

H11497

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.* ..... N/A

*Registry No.* ..... H11497

### LOCALITY

*State* ..... Alaska

*General Locality* ..... Orca Bay

*Sublocality* ..... Approaches to Cordova

**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

REGISTRY No

**HYDROGRAPHIC TITLE SHEET**

**H11497**

**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 Orca Bay

Sub-Locality Approaches to Cordova

Scale 1:10,000 Date of Survey August 18 - September 25, 2005

Instructions dated 7/27/2005 Project No. OPR-P158-FA-05

Vessel Launch 1010, Launch 1018, Skiff 1706, Ambar 2302

Chief of party CAPT John E. Lowell, Jr., NOAA

Surveyed by ENS Gonsalves, CST Morgan, LTjg Higgins

Soundings by echo sounder, hand lead, pole Reson 8101ER

Graphic record scaled by FAIRWEATHER Personnel

Graphic record checked by FAIRWEATHER Personnel Automated Plot N/A

Verification by L. Pagano, P. Holmberg

Soundings in Meters at MLLW

**REMARKS:** All times are UTC. Projection zone 6.

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 H11497

Project OPR-P158-FA  
 Approaches to Cordova, Alaska  
 Scale 1:10,000  
 August - September 2005  
**NOAA Ship FAIRWEATHER**  
 Chief of Party: Captain John E. Lowell, Jr., NOAA

#### A. AREA SURVEYED

The survey area was located in Orca Bay, within the sub-locality of Northern Portion of Orca Inlet to Nelson Bay. This survey corresponds to Sheet B in the sheet layout provided with the Letter Instructions dated 27 July 2005<sup>1</sup>, as shown in Figure 1 below. The survey area is bounded on the Southwest corner at 60°31'00"N, 145°50'00"W and the Northeast corner at 60°39'00"N, 145°38'00"W.

Data acquisition was conducted from August 18 to September 25, 2005 (DN 230 to DN 268).

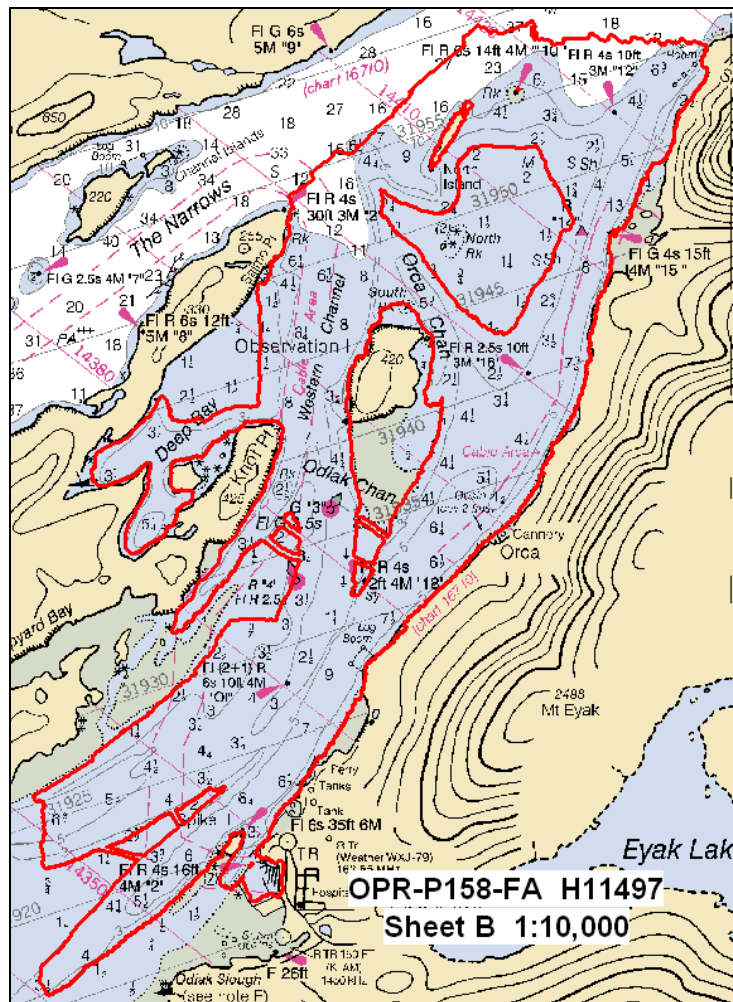


Figure 1: H11497 Survey Outline

One hundred percent multibeam echosounder (MBES) coverage was obtained in the survey area at least to depths of eight meters<sup>2</sup>. When conditions allowed, multibeam echosounder (MBES) data was acquired parallel to contours and at line spacing of no less than 25 meters in depths between four and eight meters. Additional coverage was obtained in order to determine least depths over features or shoals.

Shoreline data were acquired for H11497. These data were attributed as S-57 objects for submittal.

## B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition/processing systems and survey vessels can be found in the *NOAA Ship FAIRWEATHER Hydrographic Systems Certification Report 2005*<sup>3</sup>, submitted under a separate cover. Quality control procedures and data processing methods are listed and described in the *OPR-P158-FA-05 Data Acquisition and Processing Report*<sup>4</sup> (DAPR), 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, Bottom Samples

*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 H11497 were manually examined by the Hydrographer in CARIS subset mode. The internal consistency and integrity of data collected for survey H11497 were found to be very good.

## Crosslines

Shallow water multibeam crosslines for this survey totaled 20.9 linear nautical miles (lnm), comprising 5.4% of the 387.3 lnm of total SWMB hydrography.

The Hydrographer has determined, through manual examination of the data, that the crossline agreement with main scheme data meet the vertical accuracy requirements as stated in the *NOS Hydrographic Surveys Specifications and Deliverables*.

## Junctions

Survey H11497 junctions with H11496, which is Sheet A of the same project. The area of overlap between the sheets was approximately 250 meters wide. Data were reviewed in CARIS Subset Editor and depths were found to be consistent between the two surveys<sup>5</sup>, meeting the requirements as stated in the *NOS Hydrographic Surveys Specifications and Deliverables*. The sheet limits and area of overlap for Sheets A and B are shown in Figure 2.

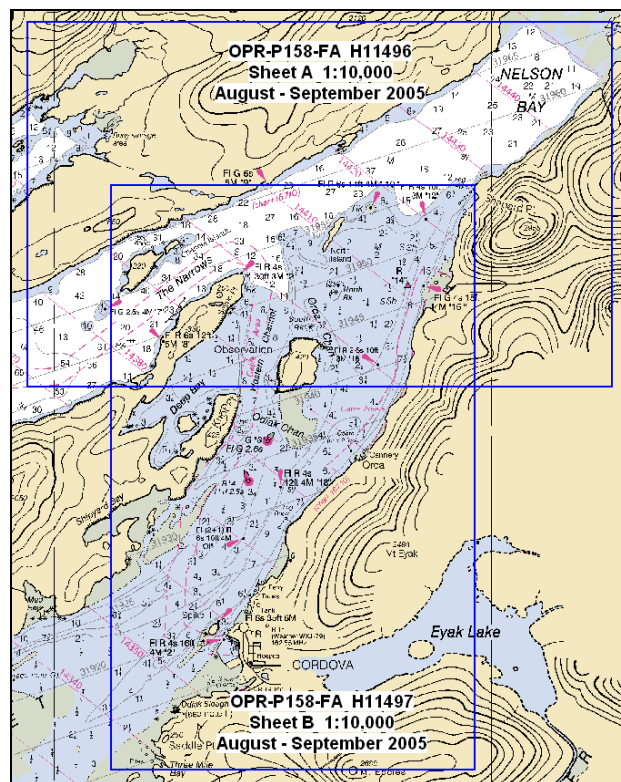


Figure 2: Junction Between H11497 and H11496

## Quality Control Checks

MBES quality control checks were conducted as discussed in the quality control section of the *OPR-P158-FA-05 Data Acquisition and Processing Report*.

## Data Quality Factors

### COVERAGE ASSESSMENT:

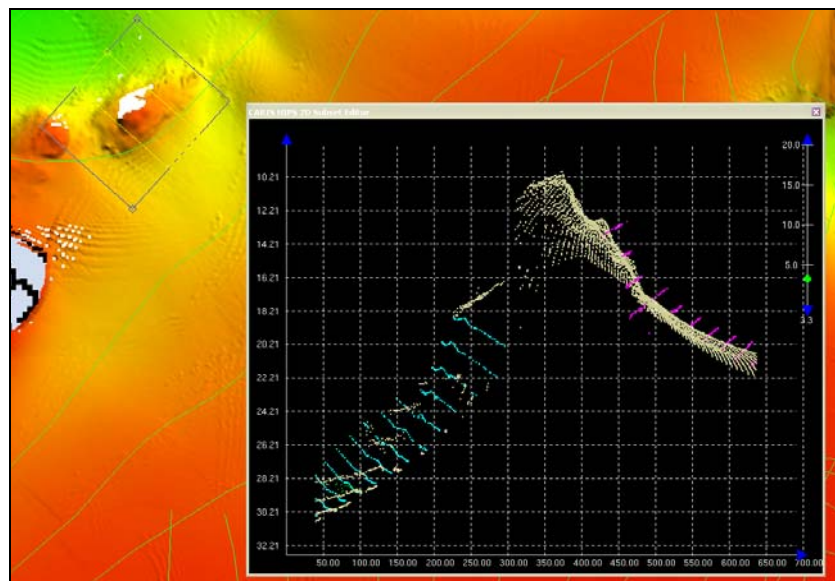
Coverage assessment was determined using the following base surface resolutions listed below in Table 2.

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

**Table 2: Depth Ranges and Resolutions**

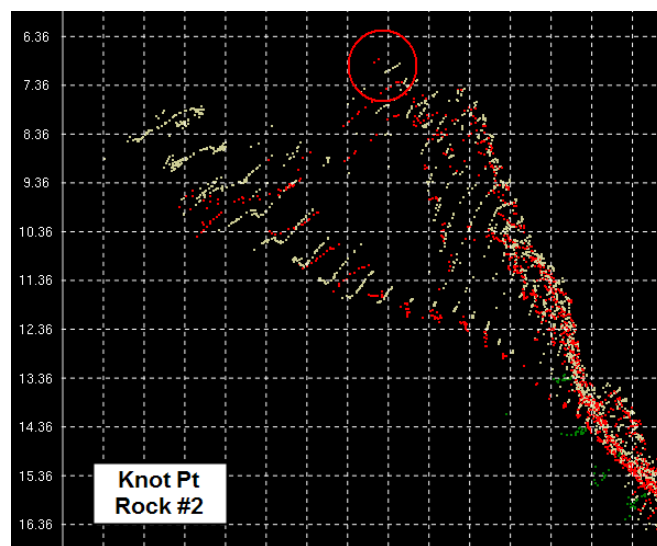
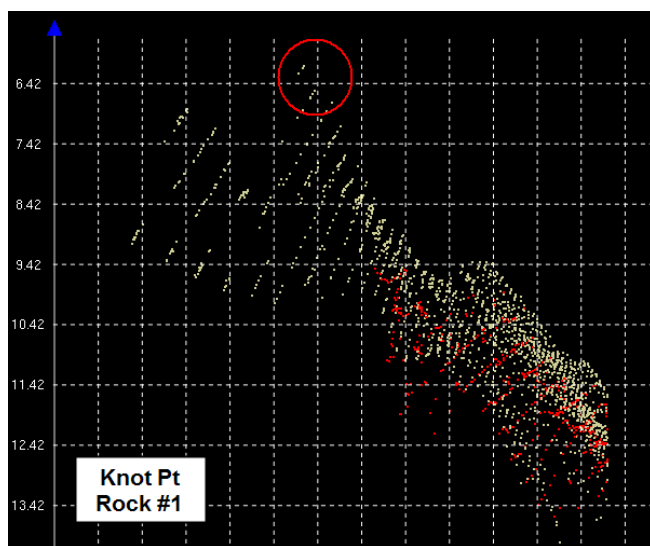
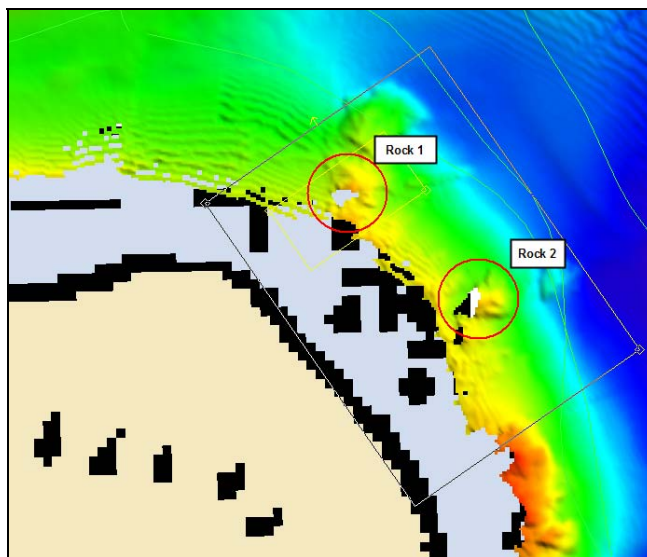
There were several small gaps in the 0.8m surfaces resulting from a combination of wide line spacing and shallow depths. Each 0.8m surface was interpolated using a 5x5 matrix with 12 nearest neighbors to determine whether the gaps were larger than 3 nodes and therefore holidays. Instances where the holidays were larger than 3 nodes are discussed below. In all cases, the areas' backscatter imagery were examined with CARIS Side Scan Editor to identify any objects that may have escaped representation in the BASE surface.

Off the shore of North I, at position 60°37'38.04N, 145°43'14.03W, there is a 10 x 20m holiday in the shadow zone of a submerged rock. The holiday was examined in CARIS Subset editor (see Figure 3), and the Hydrographer is confident a least depth of 10.0m from the feature was obtained<sup>6</sup>.



**Figure 3: Shadow zone and least depth of a submerged rock NE of North Island**

There are three charted rocks offshore of Knot Point, two of which did not get 100% MBES coverage (see Figure 4). For the northern rock, Rock 1, ( $60^{\circ}35'35.8''\text{N}$ ,  $145^{\circ}45'46.8''\text{W}$ ) a depth of 6.2m was measured, though this is not necessarily the least depth of the rock. Shallow conditions and the proximity to shore prevented the survey launches from obtaining additional coverage. Unlike Rock 1, Rock 2 ( $60^{\circ}35'34.6''\text{N}$ ,  $145^{\circ}45'44.1''\text{W}$ ) had a successful measured least depth of 6.7m.<sup>7</sup>



**Figure 4: Two holidays offshore of Knot Pt – one with and one without a measured least depth.**

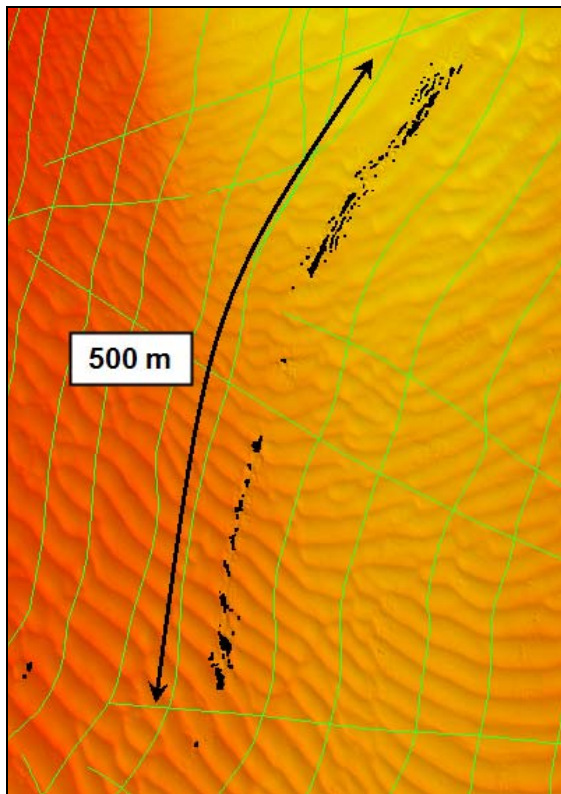
There are several small holidays located within the mudflats of survey H11497:

- $60^{\circ}35'45.1''\text{N}$ ,  $145^{\circ}42'59.5''\text{W}$ , 25m by 20m holiday at a depth of 6.4m
- $60^{\circ}35'03.2''\text{N}$ ,  $145^{\circ}42'56.8''\text{W}$ , 25m by 15m holiday at a depth of 9.2m
- $60^{\circ}36'33.1''\text{N}$ ,  $145^{\circ}44'31.1''\text{W}$ , 25m by 15m holiday at a depth of 9.0m
- $60^{\circ}32'52.3''\text{N}$ ,  $145^{\circ}46'39.0''\text{W}$ , 30m by 8m holiday at a depth of 12.0m
- $60^{\circ}34'53.5''\text{N}$ ,  $145^{\circ}45'09.9''\text{W}$ , 25m by 15m holiday at a depth of 9.0m

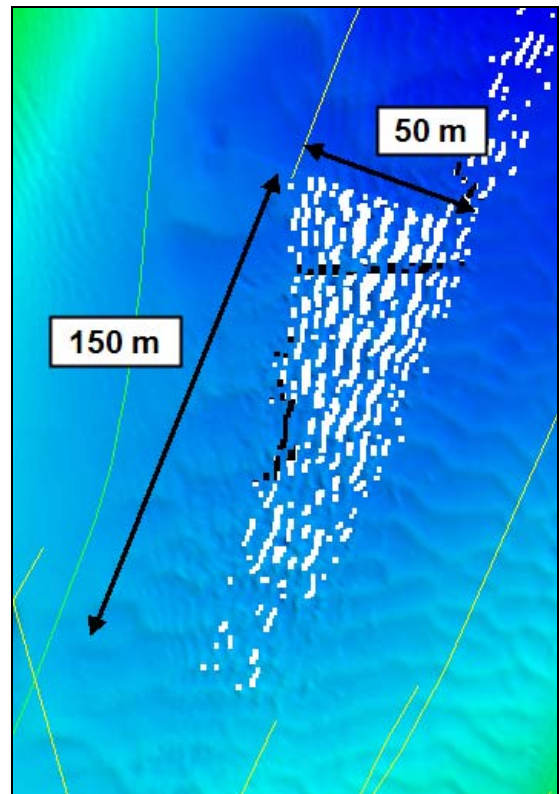
- 60°34'14.8"N, 145°45'04.0"W, 50m by 15m holiday at a depth of 5.4m

In all instances, the backscatter imagery was examined with CARIS Side Scan Editor revealing no contacts. Additionally, the surrounding area was flat and displayed no trend towards shoaling.<sup>8</sup>

There is a gap in the data collected by Launch 1010 on September 12, 2005 and September 13, 2005 (DN 255 – 256), resulting in a seam of thin coverage in the area of overlap. As shown in Figure 5, the affected area is approximately 500 meters long, with an average width of 3 to 5 meters. A similar holiday developed at position 60°33'58.8"N, 145°45'04.3"W, where the overlap between the two launches was insufficient (see Figure 6). The backscatter imagery of the two affected areas were examined and no contacts were noted.<sup>9</sup>



**Figure 5: Holiday resulting from poor line spacing between days (0.8m resolution surface shown)**



**Figure 6: Holiday resulting from poor line spacing between launches (0.8m resolution surface shown)**

#### TRANSDUCER FIRING ERROR:

On September 20, 2005 (DN 263) the 8101 on Launch 1018 experienced a strange data transmission error. The MBES would work well for 30 seconds, cease transmitting for approximately one second, then resume operation. These intermittent transmission losses resulted in data gaps with an average size of 2m by 25m in the 0.8m resolution surface shown in Figure 7. Other than the small gaps, the MBES data quality does not appear to be affected.<sup>10</sup>



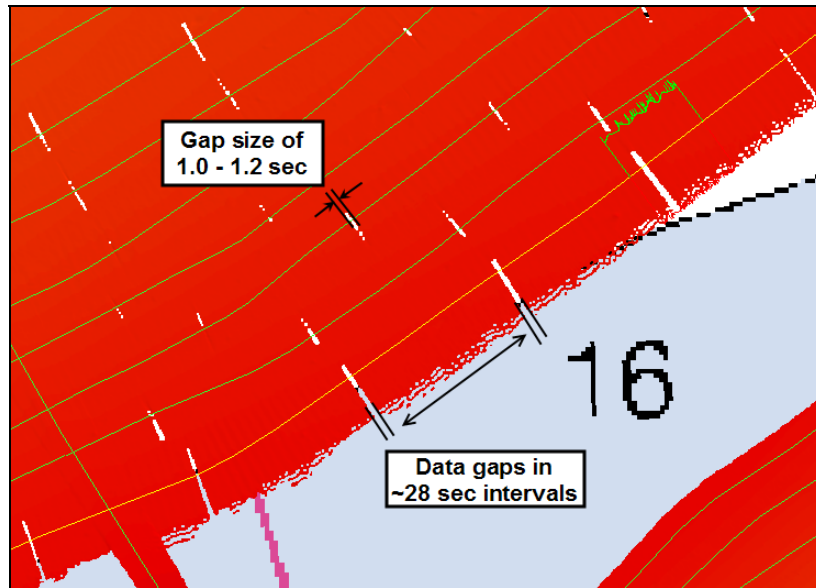


Figure 7: Data gaps resulting from transmission breaks in the MBES (0.8m resolution surface shown)

#### DESIGNATED SOUNDINGS:

In areas of navigational significance where the BASE surface did not depict the desired depth for the given area, a designated sounding was selected. Designated soundings were selected based on the difference between the BASE surface and reliable shoaler sounding(s) being more than half to two-thirds of the allowable IHO error budget in depths less than 20m.<sup>11</sup>

#### Accuracy Standards

All data meet the data accuracy specifications as stated in the *NOS Hydrographic Surveys Specifications and Deliverables*, dated March 2003.

#### B3. Corrections to Echo Soundings

Data reduction procedures for survey H11497 conform to those detailed in the *OPR-P158-FA-05 Data Acquisition and Processing Report*.

#### C. HORIZONTAL AND VERTICAL CONTROL

A complete description of horizontal and vertical control for survey H11497 can be found in the *OPR-P158-FA-05 Horizontal and Vertical Control Report*<sup>12</sup>, submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

##### Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections were obtained from the U.S. Coast Guard beacons at Potato Point (298 kHz) and Hinchinbrook (292 kHz).

## **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 Cordova, AK (945-4050) served as control for datum determination and as the primary source for water level reducers for survey H11497.

A request for delivery of approved water level data (smooth tides) for survey H11497 was forwarded to N/OPS1 on September 30, 2005 in accordance with the *Preliminary Field Procedures Manual v1.1*, dated March 2005 (FPM). A copy of the request is included in Appendix III.

FAIRWEATHER received the Tide Note for Hydrographic Survey H11497 on November 3, 2005. The Tide Note for Hydrographic Survey H11497 states that preliminary zoning is accepted as the final zoning correctors. Verified water level data were received by the FAIRWEATHER on November 10, 2005 for NWLON primary tide station at Cordova, AK (945-4050). The Tide Note for Hydrographic Survey H11497<sup>13</sup> and ancillary correspondence are included in Appendix IV.

As per the letter instructions, all data were reduced to MLLW using the verified water level data (smooth tides) from station Cordova, AK by applying tide file 9454050.tid and time and height correctors through the zone corrector file P158FA2005CORP.zdf. It will not be necessary for the Pacific Hydrographic Branch to reapply the verified water level data (smooth tides) to the survey data during final processing.

## **D. RESULTS AND RECOMMENDATIONS**

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

The two 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. All affected charts were opened in Pydro and the Hydrographer manually compared the charted soundings to the shoal biased, excessed soundings in the Pydro Chart window.

Survey H11497 was compared with charts 16700 (29<sup>th</sup> Ed.; July, 2004, 1:200,000), 16709 (23<sup>rd</sup> Ed.; April, 2005, 1:80,000) and 16710 (16<sup>th</sup> Ed.; December, 1997, 1:30,000). All charts have been updated with the Notice to Mariners and Local Notice to Mariners through March 4, 2006.

There were 10 soundings in Deep Bay that were marked as Designated and examined further as potential DTONS. After close examination these soundings were declared not to present a navigational risk; however, their status was left as Designated to force the BASE surface to these reliable shoaler soundings.

### **Chart 16700**

Depths from survey H11497 generally agreed within one to two fathoms with depths on chart 16700. Some of the shoaler depths represented on the chart near the shoreline appears to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.<sup>14</sup>

## **Chart 16709**

Depths from survey H11497 generally agreed within one to two fathoms with depths on chart 16709. Some of the shoaler depths represented on the chart near the shoreline appears to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.<sup>15</sup>

## **Chart 16710<sup>16</sup>**

Depths from survey H11497 generally agreed within two to three feet with depths on chart 16710 with the exception of Western Channel. Western Channel, particularly south of Buoy “3”, has several shifting shoals resulting in discrepancies of  $\pm 10$  feet from Salmo Pt to Light “OI”. Western Channel is further discussed in Section D.2 under Aids to Navigation.<sup>17</sup>

## **Chart Comparison Recommendations**

The Hydrographer has determined that bottom coverage requirements have been met and data accuracy meets requirements specified by the *NOS Hydrographic Surveys Specifications and Deliverables* dated March 2003. The BASE surfaces with the application of designated soundings and associated soundings are adequate to supersede prior surveys in their common areas.<sup>18</sup> Based on the application of verified water level data (smooth tides) by FAIRWEATHER, final chart comparisons are not required by the Pacific Hydrographic Branch.<sup>19</sup>

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

There was one AWOIS item located within the limits of H11497<sup>20</sup>. It is addressed in the H11497\_Features\_Report.pdf<sup>21</sup> in Appendix I.

## **Dangers to Navigation**

Two dangers to navigation (DTONs) were found and reported to the Mapping and Charting Division for final submission to the Seventeenth Coast Guard District. The first DTON was a mischarted light and was submitted on October 31, 2005. The second DTON was a new wreck and was submitted on February 24, 2006. A copy of both Danger to Navigation Reports are included with the PSS.<sup>22</sup>

## **D.2 Additional Results**

### **Shoreline Source**

Source shoreline for this sheet was taken from photogrammetric survey AK0402 (NAD 83) GC-10570, at the scale of 1:30,000. The CFF shoreline was imported into CARIS Notebook 2.2 as an editable layer named H11497\_Edited\_CFF\_Shoreline.hob, with all objects having S57 attribution. In addition, features from the current editions of charts 16709 and 16710 that were not depicted by the source shoreline data were digitized with S57 attribution in CARIS Notebook into H11497\_Chd\_Shoreline.hob file, to be displayed for field verification.

CEF Investigations were inserted into Pydro as Chart GPs for management and exported to CARIS Notebook 2.2 for field verification. The CEF features were used as reference only and were removed from Pydro after 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>23</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. These were named H11497\_Add\_Pydro.hob, H11497\_Modify\_Pydro.hob, H11497\_Delete\_Pydro.hob and H11497\_None\_Pydro.hob.<sup>24</sup>

One rock in survey H11497 had a DP acquired solely to record its height. After smooth tides was applied to the DP, the tide-corrected height was manually entered into the rock's VALSOU field in CARIS Notebook.<sup>25</sup>

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

Items for survey H11497 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 H11497\_Features\_Report.pdf in Appendix I.

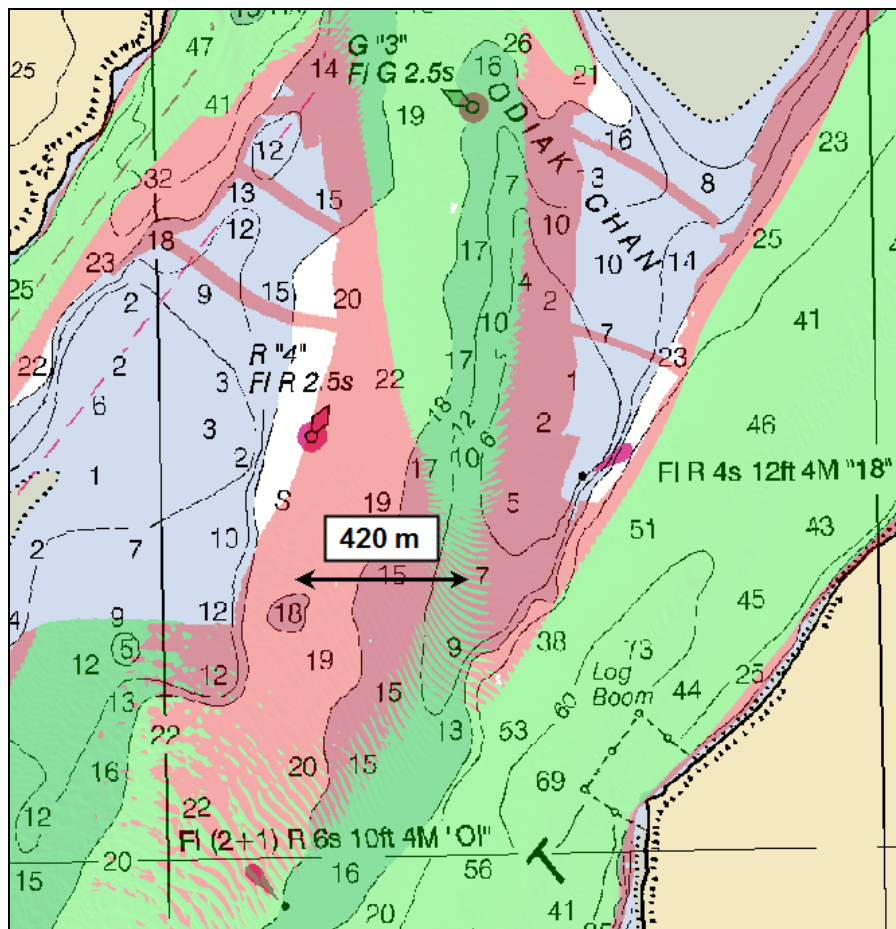
Three additional .hob layers, named H11497\_Add\_Notebook.hob, H11497\_Modify\_Notebook.hob and H11497\_Delete\_Notebook.hob, were created in CARIS Notebook for features without associated DPs. New items were digitized to the Add layer, while existing features from the CFF and chart were transferred 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 files were left in the appropriate source layer as H11497\_Edited\_CFF\_Shoreline.hob file or H11497\_Chd\_Shoreline. Field notes made by the Hydrographer on the boat sheets and DP forms were transferred to the remarks field for each feature.

## 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>26</sup>

## Aids to Navigation

Survey H11497 included twelve (12) aids to navigation (ATONs). Detached positions were taken on each ATON for check purposes only. The northern portion of Orca Inlet is a dynamic environment with shifting shoals. As such, Western Channel, south of Buoy “3”, has migrated to the east. Figure 8 shows a comparison of Chart 16710’s depiction of the 18-foot contour with the new location of the channel, where the center of the channel has moved over 400 meters to the east.



**Figure 8: The migration of the southern portion of Western Channel and its associated ATONs (depths shoaler than 18 feet depicted in red)**

With the movement of Western Channel, Buoy “3”, Buoy “4” and Light “OI” no longer serve their intended purpose. Buoy “3” is presently positioned in the deepest part of the channel and should be moved to the East. Buoy “4” has been overtaken by the shoal and is presently situated in 10 feet of water, making it a poor marker for the western boundary of Western Channel. Finally, Light “OI” is meant to mark the split between Western Channel and Eastern Channel. The southern entrance to Western

Channel has shifted from the western to the eastern side of Light “OI”, making the light obsolete at its present position.<sup>27</sup>

Light “18” was mischarted and is discussed further in Section D.1 under Dangers to Navigation. The remaining ATONs were found to serve their intended purpose.

### **Bottom Samples**

Bottom samples were collected on August 27-28, 2005 (DN 239-240) and are included as seabed classifications along with the other S57 features in the Pydro Preliminary Smooth Sheet. The bottom sample positions were also imported to the Notebook H11497\_Add\_Pydro.hob file.<sup>28</sup>

### **Miscellaneous**

During shoreline investigations, eel grass was noted in Deep Bay, N of Observation Island and the western shore of Orca Inlet. The approximate positions were marked in the H11497\_Add\_Notebook.hob layer in CARIS Notebook.<sup>29</sup>

### **Additional Recommendations**

The channels of Orca Inlet represent a dynamic environment with shifting shoals. Over time, the region is likely to exhibit variable bottom depths; as such, this area should be surveyed on a more frequent basis.<sup>30</sup>

### **E. Supplemental Reports**

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

<b><u>Title</u></b>	<b><u>Date Sent</u></b>	<b><u>Office</u></b>
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 & Vertical Control Report	November 15, 2005	N/CS34, N/OPS1



**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

March 22, 2006

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

FROM: *Andrew L. Beaman*  
for CAPT John E. Lowell, Jr, NOAA  
Commanding Officer

TITLE: Approval of Hydrographic Survey H11497,  
OPR-P158-FA-05

As Chief of Party, I have ensured that standard field surveying and processing procedures were adhered to during acquisition and processing of hydrographic survey H11497 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:

ENS Michael Gonsalves  
Survey Manager

CST Grant Froelich  
Chief Survey Technician

Attachment



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<sup>1</sup> Filed with project records.

<sup>2</sup> Concur.

<sup>3</sup> Filed with project records.

<sup>4</sup> Filed with project records.

<sup>5</sup> Concur.

<sup>6</sup> Chart rock at 60-37-38.04, 145-43-14.03.

<sup>7</sup> The three charted rocks disproved:

60-35-36.0, 145-45-48.6

60-35-35.0, 145-45-45.8

60-35-34.3, 145-45-44.3

Chart islets at:

60-35-35.5, 145-45-48.8

60-35-34.3, 145-45-45.1

<sup>8</sup> Small holidays, no evidence of shoaling, excluded from HCell.

<sup>9</sup> Small holidays, no evidence of shoaling, excluded from HCell.

<sup>10</sup> Small holidays, no evidence of shoaling, excluded from HCell.

<sup>11</sup> Some designated soundings were selected for charting. All designated soundings are included in the survey scale sounding set in US511497\_SS.000.

<sup>12</sup> Filed with project records.

<sup>13</sup> Tide note is appended to this report.

<sup>14</sup> Concur.

<sup>15</sup> Concur.

<sup>16</sup> The charted "*Obstn (cov 11ft)*" reported by NOAA ship DAVIDSON in 1983 with arrow pointing to 60-34-52.38N, 145-43-06.18W was not addressed by H11497. However, 100% SWMB data over the area showed no evidence of an obstruction. A blue note has been added to remove the charted obstruction.

<sup>17</sup> Concur.

<sup>18</sup> The note on the raster chart for Cordova Harbor should be updated as follows.

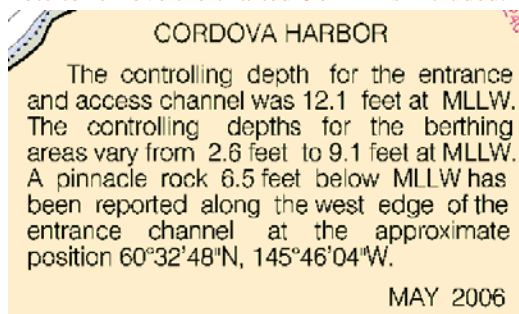
## CORDOVA HARBOR

The controlling depth for the entrance and access channel was 14.4 feet at MLLW.

The controlling depths for the berthing areas vary from 6.7 feet to 14.5 feet at MLLW.

SEPTEMBER 2005

Note: The date May 2006 on the raster chart does not reflect the date of the information contained in the description for Cordova Harbor. The pinnacle rock 6.5 feet below MLLW at 60-32-48N, 145-46-04W was added to the chart from LNM no. 27 of 1985. The blueprint from ACOE engineers survey no. 2320-06 conducted May 11-16, 2006 agrees well with the data collected from H11497. Neither the ACOE blue print or the 100% SWMB from H11497 show evidence of the rock. A blue note to remove the charted 6 ½ Rk is included.





- 
- <sup>19</sup> Do not concur. Chart comparisons were performed at the Pacific Hydrographic Branch.
- <sup>20</sup> AWOIS report appended to this report.
- <sup>21</sup> Features report is filed with project records. NOTE: features report does not contain all features in survey H11497.
- <sup>22</sup> An additional sixteen (16) DTONs were selected during office processing. All eighteen (18) DTONs are included in report appended to this report.
- <sup>23</sup> Filed with hydrographic records specific to this survey.
- <sup>24</sup> All features from these files were addressed in the HCell.
- <sup>25</sup> The rock charted as *South Rock* at 60-36-19.25N, 145-44-08.44W has a charted height above water and position that match those delivered from the field. No action was taken. A blue note "retain rock" is included with the blue notes.
- <sup>26</sup> Concur with the exception of MHW and MLLW lines outside or not adjacent to SWMB coverage. FAIRWEATHER did not possess the proper equipment to adequately survey those linear features.
- <sup>27</sup> Concur with clarification. Soundings selected for charting in H11497 reflect the migrated channel. Buoys 3 and 4 no longer mark the channel. Use the latest ATONIS information for charting buoys.
- <sup>28</sup> All bottom samples from H11497 are included in the HCell. Charted bottom samples were retained within the survey.
- <sup>29</sup> Positions of eel grass are included in the HCell.
- <sup>30</sup> Concur.

# H11497 DTONs Report

**Registry Number:** H11497  
**State:** Alaska  
**Locality:** Orca Bay  
**Sub-locality:** Northern Portion of Orca Inlet to Nelson Bay  
**Project Number:** OPR-P158-FA  
**Survey Dates:** 18 August 2005 - 29 September 2005

## Charts Affected

Number	Version	Date	Scale
16710	16th Ed.	12/13/1997	1:30000
16709	22nd Ed.	01/19/2002	1:80000
16700	29th Ed.	07/01/2004	1:200000
16013	29th Ed.	11/01/2003	1:969761
531	22nd Ed.	03/01/2004	1:2100000
500	8th Ed.	06/01/2003	1:3500000
50	6th Ed.	06/01/2003	1:10000000

## Features

Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
125832	GP	[None]	60° 34' 31.993" N	145° 44' 41.442" W
399/24	Wreck	4.96 m	60° 32' 58.112" N	145° 46' 29.279" W
4968/1	Sounding	3.57 m	60° 34' 29.890" N	145° 45' 22.691" W
9035/41	Sounding	4.56 m	60° 34' 08.262" N	145° 45' 38.890" W
6856/100	Sounding	3.39 m	60° 34' 20.351" N	145° 45' 37.516" W
7889/28	Sounding	4.19 m	60° 34' 14.429" N	145° 45' 39.546" W
7284/82	Sounding	2.84 m	60° 34' 39.795" N	145° 45' 25.302" W
961/21	Sounding	2.59 m	60° 34' 55.978" N	145° 45' 41.468" W
1679/4	Sounding	2.01 m	60° 34' 53.621" N	145° 45' 34.283" W
8224/7	Sounding	2.86 m	60° 34' 28.191" N	145° 45' 35.905" W
6424/30	Sounding	1.74 m	60° 34' 47.014" N	145° 45' 29.197" W
376/1	Sounding	2.84 m	60° 35' 00.818" N	145° 45' 35.538" W

547/95	Sounding	5.16 m	60° 34' 04.041" N	145° 45' 56.328" W
953/9	Sounding	4.78 m	60° 34' 10.297" N	145° 45' 57.266" W
6/4	Sounding	2.93 m	60° 34' 49.730" N	145° 46' 09.670" W
3388/4	Sounding	6.16 m	60° 35' 01.797" N	145° 45' 50.259" W
3802/5	Sounding	2.17 m	60° 34' 55.726" N	145° 45' 56.097" W
5404/101	Sounding	1.86 m	60° 34' 41.502" N	145° 46' 19.866" W

**1 - DR\_DToN**

**1.1) 125832****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 31.993" N, 145° 44' 41.442" W  
**Least Depth:** [None]  
**Timestamp:** 2005-258.23:32:13.000 (09/15/2005)  
**GP Dataset:** TR12582\_BCNLAT\_P.shp  
**GP No.:** 1  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

CFF BCNLAT VRD - LL# 25595 "ORCA INLET LIGHT 18"

The CFF position has been verified but is 120 meters off from the charted (16710) and Light List stated position.

**Hydrographer Recommendations**

The Hydrographer recommends using the CFF position.

**S-57 Data**

**Geo object 1:** Beacon, lateral (BCNLAT)  
**Attributes:** BCNSHP - 1:stake, pole, perch, post  
 CATLAM - 2:starboard-hand lateral mark  
 COLOUR - 7:grey  
 CONRAD - 1:radar conspicuous  
 HEIGHT - -6.0 m  
 INFORM - CFF BCNLAT VRD  
 RECDAT - 20050915  
 STATUS - 1:permanent  
 VERDAT - 12:Mean lower low water

**Geo object 2:** Daymark (DAYMAR)  
**Attributes:** COLOUR - 3:red  
 COLPAT - 6:border stripes  
 HEIGHT - -6.0 m

INFORM - CFF BCNLAT VRD  
STATUS - 1:permanent  
TOPSHP - 24:triangle, point up  
VERDAT - 12:Mean lower low water

**Geo object 3:** Light (LIGHTS)

**Attributes:** COLOUR - 3:red  
HEIGHT - -6 m  
INFORM - CFF BCNLAT VRD  
STATUS - 1:permanent  
VERDAT - 12:Mean lower low water

### Office Notes

ATON position should be corrected. Did not compile, federally maintained ATONs are not included in HCells.

## 1.2) 399/24

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 60° 32' 58.112" N, 145° 46' 29.279" W  
**Least Depth:** 4.96 m  
**Timestamp:** 2005-262.21:10:52.492 (09/19/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-262 / 262-2109  
**Profile/Beam:** 399/24  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

NEW WRECK

New wreck found using MBES (least depth of 4.9 meters).

#### Hydrographer Recommendations

The Hydrographer recommends adding a wreck symbol to Charts 16710 and 16709.

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

16ft (16710\_1)

2 ¾fm (16709\_1, 16700\_1, 16013\_1)

2fm 4ft (531\_1)

4.9m (500\_1, 50\_1)

#### S-57 Data

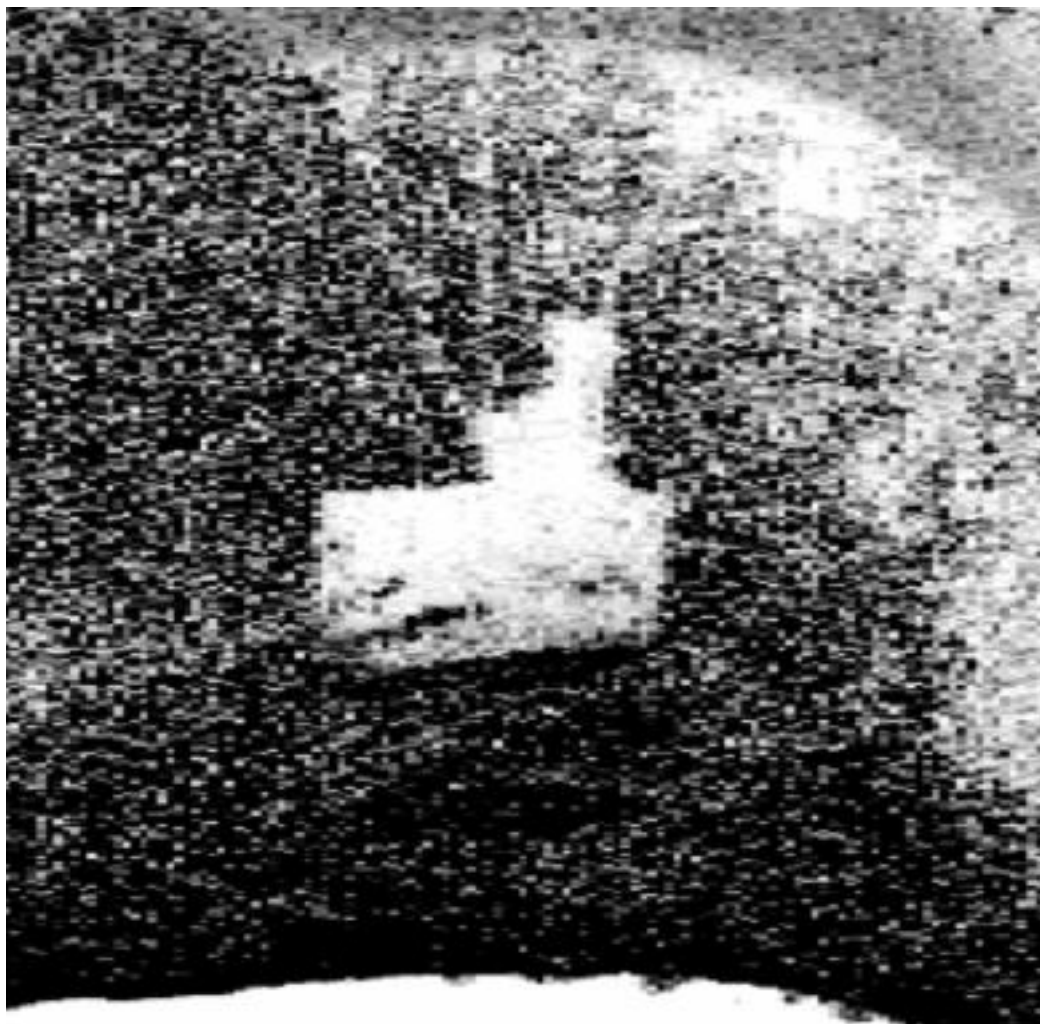
**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 2:dangerous wreck  
TECSOU - 3:found by multi-beam  
VALSOU - 4.962 m  
VERDAT - 12:Mean lower low water  
WATLEV - 3:always under water/submerged

## Office Notes

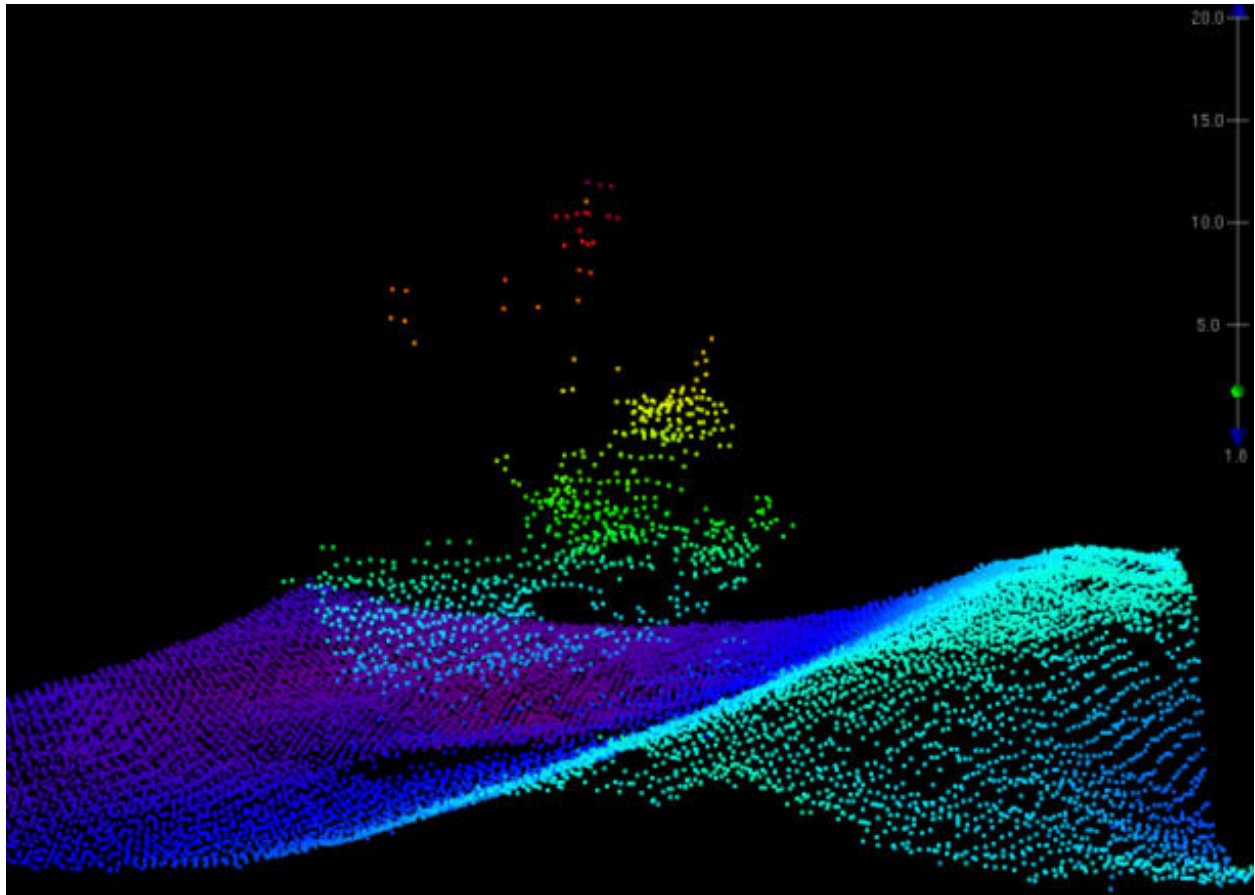
Compile charted wreck.



## Feature Images



*Figure 1.2.1*



*Figure 1.2.2*

### 1.3) 4968/1

## DANGER TO NAVIGATION

### Survey Summary

**Survey Position:** 60° 34' 29.890" N, 145° 45' 22.691" W  
**Least Depth:** 3.57 m  
**Timestamp:** 2005-255.23:02:03.548 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2257  
**Profile/Beam:** 4968/1  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

11.7 ft sounding on charted (16710) 19 ft sounding

### Hydrographer Recommendations

Hydrographer recommends removing 19 ft sounding and replacing it with charted 11.7 ft sounding.

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

11ft (16710\_1)

2fm (16709\_1, 16700\_1, 16013\_1)

1fm 5ft (531\_1)

3.5m (500\_1, 50\_1)

### S-57 Data

[None]

### Office Notes

Chart sounding.

## 1.4) 9035/41

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 60° 34' 08.262" N, 145° 45' 38.890" W  
**Least Depth:** 4.56 m  
**Timestamp:** 2005-255.23:05:26.894 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2257  
**Profile/Beam:** 9035/41  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

15 ft sounding on charted (16710) 20 ft sounding

#### Hydrographer Recommendations

Hydrographer recommends removing charted 20 ft sounding and replacing with 15 ft sounding.

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

15ft (16710\_1)  
2 ½fm (16709\_1, 16700\_1, 16013\_1)  
2fm 3ft (531\_1)  
4.5m (500\_1, 50\_1)

#### S-57 Data

[None]

#### Office Notes

Chart sounding.

## 1.5) 6856/100

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 60° 34' 20.351" N, 145° 45' 37.516" W  
**Least Depth:** 3.39 m  
**Timestamp:** 2005-255.23:22:23.918 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2316  
**Profile/Beam:** 6856/100  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

11.1 ft sounding on charted (16710) 18 ft sounding

#### Hydrographer Recommendations

Hydrographer recommends removing charted 18 ft sounding and replacing it with 11.1 ft sounding.

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

11ft (16710\_1)  
1 ¾fm (16709\_1, 16700\_1, 16013\_1)  
1fm 5ft (531\_1)  
3.4m (500\_1, 50\_1)

#### S-57 Data

[None]

#### Office Notes

Chart sounding.

## 1.6) 7889/28

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 60° 34' 14.429" N, 145° 45' 39.546" W  
**Least Depth:** 4.19 m  
**Timestamp:** 2005-255.23:23:15.569 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2316  
**Profile/Beam:** 7889/28  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

13.7 ft sounding in middle of charted (16710) channel

#### Hydrographer Recommendations

Hydrographer recommends charting 13.7 ft sounding.

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

13ft (16710\_1)

2 ¼fm (16709\_1, 16700\_1, 16013\_1)

2fm 1ft (531\_1)

4.2m (500\_1, 50\_1)

#### S-57 Data

[None]

#### Office Notes

Chart sounding.

**1.7) 7284/82****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 39.795" N, 145° 45' 25.302" W  
**Least Depth:** 2.84 m  
**Timestamp:** 2005-255.23:31:46.866 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2325  
**Profile/Beam:** 7284/82  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

9.3 ft sounding near charted (16710) 22 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing 22 ft sounding and charting 9.3 ft sounding.

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

9ft (16710\_1)  
1 ½fm (16709\_1, 16700\_1, 16013\_1)  
1fm 3ft (531\_1)  
2.8m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

## 1.8) 961/21

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 60° 34' 55.978" N, 145° 45' 41.468" W  
**Least Depth:** 2.59 m  
**Timestamp:** 2005-255.23:37:14.416 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2336  
**Profile/Beam:** 961/21  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

8.5 ft sounding near charted (16710) 13 ft sounding

#### Hydrographer Recommendations

Hydrographer recommends removing charted 13 ft sounding and replacing it with 8.5 ft sounding.

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

8ft (16710\_1)  
1 ¼fm (16709\_1, 16700\_1, 16013\_1)  
1fm 2ft (531\_1)  
2.6m (500\_1, 50\_1)

#### S-57 Data

[None]

#### Office Notes

Chart sounding.



## 1.9) 1679/4

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 60° 34' 53.621" N, 145° 45' 34.283" W  
**Least Depth:** 2.01 m  
**Timestamp:** 2005-255.23:37:50.317 (09/12/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-255 / 255-2336  
**Profile/Beam:** 1679/4  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

6.6 ft sounding near charted (16710) 15 ft sounding

#### Hydrographer Recommendations

Hydrographer recommends removing charted 15 ft sounding and replacing it with 6.6 ft sounding.

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

6ft (16710\_1)

1fm (16709\_1, 16700\_1, 16013\_1)

1fm 0ft (531\_1)

2.0m (500\_1, 50\_1)

#### S-57 Data

[None]

#### Office Notes

Chart sounding.

**1.10) 8224/7****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 28.191" N, 145° 45' 35.905" W  
**Least Depth:** 2.86 m  
**Timestamp:** 2005-256.19:54:33.896 (09/13/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-256 / 256-1947  
**Profile/Beam:** 8224/7  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

9.4 ft sounding in middle of charted (16710) channel

**Hydrographer Recommendations**

Hydrographer recommends charting 9.4 ft sounding.

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

9ft (16710\_1)

1 ½fm (16709\_1, 16700\_1, 16013\_1)

1fm 3ft (531\_1)

2.8m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

**1.11) 6424/30****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 47.014" N, 145° 45' 29.197" W  
**Least Depth:** 1.74 m  
**Timestamp:** 2005-256.20:04:06.895 (09/13/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-256 / 256-1958  
**Profile/Beam:** 6424/30  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

5.7 ft sounding on a charted (16710) 20 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing 20 ft sounding and replacing it with 5.7 ft sounding.

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

5ft (16710\_1)

1fm (16709\_1, 16700\_1, 16013\_1)

0fm 5ft (531\_1)

1.7m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

**1.12) 376/1****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 35' 00.818" N, 145° 45' 35.538" W  
**Least Depth:** 2.84 m  
**Timestamp:** 2005-256.20:43:24.516 (09/13/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-256 / 256-2042  
**Profile/Beam:** 376/1  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

9.3 ft sounding near charted (16710) 12 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing charted 12 ft sounding and replacing it with 9.3 ft sounding.

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

9ft (16710\_1)  
1 ½fm (16709\_1, 16700\_1, 16013\_1)  
1fm 3ft (531\_1)  
2.8m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

**Do not chart sounding. Shoaler soundings in the vicinity at chart scale.**

**1.13) 547/95****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 04.041" N, 145° 45' 56.328" W  
**Least Depth:** 5.16 m  
**Timestamp:** 2005-264.21:08:54.923 (09/21/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-264 / 264-2107-1  
**Profile/Beam:** 547/95  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

16.9 ft sounding on charted (16710) 22 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing 22 ft sounding and replacing it with surveyed 16.9 ft sounding.

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

17ft (16710\_1)  
2 ¾fm (16709\_1, 16700\_1, 16013\_1)  
2fm 5ft (531\_1)  
5.1m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

**1.14) 953/9****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 10.297" N, 145° 45' 57.266" W  
**Least Depth:** 4.78 m  
**Timestamp:** 2005-264.21:30:51.122 (09/21/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-264 / 264-2129  
**Profile/Beam:** 953/9  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

15.7 ft sounding on charted (16710) 22 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing charted 22 ft sounding and replacing it with 15.7 ft sounding.

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

15ft (16710\_1)  
2 ½fm (16709\_1, 16700\_1, 16013\_1)  
2fm 3ft (531\_1)  
4.8m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

**1.15) 6/4****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 49.730" N, 145° 46' 09.670" W  
**Least Depth:** 2.93 m  
**Timestamp:** 2005-256.22:16:51.511 (09/13/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-256 / 256-2216-1  
**Profile/Beam:** 6/4  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

9.6 ft sounding on charted (16710) 23 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing charted 23 ft sounding and replacing it with 9.6 ft sounding.

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

9ft (16710\_1)

1 ½fm (16709\_1, 16700\_1, 16013\_1)

1fm 3ft (531\_1)

2.9m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

**1.16) 3388/4****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 35' 01.797" N, 145° 45' 50.259" W  
**Least Depth:** 6.16 m  
**Timestamp:** 2005-256.22:53:22.048 (09/13/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-256 / 256-2250  
**Profile/Beam:** 3388/4  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

20.2 ft sounding on charted (16710) 41 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing 41 ft sounding and replacing it with 20.2 ft sounding.

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

20ft (16710\_1)  
3 ¼fm (16709\_1, 16700\_1, 16013\_1)  
3fm 2ft (531\_1)  
6.1m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

**Do not chart sounding. Shoaler soundings in the vicinity at chart scale.**



**1.17) 3802/5****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 55.726" N, 145° 45' 56.097" W  
**Least Depth:** 2.17 m  
**Timestamp:** 2005-256.23:01:34.092 (09/13/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-256 / 256-2256  
**Profile/Beam:** 3802/5  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

7.1 ft sounding near charted (16710) 32 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing charted 32 ft sounding and replacing it with 7.1 ft sounding.

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

7ft (16710\_1)

1fm (16709\_1, 16700\_1, 16013\_1)

1fm 1ft (531\_1)

2.1m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

Chart sounding.

**1.18) 5404/101****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 60° 34' 41.502" N, 145° 46' 19.866" W  
**Least Depth:** 1.86 m  
**Timestamp:** 2005-268.21:53:27.401 (09/25/2005)  
**Survey Line:** h11497 / 1010\_8101 / 2005-268 / 268-2148  
**Profile/Beam:** 5404/101  
**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

**Remarks:**

6.1 ft sounding on charted (16710) 22 ft sounding

**Hydrographer Recommendations**

Hydrographer recommends removing charted 22 ft sounding and replacing it with 6.1 ft sounding.

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

6ft (16710\_1)

1fm (16709\_1, 16700\_1, 16013\_1)

1fm 0ft (531\_1)

1.8m (500\_1, 50\_1)

**S-57 Data**

[None]

**Office Notes**

**Do not chart sounding. Shoaler soundings in the vicinity at chart scale.**

# H11497 AWOIS Report

**Registry Number:** H11497  
**State:** Alaska  
**Locality:** Orca Bay  
**Sub-locality:** Northern Portion of Orca Inlet to Nelson Bay  
**Project Number:** OPR-P158-FA  
**Survey Dates:** 18 August 2005 - 29 September 2005

## Charts Affected

Number	Version	Date	Scale
16710	16th Ed.	12/13/1997	1:30000
16709	22nd Ed.	01/19/2002	1:80000
16700	29th Ed.	07/01/2004	1:200000
16013	29th Ed.	11/01/2003	1:969761
531	22nd Ed.	03/01/2004	1:2100000
500	8th Ed.	06/01/2003	1:3500000
50	6th Ed.	06/01/2003	1:10000000

## Features

Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]

**1 - AWOIS**

## 1.1) AWOIS #53250 - OBSTRUCTION

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 60° 34' 07.000" N, 145° 44' 41.000" W  
**Historical Depth:** [None]  
**Search Radius:** 200  
**Search Technique:** VS, S2, MB, ES  
**Technique Notes:** SEARCH IS ONLY REQUIRED WITHIN THE NAVIGABLE WATERS OF SEARCH RADIUS

#### History Notes:

DURING FIELD VERIFICATION, THERE WAS NO SIGHTINGS OF A LOG BOOM. THERE WERE NO BUOYS IN THE AREA AND THERE WERE NO TRACES REVEALED WITH 100% SWMB COVERAGE. L1165/92---CONSTRUCTION OF A "LOG BOOM" WAS REPORTED. THE CENTER OF THE LOG BOOM WAS SCALED OFF CHART 16710 IN POSITION LAT. 60/34/7N LONG 145/44/41W (NAD83) AND THE MOST OFFSHORE BUOYS REPORTED IN THE FOLLOWING POSITIONS; BUOY, FL 4 SEC PRIV MAINTD (PA) LAT. 60/34/09N LONG. 145/44/45.5W BUOY, FL 4 SEC PRIV MAINTD (PA) LAT. 60/34/07N LONG. 145/44/50W BUOY, FL 4 SEC PRIV MAINTD (PA) LAT. 60/34/04.5N LONG. 145/44/52.5W (NAD83). (ENTERED 5/05 BY JCA)

### Survey Summary

**Charts Affected:** 16710\_1, 16709\_1, 16700\_1, 16013\_1, 531\_1, 500\_1, 50\_1

#### Remarks:

CHD (16710) LOG BOOM DISPROVAL

The charted (16710) log boom was not seen with 100% MBES coverage.

### Hydrographer Recommendations

The Hydrographer recommends removing the log boom symbol from charts 16710 and 16709.

### S-57 Data

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

### Office Notes

Remove charted log boom.



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-P158-FA-2005  
HYDROGRAPHIC SHEET: H11497

LOCALITY: Northern Portion of Orca Inlet to Nelson Bay, Orca Bay, AK  
TIME PERIOD: August 18 - September 25, 2005

TIDE STATION USED: 945-4050 Cordova, AK  
Lat. 60° 33.5' N Long. 145° 45.2' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.559 meters

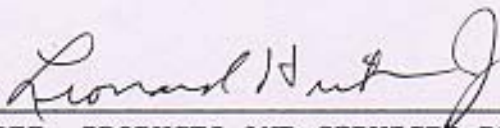
REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-P158-FA-2005, H11497, during the time period between August 18 to September 25, 2005.

Please use the zoning file "P158FA2005CORP" submitted with the project instructions for OPR-P158-FA-2005. Zones PWS58, PWS58A & PWS59 are the applicable zones for H11497.

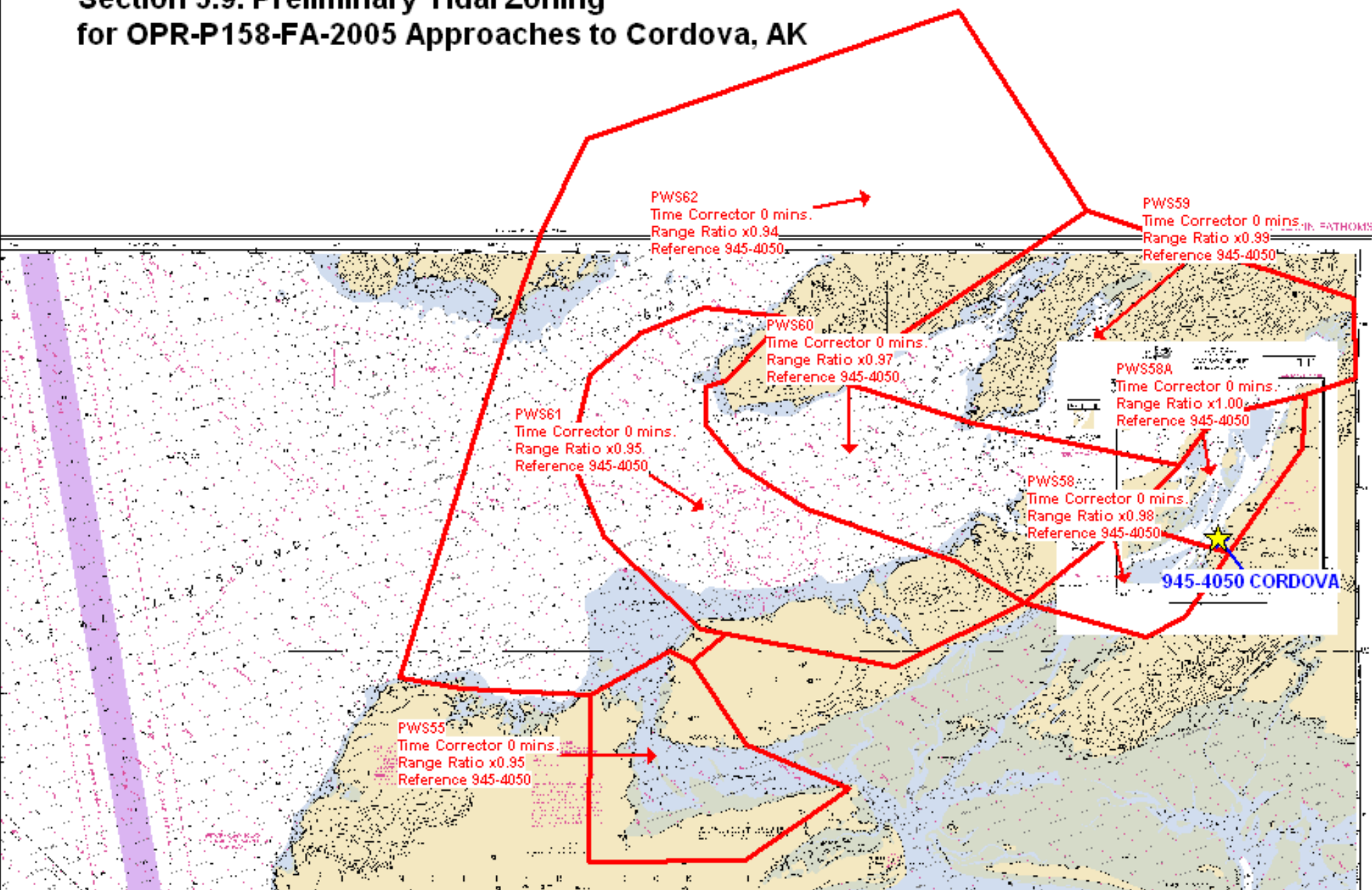
Refer to attachments for zoning information.

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).

  
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CHIEF, PRODUCTS AND SERVICES DIVISION



# Section 5.9. Preliminary Tidal Zoning for OPR-P158-FA-2005 Approaches to Cordova, AK



**H11497 HCell Report**  
Peter Holmberg, 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 H11497 utilized Office of Coast Survey HCell Specifications Version 2.0, April 2, 2007. HCell H11497 will be used to update charts 16700,1:200,000 (30th Ed.; December 07, NM 1/19/2008), 16709, 1:80,000 (23rd Ed.; April 05, NM 1/19/2008), 16710, 1:30,000 (17<sup>th</sup> Ed.; Jun 07, NM 1/19/2008), and US5AK2CM.

**1. Compilation Scale**

The density of soundings in the HCell are compiled as appropriate to emulate those soundings of Chart 16710, 1:30,000. Position and density of non-bathymetric features included in the HCell have not been generalized from the scale of the hydrographic survey H11497, 1:10,000.

**2. Soundings**

**2.1 Source Data**

A 5 meter resolution Combined BASE surface, **H11497\_Final\_5m\_Combine** was used as the basis for HCell production following Branch certification.

A survey-scale sounding (SOUNDG) feature object source layer was built from the **H11497\_Final\_5m\_Combine** surface in CARIS BASE Editor. A shoal-biased selection was made at 1:10,000 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	50	4.5
50	70	5

**Table 1**



## **2.2 Sounding Feature Objects**

In CARIS BASE Editor soundings were manually selected from the high density sounding layer from H11497, 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 16710 than is possible using automated methods. See section 10.1, Data Processing Notes, for details about the use of manual sounding selection for H11497. The sounding feature object source layer was exported as **H11497\_CS**, and imported into HOM.

## **3. Depth Areas**

### **3.1 Source Data**

Using the BASE surface **H11497\_Final\_5m\_Combine** and areas delineated as foul or obstruction areas, several depth areas zero contours were generated. No other depth contours were delivered per OCS HCell Specifications ver.2.0.

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

One all-encompassing depth range, 0 meters to 70 meters, was used for all depth area objects below MLLW. Upon conversion to NOAA charting units, this depth range is 0 feet to 229.7 feet.

Several separate depth areas were created to encapsulate surveyed features outside of the main survey area from the Base surface. DRVALs 1 and 2 for these areas were derived from the ENC US5AK2CM.

## **4. Meta Areas**

The following Meta object areas are included in HCell 11497:

M\_QUAL            M\_NSYS  
M\_COVR

Meta area objects were constructed on the basis of perimeter lines delineating the surveyed limits, “islands of coverage” for point and features surveyed outside the hydrographic 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. 2.0.

## **5. Survey Features**

All features from H11497 in .HOB format have been fully reviewed and addressed. Features were included, excluded, modified, or blue noted in the HCell. Shoreline features for H11497 were delivered in seven different files. Despite the descriptive titles of each file the action taken during compilation did not always match the hydrographers recommendations based on which file each feature was delivered in.

## **6. Shoreline / Tide Delineation**

Depth areas (DEPARE) and Seabed areas (SBDARE) or Land areas (LNDARE) 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. 2.0.

## **8. Layout**

### **8.1 CARIS HOM Layering Scheme**

100	Chart scale soundings
101	Survey scale soundings
200	Group 1 objects (Skin of the Earth)
300	Point objects
400	Line objects
500	Area objects
600-603	Meta layers
800	Items used for creation of Blue Notes

### **8.2 Blue Notes**

Notes regarding data sources are in CARIS HOM as layer 800 a Shapefile set, **H11497bluenotes**.

## **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 HOM, 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 feet displays all soundings as whole units.

In an ENC viewer feet display in whole feet. Soundings round to the deeper foot if the decimals of the foot are .75000 or greater.

### HOM 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):	Feet
Height Units (HUNI):	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 HOM 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

H11497 was subjected to QA and Validation checks in HOM 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 5.0 (Service Pack 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

- H11497 Base Cell File, Chart Units, Soundings compiled to 1:30,000
- H11497 Base Cell File, Chart Units, Soundings compiled to 1:10,000
- H11497 Descriptive Report including end notes compiled during office processing and certification
- H11497 HCell Supplemental Report
- Blue Notes shape files
- BAG (Bathymetry Attributes Grid)
- 000 Features File

### 11.2 File Naming Conventions

HOM file set prefix: *H11497\_hc*

MCD Chart units base cell file: *US511497\_CU.000*

MCD Chart units base cell file, survey scale soundings: *US511497\_SS.000*

BAG (for Bathy Warehouse): *H11497\_5m.bag*

Features File (for CGTP): *H11497\_Features.000*

### 11.3 Software

HIPS 6.1:	Management and inspection of Combined BASE surfaces
BASE Editor 2.0:	Combination of Product Surfaces and initial creation of the S-57 bathymetry-derived features
BASE Editor 2.1:	Creation of BAG deliverable
CARIS Notebook 2.2:	Management and inspection of shoreline files
HOM 3.3:	Assembly of the H-Cell, S-57 products, QA
GIS 4.4a:	Setting the sounding rounding variable
Pydro v7.3 (r2252)	Creation of AWOIS and DTON reports
dKart Inspector 5.0:	Validation of the base cell file

## **12. Contacts**

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

Peter Holmberg, Physical Scientist, PHB, Seattle, WA; 206-526-6843;  
Peter.Holmberg@noaa.gov.

APPROVAL SHEET  
H11497

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.