Locations and original references for studied bamboo corals from 1879-2009 (Bamboo Coral Boron Isotopes project)

Website: https://www.bco-dmo.org/dataset/542862
Version: 17 December 2014
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Project
» Calibration and application of the boron isotope seawater-pH indicator in deep-water corals (Bamboo Coral Boron Isotopes)

Contributors	Affiliation	Role
Hoenisch, Baerbel	Lamont-Doherty Earth Observatory (LDEO)	Principal Investigator
Farmer, Jesse	Lamont-Doherty Earth Observatory (LDEO)	Contact
Gegg, Stephen R.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Table of Contents

Dataset Description

Locations and original references for studied bamboo corals

Methods & Sampling

Museum or collector designation:
NMNH =Smithsonian National Museum of Natural History;
YPM = Yale Peabody Museum;
T.Hill = Hill T.M. et al. (2011)

Original reference cited for sample:
1. Heifetz, J. (2002) Coral in Alaska: Distribution, abundance, and species associations. Hydrobiologia 471, 19-27

2. Hill, T.M. et al. (2011) Temperature and vital effect controls on bamboo coral (Isididae) isotope geochemistry: A test of the "lines method" Geochem. Geophys. Geosyst. 12, Q04008

3. Moore, J.A. et al. (2003) Biodiversity of Bear Seamount, New England Seamount Chain: Results of Exploratory Trawling. J. Northw. Atl. Fish. Sci. 31, 363-372

4. Verrill, A. (1885) Results of the explorations made by the steamer "Albatross" off the northern coast of the United States in 1883. In The Annual Report for the Commissioner of Fish and Fisheries 1883, U.S. Govt. Printing Office, Washington, D.C.

Data Processing Description

BCO-DMO Processing Notes
- Generated from original file: "DATASET-locations.xlsx" contributed by Jesse Farmer
- Parameter names edited to conform to BCO-DMO naming convention found at Choosing Parameter Name

[table of contents | back to top]

Data Files

File
Sample_Locations.csv (Comma Separated Values (.csv), 1015 bytes) MD5:3b151d8c9c8e4ca9b569b44efb0a1268 Primary data file for dataset ID 542862

[table of contents | back to top]

Parameters

Parameter	Description	Units
Specimen	Speciman Identifier	text
Location	Text description of sample location	text
Sample_ID	Museum or collector designation: NMNH = Smithsonian National Museum of Natural History; YPM = Yale Peabody Museum; T.Hill = Hill T.M. et al. (2011)	text
Collection	Collection entity or person	text
Taxa	Taxa	text
Year_Collected	Year	text
Diameter	Radial thickness of the coral's axial skeleton at its thickest part	mm
Depth_Range	Collection depth or depth range of sample	meters
Lat	Sample Latitude Location (South is negative)	decimal degrees
Lon	Sample Longitude Location (West is negative)	decimal degrees
Original_Reference	Original reference cited for sample: 1. Heifetz, J. (2002) Coral in Alaska: Distribution, abundance, and species associations. Hydrobiologia 471, 19-27; 2. Hill, T.M. et al. (2011) Temperature and vital effect controls on bamboo coral (Isididae) isotope geochemistry: A test of the "lines method" Geochem. Geophys. Geosyst. 12, Q04008; 3. Moore, J.A. et al. (2003) Biodiversity of Bear Seamount, New England Seamount Chain: Results of Exploratory Trawling. J. Northw. Atl. Fish. Sci. 31, 363-372; 4. Verrill, A. (1885) Results of the explorations made by the steamer "Albatross" off the northern coast of the United States in 1883. In The Annual Report for the Commissioner of Fish and Fisheries 1883, U.S. Govt. Printing Office, Washington, D.C.	text

[table of contents | back to top]

Deployments

BambooCoral_Hoenisch

Website	https://www.bco-dmo.org/deployment/542792
Platform	shoreside BAMBOO CORAL
Start Date	1879-01-01
End Date	2009-12-31
Description	Locations for studied bamboo corals

[table of contents | back to top]

Project Information

Calibration and application of the boron isotope seawater-pH indicator in deep-water corals (Bamboo Coral Boron Isotopes)

Coverage: Global sample locations

Description from NSF award abstract:
Anthropogenic CO2 enters the ocean in the high latitudes, from where it spreads into the deep ocean interior. Because carbonate ion saturation at greater water depth is generally reduced in the deep ocean, deep-sea corals may be particularly vulnerable to ocean acidification. Efforts are needed to determine the effects of changing seawater chemistry on these ecosystems, and in particular reconstructions of past pH-variations experienced by these corals may help to implement long-term management plans for deep-sea coral reefs. This project will provide new insight into the effect of changing seawater carbonate chemistry and anthropogenic ocean acidification on deep-sea coral reefs. The researchers will calibrate the boron isotope and B/Ca paleo-pH proxies in several species of modern and cultured deep-sea corals. The resulting proxy calibrations will be used to interpret the boron isotope composition of live collected and fossil deep-sea corals with regard to past ocean pH changes. Live collected corals from the North Atlantic and Southern Ocean will provide ultra-high resolution temporal records of anthropogenic CO2 invasion at intermediate depths. Radiometrically dated corals from the same locations will be used to document pH changes in the deep ocean over the last deglaciation. Comparison of paleo-pH with already established changes in coral species composition will allow interpretation of coral sensitivity to ocean acidification. The project will also improve paleo-pH reconstructions by cross- calibrating the principal techniques of boron isotope analysis.

Related Reference:
Hoenisch_ocean_acidification_2010

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1041133

[table of contents | back to top]