W00488

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	W00488

LOCALITY

State(s):	Massachusetts
General Locality:	Massachusetts Coastline
Sub-locality:	Vicinity of Martha's Vineyard and Nantucket

2013

CHIEF OF PARTY
USGS

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**W00488**

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):	**Massachusetts**
General Locality:	**Massachusetts Coastline**
Sub-Locality:	**Vicinity of Martha's Vineyard and Nantucket**
Scale:	**10000**
Dates of Survey:	**05/22/2013 to 06/11/2013**
Instructions Dated:	**N/A**
Project Number:	**ESD-PHB-19**
Field Unit:	**USGS - M/V Scarlett Isabella**
Chief of Party:	**USGS**
Soundings by:	**SEA SWATHplus** (**Interferometric**)
Imagery by:	**SEA SWATHplus** (**SSS**)
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

The purpose of the this survey was to support research on the Quaternary evolution of coastal Massachusetts, the influence of sea-level change and sediment supply on coastal evolution, and efforts to understand the type, distribution, and quality of subtidal marine habitats in the coastal ocean of Massachusetts. 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 Environmental Information (NCEI) and can be retrieved via http://www.ncei.noaa.gov/.

DESCRIPTIVE REPORT MEMO

November 26, 2019

MEMORANDUM FOR: Pacific Hydrographic Branch

FROM: Report prepared by PHB on behalf of field unit
Colin Stewart
Physical Scientist, Pacific Hydrographic Branch

SUBJECT: Submission of Survey W00488

The U.S. Geological Survey and the Massachusetts Office of Coastal Zone Management have cooperated to map approximately 185 square kilometers of the inner continental shelf south of Martha's Vineyard and north of Nantucket, Massachusetts. This report contains geophysical data collected by the U.S. Geological Survey during a survey in 2013. The geophysical data include (1) swath bathymetry collected by using interferometric sonar, (2) acoustic backscatter from the interferometric sonar, and (3) seismic-reflection profiles from a chirp subbottom profiler. These spatial data support research on the Quaternary evolution of coastal Massachusetts, the influence of sea-level change and sediment supply on coastal evolution, and efforts to understand the type, distribution, and quality of subtidal marine habitats in the coastal ocean of Massachusetts.

The USGS survey party developed chart-datum bathymetric grids (5m) and acoustic backscatter mosaics (1m) from an interferometric sonar.

All soundings were reduced to Mean Lower Low Water using VDatum. 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 19.

Real Time Kinematic Global Positioning System (RTK–GPS) navigation was used to determine horizontal positioning and vertical water-level heights. Corrections were sent via cellular modem and very high frequency (VHF) radio to the survey vessel from a base station on land. The primary reference station (MOF2) was located at the USGS Marine Operations Facility (MOF) in Falmouth, Mass. A NOAA VDatum transformation grid was used to offset the ellipsoidal water-level height corrections to the mean lower low water (MLLW) tidal datum within HYPACK (version 2013).

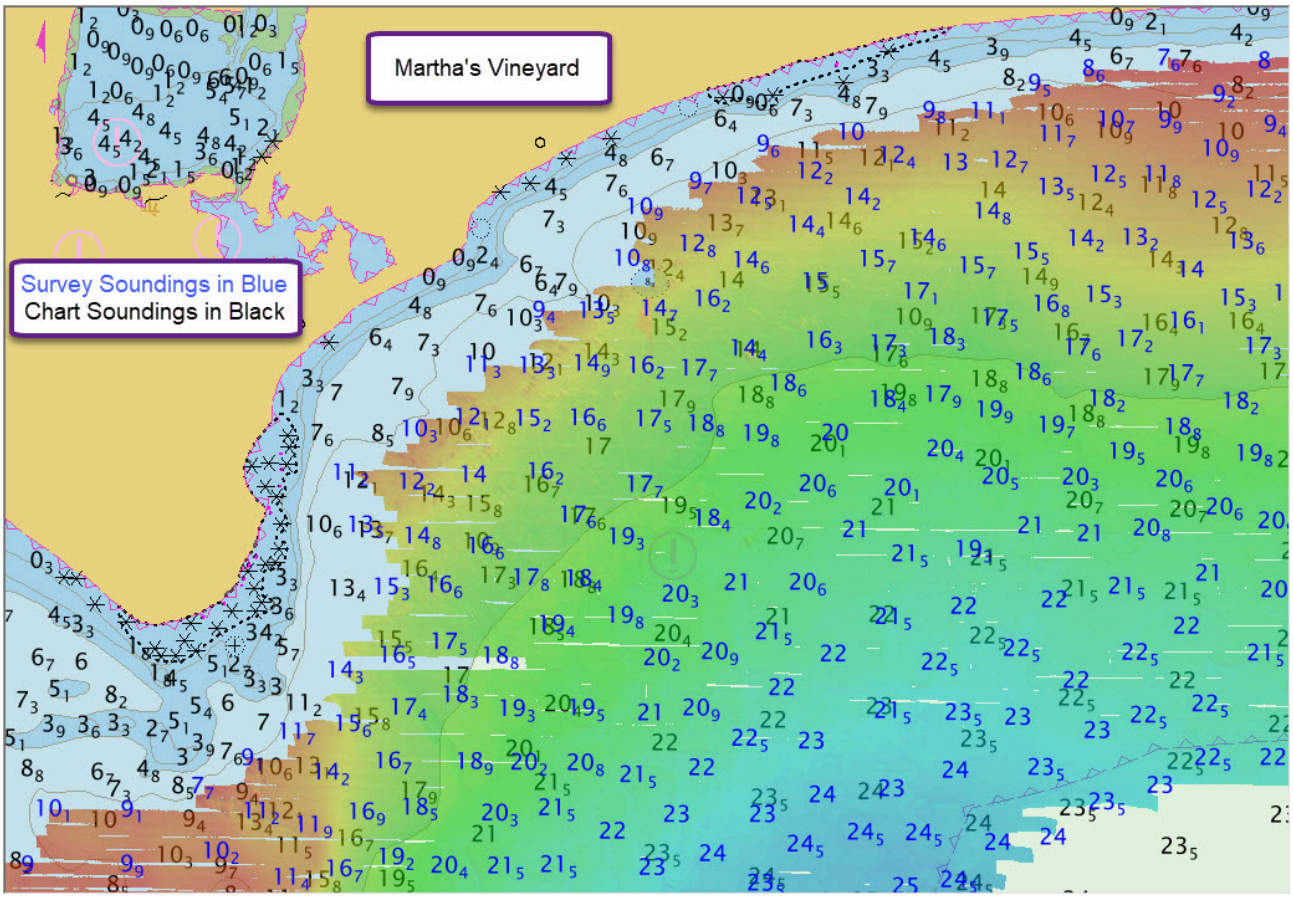
All survey systems and methods utilized during this survey were as described in USGS Open-File Report 2016–1168, "High-Resolution Geophysical Data From the Inner Continental Shelf: South of Martha's Vineyard and North of Nantucket, Massachusetts".

All data were reviewed for DTONs and none were identified in this survey.

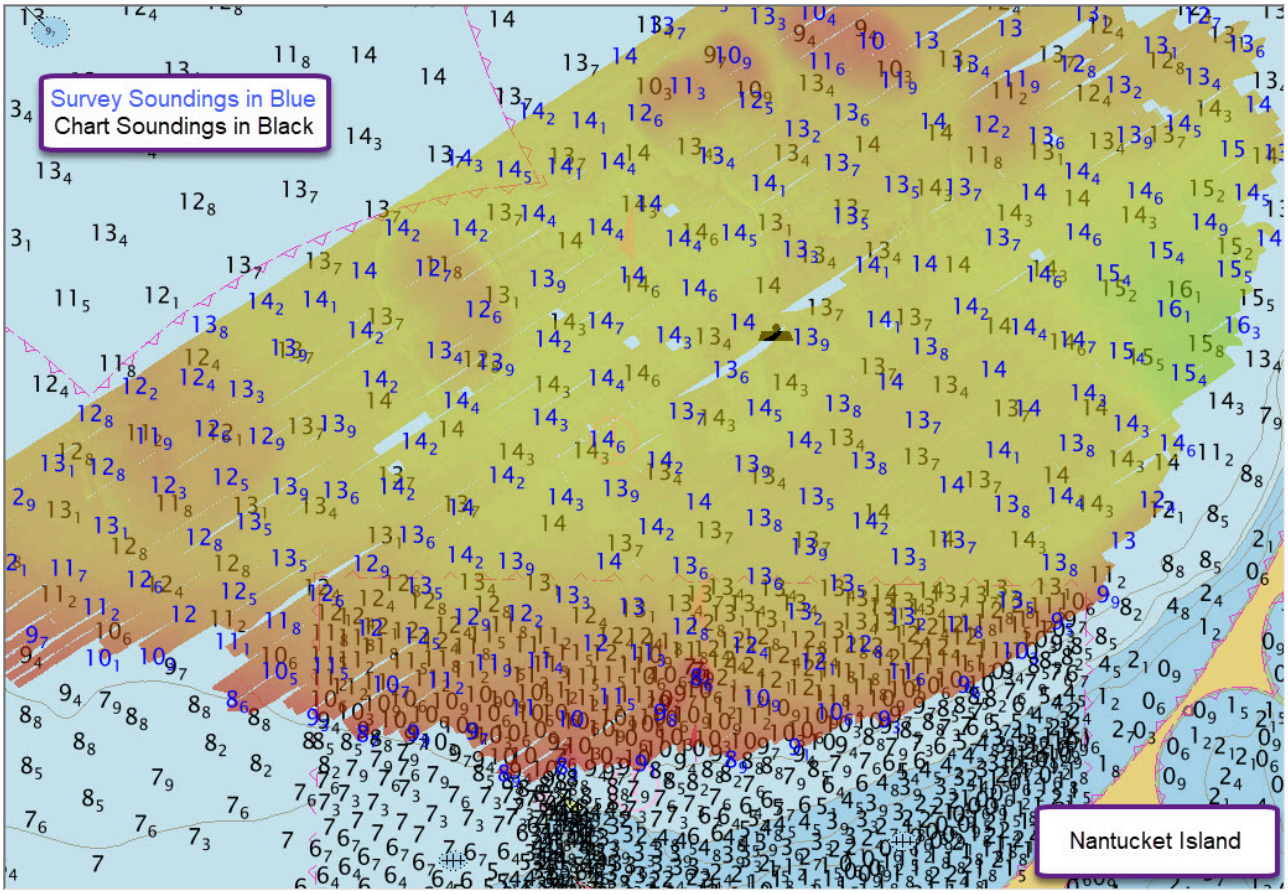
USGS acquired the data outlined in this report. Data are available at https://pubs.usgs.gov/of/2016/1168/index.html

A thorough search for features in the data was not conducted.

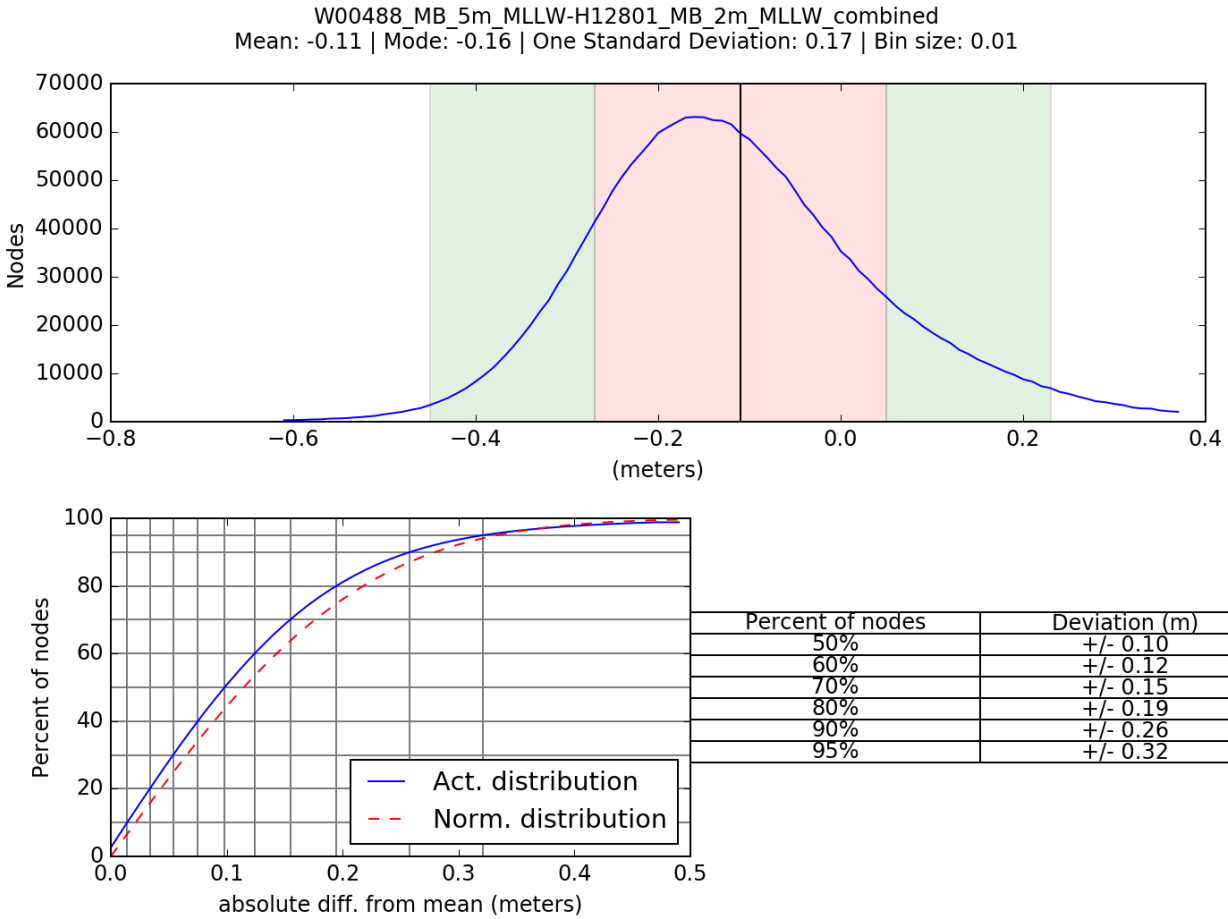
A comparison between charted soundings from ENC's US5MA29M (Martha's Vineyard) and US5MA41M (Nantucket Island) and survey soundings from W00488 showed general agreement within approximately one to two meters (1-2m). W00488 soundings typically are deeper than the charted soundings. Additionally W00488 depth grids were compared with the more recently acquired surveys from the NOAA Ship Ferdinand Hassler (2015) and showed good agreement (+/- 50cm) with those surveys south of Martha's Vineyard (H12801, H12802 and H12811).



W00488 soundings compared with charted soundings from ENC US5MA29M, Martha's Vineyard area.



W00488 soundings compared with charted soundings from ENC US5MA41M, Nantucket Island area.



Percent of nodes	Deviation (m)
50%	+/- 0.10
60%	+/- 0.12
70%	+/- 0.15
80%	+/- 0.19
90%	+/- 0.26
95%	+/- 0.32

W00488 comparison with Ferdinand Hassler 2015 H12801 survey.

The survey is partially adequate to supersede previous data. Sounding data from W00488 should be considered better than soundings from partial bottom NOS surveys from between 1887 and 1965. Sounding data from W00488 should not be considered better than soundings from modern (2015) full-coverage surveys H12801, H12802, and H12811. While the soundings are adequate to supersede charted soundings, the reviewer recommends that all charted features not specifically addressed in the feature file be retained.

APPROVAL PAGE

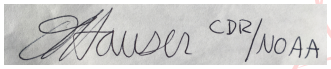
W00488

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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Approved:_____

Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch