# Effect of distance between coral lesions on tissue regeneration and skeletal growth at two sites on the backreef on either side of Cook's Bay in Moorea, French Polynesia from May, 2012 through July, 2012

**Website**: https://www.bco-dmo.org/dataset/777110
**Data Type**: Other Field Results
**Version**: 1
**Version Date**: 2019-09-19

**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 |
| Atkins, Rebecca | University of Georgia (UGA) | Contact |
| Biddle, Mathew | Woods Hole Oceanographic Institution (WHOI BCO-DMO) | BCO-DMO Data Manager |


**Abstract**

Experimental corals were artificially damaged using a waterpik with lesion centroids separated by 1.2cm, 3.5cm, and 6cm (or no damage for the control), and buoyantly weighed. After 20 and 39 days, corals were re-weighed to determine buoyant mass and skeletal growth. Coral lesions were also photographed and images analyzed to assess the % of lesion with regenerated tissue.

---

## Table of Contents


- Coverage
- Dataset Description
  - Acquisition Description
  - Processing Description
- Related Publications
- Parameters
- Instruments

- Project Information
- Funding

---

## Coverage

**Spatial Extent**: **Lat**:-17.48 **Lon**:-149.82
**Temporal Extent**: 2012-05 - 2012-07

### Acquisition Description

Experimental corals were artificially damaged using a waterpik with lesion centroids separated by 1.2cm, 3.5cm, and 6cm (or no damage for the control), and buoyantly weighed. After 20 and 39 days, corals were re-weighed to determine buoyant mass and skeletal growth. Coral lesions were also photographed and images analyzed to assess the % of lesion with regenerated tissue. Buoyant weight was determined by hanging the coral beneath a balance suspended in seawater and using equations factoring in skeletal density, seawater temperature, and a reference weight to determine the skeletal weight.

### 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.

[ table of contents | back to top ]

---

## Related Publications

Davies, P.S. (1989). Short-term growth measurements of corals using an accurate buoyant weighing technique. Marine Biology, 101(3), 389–395. doi:10.1007/BF00428135

[ table of contents | back to top ]

---

## Parameters

| Parameter | Description | Units |
|---|---|---|
| Coral | Coral ID Number | unitless |
| Treatment | Experimental Treatment - A (control – no lesions) Bcentroids separated by 1.2cm); C (lesion centroids separated by 3.5cm); and D (lesion centroids separated by 6cm) | unitless |
| Block | Experimental Block | unitless |
| Initial_Mass | Skeletal initial mass | grams (g) |
| Halfway_Mass | Skeletal mass after 20 days | grams (g) |
| Final_Mass | Skeletal mass after 39 days | grams (g) |
| Growth_Midpoint | Skeletal growth after 20 days | grams (g) |
| Growth_Final | Skeletal growth after 39 days | grams (g) |
| Healing_Mid | % of lesion regenerated after 20 days | unitless |
| Healing_Final | % of lesion regenerated after 20 days | unitless |
| lat | Latitude of sampling. Positive values indicate North. | decimal degrees |
| lon | Longitude of sampling. Negative values indicate West. | decimal degrees |

[ table of contents | back to top ]

## Instruments

| | |
|---|---|
| **Dataset-specific Instrument Name** | photographed |
| **Generic Instrument Name** | Camera |
| **Dataset-specific Description** | Coral lesions were also photographed and images analyzed to assess the % of lesion with regenerated tissue. |
| **Generic Instrument Description** | All types of photographic equipment including stills, video, film and digital systems. |

| | |
|---|---|
| **Dataset-specific Instrument Name** | weighted |
| **Generic Instrument Name** | Scale |
| **Dataset-specific Description** | buoyantly weighed |
| **Generic Instrument Description** | An instrument used to measure weight or mass. |

[ table of contents | back to top ]

## 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).

[ table of contents | back to top ]

## Funding


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


[ table of contents | back to top ]