usSEABED: Atlantic Coast Offshore Surficial Sediment Data Release

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J.M. Reid, J.A. Reid, C.J. Jenkins, M.E. Hastings, S.J. Williams, L.J. Poppe

Introduction

For more than the past 50 years there has been an explosion in scientific interest, research effort and information gathered on the geologic sedimentary character of the U.S. Atlantic Coast continental margin. Data and information from thousands of publications has greatly increased our scientific understanding of the geologic origins of the shelf surface.

This report provides a synthesis compilation of published and unpublished sediment texture and other geologic data about the seafloor from a diverse range of sources. The report describes the usSEABED database and the dbSEABED system, developed to bring assorted data together in a unified database to provide examples of maps displaying attributes such as grain size and sediment color. This database contains information that is the scientific foundation for the USGS's Marine Aggregate Resources and Processes Assessment and Benthic Habitats projects, and is likely to be useful as well to the marine science community for other studies of the Atlantic Coast continental margin.

The usSEABED database holds data for the entire US EEZ and is an ongoing project of the USGS Coastal and Marine Geology Program of Santa Cruz, CA; Woods Hole, MA; and St. Petersberg, FL; and the University of Colorado. We expect to update this publication as significant new data are included in the database.

usSEABED

The usSEABED database, which covers the U.S. EEZ, is built using the dbSEABED processing software created at the University of Sydney, Australia, and the University of Colorado. It has companion databases built along similar lines: auSEABED for Australia, balticSEABED and a global database, goSEABED. Each of these databases rely on pre-existing data, both published and unpublished, from a variety of sources (such as federal, state, regional, and
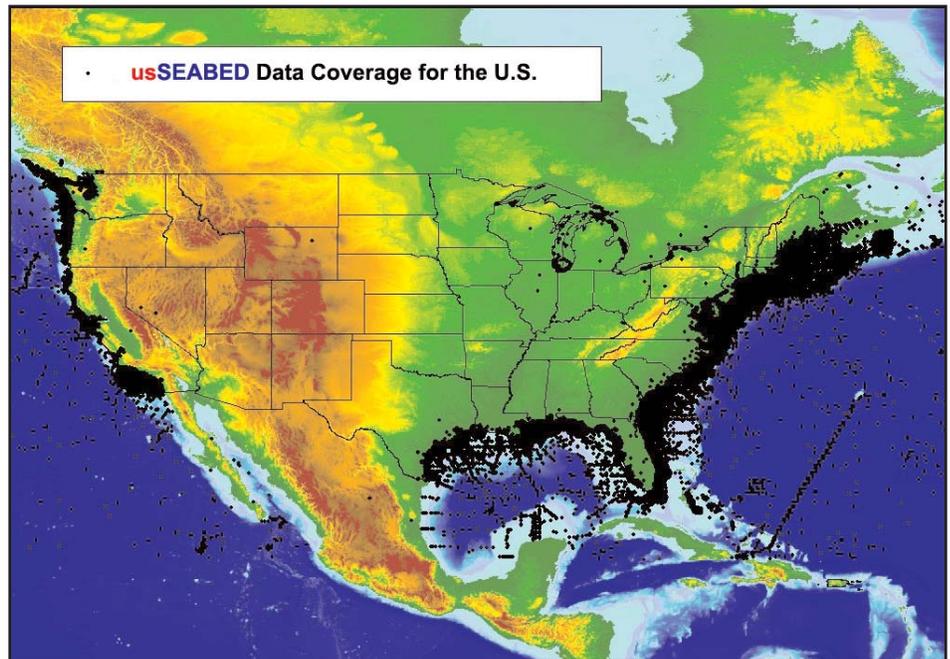

Fig. 1. Coverage of marine sediment data currently in the usSEABED system for U.S. continental margins, showing sample locations

local agencies and consortiums, as well as research institutions) to mine and extrapolate useful data about the seabed.

The dbSEABED program allows source reports to be compiled in a standardized format, and extrapolates information across a series of data types and equipment, such as physical sampling equipment (sounding, grabs, and cores) or virtual sampling (photographs, videos, geophysics). These data may be numeric lab- or probe- based textural, acoustic, geochemical, and geophysical data and/or verbal (linguistic) descriptions of grabs, cores, or photographs, or a combination of any of these.

The usSEABED database, using the dbSEABED program, differs from other US databases in that it incorporates both numerical and linguistic data on sediment texture, biology, seafloor characteristics such as hardness or sediment ripples, acoustic properties, and geochemical and geotechnical analyses. In the usSEABED database, most data held in reports are mined and extended for additional information that increases the data density over the seabed, allowing for more complete maps and information.

Data Catalog and GIS Layers

The data supplied on this publication are made available with geographic coordinates to allow the data to be incorporated into a Geographic Information System (GIS). Federal Geographic Data Committee (FGDC)
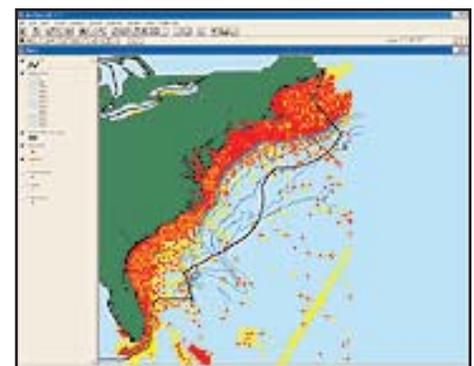

Fig. 2. Screenshot of the ArcView project file from the Data Series publication.

metadata are included with data layers in three formats: HTML, FAQ, and text. Layers include those for the Extracted (EXT), Parsed (PRS), Calculated (CLC), Components (CMP) and Facies (FAC) output files along with basemap layers such as coastlines and EEZ and state boundaries compiled together in an ArcView™ project file.

Atlantic, Pacific and Gulf Coast Publications

This is one of a set of similar publications for the entire Exclusive Economic Zone (EEZ) of the United States. Due shortly after publication of this Atlantic coast Data Series are the companion publications for data along the Gulf Coast and the Pacific (California, Oregon, Washington) Coast. Companion publications for Alaska and Hawaii are also expected. The following maps show the distribution of Parsed (PRS) and Extracted (EXT) data for each coast.

Fig. 5. Distribution of Parsed (PRS) and Extracted (EXT) data for the Atlantic coast

The PRS outputs are based on descriptive (word-based) data through the application of Fuzzy Set Theory. The EXT outputs are based on numeric data extracted from the data resource files through data mining.

Frequently Asked Questions

The publications will also provide answers to many important Frequently Asked Questions (FAQs) such as:

- How does dbSEABED make word data conformable with numeric data?
- What is Fuzzy Logic and how does it work?
- What is involved in importing datasets into dbSEABED?
- What if a user doesn't want to use the word-based data for creating maps?
- What quality control measures are in place for dbSEABED?
- How does word-based descriptive data relate to numeric-value analytical data?
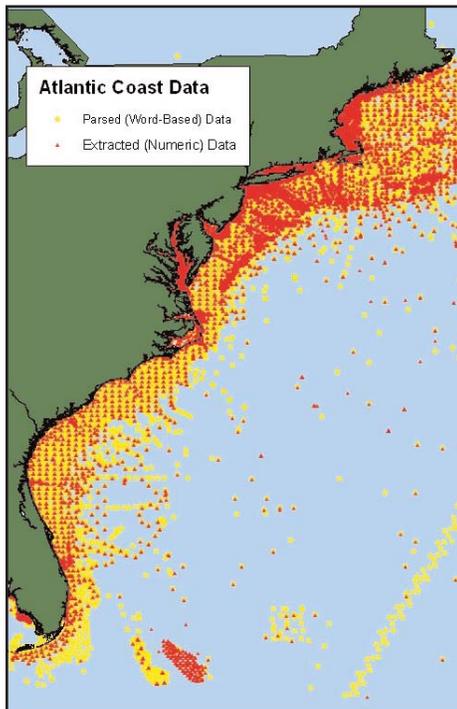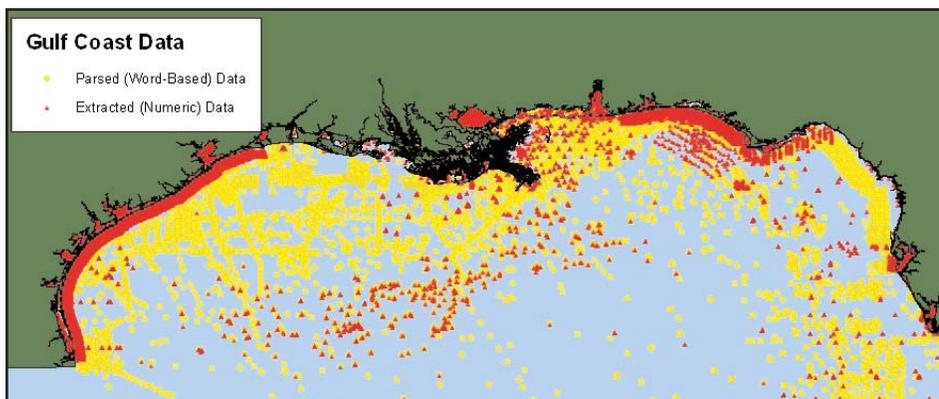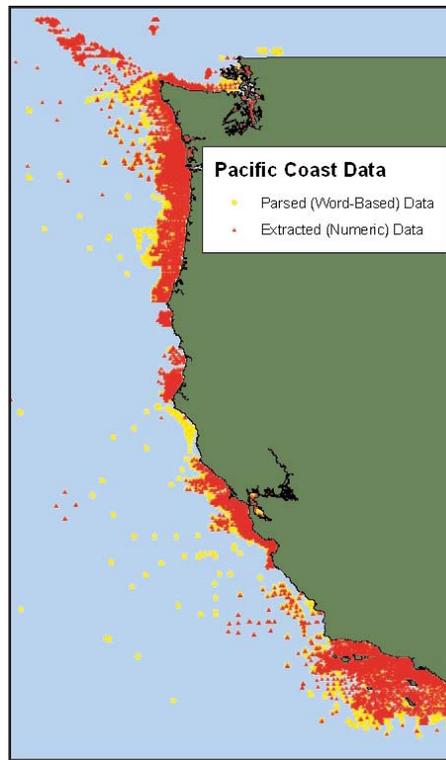
Fig. 3. Distribution of Parsed (PRS) and Extracted (EXT) data for the Atlantic coast

Fig. 4. Distribution of Parsed (PRS) and Extracted (EXT) data for the Gulf coast

For More Information

We appreciate feedback on usSEABED, both in usefulness and in error detection. Please contact us with issues, questions and/or data to contribute to the growing usSEABED information system in the U.S. EEZ.

Jamey Reid: *for adding Atlantic Coast and/or Gulf Coast data*
U.S. Geological Survey
Woods Hole Science Center
384 Woods Hole Road
Woods Hole, MA 02543-1598
Tel: 508-457-2204
Email: jreid@usgs.gov

Jane Reid: *for information about the Benthic Habitats project and/or adding Pacific Coast, Alaska or Hawaii data*
U.S. Geological Survey
Pacific Science Center
400 Natural Bridges Drive
Santa Cruz, CA 95060
Tel: 831-427-4727
Email: jareid@usgs.gov

Jeff Williams: *for information about the Marine Aggregates project*
U.S. Geological Survey
Woods Hole Science Center
384 Woods Hole Road
Woods Hole, MA 02543-1598
Tel: 508-457-2383
Email:jwilliams@usgs.gov

Chris Jenkins: *for information and answering questions about the dbSEABED program as well as adding global data*
University of Colorado
Institute of Arctic and Alpine Research
1560 30th Street
Campus Box 450
Boulder CO, 80309-0450
Tel: 303-735-5250
Email: chris.jenkins@colorado.edu

Larry Poppe: *for answering questions about sediment data collection; laboratory and analysis techniques*
U.S. Geological Survey
Woods Hole Science Center
384 Woods Hole Road
Woods Hole, MA 02543-1598
Tel: 508-457-2314
Email: lpoppe@usgs.gov