Coral growth and morphology based on snail presence from experiments in Moorea, French Polynesia from May, 2013 through May, 2014

Website: https://www.bco-dmo.org/dataset/777273
Data Type: Other Field Results
Version: 1
Version Date: 2019-09-23

Project

» Spatial patterns of coral-vermetid interactions: short-term effects and long-term consequences (Vermetids_Corals)

Contributors	Affiliation	Role
Hamman, Elizabeth	University of Georgia (UGA)	Principal Investigator
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Abstract
12 corals were selected with Coralliophila violacea. A random snail was selected, and a similar location identified on the coral for comparison. At each location, a 20cm by 20cm plexiglass plate was placed against the coral, and 20 randomly selected depth measurements taken. The variance of those measurements is reported. A nail was then hammered into the coral at each location, and the length recorded. After 1 year, the corals were revisited, and the measurements repeated to calculate change in nail length (coral linear extension) and change in morphology (change in variance of depth measurements).

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Coverage

Spatial Extent: **Lat**:-17.48 **Lon**:-149.82
Temporal Extent: 2013-05 - 2014-05

Methods & Sampling

12 corals were selected with Coralliophila violacea. A random snail was selected, and a similar location identified on the coral for comparison. At each location, a 20cm by 20cm plexiglass plate was placed against the coral, and 20 randomly selected depth measurements taken. The variance of those measurements is reported. A nail was then hammered into the coral at each location, and the length recorded.   After 1 year, the corals were revisited, and the measurements repeated to calculate change in nail length (coral linear extension) and change in morphology (change in variance of depth measurements).

Data Processing Description

BCO-DMO Processing Notes:

- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions
- added lat, lon columns.

[ ]

Data Files

File
Coralliophila_GrowthMorphology.csv(Comma Separated Values (.csv), 888 bytes) MD5:62c4dfc12e62fb61aad764ed8fe7785a Primary data file for dataset ID 777273

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Parameters

Parameter	Description	Units
Coral	Coral ID Number	unitless
Treatment	Snail presence or absence	unitless
Variance	Change in variance of depth measurements. Variance of depth measurements (difference between start and end of the year)	square centimeters (cm2)
Growth	Linear extension of coral. Growth is the difference in nail lengths at the beginning and end of the experiment.	centimeters (cm)
lon	Longitude of sampling. Negative values indicate West.	decimal degrees
lat	Latitude of sampling. Positive values indicate North.	decimal degrees

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Project Information

Spatial patterns of coral-vermetid interactions: short-term effects and long-term consequences (Vermetids_Corals)

Coverage: Moorea, French Polynesia (-17.48 degrees S, -149.82 degrees W)

Description from NSF abstract:
Ecological surprises are most likely to be manifest in diverse communities where many interactions remain uninvestigated. Coral reefs harbor much of the world's biodiversity, and recent studies by the investigators suggest that one overlooked, but potentially important, biological interaction involves vermetid gastropods. Vermetid gastropods are nonmobile, tube-building snails that feed via an extensive mucus net. Vermetids reduce coral growth by up to 80%, and coral survival by as much as 60%. Because effects vary among coral taxa, vermetids may substantially alter the structure of coral communities as well as the community of fishes and invertebrates that inhabit the coral reef.

The investigators will conduct a suite of experimental and observational studies that: 1) quantify the effects of four species of vermetids across coral species to assess if species effects and responses are concordant or idiosyncratic; 2) use meta-analysis to compare effects of vermetids relative to other coral stressors and

determine the factors that influence variation in coral responses; 3) determine the role of coral commensals that inhabit the branching coral, Pocillopora, and evaluate how the development of the commensal assemblage modifies the deleterious effects of vermetids; 4) determine how vermetid mucus nets affect the local environment of corals and evaluate several hypotheses about proposed mechanisms; and 5) assess the long-term implications of vermetids on coral communities and the fishes and invertebrates that depend on the coral.

Note: The Principal Investigator, Dr. Craig W. Osenberg, was at the University of Florida at the time the NSF award was granted. Dr. Osenberg moved to the University of Georgia during the summer of 2014 (current contact information).

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1130359

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