

W00480

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: W00480

LOCALITY

State(s): California

General Locality: Offshore South-Central California

Sub-locality: Arguello Canyon

2019

CHIEF OF PARTY
CAPT Marc Moser

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

W00480

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): **California**

General Locality: **Offshore South-Central California**

Sub-Locality: **Arguello Canyon**

Scale: **80000**

Dates of Survey: **10/03/2019 to 10/04/2019**

Instructions Dated: **08/23/2019**

Project Number: **OPR-L321-FA-19**

Field Unit: **NOAA Ship *Fairweather***

Chief of Party: **CAPT Marc Moser**

Soundings by: **Kongsberg Maritime EM 710 (MBES)**

Imagery by: **Kongsberg Maritime EM 710 (MBES Backscatter)**

Verification by: **Pacific Hydrographic Branch**

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

Remarks:

Any revisions to the Descriptive Report (DR) applied during office processing are shown in red italic text. The DR is maintained as a field unit product, therefore all information and recommendations within this report are considered preliminary unless otherwise noted. The final disposition of survey data is represented in the NOAA nautical chart products. All pertinent records for this survey are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>. Products created during office processing were generated in NAD83 UTM 10N, MLLW. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.

DESCRIPTIVE REPORT SUMMARY

A. Area Surveyed

This hydrographic survey was acquired in accordance with the requirements defined in the Project Instructions for OPR-L321-FA-19. The survey area is located by Arguello Canyon offshore South-Central California. Coverage acquired in W00480 is shown in Figure 1 below. Sheet Limits for W00480 were not reached due to weather conditions which were not conducive to survey acquisition and time limitations.

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
34° 22' 44.95" N 120° 52' 16.92" W	34° 4' 56.41" N 120° 39' 20.68" W

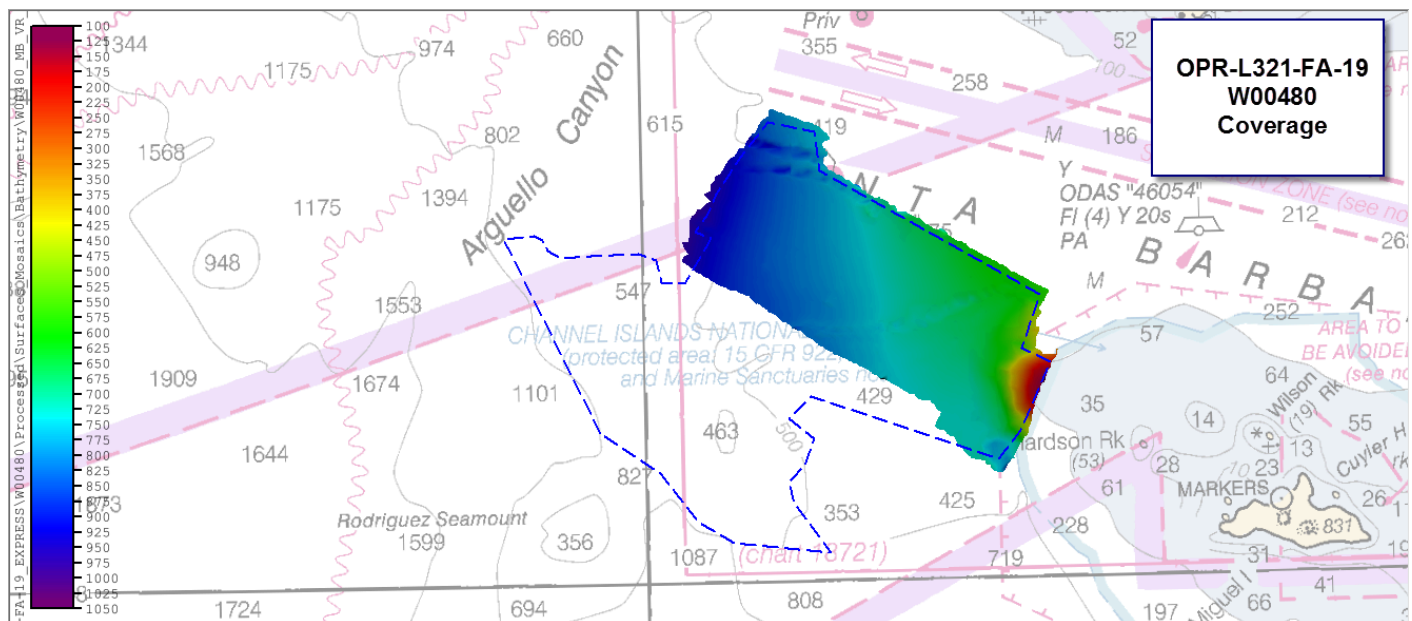


Figure 1: W00480 Coverage overlaid on chart 18022 with sheet limits in blue

B. Survey Purpose

The project was conducted in support of the Expanding Pacific Research and Exploration of Submerged Systems (EXPRESS) campaign which is comprised of a large and diverse team of federal and non-federal partners targeting deepwater areas off of the U.S. Pacific Coast. The primary objective of this project is to collect data for surficial geology, benthic habitats, sub-bottom faults, geologic hazards, and sedimentary processes. Data from this project will support a variety of disciplines including offshore energy projects and infrastructure, marine spatial planning, ecosystem assessments, and marine geohazards. NOAA, in collaboration with the USGS and BOEM will conduct a coordinated multibeam echo sounder survey of the

project area to collect bathymetry, acoustic backscatter data, and water column data. Bathymetric data from this project will be further used to update NOAA's nautical charting products within the area. This project will cover a total of 1,757 SNM and survey data from this project is intended to supersede all prior survey data in the common area.

C. Intended Use of Survey

The entire survey is adequate to supersede previous data.

Data acquired in W00480 meet multibeam echo sounder (MBES) coverage requirements for complete coverage, as required by the HSSD.

D. Data Acquisition and Processing

Please reference Data Acquisition and Processing Report OPR-L321-FA-19 for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods.

E. Uncertainty

The surface was analyzed using HydrOffice QC Tools Grid QA feature to determine compliance with the specifications. Overall, 99.98% of nodes within the surface meet the NOAA Allowable Uncertainty specifications for W00480 (Figure 2). Density requirements were achieved for W00480 with 99.69% of surface nodes containing five or more soundings as required by the HSSD Section 5.2.2.3 (Figure 3).

Uncertainty Standards

Grid source: W00480_MB_VR_MLLW

99.5+% pass (579,344 of 579,402 nodes), min=0.02, mode=0.06, max=1.55

Percentiles: 2.5%=0.04, Q1=0.05, median=0.06, Q3=0.07, 97.5%=0.12

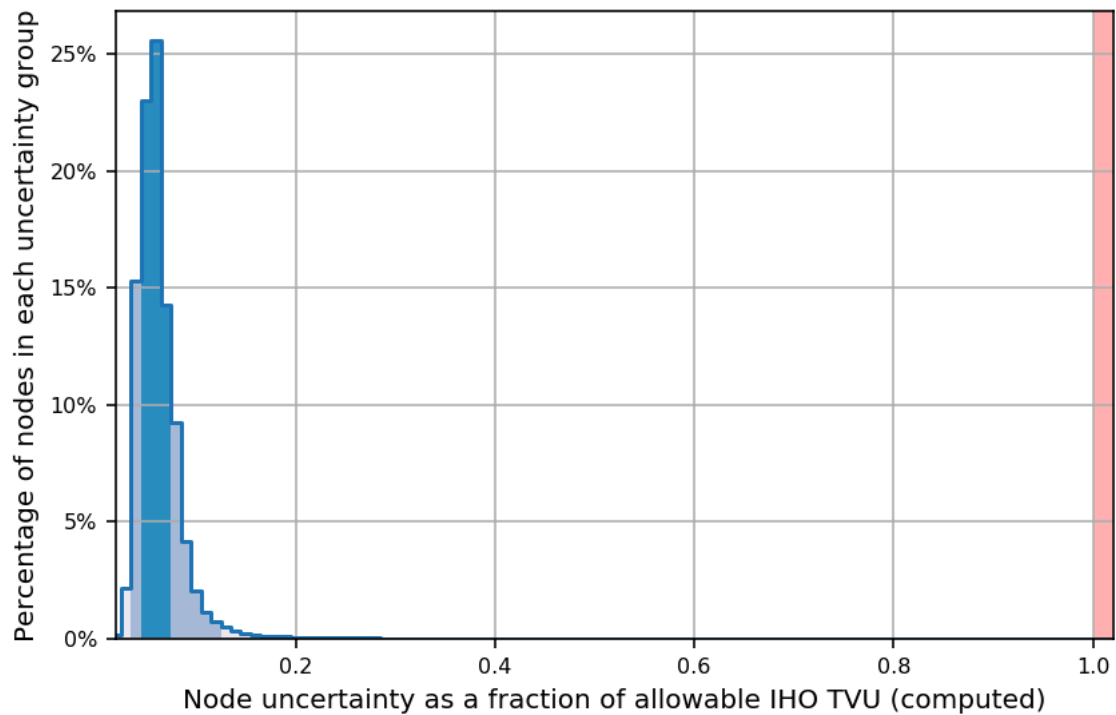


Figure 2: W00480 compliance with uncertainty standards

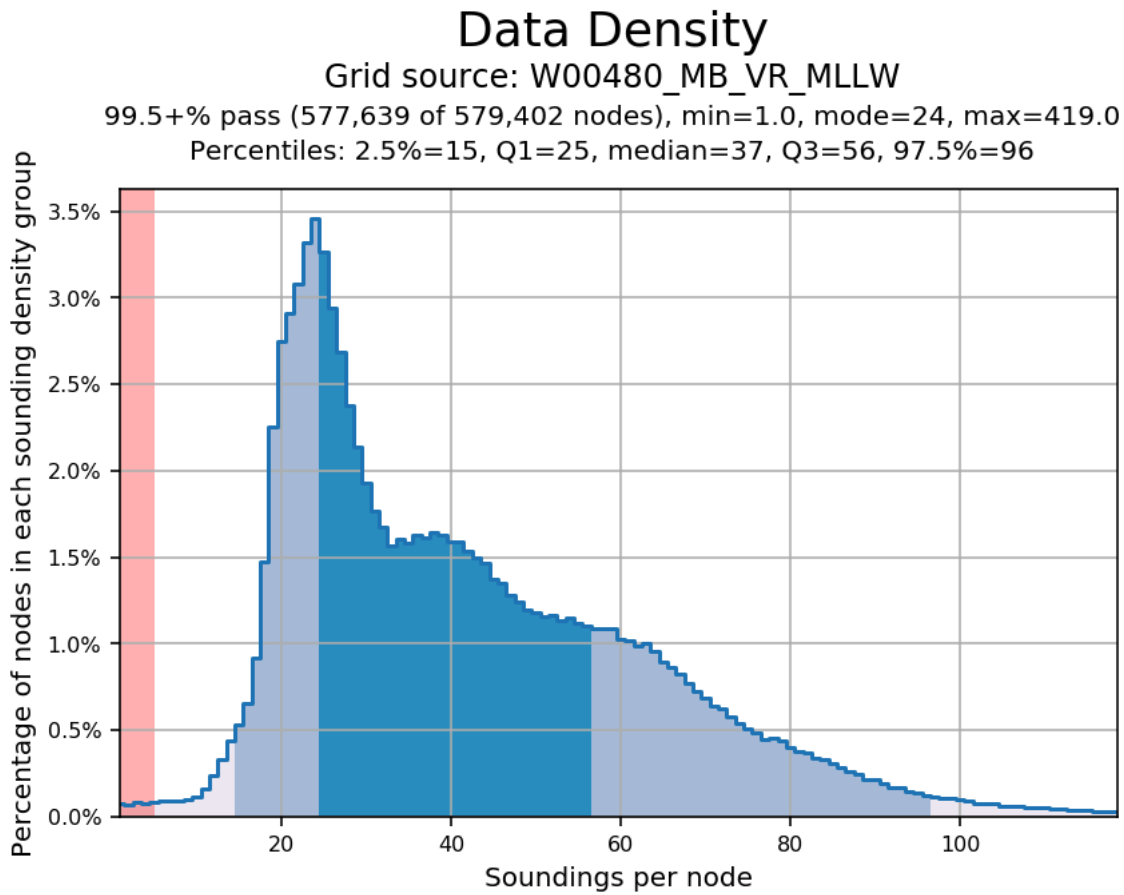


Figure 3: W00480 compliance with density standards

F. Results and Recommendations

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

ENC	Scale	Edition	Update Application Date	Issue Date
US3CA69M	1:200000	24	05/16/2019	06/13/2019
US3CA85M	1:216116	20	10/17/2017	10/11/2018

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
W00480_MB_VR_MLLW	CARIS VR Surface (CUBE)	Variable Resolution m	120.2 m - 1029.0 m	NOAA_VR	Complete MBES
W00480_MB_VR_MLLW_Final	CARIS VR Surface (CUBE)	Variable Resolution m	120.0 m - 1029.0 m	NOAA_VR	Complete MBES

The NOAA CUBE parameters defined in the HSSD were used for the creation of all CUBE surfaces for W00480. The surfaces have been reviewed where noisy data, or "fliers" are incorporated into the gridded solutions causing the surface to be shoaler or deeper than the true seafloor. Where these spurious soundings cause the gridded surface to be shoaler or deeper than the reliable measured seabed by greater than the maximum allowable Total Vertical Uncertainty at that depth, the noisy data have been rejected by the hydrographer and the surface recomputed.

Flier Finder, part of the QC Tools package within HydrOffice, was used to assist the search for spurious sounding following gross cleaning. Flier Finder was run iteratively until remaining flagged fliers were deemed to be valid aspects of the surface.

G. Vertical and Horizontal Control

The vertical datum for this project is Mean Lower Low Water. The vertical control method used was VDatum.

Per section 5.1.2.3 of the Field Procedures Manual (2014 ed), no Horizontal and Vertical Control Report has been generated for W00480.

The horizontal datum for this project is North American Datum of 1983 (NAD 83). The projection used for this project is Universal Transverse Mercator (UTM) Zone 10.

Vessel kinematic data were post-processed using Applanix POSPac processing software and RTX positioning methods described in the DAPR. Smoothed Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS and SIPS.

The Wide Area Augmentation system (WAAS) was used for real-time horizontal control during data acquisition.

H. Additional Results

Additional Results

ENC Comparison

Soundings from W00480 are in general disagreement with the charted depths on ENC US3CA69M, with most depths disagreeing by no more than 40 meters as shown in Figure 3. The largest differences are seen near the southwest corner where depths are over 100 meters deeper than those charted.

Soundings from W00480 are also in general disagreement with the charted depths on ENC US3CA85M, with most depths disagreeing by no more than 20 meters as shown in Figure 4. The most abundant differences are seen in the two canyons in the northeast corner where depths are over 100 meters deeper than those charted.

Backscatter

Raw backscatter data were stored in the .all file for Kongsberg systems. All backscatter were processed to GSF files, and a floating point mosaic was created by the field unit via Fledermaus FMGT 7.8.10 (Figure 5).

Features

The non dangerous WRECK feature located at the NE corner of W00480 was not observed in the multibeam data but can possibly be interpreted in the backscatter data. For this reason, it is recommended that the wreck at this location be retained

Crosslines

Crosslines were not required in project instructions and were not collected.

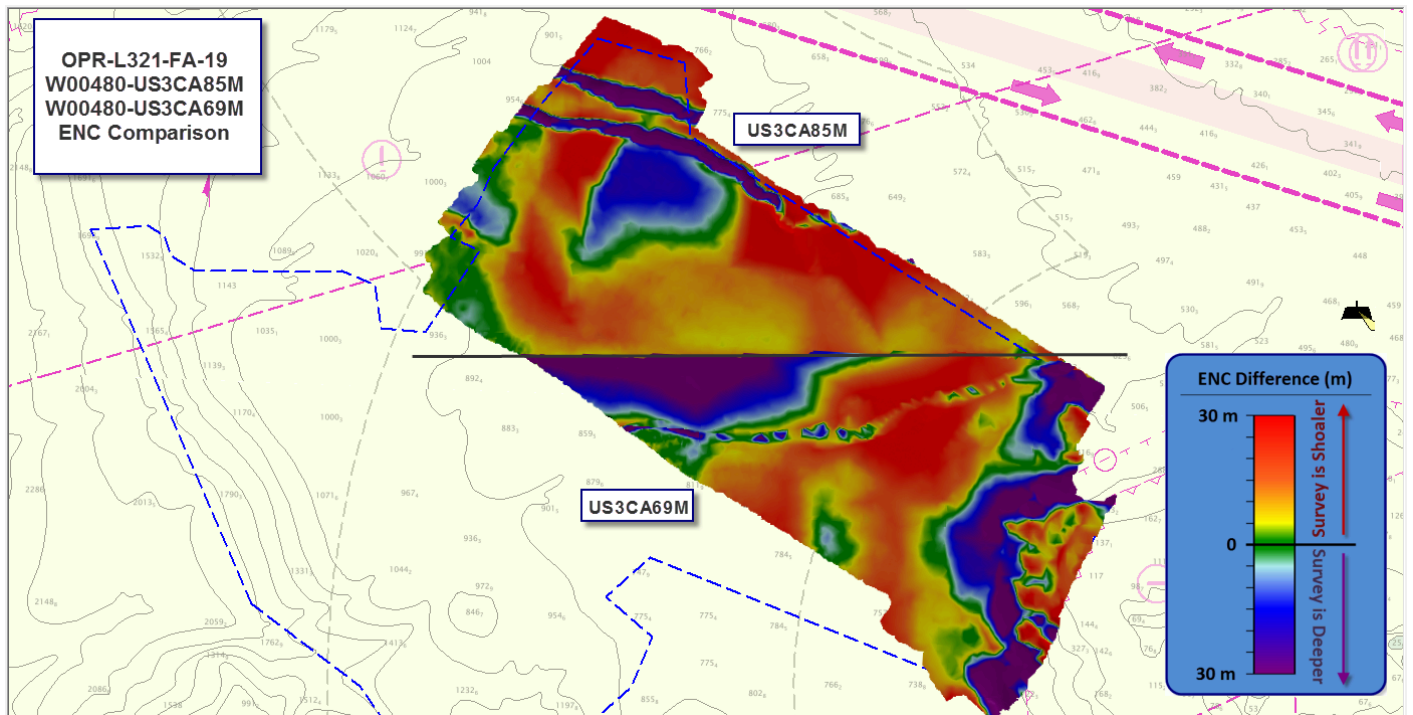


Figure 4: Comparison of W00480 and ENC's US3CA85M (Top) and US3CA69M (Bottom)

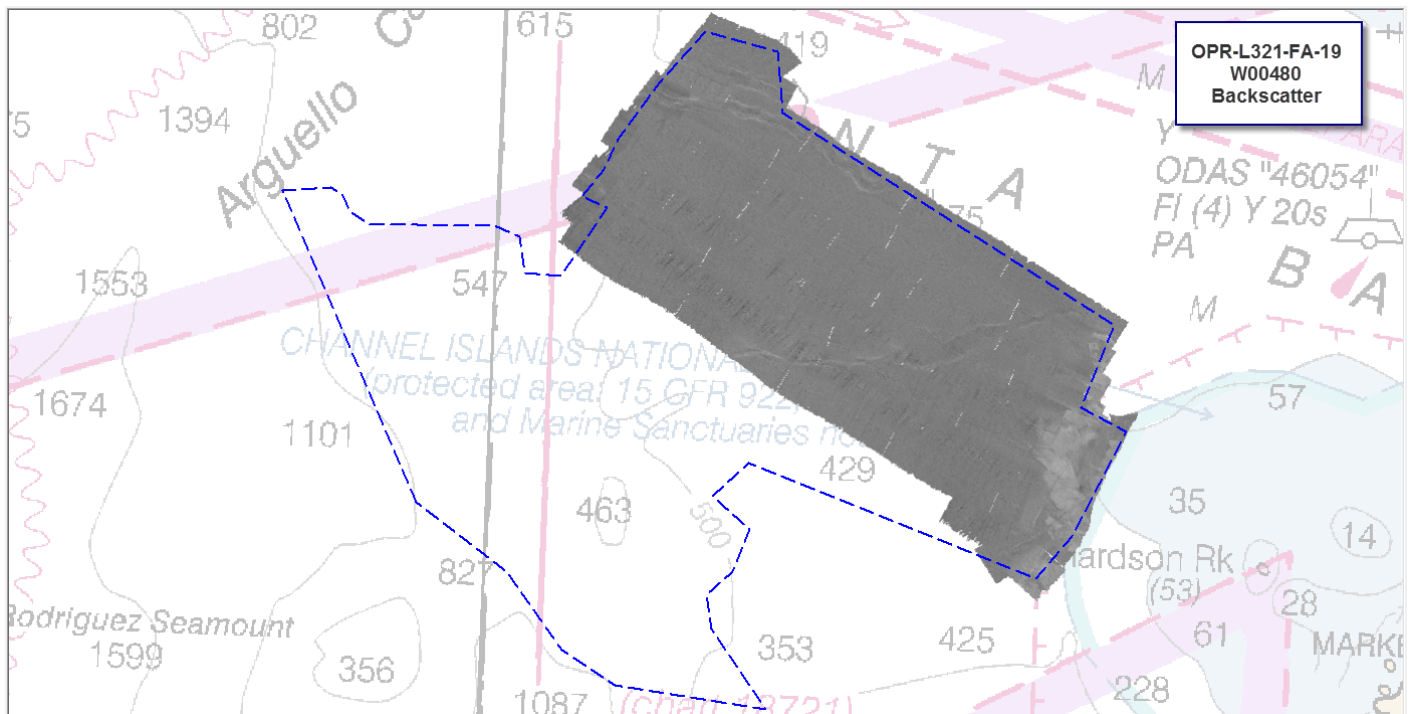


Figure 5: W00480 backscatter mosaic overlaid on chart 18022 with sheet limits in blue

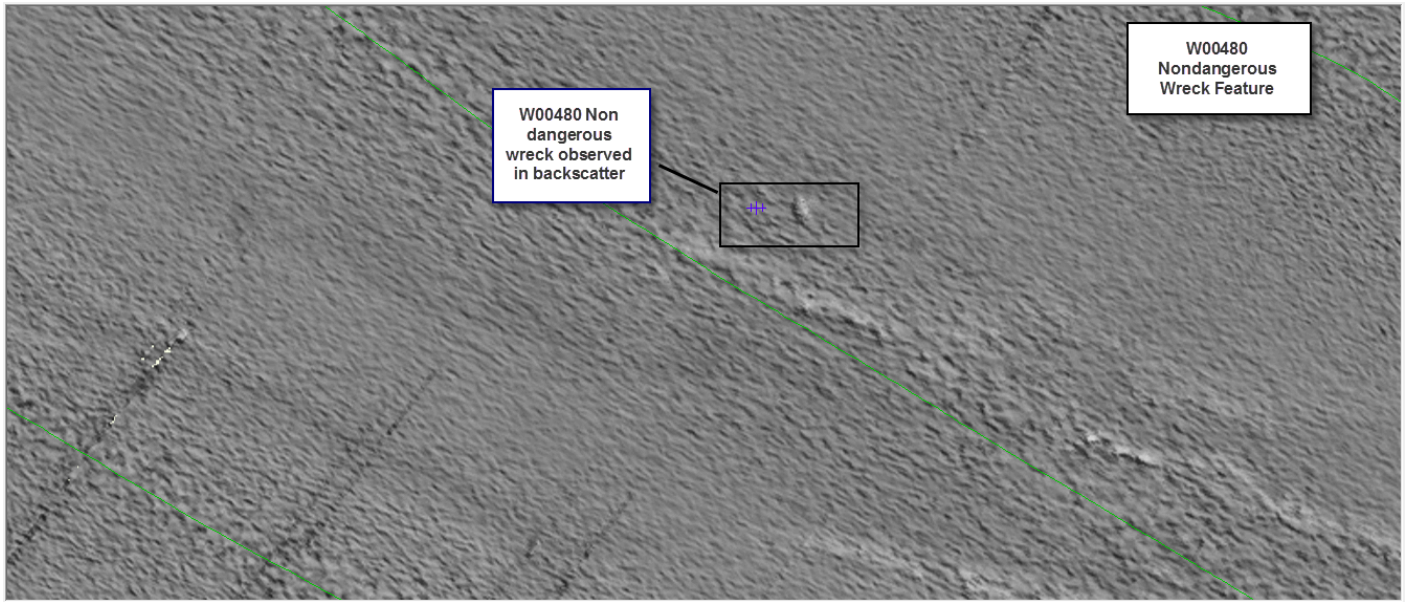


Figure 6: W00480 non dangerous wreck feature observed backscatter

I. Approval

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 Survey Summary 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 Specifications and Deliverables, 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 Survey Summary Report.

Approver Name	Title	Date	Signature
CAPT Marc Moser	Chief of Party	01/06/2020	MOSER.MARC.STANTON.1163193902 Digitally signed by MOSER.MARC.STANTON.1163193902 Date: 2020.01.07 06:13:08 -08'00'
LT Stephen Moulton	Operations Officer	01/06/2020	MOULTON.STEPHEN.F.1282116835 Digitally signed by MOULTON.STEPHEN.F.1282116835 Date: 2020.01.07 10:50:16 -08'00'
HCST Samuel Candio	Chief Survey Technician	01/06/2020	WIEGERT.MICHELLE.LYNN.1548600975 Digitally signed by WIEGERT.MICHELLE.LYNN.1548600975 Date: 2020.01.07 08:27:35 -08'00'
HST Michelle Wiegert	Sheet Manager	01/06/2020	WIEGERT.MICHELLE.LYNN.1548600975 Digitally signed by WIEGERT.MICHELLE.LYNN.1548600975 Date: 2020.01.07 08:27:07 -08'00'

APPROVAL PAGE

W00480

The survey data meet or exceed the current requirements of the Office of Coast Survey hydrographic data review process and may be used to update NOAA products. The following survey products will be archived at the National Centers for Environmental Information:

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of acoustic backscatter mosaics
- Geospatial PDF of survey products

Approved: _____

James Miller

Acting Chief, Pacific Hydrographic Branch