

H11473

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.* ..... H11473 .....

### LOCALITY

*State* ..... Alaska .....

*General Locality* ..... Shumagin Islands .....

*Sublocality* ..... Mountain Point to John Island .....

**2005**

### CHIEF OF PARTY

..... Captain John E. Lowell, Jr., NOAA .....

### LIBRARY & ARCHIVES

**DATE** .....

NOAA FORM 77-28 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTER NO.  H11473
<b>HYDROGRAPHIC TITLE SHEET</b>				
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 <u>Alaska</u>				
General Locality <u>Shumagin Islands</u>				
Sublocality <u>Mountain Point to John Island</u>				
Scale <u>1:10,000</u>		Date of Survey <u>June 23, 2005-August 13, 2005</u>		
Instructions Dated <u>5/13/2005</u>		Project No. <u>OPR-P183-FA-05</u>		
Vessel <u>Launch 1010, Launch 1018, MonArk, Ambar 700</u>				
Chief of Party <u>CAPT John E. Lowell, Jr., NOAA</u>				
Surveyed by <u>SST Froelich, CST Morgan, LT Wetzler</u>				
Soundings taken by echo sounder <u>RESON 8101</u>				
Graphic record scaled by <u>N/A</u>				
Graphic record checked by <u>N/A</u>				
Evaluation by <u>K. Brown</u>		Automated plot by <u>HP Designjet 1050C</u>		
Verification by <u>K. Brown, K. Reser</u>				
Soundings in <u>Fathoms and Feet</u>		at <u>MLLW</u>		
REMARKS: <u>Time in UTC. UTM Projection Zone 4</u>				
<u>Revisions and annotations appearing as endnotes were</u>				
<u>generated during office processing.</u>				
<u>As a result, page numbering may be interrupted or non-sequential</u>				
<u>All separates are filed with the hydrographic data.</u>				

# Descriptive Report to Accompany Hydrographic Survey H11473

Project OPR-P183-FA-05

Shumagin Islands, Alaska

Scale 1:10,000

June - August 2005

**NOAA Ship FAIRWEATHER**

Chief of Party: Captain John E. Lowell, Jr., NOAA

## A. AREA SURVEYED

The survey area was located in Shumagin Islands, within the sub-locality of Mountain Point to John Island. This survey corresponds to Sheet N in the sheet layout provided with the Letter Instructions, as shown in Figure 1 below. The survey area is bounded on the Southwest corner at 54°51'25"N, 160°17'30"W and the Northeast corner at 54°59'30"N, 160°09'20"W.

Data acquisition was conducted from June 23 to August 13, 2005 (DN 174 to DN 225).

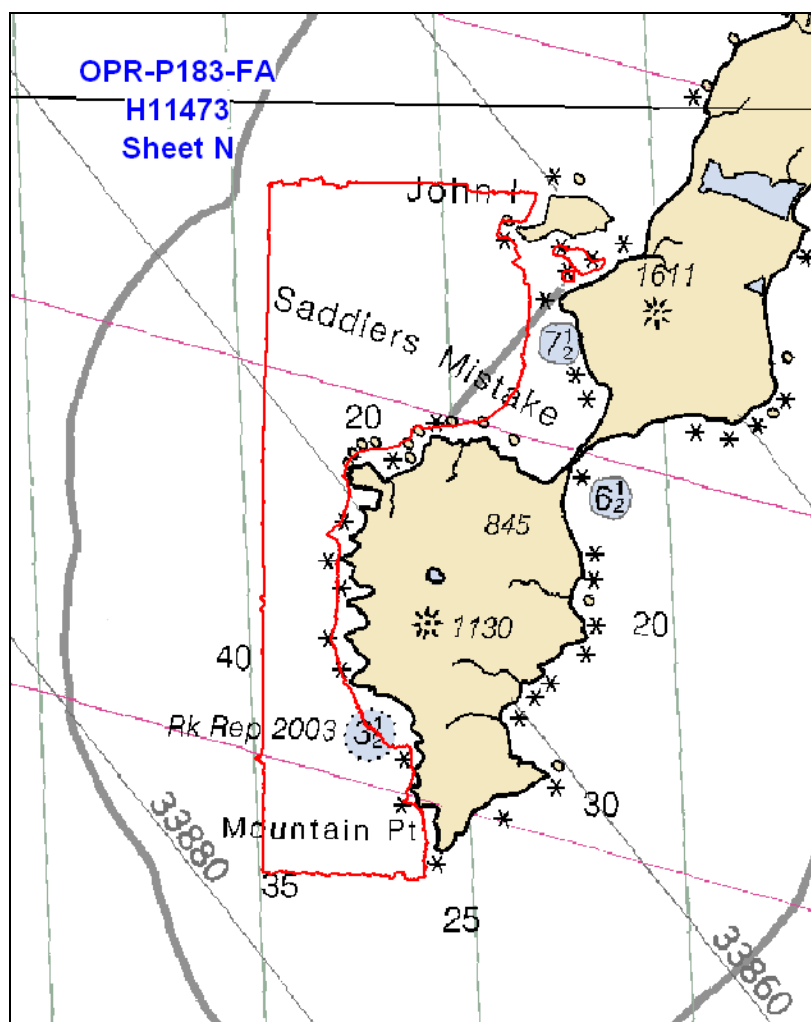


Figure 1: H11473 Survey Outline

One hundred percent multibeam echosounder (MBES) coverage was obtained in the survey area at least to depths of eight meters or to the LIDAR junction line except just north of Mountain Point where coverage only extended in as far as safely possible.<sup>1</sup> When conditions allowed, multibeam echosounder (MBES) data was acquired parallel to contours in depths between four and eight meters. Additional coverage was obtained in order to determine least depths over features or shoals as well as junctioning with areas of sparse, spotty or inconclusive LIDAR data.

Shoreline data were acquired for H11473. These data were attributed as S-57 objects for submittal.

## B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems and survey vessels can be found in the *NOAA Ship FAIRWEATHER Hydrographic Systems Certification Report 2005*, submitted under a separate cover. Quality control procedures and data processing methods are listed and described in the *OPR-P183-FA-05 Data Acquisition and Processing Report (DAPR)*<sup>2</sup>, submitted under separate cover. Items specific to this survey and any deviations from the aforementioned report are discussed in the following sections.

### B1. Equipment and Vessels

Equipment and vessels used for data acquisition and survey operations during this survey are listed below in Table 1.

	Launch 1010	Launch 1018	MonArk	Ambar 700
<b>Hull Registration Number</b>	1010	1018	1706	2302
<b>Builder</b>	The Boat Yard, Inc.	The Boat Yard, Inc.	MonArk	Marine Silverships, Inc
<b>Length Overall</b>	28' 10"	28' 10"	17'	23'
<b>Beam</b>	10' 8"	10' 8"	7'	9' 4"
<b>Draft, Maximum</b>	4' 0" DWL	4' 0" DWL	1' 3"	1' 4"
<b>Cruising Speed</b>	24 knots	24 knots	20 knots	22 knots
<b>Max Survey Speed</b>	10 knots	10 knots		
<b>Primary Echosounder</b>	RESON 8101	RESON 8101		
<b>Sound Velocity Equipment</b>	SBE 19plus	SBE19plus		
<b>Attitude &amp; Positioning Equipment</b>	POS/MV V3	POS/MV V3		
<b>Type of operations</b>	MBES	MBES	Shoreline	Shoreline

Table 1: Vessel Inventory



No vessel configurations used during data acquisition deviated from the DAPR.

## **B2. Quality Control**

Internal consistency and integrity of data collected for survey H11473 were manually examined by the Hydrographer in CARIS subset mode. The internal consistency and integrity of data collected for survey H11473 were found to be very good.

## **Crosslines**

Multibeam echosounder crosslines for this survey totaled 13.04 linear nautical miles (lnm), comprising 5.36% of the 232.12 lnm of main scheme MBES hydrography.

The Hydrographer has determined, through manual examination of the data, that the crossline agreement is good.<sup>3</sup>

## **Junctions**

Survey H11473 junctions with H11472 and H11474, which is Sheet Q and Sheet M of the same project respectively. Survey H11473 also junctions with H11147, which is sheet N of project OPR-P183-KR-03. The area of overlap between the Sheet N and Sheet Q was approximately 400m wide. The area of overlap between the Sheet N and Sheet M was approximately 300m wide. The area of overlap between the Sheet N (H11473) and Sheet N (H11147) was approximately 1000m wide at the widest point due to recommendations from *OPR-P183-KR-03 Descriptive Report* section D.12.2, and on average 300m wide for the rest of the area. *OPR-P183-KR-03 Descriptive Report* was used as junctioning reference as per email from Jeffrey Ferguson dated June 16<sup>th</sup>, 2005 (see Lidar\_Junctions.txt and Lidar\_Junctions\_Reply.txt in Appendix 4). Data were reviewed in CARIS Subset Editor and depths were found to be consistent between the 4 surveys, meeting the requirements as stated in the *NOS Hydrographic Surveys Specifications and Deliverables*.<sup>4</sup> The survey outlines and area of overlap for Sheets N (H11473), M, Q and N (H11147) are shown in Figure 2.

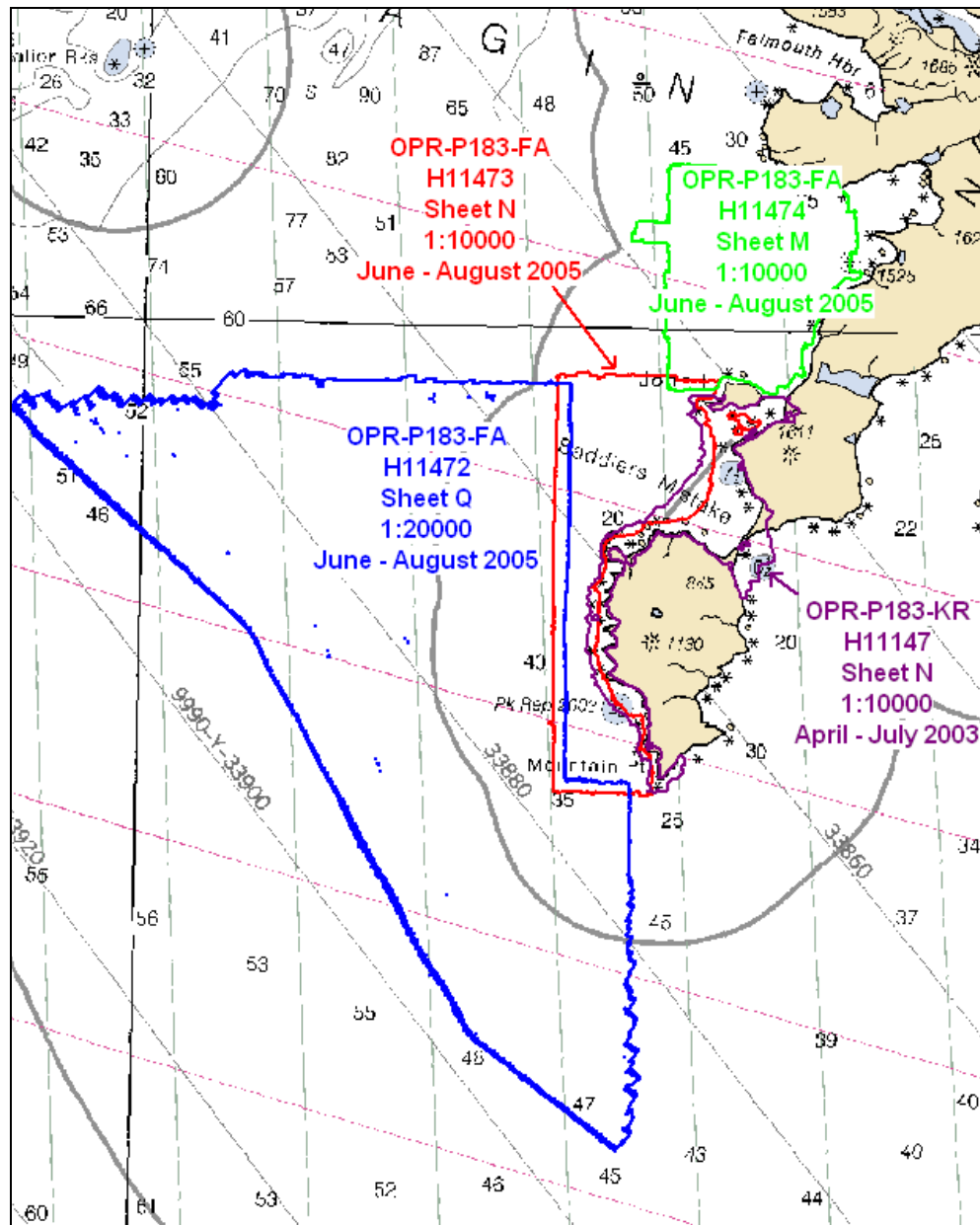


Figure 2: Junction Between H11473 and H11472, H11474 and H11147

## Quality Control Checks

MBES quality control checks were conducted as discussed in the quality control section of the *OPR-P183-FA-05 Data Acquisition and Processing Report*.

## Data Quality Factors

### COVERAGE ASSESSMENT:

Coverage assessment was determined using the following base surface resolutions listed below in Table 2.

Depth Ranges (m)		Resolution (m)
Low	High	
0	35	0.8
25	70	2
60	170	5

**Table 2 Depth Ranges and Resolutions**

## UNUSUAL CONDITIONS

Strong variations in sound velocity profiles led to characteristic “smiles” and “frowns” in data from survey H11473. Taking sound velocity casts at more frequent intervals did not help resolve the errors. Despite the sound velocity errors data from survey H11473 conforms to the standards prescribed by *NOS Hydrographic Surveys Specifications and Deliverables*, as updated for March 2003.<sup>5</sup>

The area extending from Mountain Point to approximately 2000 m north was extremely rocky and constantly exposed to high surf and breakers as is mentioned in *OPR-P183-KR-03 Descriptive Report* section D.12.2. Because of these dangers, MBES was not collected to the 8 meter line or LIDAR junction line.<sup>6</sup> MBES was only collected as far inshore as the launch crews felt safe to collect data.

Extra MBES coverage was obtained in the north east corner of the sheet, south of John Island to disprove charted rocks. Main scheme MBES and this data do not join and creates the appearance of a data gap. This data was collected, in addition with the Lidar data, to disprove the charted rocks in the area.<sup>7</sup>

## Accuracy Standards

Data from survey H11473 conforms to the standards prescribed by *NOS Hydrographic Surveys Specifications and Deliverables*, as updated for March 2003.<sup>8</sup>

## B3. Corrections to Echo Soundings

Data reduction procedures for survey H11473 conform to those detailed in the *OPR-P183-FA-05 Data Acquisition and Processing Report*.<sup>9</sup>

## C. HORIZONTAL AND VERTICAL CONTROL

### Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections from the U.S. Coast Guard beacon at Cold Bay (289 kHz) were utilized during this project.

## **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, AK (945-9450) served as control for datum determination and as the primary source for water level reducers for survey H11473.

All data were reduced to MLLW using verified tides downloaded from the CO-OPS website for station Sand Point, AK by applying tide file 9459450.tid and time and height correctors through the revised zone corrector file P183FA2005CORP.zdf.

The Pacific Hydrographic Branch will apply approved (smooth) tides to the survey data during final processing.<sup>10</sup> A request for delivery of approved (smooth) tides for survey H11473 was forwarded to N/OPS1 on August 19<sup>th</sup>, 2005 in accordance with the Preliminary Field Procedures Manual v1.1, dated March 2005 (FPM). A copy of the request is included in Appendix 5.

FAIRWEATHER received the Tide Note for Hydrographic Survey H11473 on November 3, 2005. The Tide Note for Hydrographic Survey H11473 states that preliminary zoning is accepted as the final zoning correctors. Verified water level data (smooth tides) were received by the FAIRWEATHER on November 10, 2005 for NWLON primary tide station at Sand Point, AK (945-9450). The Tide Note for Hydrographic Survey H11473 and ancillary correspondence are included in Appendix 4.<sup>11</sup> The verified water level data (smooth tides) is submitted with the data.

Verified water level data (smooth tides) were not applied by the FAIRWEATHER. It will be necessary for the Pacific Hydrographic Branch to apply the verified water level data (smooth tides) to the survey data during final processing.<sup>12</sup>

## **D. RESULTS AND RECOMMENDATIONS**

### **D.1 Chart Comparison**

The 2 meter resolution BASE surface was brought into Pydro by means of the Insert BASE/Weighted Grids function. The BASE surface soundings were then excessed to survey scale and shoal biased. The affected charts in the survey area were brought into Pydro. The Hydrographer manually compared the charted soundings to the shoal biased, excessed BASE soundings in the Chart window.

Using the bathymetric depths inserted in Pydro, survey H11473 was compared with charts 16540 (12<sup>th</sup> Ed.; January 1, 2005, 1:300,000) and 16006 (33<sup>rd</sup> Ed.; December 23 2000, 1:1,534,076). Chart 16006 had been updated with the Notice to Mariners through April 30, 2005. Chart 16540 had been updated with the Notice to Mariners through January 1, 2005.

#### **Chart 16540**

Only 2 soundings are present on chart 16540 for the area covered by survey H11473.

Survey H11473 found the depths at, and surrounding the 3½ fathom sounding (AWOIS #53248) to be approximately 29 meters (see H11473\_Features.pdf in Appendix I).<sup>13</sup>

The 20 fathom sounding at the southern entrance to Saddlers Mistake agrees within a few fathoms of depths from survey H11473.<sup>14</sup>

## **Chart 16006**

No soundings are present on chart 16006 for the area covered by survey H11473.<sup>15</sup>

## **Chart Comparison Recommendations**

The Hydrographer has determined that bottom coverage requirements have been met and data accuracy is as discussed in the Accuracy Standards portion of this report.<sup>16</sup> The BASE surfaces with the application of designated soundings are adequate to supersede prior surveys in their common areas.<sup>17</sup> Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.<sup>18</sup>

## **Automated Wreck and Obstruction Information System (AWOIS) Investigations**

There was 1 AWOIS items located within the limits of H11473. All AWOIS items are addressed in the H11473\_Features.pdf in Appendix I.<sup>19</sup>

## **Dangers to Navigation**

There were no dangers to navigation found within the survey limits.<sup>20</sup>

## **Charted Feature Removal Request**

AWOIS item #53248, 3½ fathom sounding “Rk Rep 2003” appears to be data “fliers” from survey H11147.<sup>21</sup> Survey H11473 found the depths in that area to be significantly deeper and no rock was present at that location (see H11473\_Features.pdf in Appendix I) .

## **D.2 Additional Results**

### **Shoreline Source**

Source shoreline for this sheet was taken from photogrammetric survey AK0308 (NAD 83) GC-10558, at the scale of 1:20,000. The CFF shoreline was imported into CARIS Notebook 2.2 Beta as an editable layer named H11473\_Edited\_CFF\_Shoreline.hob, with all objects having S57 attribution. In addition, features from the current editions of chart 16540 that were not depicted by the source shoreline data were digitized with S57 attribution in CARIS Notebook into H11473\_Charted\_Shoreline.hob file, to be displayed for field verification.

LIDAR Investigations were inserted into Pydro as Chart GPs for management and exported to CARIS Notebook 2.2 Beta for field verification.

## **Shoreline Verification**

FAIRWEATHER personnel conducted limited shoreline verification at times near predicted low water, in accordance with the Standing Project Instructions. Detached positions (DPs) and generic positions (GPs) acquired during shoreline verification were recorded in TerraSync and on paper DP forms. Scanned copies of the DP forms are included in the digital Separates folder and hard copies can be found with the *Separates to be Included with Survey Data*.<sup>22</sup> In addition, annotations describing shoreline were recorded on hard copy plots of the digital shoreline.

## **Shoreline Data Processing**

Positions acquired during shoreline verification operations were processed in GPS Pathfinder Office and inserted into Pydro using the Generic GPs/DPs Import tool. Features were entered as Detached Positions (DPs) when tide correctors were required, while Generic Positions (GPs) were used if no tide correction was needed. The DPs and GPs indicate new features, revisions to features, or features not found during shoreline verification. A Carto Action of Add, Modify, Delete, or None was assigned to each item in Pydro, and all features were S57 attributed.

All accepted and primary detached and generic positions were imported from the Pydro .xml to four separate stand alone .hob files in CARIS Notebook 2.2 Beta and later, CARIS Notebook 2.2, after the update became available. These were named H11473\_Add\_Pydro.hob, H11473\_Modify\_Pydro.hob, H11473\_None\_Pydro.hob and H11473\_Delete\_Pydro.hob.

## **Source Shoreline Changes, New Features and Charted Features**

Items for survey H11473 associated with a detached or generic position that needed further discussion were flagged Report in Pydro. Investigation or survey methods were listed under the Remarks tab and, when appropriate, recommendations to the cartographer were included in the Recommendations tab. A survey feature report for shoreline items was generated and included as H11473\_Features.pdf in Appendix I.<sup>23</sup>

Three additional .hob layers, named H11473\_Add\_Notebook.hob, H11473\_Modify\_Notebook.hob and H11473\_Delete\_Notebook.hob, were created in CARIS Notebook for features without associated DPs. New items were digitized to the Add layer, while existing features from the CFF and chart were transferred to the Modify or Delete layers, depending on the cartographic action deemed appropriate by the Hydrographer. Features to be retained as depicted by the source shoreline file were left in the H11473\_Edited\_CFF\_Shoreline.hob file. Field notes made by the Hydrographer on the boat sheets and DP forms were transferred to the remarks field for each feature.

For unknown reasons, CARIS Notebook is not retaining the value -999999999.00 for unknown VALSOU on rocks and obstructions. It is renumbering this value to -1000000029.59. This value for VALSOU should be interpreted as an unknown value.

## Shoreline Recommendations

The Hydrographer recommends that the shoreline depicted in the CARIS Notebook files and final sounding files supersede and complement shoreline information compiled on the CFF and charts.<sup>24</sup>

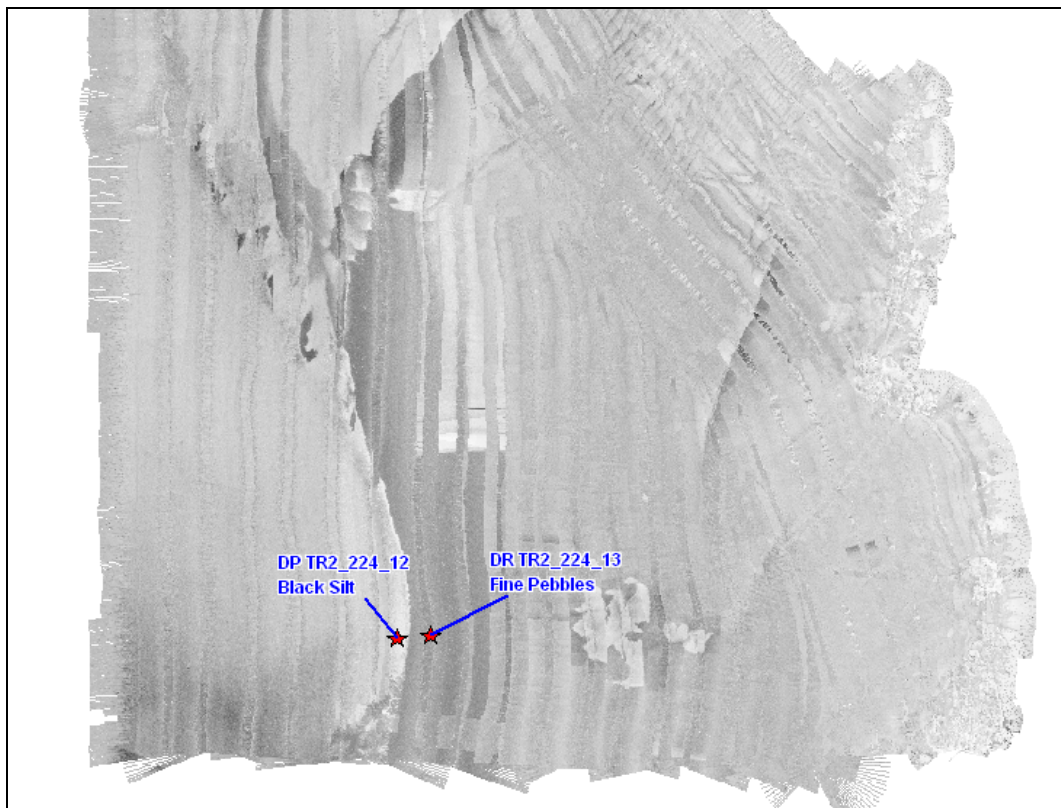
## Aids to Navigation

There were no aids to navigation within the survey limits.<sup>25</sup>

## Bottom Samples<sup>26</sup>

In the southern portion of sheet N there are two distinct bottom types separated by a 1 meter deep trench. The bottom type seen on the western side of the trench was black silt and the bottom type seen on the eastern end of the trench was fine pebbles. The two bottom samples were taken only 130 meters apart. The multibeam backscatter image (see Figure 3) clearly shows the increased reflectivity of the fine pebbles as compared to the silt.

The depths to the west of the trench gently slope up and then down towards it. The depths to the east of the trench rise much more steeply in comparison (see Figure 4).



**Figure 3. Multibeam backscatter image of two distinct bottom types.**



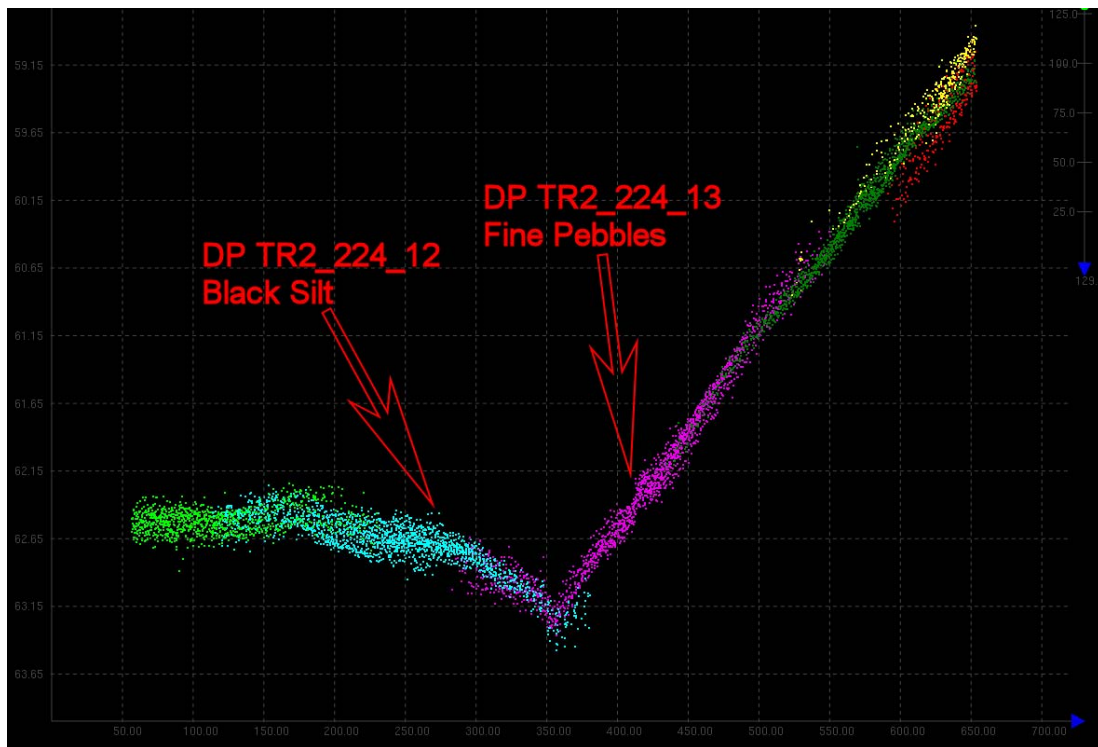


Figure 4. CARIS 2D Subset view of trench.

## Miscellaneous

Sea Lion haul-outs were also seen along the south-west shoreline of Nagai Island. It could not be determined by field personnel if the sea lions were Stellar sea lions.

## E. Supplemental Reports

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>
Hydrographic Systems Certification Report 2005	April 18, 2005	N/CS34
OPR-P183-FA-05 Data Acquisition and Processing Report	November 15, 2005	N/CS34
OPR-P183-FA-05 Horizontal and Vertical Control Negative Report	August 22, 2005	N/CS34





**UNITED STATES DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration

NOAA Marine and Aviation Operations

NOAA Ship FAIRWEATHER S-220

1010 Stedman Street

Ketchikan, AK 99901

November 17, 2005

MEMORANDUM FOR: CDR Don Haines, NOAA  
Chief, Pacific Hydrographic Branch

FROM: CAPT John E. Lowell, Jr, NOAA  
Commanding Officer *JE Lowell*

TITLE: Approval of Hydrographic Survey H11473,  
OPR-P183-FA

As Chief of Party, I have ensured that standard field surveying and processing procedures were adhered to during acquisition and processing of hydrographic survey H11473 in accordance with the Hydrographic Manual, Fourth Edition; Hydrographic Survey Guidelines; Field Procedures Manual, March 2005 Version 1.1; and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for March, 2003. Additional guidance was provided by applicable Hydrographic 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.

I acknowledge that all of the information contained in this report is complete and accurate to the best of my knowledge.

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

*[Signature]*  
SST Grant D. Froelich

Survey Manager

*[Signature]*  
CST Lynnette V. Morgan

Chief Survey Technician

*[Signature]*  
for LT Mark A. Wetzler  
Field Operations Officer

Attachment



## **Revisions Compiled During Office Processing and Certification**

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<sup>1</sup> Concur.

<sup>2</sup> Filed with project records.

<sup>3</sup> Concur.

<sup>4</sup> Concur.

<sup>5</sup> Concur with clarification. As stated in the survey acceptance memo, the BASE surfaces are not significantly affected by the sound velocity errors and therefore meet specifications.

<sup>6</sup> Concur.

<sup>7</sup> Concur with clarification. 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 was used to disprove charted features.

<sup>8</sup> Concur. These data are adequate to supersede charted data in the common area.

<sup>9</sup> Concur.

<sup>10</sup> Final approved water levels were applied to all data during the survey acceptance review.

<sup>11</sup> See attached Tide Note dated October 31, 2005.

<sup>12</sup> Final approved water levels were applied to all data during the survey acceptance review.

<sup>13</sup> Concur with clarification. The tide corrected shoalest depth over the 3.5 fathom sounding was found to be 10.623 fathoms and is included in the HCell.

<sup>14</sup> Concur.

<sup>15</sup> Concur.

<sup>16</sup> Concur.

<sup>17</sup> Concur.

<sup>18</sup> After application of smooth tides, the final chart comparisons agree with field comparisons.

<sup>19</sup> Concur. See attached Feature Report.

<sup>20</sup> Concur with clarification. No DTONs were found during survey H11473, however, four DTONs were found in LIDAR survey H11147N which is compiled with HCell H11473. Three of the DTONs have been applied to the chart (one DTON falls outside the survey area on the other side of the island). One DTON, an islet, was not applied because of the proximity to a charted rock. One of the DTONs that was applied to the chart was disproved by multibeam and should be removed. See AWOIS item 53248 in attached Feature Report.

<sup>21</sup> Concur. See attached Feature Report.

<sup>22</sup> Filed with hydrographic records.

<sup>23</sup> See attached Feature Report.

<sup>24</sup> Concur.

<sup>25</sup> Concur.

<sup>26</sup> Bottom samples collected during the survey supersede and compliment any existing bottom samples from ENC US3AK50M. Chart all bottom samples as compiled in the HCell.

Lidar\_Junctions\_Reply

----- Original Message -----

Subject: [Fwd: Lidar Junctions]  
Date: Tue, 21 Jun 2005 17:33:48 -0700  
From: "co.fairweather" <co.fairweather@noaa.gov>  
To: \_NMAO MOP ChiefST Fairweather <ChiefST.Fairweather@noaa.gov>, \_NMAO MOP F00 Fairweather <F00.Fairweather@noaa.gov>, \_NMAO MOP X0 Fairweather <X0.Fairweather@noaa.gov>

FYI, johnl

-----  
Subject: Re: Lidar Junctions  
Resent-Date: Thu, 16 Jun 2005 17:37:29 GMT  
Resent-From: CO.Fairweather@noaa.gov  
Date: Thu, 16 Jun 2005 13:37:12 -0400  
From: "Jeffrey Ferguson" <Jeffrey.Ferguson@noaa.gov>  
To: co.fairweather <co.fairweather@noaa.gov>

Sounds good to me!

Tenix LADS is currently conducting operations based out of Sand Point, AK. If you find yourselves in the area hiding from weather and/or providing some shore leave, they would be happy to discuss their operations with you face to face, and answer any questions you may have on their products, procedures or data quality.

Let me know if you'd like me to make a virtual introduction.

Hope all is well,  
Jeff

co.fairweather wrote:

> Hi, Jon  
>  
> Weather is poor, but we are on site and have been conducting ship hydro  
> for the last day. Once weather improves, we plan to get the launches  
> working on the near shore area, but would like some clarification as to  
> where the inshore limit is. Specifically how to proceed with the LIDAR  
> junctions.  
>  
> The letter instructions state "junction with the offshore extent of  
> satisfactory LIDAR coverage". Somewhat subjective, but reviewing the  
> H11147 descriptive reports, sections D.10.2, D.11.2, and D.12.2 have  
> clear statements that define recommended junction and additional work.  
> The LIDAR Hydrographer has a quality statement that indicates depth  
> accuracy has been met, but object detection is not detailed.  
>  
> The Preliminary FPM v1.1 was consulted to assist with the "satisfactory"  
> term for junction determination, but there doesn't seem to be anything  
> specific on LIDAR coverage. There is a section 2.5 on Junction Areas  
> that notes, "Where depths in junctional areas do not agree, the current  
> survey limits should be extended into the non contemporary surveys to an  
> extent determined by the Hydrographer. A standard junction would compare  
> well with current survey data if the sounding variance is 0 – 1 ft;  
> acceptable agreement exists if the variance is 1 – 2 ft; poor agreement  
> if the variance is greater than 3 ft.". There is no depth dependency on  
> the statement.  
>  
> We propose to use the following guidelines when junctioning with LIDAR  
> on this project:

#### Li dar\_Juncti ons\_Repl y

- >
- > 1) Presume the LIDAR data has been veri fied/accepted by OCS
- > 2) Junction as per the DR recommendation
- > 3) Create BASE surface for mul ti beam data
- > 4) Compare BASE with LIDAR depths in common area
- > 5) Use IHO acceptable error to baseline "satisfactory" based on depth
- > 6) If fail , adjust area accordi ngly
- >
- > As for LIDAR features, we will use the PHB "reduced" set of
- > recommendations as per prior email .
- >
- > For now, we are ignoring any data quality management issues involving
- > LIDAR object detection. We presume the LIDAR data collected is as per
- > OCS quality management requirements. In other words, the LIDAR data
- > will stand on its own in areas that are not covered by mul ti beam.
- >
- > thoughts? johnl

# Danger to Navigation Report

Hydrographic Survey Registry Number: H11147N

Survey Title:        State: Alaska        Locality: Shumagin Islands & Vicinity Sub-locality:        John  
Head to Mountain Point

Project Number: OPR-P183-KR-03

Survey Dates: April to July 2003

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

## CHARTS AFFECTED:

Chart	Scale	Edition	Date
16540	1:300,000	11 <sup>th</sup>	03/04/89

## DANGERS:

Feature	Depth(ft or fms)	Latitude (N)	Longitude (W)
Islet	6 ft at MHW	54° 52' 22.3"	160° 14' 10.9"

## COMMENTS:

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6835.

# Danger to Navigation Report

Hydrographic Survey Registry Number: H11147N

Survey Title:        State: Alaska        Locality: Shumagin Islands & Vicinity Sub-locality:        John  
Head to Mountain Point

Project Number: OPR-P183-KR-03

Survey Dates: April to July 2003

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

## CHARTS AFFECTED:

Chart	Scale	Edition	Date
16540	1:300,000	11 <sup>th</sup>	03/04/89

## DANGERS:

Feature	Depth(ft or fms)	Latitude (N)	Longitude (W)
Rock	3 fms 4 ft *	54° 53' 04.5"	160° 14' 59.0"
Sounding	7 fms 5 ft	54° 57' 25.1"	160° 11' 30.3"
Sounding	6 fms 4 ft	54° 55' 40.8"	160° 10' 30.7"

## COMMENTS:

All features detected with LIDAR.

\* Recommend charting with "reported" label. The contractor recommended investigating this item by boat.

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6840.

# H11473 Features Report

**Registry Number:** H11473  
**State:** Alaska  
**Locality:** Shumagin Islands  
**Sub-locality:** Mountain Point to John Island  
**Project Number:** OPR-P183-FA-05  
**Survey Dates:** June 23, 2005 - August 13, 2005

Items for survey H11473 associated with a detached or generic position or AWOIS item that needed further discussion were flagged Report in Pydro. Investigation methods and recommendations were provided in the Remarks and Recommendations tabs.

## Charts Affected

Number	Version	Date	Scale
16540	12th Ed.	01/01/2005	1:300000
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	30th Ed.	03/23/2002	1:4860700
50	6th Ed.	06/01/2003	1:10000000

## Features

Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
11742	Sounding	-2.99 m	054° 58' 44.249" N	160° 12' 31.273" W
11747	Sounding	-5.07 m	054° 57' 52.145" N	160° 11' 31.408" W
4	GP	[None]	054° 58' 30.620" N	160° 12' 26.470" W
6	GP	[None]	054° 58' 23.550" N	160° 12' 19.940" W
13	GP	[None]	054° 57' 41.730" N	160° 11' 22.910" W
23	GP	[None]	054° 55' 16.160" N	160° 15' 32.510" W
24	GP	[None]	054° 54' 34.110" N	160° 15' 18.380" W
28	GP	[None]	054° 53' 10.140" N	160° 14' 59.930" W
31	GP	[None]	054° 52' 04.480" N	160° 13' 47.680" W
32	GP	[None]	054° 51' 42.060" N	160° 13' 44.050" W

36	GP	[None]	054° 51' 40.300" N	160° 13' 45.770" W
r	GP	[None]	054° 56' 13.940" N	160° 11' 31.560" W
11748	Sounding	-5.57 m	054° 58' 01.516" N	160° 11' 14.816" W
11745	Sounding	-2.79 m	054° 58' 10.338" N	160° 10' 46.977" W
21751	Sounding	-1.60 m	054° 53' 00.749" N	160° 14' 11.521" W
21752	Sounding	-2.73 m	054° 56' 08.954" N	160° 14' 23.634" W
21753	Sounding	-1.04 m	054° 56' 19.099" N	160° 13' 12.065" W
21754	Sounding	-2.34 m	054° 55' 59.314" N	160° 11' 54.866" W
21755	Rock	-2.27 m	054° 56' 06.352" N	160° 11' 17.466" W
21741	Sounding	-4.60 m	054° 55' 55.537" N	160° 15' 23.839" W
21743	Sounding	-4.57 m	054° 55' 22.471" N	160° 15' 19.855" W
21744	Sounding	-5.04 m	054° 55' 17.684" N	160° 15' 45.427" W
21745	Sounding	-3.87 m	054° 54' 12.238" N	160° 15' 36.480" W
21746	GP	[None]	054° 54' 12.719" N	160° 15' 37.587" W
11741	GP	[None]	054° 58' 46.428" N	160° 12' 13.435" W
11743	GP	[None]	054° 58' 43.129" N	160° 12' 32.346" W
11744	GP	[None]	054° 58' 32.743" N	160° 11' 26.742" W
11746	GP	[None]	054° 58' 05.504" N	160° 11' 03.482" W
117414	GP	[None]	054° 58' 46.892" N	160° 10' 22.582" W
Chart GP 2	GP	[None]	054° 55' 56.983" N	160° 14' 49.770" W
Chart GP 3	GP	[None]	054° 56' 08.800" N	160° 14' 58.602" W
Chart GP 5	GP	[None]	054° 56' 47.421" N	160° 10' 49.392" W
Chart GP 6	GP	[None]	054° 58' 26.926" N	160° 11' 23.397" W
Chart GP 7	GP	[None]	054° 58' 10.498" N	160° 11' 13.641" W
Chart GP 8	GP	[None]	054° 58' 18.580" N	160° 10' 45.292" W
Chart GP 9	GP	[None]	054° 58' 30.425" N	160° 10' 10.073" W
Chart GP 10	GP	[None]	054° 56' 30.501" N	160° 13' 23.842" W
Chart GP 11	GP	[None]	054° 56' 14.914" N	160° 14' 12.776" W
OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]



## **1 - Charted Features**

**1.1) 11742****Survey Summary**

**Survey Position:** 054° 58' 44.249" N, 160° 12' 31.273" W  
**Least Depth:** -2.99 m  
**Timestamp:** 2005-174.08:36:52.000 (06/23/2005)  
**DP Dataset:** h11473 / trb1\_dpne / 2005-174 / 1174\_uwtroc\_p.shp  
**Profile/Beam:** 1/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new position lidar rk #1; chd (16540) islet is lidar rk

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb1_dpne/2005-174/1174_uwtroc_p.shp	1/1	0.00	000.0	Primary
ChartGPs - H11147N_Lidar_Investigations.xls	1	86.82	244.9	Secondary (grouped)

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-1 ½fm (16540\_1, 16011\_1, 16006\_1, 530\_1)  
 -3.0m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new position lidar rk  
 RECDAT - 20050623  
 VALSOU - -2.990 m  
 WATLEV - 4:covers and uncovers

## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Remove charted islet and chart rock that covers and uncovers, depth unknown.

## Feature Images



*Figure 1.1.1*



*Figure 1.1.2*

**1.2) 11747****Survey Summary**

**Survey Position:** 054° 57' 52.145" N, 160° 11' 31.408" W  
**Least Depth:** -5.07 m  
**Timestamp:** 2005-174.10:19:35.000 (06/23/2005)  
**DP Dataset:** h11473 / trb1\_dpne / 2005-174 / 1174\_uwtroc\_p.shp  
**Profile/Beam:** 2/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

lidar rk 12 vfd. dp for height

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb1_dpne/2005-174/1174_uwtroc_p.shp	2/1	0.00	000.0	Primary
ChartGPs - H11473N_Lidar_Investigations.xls	4	3.12	317.8	Secondary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-2 ¾fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-5.1m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - lidar rk verified  
 RECDAT - 20050623  
 VALSOU - -5.065 m  
 WATLEV - 4:covers and uncovers



## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart rock using LIDAR position and depth.

## Feature Images



*Figure 1.2.1*

## **2 - New Features**

**2.1) 4****Survey Summary**

**Survey Position:** 054° 58' 30.620" N, 160° 12' 26.470" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 2  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

lidar rk 4 not seen at MLLW.

Lidar rock was disproved using a search for the rock that was conducted for 5 minutes using a 30 meter search radius. There was 2 meter visibility. Lead line soundings indicated no depth found using a 10 meter lead line. The area was also covered with 100% MBES data for disproval.

LI 4: Area of kelp.Confirm existence and least depth.;1.1

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	2	0.00	000.0	Primary

**Hydrographer Recommendations**

The Hydrographer recommends using depths from survey H11473.

**S-57 Data**

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Office Notes**

Concur with clarification. Charted rock disproved with 100% multibeam. Remove charted rock.



**2.2) 6****Survey Summary**

**Survey Position:** 054° 58' 23.550" N, 160° 12' 19.940" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 3  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

lidar rk 6 not seen at MLLW.

Lidar rock was disproved using a search for the rock that was conducted for 5 minutes using a 30 meter search radius. There was 2 meter visibility. Lead line soundings indicated no depth found using a 10 meter lead line. The area was also covered with 100% MBES data for disproval.

LI 6: Area of sparse data. Confirm existence and least depth.;6.5

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	3	0.00	000.0	Primary

**Hydrographer Recommendations**

The Hydrographer recommends using depths from survey H11473.

**S-57 Data**

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Office Notes**

Concur with clarification. A submerged 7.112m rock was found in the multibeam data at 54-58-24.6620N, 160-12-15.8116W. Chart new submerged rock.

**2.3) 13****Survey Summary**

**Survey Position:** 054° 57' 41.730" N, 160° 11' 22.910" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 5  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

Lidar rk 13 not seen at MLLW.

Lidar rock could not be investigated. The rock could be shoal within the foul area. The foul prevented covering the area with MBES data.

LI 13: Area of kelp. Confirm existence and least depth.;1.2

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	5	0.00	000.0	Primary

**Hydrographer Recommendations**

The Hydrographer recommends using depths from survey H11147.

**S-57 Data**

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Office Notes**

Concur with clarification. Chart foul area.

**2.4) 23****Survey Summary**

**Survey Position:** 054° 55' 16.160" N, 160° 15' 32.510" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 6  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr rk 23 ntd.

Area of kelp. Confirm existence and least depth.;0.1

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	6	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - Area of kelp. Confirm existence and least depth.;0.1

**Office Notes**

Chart LIDAR rock awash.

**2.5) 24****Survey Summary**

**Survey Position:** 054° 54' 34.110" N, 160° 15' 18.380" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 7  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr rk 24 ntd.

LI 24: Area of kelp. Confirm existence and least depth.;0.4

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	7	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - Area of kelp. Confirm existence and least depth.;0.4  
WATLEV - 4:covers and uncovers

**Office Notes**

Chart LIDAR rock that is submerged.

**2.6) 28****Survey Summary**

**Survey Position:** 054° 53' 10.140" N, 160° 14' 59.930" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 8  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr rk 28 not seen at MLLW.

The lidar rock was disproved using 100% MBES data.

LI 28: Area of kelp. Confirm existence and least depth.;4.1

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	8	0.00	000.0	Primary

**Hydrographer Recommendations**

The Hydrographer recommends using depths from survey H11473.

**S-57 Data**

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Office Notes**

Concur. Do not chart LIDAR rock.

**2.7) 31****Survey Summary**

**Survey Position:** 054° 52' 04.480" N, 160° 13' 47.680" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 10  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr rk 31 ntd.

LI 31: Area of sparse data. Confirm existence and least depth.;0.4

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	10	0.00	000.0	Primary

**Hydrographer Recommendations**

The Hydrographer recommends charting the lidar rock as positioned.

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - Area of sparse data. Confirm existence and least depth.;0.4  
WATLEV - 4:covers and uncovers

**Office Notes**

Concur.

**2.8) 32****Survey Summary**

**Survey Position:** 054° 51' 42.060" N, 160° 13' 44.050" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 11  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr inv 32 lies within foul area. Unable to verify.

LI 32: Charted rock not found. Islet found in the vicinity. Confirm height of feature.;(5)

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	11	0.00	000.0	Primary

**Hydrographer Recommendations**

The Hydrographer recommends that the CFF foul area that surrounds Mountain Point be added to the chart to depict the numerous rocks and kelp beds in that area.

**S-57 Data**

**Geo object 1:** Land area (LNDARE)

**Office Notes**

Concur with clarification. Chart LIDAR Islet.

**2.9) 36****Survey Summary**

**Survey Position:** 054° 51' 40.300" N, 160° 13' 45.770" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 14  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr rk 36 lies within foul area. Unable to verify.

LI 36: Area of kelp. Confirm existence and least depth.;0.4

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	14	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - Area of kelp. Confirm existence and least depth.;0.4

**Office Notes**

Chart submerged 1.097m LIDAR rock.



## 2.10) r

### Survey Summary

**Survey Position:** 054° 56' 13.940" N, 160° 11' 31.560" W  
**Least Depth:** [None]  
**Timestamp:** 1990-001.11:60:00.000 (01/01/1990)  
**GP Dataset:** ChartGPs - H11147N\_Lidar\_Investigations.xls  
**GP No.:** 16  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ldr rk not addressed in field due to caris notebook display issue.

LI r: Possible shoal sounding in a kelp area. Confirm existence and least depth.;

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - H11147N_Lidar_Investigations.xls	16	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

There was no indication of a rock on the LIDAR smooth sheet at this position. No charting action required.

**2.11) 11748****Survey Summary**

**Survey Position:** 054° 58' 01.516" N, 160° 11' 14.816" W  
**Least Depth:** -5.57 m  
**Timestamp:** 2005-174.10:22:52.000 (06/23/2005)  
**DP Dataset:** h11473 / trb1\_dpne / 2005-174 / 1174\_uwtroc\_p.shp  
**Profile/Beam:** 3/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new position chd (16540) rk

The chd rk (16540) at 54°58'12.171"N , 160°11'14.669"W ( 423988.52E , 6092103.33N ) was repositioned with DP 11748.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb1_dpne/2005-174/1174_uwtroc_p.shp	3/1	0.00	000.0	Primary

**Hydrographer Recommendations****Cartographically-Rounded Depth (Affected Charts):**

-3fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-5.6m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new position chd rk chd rk 54°58'12.171"N , 160°11'14.669"W ( 423988.52E , 6092103.33N ) not seen in field.  
 RECDAT - 20050623  
 VALSOU - -5.574 m  
 WATLEV - 4:covers and uncovers

## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart rock using LIDAR position and depth.

## Feature Images



*Figure 2.11.1*

## 2.12) 11745

### Survey Summary

**Survey Position:** 054° 58' 10.338" N, 160° 10' 46.977" W  
**Least Depth:** -2.79 m  
**Timestamp:** 2005-174.10:03:12.000 (06/23/2005)  
**DP Dataset:** h11473 / trb1\_dpne / 2005-174 / 1174\_\$csymb\_p.shp  
**Profile/Beam:** 1/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

ext ldg, CFF obstrn is ldg

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11473/trb1_dpne/2005-174/1174_\$csymb_p.shp	1/1	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

#### Cartographically-Rounded Depth (Affected Charts):

-1 ½fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-2.8m (500\_1, 50\_1)

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)  
**Attributes:** INFORM - ext ldg, CFF obs is ldg  
 RECDAT - 20050623

### Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart rock using LIDAR position and depth.

## Feature Images



*Figure 2.12.1*

## 2.13) 21751

### Survey Summary

**Survey Position:** 054° 53' 00.749" N, 160° 14' 11.521" W  
**Least Depth:** -1.60 m  
**Timestamp:** 2005-175.09:55:29.000 (06/24/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-175 / 2175\_uwtroc\_p.shp  
**Profile/Beam:** 1/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

new rk is new ext CFF foul area

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-175/2175_uwtroc_p.shp	1/1	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

#### Cartographically-Rounded Depth (Affected Charts):

0 ¾fm (16540\_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 - new rk, extends to shore  
 RECDAT - 20050624  
 VALSOU - -1.600 m  
 WATLEV - 4:covers and uncovers



## Office Notes

Chart new rock within foul area.

## Feature Images



*Figure 2.13.1*

**2.14) 21752****Survey Summary**

**Survey Position:** 054° 56' 08.954" N, 160° 14' 23.634" W  
**Least Depth:** -2.73 m  
**Timestamp:** 2005-175.11:00:25.000 (06/24/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-175 / 2175\_uwtroc\_p.shp  
**Profile/Beam:** 2/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new pos chd (16540) rk

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-175/2175_uwtroc_p.shp	2/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-1 ½fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-2.8m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new rk  
 RECDAT - 20050624  
 VALSOU - -2.728 m  
 WATLEV - 4:covers and uncovers



## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart new rock that covers and uncovers, depth unknown.

## Feature Images



*Figure 2.14.1*

**2.15) 21753****Survey Summary**

**Survey Position:** 054° 56' 19.099" N, 160° 13' 12.065" W  
**Least Depth:** -1.04 m  
**Timestamp:** 2005-175.11:36:28.000 (06/24/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-175 / 2175\_uwtroc\_p.shp  
**Profile/Beam:** 3/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk

The new rock positioned with DP 21753 is on the current charted (16540) high water. Use the CFF high water for charting.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-175/2175_uwtroc_p.shp	3/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

0 ½fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-1.1m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new rk  
 RECDAT - 20050624  
 VALSOU - -1.042 m  
 WATLEV - 4:covers and uncovers

## Office Notes

Chart new rock.

## Feature Images



*Figure 2.15.1*

**2.16) 21754****Survey Summary**

**Survey Position:** 054° 55' 59.314" N, 160° 11' 54.866" W  
**Least Depth:** -2.34 m  
**Timestamp:** 2005-175.11:54:47.000 (06/24/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-175 / 2175\_uwtroc\_p.shp  
**Profile/Beam:** 4/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk

The new rock positioned with DP 21754 is on the current charted (16540) high water. Use the CFF high water for charting.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-175/2175_uwtroc_p.shp	4/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-1 ¼fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-2.4m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new rk  
 RECDAT - 20050624  
 VALSOU - -2.337 m  
 WATLEV - 4:covers and uncovers



## Office Notes

Chart new rock.

## Feature Images



*Figure 2.16.1*

**2.17) 21755****Survey Summary**

**Survey Position:** 054° 56' 06.352" N, 160° 11' 17.466" W  
**Least Depth:** -2.27 m  
**Timestamp:** 2005-175.12:03:51.000 (06/24/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-175 / 2175\_uwtroc\_p.shp  
**Profile/Beam:** 5/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk is ext new foul area

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-175/2175_uwtroc_p.shp	5/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-1 ¼fm (16540\_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 - new rk, ext foul area  
 RECDAT - 20050624  
 VALSOU - -2.270 m  
 WATLEV - 4:covers and uncovers

## Office Notes

Chart new rock within foul area.

## Feature Images



*Figure 2.17.1*

**2.18) 21741****Survey Summary**

**Survey Position:** 054° 55' 55.537" N, 160° 15' 23.839" W  
**Least Depth:** -4.60 m  
**Timestamp:** 2005-174.11:01:29.000 (06/23/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-174 / 2174\_uwtroc\_p.shp  
**Profile/Beam:** 1/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-174/2174_uwtroc_p.shp	1/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-2 ½fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-4.6m (500\_1, 50\_1)

**S-57 Data****Geo object 1:** Underwater rock / awash rock (UWTROC)**Attributes:** INFORM - new rk

OBJNAM - new rk

RECDAT - 20050623

VALSOU - -4.602 m

WATLEV - 4:covers and uncovers



## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart new rock that covers and uncovers, depth unknown.

## Feature Images



*Figure 2.18.1*

**2.19) 21743****Survey Summary**

**Survey Position:** 054° 55' 22.471" N, 160° 15' 19.855" W  
**Least Depth:** -4.57 m  
**Timestamp:** 2005-174.11:31:05.000 (06/23/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-174 / 2174\_uwtroc\_p.shp  
**Profile/Beam:** 2/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk, 60m length e-w

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-174/2174_uwtroc_p.shp	2/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-2 ½fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-4.6m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new rk 60m length e-w  
 RECDAT - 20050623  
 VALSOU - -4.570 m  
 WATLEV - 4:covers and uncovers



## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart new rock that covers and uncovers, depth unknown.

## Feature Images



*Figure 2.19.1*

**2.20) 21744****Survey Summary**

**Survey Position:** 054° 55' 17.684" N, 160° 15' 45.427" W  
**Least Depth:** -5.04 m  
**Timestamp:** 2005-174.11:43:24.000 (06/23/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-174 / 2174\_uwtroc\_p.shp  
**Profile/Beam:** 3/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-174/2174_uwtroc_p.shp	3/1	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-2 ¾fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-5.1m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new rk  
RECDAT - 20050623  
VALSOU - -5.035 m  
WATLEV - 4:covers and uncovers

## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart new rock that covers and uncovers, depth unknown.

## Feature Images



*Figure 2.20.1*

## 2.21) 21745

### Survey Summary

**Survey Position:** 054° 54' 12.238" N, 160° 15' 36.480" W  
**Least Depth:** -3.87 m  
**Timestamp:** 2005-174.12:24:02.000 (06/23/2005)  
**DP Dataset:** h11473 / trb2\_dpne / 2005-174 / 2174\_uwtroc\_p.shp  
**Profile/Beam:** 4/1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new rk, ext foul area

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11473/trb2_dpne/2005-174/2174_uwtroc_p.shp	4/1	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

**Cartographically-Rounded Depth (Affected Charts):**

-2fm (16540\_1, 16011\_1, 16006\_1, 530\_1)

-3.9m (500\_1, 50\_1)

### S-57 Data

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** INFORM - new rk, ext foul area  
RECDAT - 20050623  
VALSOU - -3.870 m  
WATLEV - 4:covers and uncovers



## Office Notes

Observed depth indicates feature is an islet and is inconsistent with picture. Chart new rock that covers and uncovers, depth unknown.

## Feature Images



*Figure 2.21.1*

**2.22) 21746****Survey Summary**

**Survey Position:** 054° 54' 12.719" N, 160° 15' 37.587" W  
**Least Depth:** [None]  
**Timestamp:** 2005-174.12:26:18.000 (06/23/2005)  
**GP Dataset:** 2174\_OBSTRN\_L.shp  
**GP No.:** 2  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new ext CFF foul, foul with rks

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
2174_OBSTRN_L.shp	2	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**S-57 Data**

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 6:foul area  
INFORM - foul area  
RECDAT - 20050623

**Office Notes**

Chart new foul area.



## 2.23) 11741

### Survey Summary

**Survey Position:** 054° 58' 46.428" N, 160° 12' 13.435" W  
**Least Depth:** [None]  
**Timestamp:** 2005-174.08:33:36.000 (06/23/2005)  
**GP Dataset:** 1174\_OBSTRN\_L.shp  
**GP No.:** 1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ext new foul w/ rks kelp

### Feature Correlation

Address	Feature	Range	Azimuth	Status
1174_OBSTRN_L.shp	1	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 6:foul area  
INFORM - new ext foul w/ rks kelp  
RECDAT - 20050623  
WATLEV - 4:covers and uncovers

### Office Notes

Chart new foul area.

## 2.24) 11743

### Survey Summary

**Survey Position:** 054° 58' 43.129" N, 160° 12' 32.346" W  
**Least Depth:** [None]  
**Timestamp:** 2005-174.08:45:19.000 (06/23/2005)  
**GP Dataset:** 1174\_OBSTRN\_L.shp  
**GP No.:** 2  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ext new foul w/ rks kelp

### Feature Correlation

Address	Feature	Range	Azimuth	Status
1174_OBSTRN_L.shp	2	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 6:foul area  
INFORM - new ext foul w/ rks kelp  
RECDAT - 20050623  
WATLEV - 4:covers and uncovers

### Office Notes

Chart new foul area.

## 2.25) 11744

### Survey Summary

**Survey Position:** 054° 58' 32.743" N, 160° 11' 26.742" W  
**Least Depth:** [None]  
**Timestamp:** 2005-174.09:15:29.000 (06/23/2005)  
**GP Dataset:** 1174\_OBSTRN\_L.shp  
**GP No.:** 3  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new position CFF foul

### Feature Correlation

Address	Feature	Range	Azimuth	Status
1174_OBSTRN_L.shp	3	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 6:foul area  
INFORM - new position CFF obs line  
RECDAT - 20050623  
WATLEV - 4:covers and uncovers

### Office Notes

Chart new foul area.

## Feature Images



*Figure 2.25.1*

## 2.26) 11746

### Survey Summary

**Survey Position:** 054° 58' 05.504" N, 160° 11' 03.482" W  
**Least Depth:** [None]  
**Timestamp:** 2005-174.10:14:35.000 (06/23/2005)  
**GP Dataset:** 1174\_OBSTRN\_L.shp  
**GP No.:** 4  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

ext new foul w/ rks and kelp

### Feature Correlation

Address	Feature	Range	Azimuth	Status
1174_OBSTRN_L.shp	4	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 6:foul area  
INFORM - new obs line  
RECDAT - 20050623  
WATLEV - 4:covers and uncovers

### Office Notes

Chart new foul area.

**2.27) 117414****Survey Summary**

**Survey Position:** 054° 58' 46.892" N, 160° 10' 22.582" W  
**Least Depth:** [None]  
**Timestamp:** 2005-174.11:09:37.000 (06/23/2005)  
**GP Dataset:** 1174\_DEPCNT\_L.shp  
**GP No.:** 1  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

new ext MLLW; John Island connects to Nagaii Island at MLLW

During shoreline verification a narrow isthmus was observed connecting John Island and Nagaii Island at low water. Postions were taken partially along the northern side of the isthmus. DP 117415 relates an observed height for the isthmus.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
1174_DEPCNT_L.shp	1	0.00	000.0	Primary
h11473/trb1_dpne/2005-174/1174_\$csymb_p.shp	2/1	1.66	080.0	Secondary

**Hydrographer Recommendations**

During shoreline verification a narrow isthmus was observed connecting John Island and Nagaii Island at low water. Postions were taken partially along the northern side of the isthmus. DP 117415 relates an observed height for the isthmus.

**S-57 Data**

**Geo object 1:** Depth contour (DEPCNT)  
**Attributes:** INFORM - new ext lw John Island connects to Nagaii Island at lw  
 VALDCO - 0 m

**Office Notes**

Chart new MLLW lines connecting John Island and Nagai Island.



## Feature Images



*Figure 2.27.1*

## 2.28) Chart GP 2

### Survey Summary

**Survey Position:** 054° 55' 56.983" N, 160° 14' 49.770" W  
**Least Depth:** [None]  
**Timestamp:** 2005-318.22:58:17 (11/14/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 2  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

CFF rk ext MHW

The CFF rock is the seaward extent of the MHW line.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	2	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends charting as depicted in H11473\_Modify\_Notebook.hob.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Concur. Chart field modified extents of MHW. Do not chart CFF rock.



## 2.29) Chart GP 3

### Survey Summary

**Survey Position:** 054° 56' 08.800" N, 160° 14' 58.602" W  
**Least Depth:** [None]  
**Timestamp:** 2005-318.22:58:40 (11/14/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 3  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

CFF rk ext MHW.

The CFF rock is the seaward extent of the MHW line.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	3	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends charting as depicted in H11473\_Modify\_Notebook.hob.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Concur. Chart new extents of islet. Do not chart CFF rock.

## 2.30) Chart GP 5

### Survey Summary

**Survey Position:** 054° 56' 47.421" N, 160° 10' 49.392" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:01:01 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 5  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) rk not seen at MLLW

Unable to cover with MBES data. Charted (16540) rock disproved with lidar data.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	5	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using depths from survey H11147.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Do not concur. Retain rock as charted.

## 2.31) Chart GP 6

### Survey Summary

**Survey Position:** 054° 58' 26.926" N, 160° 11' 23.397" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:01:12 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 6  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) rk not seen at MLLW

Charted rock disproved with 100% MBES data coverage.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	6	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using the depths from survey H11473.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Concur. Remove charted rock.

## 2.32) Chart GP 7

### Survey Summary

**Survey Position:** 054° 58' 10.498" N, 160° 11' 13.641" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:01:19 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 7  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) rk not seen at MLLW

Charted rock disproved with 100% MBES data coverage.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	7	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using the depths from survey H11473.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Concur. Remove charted rock.

## 2.33) Chart GP 8

### Survey Summary

**Survey Position:** 054° 58' 18.580" N, 160° 10' 45.292" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:01:24 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 8  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) rk not seen at MLLW

Charted rock disproved with 100% MBES data coverage.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	8	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using the depths from survey H11473.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Concur. Remove charted rock.

## 2.34) Chart GP 9

### Survey Summary

**Survey Position:** 054° 58' 30.425" N, 160° 10' 10.073" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:01:29 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 9  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) rk not seen at MLLW

Unable to cover charted (16540) rock with MBES. Charted rock (16540) is disproved using lidar data.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	9	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using depths from survey H11147.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Do not concur. Retain rock as charted.

## 2.35) Chart GP 10

### Survey Summary

**Survey Position:** 054° 56' 30.501" N, 160° 13' 23.842" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:03:37 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 10  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) islet not seen.

The charted (16540) islet is disproved using 100% MBES data coverage.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	10	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using depths from survey H11473.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Concur. Remove charted islet.

## 2.36) Chart GP 11

### Survey Summary

**Survey Position:** 054° 56' 14.914" N, 160° 14' 12.776" W  
**Least Depth:** [None]  
**Timestamp:** 2005-321.20:03:54 (11/17/2005)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 11  
**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

chd (16540) islet not seen.

The charted (16540) islet is disproved using 100% MBES data coverage.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	11	0.00	000.0	Primary

### Hydrographer Recommendations

The Hydrographer recommends using depths from survey H11473.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

### Office Notes

Do not concur. There is no multibeam coverage over charted islet. Retain islet as charted.



### **3 - AWOIS Features**

### 3.1) AWOIS #53248 - OBSTRUCTION

#### No Primary Survey Feature for this AWOIS Item

**Search Position:** 054° 53' 04.500" N, 160° 14' 59.000" W  
**Historical Depth:** 6.22 m  
**Search Radius:** 100  
**Search Technique:** VS, S2, SWMB  
**Technique Notes:** [None]

#### History Notes:

H1147N/03 -- OPR-P183-KR-03; LIDAR SURVEY, ROCK FOUND WITH A LD OF 3 FATHOMS 4 FEET. CONTRACTOR RECOMMENDED INVESTIGATING THIS ITEM BY BOAT. CHARTED IS A 3 1/2 FATHOMS SOUNDING LABELED RK REP 2003 IN LAT.54-53-04.5, LONG.160-14-59.0 (ENT. 5/11/05, JRS)

#### Survey Summary

**Charts Affected:** 16540\_1, 16011\_1, 16006\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

AWOIS# 53248, 3 fathoms 4 feet rk disproval.

The AWOIS item was disproved using 100% MBES data coverage. Lidar soundings from survey H1147 appear to be data "fliers".

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
H11473_AWOIS	AWOIS # 53248	0.00	000.0	Primary
ChartGPs - H1147N_Lidar_Investigations.xls	9	0.94	349.2	Secondary

#### Hydrographer Recommendations

The Hydrographer recommends using depths from survey H11473 and removing the 3 fathom 4 foot rock.

#### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

## Office Notes

Concur. There is no evidence of the 3.5fm submerged rock in the multibeam coverage. It appears to have been a result of fliers from the LIDAR data. Remove charted submerged rock

## Feature Images

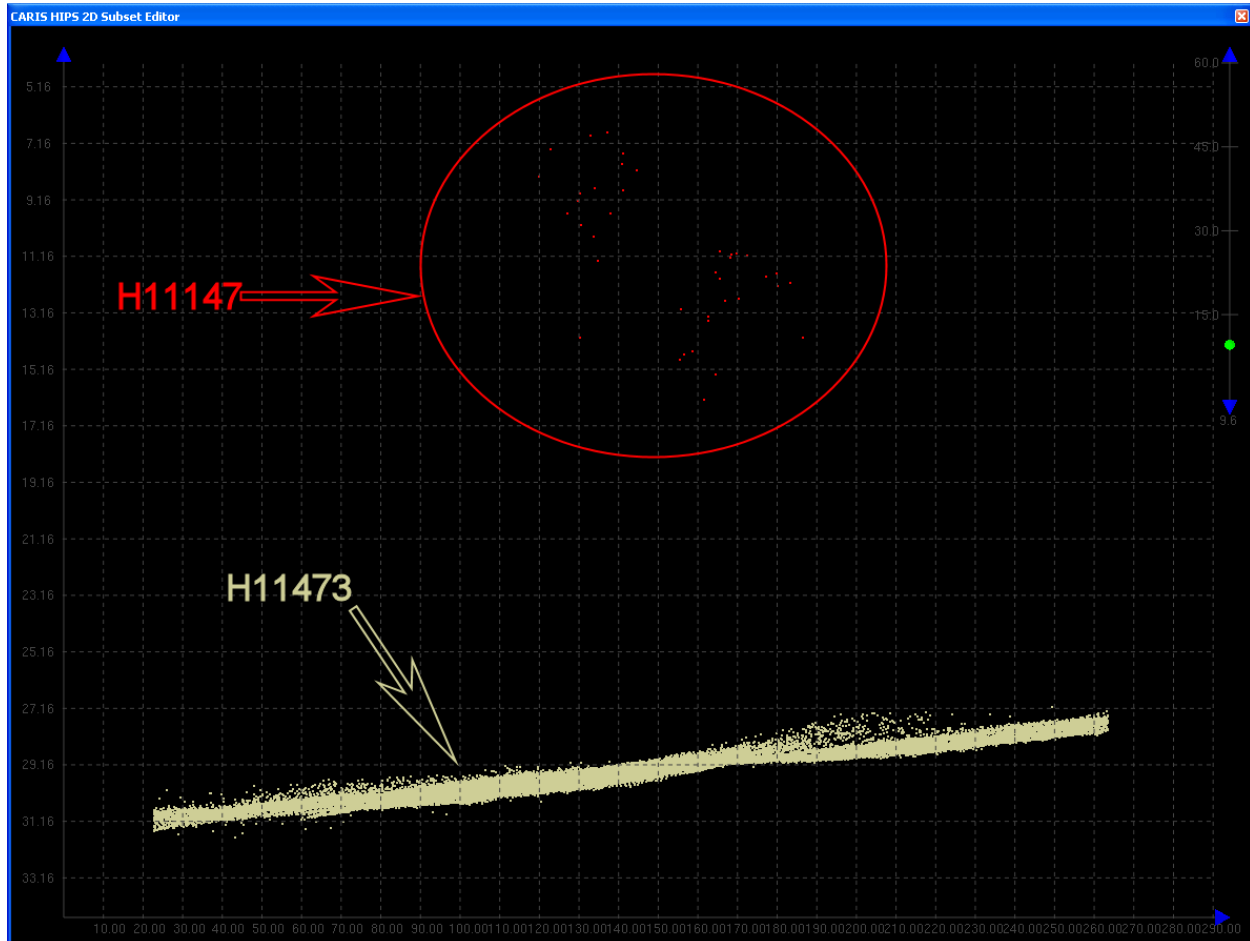


Figure 3.1.1



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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** October 31, 2005

**HYDROGRAPHIC BRANCH:** Pacific  
**HYDROGRAPHIC PROJECT:** OPR-P183-FA-2005  
**HYDROGRAPHIC SHEET:** H11473

**LOCALITY:** Mountain Point to John Island, Shumagin Islands, AK  
**TIME PERIOD:** June 23 - August 13, 2005

**TIDE STATION USED:** 945-9450 Sand Point, AK  
Lat. 55° 20.2' N Long. 160° 30.1' W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.988 meters

**REMARKS: RECOMMENDED ZONING**

Preliminary zoning is accepted as the final zoning for project OPR-P183-FA-2005, H11473, during the time period between June 23 to August 13, 2005.

Please use the zoning file "P183FA2005CORP" submitted with the project instructions for OPR-P183-FA-2005. Zones SWA204 & SWA204A are the applicable zones for H11473.

**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

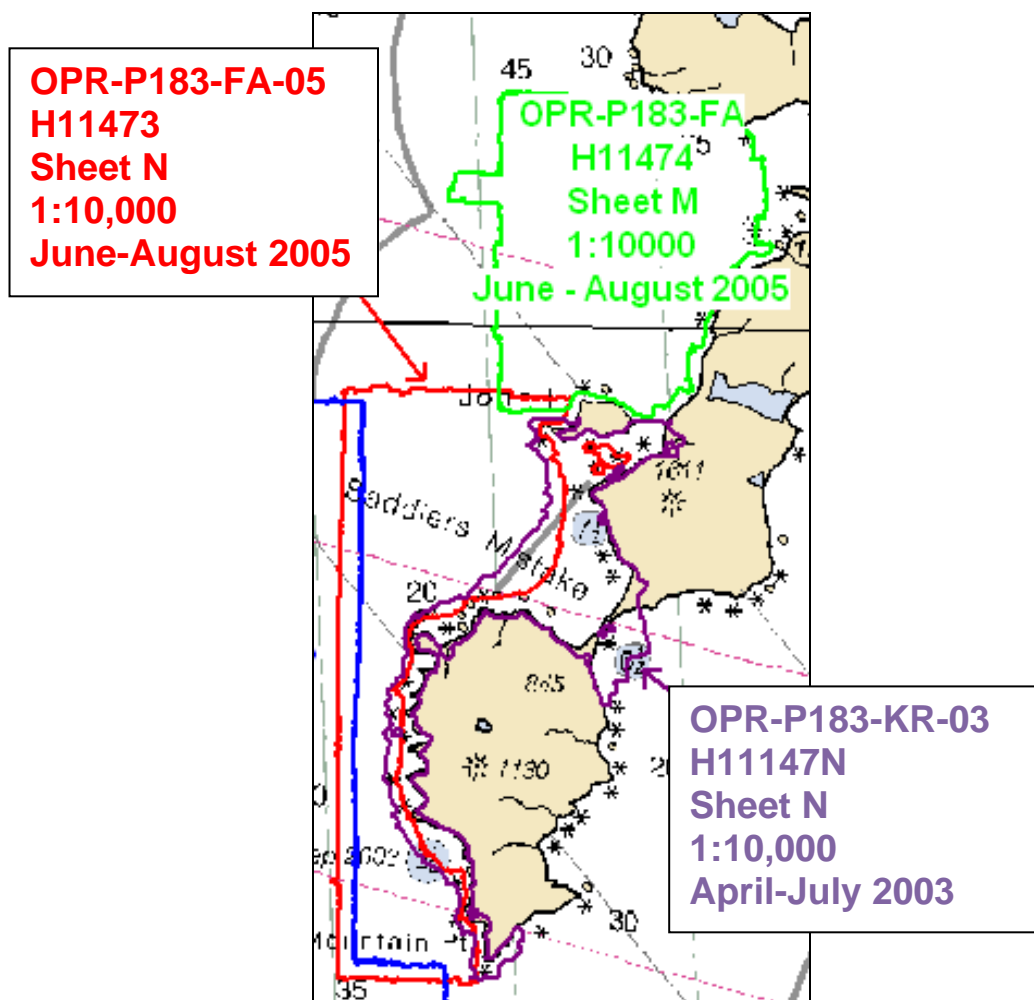


**H11473 HCell Report**  
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**Introduction**

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 H11473 utilized Office of Coast Survey HCell Specifications Version 3.0, May 2008 and HCell User Guide Version 1.1, June 2008. HCell H11473 will be used to update charts 16540, 1:300,000 (12<sup>th</sup> Ed.; January 2005, NM 11/29/2008), 16006, 1:1,534,076 (35<sup>th</sup> Ed.; April 2008, NM 11/29/2008) and US3AK50M.

HCell H11473 contains a portion of LIDAR surveys H11147M and H11147N (figure 1). No soundings were digitized from the LIDAR smooth sheets.



*Figure 1. H11147N and H11473 survey coverage*

## 1. Compilation Scale

The density of soundings in the HCell is compiled as appropriate to emulate those soundings of chart 16540, 1:300,000. Position and density of non-bathymetric features included in the HCell have not been generalized from the scales of the hydrographic surveys H11473, H11147M and H11147N, 1:10,000.

## 2. Soundings

### 2.1 Source Data

A 4-meter resolution Combined BASE surface, **H11473\_Office\_Combined\_4m**, was used as the basis for HCell production following Branch certification.

A survey-scale sounding (SOUNDG) feature object source layer was built from the **H11473\_Office\_Combined\_4m** surface in CARIS BASE Editor. A shoal-biased selection was made at 1:15,000 survey 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 75		4.5

**Table 1**

For the portions of H11147M and H11147N that are included in the survey, Smooth Sheets M and N were 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 H11473 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 16540 than is possible using automated methods. See section 10.1, Data Processing Notes, for details about the use of manual sounding selection for H11473. The sounding feature object source layer was imported into the **H11473\_HCell\_Features.hob** file, which was used as a template to create the S-57 Composer product **H11473\_CS.prd**.

## 3. Depth Areas

### 3.1 Source Data

Using the combined BASE surface **H11473\_Office\_Combined\_4m** and areas delineated as ledges or extents of the mean lower low water line, two depth areas were generated



and separated by a zero meter contour. No other depth contours were delivered per OCS HCell Specifications ver.3.0 and HCell User Guide ver. 1.1.

### **3.2 Depth Area Feature Objects**

Two depth ranges, -2.0 meters to 0 meters and 0 meters to 75 meters, were used for all depth area objects. Upon conversion to NOAA charting units, this depth range is -1.1 fathoms to 0 fathoms and 0 fathoms to 41 fathoms.

### **4. Meta Areas**

The following Meta object areas are included in HCell 11473:

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**

H11473 contains four DTONs reported from LIDAR survey H11147N. The first DTON is an islet located at 54-52-22.3N, 160-14-10.9W and was reported with a height of 1.829 meters (6 feet) above mean high water. The DTON was not applied to charts because there is a charted rock located at 54-52-18.5N, 160-14-12.5W. The charted rock appears to have been generalized offshore due to the scale of the chart. The charted was covered with 100% multibeam and only submerged rocks were found, however, there are rocks that cover and uncover just inshore of the multibeam coverage.

The second DTON is a submerged rock located at 54-53-04.5N, 160-14-59.0W and was reported with a depth of 6.706 meters (3fm 4ft). The DTON was applied to the charts. The rock was disproved with 100% multibeam, and the initial report appears to have been a result of fliers in the LIDAR data. It was determined that the least depth over the sounding is 19.202 meters (10fm 3ft). The new least depth is depicted in HCell H11473.

The third DTON is a 14.326 meter (7fm 5ft) sounding located at 54-57-25.1N, 160-11-30.3W. The DTON was applied to the charts. No additional coverage, verification or disapproval was conducted over the DTON. The sounding should be retained as charted.

The fourth DTON is a 12.192 meter (6fm 4ft) sounding located at 54-55-40.8N, 160-10-30.7W. The DTON was applied to the charts. The position of the DTON is outside the survey limits of H11473. The sounding should be retained as charted.

H11473 contains one AWOIS item. The AWOIS item is a result of the second reported DTON noted above. It was a reported 6.706 meters (3fm 4ft) submerged rock that was applied to the charts. The rock was disproved with 100% multibeam, and the initial report appears to have been a result of fliers in the LIDAR data. It was determined that the least depth over the sounding is 19.428 meters (10fm 4ft). The new least depth is depicted in HCell H11473.

Thirteen bottom samples were collected with H11473 and are included in the HCell.

The source of all features included in the H11473 HCell can be determined by the SORIND or SORDAT field. For the rock/islet determination, the Tide Note value for MHW (-1.988 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 **H11473\_HCell\_Features.hob** file, which was used as a template to create the S-57 Composer product **H11473\_CS.prd**.

## **Shoreline Features**

Shoreline features for H11473 were delivered in eight different files. There is some redundancy of features between the files.

- H11473\_Edited\_CFF\_Shoreline.hob (Features to be retained as depicted in the source shoreline file)
- H11473\_Add\_Notebook.hob (new features processed in Notebook using DPs or VBES)
- H11473\_Modify\_Notebook.hob (features modified in Notebook using DPs or VBES)
- H11473\_Delete\_Notebook.hob (original source or charted features that were modified or disproved and processing in Notebook)
- H11473\_Add\_Pydro.hob (new features or bottom samples processed in Pydro)
- H11473\_Modify\_Pydro.hob (modified features or bottom samples processed in Pydro)
- H11473\_Delete\_Pydro.hob (disprovals processed in Pydro)
- H11473\_None\_Pydro.hob (contains an inconclusive LIDAR feature investigation)

## **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 H-Cell 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	0-meter depth contours defining intertidal areas
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, reefs, ledges and rocky seabed areas
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 **H11473\_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**

H11473 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

- H11473 Base Cell File, Chart Units, Soundings compiled to 1:300,000
- H11473 Base Cell File, Chart Units, Soundings compiled to 1:15,000
- H11473 Descriptive Report including end notes compiled during office processing and certification
- H11473 HCell Supplemental Report
- H11473 Blue Notes ASCII file

### 11.2 File Naming Conventions

S-57 Composer Product prefix: *H11473\_CS.prd and H11473\_SS.prd*

MCD Chart units base cell file: *US311473\_CS.000*

MCD Chart units base cell file, survey scale soundings: *US311473\_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  
H11473

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 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.