W00320

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:	W00320

LOCALITY

State:	California
General Locality:	Channel Islands Marine Sanctuary
Sub-locality:	San Miguel Island

2016

CHIEF OF PARTY
Chris Caldow

LIBRARY & ARCHIVES

Date:

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET		**W00320**

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:	**California**
General Locality:	**Channel Islands National Marine Sanctuary**
Sub-Locality:	**San Miguel Island**
Scale:	1: **40,000**
Dates of Survey:	**05/02/2016 to 05/09/2016**
Instructions Dated:	**04/07/2016**
Project Number:	**S-L938-SH-16**
Field Unit:	**NOAA Ship *Bell M. Shimada***
Chief of Party:	**Chris Caldow**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	
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. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Centers for Envitronmental Information (NCEI) and can be retrieved via http://www.ncei.noaa.gov/.

Descriptive Report Summary	
Project	S-L938-SH-16
Survey	W00320
State	California
Locality	Channel Islands Marine Sanctuary
Sub Locality	San Miguel Island
Scale of Survey	1:40,000
Sonars Used	Simrad ME70
Horizontal Datum	North American Datum of 1983 (NAD83)
Vertical Datum	Mean Lower Low Water (MLLW)
Vertical Datum Correction	Discrete Zoning
Projection	UTM
Field Unit	NOAA Ship BELL M. SHIMADA
Survey Dates	5/2/2016-5/9/2016
Chief of Party	Chris Caldow, Channel Islands Marine Sanctuary

A. Area Surveyed

This hydrographic survey was acquired in accordance with the requirements defined in the SH1606 Project Instructions.

Data was acquired within three "priority" survey areas. The priority areas were numbered 1-11 per the Project Instructions. The three survey areas include Priority 1, Priority 2, and Priority 4.

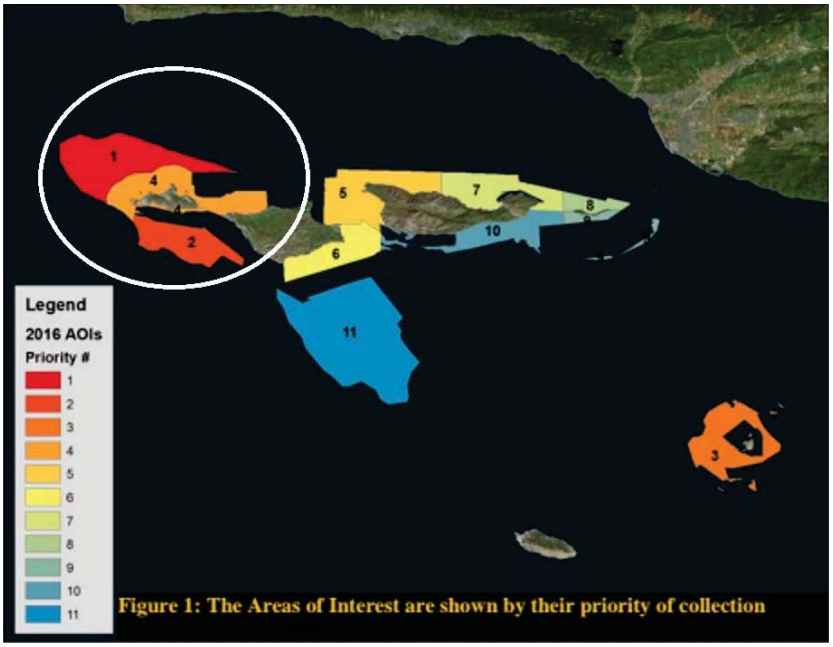


Figure 1: Priority areas defined in the SH1606 Project Instructions

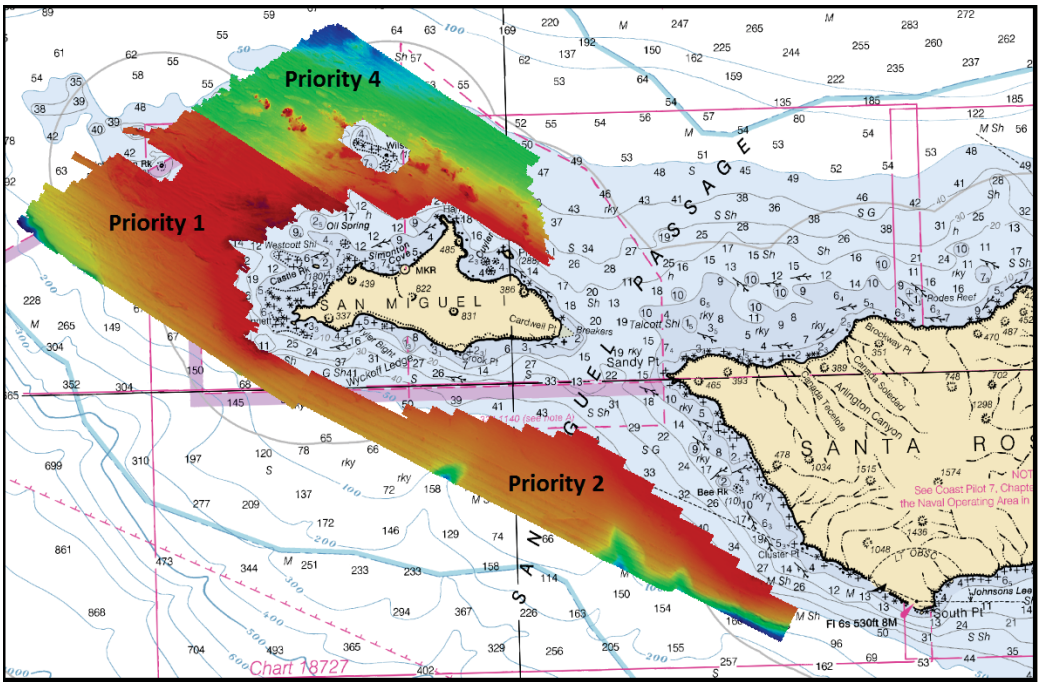


Figure 2: SH1606 Survey Overview Including San Miguel and Santa Rosa Island

Priority Area #1

Northeast Limit	Southwest Limit
34-04-54.529N	34-04-41.628N
120-25-11.719W	120-35-52.013W

Table 1: Survey Limits of Priority 1 West of San Miguel Island

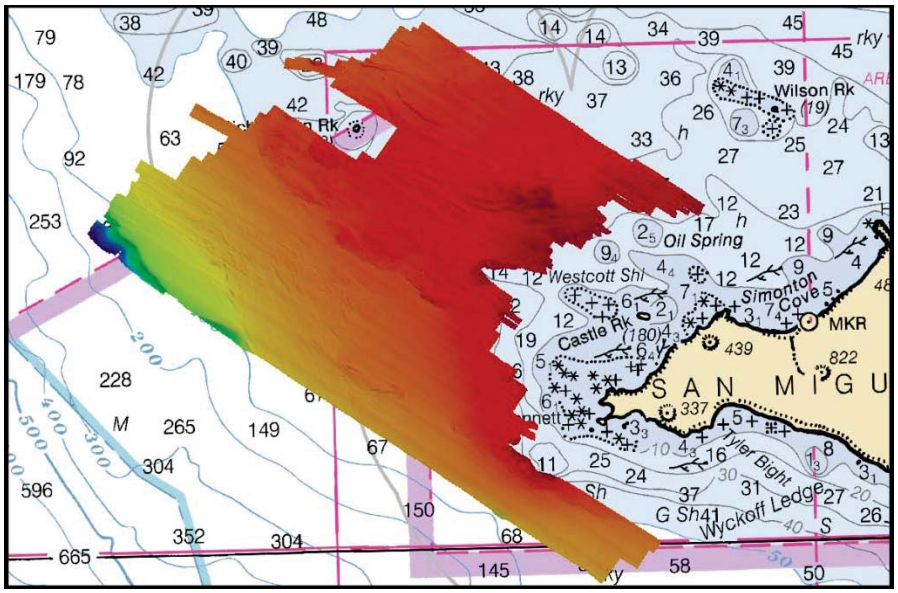


Figure 3: SH1606 Priority 1 West of San Miguel Island Survey Overview

Priority Area #2

Northeast Limit	Southwest Limit
33-53-46.028N	33-59-40.955N
120-10-59.544W	120-26-59.669W

Table 2: Survey Limits of Priority 2 South of San Miguel Island

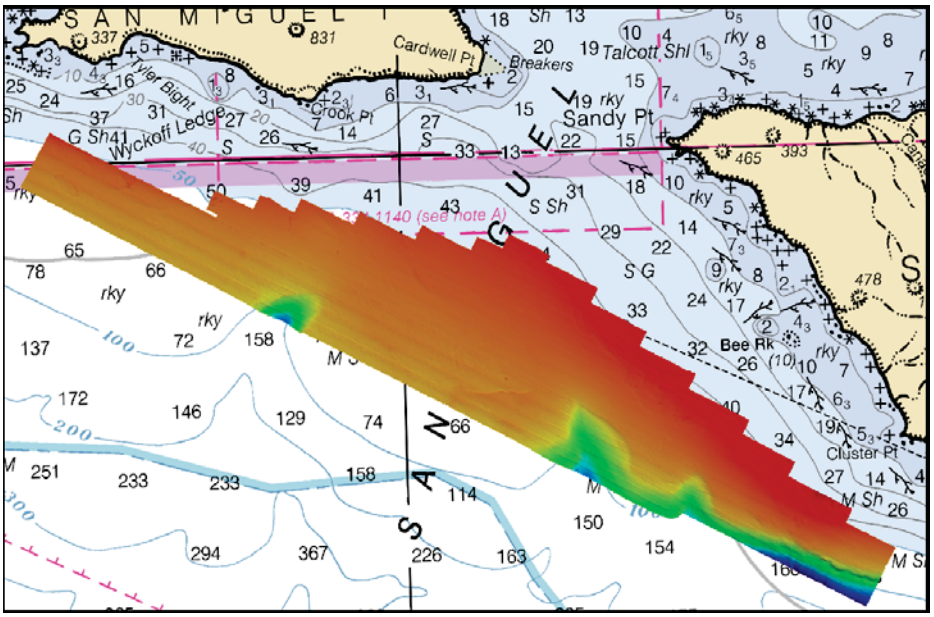


Figure 4: SH1606 Priority 2 South of San Miguel Island Survey Overview

Priority Area #4

Northeast Limit	Southwest Limit
34-06-05.051N	34-07-38.554N
120-18-58.203W	120-30-06.633W

Table 3: Survey Limits of Priority 4 North of San Miguel Island

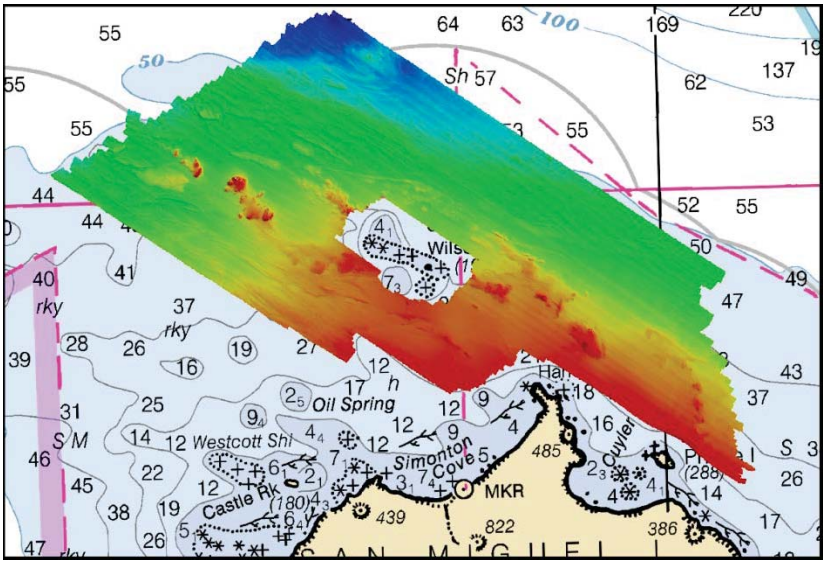


Figure 5: SH1606 Priority 4 North of San Miguel Island Survey Overview

The following table lists the mainscheme and total square miles for this survey:

Survey	Vessel	MBES Mainscheme	Square Nautical Miles
Priority 1	R-227	325.203 LNM	29.302
Priority 2	R-227	208.856 LNM	25.570
Priority 4	R-227	343.538 LNM	26.598

Table 4: Survey Statistics

Some of the survey coverage meets the National Ocean Service (NOS) Hydrographic Survey Specifications and Deliverables (HSSD) 2016 requirements for multibeam complete coverage. The Commanding Officer (CO) of the ship was not comfortable surveying in charted depths shoaler than 14 fathoms (~25.6m). Due to the 14 fathom rule set in place, Priority 4 contains two holidays due to unsafe navigation given the dynamic rocky areas. Wilson Rock is 91m long and sits 6m above the waterline making it an obvious surface navigation hazard and lies within the charted Danger Area. The second holiday is the top of a rock located within a charted rocky area in the charted Danger Area. The CO was comfortable acquiring a least depth based upon the water depth on the charted 14 fathom depth curve.

B. Survey Purpose

There were two main objectives associated with this project:

1. Collect high resolution bathymetry data in depths up to 350m with the Simrad ME70. The AUV was supposed to supplement survey operations within water depths up to 400m but the AUV mission was not executed due to electronic issues. The current charted soundings are of 1939 vintage.
2. Acquire water column data with the EK60 to model abundance and distribution of fishes associated with various seafloor structures.

Place-based fisheries and coastal zone managers depend on fine scale bathymetry and habitat maps for an array of critical decisions including: navigational safety, disaster response, endangered species and fisheries management, conservation, research, energy development, and marine planning. Yet within NOAA's Channel Islands National Marine Sanctuary (CINMS) over 50% of the seafloor remains unmapped at an appropriate resolution with the majority of available data being characterized from single beam and lead line soundings from the 1930s.

C. Intended Use of Survey

Selected soundings are adequate to supersede prior data and are intended for chart compilation. It is recommended that the shoaler soundings be updated on the chart.

D. Data Acquisition and Processing (DAPR)

Currently there is not a Data Acquisition and Processing Report (DAPR) written for the ship. A Descriptive Report (DR) for another Fishery Survey Vessel (FSV), the NOAA Ship Pisces, utilizing the same hardware was submitted for reference in DR Appendix II.

D.1 Vessel and Equipment

	 NOAA Ship *BELL M. SHIMADA*
Hull Number	R227
Builder	Halter Marine, Moss Point, MS
Length	63.6m (208.6 ft)
Beam	15m (49.2 ft)
Draft Center Board Retracted	5.9m (19.4 ft)
Draft Center Board Extended	9.05 m (29.7 ft)
Cruising Speed	11 knots
Survey Speed	5-8 knots
Primary Echosounder	Simrad ME70
Sound Speed Equipment	Surface sound speed: SBE21 & SBE45 Water column: XBT-Sippican MK21, SBE 9+
Attitude and Positioning Equipment	Applanix POS MV V4, No DGPS correctors provided

Table 5: Vessel and equipment

D.2 Bathymetry Systems

The Simrad ME70 is a multibeam echosounder designed for fisheries research applications by collecting full water column data. The system operates in the 70 to 120 kHz frequency range with a fixed swath angle with a maximum of 45 beams. Each beam can be set to a different frequency and beam parameters can be specifically configured and applied by XML file. The XML file can specify survey parameters such as min/max range, pulse length, and frequency dependent on depth. The XML file used for this survey was written by Dr. Tom Weber from the University of New Hampshire Center for Coastal and Ocean Mapping.

D.3 Positioning, Heading and Motion Reference Systems

The POS MV inertial reference system supplies attitude, heading, heave, and position. The system consists of an inertial measuring unit (IMU) (used as the reference point for the ship), computer system, and two GPS antennas. The POS MV GPS Azimuth Measurement Subsystem (GAMS) provides heading aiding to the system. A GPS Azimuth Measurement System (GAMS) calibration was performed while inside the San Francisco Bay before transiting south to the Channel Islands.

During survey “heading dropouts” were observed periodically. These drop outs did not seem to have a pattern relating to position or weather. The main issue is the current location of the antennas which are located on the flying bridge with the mast of the ship directly in front. The ship added a feature to the flying bridge that is a plexiglass wall to help shield the wind for the Marine Mammal Observers when on board. When the glass was installed, the antenna was moved higher up to compensate for the wall. This new location and offset was never measured and was given to the team as “roughly 6 inches”. This offset proved to be an issue for us adding to the current location of the antenna with a blocked horizon. The re-positioning of the antennas on the mast would provide a more clear view from horizon to horizon. Being able to view the POS interface on the main computers would help see when heading drops out; currently the interface is in the back of the lab away from the main system.

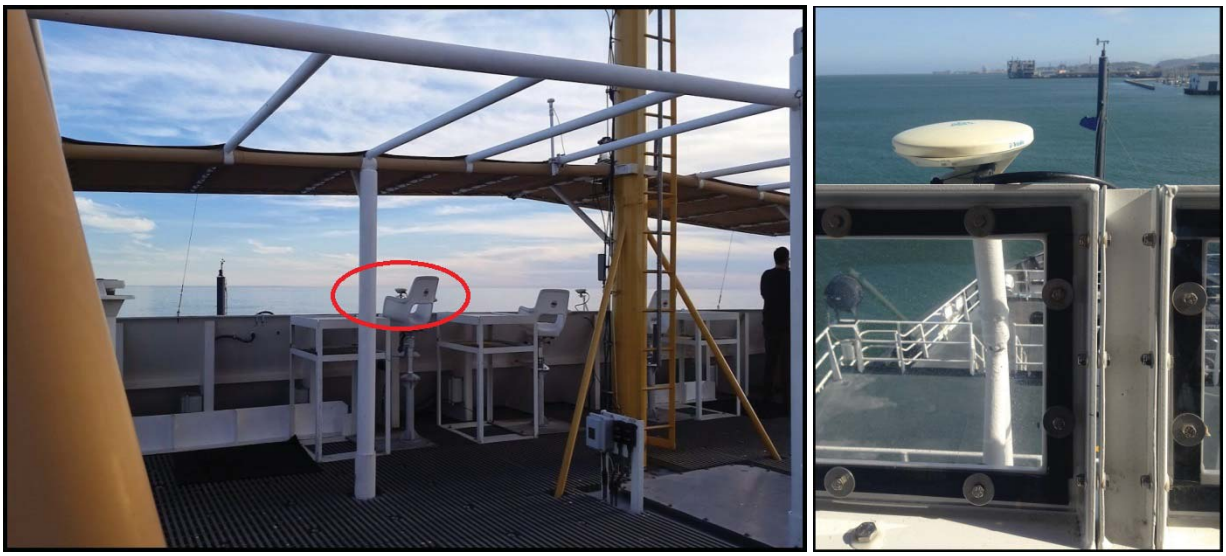


Figure 6: Location of POS antenna on the flying bridge (2015) & added plexiglass windshield (2016)

D.4 Sound Speed Equipment

The ship has two thermosalinographs (SBE45 and SBE21) that supply seawater temperatures and sound speed in real-time. The SBE45 supplies the real-time sound speed to the ME70 for beam steering.

In order to collect full water column sound speed data, an Expendable Bathythermographic Temperature Probe (XBT) is launched off the side of the ship. This probe measures sea water temperature as the probe makes its way through the water column to the seafloor. The XBT does not provide conductivity and no official CTD casts were taken throughout the cruise due to weather and time constraints. It is suggested that if the ship and science party favor the XBT, it is possible to purchase a few XCTD probes which can help with weather and time constraints while still collecting valuable conductivity data and being able to complete cast comparisons.

The XBT creates an .EDF file which is then converted to a CARIS compatible file type, .svp, using Pydro Velocipy. Here the cast is exported and the loaded straight into the ME70 for real time SV correction. Casts were taken every 2-4 hours depending on data quality and were geospatially distributed. The distribution could have been better and will be a goal for next year.

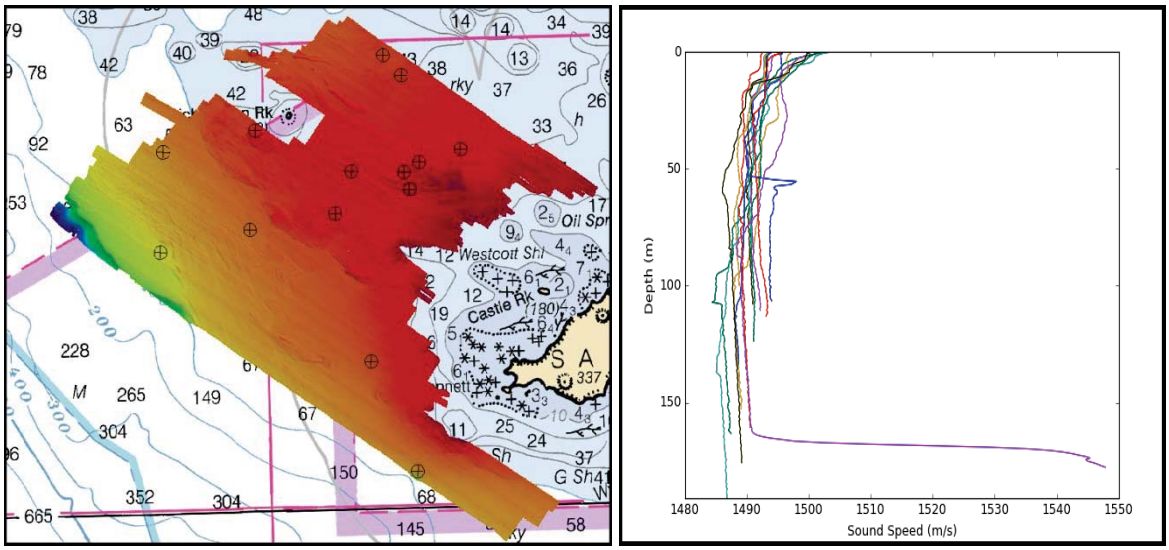


Figure 7: Geospatial cast distribution for Priority 1 and each cast plotted for Sound Speed @ Depth

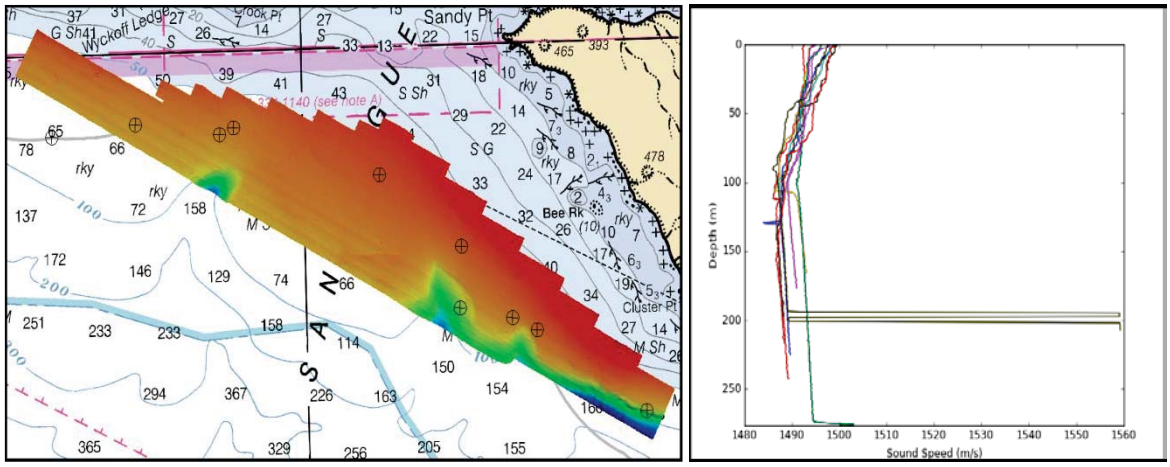


Figure 8: Geospatial cast distribution for Priority 2 and each cast plotted for Sound Speed @ Depth

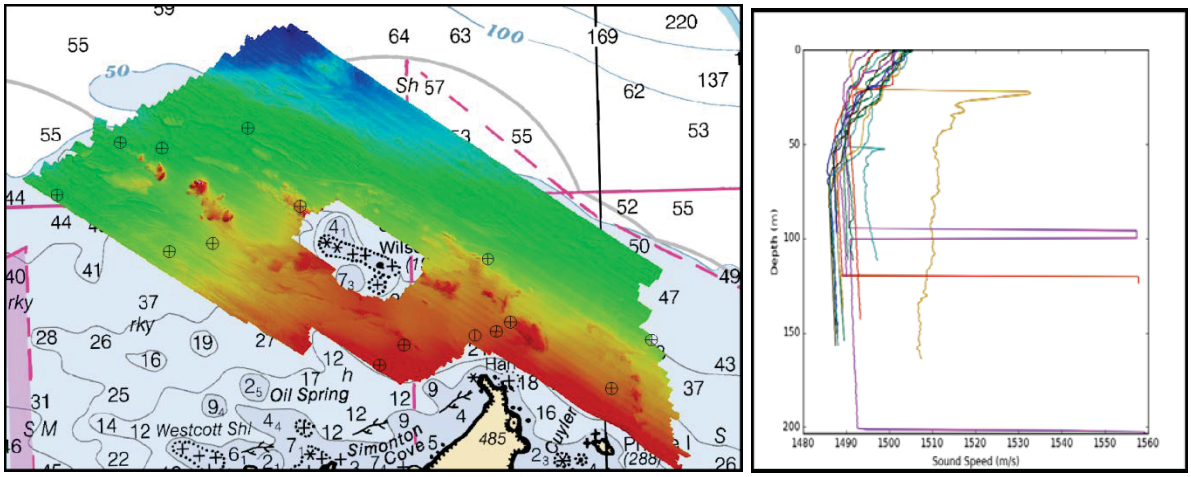


Figure 9: Geospatial cast distribution for Priority 4 and each cast plotted for Sound Speed @ Depth

D.5 Software Inventory

Hypack	2016	Line planning, navigation
Simrad ME70	N/A	Acquisition
MATLAB executable script	April 2015	*.RAW to *.GSF conversion
POS View	V4	Interface with POS MV
Caris Hips	9.0	Process bathymetry
Velocipy	14.6	*.EDF to *.SVP conversion

Table 6: Software Inventory

D.6 Patch Test

The patch test to calibrate latency, pitch, roll, and heading biases was conducted DN121 and DN122. The calibration was performed over a small rocky outcrop found near the 50 fathom contour at 33-59-26.748N, 120-23-27.546W. The location and weather were less than ideal for the patch test. Finding a feature to patch over took hours of research and development and the small outcrop ended up being out best option at the time. The sea states were 10-12ft and coming from NW making it impossible to patch test is the ideal direction of North to South for this specific outcrop. There was an attempt to survey in the ideal direction but sea states did not permit.

Upon viewing last year's offset values, it is now noted that the current values were very close excluding the pitch value. It is believed the large pitch offset is a reflection of poor sea states and poor feature to calibrate over. Also noted was the possibility of a timing offset. It was dismissed and compensated for in pitch. Later during the survey, a few lines of our data was sent to Hypack for a different issue and it was noted by Hypack that there was a varying timing offset up to half a second.

The values were entered into the POS MV settings for Sensor 1 Frame with respect to Reference Frame instead of into the CARIS HIPS Vessel File (HVF). This way of entering calibration values is specific to Kongsberg/Simrad systems. The ME70 performs its own pitch and roll compensation therefore entering the values into the POS MV ensures the motion data is in the correct reference frame.

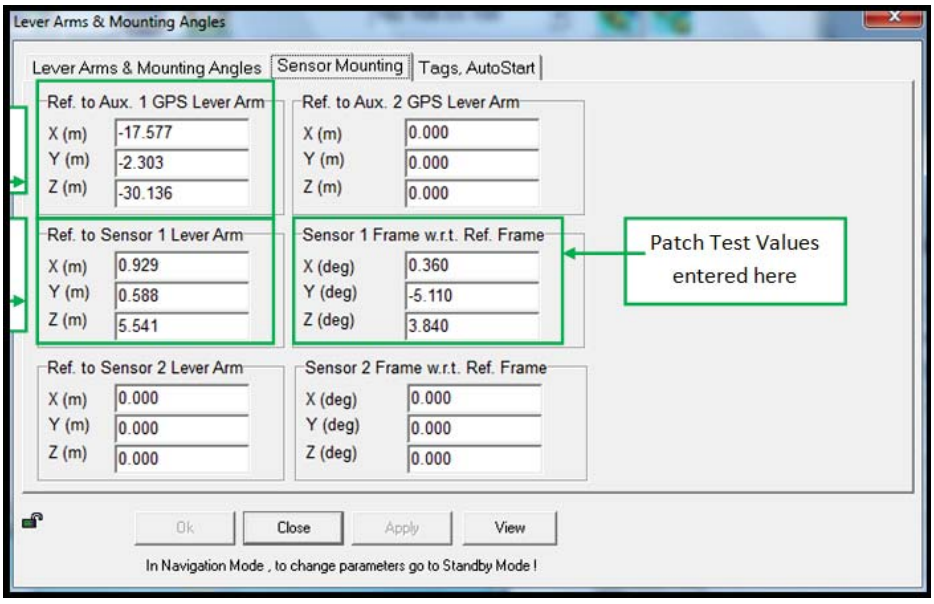


Figure 10: Patch test values located within POS MV "Sensor 1 Frame wrt Ref. Frame"

Pitch	-5.11°
Roll	0.36°
Heading	3.84°
Timing	0 sec

Table 7: Patch Test Values

Note: It has now been discovered that the timing offset found is an issue between the ME70 computer clock and the POSMV clock. In the future, a time server will need to be used. If not possible, hourly time checks between acquisition and the POSMV need to be executed and adjusted if needed. Documentation of this timing issue is provided by Sam Greenaway during his testing on the NOAA Ship Rueben Lasker and the document is located within DR Appendix II.

D.7 Tides and Water Levels

Due to the location of the survey, there were no ideal tide stations available in the vicinity of the survey. It was decided that for this survey, predicted tides would be used from a tide station located on the mainland in Santa Barbara, Station ID: 9411340. A zoned file was provided which extended to the outer limits of the survey 49.55 nm from the tide station located in Santa Barbara.

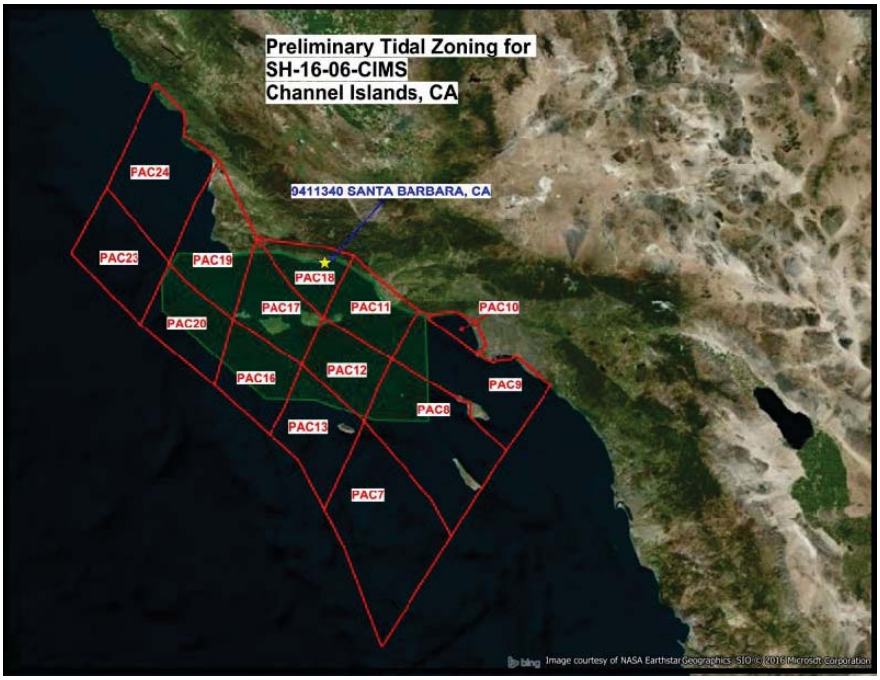


Figure 11: Preliminary Zoned Tides for the Channel Islands

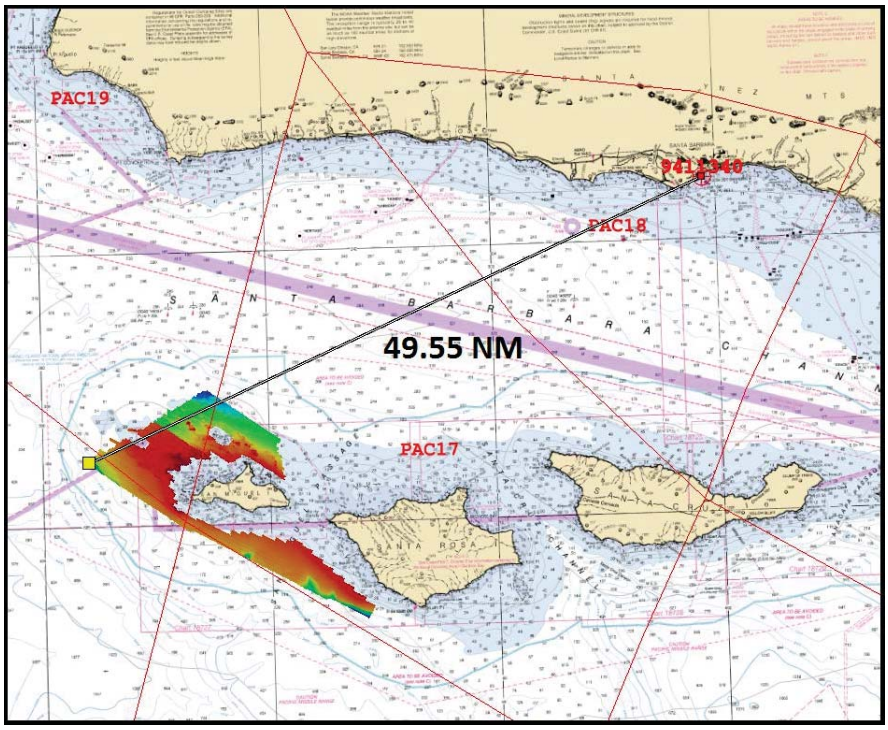


Figure 12: Distance from the furthest corner of the data to the tide station is 49.55nm

Once the cruise was completed, the data was brought to shore and Verified tides were downloaded from Station ID: 9411340 and applied to all the data reducing depths to chart datum Mean Lower Low Water (MLLW). Although the tide station was 50 nm from the furthest section of collected data, tidal artifacts were not present in the data. The minimum tidal value is -0.372m and the maximum tidal value is 2.067m.

D.8 Data Processing

Outside of the general workflow, filtering of the data was necessary. Outer beam data showed a trend to have “busts” where the data collected was not useable. CARIS Swath Editor was used to filter the data 60/60 (port/stbd) degrees from nadir. At some point throughout the survey a filter of up to 50/50 was necessary. The filtering procedure was up to the discretion of the Hydrographer in Charge on shift. Because most data outside of 50 degrees from nadir was not usable, there are artifacts in the surfaces depicting these “bowtie” outerbeams. The hydrographers did their best to clean out these artifacts. A more aggressive filter could have been applied but due to how the lines were spaced, it would create gaps within the surfaces. In the future a new line spacing tighter together could be used and a better filter could help eliminate these artifacts.

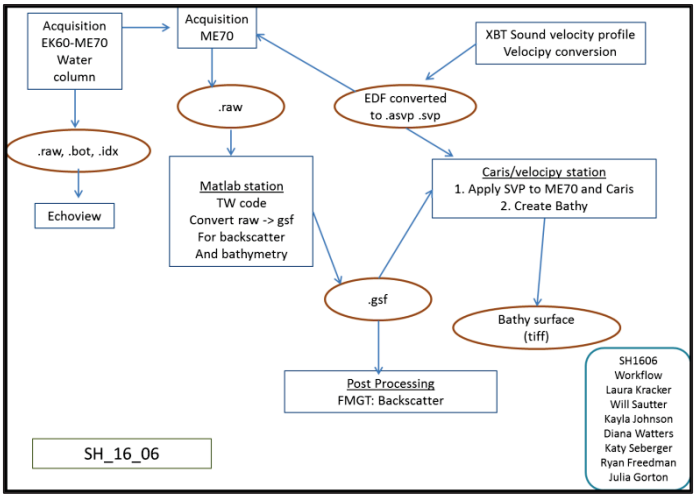


Figure 13: General workflow for acquiring and processing data

The original plan of the survey was to collect data through Hypack converting the .HSX files to HIPS CARIS files. The Hypack and ME70 integration was completed and survey started by collecting HSX data. Within three days it was noted that there were issues when processing in HIPS. To troubleshoot these issues, the hydrographer changed workstations switching from Windows 10 to Windows 7 then switching from using HIPS 9.1 to HIPS 9.0. None of these fixes were stopping the problem. The issues included data not showing up in the grids even when data was clearly collected validated by navigation editor and swath editor.

Finally, the hydrographer decided to test the old way of converting the raw ME70 files into GSF's and then converting them into HIPS files within CARIS. Immediately the glitches went away. Further analysis showed that there was a 2-10m vertical difference between the surfaces created with the HSX and GSF data. The GSF technique has been used for years on multiple different vessels and has proven an effect way for collecting and processing bathy data in HIPS. It was determined that the Hypack and ME70 integration did not work and immediately the work flow was shifted to using Hypack solely for navigation and collecting the raw ME70 data and then converting to GSF through Matlab and continuing the process in HIPS. A data set was sent to Hypack and they agreed that the integration had not been effective.

Heave artifacts exist throughout the entire survey. This can be attributed to a few factors: The POS Antennas have a blocked horizon by the mast of the ship, heading was constantly dropping out, and the new offset of the antenna was never properly measured. Attempts to post process the raw POS data were made once the hydrographer returned to the office but was not successful. Due to these large heave artifacts, the grid in some places honors these artifacts as actual sea floor bathymetry. Flier Finder was used to do final cleaning of the grids but due to the dynamic seafloor and heave artifacts there is a possibility fliers do still exist.

E. Uncertainty

E.1 Total Propagated Uncertainty (TPU)

TPU was calculated using CARIS HIPS/SIPS 9.0 and the following parameters:

Tide Value Measured	0.0 m
Tide Value Zoning	0.5 m
Sound Speed Values	4.0 m/s
Surface Sound Speed Values	2.0 m/s

Table 8: TPU Values.

E.2 Uncertainty

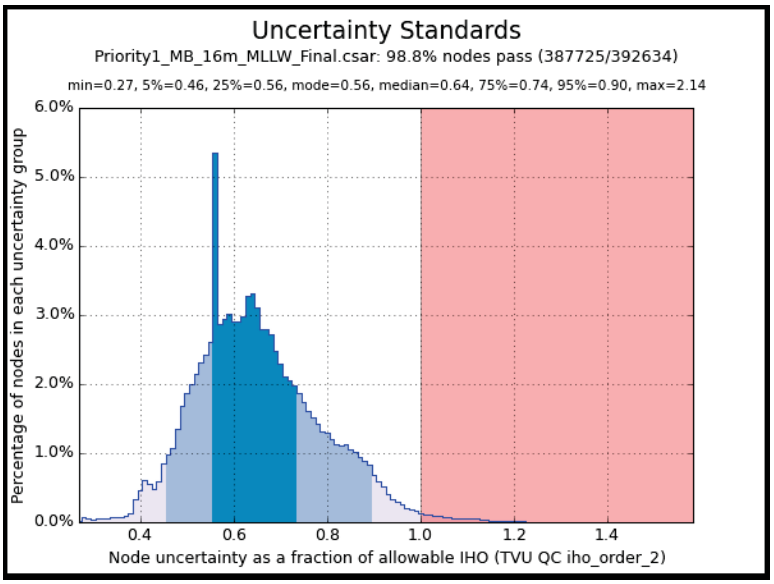


Figure 14: Histogram representing the vertical uncertainty of each survey node in relation to IHO standards. 98.8% meet IHO standards in the Priority 1_16m grid.

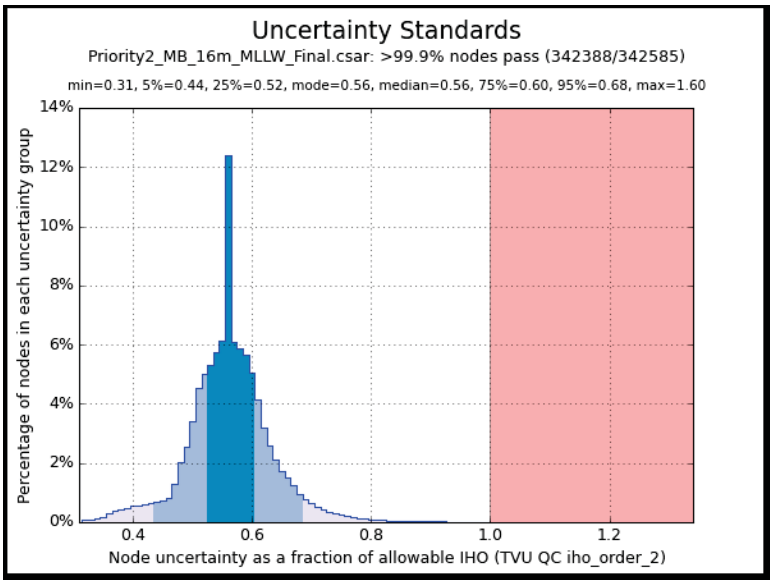


Figure 15: Histogram representing the vertical uncertainty of each survey node in relation to IHO standards. 99.9% meet IHO standards in the Priority 2_16m grid.

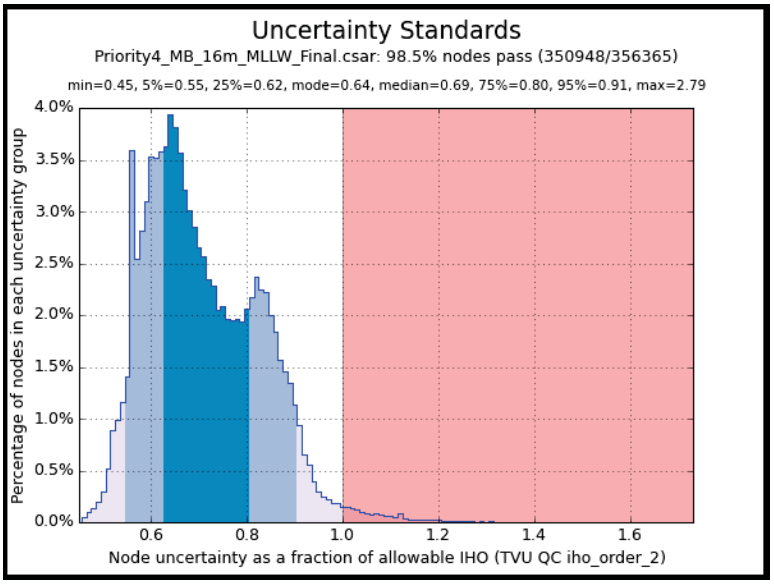


Figure 16: Histogram representing the vertical uncertainty of each survey node in relation to IHO standards. 98.5% meet IHO standards in the Priority 4_16m grid.

F. Results and Recommendations

The following bathymetric grids were created from the processed data:

Surface Name	Surface	Resolution	Depth Range	Surface Parameter
Priority1_MB_16m_MLLW_Final	CUBE	16m	26.95m-338.49m	NOAA_16m
Priority2_MB_16m_MLLW_Final	CUBE	16m	44.70m-285.25m	NOAA_16m
Priority4_MB_16m_MLLW_Final	CUBE	16m	26.68m-125.98m	NOAA_16m

Table 9: Submitted surfaces

F.1 Chart Comparison

The following is a list of the largest scale charts and ENCs common to the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
18720	1:232,188	34	7/1/2013	7/19/2016	7/23/2016
18727	1:40,000	12	7/01/2004	7/19/2016	7/23/2016
18721	1:100,000	12	12/01/2009	7/19/2016	7/23/2016
ENC	Scale	Edition	Update Application Date	Issue Date	-
US5CA64M	1:40,000	8	1/8/2016	1/8/2016	-
US4CA68M	1:100,000	8	11/16/2015	11/16/2015	-
US3CA69M	1:232,188	16	7/13/2016	7/13/2016	-

Table 10: Raster Charts and ENCs

A chart comparison was completed by the hydrographer. To complete this process the hydrographer created a combined surface from each priority grid. Since the largest scale chart does not fully cover the entire survey area, the soundings from both the 1:40,000 and 1:100,000 were extracted from the ENC to ensure the entire area was covered for a comparison. A surface from the ENC soundings was created and differenced to the combined grid. The average surveyed soundings differed by 10m but were up to 83m shoaler in some areas and 41m deeper. The red areas represent areas that are shoaler than charted and the blue represents areas that are deeper than charted. The hydrographer also created contours from the combined grid and compared them to the current charted depth curve. Since the charted data that was surveyed sources from the 1940s, the soundings on the chart are from lead lines and single beam. The general trend of the contours follows the bathymetry but needs to be updated to reflect the multibeam data covering this area. See images below.

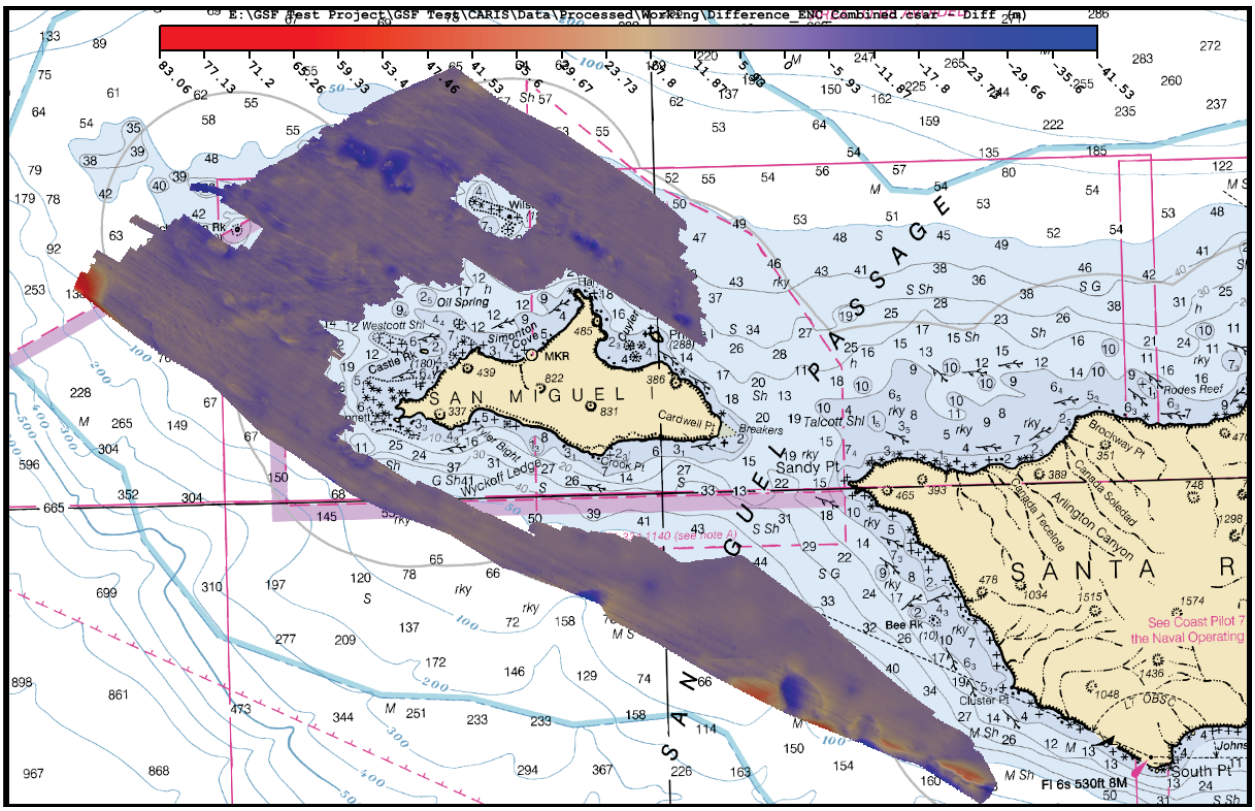


Figure 17: US4CA68M/18721, US3CA69M/18720, and US5CA69M/18727 Combined grid chart comparison

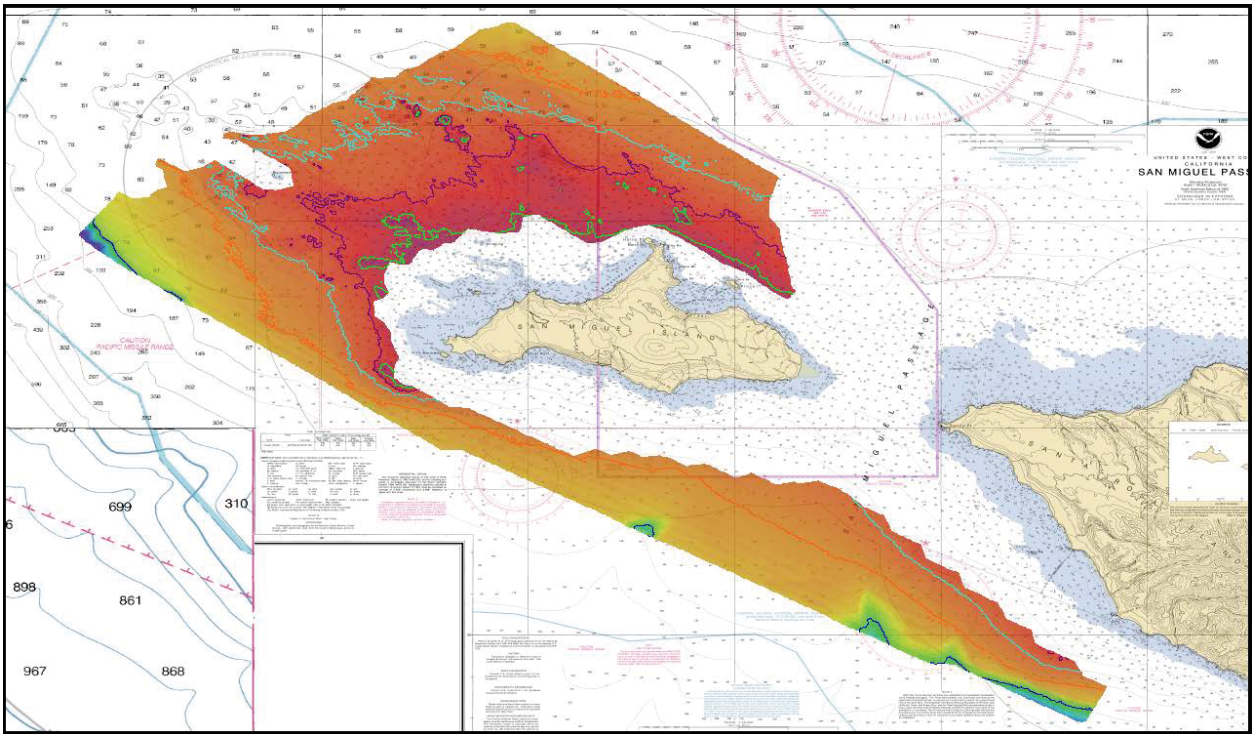


Figure 18: Combed Priority Grid contours

F2. Density

Each surface passed the IHO standard of having 5 or more soundings per node. The general pattern of failed nodes falls within the limits of the outer beams of the survey and on any rock feature that could not be fully covered with bathy data. Results are shown below.

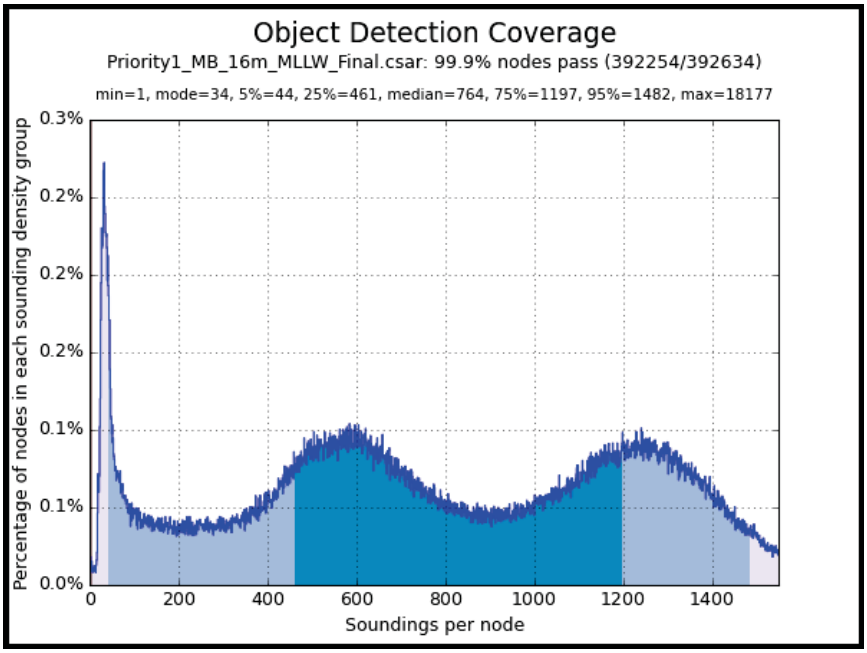


Figure 19: Histogram representing Sounds per Node Density in relation to IHO standards. 99.9%

nodes meet IHO standards having 5 or more soundings for the Priority1 _16m grid.

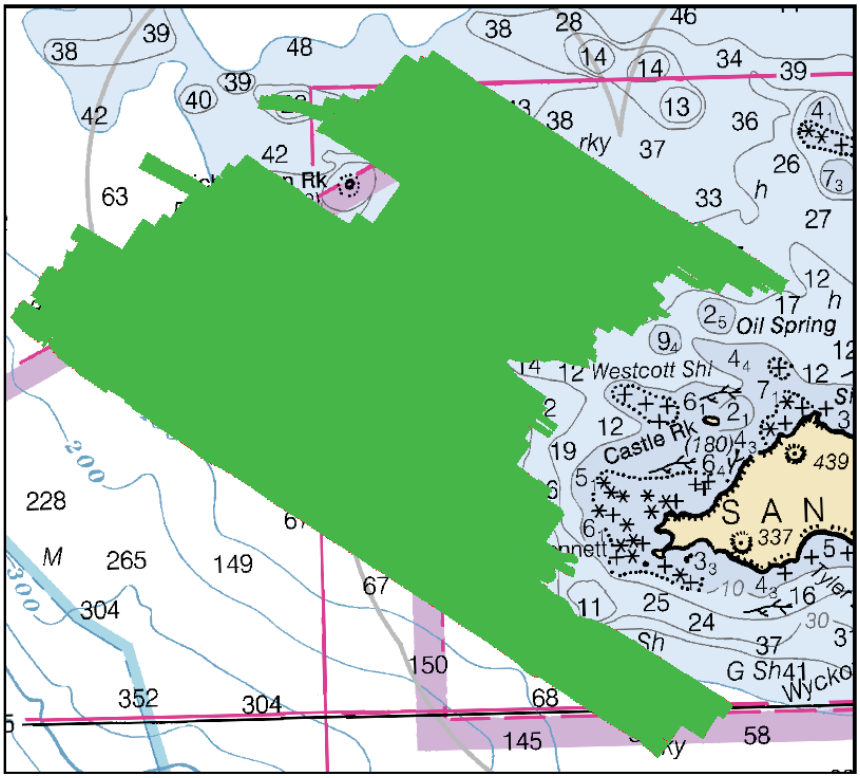


Figure 20: Density of the Priority 1_16m surface. Green represents nodes which comply with the HSSD, red are non-compliant nodes.

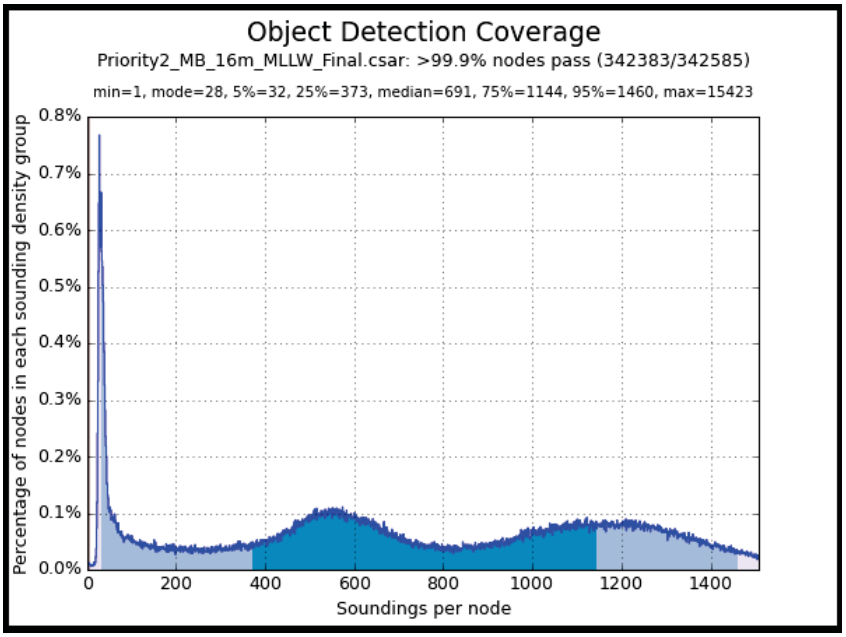


Figure 21: Histogram representing Sounds per Node Density in relation to IHO standards. 99.9% nodes meet IHO standards having 5 or more soundings for the Priority2 _16m grid.

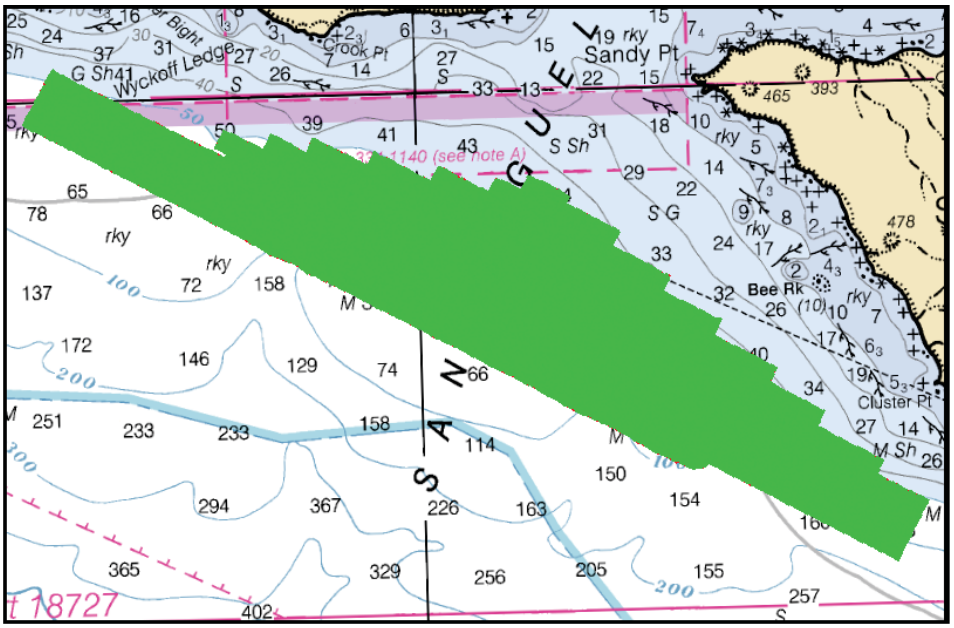


Figure 22: Density of the Priority 2_16m surface. Green represents nodes which comply with the HSSD, red are non-compliant nodes.

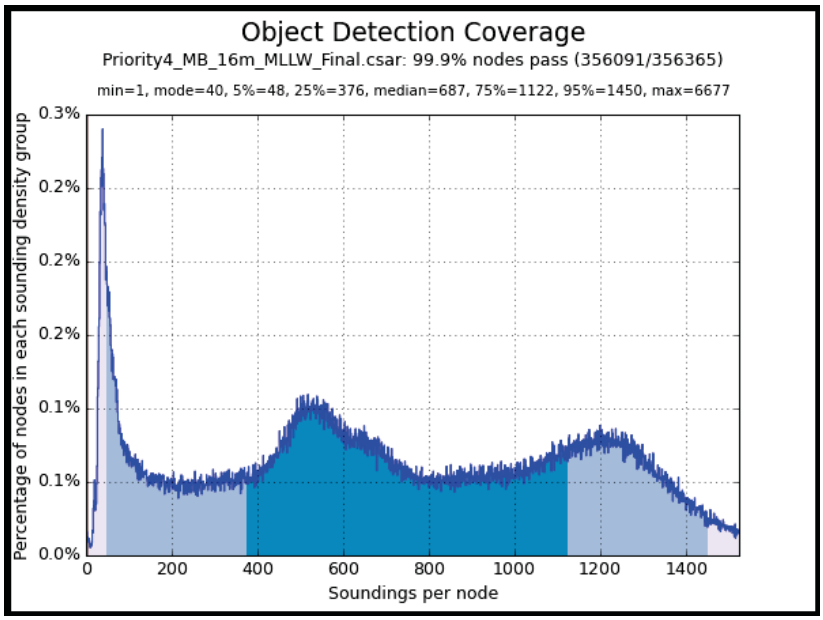


Figure 23: Histogram representing Sounds per Node Density in relation to IHO standards. 99.9% nodes meet IHO standards having 5 or more soundings for the Priority4 _16m grid.

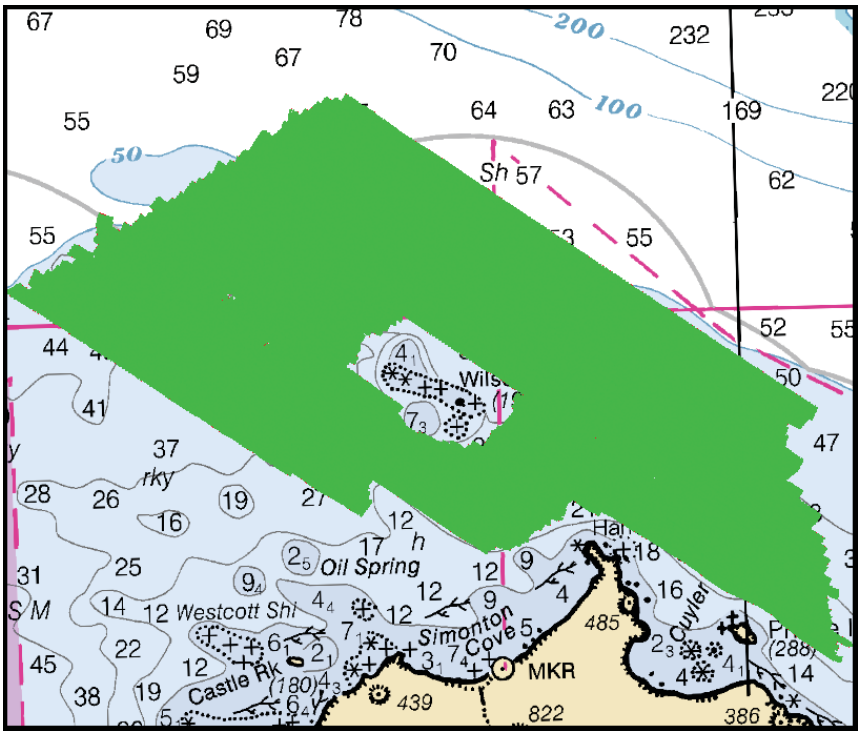


Figure 24: Density of the Priority 4_16m surface. Green represents nodes which comply with the HSSD, red are non-compliant nodes.

F3. Acoustic Backscatter

Acoustic backscatter was collected and processed within Fledermaus FMGT using the converted .gsf files. NOAA's Biogeography Branch processed the backscatter and delivered the final geotiff products to the branch. One thing to note in the images below is that there is an additional line offset from Priority 2 that was submitted with the backscatter data. This line contained bathymetry but was run as a test line during acquisition. The hydrographer made the decision to leave the line out of the submitted Priority 2 grid because the data reached the depth extents of the ME70 where it started to lose bottom detection.

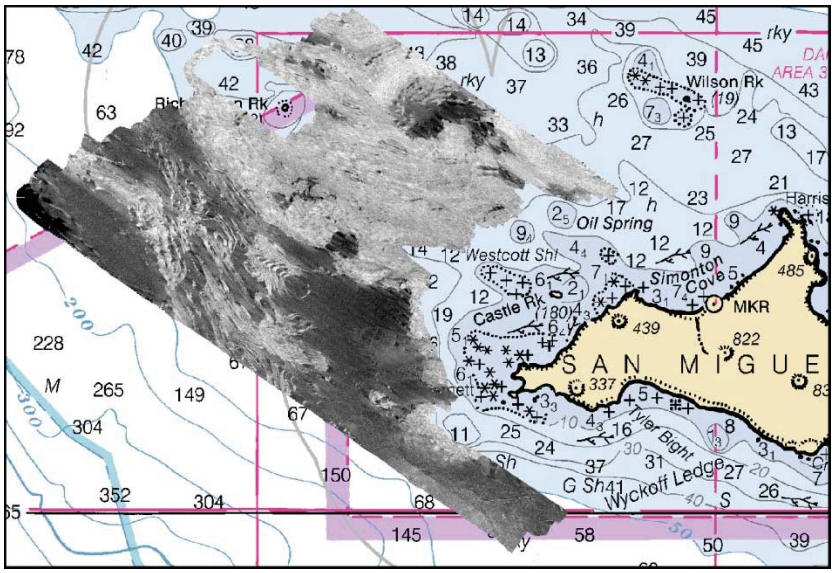


Figure 25: Acoustic backscatter for Priority 1.

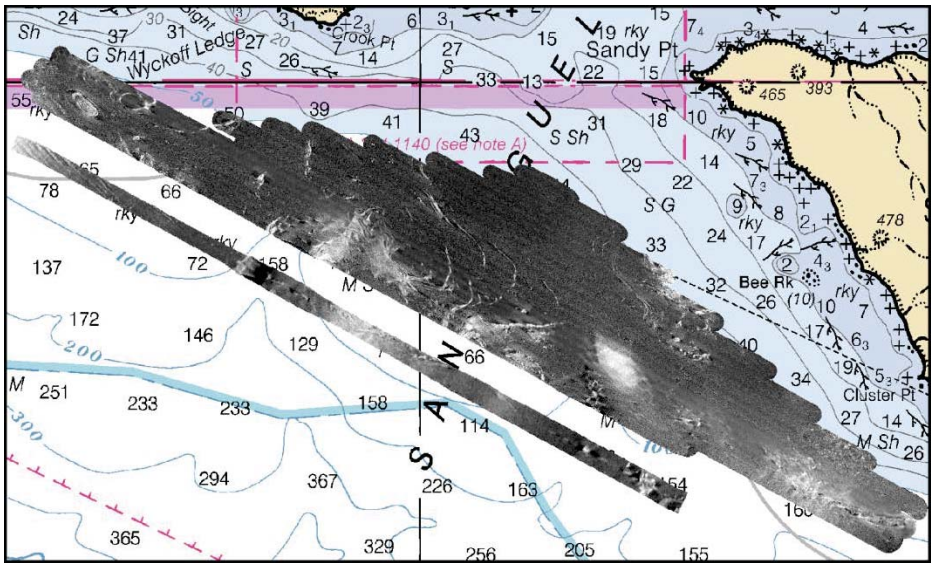


Figure 26: Acoustic backscatter for Priority 2

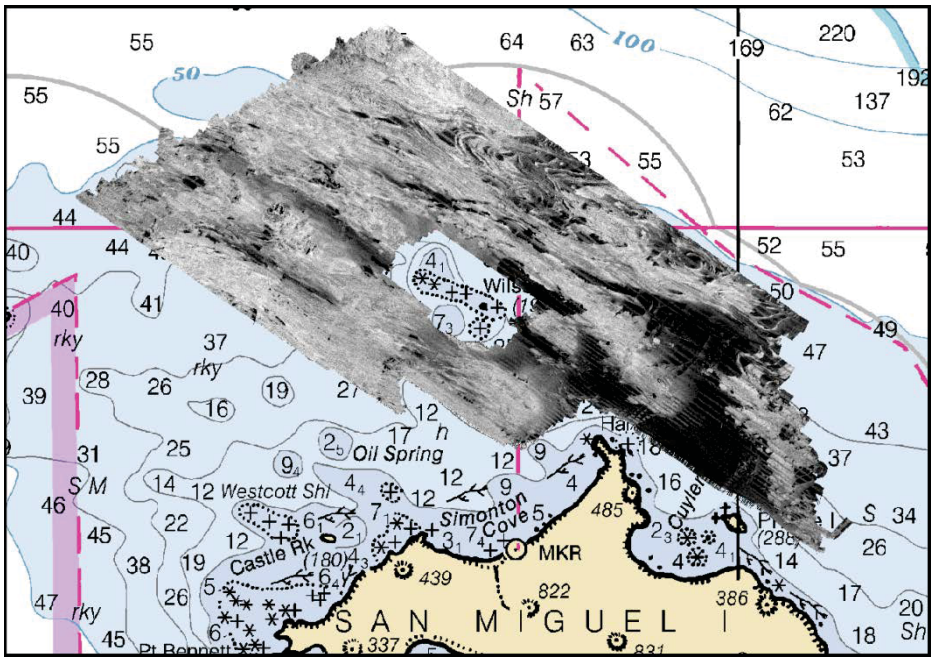


Figure 27: Acoustic backscatter for Priority 4

G. Vertical and Horizontal Control

The vertical datum for this project is Mean Lower Low Water. The tidal range for station 9411340 was analyzed and the range of tides in the area was approximately 2.439m. See section D.7. The horizontal datum for this project is North American Datum of 1983 (NAD83).

H. Additional Results

No additional results to report.

I. Approval

The survey data meets some requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual and Field Procedures Manual. Some data is adequate to supersede charted data in their common areas. This survey is complete and no additional work is required.

Approver Name	Approver Title	Approval Date	Signature
Kayla Johnson	Physical Scientist	9/15/16	Digitally signed by JOHNSON.KAYLA.BETH.1513634699 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=CONTRACTOR, cn=JOHNSON.KAYLA.BETH.1513634699 Date: 2016.09.15 11:27:28 -04'00'

Laura Kracker - NOAA Federal <laura.kracker@noaa.gov>

Fwd: Project Instructions for SH-16-06-CINMS IOCM Channel Islands, CA

1 message

Tim Battista - NOAA Federal <tim.battista@noaa.gov> Fri, Feb 26, 2016 at 8:01 AM
To: Laura Kracker - NOAA Federal <laura.kracker@noaa.gov>, Chris Caldow <chris.caldow@noaa.gov>

Goodies for you.

---------- Forwarded message ----------
From: **Hua Yang - NOAA Affiliate** <hua.yang@noaa.gov>
Date: Thu, Feb 25, 2016 at 7:29 PM
Subject: Project Instructions for SH-16-06-CINMS IOCM Channel Islands, CA
To: Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Tim Battista - NOAA Federal <tim.battista@noaa.gov>
Cc: "_NOS.CO-OPS.HPT" <nos.coops.hpt@noaa.gov>, Gerald Hovis - NOAA Federal <gerald.hovis@noaa.gov>

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

DATE: 02/25/2016

MEMORANDUM FOR: LCDR Michael Gonsalves
Chief, Operations Branch, N/CS31

FROM: Gerald Hovis
Chief, Products and Services Branch, N/OPS3

SUBJECT: Delivery of Tide Requirements for Hydrographic Surveys

Tide requirements for hydrographic survey project SH-16-06-CINMS IOCM Channel Islands, CA are being provided in Microsoft Word format. A .ZIP file containing all pertinent MapInfo files, as well as a tidal zoning graphic in PDF, is attached to this email and posted to the Sharepoint website under the project name "SH-16-06-CINMS". Six minute preliminary data for Santa Barbara (9411340) may be retrieved in one month increments over the internet from the CO-OPS SOAP web services at http://opendap.co-ops.nos.noaa.gov/axis/text.html by clicking on "Six Minute Data".

Thanks,

Hua Yang

Hydrographic Planning Team
NOAA/National Ocean Service
Center for Operational Oceanographic Products and Services
Station 7128

1305 East West Highway, SSMC4
Silver Spring, MD 20910
Office: 240-533-0612
Email: Hua.Yang@noaa.gov
Web: http://tidesandcurrents.noaa.gov/

Hydro Hot List: http://tidesandcurrents.noaa.gov/hydro.shtml

--
Tim Battista
Oceanographer
NOAA
Center for Coastal Monitoring & Assessment
Biogeography Branch
(p) 240-533-0379 New
(f) 301-713-4384
(email) Tim.Battista@noaa.gov
http://ccma.nos.noaa.gov/about/biogeography/

"Essentially, all models are wrong, but some are useful."
-George E.P. Box

SH1606CINMS.zip
268K

Michael Annis - NOAA Federal <michael.j.annis@noaa.gov>

Fwd: me70 in hypack

Pradith, Vitad - Xylem <v@hypack.com> Wed, Jun 1, 2016 at 11:10 PM
To: Glen Rice - NOAA Federal <glen.rice@noaa.gov>, Samuel Greenaway - NOAA Federal <samuel.greenaway@noaa.gov>, Tom Weber <weber@ccom.unh.edu>, "Maddock, Dave - Xylem" <dave@hypack.com>
Cc: Michael J Annis <Michael.J.Annis@noaa.gov>

Hi Glen et al.,

We did some digging and here's the commit history of the ME70 code for reference:

2016-03-29 fix minor bug w/ uninitialized controller on first use

2015-07-31 convert backscatter dB to amplitude before logging to RMB

2014-12-06 poll for new SV at head, per request from Mike Annis

2014-10-22 change phase detect threshold from -60dB to -40dB per Tom Weber

2014-09-25 last big chunk of significant detection changes

….

In short, there hasn't been a change to the bottom detection code since 2014. The backscatter change mentioned by Brandi is literally one line of code AFTER the bottom detection happens so the backscatter (in theory anyways) is independent of the bottom detection.

Moving forward, there's a few variables here that we'll need to suss out:

- Confirmation on how the ME70 is time synching its' data. On the HYPACK end, we're using the POS MV timetags directly and passively recording the in situ timetagged ME70 datagrams. During the last cruise on the Shimada from Mike's patch test data, I immediately noticed a 0.4 second latency (with an internal fluctuating 0.05 variance with respect to the bathy messages). In general, we consider any timestamps that are not within 0.2 seconds a timing latency.

- The version of the ME70 software. As we all can appreciate, any changes to the ME70 software can wreak havoc downstream. It would be great to get an inventory of what version folks are using. (Are they consistent across the board?)

What we'll need (and Mike might already have this data):

- Any/all of the HYPACK logged ME70 HSX data AND the *.all files from Tom's Matlab code that Laura logged on the Shimada. To further clarify, the reason why Tom's Matlab code looks better is because it's only using the timestamps out of the ME70. In HYPACK, you're essentially seeing the wobbles from the mis-timed data between the POS and

the ME70. When CARIS processes the data, its' also looking at the timestamps out of the HSX file which results in the less than stellar looking data.

- The best case scenario would be to get on one of the Fish boats for some real time trouble shooting. Any upcoming opportunities?

Cheers,

-v

-

Vitad "V" Pradith

HYPACK, A Xylem Brand

56 Bradley St.

Middletown, CT 06457

(office) 860-635-1500

(cell) (617) 394-8525

(email) v@hypack.com

www.hypack.com

From: Glen Rice - NOAA Federal [mailto:glen.rice@noaa.gov]
Sent: Friday, May 27, 2016 12:59 PM
To: Samuel Greenaway - NOAA Federal; Tom Weber; Pradith, Vitad - Xylem; Maddock, Dave - Xylem
Cc: Michael J Annis
Subject: Fwd: me70 in hypack

[Quoted text hidden]

Kurt Mueller - NOAA Federal <kurt.mueller@noaa.gov>

W00320 With Attitude Fix

1 message

Adam Reed - NOAA Federal <adam.reed@noaa.gov> Mon, Feb 26, 2018 at 9:35 AM
To: _NOS OCS HSD ESD Team <esd.team@noaa.gov>

Hi ESD team,

W00320 (Channel Islands - Shimada survey) went through our pipeline a while ago. It was an ME-70 survey with some attitude issues and artifacts that limited its usefulness. We provided this feedback to NCCOS, who made a significant effort with HSTB's help to improve the quality of their attitude solutions.

They have provided us the re-processed data to review. I have uploaded it data to the AHB OSD drive under:
\\ocs-s-ahb-netap\OSD$\04_Registered_Surveys\W00320 - Attitude fix

Please let me know if we are able to re-address this survey.

Thank you,
Adam

--
LCDR Adam Reed, NOAA
Integrated Oceans and Coastal Mapping (IOCM) Assistant Coordinator
240-533-0046
1315 East West Hwy
Building: SSMC3
Office: 6208
Silver Spring, MD 20910

APPROVAL PAGE

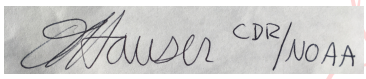
W00320

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 NCEI for archive

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of backscatter mosaics
- Processed survey data and records
- GeoPDF of survey products

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.



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2019.05.08 15:29:01 -07'00'

Approved:_____

Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch