

Volcano sponge size on artificial substrates in McMurdo Sound, Antarctica from October 2010 (McMurdo Marine Benthos project)

Website: <https://www.bco-dmo.org/dataset/4048>

Version: 2013-09-24

Project

» [Decadal Variation in Antarctic Marine Benthic Ecosystems](#) (McMurdo Marine Benthos)

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Dataset Description

Volcano sponge size was measured by scuba divers on artificial substrates in McMurdo Sound, Antarctica.

Methods & Sampling

Anoxycalyx joubini sponges, growing on artificial substrates of known ages, were imaged by divers and remotely operated vehicle (SCINI) during the austral summer 2010. Surface (dive hole) locations were recorded with a handheld GPS, and organisms were located within 200 m of the hole. Depths were accurate to 1 m, and heights above bottom were accurate to 50 cm. Images were scaled with parallel lasers, and maximum diameter of the sponges was measured from images. The diameter measurements made were accurate to 0.001 cm, however, the representation of the maximum diameter of the sponges is within 2 cm, with error due to the angles of some images.

Data Processing Description

Weight of sponges was derived from a regression developed in Dayton et al. 1974.

Wet weight = $0.348 \times \text{diameter}^{2.88}$

Related publications:

Dayton PK, Robilliard GA, Paine RT, Dayton LB (1974) Biological accommodation in the benthic community at McMurdo Sound, Antarctica. *Eco Monogr* 44: 105-128.

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Data Files

File
McMurdo_sponges.csv (Comma Separated Values (.csv), 4.31 KB) MD5:1d11b396c02abc5ad427e775d94288f8
Primary data file for dataset ID 4048

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Parameters

Parameter	Description	Units
lat	latitude; North is positive	decimal degrees
lon	longitude; East is positive	decimal degrees
depth_w	depth of the water	meters
substrate_type	substrate type at sampling	unitless
year	year; local time	unitless
month_local	month; local time	unitless
day_local	day of month; local time	unitless
species	species sampled	unitless
mab	meters above the bottom	meters
diameter_cm	diameter of organism	centimeters
wet_weight_g	wet weight of organism	grams

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Instruments

Dataset-specific Instrument Name	SCINI
Generic Instrument Name	Remotely Operated Vehicle
Dataset-specific Description	Submersible Capable of under Ice Navigation and Imaging (SCINI) is a small, slender vehicle that can fit through a 20 cm hole in the ice, allowing for deployment without heavy drilling equipment and with minimal logistical support. Its maximum depth capability is 300 m. SCINI is equipped with two video cameras, scaling lasers, and lights, with forward speeds of up to 4 knots. SCINI uses Ethernet over power on a 400 m long two-wire tether. A long baseline acoustic positioning system is used for navigation which uses a combination of two to four acoustic transducers hanging below the ice and a synchronized pinger on the vehicle for positional accuracy of better than 1 metre. [See Cazenave, F, R Zook, D Carroll, M Flagg, S Kim. 2011. Development of the ROV SCINI and deployment in McMurdo Sound, Antarctica. Journal of Ocean Technology 6(3):39-58.]
Generic Instrument Description	Remotely operated underwater vehicles (ROVs) are unoccupied, highly maneuverable underwater robots operated by a person aboard a surface vessel. They are linked to the ship by a group of cables that carry electrical signals back and forth between the operator and the vehicle. Most are equipped with at least a video camera and lights. Additional equipment is commonly added to expand the vehicle's capabilities. These may include a still camera, a manipulator or cutting arm, water samplers, and instruments that measure water clarity, light penetration, and temperature.

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Deployments

McMurdo_SCINI_2010

Website	https://www.bco-dmo.org/deployment/59093
Platform	shoreside McMurdo_Dayton
Start Date	2010-10-01
End Date	2010-12-30
Description	<p>Submersible Capable of under Ice Navigation and Imaging (SCINI) is a small, slender vehicle that can fit through a 20 cm hole in the ice, allowing for deployment without heavy drilling equipment and with minimal logistical support. Its maximum depth capability is 300 m. SCINI is equipped with two video cameras, scaling lasers, and lights, with forward speeds of up to 4 knots. SCINI uses Ethernet over power on a 400 m long two-wire tether. A long baseline acoustic positioning system is used for navigation which uses a combination of two to four acoustic transducers hanging below the ice and a synchronized pinger on the vehicle for positional accuracy of better than 1 metre. [See Cazenave, F, R Zook, D Carroll, M Flagg, S Kim. 2011. Development of the ROV SCINI and deployment in McMurdo Sound, Antarctica. Journal of Ocean Technology 6(3):39-58.]</p> <p>Methods & Sampling SCUBA diving and remotely operated vehicle (SCINI) to measure volcano sponge size.</p>

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Project Information

Decadal Variation in Antarctic Marine Benthic Ecosystems (McMurdo Marine Benthos)

Website: <http://iceaged2010.mlml.calstate.edu/>

Coverage: Western Antarctic

From proposal abstract:

The ability to document and understand long-term trends in ocean climate and ecology, including the role of human activities on the biosphere, depends on an adequate knowledge of natural interdecadal fluctuations. The proposed research will document changes in benthic ecosystems in McMurdo Sound over the last four decades, i.e., since the beginning of quantitative studies of population and community organization in this region. The investigators will retrieve, analyze, and archive historical data of benthic assemblages in both hard and soft substrata, and continue work on several time series projects begun in the mid-1960s and early 1970s. The investigators will focus on the succession of marine invertebrate communities that have settled and survived on a variety of artificial substrates placed on the sea floor from the late 1960s to 1989. The substrates harbor several decades of information on patterns of settlement, growth, survival, longevity, overgrowth and other biological interactions and processes. The original researchers will relocate and permanently mark (with GPS) historical sampling sites; recover data from as much of the historical work as possible; provide meta-data to insure that past data are understood and sites can be properly resampled; and make all data available to the general science community in a permanent database housed at SCAR-MarBIN. The proposed work will be closely coordinated with an international macroecology program in the Ross Sea, represented by collaborator Simon Thrush (Latitudinal Gradient Project). In addition to reporting results in peer-reviewed publications and providing research support and opportunities for at least two graduate students, the investigators also will involve undergraduate and high school interns in the project, and participate in teacher education programs. The investigators will continue ongoing collaborations with K-12 outreach and college programs that focus on ocean science, and develop a new, broader public outreach effort with the Birch Aquarium at Scripps Institution of Oceanography.

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Funding

Funding Source	Award
NSF Antarctic Sciences (NSF ANT)	ANT-0842064

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