

H-11464

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.* ..... OPR-P182-KR

*Registry No.* ..... H-11464

### LOCALITY

*State* ..... ALASKA

*General Locality* ..... Southwest Alaska Peninsula

*Sublocality* ..... Approaches to Seal Bay

2005

CHIEF OF PARTY  
DEAN MOYLES

### LIBRARY & ARCHIVES

DATE .....

**HYDROGRAPHIC TITLE SHEET**

**H-11464**

INSTRUCTIONS - The hydrographic sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD NO.

State Alaska

General Locality Southwest Alaska Peninsula

Sublocality Approaches to Seal Bay

Scale 1:10,000

Date of Survey 7/8/05-8/18/05

Instructions Dated March, 2005

Project No. OPR-P182-KR-05

Vessel RV Ocean Guardian

Chief of Party Dean Moyles

Surveyed by Moyles, Orthman, Reynolds, Gill, Mount, Stock,  
Busey, Briggs, et al

Soundings taken by echo sounder, hand lead, pole Reson 8111 (Hull mounted)

Graphic record scaled by Fugro Pelagos Inc. Personnel

Graphic record checked by Fugro Pelagos Inc. Personnel

Evaluation by B Taylor

Automated plot by HP Design Jet 500

Verification by G Nelson

Soundings in Fathoms and tenths

at

MLLW

REMARKS: Time in UTC.

**Revisions and annotations appearing as endnotes were generated during office**

**processing. All separates are filed with the project data. As a result, page -**

**numbering may be interrupted or non-sequential.**

**Fugro Pelagos Inc.**

**LCMF**

**McLane Consulting Inc.**

**3738 Ruffin Road**

**139 E. 51st Ave**

**P.O. Box 468**

**San Diego, CA 92123**

**Anchorage, AK 99503**

**Soldatna, AK 99669**

**A - Area Surveyed**

H11464 (Sheet AL) is bound by the coordinates listed below, which encompass the Approaches to Seal Bay.

Hydrographic data collection began on July 8, 2005 and ended on August 18, 2005.

**Table 1 - H11464 Sheet Limits**

<b>Sheet Limits<sup>1</sup></b>		
Task Order # 1		
H11464		
Sheet AL		
Scale 1:20,000		
Point #	Positions on NAD83	
	Degrees Latitude (N)	Degrees Longitude (W)
1	56°00'33.29" N	158°27'43.97" W
2	55°52'22.50" N	158°27'43.97" W
3	55°52'22.50" N	158°01'52.56" W
4	56°00'33.29" N	158°01'52.56" W

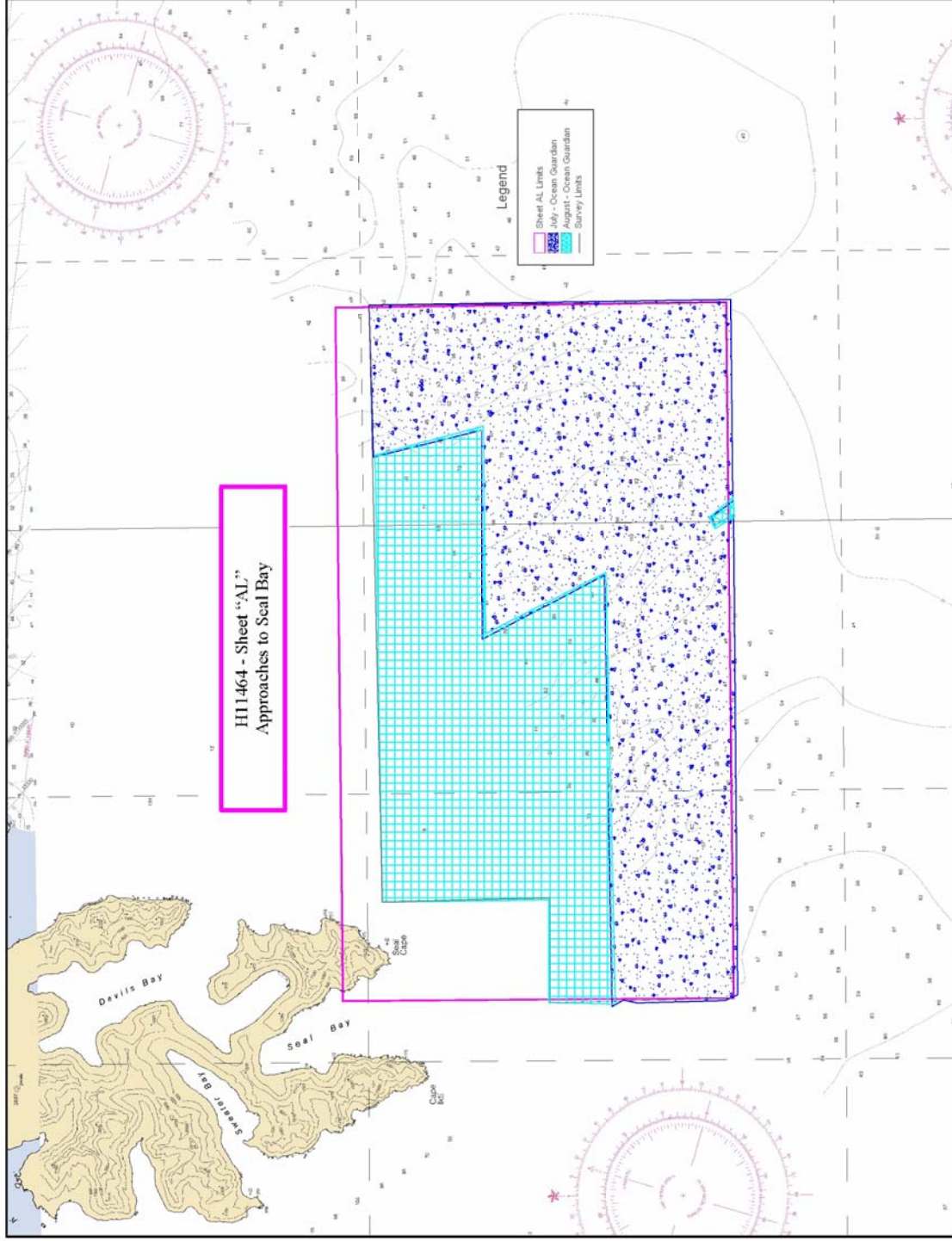


Figure 1 H11464 Area Surveyed

---

## B – Data Acquisition & Processing

Refer to the OPR-P182-KR-05 Data Acquisition and Processing Report<sup>2</sup> for a detailed description of all equipment, survey vessels, processing procedures and quality control features. Items specific to this survey and any deviations from the Data Acquisition and Processing Report are discussed in the following sections.

### Equipment & Vessels

The R/V Ocean Guardian, 177 feet in length, with a draft of 13 feet, was equipped with a Reson 8111 with option 033 (pseudo SideScan) for multibeam data acquisition and two AML sound velocity and pressure sensors for sound velocity profiles. Vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessel (POS/MV) with XTF files logged in Triton ISIS V 6.9.

Refer to OPR-P182-KR-05 Data Acquisition & Processing Report for a complete listing of equipment and vessel descriptions.

### Quality Control

#### Crosslines

Quality control tielines were planned to total at least five percent of the main scheme line length. Total crossline length surveyed was 94.2 km (50.9 nautical miles) or 5.3 percent of the total main scheme kilometers. Conducted tielines were well distributed throughout the sheet to insure adequate crossline quality control. A total of 44 tie line crossings were examined using the CARIS HIPS QC report routine, all passing within the 95 percent confidence level.

Note: The QC reports were generated based on the given accuracy specification of:

$$\pm \sqrt{[a^2 + (b * d)^2]}$$

where, a = 0.5, b = 0.013 and d = depth.

However, since a variance of a difference, rather than a variance from a mean is being used, the a and b values defined in the makehist.cla file within CARIS will use:

$$a = 0.5 * \sqrt{2} = 0.707$$

$$b = 0.013 * \sqrt{2} = 0.018$$

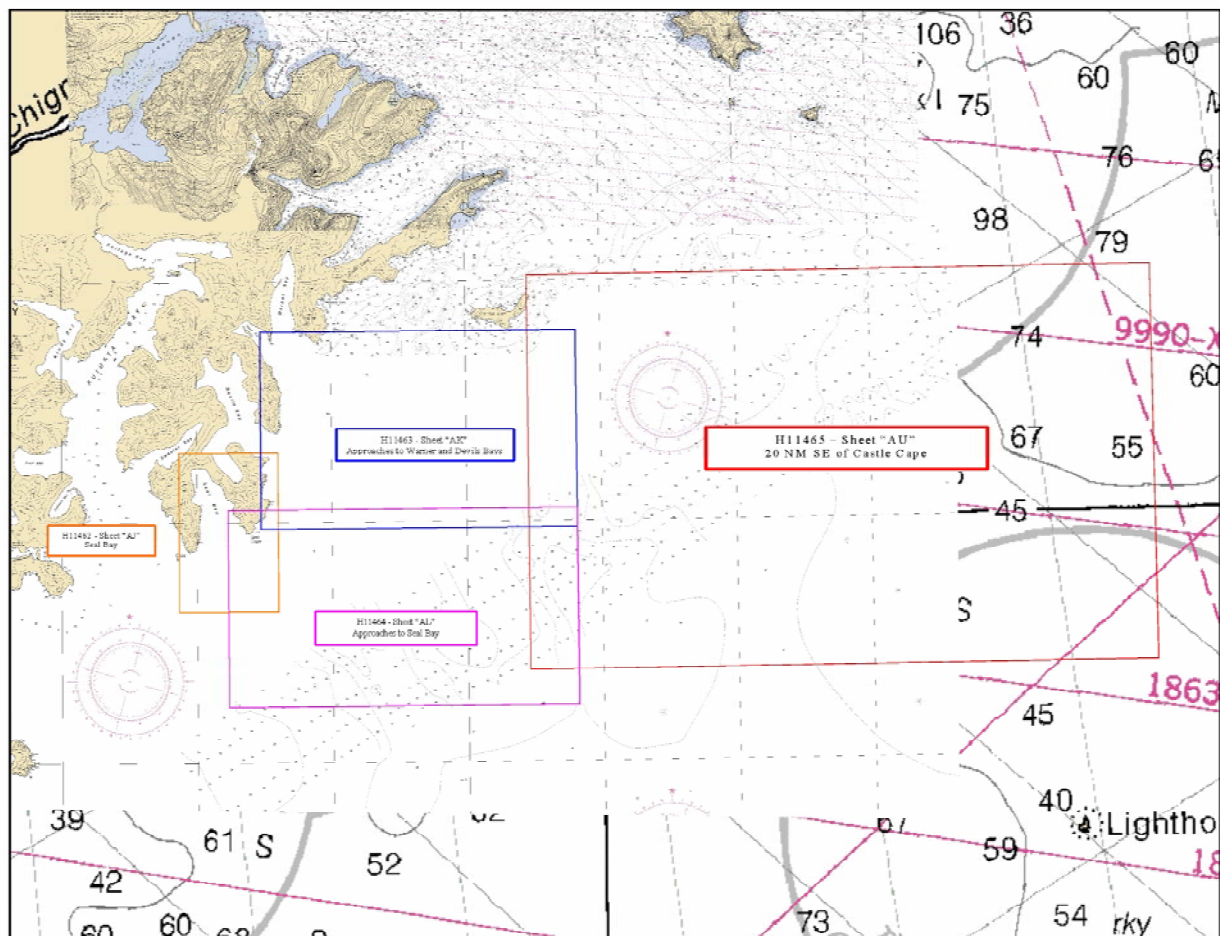
## Data Quality

In general, the multibeam data quality for H11464 was excellent; there were no unusual conditions encountered.<sup>3</sup>

## Survey Junctions

H11464 (Sheet AL) junctions with:

Registry #	Scale	Date	Junction Side
H11462	1:10,000	2005	East <sup>4</sup>
H11463	1:20,000	2005	South <sup>5</sup>
H11465	1:40,000	2005	West <sup>6</sup>



**Figure 2 H11464 Survey Junctions**

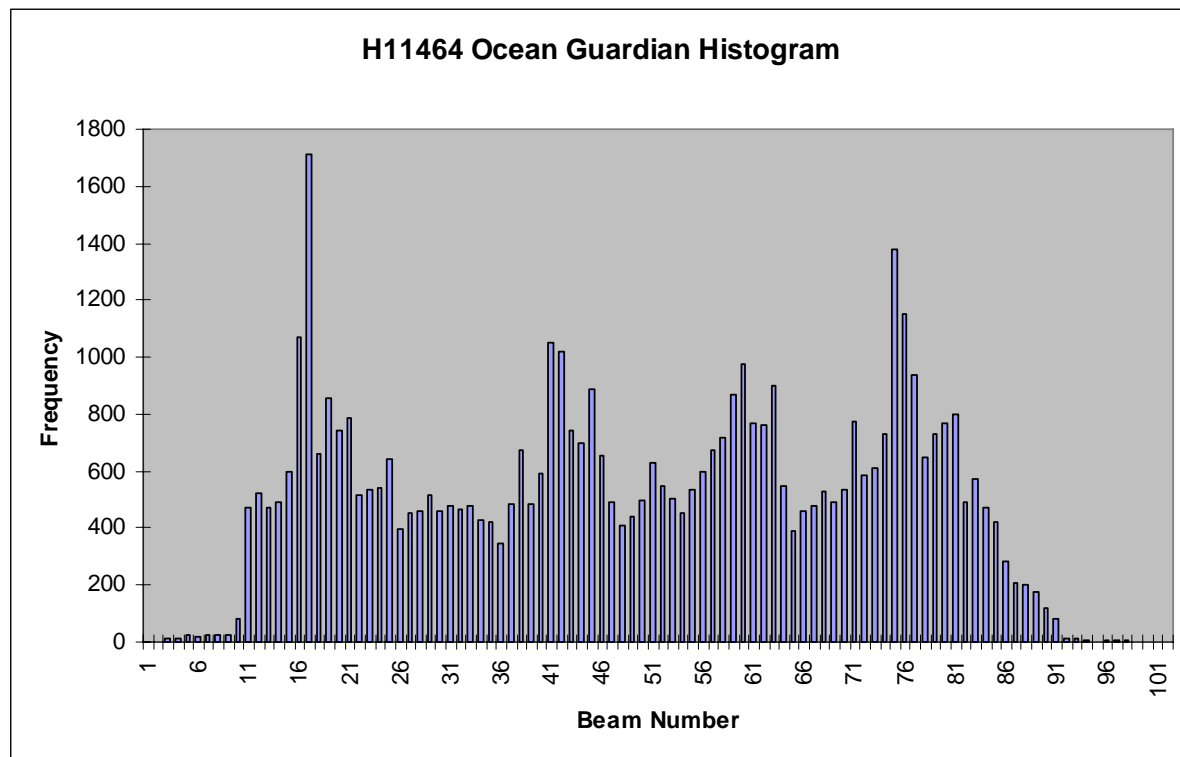
The surveys are in agreement along their common borders.<sup>7</sup> The agreement was noted in the field using the 2 and 5 meter DTM's created for coverage verification. The conformity is also apparent in the preliminary smooth sheets.

### Smooth Sheet Histograms

The H11464 Ocean Guardian Histogram (Figure 3) illustrates the Reson 8111 data, collected from July 8, 2005 to August 18, 2005 on the R/V Ocean Guardian. The first feature of note on this histogram are<sup>8</sup> the large spikes either side of nadir caused by nadir penetration, which is a common characteristic of Reson 8111 data. This penetration is a result of turning the power high enough to receive an accurate detection on the outer beams as well as being a function of bottom type. The majority of lines collected had a noticeable sample of nadir beams with deeper depths than the surrounding soundings. These typically did not have any significant feature and were flagged as noise in HDCS. Since these were rejected, soundings from the adjacent beams were selected instead causing the spikes around beams 41 and 61.

The second feature on the histogram is the increase in the number of selected sounding<sup>9</sup> around beams 16 and 77. The majority of adjacent lines were run with port beams overlapped with port beams and starboard beams overlapped with starboard beams which make it possible to have higher density data per square meter on the outer edges, leading to a higher chance of sounding selection on the smooth sheet. This does not appear to be the result of equipment failure, survey or processing procedures. The crossline comparisons revealed that these beams were within IHO specifications. The transition from phase to amplitude detection method of the sonar (around beams 36 and 66) is also apparent.

Another feature is the decrease or lack of selected soundings on the outer beams, which is the result of deterioration of the quality of those beams, especially in deep water. In most cases set filters were used to flag the outer beams as rejected, but in other cases additional cleaning or filters were used on a line by line basis resulting in fewer selected soundings.



**Figure 3 Histogram for 8111 (Ocean Guardian)**

### Quality Control Checks

During the hydrographic survey OPR-P182-KR-05 the R/Vs Quicksilver and Ocean Guardian conducted a number of confidence checks.<sup>10</sup> This usually consisted of the vessels running two lines in the opposite direction<sup>11</sup> over a reference surface (normally the patch test site). The data sets collected with Reson 8101 and 8111 systems that were installed on the Quicksilver and Ocean Guardian respectively, compared within 5 to 10 centimeters.

Positioning system confidence checks were<sup>12</sup> conducted on a daily basis using the POS/MV controller software. The controller software had numerous real time displays that were monitored throughout the survey to ensure the positional accuracies specified in the NOS Hydrographic Surveys Specifications and Deliverables (version March 2003) were achieved. These include, but are not limited to the following: GPS Status, Position Accuracy, Receiver Status (which included HDOP) and Satellite Status. During periods of high HDOP and/or low number of available satellites survey operations were stopped.

### Corrections to Echo Soundings

Refer to the OPR-P182-KR-05 Data Acquisition and Processing Report for a detailed description of all corrections to echo soundings and lead-line measurements. No deviations from the report occurred.





## C – Horizontal & Vertical Control

Refer to the OPR-P182-KR-05 Horizontal and Vertical Control Report<sup>13</sup> for a detailed description of the horizontal and vertical control used on this Survey. A summary of the projects horizontal and vertical control follows. No deviations from the report occurred.

### Horizontal Control

The horizontal control datum for this survey was the North American Datum of 1983 (NAD83). All raw positions were originally collected in WGS84 and transformed to NAD83 during the post-processed kinematic GPS (KGPS) routine.

It was necessary to acquire dual frequency GPS data at known locations on the ground so that a KGPS solution could be used for final positioning. John Oswald and Associates, LLC (JOA) established two local control points: station “849E” was located on the tidal bench mark 8849 E 2001, and station “Arm”, was located nearby on a piece of pipe extending off of station 849E. Refer to the Appendix B<sup>14</sup> for Horizontal Control results and procedures.

Vessel position was determined in real time using a Trimble Zephyr L1/L2 GPS antenna, which was connected to a Trimble BD950 L1/L2 GPS card residing in the POS/MV. The POS/MV was setup via Com 2 to accept USCG and/or Fugro Pelagos differential corrections, which were output from a CSI MBX-3S Coast Guard beacon receiver and/or the Fugro Pelagos L1 base station. Note: since the pseudorange corrections received by the POS/MV are based on the NAD 83 position of the reference station antenna position, all DGPS-based final positions are NAD 83. However, nearly all final positions were determined using a post-processed KGPS solution using the POSpac 4.2 processing software, which also output a final solution in NAD 83. (Refer to the “2005-NOAAProcessingProcedures” document for KGPS processing procedure).

### Vertical Control

All sounding data were initially reduced to mean lower low water (MLLW) using unverified tidal data from one tide station located on Chankliut Island, AK. A sub-contractor, John Oswald & Associates LLC (JOA), operated the gauge.

**Table 2 - Tide Gauges**

Gauge	Model	Gauge Type	Location	Latitude	Longitude	Operational
9458849	H350/355	Digital Bubbler	Chankliut Island, AK	56°08'40"N	158°06'47" W	05/26/05–08/25/05

**Table 3 - Final Tide Zones**

Zone	Primary			
	Site	Number	Time	Range Ratio
JOA001	Chankliut Island, AK	9458849	0	1.00
JOA002	Chankliut Island, AK	9458849	0	0.95
JOA003	Chankliut Island, AK	9458849	-6	0.95
JOA004	Chankliut Island, AK	9458849	-6	1.00
JOA005	Chankliut Island, AK	9458849	-6	1.06
JOA006	Chankliut Island, AK	9458849	-12	1.06
JOA007	Chankliut Island, AK	9458849	-12	1.00

JOA assembled tidal data for a twenty-four hour period UTC (Alaska Daylight Time to UTC was +8 hours) and e-mailed these data to the R/V Ocean Guardian at the end of every Julian Day. A cumulative file for the gauge was updated each day by appending the new data.

On October 10, 2005, JOA issued verified tidal data and final zoning for OPR-P182-KR-05. The tidal zoning was modified by JOA, providing a simpler zoning scheme from those issued in the Statement of Work (for additional information refer to JOA's Final Technical Report). From October 10, 2005 to November 5, 2005 all sounding data were re-merged using CARIS HIPS and SIPS tide routine. Verified tidal data were used for the Preliminary Smooth Sheet. Refer to the Vertical and Horizontal Control Report for additional tidal information and station descriptions.<sup>15</sup>

## D – Results and Recommendations

### Chart Comparison<sup>16</sup>

H11464 survey was compared with charts:

Chart Number	Scale	Edition	Edition Date as of April 2005
OPR-P182-KR-05			
16006	1:1,534,076	33 <sup>rd</sup>	Dec. 2000
16011	1:1,023,188	36 <sup>th</sup>	Aug. 2004
16013	1:969,761	29 <sup>th</sup>	Nov. 2003
16561	1:80,000	2 <sup>nd</sup>	Mar. 2005
16566	1:77,477	10 <sup>th</sup>	Feb. 1999

### Comparison of Soundings and Contours

The soundings and contours, in general, compare well with the existing charts. Soundings from chart 16561 coincide with the soundings from H11464 within 1 to 5 fathoms; areas that do vary to any degree are as follows:

- Hydrographic survey H11464 revealed a depth of 33 fathoms in the vicinity of a 76 fathom sounding on chart 16561 located at 55°58'48.35" N, 158°21'24.05" W (540142.688 E, 6204051.280 N). This area was surveyed with 100% multibeam coverage.<sup>17</sup>

Soundings that differ from hydrographic survey H11464 are highlighted in red on the chart comparison sheet included in Separate 6<sup>18</sup>.

Figure 4 illustrates that the contours from H11464 take on the same general shape, but certain areas do deviate slightly from the existing contours on charts 16561. It should be noted that since the contours on H11464 are derived from a very dense shoal biased multibeam data set and the existing charts are based on sparse single beam or lead-line data sets, that deviations from the existing chart or charts should be expected.<sup>19</sup>

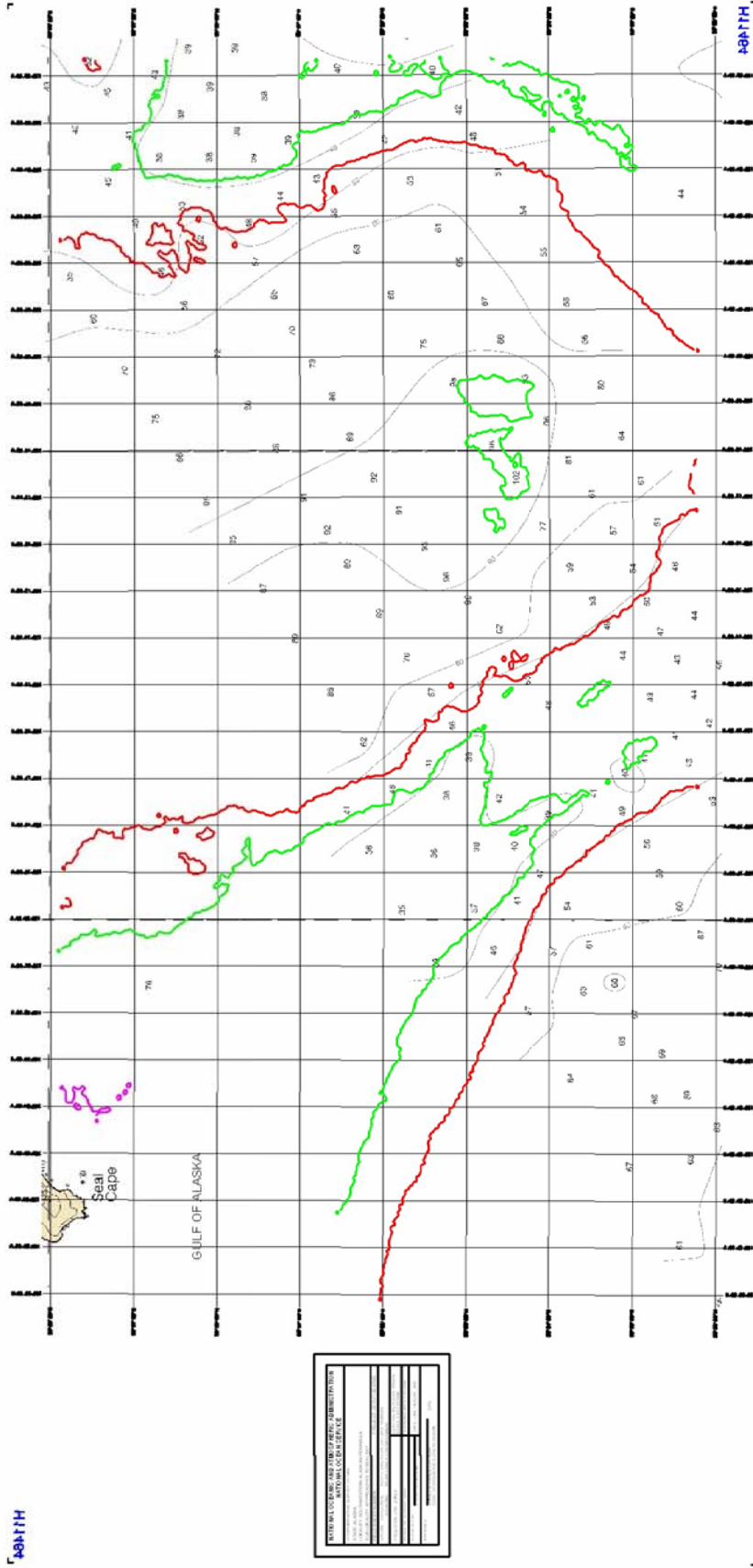


Figure 4 Comparison of Contours



### Automated Wreck and Observation Information System

There were no AWOIS items assigned to H11464.<sup>20</sup>

### Charted Features

There were no charted features labeled PA, ED, PD, or Rep within the limits of H11464.<sup>21</sup>

### Dangers to Navigation

No dangers to navigation were located during the hydrographic survey of H11464.<sup>22</sup>

### Additional Results

#### Additional Item Investigations

None were assigned for this sheet.<sup>23</sup>

### Bottom Samples

Bottom samples were not conducted for H11464.<sup>24</sup>

### Aids to Navigation

There were no charted aids to navigation in the survey area. No uncharted aids to navigation were found in the survey area.<sup>25</sup>



**E – Approval Sheet**

**Approval Sheet**

For

**H11464**

Standard field surveying and processing procedures were followed in producing this survey in accordance with the following documents:

OPR-P182-KR-05 statement of work and hydrographic manual;  
Fugro Pelagos, Inc. Acquisition Procedures (2005- NOAAAcquisitionProcedures);  
Fugro Pelagos, Inc. Processing Procedures (2005-NOAAProcessingProcedures);  
Technical Report for Tides, Chankliut Island Tide Station Report

The data were reviewed daily during acquisition and processing.

This report has been reviewed and approved. All records are forwarded for final review and processing to the Chief, Pacific Hydrographic Branch.

Approved and forwarded,

A handwritten signature in dark ink, appearing to read "Dean Moyles", written over a horizontal line.

Dean Moyles, Fugro Pelagos, Inc.  
Lead Hydrographer  
Fugro Pelagos, Inc. Survey Party



## **Appendix A - Danger to Navigation**

No dangers to navigation were located during the hydrographic survey of H11464.<sup>26</sup>



## **Appendix B - List of Geographic Names**

No new geographic names in the survey were discovered.<sup>27</sup>





## Appendix C – Progress Sheet

# PROGRESS SKETCH

OPR-P182-KR-05  
Southwestern Alaska Peninsula  
Fugro Pelagos, Inc.

Start Date: 6/12/05  
End Date: 8/18/05  
Submitted Date: N/A

Charts 16566, 16561 & 16013

Andrew Orthmann, Lead Hydrographer

H11463 - Sheet "AK"  
Approaches to Warner and Devils Bays

H11460 - Sheet "AF"  
Warner Bay

H11461 - Sheet "AH"  
Devils Bay

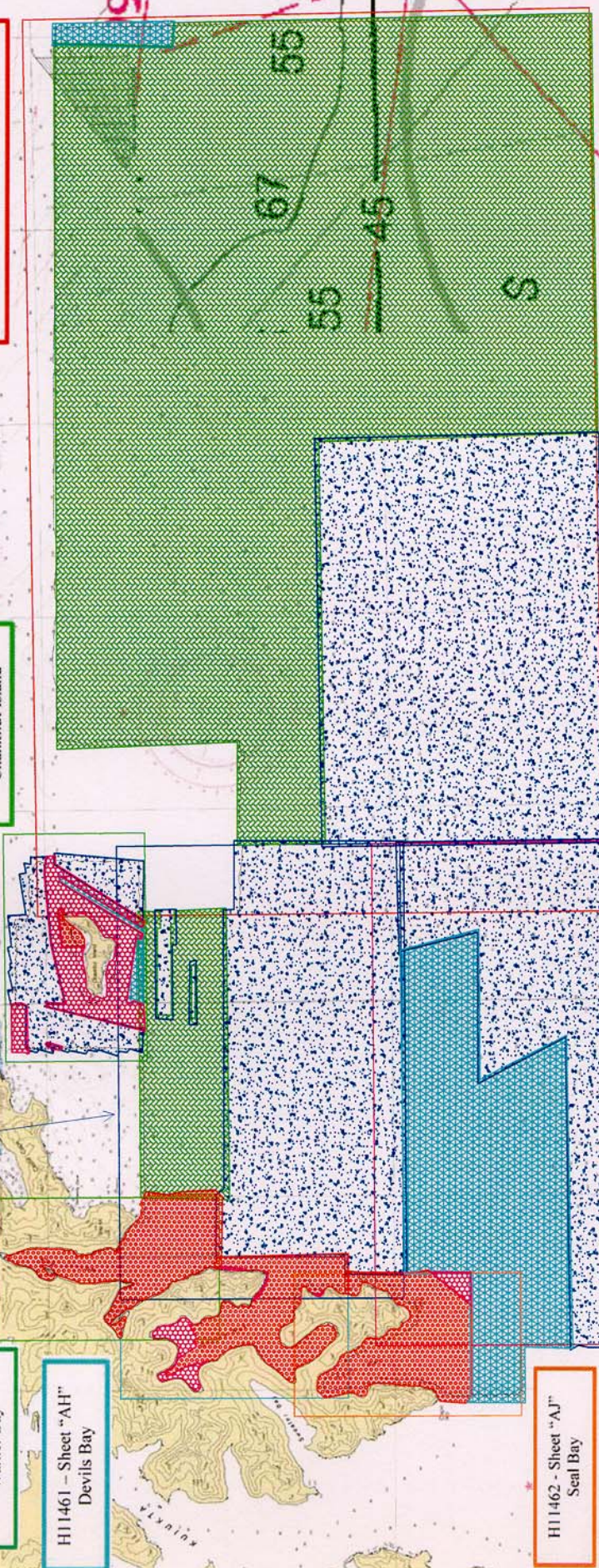
H11459 - Sheet "AD"  
Chankliut Island

H11465 - Sheet "AU"  
20 NM SE of Castle Cape

H11462 - Sheet "AJ"  
Seal Bay

H11464 - Sheet "AL"  
Approaches to Seal Bay

- Legend**
- Sheet AD Limits
  - Sheet AF Limits
  - Sheet AH Limits
  - Sheet AJ Limits
  - Sheet AK Limits
  - Sheet AL Limits
  - Sheet AU Limits
  - June - Ocean Guardian
  - July - Ocean Guardian
  - August - Ocean Guardian
  - August - Quicksilver
  - Survey Limits



**June Progress**

Sheet	Tide Gauges	Diff Stations	Days At Sea	Linear Nautical Miles	Square Nautical Miles	SVP Casts	Bottom Samples	AWOIS Completed	Weather Downtime (hours)	Equipment Downtime (hours)
AD	1 (two backup)			0	0	0	0	n/a	n/a	n/a
AF				0	0	0	0	n/a	n/a	n/a
AH				0	0	0	0	n/a	n/a	n/a
AJ				0	0	0	0	n/a	n/a	n/a
AK		1 (one backup)	2	182	21.4	14	n/a	n/a	n/a	n/a
AL			17	1,848	271.9	107	n/a	n/a	n/a	n/a
AU										
<b>Total (hours):</b>									28.5	21

**July Progress**

Sheet	Tide Gauges	Diff Stations	Days At Sea	Linear Nautical Miles	Square Nautical Miles	SVP Casts	Bottom Samples	AWOIS Completed	Weather Downtime (hours)	Equipment Downtime (hours)
AD			8	135.4	11.3	13	0	n/a	n/a	n/a
AF			10	217.9	9.9	36	0	n/a	n/a	n/a
AH			10	189.0	8.6	35	0	n/a	n/a	n/a
AJ		1 (one backup)	8	175.1	10.4	23	0	n/a	n/a	n/a
AK			19	596.2	64.1	54	n/a	n/a	n/a	n/a
AL			7	561.7	62.3	40	n/a	n/a	n/a	n/a
AU			7	838.9	97.6	48	n/a	n/a	n/a	n/a
<b>Total (hours):</b>									17.5	7

**August Progress**

Sheet	Tide Gauges	Diff Stations	Days At Sea	Linear Nautical Miles	Square Nautical Miles	SVP Casts	Bottom Samples	AWOIS Completed	Weather Downtime (hours)	Equipment Downtime (hours)
AD			7	183.3	8.9	36	8	n/a	n/a	n/a
AF			4	19.4	0.1	15	17	n/a	n/a	n/a
AH			7	58.0	1.3	18	22	n/a	n/a	n/a
AJ		3 (one backup)	5	84.5	6.4	18	6	n/a	n/a	n/a
AK			1	7.7	0.1	5	n/a	n/a	n/a	n/a
AL			16	407.1	40.9	34	n/a	n/a	n/a	n/a
AU			2	94.9	2.4	15	n/a	n/a	n/a	n/a
<b>Total (hours):</b>									45	7.5

18

ht

10

**Appendix D - Tides and Water Levels**

Abstract of Times of Hydrography for Smooth Tides

Project Number: OPR-P182-KR-05

Registry Number: H11464

Contractor Name: Fugro Pelagos Inc.

Date: December 15, 2005

Sheet Letter: AL

Inclusive Dates: July 8, 2005 to August 18, 2005

Fieldwork is complete and verified tides were applied for the production of the smooth sheet.

Refer to JOA's final verified tides report for additional information.

**Table 4 - Abstract of Times of Hydrography for R/V Ocean Guardian**

<b>YEAR</b>	<b>DAY</b>	<b>START TIME (UTC)</b>	<b>END TIME (UTC)</b>	<b>COMMENTS</b>
2005	189	17:05:11	23:43:03	
2005	190	0:04:47	23:51:31	
2005	191	0:22:34	23:36:13	
2005	192	0:10:40	23:58:25	
2005	193	0:02:57	10:12:35	
2005	207	17:59:41	23:58:15	
2005	208	0:02:47	1:17:48	
2005	208	17:34:48	23:14:49	
2005	213	19:18:16	23:58:17	
2005	214	0:02:55	1:55:45	
2005	215	16:24:50	23:54:31	
2005	216	0:03:13	2:12:32	
2005	217	20:07:22	23:56:22	
2005	218	0:14:00	1:59:17	
2005	218	16:35:07	23:58:02	
2005	219	0:05:57	2:30:38	
2005	219	16:07:55	23:58:26	
2005	220	0:10:06	0:58:37	
2005	220	17:30:32	23:54:31	
2005	221	0:06:20	1:25:16	
2005	221	17:30:48	23:49:03	
2005	222	0:11:10	1:24:30	
2005	222	18:02:12	23:56:13	
2005	223	0:12:20	1:03:14	
2005	224	18:51:17	23:52:37	



<b>YEAR</b>	<b>DAY</b>	<b>START TIME (UTC)</b>	<b>END TIME (UTC)</b>	<b>COMMENTS</b>
2005	225	0:04:34	1:18:38	
2005	225	17:55:52	21:46:06	
2005	228	22:56:50	23:59:01	
2005	229	0:03:55	3:01:24	
2005	230	7:24:29	10:05:49	



## Appendix E - AWOIS

No AWOIS items were assigned for H11464.<sup>28</sup>



## Revisions Compiled During Office Processing and Certification

<sup>1</sup> Concur with clarification. The approximate limits of hydrography are:

- ~~✦~~ Lat 55/59/56.1N and Lon 158/1/31.4W
- ~~✦~~ Lat 55/59/56.1N and Lon 158/24/19.3W
- ~~✦~~ Lat 55/56/33.8N and Lon 158/28/17.5W
- ~~✦~~ Lat 55/52/10.1N and Lon 158/28.17.5W
- ~~✦~~ Lat 55/52/10.1N and Lon 158/1/31.4W

<sup>2</sup> Filed with the project reports.

<sup>3</sup> Concur. H11464 is adequate to supersede all prior surveys and charted miscellaneous source data except as noted in this report and the Hdrawing.

<sup>4</sup> Strikethrough ~~East~~, replace with "West".

<sup>5</sup> Strikethrough ~~South~~, replace with "North".

<sup>6</sup> Strikethrough ~~West~~, replace with "East".

<sup>7</sup> Concur. In PHB processing, H11464 was also compared at its southeast junction with H11325 (OPR-P182-RA-04). The common areas showed excellent correlation, generally to within 1 fathom or less.

<sup>8</sup> Strikethrough ~~are~~, replace with "is".

<sup>9</sup> Strikethrough ~~sounding~~, replace with "soundings".

<sup>10</sup> Note that the R/V Quicksilver equipped with a Reson 8101 was not used for data acquisition for H11464.

<sup>11</sup> Strikethrough ~~the opposite direction~~, replace with "opposite directions".

<sup>12</sup> Strikethrough ~~where~~, replace with "were".

<sup>13</sup> Filed with the project reports.

<sup>14</sup> Insert "in the Projectwide Vertical and Horizontal Control Report". Filed with the project reports.

<sup>15</sup> Also see Appendix D, attached to this report.

<sup>16</sup> In PHB processing, H11464 was also compared with the continuous maintenance raster for Chart 16561, last updated March 3, 2006.

<sup>17</sup> Concur.

<sup>18</sup> Filed with the hydrographic records.

<sup>19</sup> Concur. Chart contours based on the smooth sheet as depicted on the Hdrawing.

<sup>20</sup> Concur.

<sup>21</sup> Concur.

<sup>22</sup> Concur.

<sup>23</sup> Concur.

<sup>24</sup> Concur. No bottom samples are charted on 16561 within the survey area.

<sup>25</sup> Concur.

<sup>26</sup> Concur.

<sup>27</sup> Strikethrough ~~in the survey were discovered~~, replace with "were discovered in the survey area".

<sup>28</sup> Concur.


APPROVAL SHEET  
H11464

Initial Approvals:

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The survey records and digital data comply with NOS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

  
\_\_\_\_\_  
Date: 8/12/06  
Gary Nelson  
Chief, Cartographic Team  
Pacific Hydrographic Branch

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

  
\_\_\_\_\_  
Date: 24 August 2006  
Donald W. Haines  
CDR, NOAA  
Chief, Pacific Hydrographic Branch

