

New Hampshire Continental Shelf Geophysical Database: Vibrocure Logs and Sediment Data

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In Memoriam:

Maxlimer Coromoto Vallee-Anziani was a valued colleague and a major contributor to the description and analysis of the vibrocures discussed in this report. Sadly, Maxlimer passed away on January 24, 2017. However, her original work was a significant contribution to this report and our overall research on the NH continental shelf.

Introduction:

The "New Hampshire Continental Shelf Geophysical Database: Vibrocure Logs and Sediment Data" contains complete core logs and sediment grain size data from twenty-three vibrocures taken on the New Hampshire shelf in 1984 (Birch, 1986) and 1988 (Ward, 1989). Both sets of cores were funded through a Minerals Management Service (MMS) - Coastal States Cooperative Agreements (14-12-0001-30115 in 1984 and 14-12-0001-30316 in 1988). During the present program, the original core descriptions, data, and photographs were verified and significantly expanded, synthesized, and presented in uniform core logs.

The vibracore logs, sediment data, and the depositional environments are discussed in detail in Ward et al. (2021).

Included in this database are the following:

1. A location map of all vibracores, provided in Layout GeoTIFF format containing spatial reference information for the option to import and view in a GIS or similar software.
2. A template for the vibracore logs, symbology, and Munsell color key (see "Template_Symbology_Colors").
3. Core logs for all 1984 ("UNH" series) and 1988 ("A" series) vibracores which include original black and white photographs (where available) and recent color photographs; lithology and sediment descriptions based on Birch (1986; 1988), Ward (1989; 2007), and Ward et al., 2021; Munsell colors; grain size data; depositional environments; and seismic units from Birch (1984; 1986).
4. Complete grain size data for new subsamples taken from the vibracores in 2016 and 2019. The extensive sampling and analyses were done to supplement and improve the original sediment database developed in previous studies. Included are sample identifications (UNH and BOEM numbering), sample characteristics, sediment classifications, grain size statistics, and grain size distribution (see "NHS_Vibracore_1984-88_Grain_Size_Data").

Vibracores and Core Logs:

The vibracores were collected aboard the R/V *Atlantic Twin* (a twin-hull vessel run by Alpine Geophysical Associates, Inc.) using a pneumatic, vibrating hammer-driven coring system. The vibracore logs were made in CorelDraw 7x (64 bit). Photographs of core sections were stitched together using Microsoft PowerPoint. Colors were assigned during the original description of the cores using a combination of the Munsell Soil-Color Chart and the Geological Society of America (GSA) Rock-Color Chart. In order to make color names, hues, values, and chromas consistent and comparable, all Soil-Colors were converted to the Rock-Color Chart (Geological Society of America and Munsell Color, 2009). The core log template, symbology used in the core logs, and the Munsell color key are given in the PDF document "Template_Symbology_Colors."

The grain size data reported on the core logs are from the original descriptions described in Birch (1986) and Ward (1989) and the more recent samples from this study (Ward et al., 2021). Grain size data from Ward (1989) are presented as %G, %S, %M and mean grain size (ϕ) and sorting (ϕ) for sand fraction only.

Sediment Grain Size Analysis from Samples taken in 2016 and 2019:

During the present study, a total of 162 sediment samples were taken from the archived cores for grain size analysis. The results are included here on the core logs as well as in a separate database which includes extensive descriptions and sediment size classifications (excel file "NHS_Vibracore_1984-88_Grain_Size_Data"). Samples were analyzed with standard sieve and pipette analyses after Folk (1980). The sediment grain size classifications include CMECS (Coastal and Marine Ecological Classification Standard; FGDC, 2012), Gradistat (Blott and Pye, 2001), and Wentworth (Wentworth, 1922; described in Folk, 1954, 1980). Statistics are based on the phi scale and include the graphic mean, sorting, skewness, and kurtosis (Folk, 1980).

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