

H12694

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H12694

LOCALITY

State(s): Alaska

General Locality: North Coast of Kodiak Island

Sub-locality: West of Raspberry Island

2014

CHIEF OF PARTY
Edward J. Van Den Ameele, CDR/NOAA

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Date:

HYDROGRAPHIC TITLE SHEET

H12694

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State(s): **Alaska**

General Locality: **North Coast of Kodiak Island**

Sub-Locality: **West of Raspberry Island**

Scale: **40000**

Dates of Survey: **05/12/2014 to 07/11/2014**

Instructions Dated: **04/02/2014**

Project Number: **OPR-P136-RA-14**

Field Unit: **NOAA Ship Rainier**

Chief of Party: **Edward J. Van Den Ameele, CDR/NOAA**

Soundings by: **Multibeam Echo Sounder**

Imagery by: **Multibeam Echo Sounder Backscatter**

Verification by: **Pacific Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks:

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.

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Descriptive Report to Accompany Survey H12694

Project: OPR-P136-RA-14

Locality: North Coast of Kodiak Island

Sublocality: West of Raspberry Island

Scale: 1:40000

May 2014 - July 2014

NOAA Ship Rainier

Chief of Party: Edward J. Van Den Ameele, CDR/NOAA

A. Area Surveyed

The survey area is referred to as "West of Raspberry Island" (priority 7) within the Project Instructions. The area encompasses approximately 34 square nautical miles in Shelikof Strait on the north coast of Kodiak Island, Alaska (Figures 1-2).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
58° 12' 0" N 153° 34' 12" W	58° 3' 36" N 153° 16' 12" W

Table 1: Survey Limits

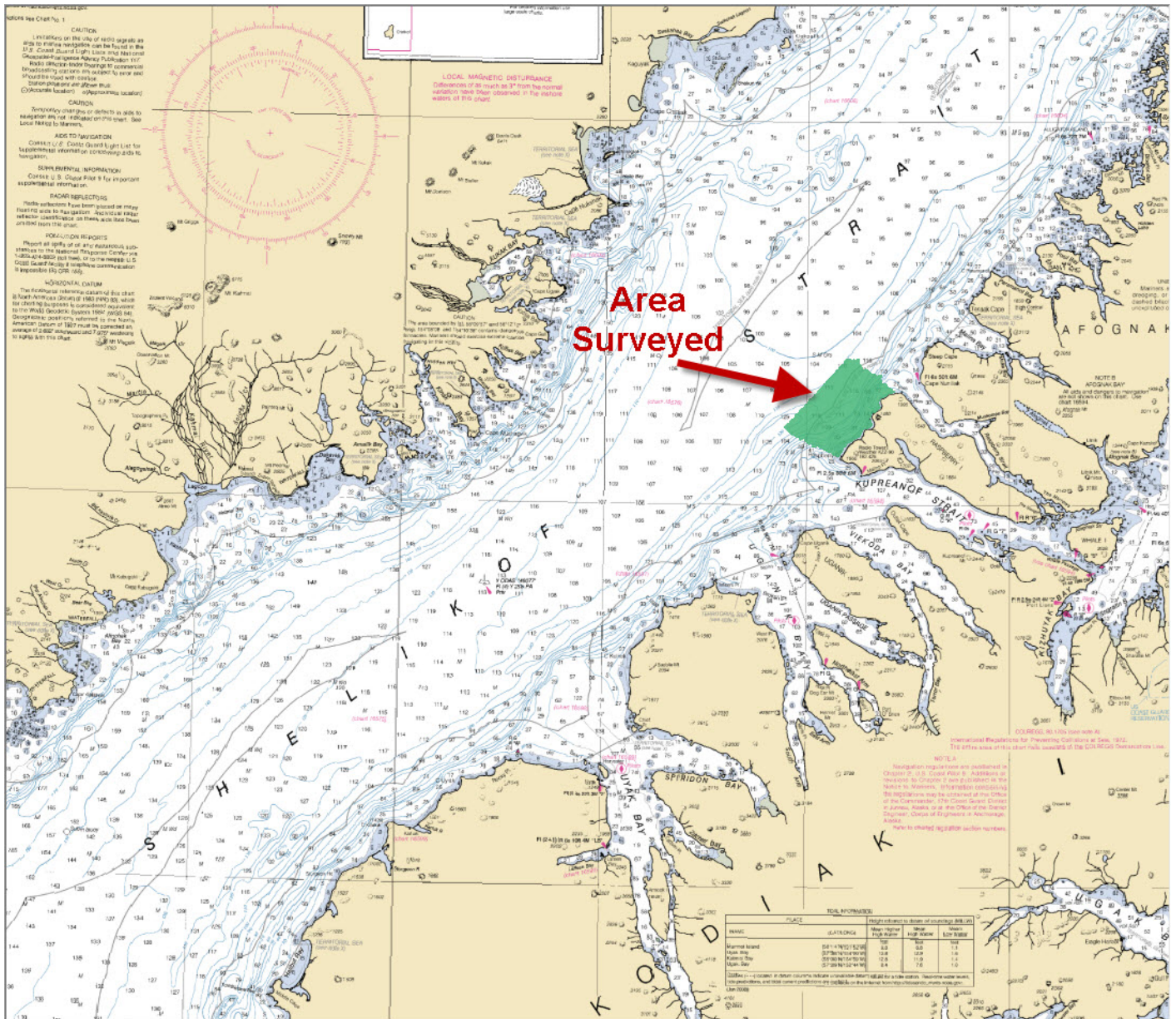


Figure 1: Overview of area surveyed (Chart 16580).

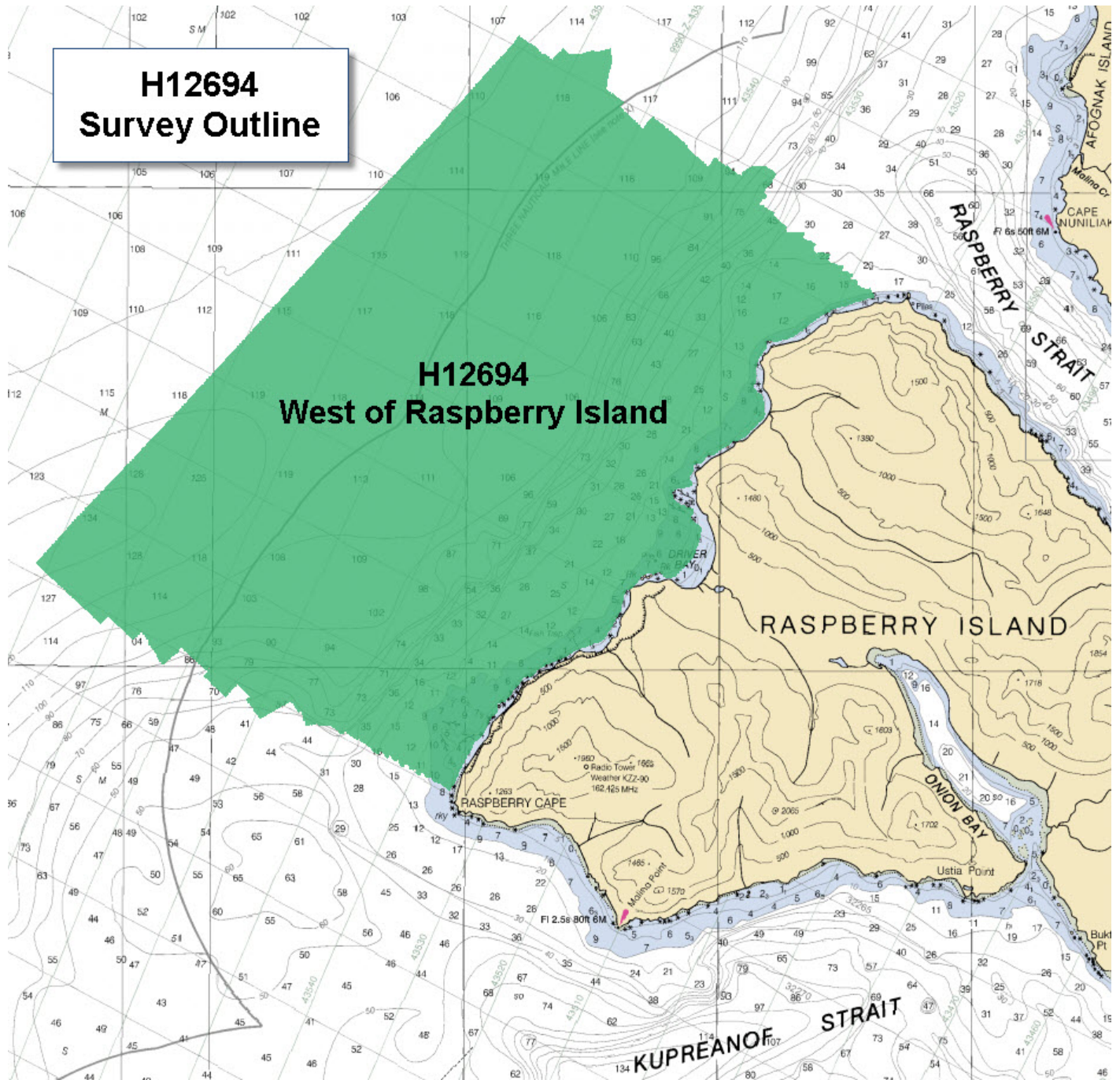


Figure 2: H12694 survey outline (Chart 16576).

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

A.2 Survey Purpose

The purpose of this survey is to provide contemporary data to update National Ocean Service (NOS) nautical charting products, which will support Kodiak's large fishing fleet and increasing levels of passenger vessel traffic.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data acquired for survey H12694 met complete multibeam echosounder (MBES) coverage requirements, including the 5 soundings per node data density requirements. In order to extract statistics of the data density achieved, the density layer of each finalized surface was queried within Caris then examined in Excel. Overall, the required data density was achieved in 99.8871% of nodes (Figures 3-4).

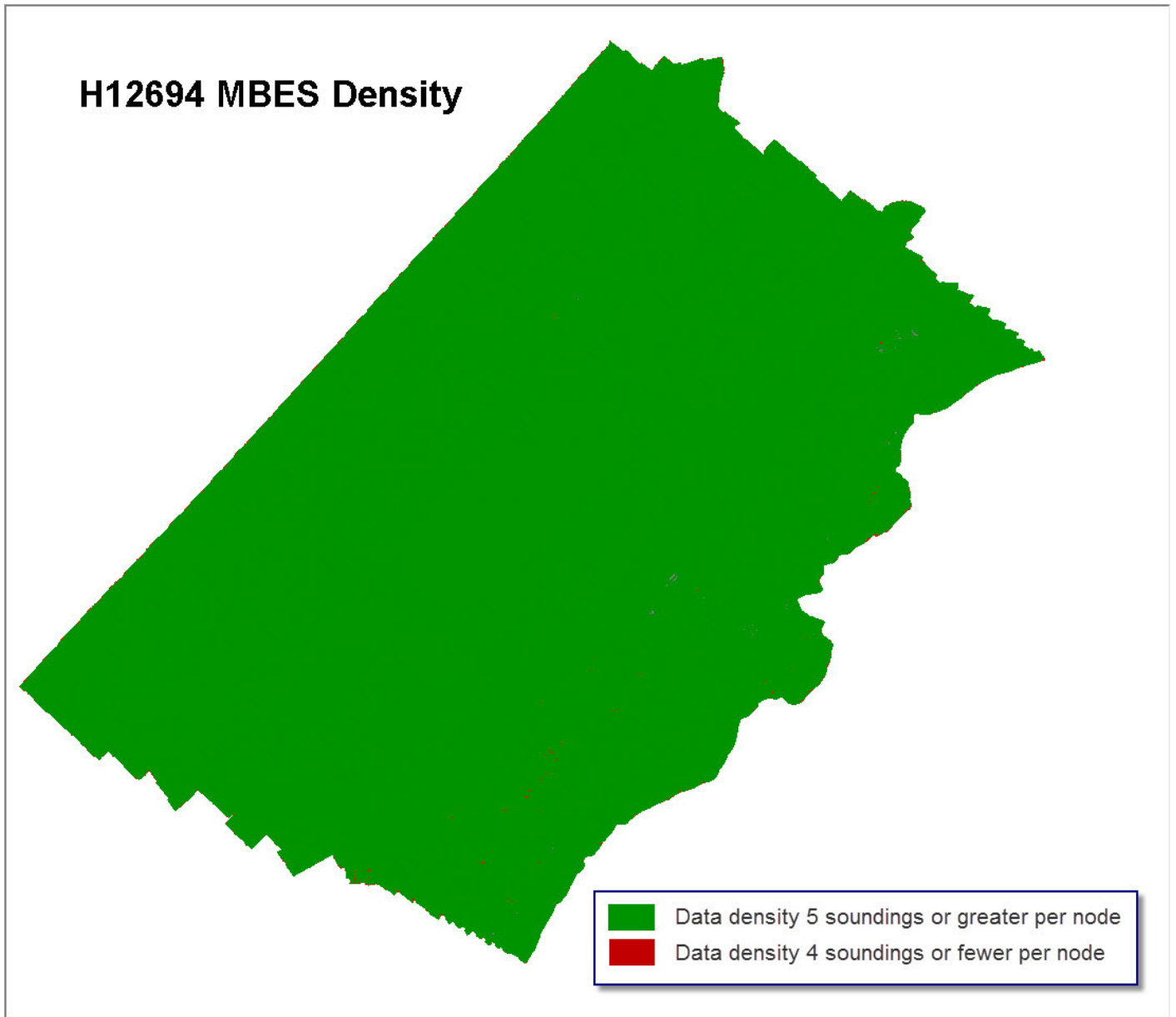


Figure 3: H12694 data density.

Resolution	Depth range	Number of nodes	Fewer than five soundings per node	Percent of nodes with greater than five soundings per node
1m	0 - 20m	5,919,233	7,227	99.8779%
2m	18 - 40m	2,449,540	1,790	99.9269%
4m	36 - 80m	766,271	917	99.8803%
8m	72 - 160m	200,958	675	99.6641%
16m	144 - 320m	322,727	295	99.9086%
TOTAL:		9,658,729	10,904	99.8871%

Figure 4: Summary table showing the percentage of nodes satisfying the 5 soundings density requirements, sub-divided by appropriate depth ranges.

A.4 Survey Coverage

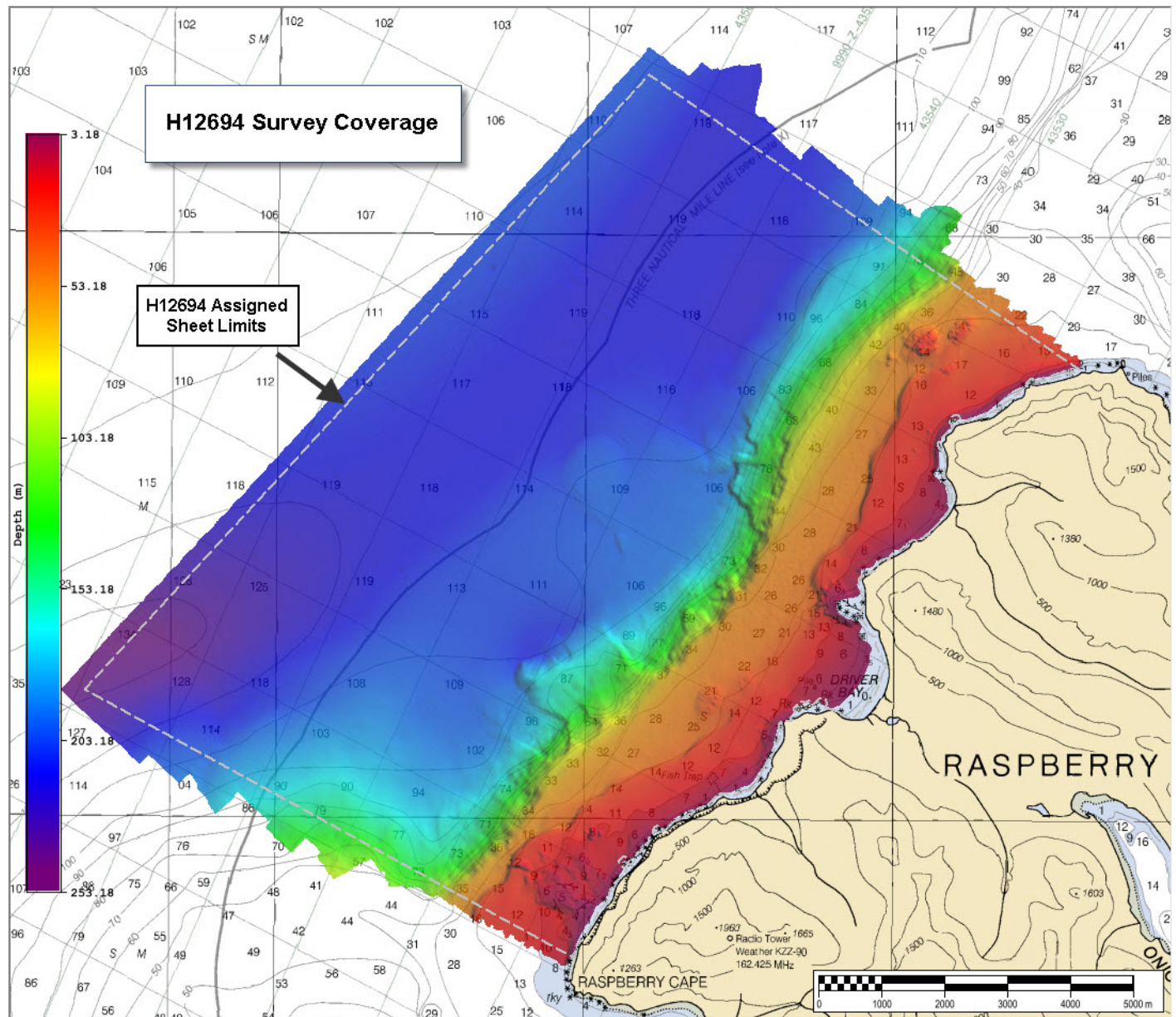


Figure 5: H12694 MBES coverage overlaid on Chart 16576.

Complete multibeam echosounder (MBES) coverage was achieved within the assigned survey area except as noted below:

Foul Areas: Areas foul with rocks, kelp or otherwise too dangerous to approach, prevented survey operations to continue to the assigned sheet limits (Figure 6). These areas were generally located very near shore, were subject to dangerous wave action and judged to be navigationally insignificant.

Acoustic Shadows: Occasional small, widely scattered holidays were the result of acoustic shadows (Figure 7). This effect was seen where data density on the 'dark side' of a feature was too sparse to produce a surface at the appropriate resolution. Acoustic shadow holidays were examined to ensure that least depths were obtained over navigationally significant features.

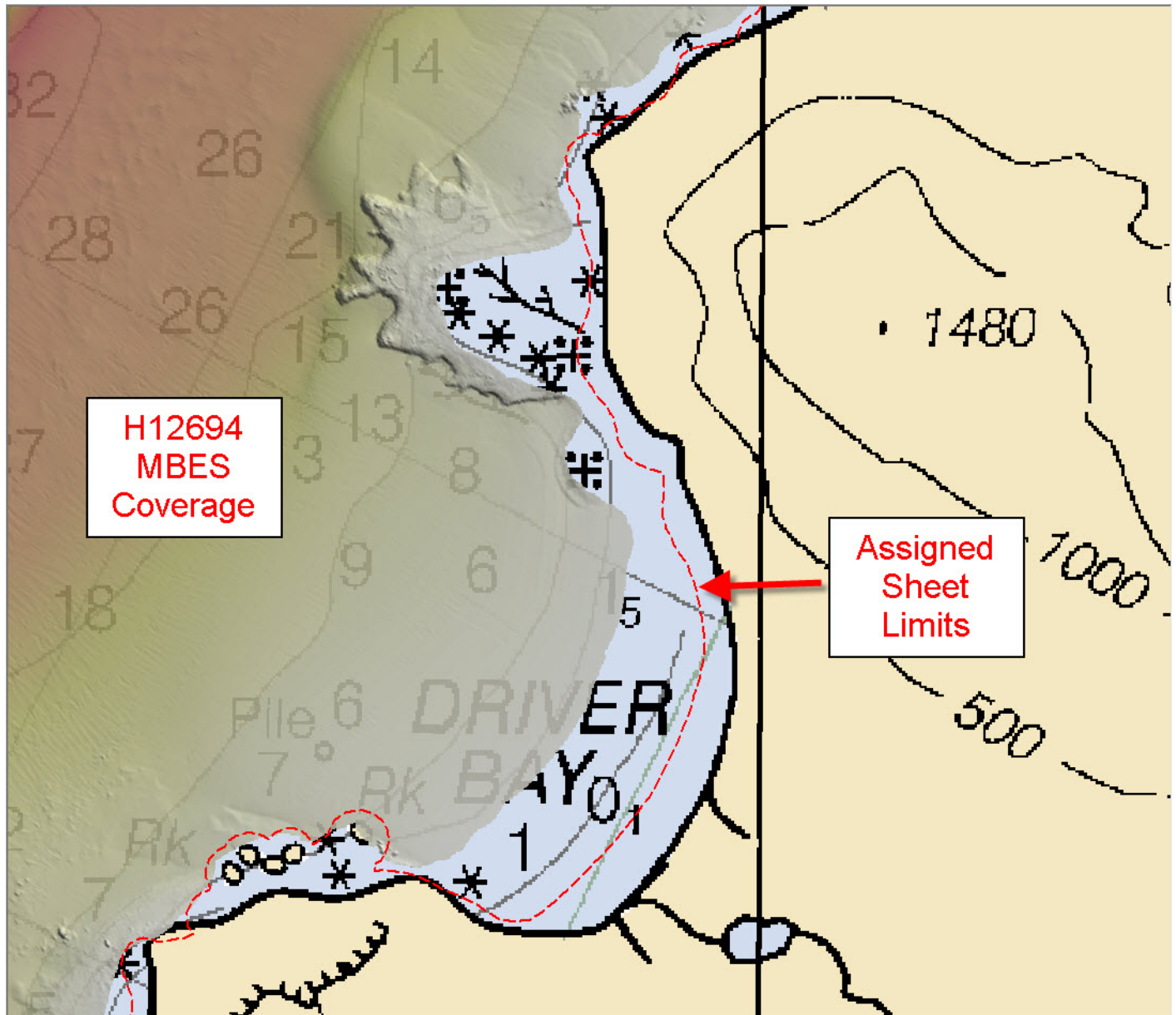


Figure 6: Chart 16576 overlaid with H12694 MBES coverage showing example of areas too dangerous for survey operations to continue to the assigned sheet limits.

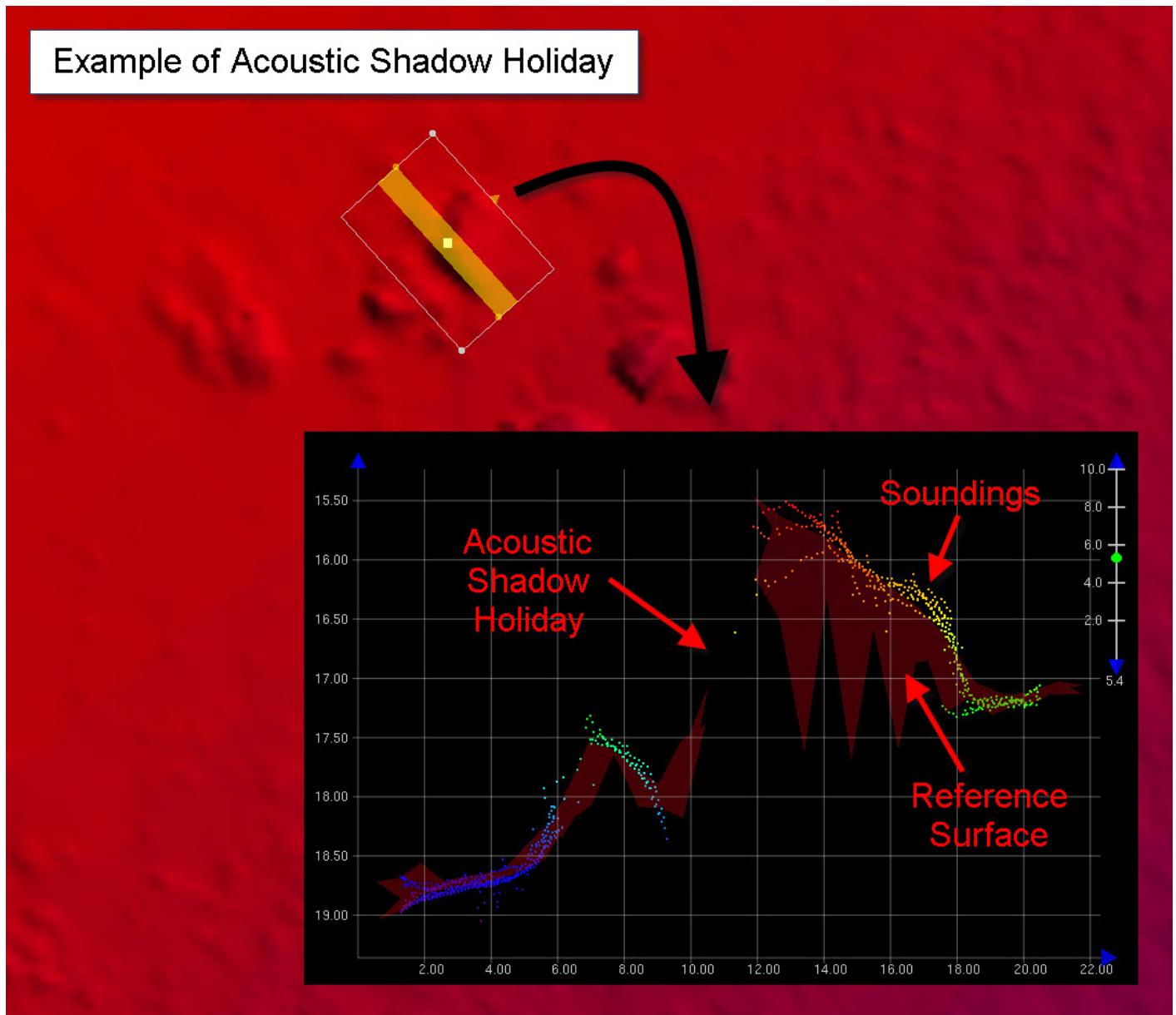


Figure 7: Example of H12694 acoustic shadow holiday.

An additional holiday was created during office processing after the application of a new tide package caused the line to be out of spec due to a timing issue between the tide package and the times of the line. A review of the area indicated no shoaling or significant features in the area and data is adequate for charting.

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	<i>S221</i>	<i>2801</i>	<i>2802</i>	<i>2803</i>	<i>2804</i>	Total
LNM	SBES Mainscheme	0	0	0	0	0	0
	MBES Mainscheme	67.8	53	12.8	87.9	79.2	300.7
	Lidar Mainscheme	0	0	0	0	0	0
	SSS Mainscheme	0	0	0	0	0	0
	SBES/SSS Mainscheme	0	0	0	0	0	0
	MBES/SSS Mainscheme	0	0	0	0	0	0
	SBES/MBES Crosslines	0	0	0	0	14.5	14.5
	Lidar Crosslines	0	0	0	0	0	0
Number of Bottom Samples							4
Number of AWOIS Items Investigated							0
Number Maritime Boundary Points Investigated							8
Number of DPs							0
Number of Items Investigated by Dive Ops							0
Total SNM							34

Table 2: Hydrographic Survey Statistics

The number of detached positions listed as 0 is incorrect. Several detached positions were aquired. All detached positions are included in the final feature file.

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Day of the Year
05/12/2014	132
06/09/2014	160
06/16/2014	167
07/01/2014	182
07/02/2014	183
07/11/2014	192

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the 2014 Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	<i>S221</i>	<i>1906</i>	<i>2801</i>	<i>2802</i>	<i>2803</i>	<i>2804</i>
LOA	70.4 meters	5.8 meters	8.8 meters	8.8 meters	8.8 meters	8.8 meters
Draft	4.7 meters	0.3 meters	1.1 meters	1.1 meters	1.1 meters	1.1 meters

Table 4: Vessels Used



Figure 8: Launch 2802 and NOAA Ship Rainier off the west coast of Raspberry Island, Alaska.

All data for survey H12694 was acquired by NOAA Ship Rainier and launches 2801, 2802, 2803, 2804 and skiff 1906. The vessels acquired MBES depth soundings, sound speed profiles, bottom samples and shoreline feature data.

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Reson	SeaBat 7125-B	MBES
Reson	SeaBat 7125 SV2	MBES
Kongsberg	EM710	MBES
Reson	SVP70	Surface Sound Speed Probe
Reson	SVP71	Surface Sound Speed Probe
Odim Brooke Ocean (Rolls Royce Group)	Moving Vessel Profiler 200	Conductivity, Temperature, and Depth Sensor
Sea-Bird Electronics	SBE 19 and 19plus SEACAT Profiler	Conductivity, Temperature, and Depth Sensor
Applanix	POS M/V v4	Positioning and Attitude System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 5% of mainscheme acquisition.

Multibeam crosslines were acquired using Rainier launch 2804. A 4 meter CUBE surface was created using only H12694 mainscheme lines, and a second 4 meter surface was created using only crosslines. A 4 meter difference surface was then generated in Caris from which statistics were derived (Figures 9-10). For its respective depths, the difference surface was compared to the IHO allowable total vertical uncertainty (TVU) standards. In total, 99.9503% of the depth differences between H12694 mainscheme and crossline data met HSSD TVU standards.

**H12694
Crossline Allowable
Total Vertical Uncertainty
Compliance**

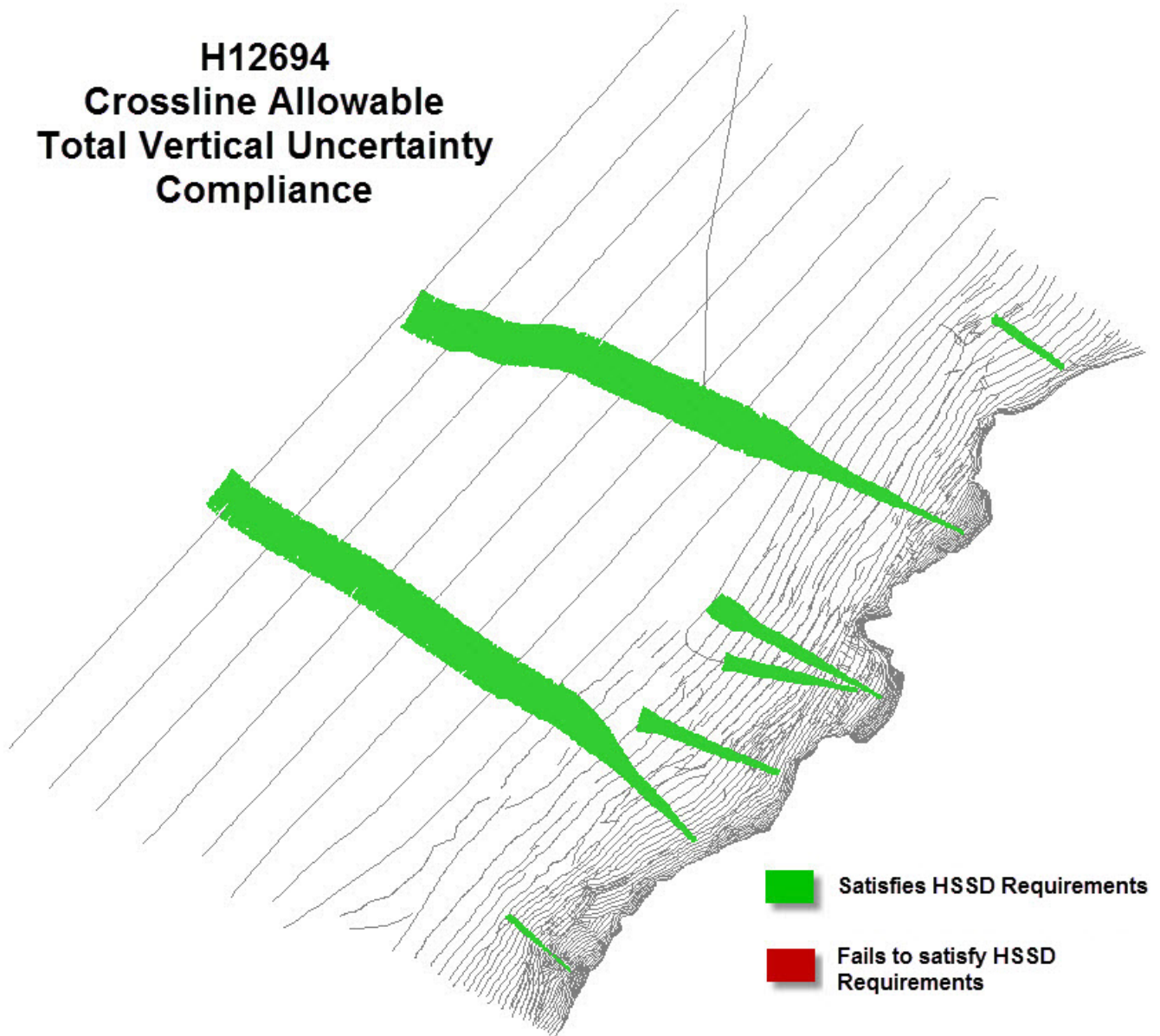


Figure 9: Depth differences between H12694 mainscheme and crossline data as compared to HSSD TVU accuracy standards for associated depths. Mainscheme tracklines shown in gray.

Depth range	IHO Order	Number of nodes	Nodes satisfying HSSD TVU	Percent nodes satisfying HSSD TVU
Less than 100m	Order 1	118,089	117,835	99.7849%
Greater than 100m	Order 2	437,057	437,035	99.9950%
TOTAL:		555,146	554,870	99.9503%

Figure 10: Summary table indicating percentage of difference surface nodes between H12694 mainscheme and crossline data that met HSSD allowable TVU standards for associated depths.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0 meters	0.035 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
S221 (Rainier)		1 meters/second	0.05 meters/second
2801, 2802, 2803, 2804	3 meters/second		0.15 meters/second

Table 7: Survey Specific Sound Speed TPU Values

Uncertainty values were measured and applied in accordance with Section B.4 of the DAPR.

Uncertainty values of submitted finalized grids were calculated in Caris using the "Greater of the Two" of uncertainty and standard deviation (scaled to 95%). To visualize where uncertainty requirements were met, for each surface a custom IHO Order 1 or Order 2 Uncertainty layer was created, based on the difference between the calculated uncertainty of the nodes and the allowable uncertainty defined in the HSSD. To quantify the extent to which requirements were met, the HSSD Compliance layers were queried within Caris and examined in Excel. Overall, 99.843% of survey H12694 nodes met the uncertainty requirements specified in the HSSD.

B.2.3 Junctions

There are no contemporary surveys that junction with this survey.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

Reson SV2 Roll Timing Issue

An equipment issue with the Reson SV2 sonar resulted in degradation of some H12694 bathymetric data. High frequency lines from DN160 on Launch 2802 (RA-5) were affected resulting in brief, periodic loss of accurate bottom detection and sporadic holidays. Five foot seas during acquisition contributed to the poor data quality. All data was examined in Caris Subset Editor to insure that no navigationally significant features were omitted; obviously inaccurate soundings were rejected (Figure 11). All affected data delivered with this report met NOAA HSSD standards. Refer to the 2014 DAPR for more information regarding this issue.

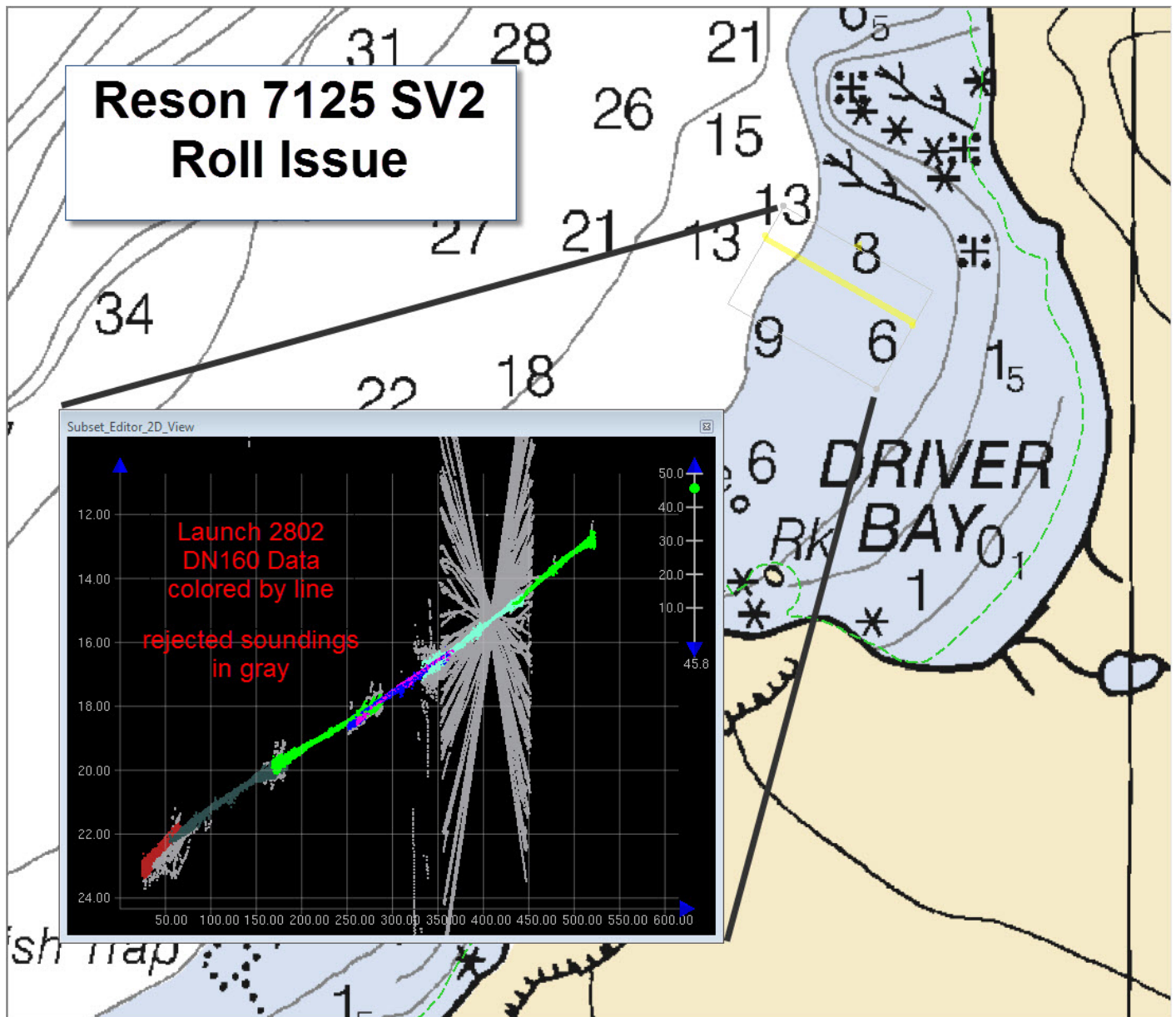


Figure 11: Subset view of Reson SV2 roll timing issue, rejected sounding colored gray.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound speed profiles were acquired on Rainier's launches using SBE 19 and 19plus CTD probes at discrete locations within the survey area at least once every four hours, when significant changes in surface sound speed were observed, or when surveying in a new area.

For MBES operations conducted on S221 (Rainier), sound speed profiles were acquired using the Rolls Royce MVP200 approximately every 15 minutes or when recommended by "Cast Time", a cast frequency program developed at the University of New Hampshire. All casts were concatenated into a master file for either the launches or for the ship, and applied to lines using the "Nearest in distance within time (4 hours)" profile selection method.

H12694 Sound Speed Cast Locations

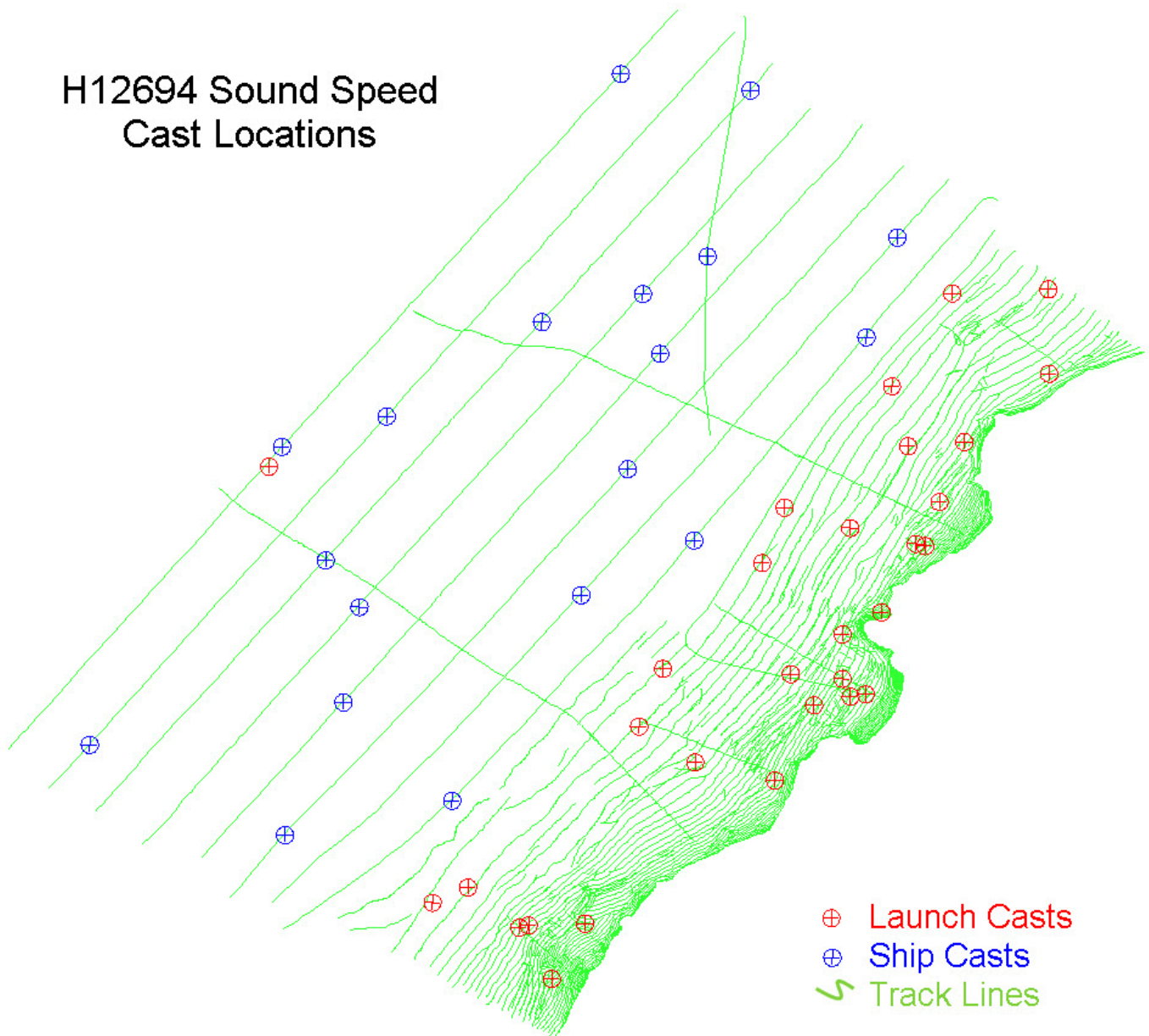


Figure 12: H12694 sound speed cast locations and survey track lines.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Backscatter data, logged as .7k or .ALL files, was acquired but not formally processed by Rainier personnel. Two backscatter lines per boat, per day were reviewed to ensure quality. The data was submitted directly to the National Geophysical Data Center (NGDC).

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAA Profile V_5_3_2.

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12694_MB_1m_MLLW	CUBE	1 meters	1 meters - 247 meters	NOAA_1m	Complete MBES
H12694_MB_2m_MLLW	CUBE	2 meters	1 meters - 247 meters	NOAA_2m	Complete MBES

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12694_MB_4m_MLLW	CUBE	4 meters	2 meters - 246 meters	NOAA_4m	Complete MBES
H12694_MB_8m_MLLW	CUBE	8 meters	3 meters - 246 meters	NOAA_8m	Complete MBES
H12694_MB_16m_MLLW	CUBE	16 meters	3 meters - 246 meters	NOAA_16m	Complete MBES
H12694_MB_1m_MLLW_Final	CUBE	1 meters	0 meters - 20 meters	NOAA_1m	Complete MBES
H12694_MB_2m_MLLW_Final	CUBE	2 meters	18 meters - 40 meters	NOAA_2m	Complete MBES
H12694_MB_4m_MLLW_Final	CUBE	4 meters	36 meters - 80 meters	NOAA_4m	Complete MBES
H12694_MB_8m_MLLW_Final	CUBE	8 meters	72 meters - 160 meters	NOAA_8m	Complete MBES
H12694_MB_16m_MLLW_Final	CUBE	16 meters	144 meters - 320 meters	NOAA_16m	Complete MBES

Table 8: Submitted Surfaces

C. Vertical and Horizontal Control

A complete description of the vertical and horizontal control for this survey can be found in the accompanying OPR-P136-RA-14 Horizontal and Vertical Control Report (HVCR), submitted under a separate cover.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

Standard Vertical Control Methods Used:

Discrete Zoning

The following subordinate water level stations were established for this survey:

Station Name	Station ID
West Slope Raspberry Island, Alaska	945-7535

Table 9: Subordinate Tide Stations

File Name	Status
9457535.tid	Final Approved

Table 10: Water Level Files (.tid)

File Name	Status
H12694CORF.zdf	Final

Table 11: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 07/12/2014. The final tide note was received on 01/12/2015.

An issue identified prior to the SAR review with the original tide package required new tides from COOPs which were applied in the office as part of this SAR. TPU was reapplied in accordance with the new tide note (Zoned tides: 0.165m). See correspondence attached to this report.

Tide file is appended to this report.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 5 North..

The following PPK methods were used for horizontal control:

Smart Base

Vessel kinematic data (POS files) were post-processed with Applanix POSPac and POSGNSS software using Smart Base processing methods described in the DAPR. SBET and RMS data was applied to all survey lines.

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
KOD6	KODIAK 6
SELD	SELD_AKDA_AK2000
KOD5	KODIAK 5
AC34	OldHarbor_AK2006
AC18	Ushagat_IsAK2008
AC26	Cape_Gull_AK2008
AC45	SitkinakIsAK2006
AC08	CapDouglasAK2007
AC39	ShuyakIsAPAK2006
AC38	Quartz_CrkAK2005
AC24	KingsalmonAK2006

Table 12: CORS Base Stations

The following DGPS Stations were used for horizontal control:

DGPS Stations
Kodiak, AK 313 kHz

Table 13: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

A comparison was made between H12694 survey data and Chart 16576 using Caris CUBE surfaces, selected soundings and contours.

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNМ Date	NM Date
16576	1:80000	4	09/2003	08/26/2014	09/13/2014

Table 14: Largest Scale Raster Charts

16576

Throughout the survey area, H12694 soundings agreed well with Chart 16576, generally being 1-3 fathoms deeper than charted. In areas of steep relief, some H12694 soundings were 5-10 fathoms deeper than Chart 16576 (Figure 13).

Contours generated in Caris and overlaid on Chart 16576 (Figures 14-15) revealed numerous discrepancies but no navigationally significant shoaling or deepening trends except as follows: at the north end of Driver Bay, the 10 fathom contour extends further seaward than charted (Figure 16).

In the vicinity north of Raspberry Cape, the H12694 10 fathom contour was found to be significantly inshore of its charted position (Figure 17). The 8 fathom and the 4 fathom 4 foot shoals in this area were added to the chart in response to a H12694 DTON report submitted during this survey (see section D.1.6).

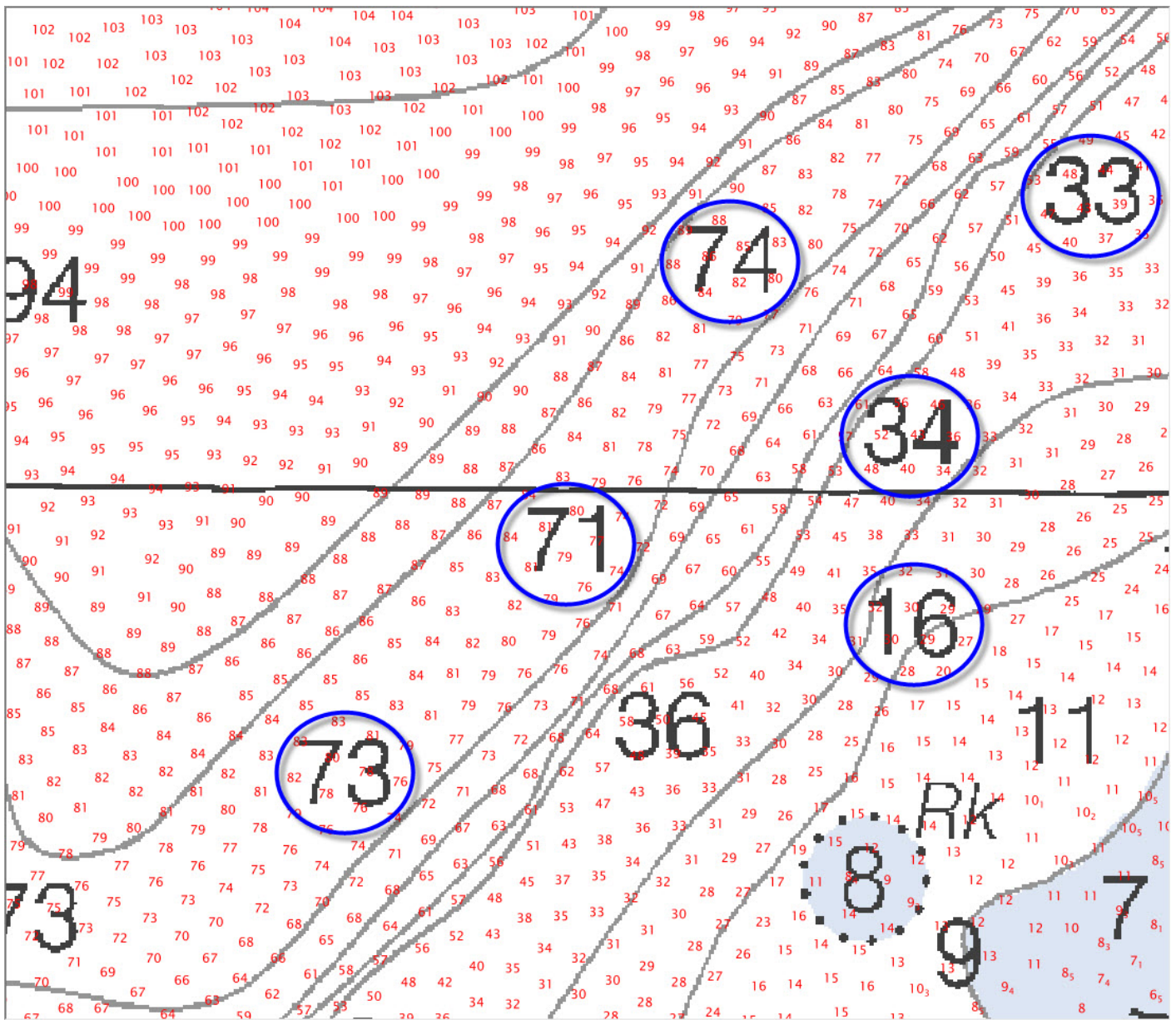


Figure 13: Detail of Chart 16576 with H12694 soundings (in fathoms) overlaid in red. Blue circled depths over steep seafloor show survey soundings significantly deeper than charted.

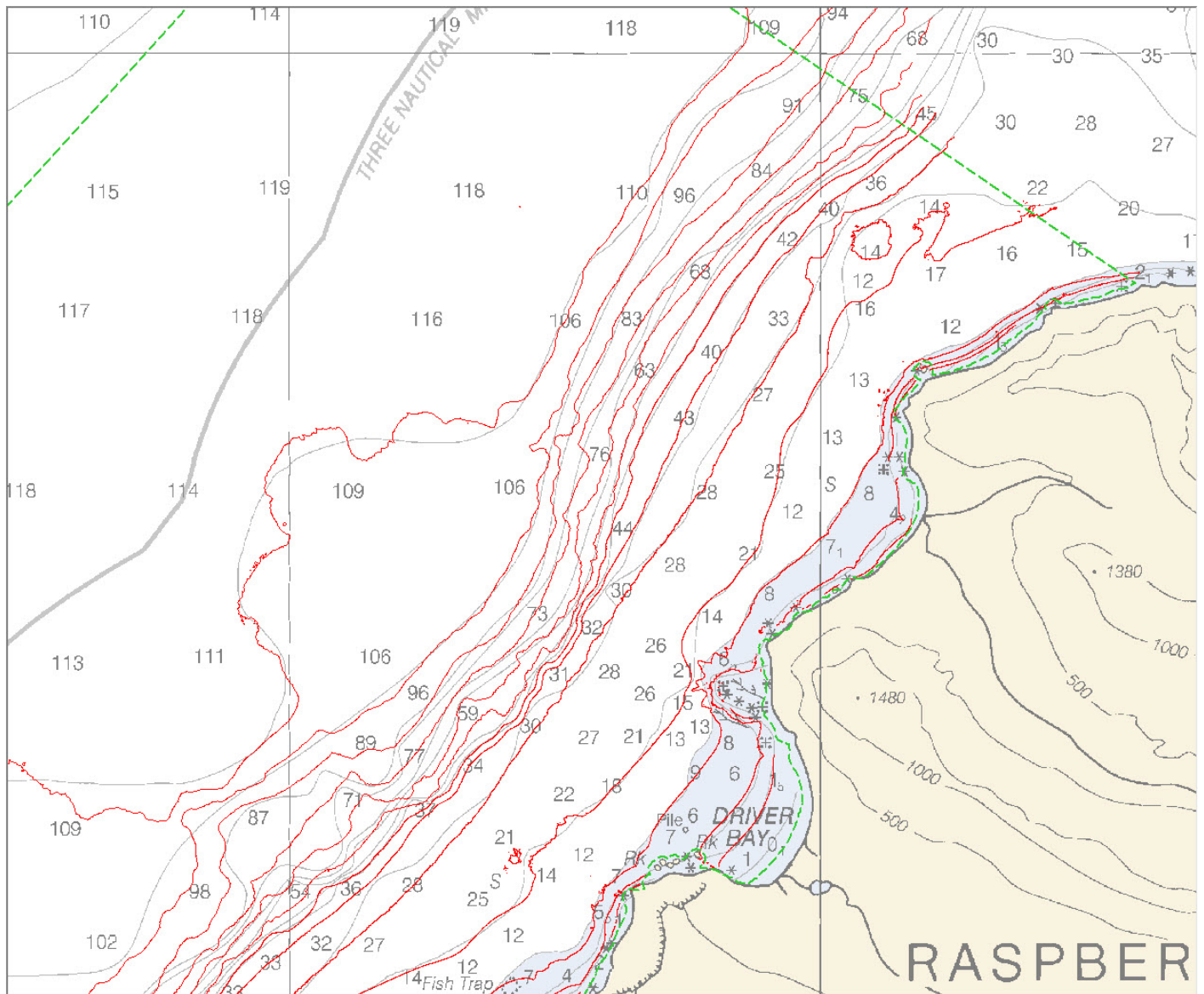


Figure 14: Detail of Chart 16576 with H12694 contours overlaid in red (northern section).

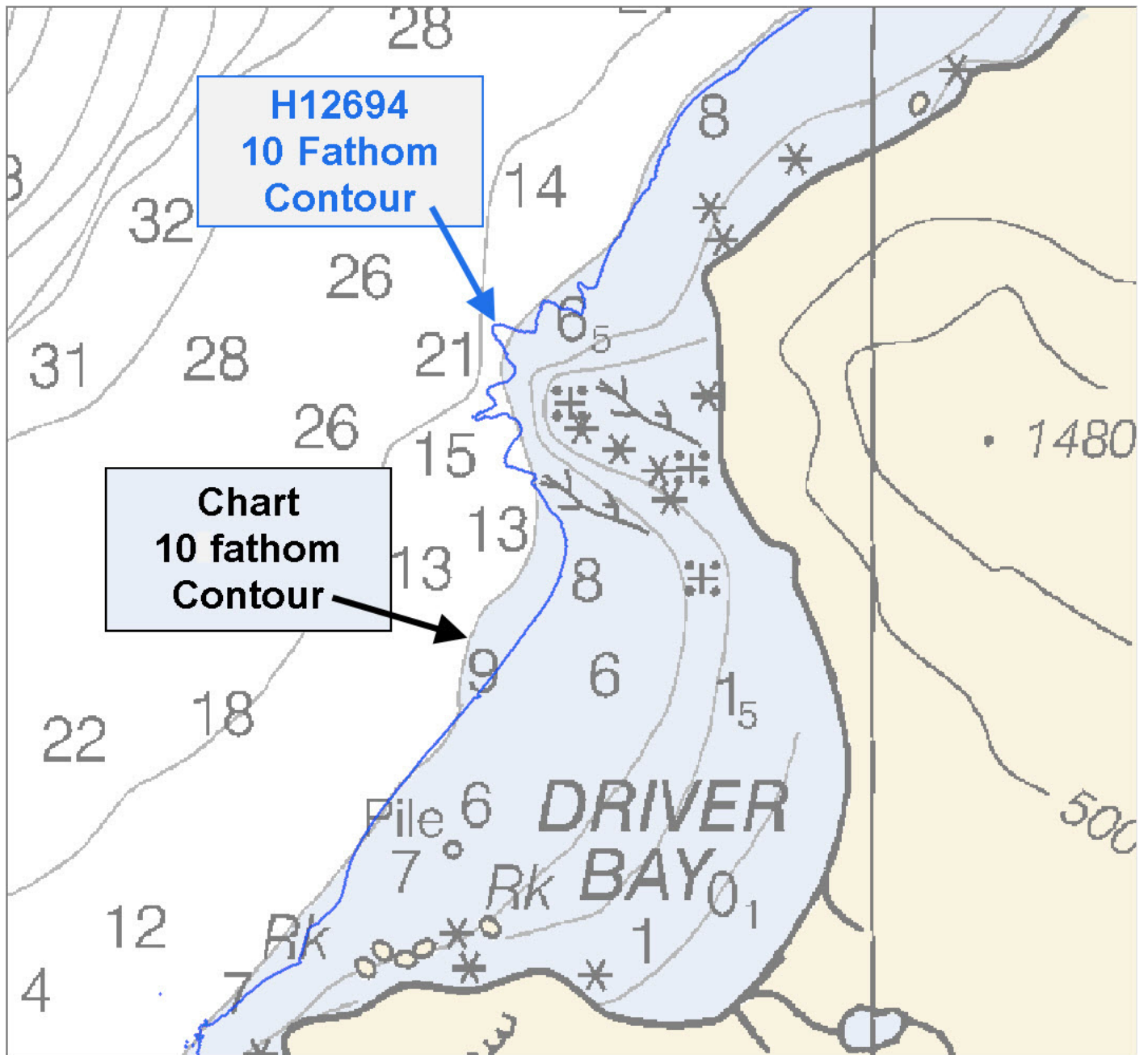


Figure 16: H12694 10 fathom contour extending further seaward than charted.

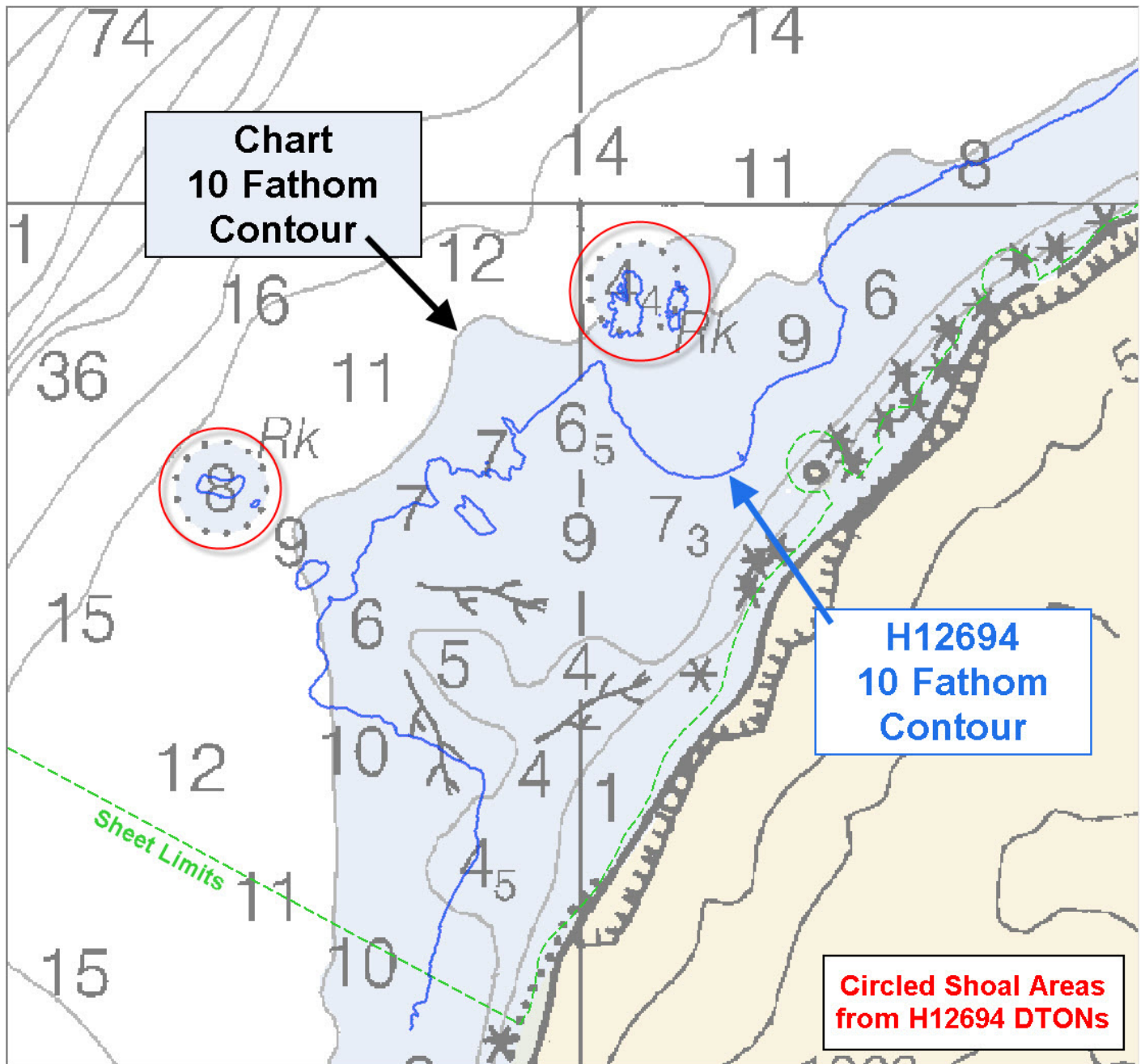


Figure 17: H12694 10 fathom contour inshore of charted location.
 Charted shoal areas circled in red derived from H12694 submitted DTONs.

Survey also falls on this chart:

Chart	KAPP	Scale	Ed	Date	NTM date
16594	2553	78,900	14	01/01/2015	08/22/2015

D.1.2 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4AK5PM	1:80000	4	07/13/2011	08/13/2014	NO

Table 15: Largest Scale ENC's

US4AK5PM

Electronic Navigation Chart (ENC) US4AK5PM covers survey H12694 except for a small, featureless area on its northwest corner which is covered by US4AK5BM, the adjoining ENC (Figure 18). Apart from minor discrepancies, ENC US4AK5PM and Chart 16576 coincide over the H12694 survey area, therefore a comparison between H12694 and the ENC is equivalent to the preceding comparison with Chart 16576.

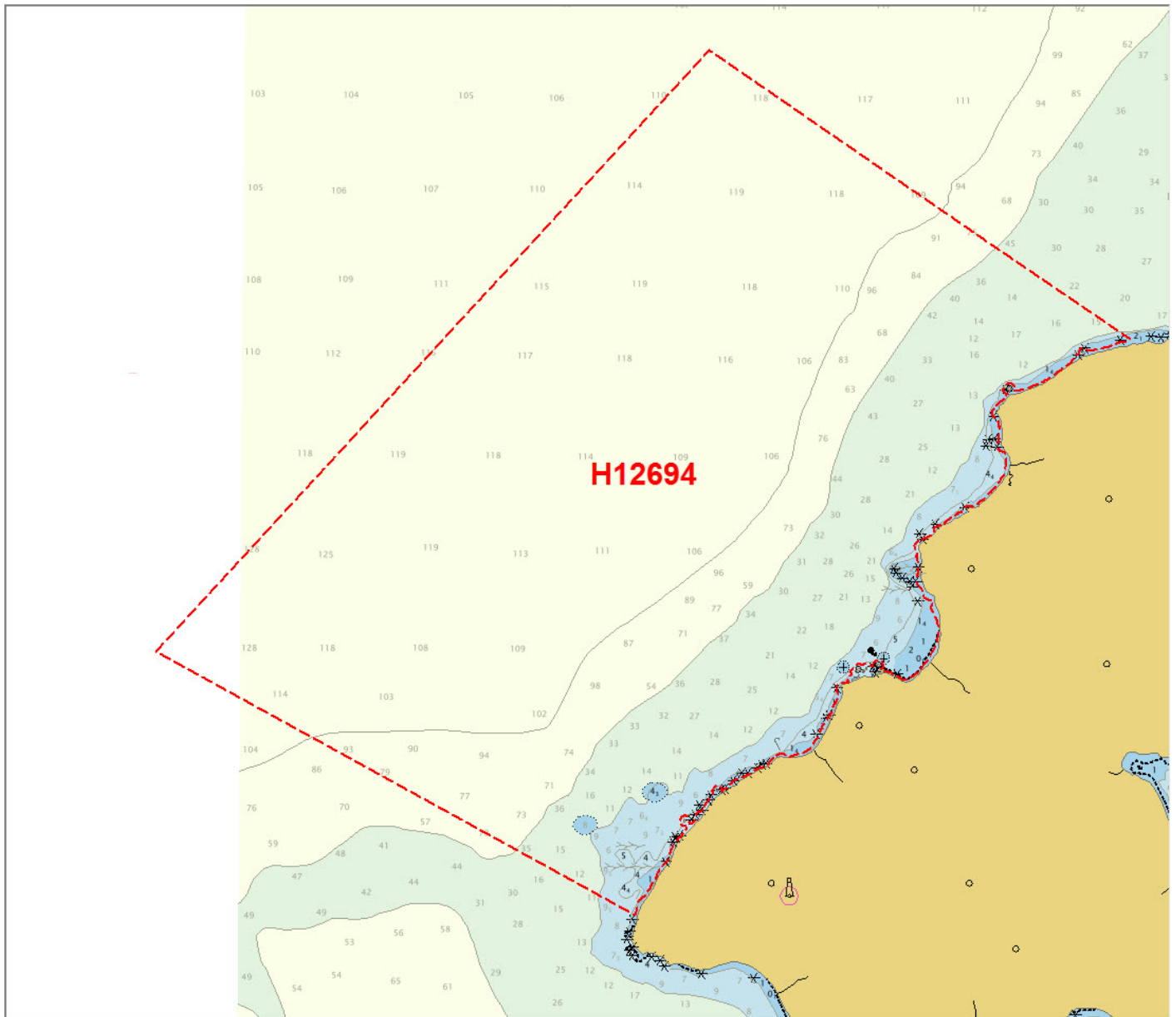


Figure 18: Section of ENC US4AK5PM with H12694 sheet limits overlaid.

D.1.3 AWOIS Items

No AWOIS items were assigned for this survey.

D.1.4 Maritime Boundary Points

Eight maritime boundary features were assigned for investigation by this survey. The features were addressed in the field as required and attributed in the H12694 Final Feature File submitted with this report.

10 Maritime boundary points assigned in PRF within the survey area. All features have been addressed.

D.1.5 Charted Features

There are no charted features labeled PA, ED, PD or Rep within the H12694 survey area.

D.1.6 Uncharted Features

No uncharted wrecks or obstructions exist in the H12694 survey area.

D.1.7 Dangers to Navigation

The following DTON reports were submitted to the processing branch:

DTON Report Name	Date Submitted
H12694 DTON Report	2014-08-05

Table 16: DTON Reports

Two dangers to navigation (DTON) were identified during this survey (Figure 19). The resultant chart corrections appeared in Notice to Mariner 37/2014 (September 13, 2014). For details, refer to the H12694 Danger to Navigation Report included in Appendix II of this report.

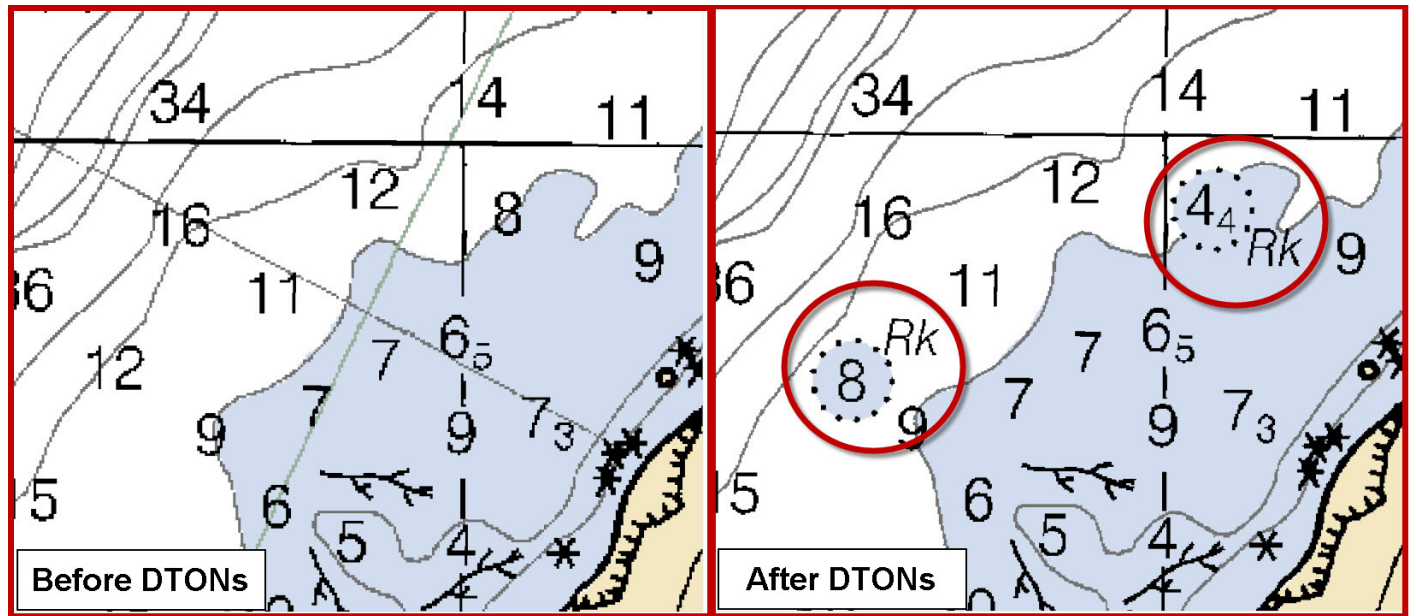


Figure 19: Chart 16576 before (left) and after (right) H12694 DTONs were applied.

*DTONs were submitted pre final tides. After final tides the depths are slightly deeper than submitted (4.80 fm vs. 4.683 fm and 8.169 fm vs. 7.993 fm)
DTON report is attached to this report.*

D.1.8 Shoal and Hazardous Features

No uncharted shoals or hazardous features exist in the H12694 survey area.

D.1.9 Channels

No channels exist within the survey area. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channel and range lines in the H12694 survey area.

D.1.10 Bottom Samples

Fine sand was collected at three of four bottom sample locations; no sample was acquired at the fourth location after three attempts. These bottom sample results are included in the H12694 Final Feature File submitted with this report.

were addressed as required with S-57 attribution and recorded in the H12694 FFF to best represent the features at chart scale. This file also includes new features found in the field as well as recommendations to update, retain or delete assigned features.

D.2.2 Prior Surveys

No prior survey comparisons were performed for this survey.

D.2.3 Aids to Navigation

No aids to navigation (ATONs) are located within the H12694 survey area.

D.2.4 Overhead Features

No overhead features are located within the H12694 survey area.

D.2.5 Submarine Features

No submarine features such as cables, pipelines or tunnels are located within the H12694 survey area.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals are located within the H12694 survey area.

D.2.7 Platforms

No platforms are located within the H12694 survey area.

D.2.8 Significant Features

No unusual features were located within the H12694 survey area.

D.2.9 Construction and Dredging

No construction or dredging was observed within the H12694 survey area.

D.2.10 New Survey Recommendation

No new surveys or further investigations are recommended for this area.

D.2.11 Inset Recommendation

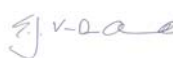



No new insets are recommended for this area.

E. Approval Sheet

As Chief of Party, Field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
Edward J. Van Den Aemele, CDR/NOAA	Commanding Officer, NOAA Ship RAINIER	02/17/2015	 2015.02.17 10:03:21 -08'00'
Adam Pfundt, LTJG/NOAA	Field Operations Officer, NOAA Ship RAINIER	02/17/2015	 Adam Pfundt I have reviewed this document 2015.02.17 09:50:52 -08'00'
James B. Jacobson	Chief Survey Technician, NOAA Ship RAINIER	02/17/2015	 James Jacobson I have reviewed this document 2015.02.17 09:11:30 -08'00'
B.D. Jackson	Senior Survey Technician, NOAA Ship RAINIER	02/17/2015	 I am the author of this document 2015.02.12 14:59:46 -08'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Station
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Survey Specifications and Deliverables

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Local Notice to Mariners
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPE	Total Propagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positioning System timing message
ZDF	Zone Definition File

H12694 DTON Report

Registry Number: H12694
State: Alaska
Locality: North Coast of Kodiak Island
Sub-locality: West of Raspberry Island
Project Number: OPR-P136-RA-14
Survey Date: 06/16/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16594	13th	04/04/1998	1:78,900 (16594_1)	[L]NTM: ?
16576	4th	09/01/2003	1:80,000 (16576_1)	USCG LNM: 11/9/2010 (2/25/2014) CHS NTM: None (1/31/2014) NGA NTM: 8/27/2005 (3/8/2014)
16580	14th	01/01/2008	1:350,000 (16580_1)	[L]NTM: ?
16013	30th	07/01/2006	1:969,761 (16013_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	8.56 m	58° 04' 52.7" N	153° 24' 50.9" W	---
1.2	Rock	14.62 m	58° 04' 35.2" N	153° 25' 59.4" W	---

1 - Dangers To Navigation

1.1) Profile/Beam 1343/508 / 2801_2014__1671946**DANGER TO NAVIGATION****Survey Summary**

Survey Position: 58° 04' 52.7" N, 153° 24' 50.9" W
Least Depth: 8.56 m (= 28.10 ft = 4.683 fm = 4 fm 4.10 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 0.163 m ; **TVU (TPEv)** ± 0.666 m
Timestamp: 2014-167.19:49:10.283 (06/16/2014)
Survey Line: h12694 / 2801_reson7125_hf_512 / 2014-167 / 2801_2014__1671946
Profile/Beam: 1343/508
Charts Affected: 16594_1, 16576_1, 16580_1, 16013_1, 531_1, 500_1, 530_1, 50_1

Remarks:

H12694 MBES acquired 8.5 meter soundings over a charted (16576) 8 fathom depth. Fishing and cargo vessels of fairly deep draft have been seen transiting the area. Final tide data has been requested but not yet available for H12694 hydrographic data.

Feature Correlation

Source	Feature	Range	Azimuth	Status
2801_2014__1671946	1343/508	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

4 ½fm (16594_1, 16580_1, 16013_1, 530_1)

4fm 4ft (16576_1, 531_1)

8.5m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20140711
 SORIND - US,US,graph,H12694

TECSOU - 3:found by multi-beam

VALSOU - 8.565 m

WATLEV - 3:always under water/submerged

Feature Images

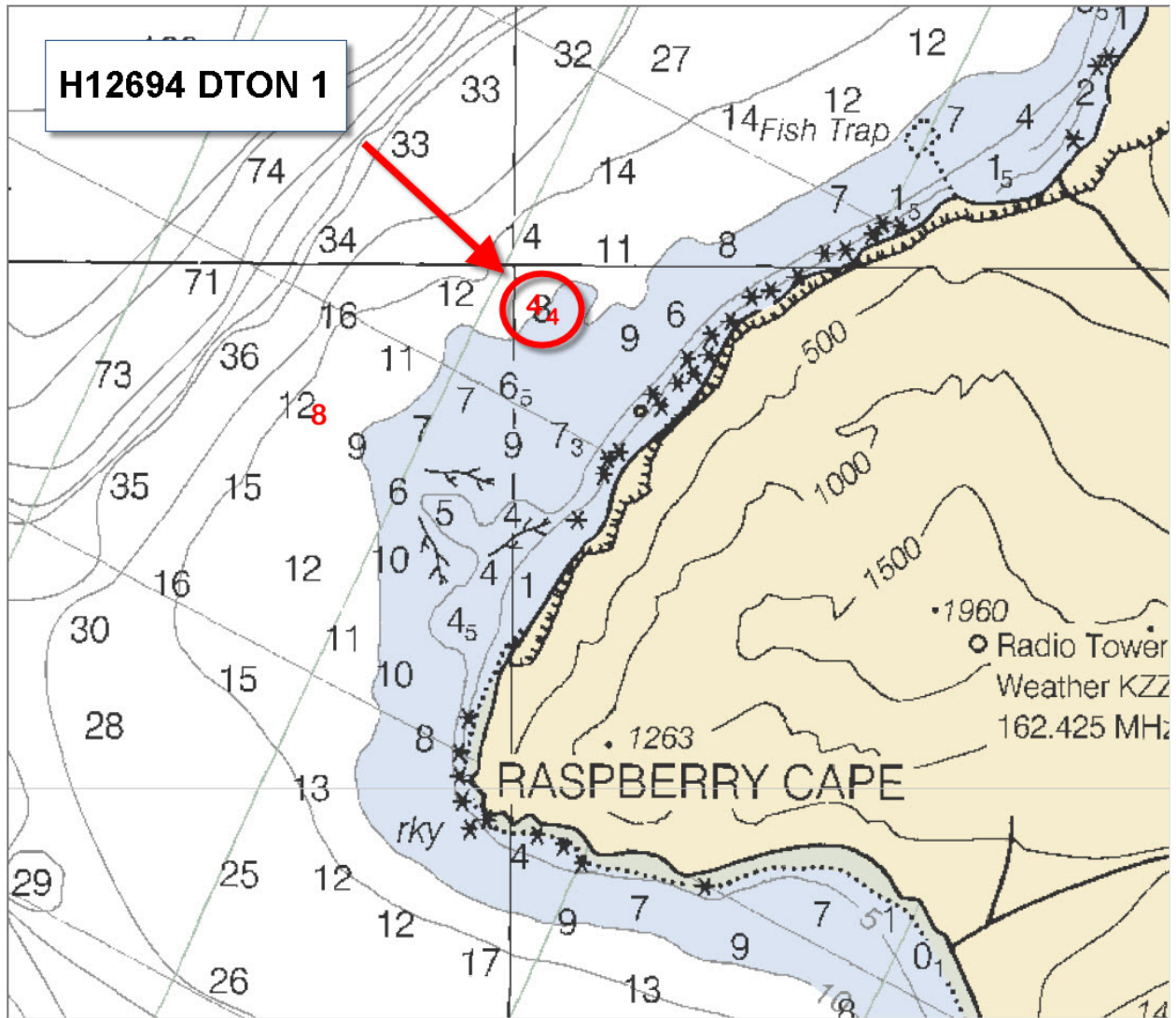


Figure 1.1.1

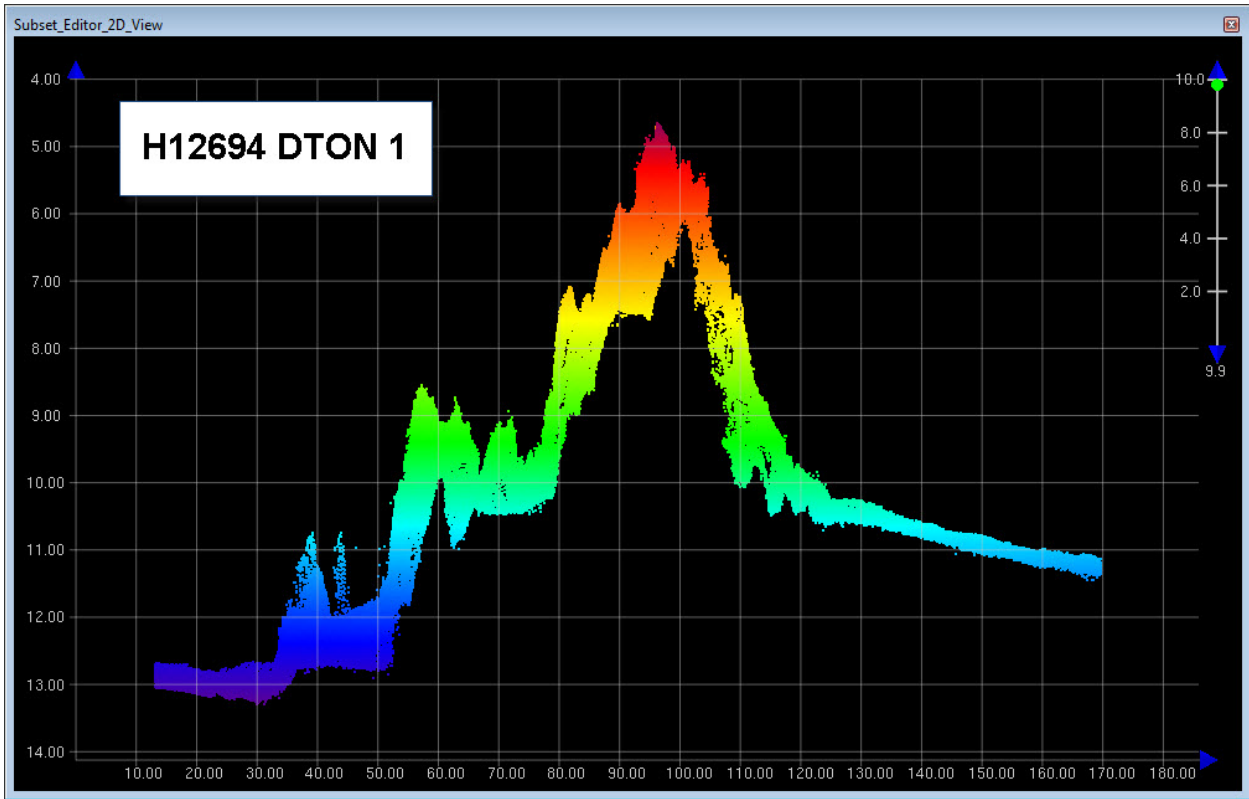


Figure 1.1.2

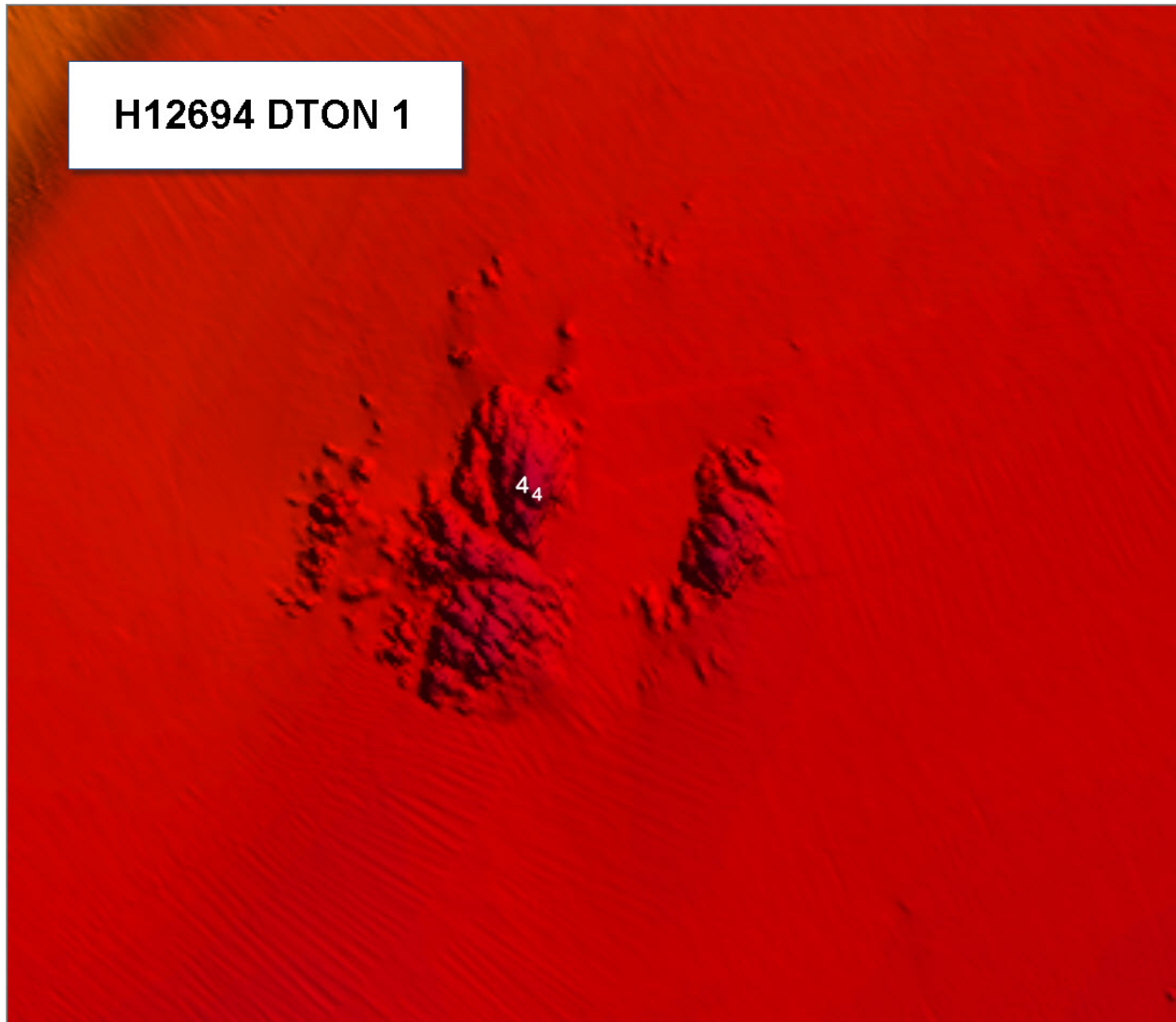


Figure 1.1.3

1.2) Profile/Beam 1698/233 / 2801_2014__1672121

DANGER TO NAVIGATION

Survey Summary

Survey Position: 58° 04' 35.2" N, 153° 25' 59.4" W
Least Depth: 14.62 m (= 47.96 ft = 7.993 fm = 7 fm 5.96 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 0.124 m ; TVU (TPEv) ± 0.662 m
Timestamp: 2014-167.21:26:00.760 (06/16/2014)
Survey Line: h12694 / 2801_reson7125_hf_512 / 2014-167 / 2801_2014__1672121
Profile/Beam: 1698/233
Charts Affected: 16594_1, 16576_1, 16580_1, 16013_1, 531_1, 500_1, 530_1, 50_1

Remarks:

H12694 MBES acquired 8 fathom soundings located between charted (16576) 12 and 9 fathom depths. Final tide data has been requested but not yet available for H12694 hydrographic data.

Feature Correlation

Source	Feature	Range	Azimuth	Status
2801_2014__1672121	1698/233	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

8fm (16594_1, 16580_1, 16013_1, 530_1)

8fm 0ft (16576_1, 531_1)

14.6m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20140711
 SORIND - US,US,graph,H12694

TECSOU - 3:found by multi-beam

VALSOU - 14.617 m

WATLEV - 3:always under water/submerged

Feature Images

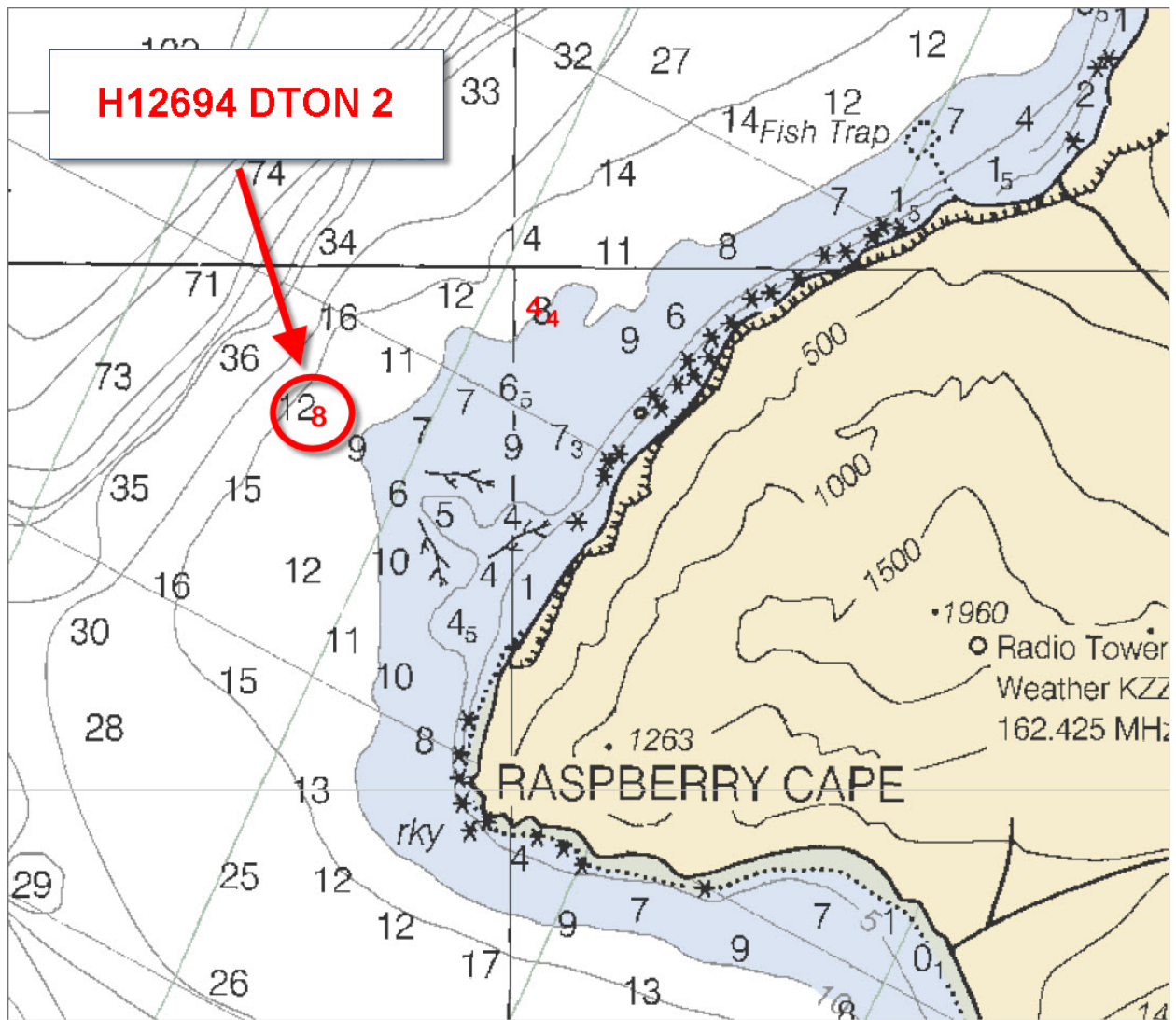


Figure 1.2.1

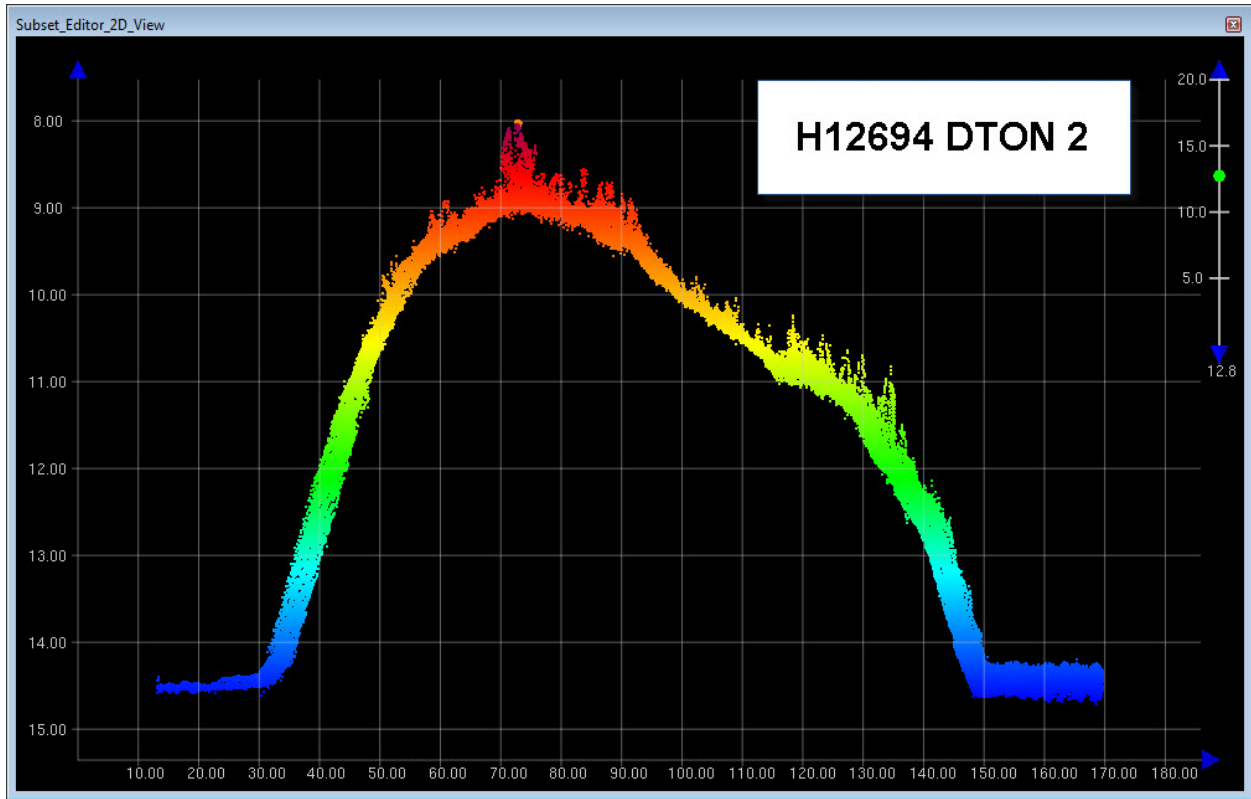


Figure 1.2.2



Figure 1.2.3



Re: Tides Delay for H12694

1 message

Lucy Hick - NOAA Federal <Lucy.Hick@noaa.gov>

Fri, Dec 5, 2014 at 9:20 AM

To: "Ops Rainier (LT Russell Quintero)" <OPS.Rainier@noaa.gov>

Cc: Michael Gonsalves <Michael.Gonsalves@noaa.gov>, Barry Jackson <Barry.Jackson@noaa.gov>, David Wolcott - NOAA Federal <David.Wolcott@noaa.gov>, Benjamin K Evans - NOAA Federal <Benjamin.K.Evans@noaa.gov>

Russ,

We spoke with CO-OPS and PHB and for a number of reasons we would prefer you to hold off on submitting the project until you receive final tides from CO-OPS.

CO-OPS is investigating where W. Raspberry and Terror Bay is in their process and will see what (if anything) can be done to accelerate it's progress through their queue.

We appreciate your desire to clear this survey from your decks (particularly considering how long it has been languishing on board), but, is there a compelling reason to endeavor to submit it now (i.e. the sheet manager's imminent departure on a three-month African safari)? If not, no one is being well served by submitting a knowingly deficient product ... all we're really doing is shifting the work normally done by the ship onto the Branch (re-application of uncertainty, re-application of tides, recomputing all grids, adjusting heights of shoreline features).

While PHB is willing to assist with this project, their current queue shows they will not address H12694 until at least mid-January. At present, there aren't any efficiencies to be gained by pushing the survey off the ship now.

To avoid this situation with future projects, we did discuss with CO-OPS the possibility of the ship performing intermediate bracketing levels and staff-to-gauge measurements for these long-term projects. This way CO-OPS would be able to provide intermediate products, which would allow you to get the surveys off the ship sooner. While their initial reaction was positive, they do need to investigate how it would affect their workflow, and whether it would create a duplication of effort on their part. Regardless, in the future, the ship and HSD OPS will need to work together to pay closer attention to the elapsed time between the request for tides and the receipt of final tides from CO-OPS.

Please let me know if you have any questions.

Best Regards,
Lucy

On Thu, Dec 4, 2014 at 1:11 PM, Ops Rainier (LT Russell Quintero) <Ops.Rainier@noaa.gov> wrote:
Lucy and Mike,

We submitted the request for final tides to CO-OPS for H12694 on July 12th. We have, as of December 4th, not yet received them. The final tides package, our data and leveling runs, for W. Raspberry and Terror Bay (the subordinate gauges for H12694) were submitted on November 5th.

This adds a particular hurdle as the entire North Kodiak project had an extremely high *a priori* estimate of zoning uncertainty, 0.67m. Using this value, all of our uncertainty statistics fail. The most dynamic and complex area tidally was the Whale Passage and Afognak Strait sheet, H12689. This was controlled by Uzkosti and Nachalni, and we do have final tides for that, with a revised zoning uncertainty of 0.24m.

For now, I am going to advise Jackson to use 0.24m as his error (more specifically 0.122m for Caris) and proceed with his analysis, unless HSD has a different preference and guidance on how to proceed.

V/R,
Russ

—

Russell Quintero, LT/NOAA
Operations Officer, NOAA Ship *Rainier*
2002 SE Marine Science Dr
Newport, OR 97365
[206-660-8747](tel:206-660-8747)

—

Lucy Hick

Acting Team Lead | COR-II
Operations Branch | Hydrographic Surveys Division
Office of Coast Survey | National Oceanic & Atmospheric Administration
(301) 713-2702 x119 | Lucy.Hick@noaa.gov



TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : May 04, 2015

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P136-RA-2014
HYDROGRAPHIC SHEET: H12694 Rev

LOCALITY: West of Raspberry Island, North Coast of Kodiak Island
TIME PERIOD: May 12 - July 12, 2014

TIDE STATION USED: 9457535 West Raspberry Island, AK
Lat. 58° 06.4'N Long. 153° 20.4' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.021 meters

TIDE STATION USED: 9455500 Seldovia, AK
Lat. 59° 26.4' N Long. 151° 43.2' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 5.252 meters

ESTIMATED ZONING ERROR 0.33 m

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SS15 & SS17

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).

Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the Tidezone corrector file (*.ZDF). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available.

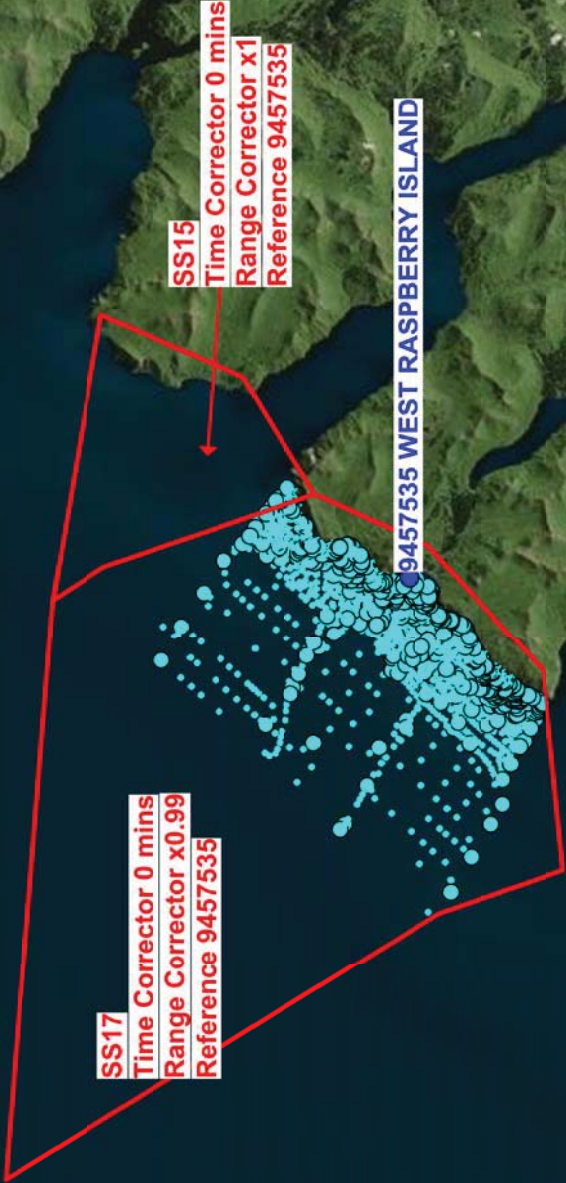
HOVIS.GERALD.THOMAS.JR.1365860250
Digitally signed by HOVIS.GERALD.THOMAS.JR.1365860250
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.JR.1365860250
Date: 2015.05.15 10:45:58 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH



9455500 SELDOVIA

Final Tidal Zoning for OPR-P136-RA-2014, H12694_Rev West of Raspberry Island, North Coast of Kodiak Island, AK



APPROVAL PAGE

H12694

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- H12694_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12694_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Approved: _____

Peter Holmberg
Cartographic Team Lead, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

CDR, Benjamin K. Evans, NOAA
Chief, Pacific Hydrographic Branch