

H11477

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.

Registry No. H11477

LOCALITY

State Alaska

General Locality Southwest Alaska Peninsula

Sublocality Eastern Mitrofanina Island

2005

CHIEF OF PARTY

..... Commander Guy T. Noll, NOAA

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET

H11477

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.

State Alaska

General Locality Southwest Alaska Peninsula

Sublocality Eastern Mitrofanina Island

Scale 1:10,000

Date of Survey July 27, 2005-August 21, 2005

Instructions Dated 7/1/2005

Project No. OPR-P182-RA-05

Vessel RA1 (1101), RA2 (1103), RA3 (1021), RA4 (1016), RA5 (1006), RA6 (1015)

Chief of Party Commander Guy T. Noll, NOAA

Surveyed by RAINIER Personnel

Soundings taken by echo sounder RESON 8101, Reson 8125, Elac 1180, Knudsen 320M

Graphic record scaled by N/A

Graphic record checked by N/A

Evaluation by M. Foss

Automated plot by N/A

Verification by M. Foss, K. Reser

Soundings in Fathoms and Feet

at

MLLW

REMARKS: Time in UTC. UTM Projection Zone 4

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

As a result, page numbering may be interrupted or non-sequential

All separates are filed with the hydrographic data.

Descriptive Report to Accompany Hydrographic Survey H11477

Project OPR-P182-RA-05
South West Alaska Peninsula
Eastern Mitrofanina Island
Scale 1:10,000
July-August 2005
NOAA Ship RAINIER (S221)
Chief of Party: Commander Guy T. Noll, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-P182-RA-05, dated June 30, 2005, and all other applicable direction¹, with the exceptions of deviations noted in this report. The survey area is Eastern Mitrofanina Island, Alaska. This survey corresponds to sheet "AW" in the sheet layout provided with the Letter Instructions. OPR-P182-RA-05 responds to a request from a U.S. Congressman, a U.S. Senator, the domestic commercial fishing industry, the United States Coast Guard, and NOAA that emphasizes concern about chart adequacy and safe navigation in offshore regions of the Alaska Peninsula.

One hundred percent multi-beam coverage was obtained in the survey area in waters eight meters and deeper as required by the project instructions, with the exception of the following:

- Areas in which the required junction with lidar bathymetry was obtained in depths greater than 8 meters.¹
- Areas where the eight meter contour was very close to shore and precluded safe navigation of the survey vessel.²

Limited Shoreline Verification was performed for the survey area and all assigned lidar investigation items were addressed.³

Data acquisition was conducted from July 27, 2005 to August 21, 2005 (DN 208 to 233).

¹ Standing Instructions for Hydrographic Surveys (March 2004), NOS Hydrographic Surveys Specifications and Deliverables (March 2004), OCS Field Procedures Manual for Hydrographic Surveying (March 2005), and all Hydrographic Surveys Technical Directives issued through August 2005.

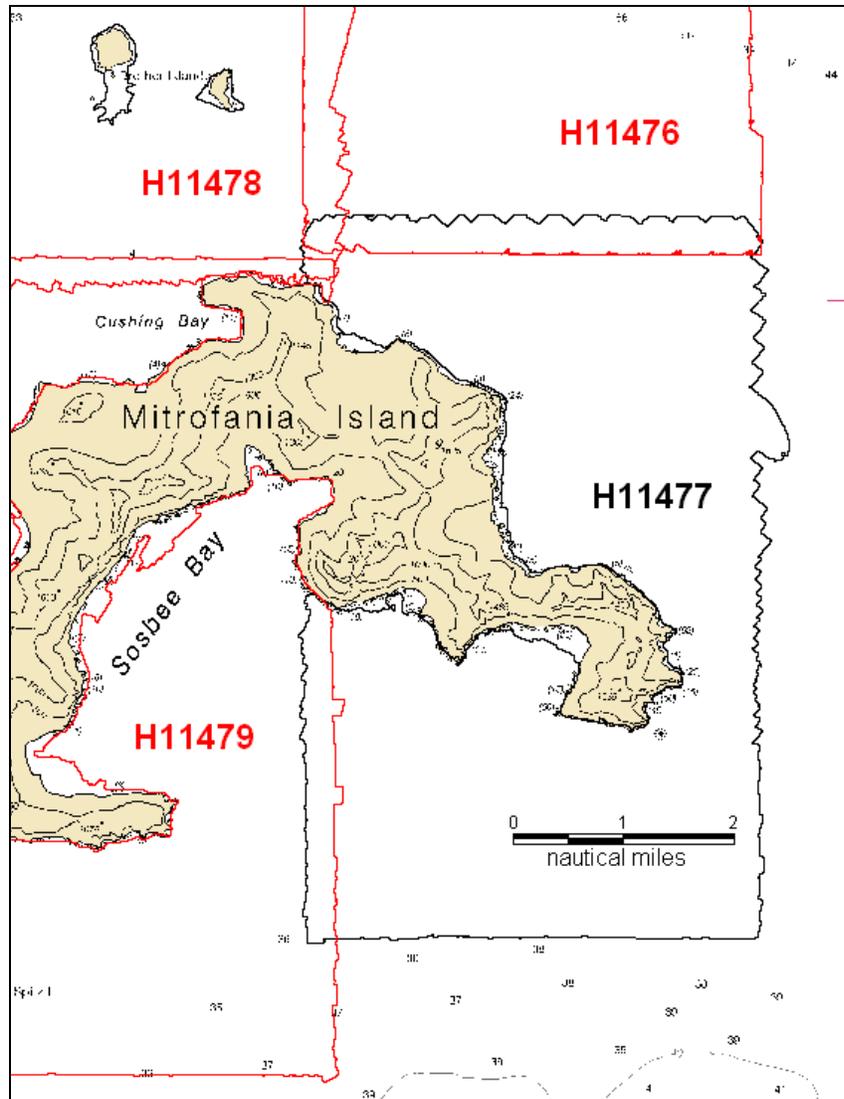


Figure 1. H11477 (AW) survey limits with junction surveys on chart 16561

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *OPR-P182-RA-05 Data Acquisition and Processing Report (DAPR)*⁴, submitted under separate cover. Items specific to this survey, and any deviations from the aforementioned report are discussed in the following sections.

Final Approved Water Levels have been applied to this survey.⁵ 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
1101	RA-1	Knudsen 320 Vertical-Beam Echosounder Detached Positions
1103	RA-2	Knudsen 320 Vertical-Beam Echosounder Detached Positions
1021	RA-3	Reson 8101 Multi-Beam Echosounder
1016	RA-4	Reson 8125 Multi-Beam Echosounder
1006	RA-5	Reson 8101 Multi-Beam Echosounder Detached Positions Bottom Samples
1015	RA-6	Elac 1180 Multi-Beam Echosounder

Table 1. Vessels utilized for data acquisition on sheet H11477

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

No unusual vessel configurations were used for data acquisition.

B2. Quality Control

Crosslines

SWMB and VBES (Vertical Beam Echo Sounder) crosslines totaled 51.85 nautical miles, comprising 17.42% of mainscheme hydrography. The mainscheme bathymetry was visually compared to the XL nadir beams in CARIS HIPS 5.4 subset mode and agreed within 1 meter with no significant differences noted.⁶

A statistical Quality Control Report has been conducted on representative data collected with each system used on this survey and is included in the OPR-P182-RA-05 DAPR.

Junctions

The following contemporary surveys junction with H11477:

<u>Registry #</u>	<u>Scale</u>	<u>Date</u>	<u>Junction side</u>
H11264	1:10,000	2004	Shoreward lidar
H11476	1:10,000	Concurrent	North
H11478	1:10,000	Concurrent	Northeast
H11479	1:10,000	Concurrent	West

Data for H11477 were visually compared with the concurrent RAINIER surveys H11476, H11478, and H11479 using Caris HIPS 5.4 subset editor. Soundings agreed to within 0.1 m.⁷

Data for H11477 were also visually compared to lidar junction survey H11264 using Caris HIPS 5.4 subset editor. Survey soundings agreed with lidar bathymetry to between 0.1 m to 0.3 m in the valid overlap area.⁸ Numerous lidar fliers that were markedly shoaler than the multi-beam bathymetry were observed seaward of the junction. The hydrographer recommends that multi-beam bathymetry from survey H11477 supersede lidar data from survey H11264 in the common area.⁹

Data Quality Factors

No unusual conditions were encountered during the survey that affected the expected accuracy and quality of survey data.¹⁰

B3. Data Reduction

Data reduction procedures for survey H11477 conform to those detailed in the *OPR-P182-RA-05 DAPR*.¹¹

B4. Data Representation

Numerous Caris field sheets were used in processing H11477. The main field sheet, titled H11477, encompasses the entire survey and includes BASE surfaces at 5-meter and 2-meter resolutions. In addition, three one-meter resolution and eight half-meter resolution field sheets were created to process the data acquired along Mitrofanía Island's coast. Field sheets for one-meter and half-meter resolution surfaces are under 25×10^6 nodes and cover depths between 0 and 30m. Finalized BASE surfaces were processed in Caris HIPS and SIPS 6.0 for each resolution using the depth ranges designated by the Field Procedures Manual (FPM).

One area on the northern edge of the sheet exceeds the FPM recommended depth for the 5-meter resolution BASE surface. The area is well represented by the 5-meter base surface; therefore a 10-meter resolution surface was not generated.

The final submitted field sheets are represented in figures 2 and 3 below.

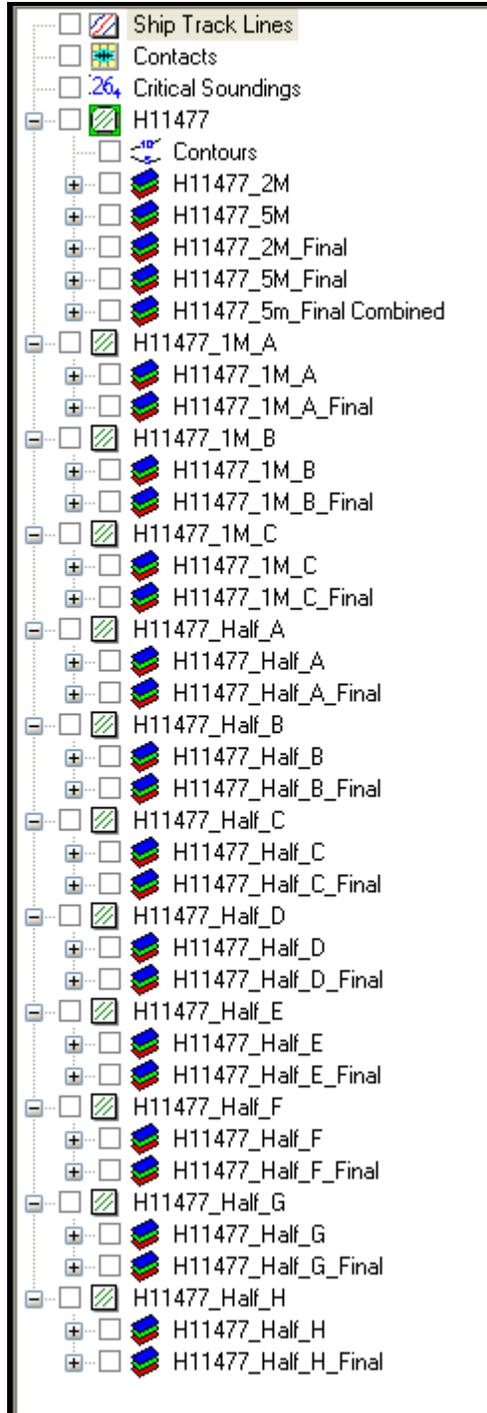


Figure 2. Field Sheets and contained BASE surfaces submitted for survey H11477

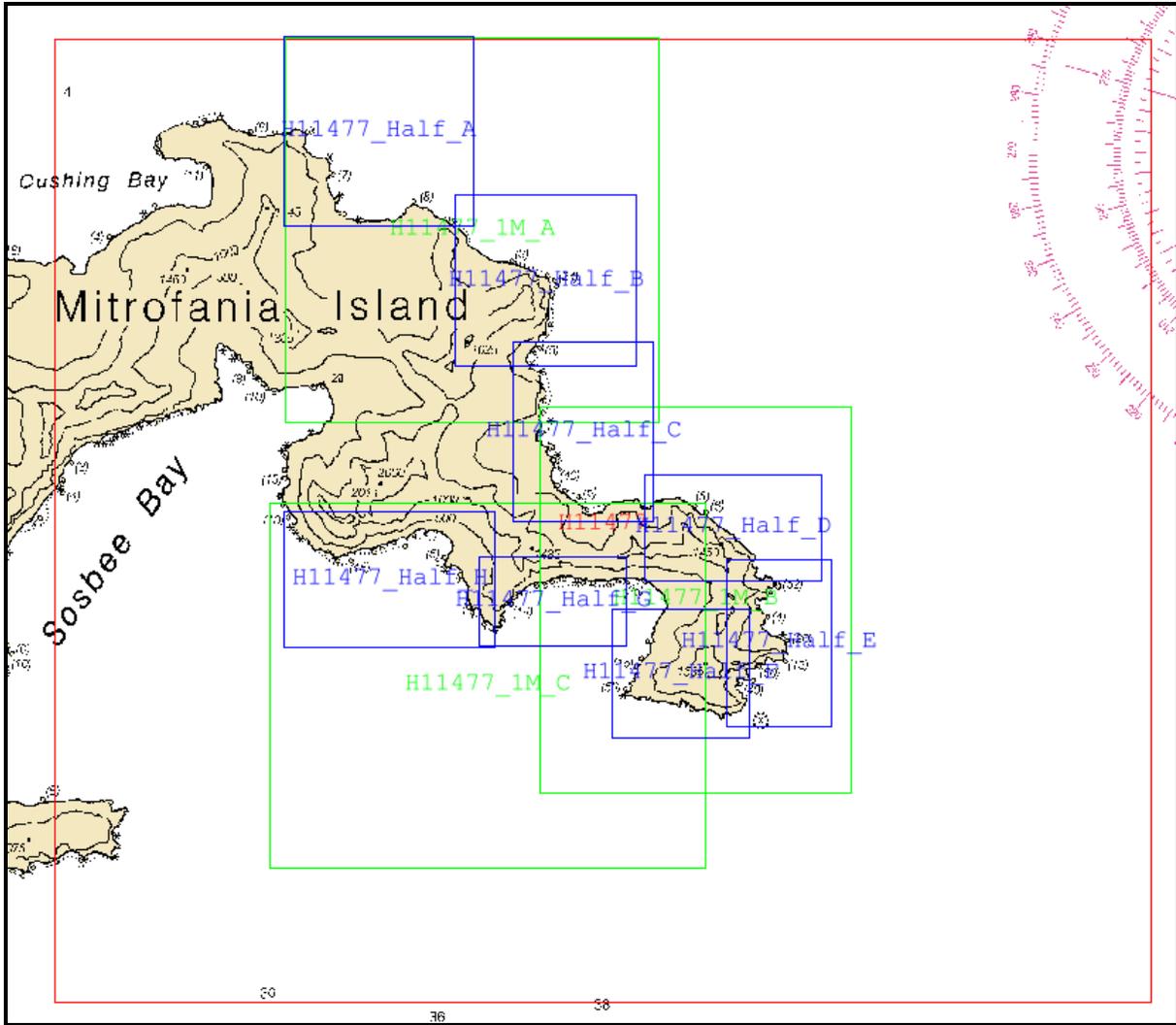


Figure 3. Field sheet layout for H11477 overlaid on chart 16561. The field sheet “H11477” encompasses the entire survey and is shown with a red outline. The one meter and half meter field sheets are shown by the green and blue outlines respectively.

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11477 can be found in the *OPR-P182-RA-05 Horizontal and Vertical Control Report*,¹² 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 differential corrector beacons utilized for this survey are given in Table 2.

Note: RAINIER personnel established a temporary differential beacon on Mitrofanía Island as a backup to USCG-generated correctors, as described in the *OPR-P182-RA-05 Horizontal and Vertical Control Report*. Correctors transmitted by this “flyaway” beacon were needed only when USCG corrector data were not available, and were not utilized for H11477.

Location	Frequency	Operator	Distance	Priority
Cold Bay	289 kHz	USCG	135 nm	Primary
Kodiak	313 kHz	USCG	245 nm	Secondary

Table 2: Differential Corrector Sources for H11477

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Sand Point, Popof Island, AK (945-9450) served as control for datum determination and the secondary source for water level reducers for survey H11477. The Mitrofanía Island (945-9016) tertiary tide station, outlined below, served as the primary source for water level reducers for survey H11477.

RAINIER personnel installed a Sutron 8210 “bubbler” tide gauge at the following subordinate station in accordance with the Letter Instructions. This station is described in detail in the *OPR-P182-RA-05 Horizontal and Vertical Control Report*.

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Mitrofanía Island	945-9016	30-day	7/19/2005	8/22/05

Table 3: Tide Stations installed by RAINIER personnel for H11477

All data were reduced to MLLW using **Final Approved Water Levels** from station Mitrofanía Island, AK (945-9016) and station Sand Point, Popof Island, AK (945-9450) using the tide files 9459016.tid and 9469450.tid. The final time and height correctors were applied to the data using the zone corrector file H11477CORF.zdf.¹³

The request for Final Approved Water Levels for H11477 was submitted to CO-OPS on September 17, 2005 and the Final Tide Note was received on January 18, 2006. This documentation is included in Appendix III.¹⁴

D. RESULTS AND RECOMMENDATIONS

D.1 Chart Comparison

D.1.a. Survey Agreement with Chart

Survey H11477 was compared with the following charts:

Chart	Scale	Edition and Date	Latest Notice to Mariners Applied
16011	1:1,023,188	36 th Ed, Aug 2004	7/15/2006
16013	1:969,761	29 th Ed; Nov 2003	7/15/2006
16561	1:80,000	2 nd Ed; Mar 2005	7/15/2006

Survey H11477 covers a previously uncharted area of southwest Alaska. There are no soundings on the charts with which to compare the acquired data.¹⁵

D.1.b. Dangers to Navigation

No Dangers to Navigation (DTONS) were located during survey H11477.¹⁶

D.1.c. Other Features

Survey H11477 contained no AWOIS items.¹⁷ No additional charted items were investigated and no other features were located on survey H11477.¹⁸ All other feature investigations items assigned to H11477 are discussed in Section D.2.b.

D.2. Additional Results

D.2.a. Prior Survey Comparison

Survey H11477 covers a previously uncharted area of southwest Alaska. There are no prior surveys with which to compare H11477 data.¹⁹

D.2.b. Shoreline Verification

Shoreline Source

Vector photogrammetric project AK0403 was supplied by N/NGS3 in the form of cartographic feature file GC-10571 (CFF). In addition, features from lidar junction survey H11264 were provided by N/CS34. Features shown on the current edition of chart 16561 that were not depicted in the shoreline source data were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.

Shoreline Verification

RAINIER conducted limited shoreline verification of the CFF, and investigated all of the lidar features flagged for further investigation by N/CS34. These operations were conducted near predicted low water in accordance with the Standing Project Instructions and FPM sections 6.1 and 6.2. Detached positions (DPs) acquired during shoreline verification were recorded in HYPACK and on DP forms, and processed in Pydro. These indicate revisions to features and features not found on the verified shoreline. In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline. DP forms are included in the *Separates to be Included with Survey Data*.²⁰

A detailed feature plot in MapInfo format is provided showing all detached positions (DP) and bottom samples with notes relating to each feature. These items were imported from the Pydro PSS and are depicted in MapInfo table "H11477_Combined_PSSFEATURES". Verified CFF shoreline that did not require revision is in MapInfo table "H11477_CFF_Shoreline" and shown in black. Charted shoreline, when used for reference purposes or when source data were not available, is depicted in the MapInfo table "H11477_Charted_Shoreline" and displayed in brown. CFF features are depicted in black and are found in the MapInfo table "H11477_CFF_Rocks." Charted features, when used for reference purposes or when source data were not available, are depicted in brown and are found in the MapInfo table "H11477_Charted_Rocks." Lidar features that were verified with a DP are displayed in green the "H11477_Combined_PSSFEATURES" MapInfo table. New features and changes to low water shoreline, CFF or charted, are displayed in pink in the "H11477_Shoreline_Updates" MapInfo table.

Poorly defined features from the junction lidar survey were assigned for additional investigation. Many of these features were uncertain lidar depth soundings which the hydrographer had designated as potential rocks. The majority of these potential rocks were disproved using a singlebeam star pattern, followed by 100% multi-beam coverage Lidar investigation items that were found not to exist, or are well represented in the bathymetry and are not cartographically significant have not been included on the MapInfo feature plot.

Source Shoreline Changes and New Features

Items for survey H11477 that require further discussion and are associated with a detached position, have been flagged "Report" in Pydro in H11477.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. In addition, all assigned lidar investigations and their associated detached positions have also been imported into Pydro and included in the Survey Feature Report in Appendix I.²¹

Recommendations

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample and final sounding MapInfo digital file supersede and complement shoreline information compiled on the CFF, lidar junction survey, and charts as noted.²² In addition, field notes made by the Hydrographer, including verification of source features or charted features if no source shoreline was available are submitted in the digital MapInfo file "H11477_Shoreline_Notes."

D.2.c. Aids to Navigation

There are no aids to navigation located within the limits of survey H11477.²³

D.2.e. Overhead Features

There are no overhead features located within the limits of survey H11477.²⁴

D.2.f. Submarine Cables and Pipelines

There are no cables and pipelines located within the limits of survey H11477.²⁵

D.2.g. Bottom Samples

Thirteen bottom samples were collected on sheet H11477 as per the letter instructions and the Field Procedures Manual. Bottom sample results were inserted into the H11477_Survey PSS in Pydro.²⁶

D.2.h. Other Findings

Survey H11477 had no additional findings of note.²⁷

E. ADDITIONAL DOCUMENTATION

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-P182-RA-05	1 Sept. 2006	N/CS34
Horizontal and Vertical Control Report for OPR- P182-RA-05	16 June 2006	N/CS34
Tides and Water Levels Package for OPR-P182-RA-05	26 August 2005	N/OPS1
Coast Pilot Report for OPR-P182-RA-05	10 May 2006	N/CS26



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
NOAA Ship RAINIER (S221)
1801 Fairview Ave E, Seattle, WA 98102

August 30, 2006

MEMORANDUM FOR: CDR Donald W. Haines, NOAA
Chief, Pacific Hydrographic Branch

FROM: CDR Guy T. Noll, NOAA
Commanding Officer

SUBJECT: Approval of Hydrographic Survey H11477

Field operations for hydrographic survey H11477 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, Field Procedures Manual, Standing and Letter Instructions, and HSD Technical Directives. 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.

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

Survey Sheet Manager:

Olivia A. Hauser
Ensign, NOAA

Tides Officer:

for Nicola Samuelson
Ensign, NOAA

Horizontal Control Officer:

for Andrew P. Halbach
Ensign, NOAA

Chief Survey Technician:

for James B. Jacobson
Chief Survey Technician, NOAA Ship RAINIER

Field Operations Officer:

Benjamin K. Evans
Lieutenant, NOAA



Revisions Compiled During Office Processing and Certification

¹ Concur.

² Concur.

³ Concur.

⁴ Filed with project records.

⁵ Concur.

⁶ Concur.

⁷ Concur.

⁸ Concur.

⁹ Concur with clarification. Three soundings were digitized from the LIDAR smooth sheets into HCell H11477. In areas where the LIDAR surveys are overlapped by H11477, only coincident soundings with shoaler depths from LIDAR are included in the H11477 HCell.

¹⁰ Concur. These data are adequate to supersede charted data in the common area.

¹¹ Concur.

¹² Filed with project records.

¹³ Concur. Final approved water levels have been applied to all data.

¹⁴ See attached Tide Note dated January 10, 2006.

¹⁵ Concur.

¹⁶ Concur.

¹⁷ Concur.

¹⁸ Concur.

¹⁹ Concur.

²⁰ Filed with hydrographic records.

²¹ See attached Feature Report.

²² Concur with clarification. Due to spacing concerns while compiling the HCell, some of the features may not be included or were modified, contradicting the hydrographer's recommendations. Full detail on such features are included in the Office Notes in the attached Feature Report.

²³ Concur.

²⁴ Concur.

²⁵ Concur.

²⁶ All bottom samples collected during H11477 are included in the HCell. There were no charted bottom samples to be retained.

²⁷ Concur.

H11477 Feature Report

Registry Number: H11477
State: Alaska
Locality: South West Alaska Peninsula
Sub-locality: Eastern Mitrofanina Island
Project Number: OPR-P182-RA-05
Survey Dates: 01/01/1990 - 08/21/2005

Charts Affected

Number	Version	Date	Scale
16561	2nd Ed.	03/01/2005	1:80000
16013	29th Ed.	11/01/2003	1:969761
16011	36th Ed.	08/01/2004	1:1023188
16006	33rd Ed.	12/23/2000	1:1534076
500	8th Ed.	06/01/2003	1:3500000
530	31st Ed.	06/01/2005	1:4860700
50	6th Ed.	06/01/2003	1:10000000

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Sounding	-3.85 m	055° 49' 54.081" N	158° 42' 03.211" W	---
1.2	Rock	-1.84 m	055° 49' 29.127" N	158° 42' 22.893" W	---
1.3	Sounding	-19.85 m	055° 49' 35.168" N	158° 43' 17.482" W	---
1.4	Rock	-2.01 m	055° 50' 26.836" N	158° 44' 14.222" W	---
1.5	Rock	-1.63 m	055° 50' 25.897" N	158° 45' 00.870" W	---
1.6	Rock	-0.64 m	055° 50' 27.152" N	158° 44' 57.319" W	---
1.7	Rock	-3.15 m	055° 50' 28.801" N	158° 44' 51.937" W	---
1.8	Rock	-2.16 m	055° 50' 28.899" N	158° 44' 45.703" W	---
1.9	Rock	-2.23 m	055° 50' 08.111" N	158° 45' 39.639" W	---
1.10	Sounding	-1.25 m	055° 50' 11.234" N	158° 45' 47.133" W	---
1.11	Rock	-0.37 m	055° 50' 32.367" N	158° 46' 17.521" W	---
1.12	GP	[None]	055° 49' 47.200" N	158° 42' 27.177" W	---

1.13	GP	[None]	055° 49' 35.082" N	158° 43' 14.182" W	---
1.14	GP	[None]	055° 49' 43.502" N	158° 44' 03.069" W	---
1.15	GP	[None]	055° 49' 53.589" N	158° 43' 54.932" W	---
1.16	GP	[None]	055° 49' 56.833" N	158° 43' 51.144" W	---
1.17	GP	[None]	055° 50' 03.905" N	158° 43' 46.317" W	---
1.18	GP	[None]	055° 50' 18.281" N	158° 45' 59.329" W	---
1.19	GP	[None]	055° 50' 43.400" N	158° 46' 45.857" W	---
1.20	Sounding	15.58 m	055° 49' 52.242" N	158° 42' 23.374" W	---
1.21	Rock	-4.75 m	055° 50' 37.580" N	158° 46' 16.514" W	---
1.22	Sounding	-3.72 m	055° 49' 45.597" N	158° 42' 28.711" W	---
1.23	Rock	3.31 m	055° 50' 27.722" N	158° 44' 38.720" W	---
2.1	Rock	-0.86 m	055° 52' 54.676" N	158° 46' 01.472" W	---
2.2	Rock	1.01 m	055° 51' 31.172" N	158° 44' 58.886" W	---
2.3	Rock	-0.23 m	055° 50' 34.551" N	158° 42' 26.015" W	---
2.4	Rock	-0.61 m	055° 49' 36.005" N	158° 43' 29.047" W	---
2.5	GP	10.22 m	055° 53' 03.224" N	158° 47' 24.714" W	---
2.6	GP	10.98 m	055° 49' 34.103" N	158° 43' 16.701" W	---
2.7	GP	9.64 m	055° 50' 41.575" N	158° 47' 57.040" W	---
2.8	GP	12.28 m	055° 50' 07.282" N	158° 45' 39.555" W	---
2.9	GP	10.48 m	055° 50' 33.588" N	158° 47' 34.792" W	---
2.10	GP	8.94 m	055° 50' 19.213" N	158° 45' 22.328" W	---
2.11	GP	8.31 m	055° 50' 44.596" N	158° 46' 39.018" W	---
2.12	GP	[None]	055° 52' 21.700" N	158° 44' 47.200" W	---
2.13	GP	[None]	055° 49' 34.500" N	158° 43' 46.000" W	---
2.14	GP	[None]	055° 49' 35.900" N	158° 43' 58.700" W	---
2.15	Rock	0.51 m	055° 49' 35.784" N	158° 42' 32.095" W	---
2.16	Rock	-9.72 m	055° 49' 49.044" N	158° 43' 58.133" W	---
2.17	Sounding	9.49 m	055° 52' 21.047" N	158° 44' 51.082" W	---

1 - Charted Features

1.1) Profile/Beam - 2/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 49' 54.081" N, 158° 42' 03.211" W
Least Depth: -3.85 m
Timestamp: 2005-216.16:57:51.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 2/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR (REFERENCE NUMBER 43) INVESTIGATION OF CFF ISLET IS MHW
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet
 QUA: GPSmode=2, SVs=6, HDOP=1.70

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	2/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	15	29.06	166.5	Secondary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

Cartographically-Rounded Depth (Affected Charts):

-2fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-3.9m (500_1, 50_1)

S-57 Data

Geo object 1: Coastline (COALNE)
Attributes: INFORM - LIDAR INVESTIGATION OF CFF ISLET IS MHW

Office Notes

Concur. Remove Chd (16561) islet.

Feature Images



Figure 1.1.1

1.2) Profile/Beam - 3/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 49' 29.127" N, 158° 42' 22.893" W
Least Depth: -1.84 m
Timestamp: 2005-216.17:14:37.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 3/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

LIDAR (REFERENCE NUMBER 1) /CHD(16561) RK VERIFIED

Office Notes: Poor lidar coverage over drying rock (15x15). Charted drying rock 300m SE of southeast Mitrofanina Island; Verify least depth on lidar and charted rock

QUA: GPSmode=2, SVs=8, HDOP=1.00

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	3/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	30	12.17	149.5	Secondary

Hydrographer Recommendations

RETAIN CHD(16561) RK

Cartographically-Rounded Depth (Affected Charts):

-1fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-1.9m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - LIDAR/CHD(16561) RK VERIFIED
 VALSOU - -1.835 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Chart field verified rock that covers and uncovers.

Feature Images



Figure 1.2.1

1.3) Profile/Beam - 4/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 49' 35.168" N, 158° 43' 17.482" W
Least Depth: -19.85 m
Timestamp: 2005-216.17:35:29.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 4/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

LIDAR INVESTIGATION IS MHW/NO ISLET PRESENT
 QUA: GPSmode=2, SVs=7, HDOP=1.20

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	4/1	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

Cartographically-Rounded Depth (Affected Charts):

-10 ¾fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -19.9m (500_1, 50_1)

S-57 Data

Geo object 1: Coastline (COALNE)
Attributes: INFORM - LIDAR INVESTIGATION IS MHW/NO ISLET PRESENT

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). GC rock disproved with combination of SWMB and VBES.

Feature Images



Figure 1.3.1

1.4) Profile/Beam - 6/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 26.836" N, 158° 44' 14.222" W
Least Depth: -2.01 m
Timestamp: 2005-216.18:30:47.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 6/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CHD (16561) ISLET IS RK
 QUA: GPSmode=2, SVs=8, HDOP=1.10

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	6/1	0.00	000.0	Primary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

Cartographically-Rounded Depth (Affected Charts):

-1fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -2.0m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CHD (16561) ISLET IS RK
 VALSOU - -2.014 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur. Chart rock that covers and uncovers.

Feature Images



Figure 1.4.1

1.5) Profile/Beam - 7/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 25.897" N, 158° 45' 00.870" W
Least Depth: -1.63 m
Timestamp: 2005-216.18:48:43.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 7/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CHD (16561) ISLET IS RK
 QUA: GPSmode=2, SVs=7, HDOP=1.70

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	7/1	0.00	000.0	Primary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

Cartographically-Rounded Depth (Affected Charts):

0 ¾fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -1.6m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CHD (16561) ISLET IS RK
 VALSOU - -1.625 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). Chart field verified rock that covers and uncovers.

Feature Images



Figure 1.5.1

1.6) Profile/Beam - 8/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 27.152" N, 158° 44' 57.319" W
Least Depth: -0.64 m
Timestamp: 2005-216.18:50:41.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 8/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CHD (16561) ISLET IS RK
 QUA: GPSmode=2, SVs=7, HDOP=1.70

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	8/1	0.00	000.0	Primary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -.7m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CHD (16561) ISLET IS RK
 VALSOU - -0.638 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). Chart field verified rock that covers and uncovers.

Feature Images



Figure 1.6.1

1.7) Profile/Beam - 9/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 28.801" N, 158° 44' 51.937" W
Least Depth: -3.15 m
Timestamp: 2005-216.18:52:55.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 9/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CHD (16561) ISLET IS RK
 QUA: GPSmode=2, SVs=6, HDOP=1.90

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	9/1	0.00	000.0	Primary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

Cartographically-Rounded Depth (Affected Charts):

-1 ¾fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -3.2m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CHD (16561) ISLET IS RK
 VALSOU - -3.153 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). Observed depth indicates feature is islet and is inconsistent with photo. Chart rock that covers and uncovers, depth unknown.

Feature Images



Figure 1.7.1

1.8) Profile/Beam - 10/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 28.899" N, 158° 44' 45.703" W
Least Depth: -2.16 m
Timestamp: 2005-216.18:54:32.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 10/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CHD (16561) ISLET IS RK
 QUA: GPSmode=2, SVs=7, HDOP=1.30

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	10/1	0.00	000.0	Primary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

Cartographically-Rounded Depth (Affected Charts):

-1fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -2.2m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CHD (16561) ISLET IS RK
 VALSOU - -2.163 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). Chart field verified rock that covers and uncovers.

Feature Images



Figure 1.8.1

1.9) Profile/Beam - 11/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 08.111" N, 158° 45' 39.639" W
Least Depth: -2.23 m
Timestamp: 2005-216.19:05:53.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 11/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR (REFERENCE NUMBER 28) "KELP AREA" IS CHD (16561) RK; CHD (16561) RK VERIFIED

Office Notes: Kelp area.;If possible verify charted rock

QUA: GPSmode=2, SVs=9, HDOP=1.00

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	11/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	6	17.14	187.4	Secondary

Hydrographer Recommendations

RETAIN CHD(16561) RK

Cartographically-Rounded Depth (Affected Charts):

-1 ¼fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-2.3m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - LIDAR "KELP AREA" IS CHD (16561) RK CHD (16561) RK VERIFIED
 VALSOU - -2.230 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Rock replaced with GC Islet on Chart 16561 Edition 3 (3/1/2007). Remove charted islet and chart field verified rock that covers and uncovers.

Feature Images



Figure 1.9.1

1.10) Profile/Beam - 12/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 11.234" N, 158° 45' 47.133" W
Least Depth: -1.25 m
Timestamp: 2005-216.19:10:59.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 12/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES LIDAR (REFERENCE NUMBER 52)/CFF RK/CHD (16561) ISLET IS SEAWARD EXTENT OF NEW LEDGE

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

QUA: GPSmode=2, SVs=7, HDOP=1.80

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	12/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	23	8.85	031.4	Secondary

Hydrographer Recommendations

REPLACE CHD (16561) ISLET WITH LEDGE

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-1.3m (500_1, 50_1)

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: INFORM - LIDAR/CFF RK/CHD (16561) ISLET IS NEW LEDGE
 NATSUR - 9:rock
 WATLEV - 4:covers and uncovers

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). Chart field verified rock that covers and uncovers as high point of ledge.

Feature Images



Figure 1.10.1

1.11) Profile/Beam - 13/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 32.367" N, 158° 46' 17.521" W
Least Depth: -0.37 m
Timestamp: 2005-216.19:28:45.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 13/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR (REFERENCE NUMBER 41)/CFF/CHD (16561) RK VERIFIED

Office Notes: Possible Rk in kelp. Note: 3.5 Rk 50m SE, -0.5 drying rock 50m E.; Verify possible rock in kelp

QUA: GPSmode=2, SVs=7, HDOP=1.70

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	13/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	13	16.96	115.8	Secondary

Hydrographer Recommendations

RETAIN CHD (16561) RK

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - LIDAR/CHD (16561) RK VERIFIED
 VALSOU - -0.374 m
 WATLEV - 5:awash

Office Notes

Concur with clarification. Chart field verified rock awash.

1.12) GP No. - 17 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 47.200" N, 158° 42' 27.177" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 17
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: 100% SWMB SHOWS NO ISLET

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	17	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHARTED(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: INFORM - RAINIER Notes: 100% SWMB shows no islet Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur.

1.13) GP No. - 18 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 35.082" N, 158° 43' 14.182" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 18
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD (16561)/LIDAR ISLET NOT SEEN. 100% SWMB SHOWS NO ISLET Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	18	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: Charted (16561)/Lidar Islet not seen. 100% SWMB reveals no islet. Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur with clarification. Islet replaced with GC rock on Chart 16561 Edition 3 (3/1/2007). GC rock disproved with combination of SWMB and VBES.

1.14) GP No. - 19 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 43.502" N, 158° 44' 03.069" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 19
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD (16561) ISLET NOT SEEN, CFF/LIDAR RK FOUL WITH KELP. UNABLE TO INVESTIGATE

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	19	0.00	000.0	Primary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: CFF rock not seen / CHD (16561) islet not seen/ 100% SWMB disproval of rock and islet Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur. Chart adjacent LIDAR rock at 55-49-43.140N, 158-44-00.750W with least depth -0.732m that covers and uncovers.

1.15) GP No. - 20 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 53.589" N, 158° 43' 54.932" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 20
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD(16561) ISLET NOT SEEN, 100% SWMB SHOWS NO ISLET

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	20	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: INFORM - RAINIER Notes: CHD(16561)MHW not seen, 100% SWMB shows no islet
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur.

1.16) GP No. - 21 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 56.833" N, 158° 43' 51.144" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 21
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD (16561) ISLET NOT SEEN/ 100% SWMB SHOWS NO ISLET

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	21	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: INFORM - RAINIER Notes: CHD (16561) ISLET NOT SEEN/ 100% SWMB shows no islet
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur.

1.17) GP No. - 22 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 03.905" N, 158° 43' 46.317" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 22
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD (16561) ISLET NOT SEEN / 100% SWMB SHOWS NO ISLET
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	22	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: CHD (16561)ISLET NOT SEEN / 100% SWMB shows no islet
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur.

1.18) GP No. - 24 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 18.281" N, 158° 45' 59.329" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 24
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD (16561) ISLET NOT SEEN / 100% SWMB SHOWS NO ISLET

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	24	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: INFORM - RAINIER Notes: CHD (16561) ISLET NOT SEEN/ 100% SWMB shows no islet
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Do not concur. Not enough coverage to disprove. Retain charted (16561) islet.

1.19) GP No. - 25 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 43.400" N, 158° 46' 45.857" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 25
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: CHD (16561) ISLET NOT SEEN / 100% SWMB SHOWS NO ISLET

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	25	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: INFORM - RAINIER Notes: CHD (16561) ISLET NOT SEEN/ 100% SWMB shows no islet
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

Office Notes

Concur.

1.20) Profile/Beam - 1/1 from h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232

Survey Summary

Survey Position: 055° 49' 52.242" N, 158° 42' 23.374" W
Least Depth: 15.58 m
Timestamp: 2005-232.18:30:00.000 (08/20/2005)
DP Dataset: h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232
Profile/Beam: 1/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR (REFERENCE NUMBER 44) INVEST/CHD (16561) ISLET DISPROVAL
 Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet
 QUA: GPSmode=2, SVs=0, HDOP=11.60

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1006_nonechosounder_dp/2005-232/dp_1006_232	1/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	16	23.39	194.4	Secondary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - LIDAR INVEST/CHD (16561) ISLET DISPROVAL

Office Notes

Concur. No evidence of islet in photo. Remove charted (16561) islet.

Feature Images



Figure 1.20.1

1.21) Profile/Beam - 4/1 from h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232

Survey Summary

Survey Position: 055° 50' 37.580" N, 158° 46' 16.514" W
Least Depth: -4.75 m
Timestamp: 2005-232.23:37:22.000 (08/20/2005)
DP Dataset: h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232
Profile/Beam: 4/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: CFF RK VERIFIED, CHD (16561) ISLET/ LIDAR (REFERENCE NUMBER 58) ISLET IS CFF RK

Office Notes: Not visible on downward looking video.;If possible confirm lidar disproval of charted islet

QUA: GPSmode=2, SVs=6, HDOP=1.30

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1006_nonechosounder_dp/2005-232/dp_1006_232	4/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	29	32.84	165.3	Secondary

Hydrographer Recommendations

REPLACE CHD(16561) ISLET WITH RK

Cartographically-Rounded Depth (Affected Charts):

-2 ½fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-4.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - CFF RK VERIFIED, CHD (16561) ISLET is CFF RK
 VALSOU - -4.755 m
 WATLEV - 2:always dry

Office Notes

Concur with clarification. Observed depth indicates feature is islet and is inconsistent with photo. Chart rock that covers and uncovers, depth unknown.

Feature Images



Figure 1.21.1

1.22) Profile/Beam - 1/1 from h11477 / 1101_nonechosounder_dp / 2005-233 / dp_1101_233

Survey Summary

Survey Position: 055° 49' 45.597" N, 158° 42' 28.711" W
Least Depth: -3.72 m
Timestamp: 2005-233.19:33:03.000 (08/21/2005)
DP Dataset: h11477 / 1101_nonechosounder_dp / 2005-233 / dp_1101_233
Profile/Beam: 1/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CHD ISLET DISPROVAL/DP AT EDGE OF MHW
 QUA: GPSmode=2, SVs=7, HDOP=1.80

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1101_nonechosounder_dp/2005-233/dp_1101_233	1/1	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CHD(16561) ISLET

S-57 Data

Geo object 1: Land area (LNDARE)
Attributes: INFORM - CHD ISLET DISPROVAL/DP AT EDGE OF MHW

Office Notes

Concur.

1.23) Profile/Beam - 1/1 from h11477 / 1103_nonechosounder_dp / 2005-217 / dp_1103_217

Survey Summary

Survey Position: 055° 50' 27.722" N, 158° 44' 38.720" W
Least Depth: 3.31 m
Timestamp: 2005-217.19:27:22.000 (08/05/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-217 / dp_1103_217
Profile/Beam: 1/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR (REFERENCE NUMBER 27)/CHD (16561) RK VERIFIED

Office Notes: Kelp area.;If possible verify charted rock

QUA: GPSmode=2, SVs=5, HDOP=2.10

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-217/dp_1103_217	1/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	5	16.95	214.7	Secondary

Hydrographer Recommendations

RETAIN CHD(16561) RK

Cartographically-Rounded Depth (Affected Charts):

1 ¾fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

3.3m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: VALSOU - 3.312 m
 WATLEV - 3:always under water/submerged

Office Notes

Concur.

2 - New Features

2.1) Profile/Beam - 1/1 from h11477 / 1101_nonechosounder_dp / 2005-216 / dp_1101_216

Survey Summary

Survey Position: 055° 52' 54.676" N, 158° 46' 01.472" W
Least Depth: -0.86 m
Timestamp: 2005-216.17:40:31.000 (08/04/2005)
DP Dataset: h11477 / 1101_nonechosounder_dp / 2005-216 / dp_1101_216
Profile/Beam: 1/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

NEW RK

QUA: GPSmode=2, SVs=7, HDOP=1.50

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1101_nonechosounder_dp/2005-216/dp_1101_216	1/1	0.00	000.0	Primary

Hydrographer Recommendations

DO NOT CHART NEW RK DUE TO PROXIMITY TO FOUL LINE

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-.9m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)

Attributes: INFORM - NEW ROCK

VALSOU - -0.858 m

WATLEV - 4:covers and uncovers

Office Notes

Do not concur. Chart new rock that covers and uncovers.

Feature Images



Figure 2.1.1

2.2) Profile/Beam - 2/1 from h11477 / 1101_nonechosounder_dp / 2005-216 / dp_1101_216

Survey Summary

Survey Position: 055° 51' 31.172" N, 158° 44' 58.886" W
Least Depth: 1.01 m
Timestamp: 2005-216.18:26:35.000 (08/04/2005)
DP Dataset: h11477 / 1101_nonechosounder_dp / 2005-216 / dp_1101_216
Profile/Beam: 2/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR RK (REFERENCE NUMBER 35) VERIFIED

Office Notes: Possible rock in kelp. Note: -0.6 drying rock 100m N, 4.8 Rk 100m NE and islet 90m NW.;Confirm least depth on slightly submerged rock

QUA: GPSmode=2, SVs=7, HDOP=1.20

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1101_nonechosounder_dp/2005-216/dp_1101_216	2/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	8	17.29	266.4	Secondary

Hydrographer Recommendations

DO NOT CHART LIDAR RK DUE TO PROXIMITY TO FOUL AREA

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

1.0m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - LIDAR RK VERIFIED
 VALSOU - 1.007 m
 WATLEV - 3:always under water/submerged

Office Notes

Do not concur. Chart submerged rock.

2.3) Profile/Beam - 1/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 50' 34.551" N, 158° 42' 26.015" W
Least Depth: -0.23 m
Timestamp: 2005-216.16:29:47.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 1/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR (REFERENCE NUMBER 39) RK VERIFIED

Office Notes: Possible Rk in kelp. Note: -1.1 drying rock 60m SW.; Confirm least depth on submerged rock

QUA: GPSmode=2, SVs=4, HDOP=3.20

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	1/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	11	25.95	226.7	Secondary (grouped)

Hydrographer Recommendations

CHART LIDAR RK

Cartographically-Rounded Depth (Affected Charts):

0fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-.3m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)

Attributes: INFORM - LIDAR RK VERIFIED

VALSOU - -0.231 m

WATLEV - 5:awash

Office Notes

Concur. Chart awash rock.

Feature Images



Figure 2.3.1

2.4) Profile/Beam - 5/1 from h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216

Survey Summary

Survey Position: 055° 49' 36.005" N, 158° 43' 29.047" W
Least Depth: -0.61 m
Timestamp: 2005-216.17:42:52.000 (08/04/2005)
DP Dataset: h11477 / 1103_nonechosounder_dp / 2005-216 / dp_1103_216
Profile/Beam: 5/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

NEW RK
 QUA: GPSmode=2, SVs=7, HDOP=1.20

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1103_nonechosounder_dp/2005-216/dp_1103_216	5/1	0.00	000.0	Primary

Hydrographer Recommendations

CHART NEW RK

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 -.6m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - NEW RK
 VALSOU - -0.610 m
 WATLEV - 4:covers and uncovers

Office Notes

Concur. Chart new rock that covers and uncovers.

Feature Images



Figure 2.4.1

2.5) GP No. - 1 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 53' 03.224" N, 158° 47' 24.714" W
Least Depth: 10.22 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR RK NOT SEEN, 100% SWMB SHOWS NO RK

Office Notes: Possible rock in kelp. Note: 4.5 85m WNW.;Verify possible submerged rock in kelp

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	1	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: INFORM - RAINIER Notes: Lidar rock not seen, 100% SWMB reveals no rock Office Notes: Possible rock in kelp. Note: 4.5 85m WNW.;Verify possible submerged rock in kelp

Office Notes

Concur.

2.6) GP No. - 3 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 34.103" N, 158° 43' 16.701" W
Least Depth: 10.98 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 3
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER notes: Lidar RK not seen, Star pattern search Office Notes: Possible Rk in kelp.;If possible verify charted islet

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	3	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

Cartographically-Rounded Depth (Affected Charts):

6fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

11.0m (500_1, 50_1)

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - Lidar RK not seen, Star pattern search

Office Notes

Concur.

2.7) GP No. - 7 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 41.575" N, 158° 47' 57.040" W
Least Depth: 9.64 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 7
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: 100% SWMB SHOWS NO RK Office Notes: Possible rock in kelp. ;Verify possible rock in kelp

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	7	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100% SWMB shows no rock Office Notes: Possible rock in kelp. ;Verify possible rock in kelp

Office Notes

Concur.

2.8) GP No. - 9 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 07.282" N, 158° 45' 39.555" W
Least Depth: 12.28 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 9
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: 100% SWMB SHOWS NO RK Office Notes: Possible Rk in kelp.;Confirm least depth on submerged rock

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	9	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

Cartographically-Rounded Depth (Affected Charts):

6 ¾fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 12.3m (500_1, 50_1)

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100 % SWMB shows no rock. Office Notes: Possible Rk in kelp.;Confirm least depth on submerged rock

Office Notes

Concur.

2.9) GP No. - 10 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 33.588" N, 158° 47' 34.792" W
Least Depth: 10.48 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 10
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: 100% SWMB SHOWS NO RK
 Office Notes: Possible Rk in kelp.; Verify possible rock in kelp

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	10	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100% SWMB shows no rock Office Notes: Possible Rk in kelp.;
 Verify possible rock in kelp

Office Notes

Concur.

2.10) GP No. - 12 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 19.213" N, 158° 45' 22.328" W
Least Depth: 8.94 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 12
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: 100% SWMB SHOWS NO RK
 Office Notes: Possible Rk in kelp.; Confirm least depth on submerged rock

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	12	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100% SWMB shows no rock Office Notes: Possible Rk in kelp.; Confirm least depth on submerged rock

Office Notes

Concur.

2.11) GP No. - 14 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 50' 44.596" N, 158° 46' 39.018" W
Least Depth: 8.31 m
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 14
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: 100% SWMB SHOWS NO RK
 Office Notes: Possible Rk in kelp. Note: 5.8 Rk 35m W.;Verify possible rock in kelp

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	14	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100% SWMB shows no rock Office Notes: Possible Rk in kelp.
 Note: 5.8 Rk 35m W.;Verify possible rock in kelp

Office Notes

Concur.

2.12) GP No. - 31 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 52' 21.700" N, 158° 44' 47.200" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 31
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: SOUNDING DISPROVED. 100% SWMB SHOWS NO RK

Office Notes: Isolated doubtful sndg (3.9 Rk) 200m E of east Mitrofanian Island; Verify isolated doubtful sounding

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	31	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: Sounding disproved. 100% SWMB reveals no rock Office Notes: Isolated doubtful sndg (3.9 Rk) 200m E of east Mitrofanian Island; Verify isolated doubtful sounding

Office Notes

Concur.

2.13) GP No. - 32 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 34.500" N, 158° 43' 46.000" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 32
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: 100% SWMB SHOWS NO SHOAL SOUNDING

Office Notes: Isolated doubtful sndg (9.5 Rk) 150m S of southeast Mitrofanina Island; Verify isolated doubtful sounding

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	32	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100% SWMB shows no shoal sounding Office Notes: Isolated doubtful sndg (9.5 Rk) 150m S of southeast Mitrofanina Island; Verify isolated doubtful sounding

Office Notes

Concur.

2.14) GP No. - 33 from H11264_LidarInvestigations.xls

Survey Summary

Survey Position: 055° 49' 35.900" N, 158° 43' 58.700" W
Least Depth: [None]
Timestamp: 1990-001.11:60:00.000 (01/01/1990)
GP Dataset: H11264_LidarInvestigations.xls
GP No.: 33
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER Notes: 100% SWMB SHOWS NO SHOAL SOUNDING

Office Notes: Isolated doubtful sndg (9.1 Rk) 130m S of southeast Mitrofanina Island; Verify isolated doubtful sounding

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11264_LidarInvestigations.xls	33	0.00	000.0	Primary

Hydrographer Recommendations

SUPERCEDE LIDAR WITH H11477 BATHYMETRY

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - RAINIER Notes: 100% SWMB shows no shoal soundings. Office Notes: Isolated doubtful sndg (9.1 Rk) 130m S of southeast Mitrofanina Island; Verify isolated doubtful sounding

Office Notes

Concur.

2.15) Profile/Beam - 2/1 from h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232

Survey Summary

Survey Position: 055° 49' 35.784" N, 158° 42' 32.095" W
Least Depth: 0.51 m
Timestamp: 2005-232.18:37:56.000 (08/20/2005)
DP Dataset: h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232
Profile/Beam: 2/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR RK (REFERENCE NUMBER 22) VERIFIED
 Office Notes: Possible Rk in kelp. Verify possible submerged rock in kelp
 QUA: GPSmode=2, SVs=6, HDOP=1.90

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1006_nonechosounder_dp/2005-232/dp_1006_232	2/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	2	26.95	021.3	Secondary

Hydrographer Recommendations

CHART LIDAR RK

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)
 .5m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: INFORM - LIDAR RK VERIFIED
 VALSOU - 0.514 m
 WATLEV - 5:awash

Office Notes

Concur. Chart field verified rock awash.

Feature Images

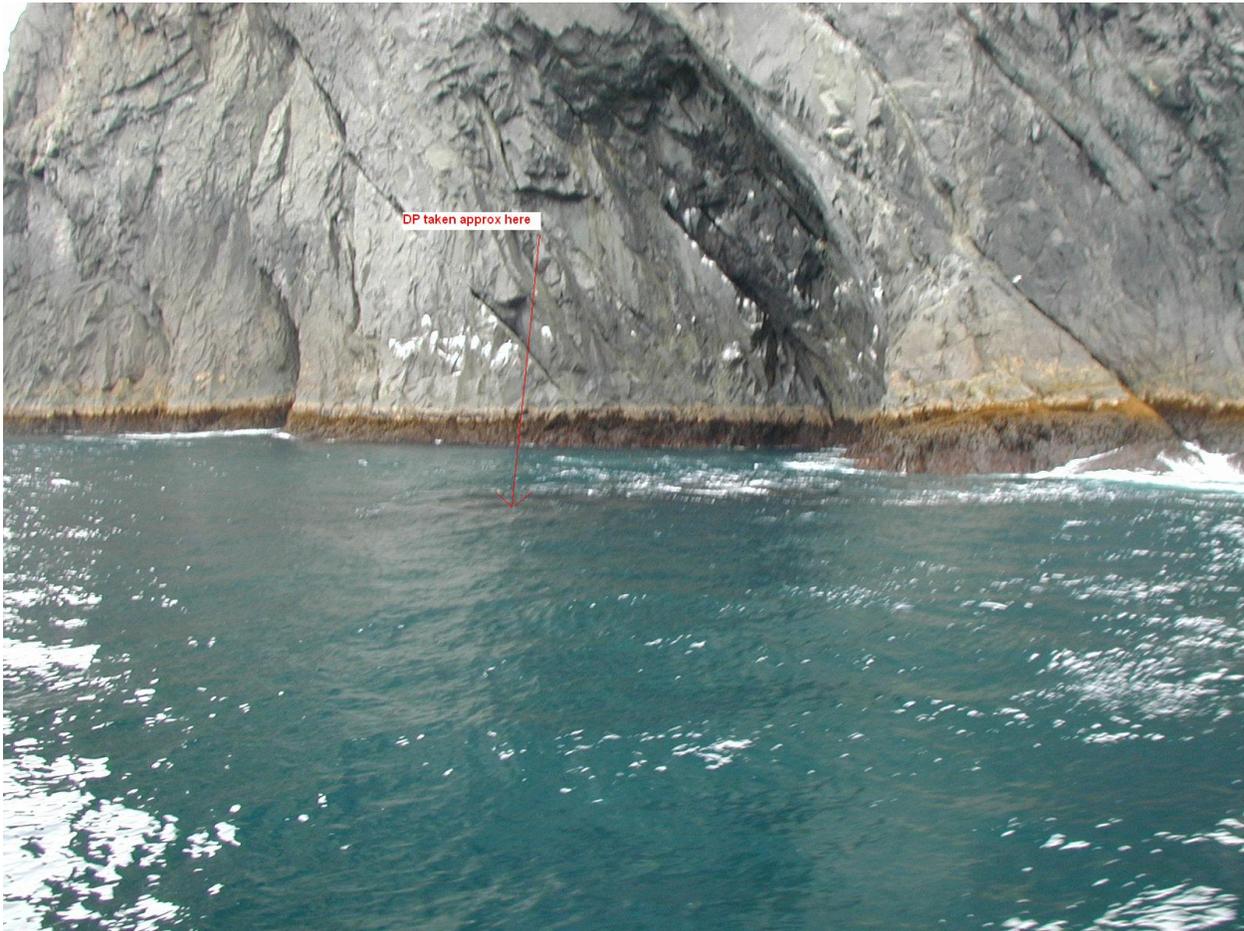


Figure 2.15.1

2.16) Profile/Beam - 3/1 from h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232

Survey Summary

Survey Position: 055° 49' 49.044" N, 158° 43' 58.133" W
Least Depth: -9.72 m
Timestamp: 2005-232.19:11:34.000 (08/20/2005)
DP Dataset: h11477 / 1006_nonechosounder_dp / 2005-232 / dp_1006_232
Profile/Beam: 3/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

RAINIER NOTES: LIDAR RK (REFERENCE NUMBER 25) VERIFIED

Office Notes: Possible drying rock in kelp.; If possible verify new drying rock

QUA: GPSmode=1, SVs=8, HDOP=1.00

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1006_nonechosounder_dp/2005-232/dp_1006_232	3/1	0.00	000.0	Primary
H11264_LidarInvestigations.xls	4	11.38	299.7	Secondary

Hydrographer Recommendations

CHART LIDAR RK

Cartographically-Rounded Depth (Affected Charts):

-5 ¼fm (16561_1, 16013_1, 16011_1, 16006_1, 530_1)

-9.7m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)

Attributes: INFORM - LIDAR RK VERIFIED

VALSOU - -9.717 m

WATLEV - 2:always dry

Office Notes

Do not concur. Chart adjacent field verified rock at 55-49-48.862N, 158-43-57.561 with least depth -1.29m that covers and uncovers.

Feature Images



Figure 2.16.1

2.17) Profile/Beam - 1/1 from h11477 / 1101_echosounder_dp / 2005-216 / dp_1101_216

Survey Summary

Survey Position: 055° 52' 21.047" N, 158° 44' 51.082" W
Least Depth: 9.49 m
Timestamp: 2005-216.18:09:35.000 (08/04/2005)
DP Dataset: h11477 / 1101_echosounder_dp / 2005-216 / dp_1101_216
Profile/Beam: 1/1
Charts Affected: 16561_1, 16013_1, 16011_1, 16006_1, 500_1, 530_1, 50_1

Remarks:

CFF RK DISPROVAL

10 MINUTE VBES STAR PATTERN SEARCH. WATER VISIBILITY 5 METERS. AVGE DEPTH 8 METERS IRREGULAR RKY BOTTOM. 100% SWMB INDICATES NO RK

QUA: GPSmode=2, SVs=7, HDOP=1.30

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11477/1101_echosounder_dp/2005-216/dp_1101_216	1/1	0.00	000.0	Primary

Hydrographer Recommendations

REMOVE CFF RK

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)
Attributes: INFORM - CFF RK DISPROVAL 10 minute VBES search with a 15 meter radius. Water visibility 5m. average depth 8m irregular rocky bottom, scattered kelp. 100% SWMB indicated no rock

Office Notes

Concur.



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : January 10, 2006

HYDROGRAPHIC BRANCH: Pacific Hydrographic Branch

HYDROGRAPHIC PROJECT: OPR-P182-RA-2005

HYDROGRAPHIC SHEET: H11477

LOCALITY: East Mitrofanina Island, SW Alaska Peninsula, AK

TIME PERIOD: July 27 to August 21, 2005

TIDE STATION USED: Mitrofanina Island, AK 945-9016

Lat. 55 53.4' N Long. 158 49.2' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.121 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: SWA181

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).



CHIEF, PRODUCTS AND SERVICES DIVISION

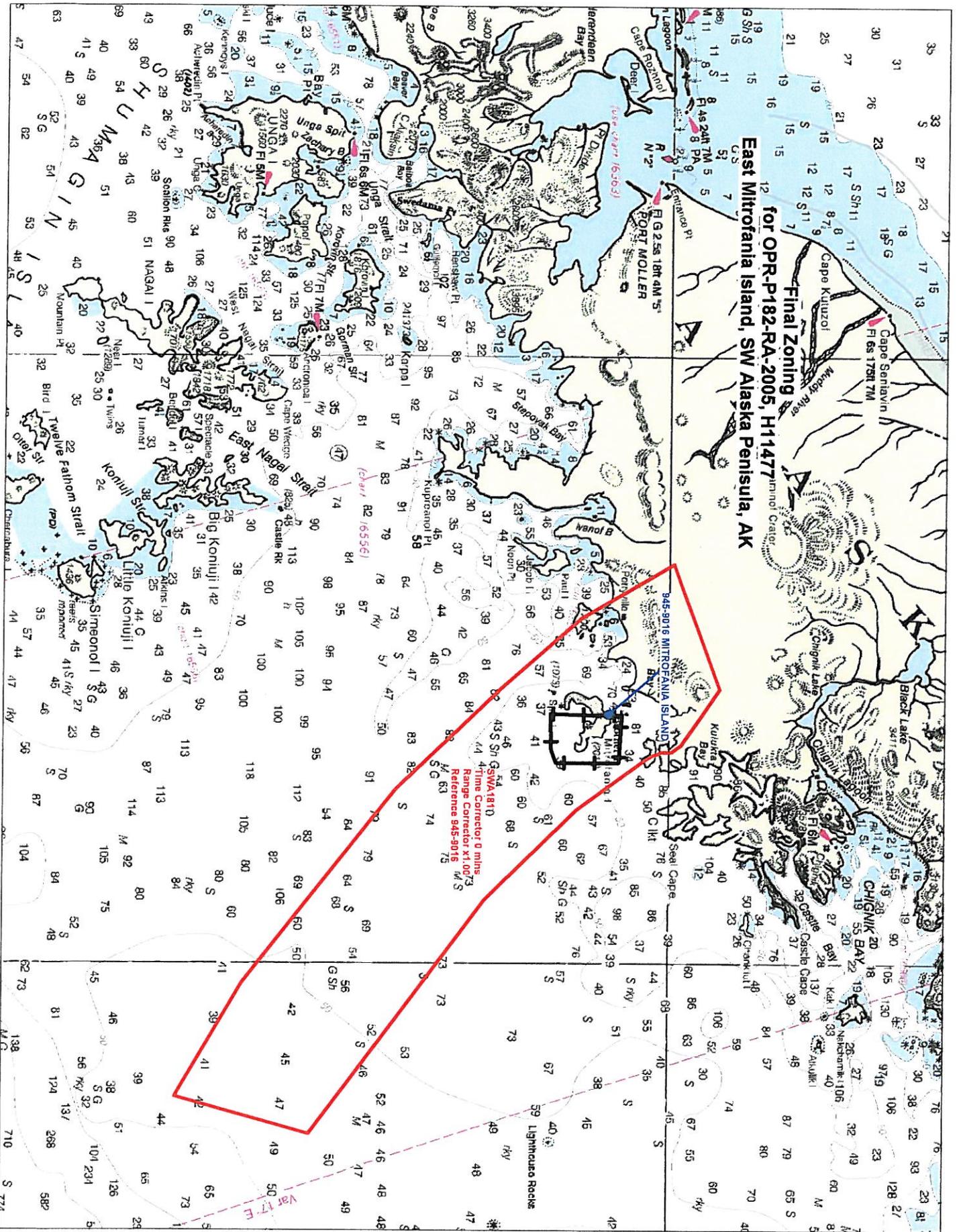


Final tide zone node point locations for OPR-P182-RA-2005, H11477

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

	Tide Station Order	AVG Time Correction	Range Correction
Zone SWA181	945-9016	0	1.00
-157.434421 55.337217			
-157.556936 55.084911			
-157.930575 55.210466			
-158.571047 55.495877			
-158.907942 55.693171			
-159.13617 55.839591			
-159.223754 55.922913			
-159.31513 56.008739			
-158.902585 56.094928			
-158.717544 56.023546			
-158.695693 56.005184			
-158.695213 55.986881			
-158.689734 55.980967			
-158.680795 55.968157			
-158.673346 55.9598			
-158.504524 55.833366			
-158.207958 55.662824			
-157.434421 55.337217			

**Final Zoning
for OPR-P182-RA-2005, H114771
East Mitrofanía Island, SW Alaska Peninsula, AK**



H11477 HCell Report
Katie Reser, Physical Scientist
Pacific Hydrographic Branch

Introduction

The primary purpose of the HCell is to directly update NOAA ENC's with new survey information in International Hydrographic Organization (IHO) format S-57. HCell compilation of survey H11477 utilized Office of Coast Survey HCell Specifications Version 3.0, May 2008 and HCell User Guide Version 1.1, June 2008. HCell H11477 will be used to update charts 16561, 1:80,000 (3rd Ed.; March 2007, NM 2/7/2009), 16013, 1:969,761 (30th Ed.; July 2006, NM 2/7/2009), 16011, 1:1,023,188 (37th Ed.; November 2007, NM 2/7/2009), 16006, 1:1,534,076 (35th Ed.; April 2008, NM 2/7/2009) and US4AK59M.

HCell H11477 contains a portion of LIDAR survey H11264 (figure 1). Three soundings were digitized from the LIDAR smooth sheets. In areas where the LIDAR surveys are overlapped by H11477, only coincident soundings with shoaler depths from LIDAR are included in the H11477 HCell.

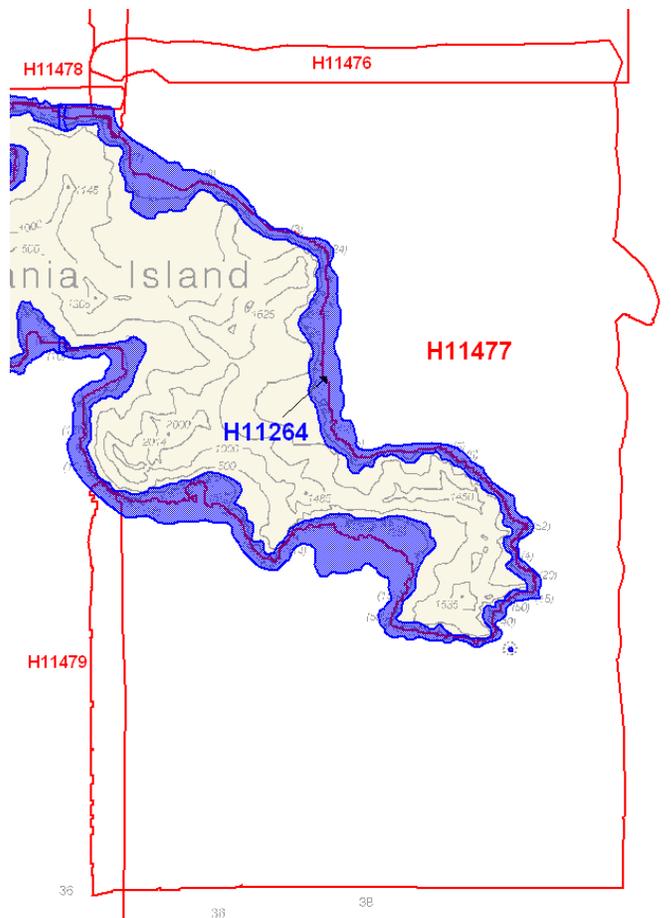


Figure 1. H11264 and H11477 survey coverage

1. Compilation Scale

The density of soundings in the HCell is compiled as appropriate to emulate those soundings of chart 16561, 1:80,000. Position and density of non-bathymetric features included in the HCell have not been generalized from the scales of the hydrographic surveys H11477 and H11264, 1:10,000.

2. Soundings

2.1 Source Data

A 5-meter resolution Combined BASE surface, **H11477_5m_Final Combined**, was used as the basis for HCell production following Branch certification.

A survey-scale sounding (SOUNDG) feature object source layer was built from the **H11477_5m_Final Combined** surface in CARIS BASE Editor. A shoal-biased selection was made at 1:15,000 scale using a radius table with values shown in **Table 1**.

Upper limit (m)	Lower limit (m)	Radius (mm)
0	10	3
10	20	4
20	50	4.5
50	175	5

Table 1

For the portion of H11264 that is included in the survey, Smooth Sheets AV was used as the basis for HCell production following Branch certification.

2.2 Sounding Feature Objects

In CARIS BASE Editor soundings were manually selected from the high density sounding layers from H11477 and imported into a new layer created to accommodate chart density depths. Manual selection was used to accomplish a density and distribution that more closely represents the seafloor morphology and that emulates density and distribution of soundings on chart 16561 than is possible using automated methods. See section 10.1, Data Processing Notes, for details about the use of manual sounding selection for H11477. The sounding feature object source layer was imported into the **H11477_HCell_Features.hob** file, which was used as a template to create the S-57 Composer product **H11477_CS.prd**.

3. Depth Areas

3.1 Source Data

Using the combined BASE surface **H11477_5m_Final Combined** one depth area was generated. Additional depth contours at the intervals on the largest scale chart were

delivered per latest guidance from the 2009 Field Procedures Workshop. The depth contours are included in the **US411477_SS.000** file.

3.2 Depth Area Feature Objects

Two depth ranges, -2.121 to 0 meters and 0 meters to 150 meters, were used for all depth area objects. Upon conversion to NOAA charting units, this depth ranges are -1.2 fathoms to 0 fathoms and 0 fathoms to 82.0 fathoms.

4. Meta Areas

The following Meta object areas are included in HCell 11477:

M_QUAL
M_COVR

Meta area objects were constructed on the basis of perimeter lines delineating the surveyed limits and extents of data gaps inside the survey area. These perimeters were first used to create the Skin of The Earth (SOTE) layer, then were duplicated to the Meta object layers and attributed per the H-Cell Specifications, ver. 3.0 and HCell User Guide ver. 1.1.

5. Survey Features

No DTONs were reported from H11477 or H11264.

H11477 contains no AWOIS items.

Thirteen bottom samples were collected with H11477 and are included in the HCell. There were no charted bottom samples within the H11477 survey area.

The source of all features included in the H11477 HCell can be determined by the SORIND or SORDAT field. For the rock/islet determination, the Tide Note value for MHW (-2.121 meters) was used. LIDAR data cannot be used to disprove charted features since it cannot meet the object detection requirements in the NOS Hydrographic Surveys Specifications and Deliverables. Only multibeam data and shoreline verification were used to disprove charted features. All features to be included in the HCell were addressed and de-conflicted in BASE Editor and imported into the **H11477_HCell_Features.hob** file, which was used as a template to create the S-57 Composer product **H11477_CS.prd**.

Shoreline Features

Shoreline features for H11477 were delivered in eight MapInfo tables and a Pydro PSS. There is some redundancy of features between the files.

- H11477_CFF_Shoreline.tab (Features to be retained as depicted in the source shoreline file)
- H11477_CFF_Rocks.tab (Rocks to be retained as depicted in the source shoreline file)
- H11477_Charted_Shoreline.tab (Charted shoreline used for reference or when source data was not available)
- H11477_Charted_Rocks.tab (Charted rocks used for reference or when source data was not available)
- H11477_FURTHERINVEST.tab (LIDAR investigation items)
- H11477_Combined_PSSFEATURES.tab (New shoreline features or modified source features)
- H11477_SHORELINE_UPDATES.tab (New shoreline features or modified source features)
- H11477_SHORELINE_NOTES.tab (Field notes about source features, charted features and verified features)

Shoreline point features in Pydro were given S-57 attribution and exported to an xml file. The xml files were imported into CARIS Notebook via the Pydro Data Import utility. H11477_Pydro_Add.hob and H11477_Pydro_Delete.hob were generated from this process and used to update and de-conflict shoreline data.

Shoreline line/area features were derived from the MapInfo tables described above. The tables were exported to dxf files and opened in CARIS Base Editor. The line/area features to be included in the HCell were digitized from the dxf files.

6. Shoreline / Tide Delineation

Depth areas (DEPARE) were created for all SOTE features.

7. Attribution

All S-57 Feature Objects have been attributed as fully as possible based on information provided by the Hydrographer and in accordance with OCS HCell Specifications, ver. 3.0 and HCell User Guide ver. 1.1.

8. Layout

8.1 CARIS S-57 Composer Scheme

SOUNDG	Chart scale soundings
DEPARE	Group 1 objects (Skin of the Earth)
DEPCNT	Zero contour for ledge
COALNE	CFF mean high water line
LNDARE	Islet features
LNDELV	Height attribute for point islet features
UWTROC	Rock features
OBSTRN	Foul areas
WEDKLP	Kelp features
SBDARE	Bottom samples and ledge
M_COVR	Data coverage meta object
M_QUAL	Data quality meta object
\$CSYMB	Blue notes

8.2 Blue Notes

Notes regarding data sources are in S-57 Composer as a \$CSYMB feature with the blue note located in the INFORM field and the survey registry number, chart number, chart edition and edition date located in the NINFOM field. The blue notes are included in the HCell when it is exported to .000. The blue notes are also included as a separate ASCII file **H11477_Bluenotes.txt**.

9. Spatial Framework

9.1 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.

9.2 Horizontal and Vertical Units

During creation of sounding sets in CARIS BASE Editor, and creation of the HCell in CARIS S-57 Composer, units are maintained as metric with millimeter resolution. NOAA rounding is applied at the same time that conversion to chart units is made to the metric HCell base cell file, at the end of the HCell compilation process.

A CARIS environment variable, `uslXsounding_round`, controls the depth at which rounding occurs. Setting this variable to NOAA fathoms and feet displays all soundings from 0 to equal to or greater than 11 fathoms as whole units.

In an ENC viewer fathoms and feet display in the format X.YZZZ, where X is fathoms, Y is feet, and ZZZ is decimals of the foot. For fathoms and feet between 0 and 10 fathoms 4.5 feet (10.75 fms), soundings round to the deeper foot if the decimals of the foot are X.Y75000 or greater. For fathoms and feet deeper or equal to 11 fathoms, soundings round to the deeper fathom if feet and decimals of the foot are X.45000 (X.Y75000) or greater. Drying heights are in feet and are rounded using arithmetic methods. In an ENC viewer, heights greater than 6 feet will register in fathoms and feet using the above stated rules.

S-57 Composer Units

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

Chart Unit Base Cell Units

Depth Units (DUNI):	Fathoms and feet
Height Units (HUNI):	Feet (or fathoms and feet above 6 feet)
Positional Units (PUNI):	Meters

10. QA/QC

10.1 Data Processing Notes

Manual chart scale sounding selections were made for this survey. Experience has shown that in areas where bathymetry is steep sided, as in the case of this extremely steep edged fjord, automated sounding selection is impractical. None of the default sounding suppression options offered in CARIS BASE Editor or S-57 Composer yields an acceptable density and distribution of depths, generally bunching soundings nearshore with too sparse coverage seaward. While the customized options are more practical for this type of terrain, an inordinate amount of time must be spent in experimentation with variations on the algebraic terms in order to devise the most suitable formula, and manual adjustments are still required to the resulting sounding set.

10.2 ENC Validation Checks

H11477 was subjected to QA and Validation checks in S-57 Composer prior to exporting to the HCell base cell (000) file. Full millimeter precision was retained in the export of the metric S-57 base cell data set. This data set was converted to a chart unit 000 file. dKart Inspector 5.1 was then used to further check the data set for conformity using the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests were run and errors investigated and corrected where necessary.

11. Products

11.1 HSD, MCD and CGTP Deliverables

- H11477 Base Cell File, Chart Units, Soundings compiled to 1:80,000
- H11477 Base Cell File, Chart Units, Soundings compiled to 1:15,000
- H11477 Descriptive Report including end notes compiled during office processing and certification
- H11477 HCell Supplemental Report
- H11477 Blue Notes ASCII file

11.2 File Naming Conventions

S-57 Composer Product prefix: *H11477_CS.prd and H11477_SS.prd*

MCD Chart units base cell file: *US411477_CS.000*

MCD Chart units base cell file, survey scale soundings: *US411477_SS.000*

11.3 Software

HIPS 6.1:	Management and inspection of Combined BASE surfaces
BASE Editor 2.1:	Combination of Product Surfaces and initial creation of the S-57 bathymetry-derived features
CARIS Notebook 3.0:	Management and inspection of shoreline files
S-57 Composer 2.0:	Assembly of the HCell, S-57 products export, QA
HOM 3.3:	Assembly of the HCell, S-57 products unit conversion and sounding rounding
GIS 4.4a:	Setting the sounding rounding variable
Pydro v7.3 (r2252)	Creation of Feature and DTON reports
dKart Inspector 5.1:	Validation of the base cell file

12. Contacts

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

Katie Reser, Physical Scientist, PHB, Seattle, WA; 206-526-6864;
Katie.Reser@noaa.gov.

APPROVAL SHEET
H11477

Initial Approvals:

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