1751
Profile/Beam: 23/10
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item. Least depth is approximately 2.3 fathoms, within the charted(16549) 3 fathom contour

LIDAR Note: Not detected by LIDAR

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/935_1751	23/10	0.00	000.0	Primary

Hydrographer Recommendations

remove CHD(16549) rk and use current bathymetry to update charted depth

Cartographically-Rounded Depth (Affected Charts):

2 ¼fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)

4.2m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: SORDAT - 20080801
 SORIND - US, US, Survy,H11905

1.9) Profile/Beam - 417/8 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 936_1754

Survey Summary

Survey Position: 55° 04' 26.9" N, 161° 58' 16.7" W
Least Depth: 4.16 m (= 13.65 ft = 2.275 fm = 2 fm 1.65 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.971 m ; TVU (TPEv) ± 0.177 m
Timestamp: 2008-214.17:54:53.115 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 936_1754
Profile/Beam: 417/8
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA note: rocky outcropping located just south of chd(16549)rock. Least depth approximately 2.3 fathoms located 25 meters from 3 fathom contour.

LIDAR Note: Not detected by LIDAR

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/936_1754	417/8	0.00	000.0	Primary

Hydrographer Recommendations

remove CHD(16549) rock and use current bathymetry to update charted depths and contours.

Cartographically-Rounded Depth (Affected Charts):

2 ¼fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)

4.2m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

2 - New Features

2.1) Profile/Beam - 452/387 from h11905 / 2802_reson7125_hf_512beams / 2008-213 / 925_2335

Survey Summary

Survey Position: 55° 04' 19.7" N, 161° 56' 52.1" W
Least Depth: 11.01 m (= 36.12 ft = 6.019 fm = 6 fm 0.12 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.967 m ; **TVU (TPEv)** ± 0.241 m
Timestamp: 2008-213.23:36:39.054 (07/31/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-213 / 925_2335
Profile/Beam: 452/387
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item
 Lidar Note: Possible Rk in kelp, doubtful sounding

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-213/925_2335	452/387	0.00	000.0	Primary

Hydrographer Recommendations

Use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

6fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 11.0m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, survy, H11905
 TECSOU - 3:found by multi-beam

2.2) Profile/Beam - 1742/409 from h11905 / 2802_reson7125_hf_512beams / 2008-213 / 929_0004

Survey Summary

Survey Position: 55° 03' 20.0" N, 161° 56' 07.6" W
Least Depth: 8.02 m (= 26.30 ft = 4.383 fm = 4 fm 2.30 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.967 m ; **TVU (TPEv)** ±0.228 m
Timestamp: 2008-214.00:06:03.753 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-213 / 929_0004
Profile/Beam: 1742/409
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: Least depth on assigned LIDAR investigation item
 Lidar Note: Possible Rk in kelp, least depth not found. Many kelp features in vicinity.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-213/929_0004	1742/409	0.00	000.0	Primary

Hydrographer Recommendations

Use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

4 ¼fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 8.0m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

2.3) Profile/Beam - 1494/170 from h11905 / 2802_reson7125_hf_512beams / 2008-213 / 930_0001

Survey Summary

Survey Position: 55° 03' 27.2" N, 161° 56' 15.1" W
Least Depth: 7.13 m (= 23.41 ft = 3.901 fm = 3 fm 5.41 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.251 m
Timestamp: 2008-214.00:03:03.821 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-213 / 930_0001
Profile/Beam: 1494/170
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item, approx 7m
 Lidar Note: Possible Rk in kelp, least depth not found

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-213/930_0001	1494/170	0.00	000.0	Primary

Hydrographer Recommendations

Use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

3 ¾fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 7.1m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, survy, H11905
 TECSOU - 3:found by multi-beam

2.4) Profile/Beam - 669/146 from h11905 / 2802_reson7125_hf_512beams / 2008-213 / 933_2352

Survey Summary

Survey Position: 55° 03' 26.4" N, 161° 56' 08.2" W
Least Depth: 9.36 m (= 30.72 ft = 5.120 fm = 5 fm 0.72 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.965 m ; **TVU (TPEv)** ± 0.246 m
Timestamp: 2008-213.23:53:22.480 (07/31/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-213 / 933_2352
Profile/Beam: 669/146
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item
 Lidar Note: Possible rock in kelp. Note: 4.9 Rk 130m S.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-213/933_2352	669/146	0.00	000.0	Primary

Hydrographer Recommendations

Use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

5fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 9.4m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

2.5) Profile/Beam - 292/185 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 915_1904

Survey Summary

Survey Position: 55° 02' 08.5" N, 161° 56' 02.0" W
Least Depth: 7.42 m (= 24.35 ft = 4.058 fm = 4 fm 0.35 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.962 m ; **TVU (TPEv)** ± 0.254 m
Timestamp: 2008-214.19:05:12.550 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 915_1904
Profile/Beam: 292/185
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item, approx 7.4 meters
 Lidar Note: Possible rock in kelp, 40m E of large kelp area

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/915_1904	292/185	0.00	000.0	Primary

Hydrographer Recommendations

use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

4fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 7.4m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

2.6) Profile/Beam - 587/493 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 917_1858

Survey Summary

Survey Position: 55° 02' 01.9" N, 161° 56' 18.4" W
Least Depth: 6.25 m (= 20.51 ft = 3.418 fm = 3 fm 2.51 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.972 m ; **TVU (TPEv)** ±0.188 m
Timestamp: 2008-214.18:59:36.054 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 917_1858
Profile/Beam: 587/493
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: MBES used to acquire least depth on assigned LIDAR investigation item
 Lidar Note: Possible Rk in kelp. Note: 5.8 Rk 100m WSW

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/917_1858	587/493	0.00	000.0	Primary

Hydrographer Recommendations

use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

3 ¼fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 6.3m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

2.7) Profile/Beam - 127/1 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 931_1823

Survey Summary

Survey Position: 55° 02' 42.9" N, 161° 57' 07.6" W
Least Depth: 3.53 m (= 11.59 ft = 1.931 fm = 1 fm 5.59 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.970 m ; **TVU (TPEv)** ± 0.173 m
Timestamp: 2008-214.18:23:44.543 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 931_1823
Profile/Beam: 127/1
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: least depth on assigned LIDAR investigation item.
 Lidar note: Possible drying rock observed on video in large kelp area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/931_1823	127/1	0.00	000.0	Primary

Hydrographer Recommendations

Disproved drying rock from LIDAR survey, use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

1 ¾fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 3.5m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

2.8) Profile/Beam - 2085/476 from h11905 / 2802_reson7125_hf_512beams / 2008-214 / 933_1829

Survey Summary

Survey Position: 55° 02' 41.1" N, 161° 57' 24.3" W
Least Depth: 9.86 m (= 32.36 ft = 5.393 fm = 5 fm 2.36 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.973 m ; **TVU (TPEv)** ±0.203 m
Timestamp: 2008-214.18:31:40.486 (08/01/2008)
Survey Line: h11905 / 2802_reson7125_hf_512beams / 2008-214 / 933_1829
Profile/Beam: 2085/476
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

RA Note: updated least depth submerged feature
 Lidar note: Possible Rk in kelp. 5.9 Rk 110m S.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2802_reson7125_hf_512beams/2008-214/933_1829	2085/476	0.00	000.0	Primary

Hydrographer Recommendations

use current bathymetry to update charted depths

Cartographically-Rounded Depth (Affected Charts):

5 ¼fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)
 9.9m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20080801
 SORIND - US, US, Survy, H11905
 TECSOU - 3:found by multi-beam

3 - AWOIS Features

3.1) Profile/Beam - 1638/319 from h11905 / 2801_reson7125_hf_512beams / 2008-178 / 702_1813

Primary Feature for AWOIS Item #53550

Search Position: 55° 01' 46.8" N, 161° 55' 53.1" W
Historical Depth: 11.52 m
Search Radius: 100
Search Technique: SWMB
Technique Notes: [None]

History Notes:

CL 979 (06); NOAA Ship RAINIER recon report ; The shoal reported is a 6.3 fathom sounding adjacent to the charted 8 fathom sounding- approx GP is 55°01'47N, 161°55'55"W. Updated 3/2/07 RS

Survey Summary

Survey Position: 55° 01' 45.5" N, 161° 56' 10.6" W
Least Depth: 12.48 m (= 40.96 ft = 6.826 fm = 6 fm 4.96 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.966 m ; **TVU (TPEv)** ± 0.335 m
Timestamp: 2008-178.18:17:02.334 (06/26/2008)
Survey Line: h11905 / 2801_reson7125_hf_512beams / 2008-178 / 702_1813
Profile/Beam: 1638/319
Charts Affected: 16549_1, 16540_1, 16011_1, 16006_1, 500_1, 513_1, 530_1, 50_1

Remarks:

least depth on rock feature mid-channel in Iliasik Passage

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11905/2801_reson7125_hf_512beams/2008-178/702_1813	1638/319	0.00	000.0	Primary
H11905_AWOIS	AWOIS # 53550	312.74	262.9	Secondary (grouped)

Hydrographer Recommendations

Update AWOIS database information with current position and least depth. Add sounding to chart.

Cartographically-Rounded Depth (Affected Charts):

6 ¾fm (16549_1, 16540_1, 16011_1, 16006_1, 530_1)

12.5m (500_1, 513_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
SORIND - US, US, Survy, H11905
STATUS - 1:permanent
TECSOU - 3:found by multi-beam
VERDAT - 12:Mean lower low water

Feature Images

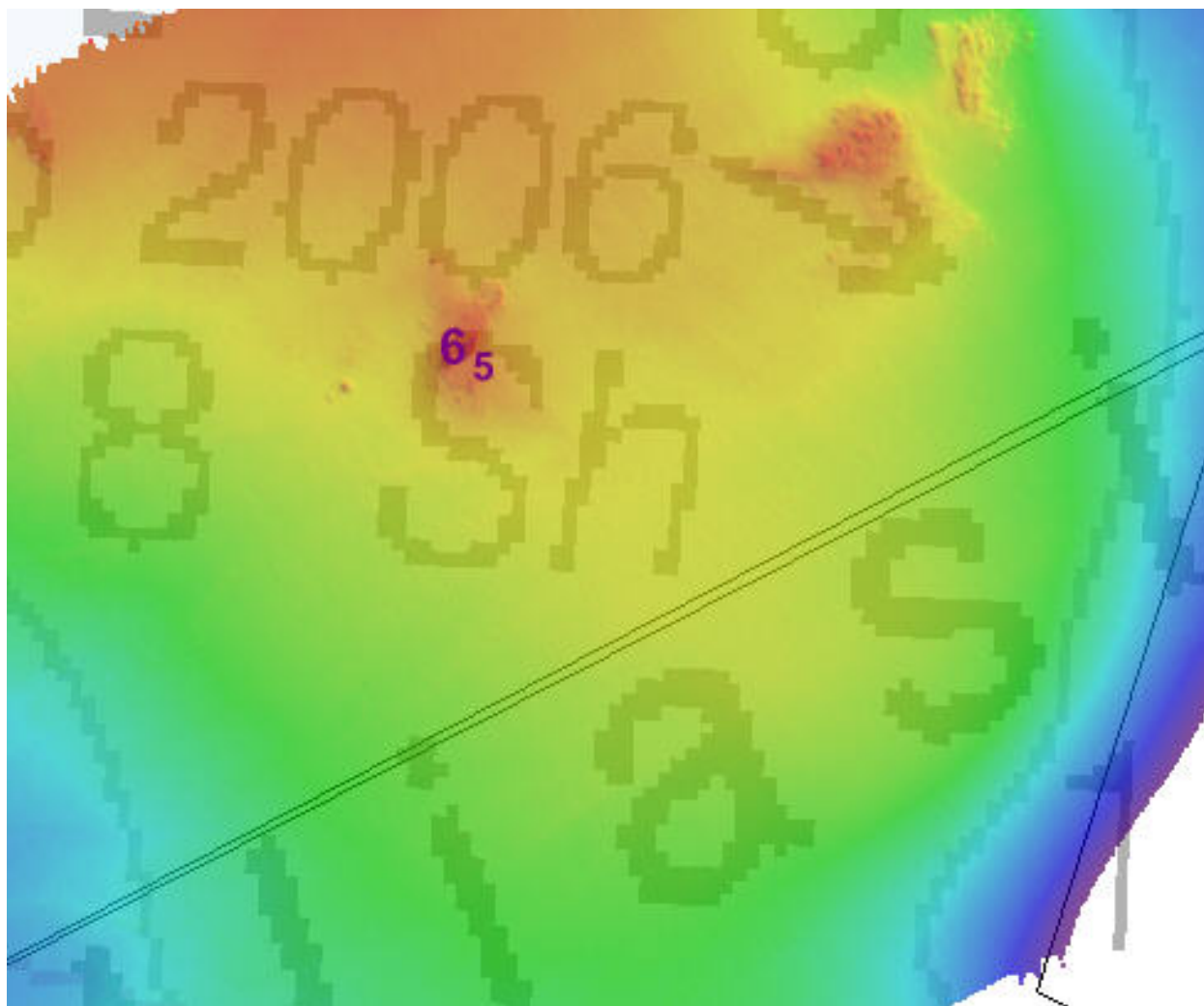


Figure 3.1.1



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : August 15, 2008

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P184-RA-2008
HYDROGRAPHIC SHEET: H11905

LOCALITY: Iliasik Passage and Vicinity, Pavlof Islands, AK
TIME PERIOD: June 26 - August 1, 2008

TIDE STATION USED: 945-9881 King Cove, AK
Lat. 55° 03.6'N Long. 162° 19.6' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.876 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-P184-RA-2008, H11905, during the time period between June 26 and August 1, 2008.

Please use the zoning file "P184RA2008CORP" submitted with the project instructions for Pavlof Islands, AK. Zone SWA218 is the applicable zone for H11905.

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).

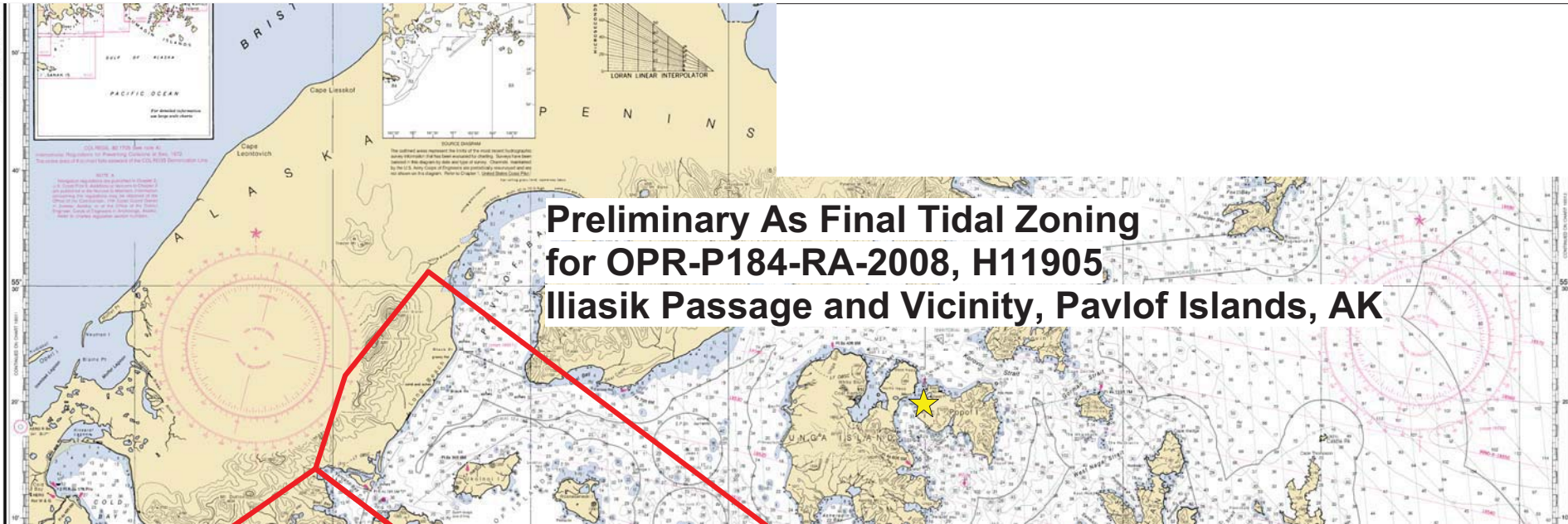
Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS,
ou=NOAA/NOS, email=peter.
stone@noaa.gov, c=US
Date: 2008.08.19 17:50:34 -04'00'

CHIEF, PRODUCT AND SERVICES DIVISION



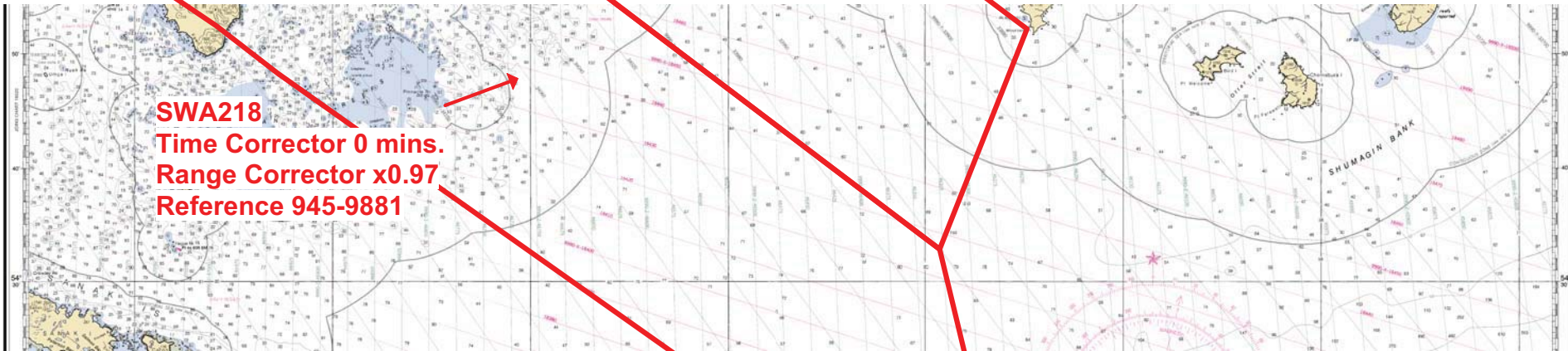
N/C OVERPRINTED



**Preliminary As Final Tidal Zoning
for OPR-P184-RA-2008, H11905,
Iliasik Passage and Vicinity, Pavlof Islands, AK**



945-9881 KING COVE



SWA218
Time Corrector 0 mins.
Range Corrector x0.97
Reference 945-9881

H11905 HCell Report
Katie Reser, Physical Scientist
Pacific Hydrographic Branch

1. Specifications, Standards and Guidance Used in HCell Compilation

HCell compilation of survey H11905 used:

Office of Coast Survey HCell Specifications: Draft, Version: 4.0, 17 March, 2010.
HCell Reference Guide: Version 2.0, 22 February, 2010.

2. Compilation Scale

Depths and features for HCell H11905 were compiled to the largest scale raster charts shown below:

Chart Scale	Edition	Edition Date	NTM Date
16549 1:80,000	16 th 03/01/2010	10	05/22/2010

The following ENC's were also used during compilation:

Chart Scale
US4AK55M 1:80,000

3. Soundings

A survey-scale sounding (SOUNDG) feature object layer was built from a 4-meter multibeam combined surface from H11905 and 3-meter LIDAR surfaces from H11438 and H11439 in CARIS BASE Editor. A shoal-biased selection was made at 1:20,000 survey scale using a Radius Table file with values shown in the table, below.

Shoal Limit (m)	Deep Limit (m)	Radius (mm)
-5 10		3
10 20		4
20 50		4.5
50 500		5

In CARIS BASE Editor soundings were manually selected from the high density sounding layers (SS) and imported into a new layer (CS) created to accommodate chart density depths. Manual selection was used to accomplish a density and distribution that closely represents the seafloor morphology.

4. Depth Contours

Depth contours at the intervals on the largest scale chart are included in the *_SS HCell for MCD raster charting division to use for guidance in creating chart contours. The metric and fathom equivalent contour values are shown in the table below.

Chart Contour Intervals in Fathoms	Metric Equivalent to Chart Fathoms, Arithmetically Rounded	Metric Equivalent of Chart Fathoms, with NOAA Rounding Applied	Fathoms with NOAA Rounding Applied	Fathoms with NOAA Rounding Removed for Display on H11905_SS.000
0 0.0000		0.2286	0.125	0
3 5.4864		5.715	3.125	3
5	9.144 9.373	5.125		5
10	18.288 18.517	10.125		10
20	36.576 37.948	20.750		20
30	54.864 56.235	30.750		30
50 91.44		92.812	50.750	50

With the exception of zero contours included in the *_CS file, contours have not been de-conflicted against shoreline features, soundings and hydrography, as all other features in the *_CS file and soundings in the *_SS have been. This may result in conflicts between the *_SS file contours and HCell features at or near the survey limits. Conflicts with M_QUAL, COALNE, DEPCNT and SBDARE objects should be expected. HCell features should be honored over *_SS.000 file contours in all cases where conflicts are found.

5. Meta Areas

The following Meta object areas are included in HCell H11905:

M_QUAL

The Meta area objects were constructed on the basis of the limits of the hydrography. H11905 contains several M_QUAL objects: One large area depicting the data sourced from the H11905 main survey area, several smaller areas depicting H11905 multibeam investigations, one area depicting data from a portion of LIDAR survey H11438 and one area depicting data from a portion of LIDAR survey H11439.

Due to the numerous number of M_QUALs included in this survey it was requested from MCD that a single area object depicting the full extents of the survey area be created. A single \$AREAS object has been included to fulfill that request.

6. Features

Features addressed by the field units are delivered to PHB where they are de-conflicted against the hydrography and the largest scale chart. These features, as well as features to be retained from the chart and features digitized from the Base Surface, are included in the HCell. The geometry of these features may be modified to emulate chart scale per the HCell Reference Guide on compiling features to the chart scale HCell.

7. S-57 Objects and Attributes

The *_CS HCell contains the following Objects:

\$AREAS	Single area object depicting total coverage
\$CSYMB	Blue notes
COALNE	GC coastline
DEPCNT	LIDAR zero contours
LNDARE	Islands and islets
LNDELV	Heights on islands and islets
M_QUAL	Data quality meta object
SBDARE	Rocky seabed areas, ledges, reefs and bottom samples
SOUNDG	Soundings at the chart scale density
UWTROC	Rocks
WEDKLP	Kelp

The *_SS HCell contains the following Objects:

DEPCNT	Generalized contours at chart scale intervals
SOUNDG	Soundings at the survey scale density

8. Spatial Framework

8.1 Coordinate System

All spatial map and base cell file deliverables are in an LLDG geographic coordinate system, with WGS84 horizontal, MHW vertical, and MLLW (1983-2001 NTDE) sounding datums.

8.2 Horizontal and Vertical Units

DUNI, HUNI and PUNI are used to define units for depth, height and horizontal position in the chart units HCell, as shown below.

Chart Unit Base Cell Units:

Depth Units (DUNI):	Fathoms and feet
Height Units (HUNI):	Feet
Positional Units (PUNI):	Meters

During creation of the HCell in CARIS BASE Editor and CARIS S-57 Composer, all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less. Units and precision are shown below.

BASE Editor and S-57 Composer Units:

Sounding Units:	Meters rounded to the nearest millimeter
Spot Height Units:	Meters rounded to the nearest decimeter

See the HCell Reference Guide for details of conversion from metric to charting units, and application of NOAA rounding.

9. Data Processing Notes

There were no significant deviations from the standards and protocols given in the HCell Specification and HCell Reference Guide.

10. QA/QC and ENC Validation Checks

H11905 was subjected to QA checks in S-57 Composer prior to exporting to the metric HCell base cell (000) file. The millimeter precision metric S-57 HCell was converted to chart units and NOAA rounding applied. dKart Inspector was then used to further check the data set for conformity with the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests were run and warnings and errors investigated and corrected unless they are MCD approved as inherent to and acceptable for HCells.

11. Products

11.1 HSD, MCD and CGTP Deliverables

H11905_CS.000	Base Cell File, Chart Units, Soundings and features compiled to 1:80,000
H11905_SS.000	Base Cell File, Chart Units, Soundings and Contours compiled to 1:20,000
H11905_DR.pdf	Descriptive Report including end notes compiled during office processing and certification, the HCell Report, and supplemental items
H11905_Outline.gml	Survey outline
H11905_Outline.xsd	Survey outline

11.2 Software

CARIS HIPS Ver. 6.1	Inspection of Combined BASE Surfaces
CARIS BASE Editor Ver. 2.2	Creation of soundings and bathy-derived features, meta area objects, and blue notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer Ver. 2.0	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS 4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS HOM Ver. 3.3	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
HydroService AS, dKart Inspector Ver. 5.1	Validation of the base cell file.
Northport Systems, Inc., Fugawi Marine ENC Ver.3.1.0.435	Independent inspection of final HCells using a COTS viewer.

12. Contacts

Inquiries regarding this HCell content or construction should be directed to:

Katie Reser
Physical Scientist
Pacific Hydrographic Branch
Seattle, WA
206-526-6864
katie.reser@noaa.gov

APPROVAL SHEET
H11905

The survey evaluation and verification has been conducted according to branch processing procedures and the HCell compiled per the latest OCS HCell Specifications.

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, S-57 classification and attribution of soundings and features, cartographic characterization, and verification or disproof of charted data within the survey limits. The survey records and digital data comply with OCS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

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