H12290

NOAA Form 76-35A

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12290

LOCALITY

State:	Alaska
General Locality:	West of Prince of Wales Island
Sub-locality:	St. Nicholas Channel to Siketi Sound

2011

CHIEF OF PARTY
CDR E.J. Van Den Ameele

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Date:

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET		**H12290**

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:	**Alaska**
General Locality:	**West of Prince of Wales Island**
Sub-Locality:	**St Nicholas Channel to Siketi Sound**
Scale:	**20000**
Dates of Survey:	**09/23/2011 to 10/16/2011**
Instructions Dated:	**09/12/2011**
Project Number:	**OPR-O190-RA-11**
Field Unit:	**NOAA Ship *Rainier***
Chief of Party:	**CDR E.J. Van Den Ameele**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**
H-Cell Compilation Units:	***meters at Mean Lower Low Water***

Remarks:

Horizontal Coordinate System: UTM Zone 8. The purpose of this survey is to provide contemporary survey to update National Ocean Service (NOS) charts. All separates are filed with the hydrographic data. Revisions and 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 H12290

Project: OPR-O190-RA-11

Locality: West of Prince of Wales Island

Sublocality: St Nicholas Channel to Siketi Sound

Scale: 1:20000

September 2011 - October 2011

NOAA Ship *Rainier*

Chief of Party: CDR E.J. Van Den Ameele

A. Area Surveyed

St Nicholas Channel to Siketi Sound

A.1 Survey Limits

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
55.3767055556 N 133.536655556 W	55.5276583333 N 133.716338889 W

Table 1: Survey Limits

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

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. This project will cover a total of 272 square nautical miles (SNM) with approximately 35 SNM of critical survey area as designated in NOAA Hydrographic Survey Priorities, 2010 edition. H12290 covers 22.39 SNM of this project.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Density was analyzed visually using a color scheme to identify any nodes that did not have the minimum sounding density of 5 soundings per node. The survey was found to wholly meet this requirement, except where noted in section A.4.

The data is adequate to supersede charted data.

A.4 Survey Coverage

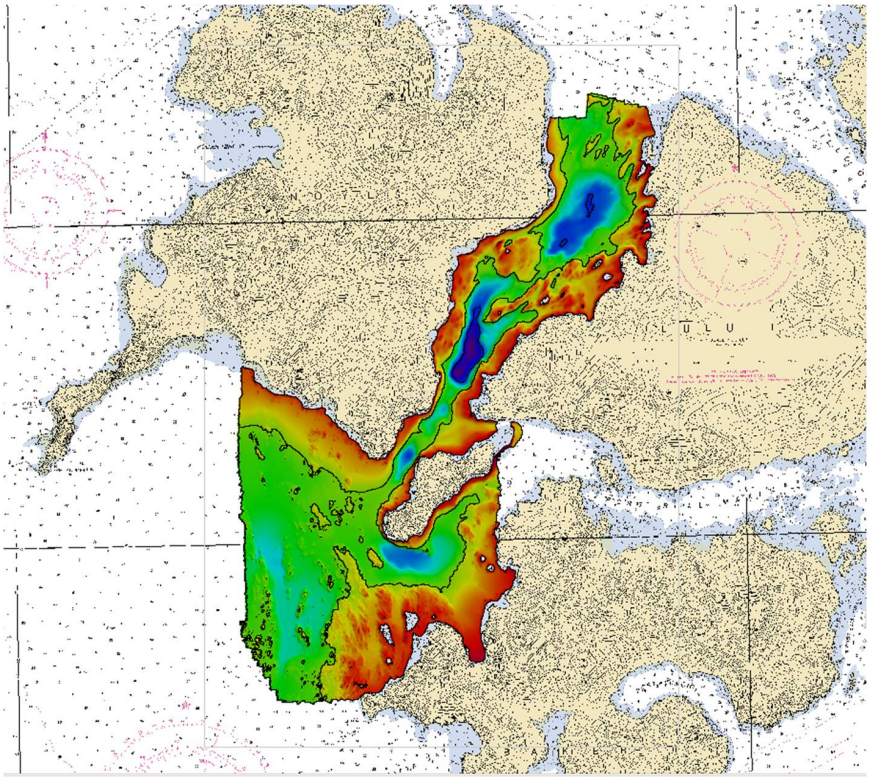


Figure 1: H12290 Survey Area

The 4 meter curve was not defined in certain areas, given the steep and rocky nature of the shoreline of the area and safety concerns. The presence of kelp throughout the survey area also hindered data acquisition efforts. Any kelp areas not surveyed are represented by kelp areas or points in the H12290 Final Features File. Owing to operational constraints and weather conditions, certain holidays were not run (see images below for descriptions). Further, data overlapping with H12289 was acquired during the acquisition of a low water buffer line to the east of Cone Island. A number of what appear to be holidays exist throughout the survey. Upon closer examination, these proved to be acoustic shadows caused by ensonified rocks. Limited time was available to acquire holidays, and following an analysis by ship's personnel, it was decided to not acquire further data on these features in favor of acquisition on actual holidays. Least depths were ensonified on rocks creating shadows.

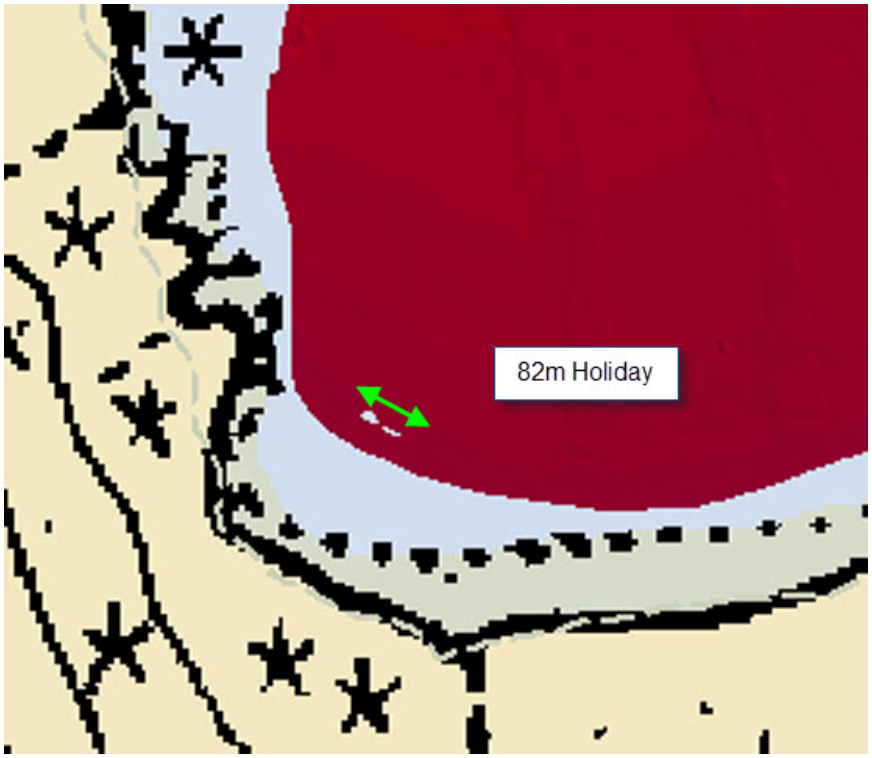


Figure 2: An 82 meter long holiday located in a small cove approximately 4KM SSE of Cone Island. No signs of significant shoaling or features were observed in surrounding MBES bathymetry.

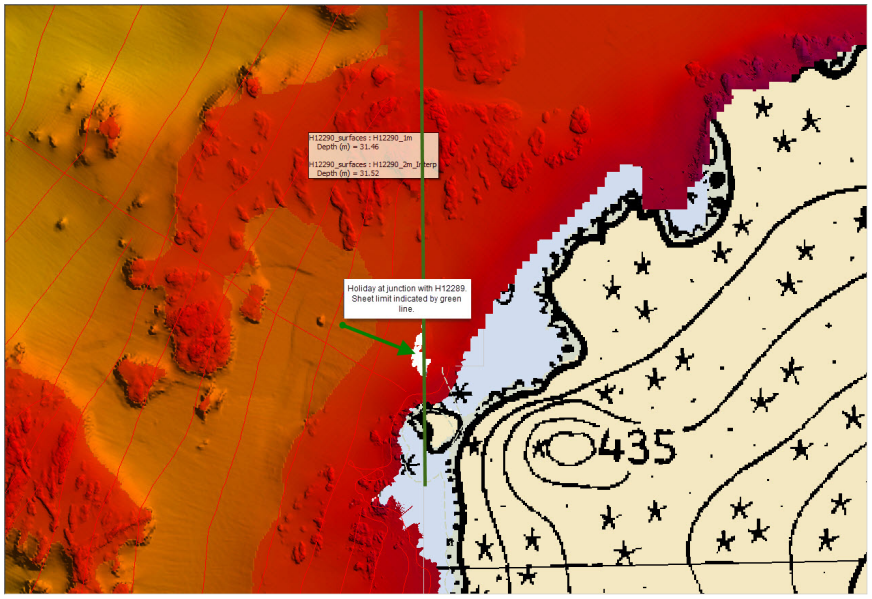


Figure 4: H12290's junction with H12289 (indicated by green line) with coverage from H12290. An area 170 meters long, in the southern portion of the junction area, lacks complete MBES coverage; however, there is no indication of shoaling or significant features in the area.

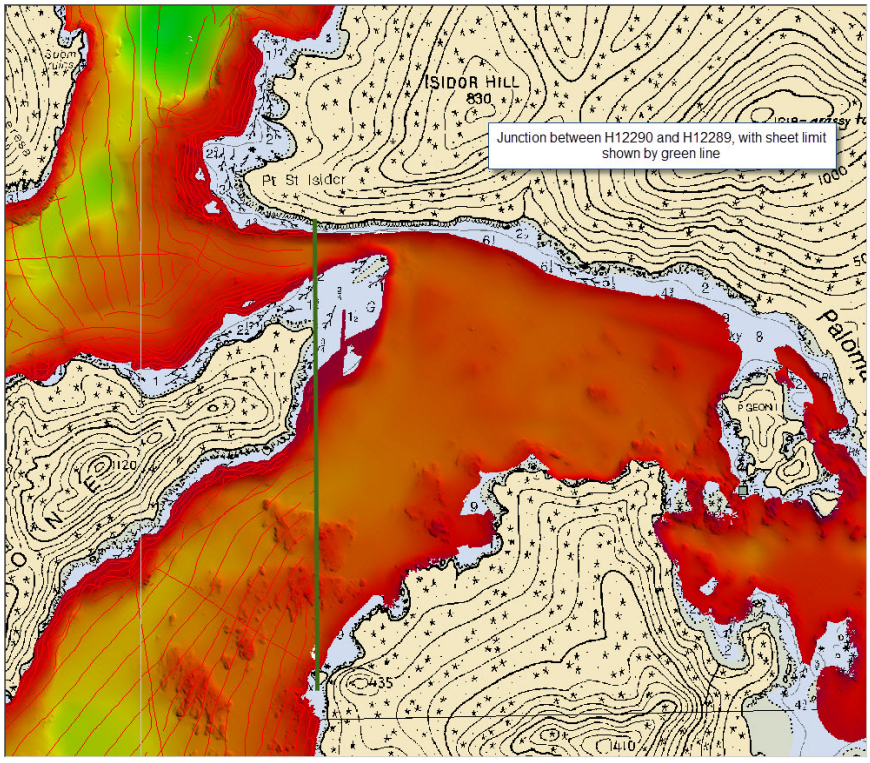


Figure 5: Overlap with H12289. Sheet limits indicated by green line.

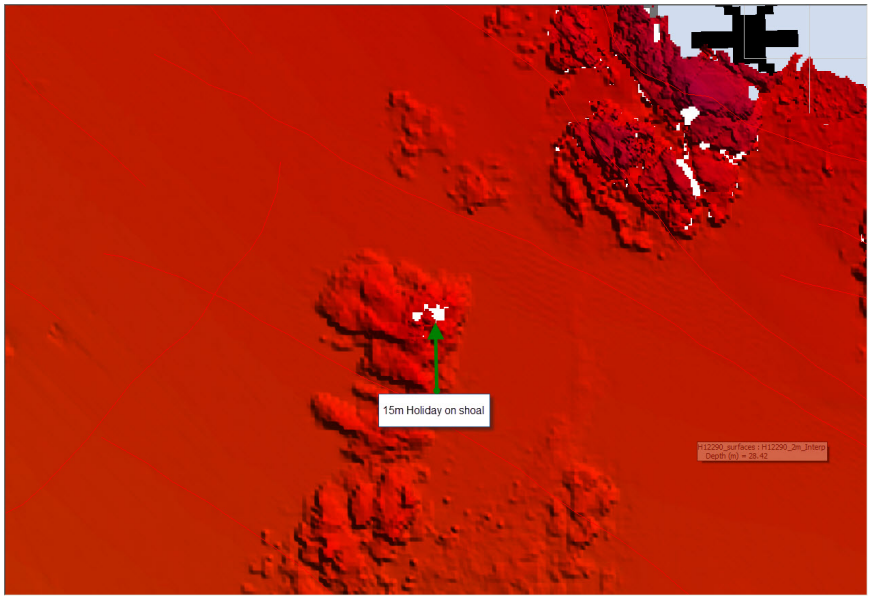


Figure 6: 15m holiday on a shoal. It is believed that the least depth has been ensonified, and the coverage gap represents the shadow caused by it. Several of these exist throughout the survey; unless otherwise stated, the least depth on them was believed to be ensonified.

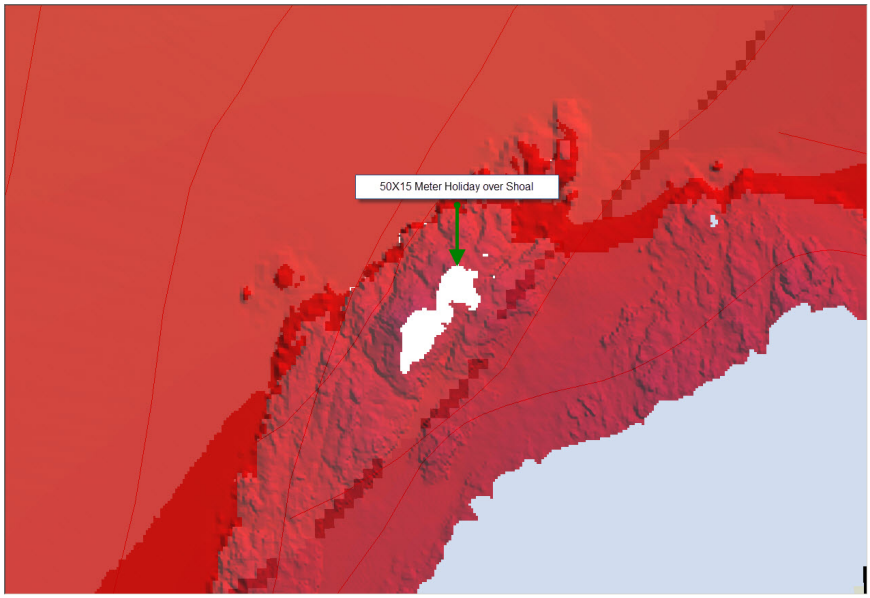


Figure 7: 50 meter long by 15 meter wide holiday over a shoal approximately 800m south of Point Saint Isidor. This holiday was not acquired owing to safety concerns regarding approaching the area. It is uncertain if the least depth was acquired; 4.361 meters was the shallowest acquired on it.

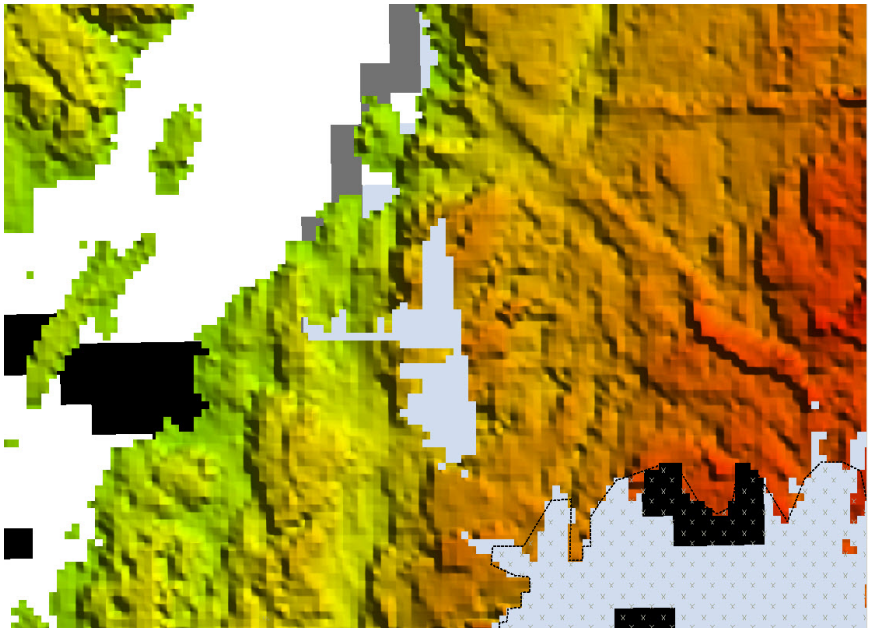


Figure 8: A 62 meter long by 9 meter wide holiday is located approximately 400 meters northwest of Outer Point, and was not acquired owing to weather conditions and uncertain depths in the area.

All shoal areas and holidays were inspected at the Pacific Hydrographic Branch. The data is adequate to supersede charted data.

A.5 Survey Statistics

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

	HULL ID	*2801*	*2802*	*2804*	*S-221*	*Total*
LNM	**SBES Mainscheme**	0	0	0	0	0
	MBES Mainscheme	158.29	234.722	56.62	0	449.632
	Lidar Mainscheme	0	0	0	0	0
	SSS Mainscheme	0	0	0	0	0
	SBES/MBES Combo Mainscheme	0	0	0	0	0
	SBES/SSS Combo Mainscheme	0	0	0	0	0
	MBES/SSS Combo Mainscheme	0	0	0	0	0
	SBES/MBES Combo Crosslines	12.979	4.29	0.433	1.478	19.18
	Lidar Crosslines	0	0	0	0	0
Number of Bottom Samples						5
Number of DPs						155
Number of Items Items Investigated by Dive Ops						0
Total Number of SNM						22.39

Table 2: Hydrographic Survey Statistics

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

Survey Dates
09/23/2011
09/24/2011
09/25/2011
09/26/2011
09/27/2011
09/28/2011
09/29/2011
09/30/2011
10/01/2011
10/04/2011
10/18/2011

Table 3: Dates of Hydrography

Crossline linear nautical mileage totaled 4.3% of total linear nautical mileage.

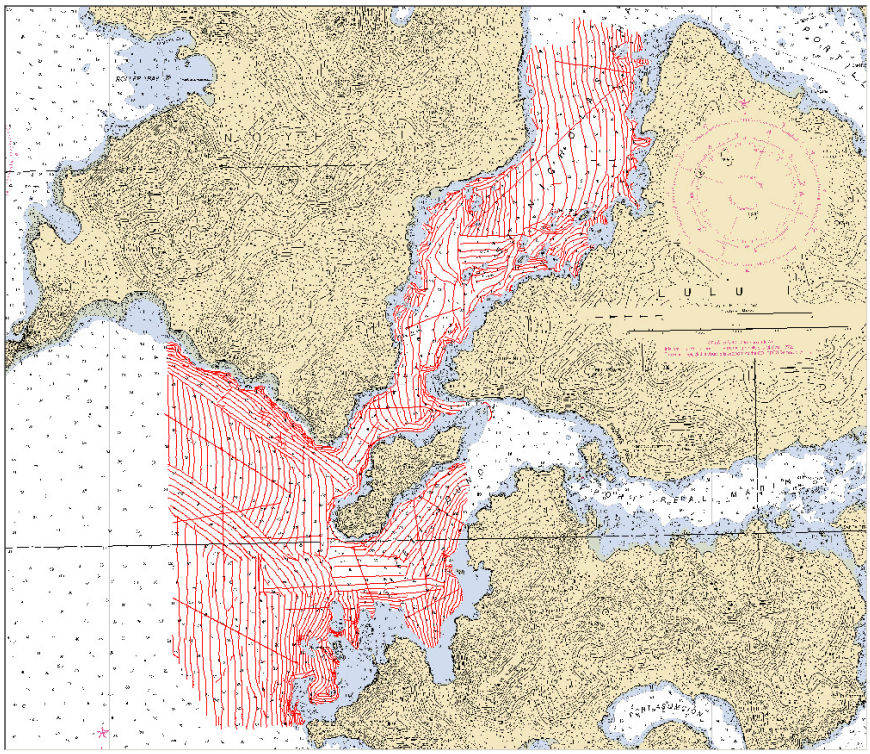


Figure 9: H12290 Trackline overview

A.6 Shoreline

The majority of assigned shoreline features (336 out of 514) were addressed by the field party. See section D.2 for specific description of shoreline methodology and issues.

A.7 Bottom Samples

Bottom samples were conducted in accordance with Project Instructions and HSSD.

Three surveyed bottom samples and 60 bottom types to be retained are included in the chart update product. Chart per H12290_CS.000.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the 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	***2801***	***2802***	***S-221***	***2804***
LOA	28 feet	28 feet	231 feet	28 feet
Draft	3.5 feet	3.5 feet	16 feet	3.5 feet

Table 4: Vessels Used

B.1.2 Equipment

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

Manufacturer	Model	Type
Sea-bird	SBE 19e	Conductivity, Temperature and Depth Sensor
Applanix	POS M/V	Vessel Attitude and Positioning System
Kongsberg	EM710	MBES
Reson	7125	MBES
Rolls Royce-Odim Brooke Ocean Technology	Moving Vessel Profiler200	Conductivity, Temperature and Depth Sensor

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Two primary methods of analysis were used to assess crossline agreement. The first was quantitative, and involved using the Caris QC Report function to assess crossline agreement with mainscheme bathymetry over 90 degrees of the swath width, in five degree sections. An assessment using IHO S-44 Special Order quality requirements showed a mean agreement of 98.425% of soundings between lines. Using Order 1a requirements, a 99.344% agreement was found. With Order 2 requirements, the crosslines and mainscheme agreement was found to be 99.734%. A qualitative approach was also used to check for crossline agreement. Two surfaces were created, one of mainscheme bathymetry and another exclusively of crosslines. The two were then run through a differencing process in Caris Bathy DataBASE 3.2. The ensuing surface was then analyzed visually for any systematic errors and differences between the surfaces of more than .5 meters. Analysis yielded no evidence of systematic errors. A final visual comparison was conducted using subset editor in Caris HIPS and SIPS 7.1. No evidence of any systematic error was detected using this method.

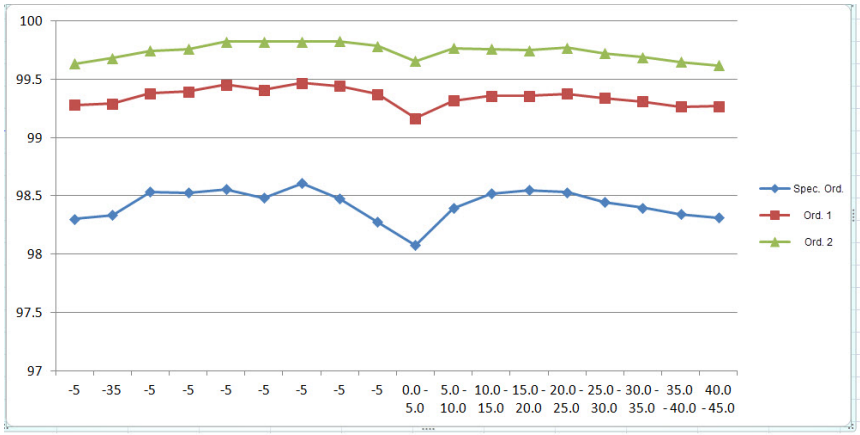


Figure 10: A table showing level of crossline agreements at different IHO S-44 quality levels. Swath is represented in 5 percent increments.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0meters	0.095meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
2801	3 m/smeters/second		.15meters/second
2804	3 m/smeters/second		.15meters/second
2804	3 m/smeters/second		.15meters/second
S-221		3 m/smeters/second	.05meters/second

Table 7: Survey Specific Sound Speed TPU Values

Uncertainty values were input during processing according to the above values. Following the creation of surfaces, an analysis of the data was carried out to assess the survey's agreement with IHO S-44 Order 1 quality requirements. Less than 1% of nodes in the CUBE surfaces did not meet IHO Order 1 quality requirements, and the majority of these were found to lie in areas where the outer beams of the MBES swath were major contributors to the surface. Otherwise, the survey exceeds Order 1 requirements, with most areas meeting Special Order requirements.

Tidal uncertainty values are a single value provided by COOPS. While it represents both measured and zoning uncertainties. the majority of the uncertainty value originates in zoning. As a result, tidal uncertainty values were applied wholly to zoning.

B.2.3 Junctions

H12290 shared junctions with survey H12289 to the east, H12293 to the south, and H11849 and H11690 to the north.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12289	1:20000	2011	NOAA Ship RAINIER	E
H12293	1:20000	2011	NOAA Ship RAINIER	W
H11690	1:20000	2007	NOAA Ship RAINIER	N
H11849	1:20000	2008	NOAA Ship RAINIER	N

Table 8: Junctioning Surveys

H12289

Small differences were noted between data acquired during H12290 and H12289; however, none of these exceeded 50 centimeters. Areas of disagreement were primarily in areas of significant bathymetric relief, or in areas where outer beams were significant contributors to the CUBE surface.

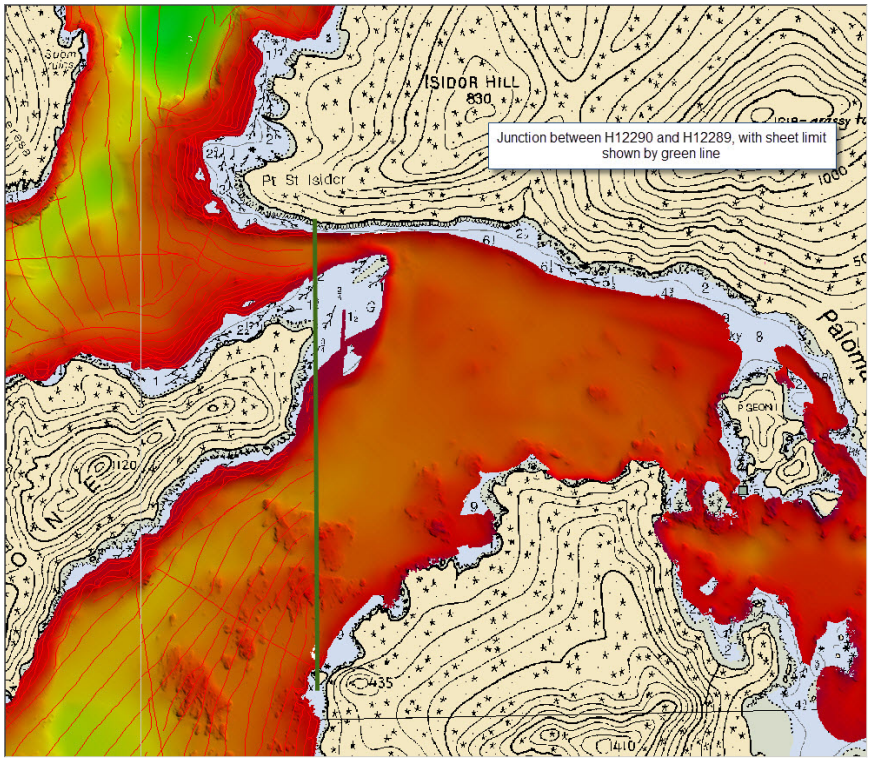


Figure 11: Junction with H12289 indicated by green line.

H12289 has not been compiled yet.

H12293

H12293 compared favorably with H12290. Differences were noted in outer beams of MBES swaths; at and near nadir, however, the differences are on the order of 2-3 centimeters. Areas of disagreement were primarily in areas of significant bathymetric relief, or in areas where outer beams were significant contributors to the CUBE surface.

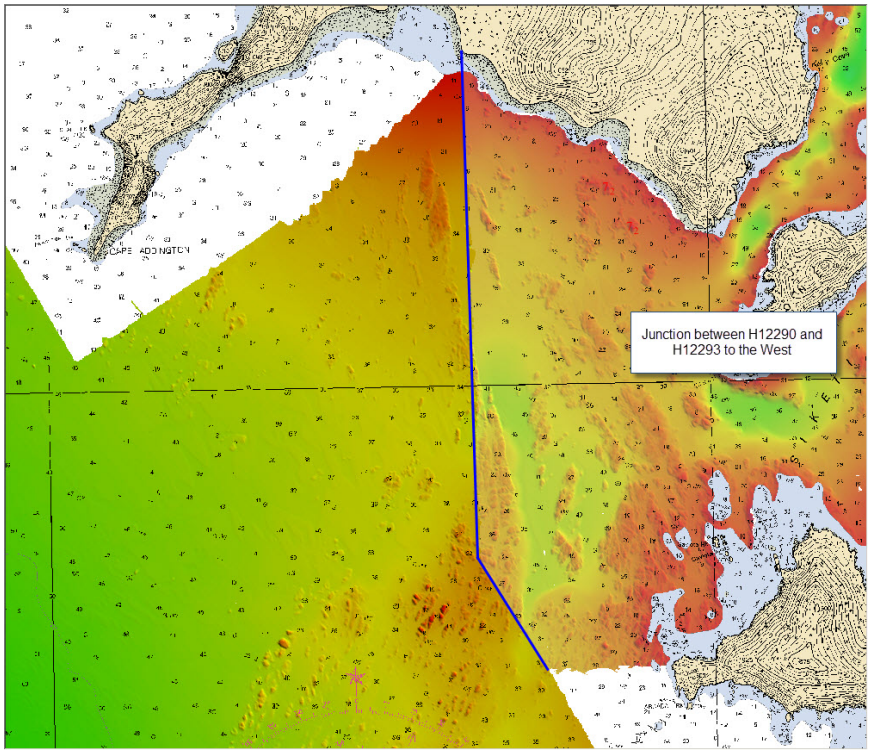


Figure 12: Junction with H12293 indicated by blue line.

A common junction was made with H12293 during compilation.

H11690

A 5 meter resolution Bathymetry Attributed Grid (BAG) created from data acquired during survey H11690 was compared to a 4 meter grid of H12290's data. An objective analysis showed that 91% of grid nodes agreed within 50cm between the surfaces. Areas of disagreement were primarily in areas of significant bathymetric relief, or in areas where outer beams were significant contributors to the CUBE surface. Areas of high differences are indicated in images below.

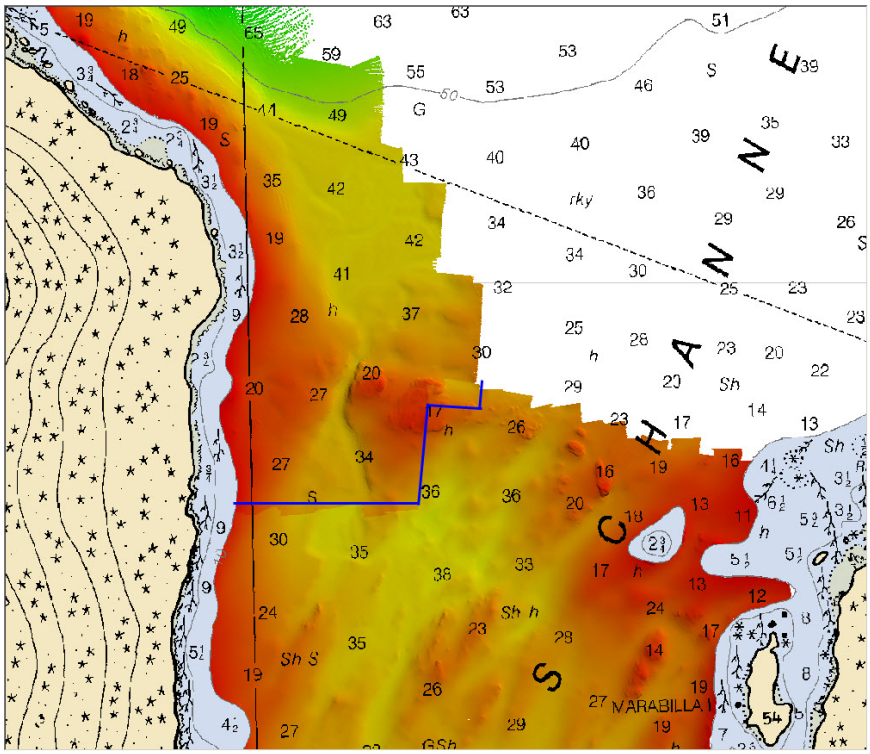


Figure 13: Junction with H11690 indicated by blue line.

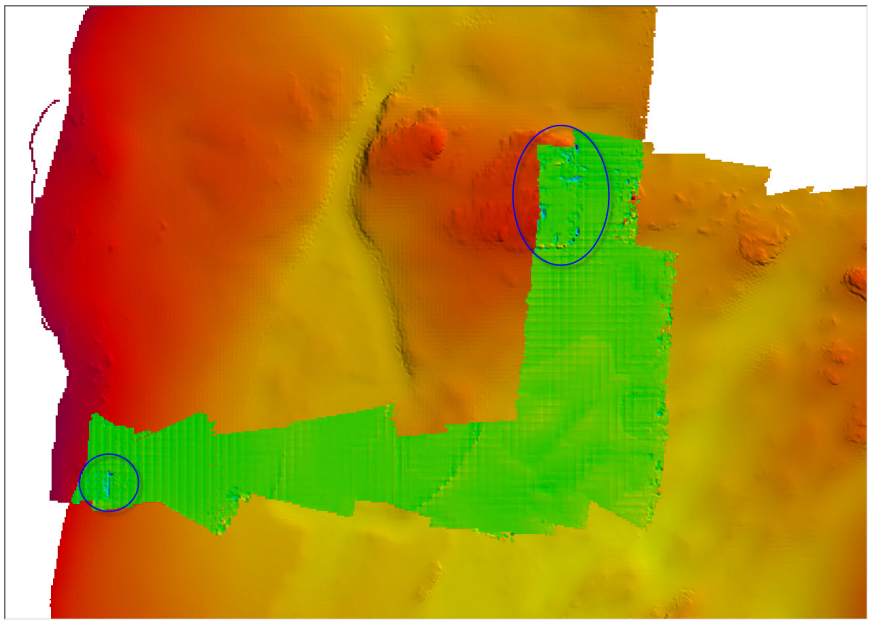


Figure 14: Areas indicated with blue circles have high surface-to-surface differences. All differences were found to be in areas of significant bathymetric relief.

H12290 should supersede data from H11690.

H11849

A 5-meter resolution Bathymetry Attributed Grid (BAG) created from data acquired during survey H11849 was compared to a 4 meter grid of H12290's data. The comparison found that the surfaces agreed within 0.5 meters over 99.8% of nodes. Areas of disagreement were primarily in areas of significant bathymetric relief, or in areas where outer beams were significant contributors to the CUBE surface.

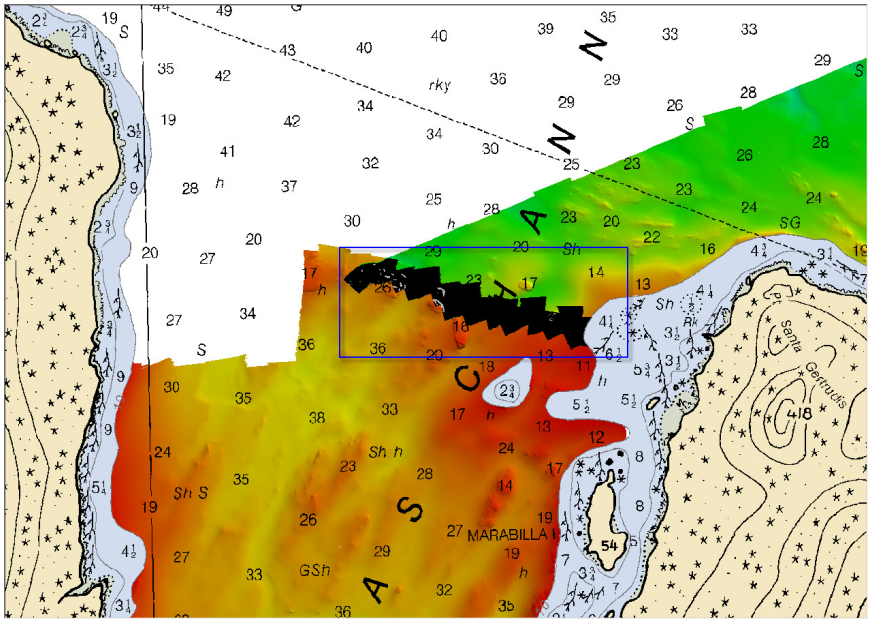


Figure 15: Junction with H11849 indicated by blue line.

H12290 should supersede data from H11849.

B.2.4 Sonar QC Checks

There were no deviations from the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

B.2.5.1

No unusual conditions affecting equipment effectiveness were encountered in this survey.

B.2.6 Factors Affecting Soundings

B.2.6.1 Kelp presence

A significant amount of eel grass and kelp was discovered in the survey area. In areas where multibeam data was acquired on vegetation, soundings on vegetation were rejected to more accurately represent the seafloor depths.

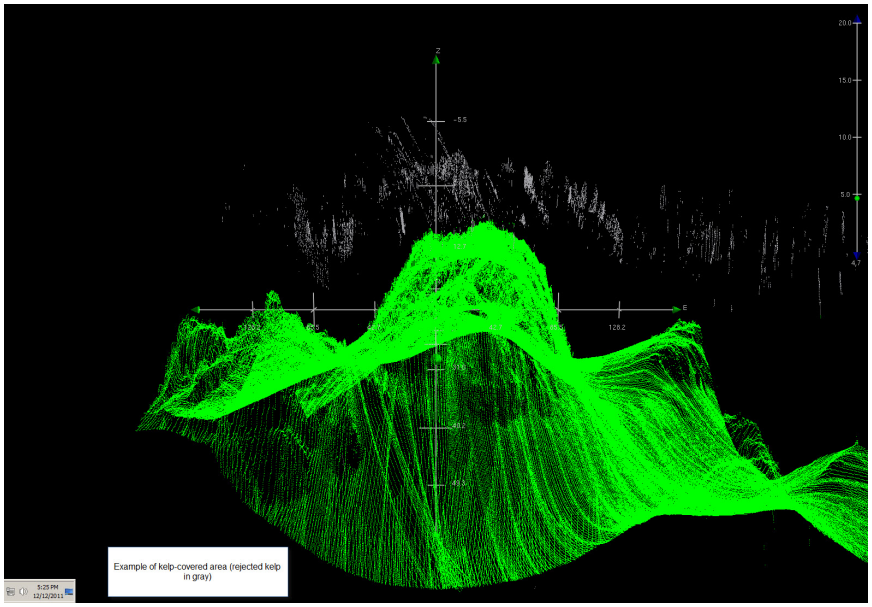


Figure 16: Example of a kelp covered area in the northern sector of the survey.

The data is adequate to supersede charted data.

B.2.6.1 Applanix TrueHeave issue on 2802 on DN268

Several data gaps were found in the Applanix TrueHeave file logged by launch 2802 on DN 268, causing acquired data to not be visible in Subset Editor or the BASE surface. This was found to be a result of TrueHeave data being acquired over UTC midnight. Applanix TrueHeave data were removed from the HDCS folder for the line in question (2802_2011_2682349) and replaced it with real-time heave. which caused the data to display with no notable loss of data quality.

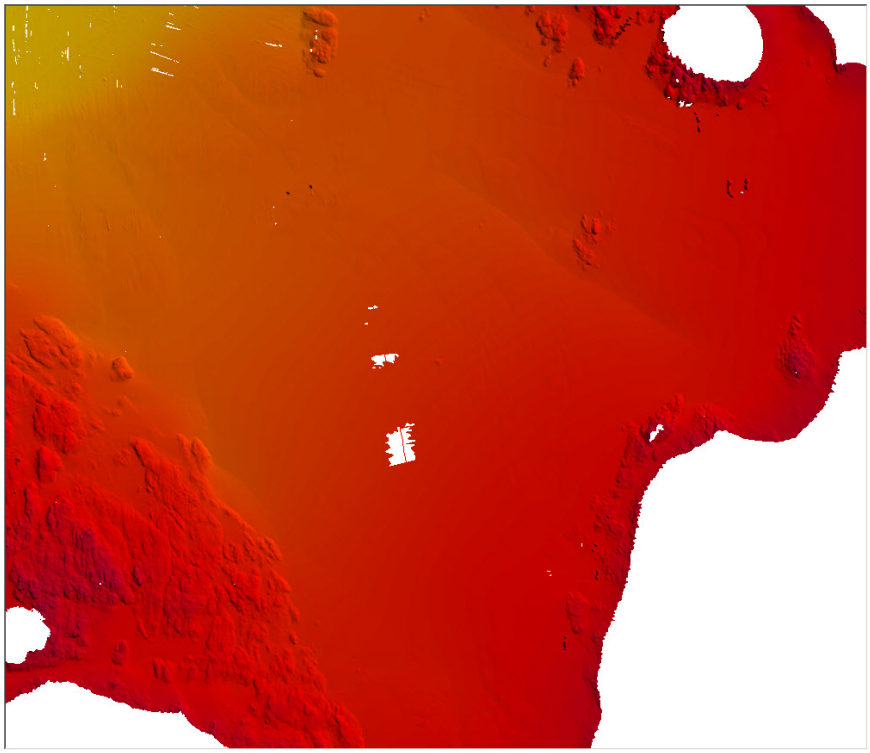


Figure 17: True heave failure induced coverage gap before removal of true heave data, in vicinity of 55-24-03.51N, 133-37-43.8W.

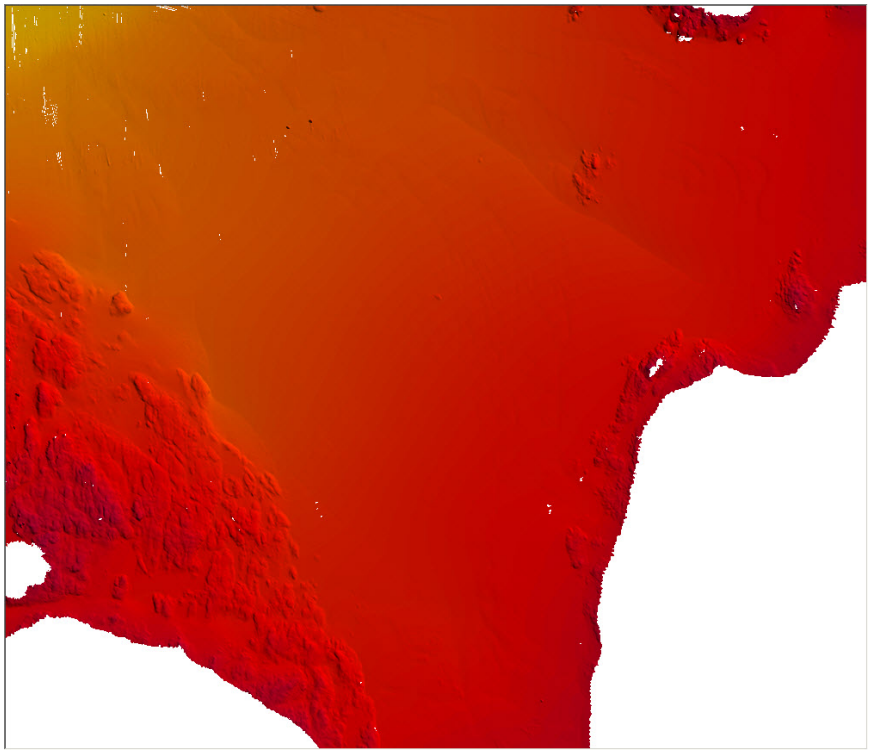


Figure 18: Coverage gap following removal of true heave data.

The data is adequate to supersede charted data.

B.2.6.1 Heading artifact on 2802 on DN270

A heading artifact was noted in data acquired on DN270 by launch 2802. Artifact values are on the order of .15 meters. Horizontal control PPK data failed to apply to data acquired by 2802 on DN270, which may be the root cause of this problem (see section C.3 for further information on the failure.) There is no impact on the overall quality of the data caused by it.

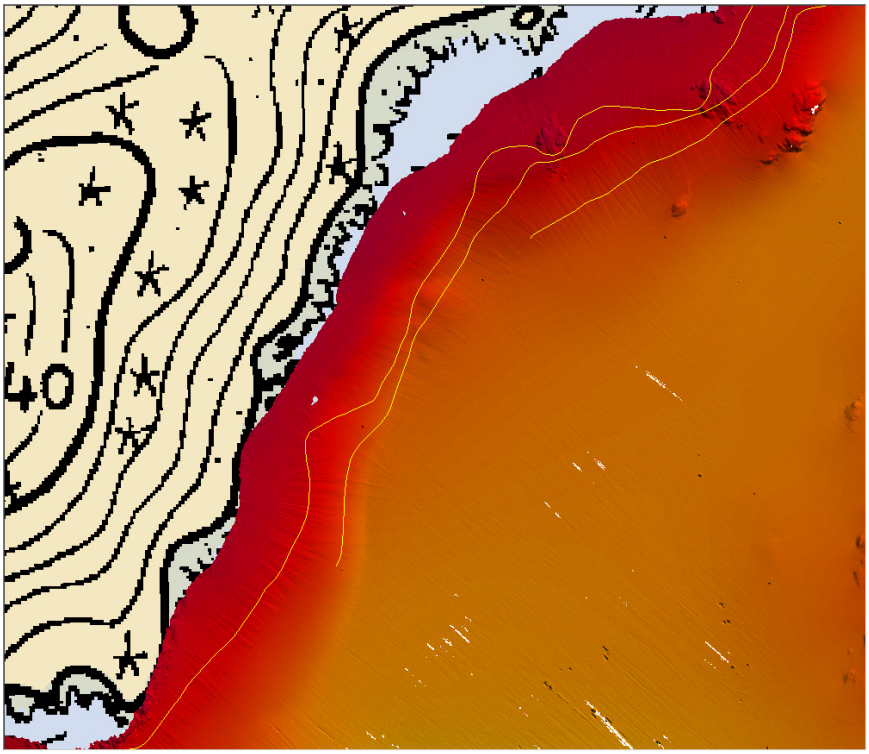


Figure 19: Heading artifact on SE side of Cone Island, as shown in surface.

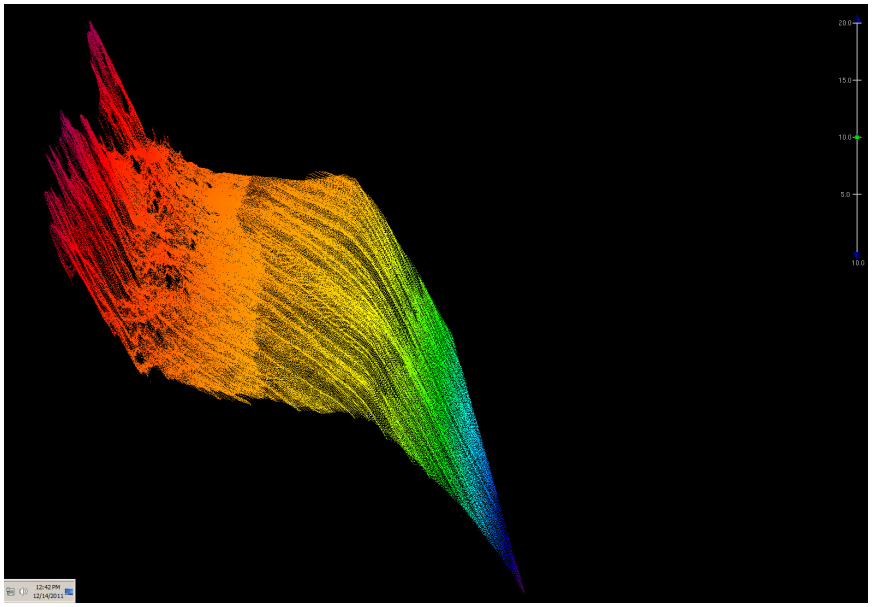


Figure 20: Heading artifact in CARIS HIPS and SIPS subset editor at 10x vertical exaggeration.

Artifacts caused the surfaces to be out of specification on the southeast side of Cone Island by as much as 1.5 meters. Data were rejected by the reviewer in this area. Chart per H12290_CS.000.

B.2.6.1 Tidal Error in Southern Sector

A vertical error was found in a small cove in the southern sector of the survey. As a troubleshooting method, the data was ellipsoidally referenced, revealing it to be a tidal error. Its magnitude is within acceptable tolerances.

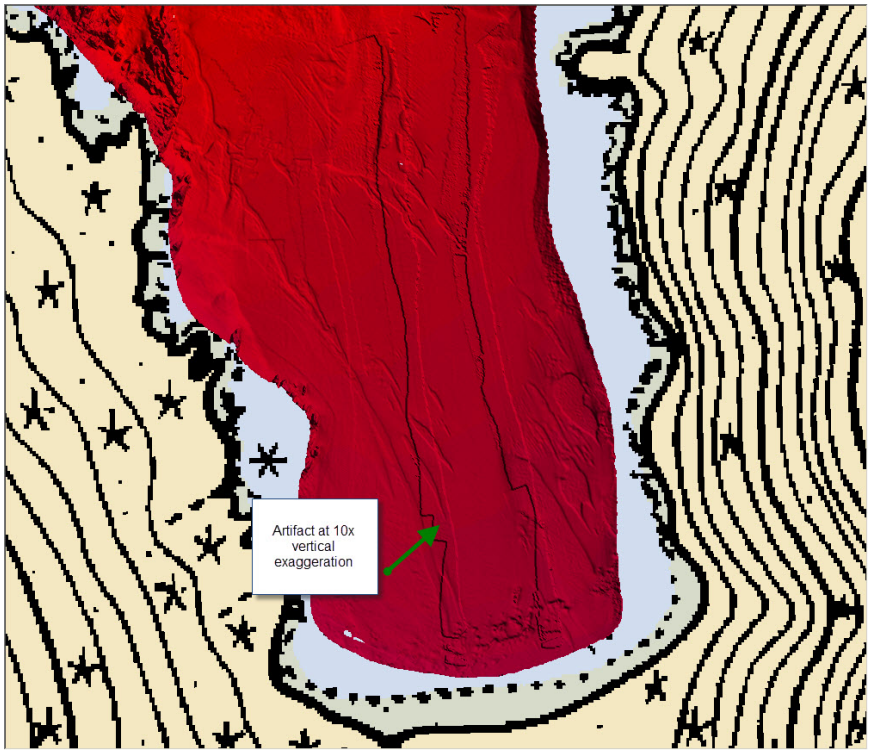


Figure 21: Tidal error at 10x vertical exaggeration.

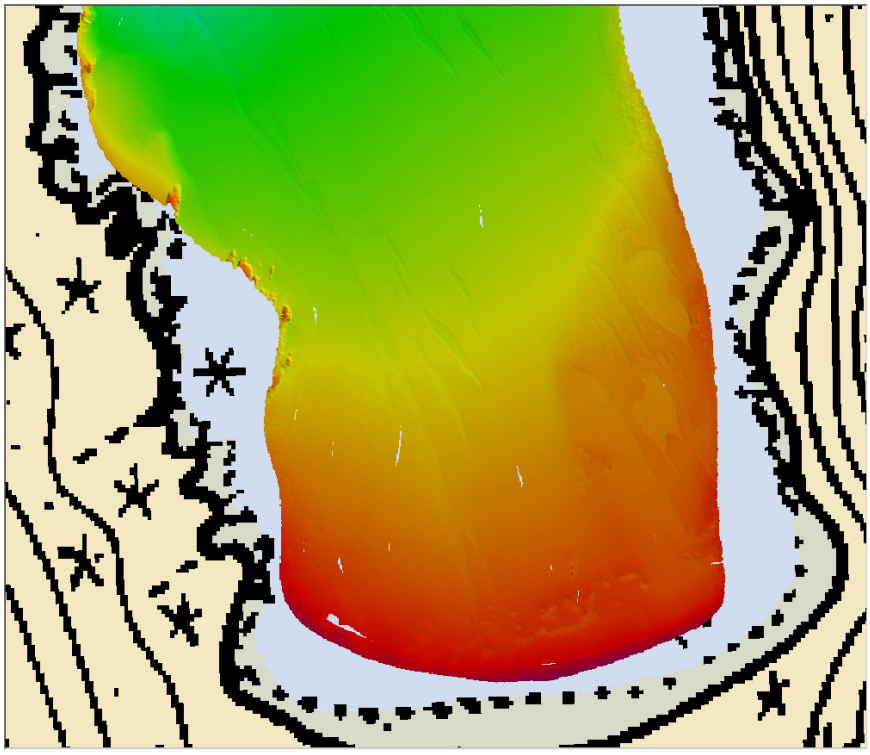


Figure 22: Data after ellipsoidal referencing, showing no error.

The data is adequate to supersede charted data.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Cast frequency with all instruments was dictated by changes of more than 2 meters per second in sound speed at the surface. This did not exceed the Field Procedures Manual-dictated frequency of four hours. Casts were also taken when beginning data acquisition more than three miles from areas of prior acquisition.

B.2.8 Coverage Equipment and Methods

Acquisition and coverage methods did not differ from that which is outlined 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

Patch tests were conducted as described below.

B.4 Backscatter

Backscatter data were acquired, but were not formally processed by ship's personnel. However, periodic spot checks were performed to ensure backscatter quality. This data were sent to NGDC for archival.

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.

B.5.2 Surfaces

The following CARIS surfaces were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12290_1m_Final	CUBE	1 meters	0 meters - 20 meters	NOAA_1m	Complete MBES
H12290_2m_Final	CUBE	2 meters	18 meters - 40 meters	NOAA_2m	Complete MBES
H12290_4m_Final	CUBE	4 meters	36 meters - 80 meters	NOAA_4m	Complete MBES
H12290_8m_Final	CUBE	8 meters	72 meters - 160 meters	NOAA_8m	Complete MBES

Table 9: CARIS Surfaces

Features were examined using Caris HIPS and SIPS 7.1 Subset Editor. Where the CUBE surface did not match the actual soundings, a designated sounding was created to force the CUBE algorithm to recognize the shallowest depth.

A designated sounding was created on feature 2802_2011_2722114_964/91. This sounding was considered to be the highest quality sounding on a feature, while the surveyed least depth, 2802_2011_2722114_2287/1, which was a shallower outer beam sounding was flagged as Examined. This ensured that the least depth for this object came from a beam closer to nadir than the surveyed least depth.

A 16 meter surface was not created, owing to there being no depths greater than 144 meters in the survey.

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Sitka, AK	9451600

Table 10: NWLON Tide Stations

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

Station Name	Station ID
Block Island, AK	9450406

Table 11: Subordinate Tide Stations

File Name	Status
9451600.tid	Final Approved

Table 12: Water Level Files (.tid)

File Name	Status
O190RA2011.zdf	Final

Table 13: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 10/18/2011. The final tide note was received on 10/18/2011.

Water level data were based on data collected at station 9451600, Sitka, AK, and preliminary zoning was used as provided by COOPS. Preliminary tide zones were accepted as final, and final tides were applied to all data.

C.2 Horizontal Control

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

The following PPK methods were used for horizontal control:

Single Base

Vessel kinematic data were post-processed using Applanix POSPac processing software, POSGNSS processing software and Single Base processing methods described in the DAPR. Smoothed Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all data. Reference the DAPR for a description of positioning methods used.

The following user installed stations were used for horizontal control:

HVCR Site ID	Base Station ID
Pigeon Island	N/A

Table 14: User Installed Base Stations

Differential GPS was used primarily for vessel navigation, in addition to serving as a backup method of positioning in the event of user-installed positioning data failure (as noted in Section C.3).

The following DGPS Stations were used for horizontal control:

DGPS Stations
Level Island (295 kHz)
Biorka Island (305 kHz)
Annette Island (323 kHz)

Table 15: USCG DGPS Stations

C.3 Additional Horizontal or Vertical Control Issues

3.3.1 SBET failure on Launch 2802, DN270

Post-processed positional data were not applied to data acquired by Launch 2802 on day number 270. POSPAC post-processing of the Smoothed Best Estimate of Trajectory (SBET) failed due to poor quality satellite ephemeris data. Differential GPS positioning was used in lieu of SBET data. As discussed in section B.2, this is likely the root cause of a noted heading artifact.

The data is adequate to supersede charted data.

D. Results and Recommendations

D.1 Chart Comparison

D.1.1 Raster Charts

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

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
17406	1:40000	7	02/2004	01/10/2012	01/21/2012

Table 16: Largest Scale Raster Charts

17406

Data acquired during H12290 were shallower throughout compared to soundings on chart 17406 owing to the full bottom coverage MBES method used, as opposed to the lead line method used in the original surveys. Generally, areas closer to shore are significantly more shallow than charted soundings. The area east of St. Nicholas Point features a much more dynamic bottom than is charted, with pinnacles and both dangerous and non-dangerous shoals found during the survey (see Appendix I, Dangers to Navigation, for details on dangerous shoals.) Specific areas of significant survey-to-chart differences are discussed below.

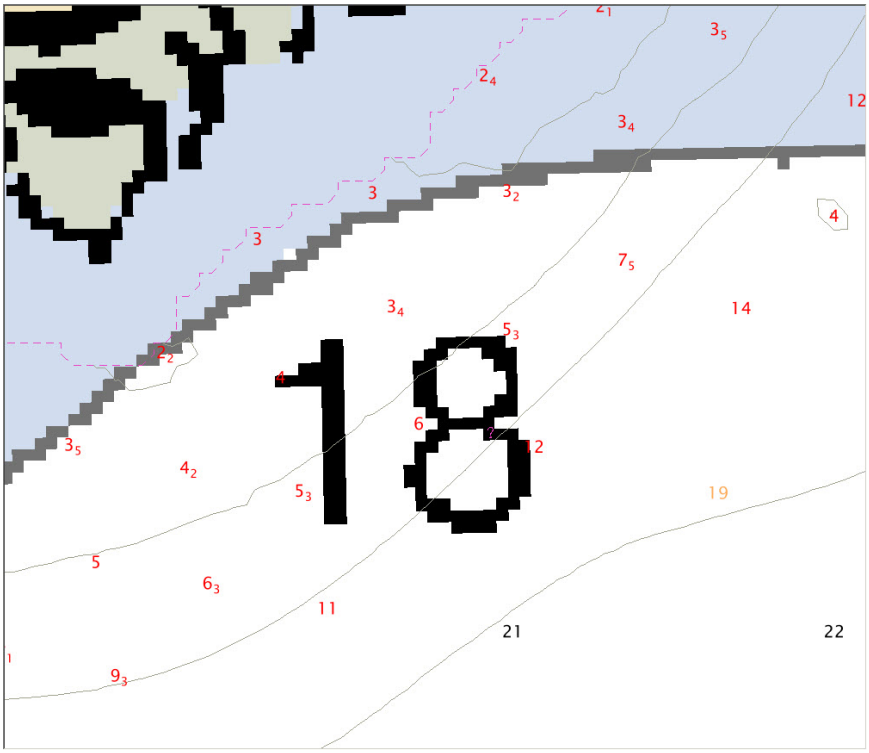


Figure 23: Six fathom surveyed sounding on a charted 18 fathom sounding, on the south shore of Cone Island. Shoaling extends significantly further offshore than charted.

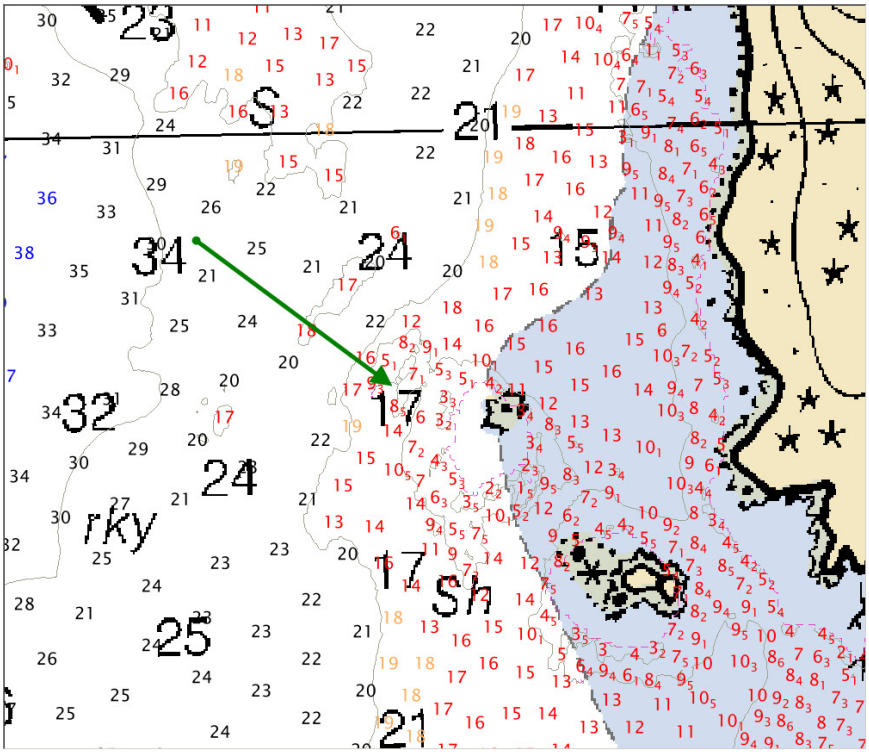


Figure 24: Five fathom, 1 foot surveyed sounding in the vicinity of a charted 17 fm sounding, 1.7 km from the southeastern shore of Cone Island, indicated by green arrow. Shoaling extends further offshore than charted.

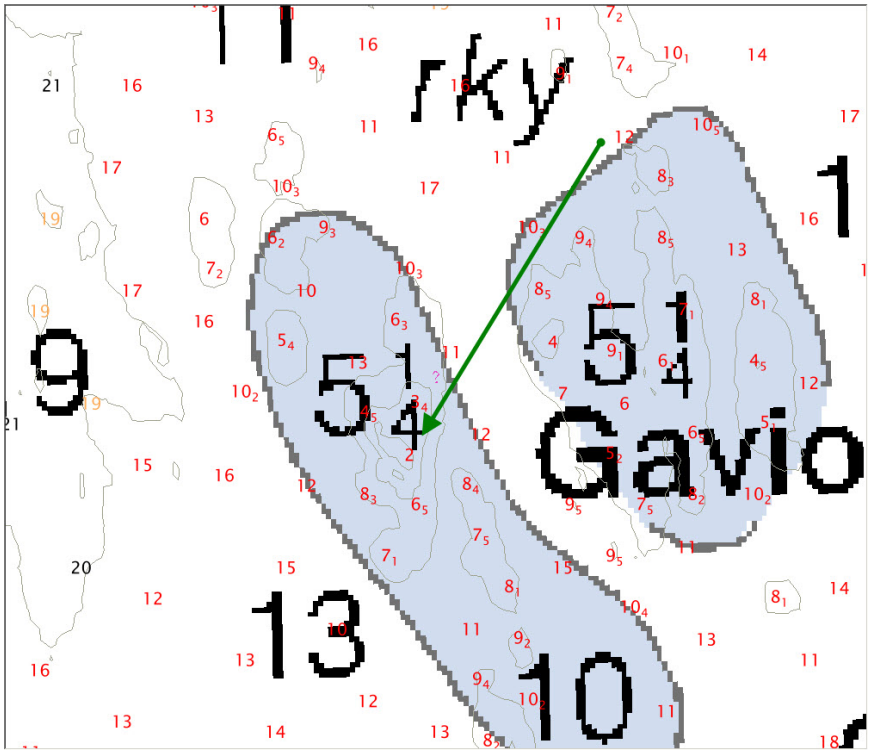


Figure 25: Two fathom surveyed sounding on a charted 5 1/4 fathom charted sounding, approximately 600 meters west of the Gaviota Islets and indicated by green arrow.

All items are addressed in H12290_CS.000

D.1.2 AWOIS Items

Number of AWOIS Items Addressed: 3
Number of AWOIS Items Not Addressed: 0

Three AWOIS items lay within the limits of H12290. AWOIS features 54065 and 54066 are two rocks located in close proximity to each other. The search methods used to locate them were a visual search from a launch, aided by GPS and CARIS Notebook 3.1. 54066 was found to be in its charted location; 54065, however, was incorrectly charted, and was repositioned. New position and information are located in the Final Feature File.

Feature 54052 is a series of piles in Kelly Cove. The search method used to locate them involved a visual search from a launch, using GPS and CARIS Notebook 3.1. Charted as submerged ruins, it was found to be piles exposed at low water. Theses piles were located in the Final Feature File.

Figure 26: AWOIS Item 54052

The AWOIS Report is appended to this report. AWOIS #54066 was not included in the report as the rock was correctly charted and no change was made to it. All AWOIS items are included in H12290_CS.000.

D.1.3 Charted Features

Two charted anchorages, one located 1.2KM south of San Francisco Island located and another 1.5KM east of San Francisco Island, provide excellent anchorage for small vessels (reference figure 27 for locations.) Recommend retaining these features as charted.

No charted features containing PA, ED, PD or REP labels exist for this survey.

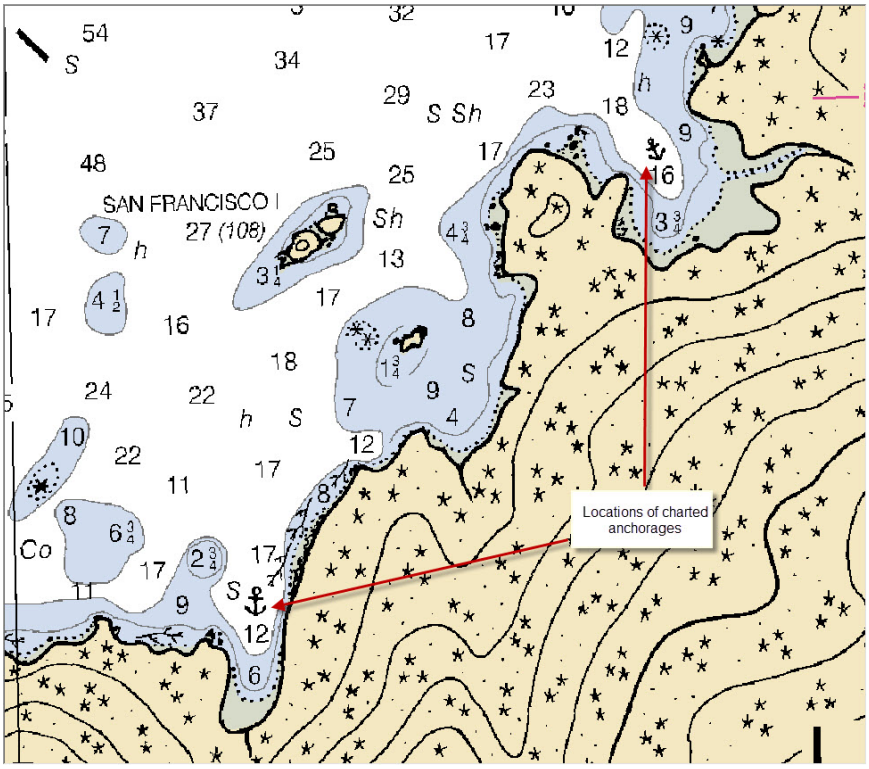


Figure 27: Charted anchorages indicated by red arrows.

D.1.4 Uncharted Features

No uncharted features exist for this survey.

D.1.5 Dangers to Navigation

Danger to Navigation Reports are included in Appendix I of this report. Three Dangers to Navigation were submitted to MCD for immediate updates to the chart.

The DTON Report is appended to this report.

D.1.6 Shoal and Hazardous Features

No additional shoals or potentially hazardous features exist for this survey. See Appendix I, Dangers to Navigation, for descriptions of reported Dangers to Navigation.

D.1.7 Channels

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

D.2 Additional Results

D.2.1 Shoreline

Shoreline was investigated in accordance with the Project Instructions and the HSSD. 336 out of 514 assigned features were investigated, and 63 new features were discovered. A visual investigation was carried out using GPS and Caris Notebook, with supplemental notes made on paper boat sheets. Time constraints, a limited number of shoreline windows and heavy weather, however, prevented shoreline investigation in the northeastern section of St Nicholas Channel, as well as of individual features throughout the survey. In areas that were investigated, features were updated according to their status. Consult the H12290 Final Features File for details on shoreline investigation.

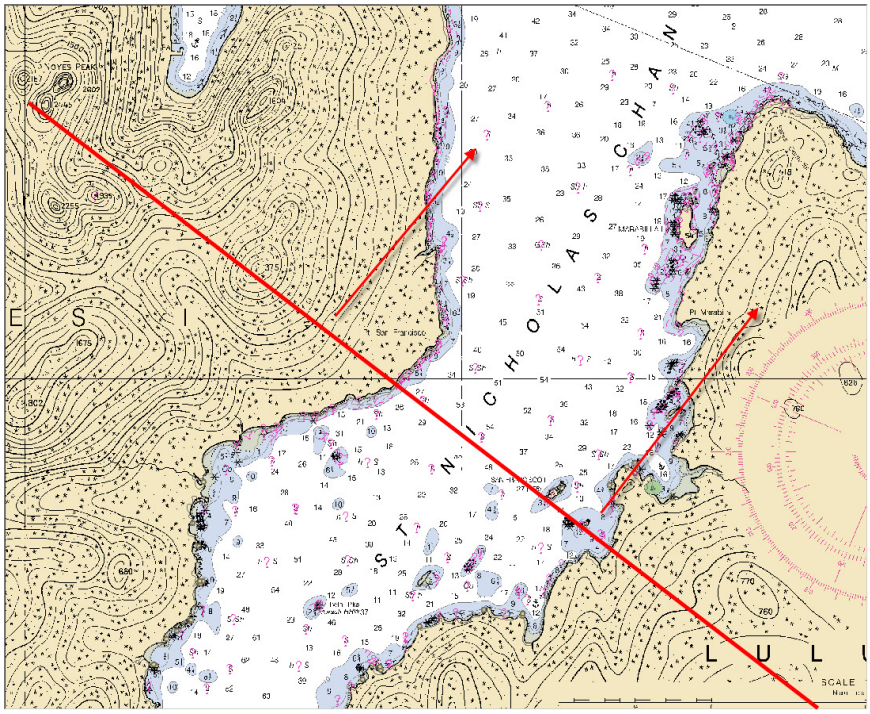


Figure 28: Areas north of the red line were not addressed during shoreline investigation owing to time constraints.

D.2.2 Prior Surveys

Prior surveys exist for this survey, but were not investigated.

D.2.3 Aids to Navigation

Aids to navigation (ATONs) do not exist for this survey.

D.2.4 Overhead Features

Overhead features do not exist for this survey.

D.2.5 Submarine Features

Submarine features do not exist for this survey.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

No significant features exist for this survey.

D.2 Construction and Dredging

There is no present or planned construction or dredging within the survey limits.

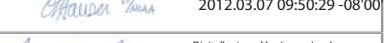
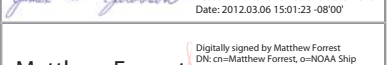
E. Approval Sheet

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, Standing and 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.

Report Name	Report Date Sent
Horizontal and Vertical Control Report	2012-01-06
Data Acquisition and Processing Report	2012-02-15

Approver Name	Approver Title	Approval Date	Signature
CAPT David Neander, NOAA	Chief of Party	02/15/2012	
LT Olivia Hauser, NOAA	Field Operations Officer	02/15/2011	 2012.03.07 09:50:29 -08'00'
CST James Jacobson	Chief Survey Technician	02/15/2011	 Digitally signed by James Jacobson Reason: I have reviewed this document Date: 2012.03.06 15:01:23 -08'00'
LTJG Matthew Forrest, NOAA	Sheet Manager	02/15/2011	Matthew Forrest Digitally signed by Matthew Forrest DN: cn=Matthew Forrest, o=NOAA Ship Rainier, ou=NOAA, email=matthew.r.forrest@noaa.gov, c=US Date: 2012.03.06 14:53:01 -08'00'

H12290 Dangers to Navigation

Registry Number: H12290
State: Alaska
Locality: West Prince of Wales Island
Sub-locality: Saint Nicholas Channel to Siketi Channel
Project Number: OPR-O190-RA-11
Survey Date: 09/25/2011

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17406	7th	02/01/2004	1:40,000 (17406_1)	USCG LNM: 01/19/2010 (04/27/2010) CHS NTM: None (10/30/2009) NGA NTM: None (05/08/2010)
17400	17th	03/01/2007	1:229,376 (17400_1)	USCG LNM: 01/19/2010 (04/27/2010) NGA NTM: 06/27/2009 (05/08/2010)
16016	21st	10/01/2007	1:969,756 (16016_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: ?
501	12th	11/01/2002	1:3,500,000 (501_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	Shoal	7.24 m	55° 26' 41.0" N	133° 41' 27.9" W	---
1.2	Shoal	7.28 m	55° 26' 20.4" N	133° 41' 06.9" W	---

1 - Dangers To Navigation

1.1) Profile/Beam - 223/503 from h12290 / 2802_reson7125_hf_512 / 2011-268 / 2802_2011__2681835

DANGER TO NAVIGATION

Survey Summary

Survey Position:	55° 26' 41.0" N, 133° 41' 27.9" W
Least Depth:	7.24 m (= 23.75 ft = 3.958 fm = 3 fm 5.75 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.196 m ; **TVU (TPEv)** ±0.240 m
Timestamp:	2011-268.18:35:47.458 (09/25/2011)
Survey Line:	h12290 / 2802_reson7125_hf_512 / 2011-268 / 2802_2011__2681835
Profile/Beam:	223/503
Charts Affected:	17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

Significant uncharted shoal was discovered using a Reson 7125 multibeam echosounder and was found to have a least depth of 3.958 fathoms with a surrounding depth of 18.1 fathoms. Charted area has surrounding depths of 14, 15 and 18 fathoms.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12290/2802_reson7125_hf_512/2011-268/2802_2011__2681835	223/503	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position and depth.

Cartographically-Rounded Depth (Affected Charts):

4fm (17406_1, 17400_1, 16016_1, 530_1)

2fm 0ft (531_1)

7.2m (500_1, 501_1, 50_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 1:depth known
	SORDAT - 20111016

SORIND - US,US,graph,H12290

TECSOU - 3:found by multi-beam

Feature Images

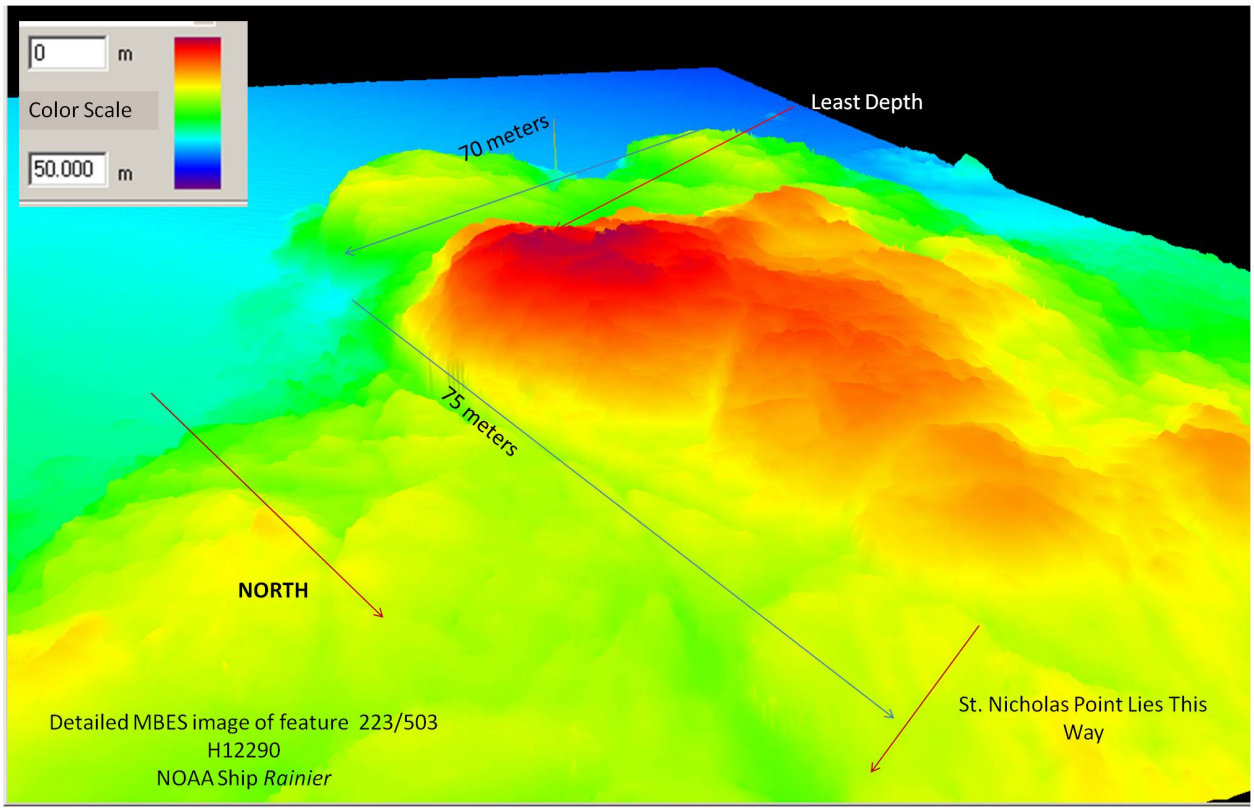


Figure 1.1.1

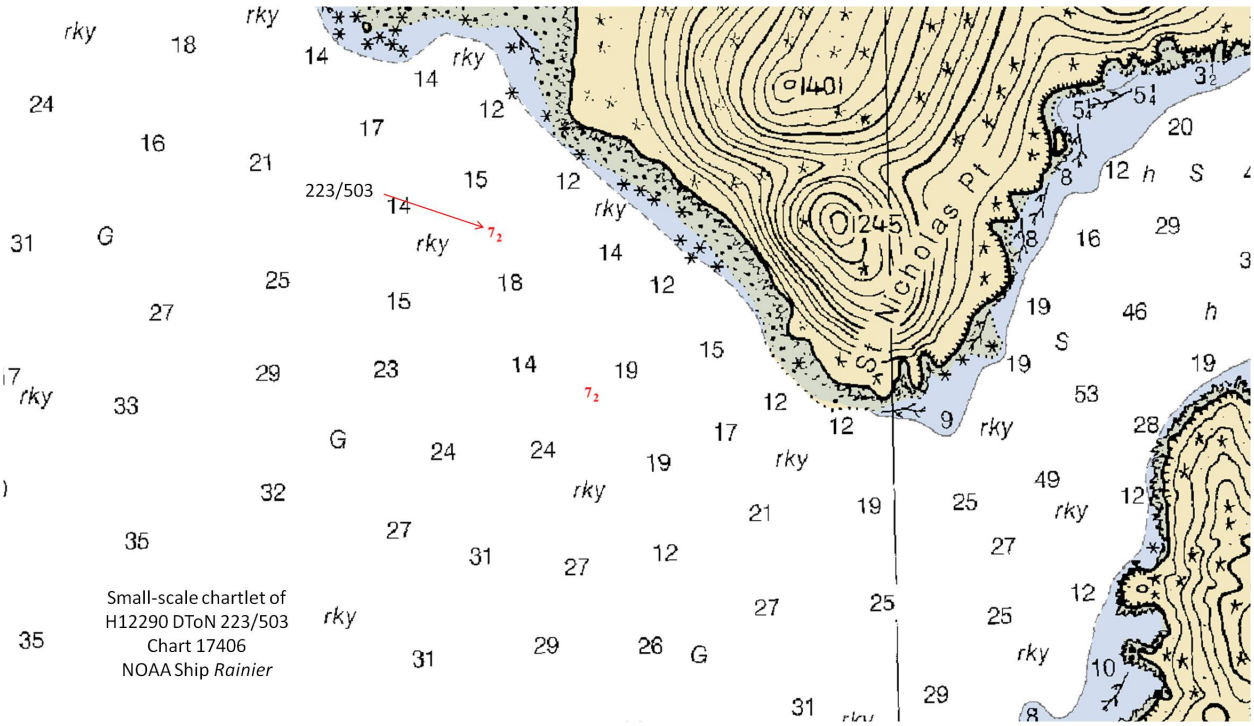


Figure 1.1.2

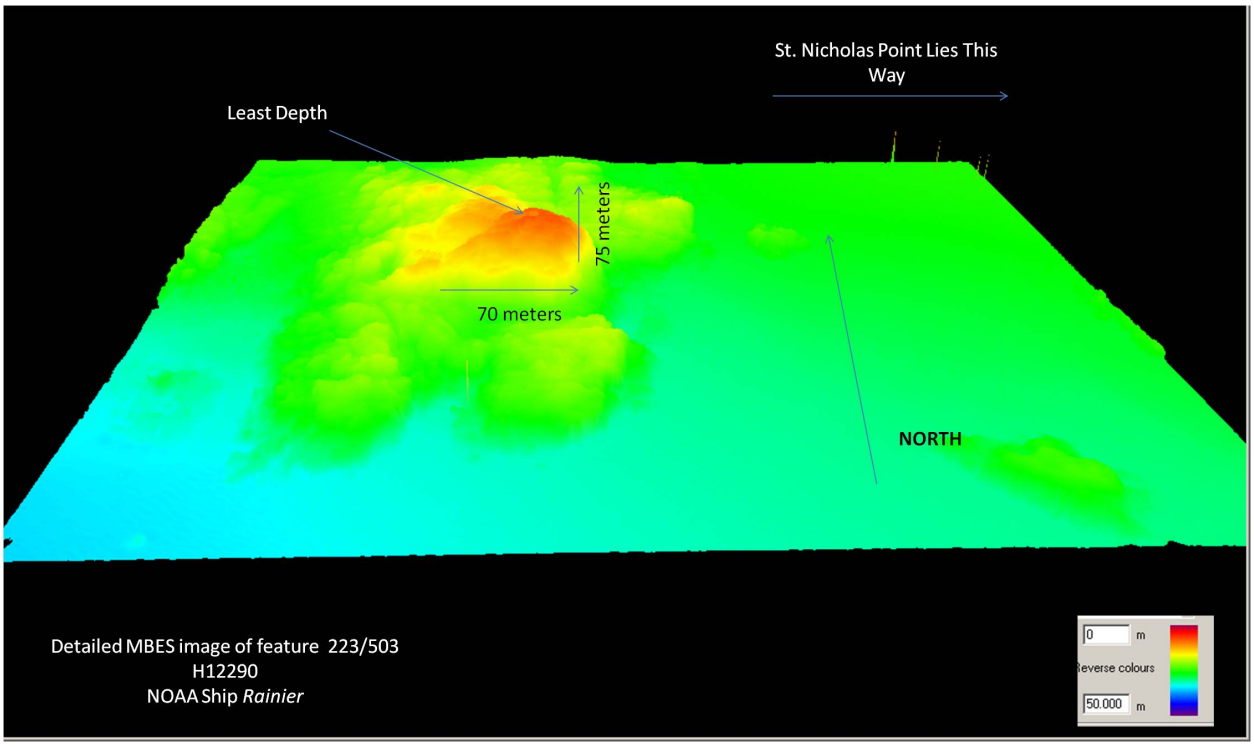

St. Nicholas Point Lies This Way
Least Depth
75 meters
70 meters
NORTH
Detailed MBES image of feature 223/503
H12290
NOAA Ship *Rainier*
0 m
Reverse colours
50.000 m

Figure 1.1.3

1.2) Profile/Beam - 363/396 from h12290 / 2802_reson7125_hf_512 / 2011-268 / 2802_2011__2681838

DANGER TO NAVIGATION

Survey Summary

Survey Position:	55° 26' 20.4" N, 133° 41' 06.9" W
Least Depth:	7.28 m (= 23.90 ft = 3.983 fm = 3 fm 5.90 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.128 m ; **TVU (TPEv)** ±0.220 m
Timestamp:	2011-268.18:39:26.273 (09/25/2011)
Survey Line:	h12290 / 2802_reson7125_hf_512 / 2011-268 / 2802_2011__2681838
Profile/Beam:	363/396
Charts Affected:	17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

Significant uncharted shoal was discovered using a Reson 7125 multibeam echosounder and was found to have a least depth of 3.98 fathoms with a surrounding depth of 27.11 fathoms. Charted area has surrounding depths of 14 and 19 fathoms.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12290/2802_reson7125_hf_512/2011-268/2802_2011__2681838	363/396	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position and depth.

Cartographically-Rounded Depth (Affected Charts):

4fm (17406_1, 17400_1, 16016_1, 530_1)

2fm 0ft (531_1)

7.3m (500_1, 501_1, 50_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 1:depth known
	SORDAT - 20111016

SORIND - us,us,graph,H12290

TECSOU - 3:found by multi-beam

Feature Images

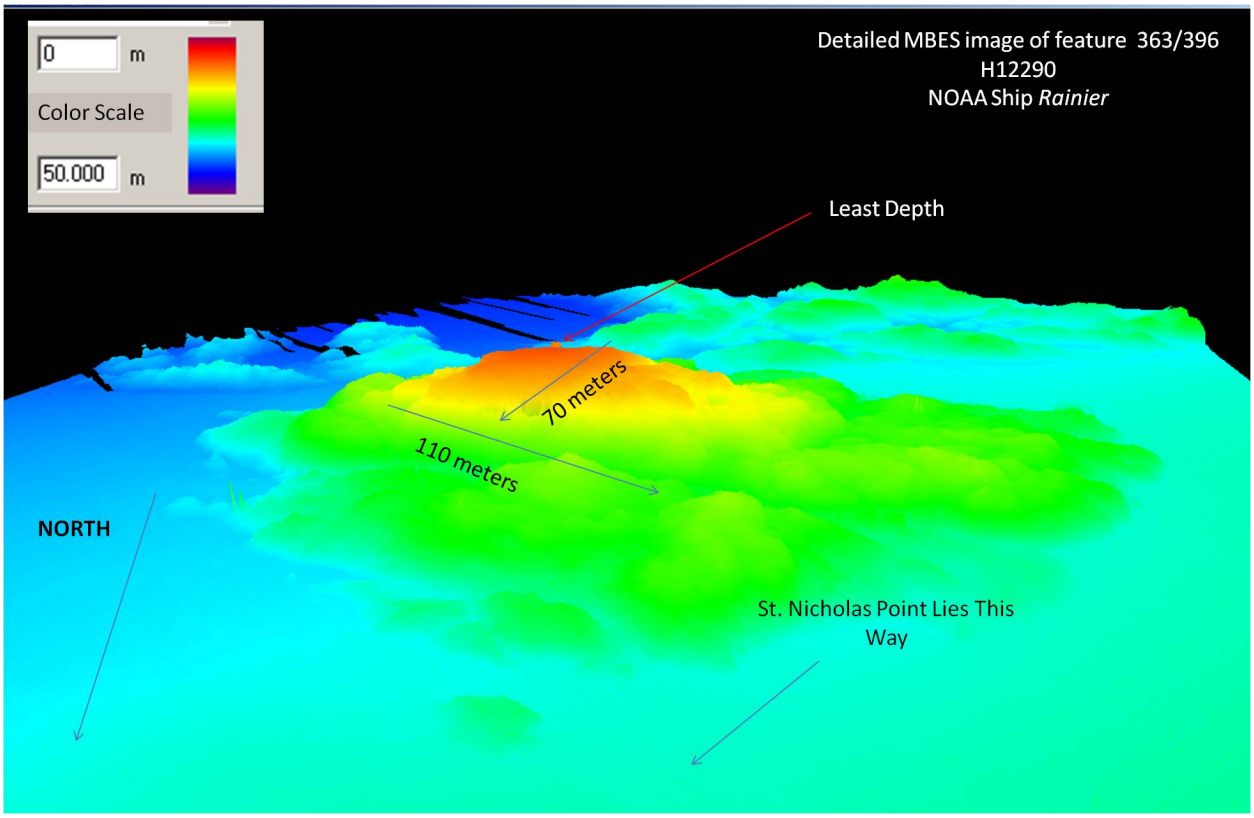
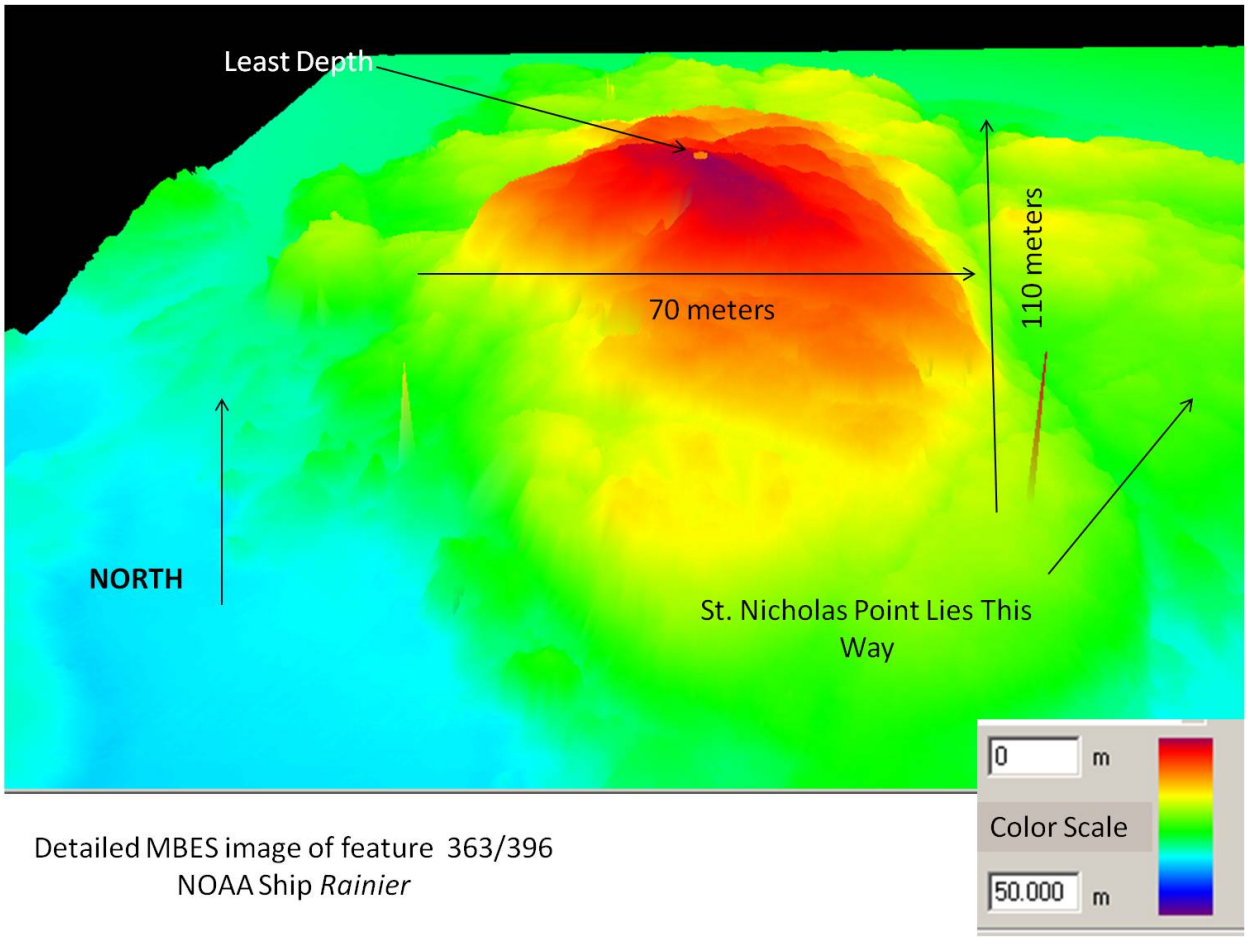


Figure 1.2.1



Detailed MBES image of feature 363/396
NOAA Ship *Rainier*

Figure 1.2.2

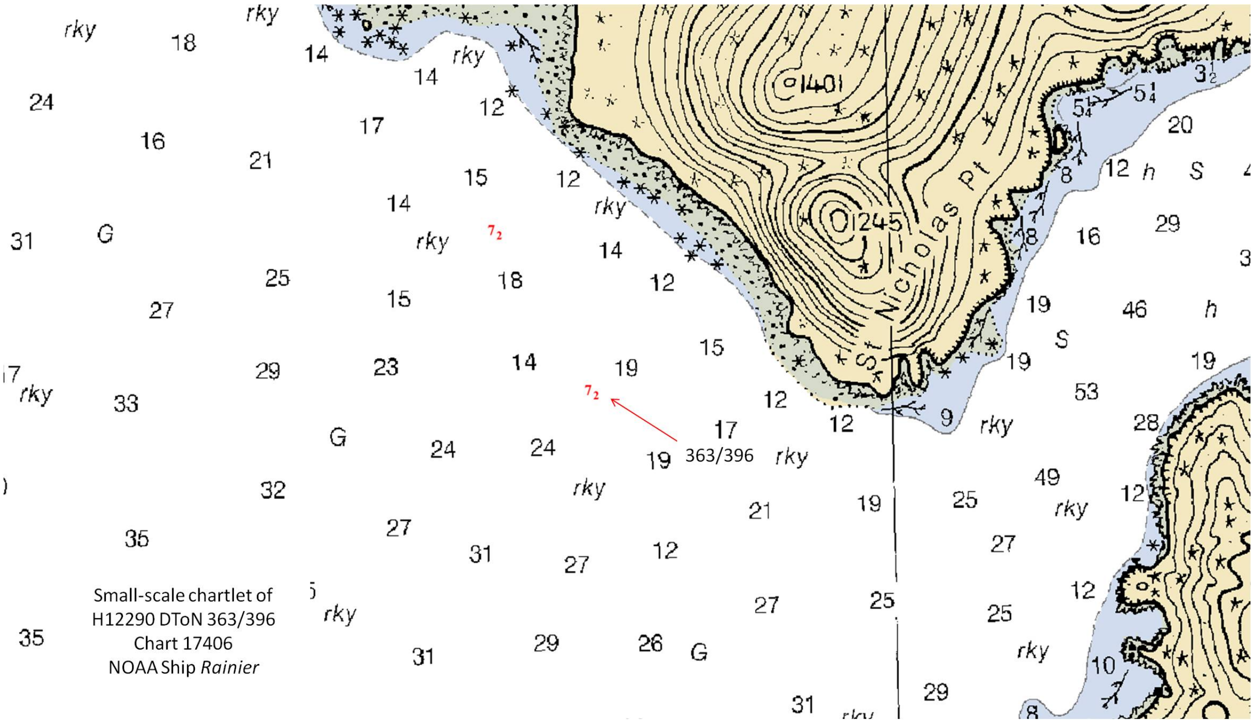

Small-scale chartlet of
H12290 DToN 363/396
Chart 17406
NOAA Ship *Rainier*
363/396
7_2
7_2
St Nicholas Pt

Figure 1.2.3

H12290 Danger to Navigation

Registry Number: H12290
State: Alaska
Locality: West Prince of Wales Island
Sub-locality: Saint Nicholas Channel to Siketi Channel
Project Number: OPR-O190-RA-11
Survey Date: 09/27/2011

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17406	7th	02/01/2004	1:40,000 (17406_1)	USCG LNM: 01/19/2010 (04/27/2010) CHS NTM: None (10/30/2009) NGA NTM: None (05/08/2010)
17400	17th	03/01/2007	1:229,376 (17400_1)	USCG LNM: 01/19/2010 (04/27/2010) NGA NTM: 06/27/2009 (05/08/2010)
16016	21st	10/01/2007	1:969,756 (16016_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: ?
501	12th	11/01/2002	1:3,500,000 (501_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	Shoal	6.63 m	55° 26' 13.8" N	133° 39' 50.5" W	---

1 - Dangers To Navigation

1.1) Profile/Beam 930/75 / 2802_2011__2701816

DANGER TO NAVIGATION

Survey Summary

Survey Position:	55° 26' 13.8" N, 133° 39' 50.5" W
Least Depth:	6.63 m (= 21.76 ft = 3.626 fm = 3 fm 3.76 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.963 m ; **TVU (TPEv)** ±0.223 m
Timestamp:	2011-270.18:17:32.203 (09/27/2011)
Survey Line:	h12290 / 2802_reson7125_hf_512 / 2011-270 / 2802_2011__2701816
Profile/Beam:	930/75
Charts Affected:	17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

Significant uncharted shoal was discovered by Reson 7125 multibeam echosounder, and was found to have a 3.626 fm mounding in a surrounding greatest depth of 12.9 fm, and represents least depth on uncharted shoal. It lies well outside of a charted 9 fm sounding.

Feature Correlation

Source	Feature	Range	Azimuth	Status
2802_2011__2701816	930/75	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position, depth and S-57 attribution.

Cartographically-Rounded Depth (Affected Charts):

3 ½fm (17406_1, 17400_1, 16016_1, 530_1)

3fm 4ft (531_1)

6.6m (500_1, 501_1, 50_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20111016
	SORIND - US,US,graph,H12290

TECSOU - 1:found by echo-sounder

Feature Images

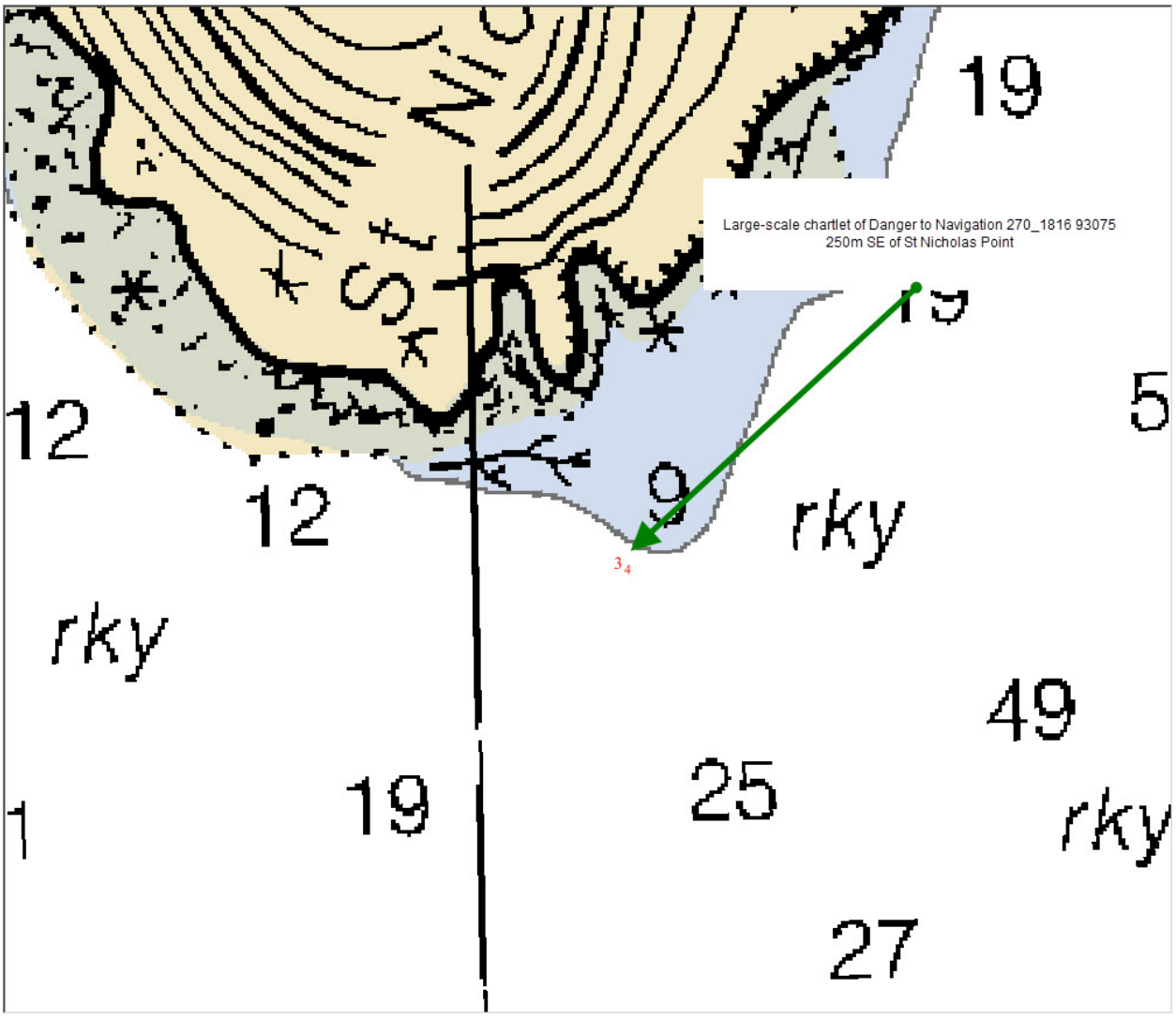


Figure 1.1.1

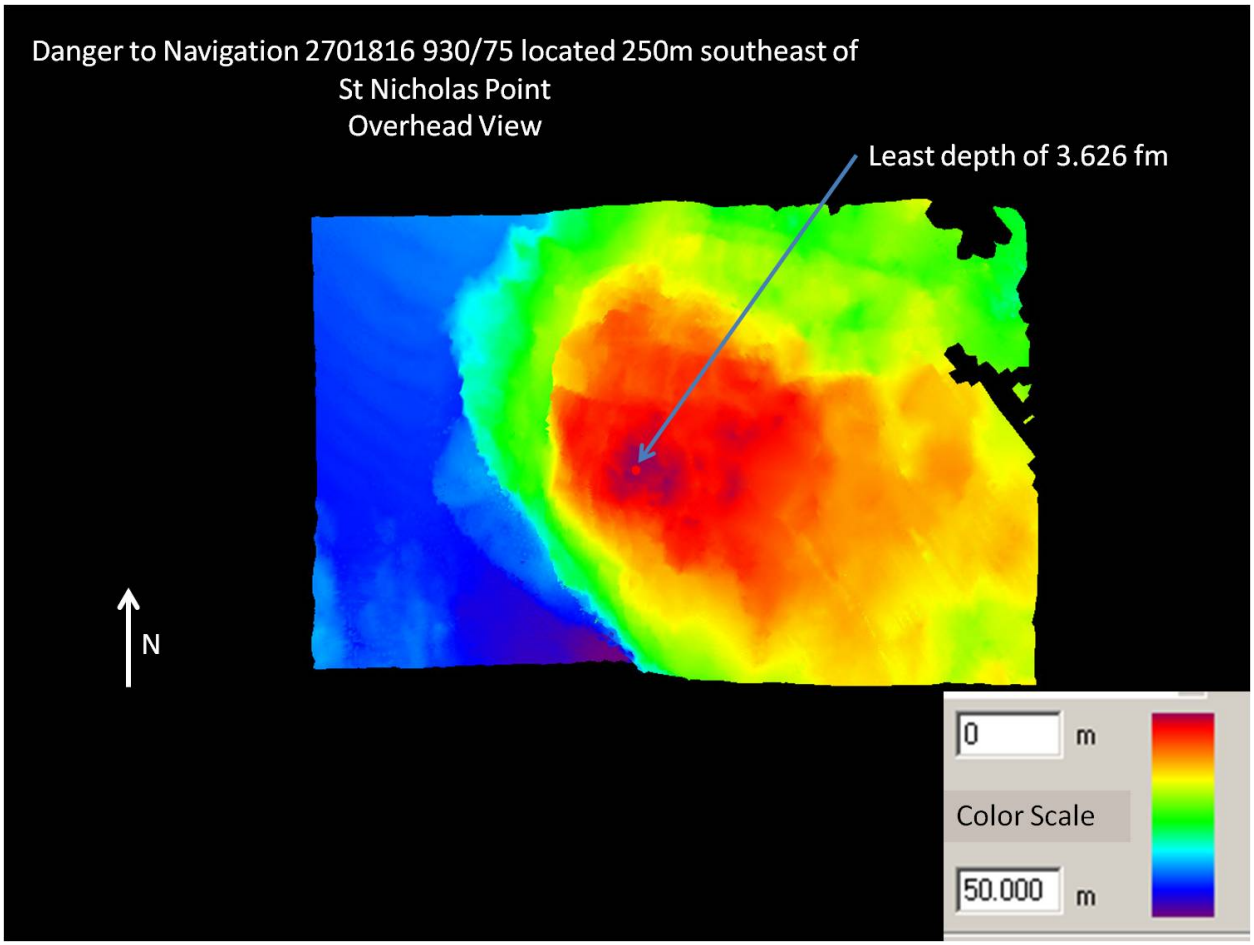

Danger to Navigation 2701816 930/75 located 250m southeast of
St Nicholas Point
Overhead View
Least depth of 3.626 fm
N
0
m
Color Scale
50.000
m

Figure 1.1.2

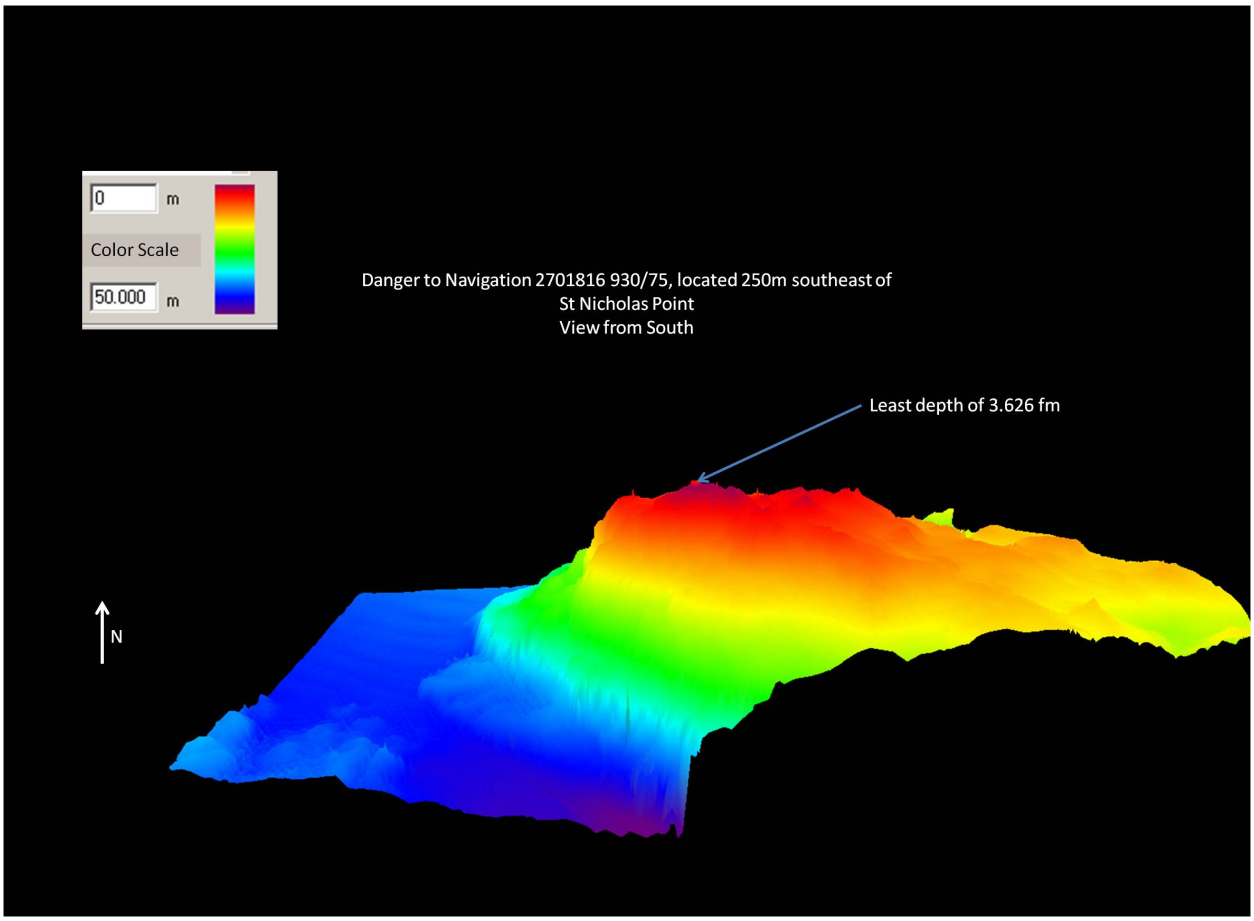

0
m
Color Scale
50.000
m
Danger to Navigation 2701816 930/75, located 250m southeast of
St Nicholas Point
View from South
Least depth of 3.626 fm
N

Figure 1.1.3

3 - AWOIS Features

3.1) US 0000004030 00001 / H12290-prmsec.000

Survey Summary

Survey Position: 55° 22' 48.2" N, 133° 40' 28.8" W

Least Depth: -2.17 m (= -7.11 ft = -1.185 fm = -1 fm 1.11 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2011-270.01:02:00.000 (09/27/2011)

Dataset: H12290-prmsec.000

FOID: US 0000004030 00001(022600000FBE0001)

Charts Affected: 17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

UWTROC/remrks: Rock is AWOIS item 54065. The area was approached by boat, and a position was plotted based on the position of the vessel.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000004030 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart with surveyed depth.

Cartographically-Rounded Depth (Affected Charts):

-1fm (17406_1, 17400_1, 16016_1, 530_1)

-1fm 1ft (531_1)

-2.2m (500_1, 501_1, 50_1)

S-57 Data

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

Attributes: NATSUR - 9:rock

QUASOU - 1:depth known

SORDAT - 20111016

SORIND - US,US,graph,H12290

TECSOU - 12:found by levelling

VALSOU - -2.167 m

WATLEV - 4:covers and uncovers

Office Note: Concur.

3.2) US 0000003322 00001 / H12290-prmsec.000

Survey Summary

Survey Position: 55° 27' 36.1" N, 133° 38' 26.0" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2011-271.17:15:00.000 (09/28/2011)

Dataset: H12290-prmsec.000

FOID: US 0000003322 00001(022600000CFA0001)

Charts Affected: 17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: New pile.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000003322 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: SORDAT - 20111016

SORIND - US,US,graph,H12290

Office Note: Concur. This is the first of seven piles (further listed below) associated with AWOIS 54052.

3.3) US 0000003318 00001 / H12290-prmsec.000

Survey Summary

Survey Position: 55° 27' 36.3" N, 133° 38' 26.6" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2011-271.17:15:00.000 (09/28/2011)

Dataset: H12290-prmsec.000

FOID: US 0000003318 00001(022600000CF60001)

Charts Affected: 17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: New pile.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000003318 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: SORDAT - 20111016

SORIND - US,US,graph,H12290

Office Note: Concur.

3.4) US 0000003321 00001 / H12290-prmsec.000

Survey Summary

Survey Position: 55° 27' 36.4" N, 133° 38' 25.7" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2011-271.17:15:00.000 (09/28/2011)

Dataset: H12290-prmsec.000

FOID: US 0000003321 00001(022600000CF90001)

Charts Affected: 17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: New pile.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000003321 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: SORDAT - 20111016

SORIND - US,US,graph,H12290

Office Note: Concur.

3.5) US 0000003317 00001 / H12290-prmsec.000

Survey Summary

Survey Position:	55° 27' 36.5" N, 133° 38' 26.4" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2011-271.17:15:00.000 (09/28/2011)
Dataset:	H12290-prmsec.000
FOID:	US 0000003317 00001(022600000CF50001)
Charts Affected:	17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: New pile.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000003317 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1:	Pile (PILPNT)
Attributes:	SORDAT - 20111016
	SORIND - US,US,graph,H12290

Office Note: Concur.

3.6) US 0000003320 00001 / H12290-prmsec.000

Survey Summary

Survey Position: 55° 27' 36.9" N, 133° 38' 25.4" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2011-271.17:15:00.000 (09/28/2011)

Dataset: H12290-prmsec.000

FOID: US 0000003320 00001(022600000CF80001)

Charts Affected: 17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: New pile.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000003320 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: SORDAT - 20111016

SORIND - US,US,graph,H12290

Office Note: Concur.

3.7) US 0000003316 00001 / H12290-prmsec.000

Survey Summary

Survey Position: 55° 27' 37.0" N, 133° 38' 26.0" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2011-271.17:15:00.000 (09/28/2011)

Dataset: H12290-prmsec.000

FOID: US 0000003316 00001(022600000CF40001)

Charts Affected: 17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: New pile.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000003316 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: SORDAT - 20111016

SORIND - US,US,graph,H12290

Office Note: Concur.

3.8) US 0000000132 00001 / H12290-prmsec.000

Survey Summary

Survey Position:	55° 27' 37.4" N, 133° 38' 25.6" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2011-271.17:15:00.000 (09/28/2011)
Dataset:	H12290-prmsec.000
FOID:	US 0000000132 00001(0226000000840001)
Charts Affected:	17406_1, 17400_1, 16016_1, 531_1, 500_1, 501_1, 530_1, 50_1

Remarks:

PILPNT/remrks: Pile is outermost of series of piles.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12290-prmsec.000	US 0000000132 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to surveyed position.

S-57 Data

Geo object 1:	Pile (PILPNT)
Attributes:	SORDAT - 20111016
	SORIND - US,US,graph,H12290

Office Note: Concur.

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : October 18, 2011

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-O190-RA-2011
HYDROGRAPHIC SHEET: H12290

LOCALITY: Saint Nicholas Channel to Siketi Channel, AK
TIME PERIOD: September 24 - October 16, 2011

TIDE STATION USED: 945-1600 Sitka, AK
Lat. 57° 03.1'N Long. 135° 20.5' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.791 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-O190-RA-2011, H12290, during the time period between September 24 and October 16, 2011.

Please use the zoning file "O190RA2011CORP" submitted with the project instructions for OPR-O190-RA-2011. Zones PAC296 & SA227 are the applicable zones for H12290.

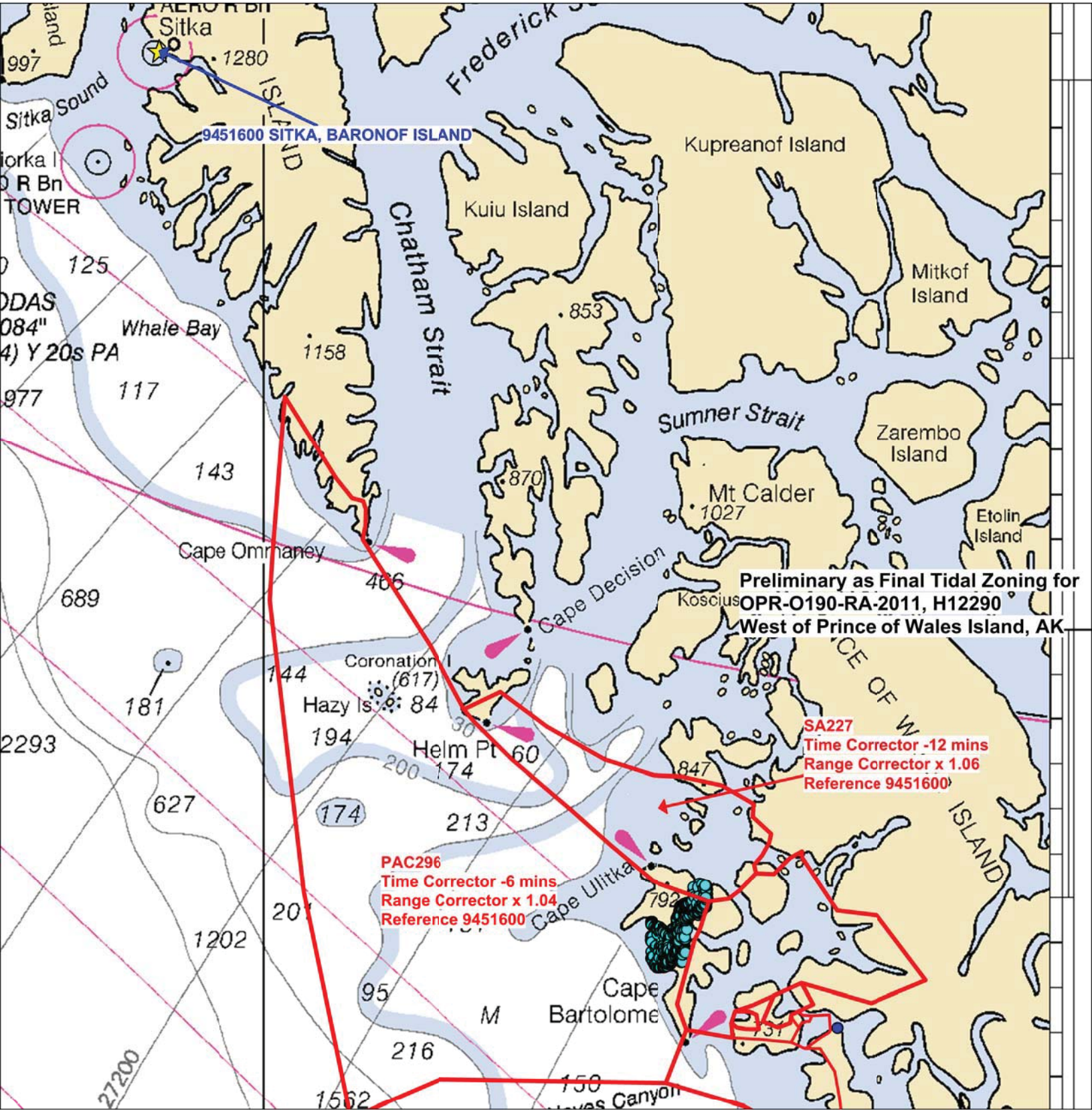
Refer to attachments for zoning information.

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).

Gerald Hovis

Digitally signed by Gerald Hovis
DN: cn=Gerald Hovis, o=Center for Operational Oceanographic Products and Services, ou=NOAA/NOS/CO-OPS/OD/PSB, email=gerald.hovis@noaa.gov, c=US
Date: 2011.10.27 17:14:34 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Sitka
1280
997
Sitka Sound
9451600 SITKA, BARONOF ISLAND
Frederick
Kupreanof Island
Kuiu Island
Chatham Strait
Mitkof Island
853
Whale Bay
1158
125
117
977
143
Sumner Strait
Zarembo Island
870
Mt Calder
1027
Etolin Island
Cape Ommaney
466
689
Cape Decision
Preliminary as Final Tidal Zoning for
OPR-O190-RA-2011, H12290
West of Prince of Wales Island, AK
Coronation I
(617)
144
Hazy Is
84
181
194
Helm Pt
60
174
2293
200
847
SA227
Time Corrector -12 mins
Range Corrector x 1.06
Reference 9451600
627
174
213
PAC296
Time Corrector -6 mins
Range Corrector x 1.04
Reference 9451600
Cape Ulitka
792
201
1202
95
M
Cape Bartolome
216
731
150
1562
27200

APPROVAL PAGE

H12290

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

- H12290_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12290_GeoImage.pdf

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

Approved: Digitally signed by Peter Holmberg
DN: cn=Peter Holmberg, o, ou=signing for Annie Raymond, email=annemieke.raymond@noaa.gov, c=US
Date: 2012.12.18 08:28:29 -08'00'

Pete 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: David Zezula
2012.12.18 10:58:42 -08'00'

CDR David Zezual, NOAA
Chief, Pacific Hydrographic Branch