

Survey of fish on reefs where vermetids were removed in Moorea, French Polynesia from 2012-2017

Website: <https://www.bco-dmo.org/dataset/645663>

Data Type: Other Field Results

Version: 2

Version Date: 2018-01-26

Project

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

(Vermetids_Corals)

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Coverage

Spatial Extent: Lat:-17.47499 Lon:-149.79251

Temporal Extent: 2012-01-25 - 2017-08-30

Dataset Description

Counts and estimated size of fish on each reef for each year sampled, categorized by family, genus and species as well as coarse and fine trophic group. These data are collected as part of a long-term study designed to investigate the effects of vermetid snails on several aspects of coral performance including host a diverse resident fish community.

Long Term Vermetid Removal (LTVR) Reef sites in this project are manipulated reefs characterized in the [Long Term Reef Physical Characteristics](#) dataset.

Reefs labeled "TOW" in this dataset, numbered 129-144, are a subset of a larger number of Long Term Reefs (LTR) that were monitored as part of the project "Cryptic density dependence: the effects of spatial, ontogenetic, and individual variation in reef fish" beginning in 2003. This long term study continues to monitor those reefs in addition to reefs 193-198 starting in 2012. Data for these reefs between the years 2003 and 2009 can be found on the project site <http://www.bco-dmo.org/project/540423>.

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

Other associated LTVR datasets:

- [LTVR - Fate of Reefs](#) - Contains latitude and longitude of reefs used in this dataset
- [LTVR - Physical Characteristics](#) - Contains characteristics of reefs used in this dataset.
- [LTVR - Percent Cover Point Contact](#)
- [LTVR - Percent Visual Cover](#)
- [LTVR - Pomacentrids](#)
- [LTVR - Thalassoma](#)
- [LTVR - Vermetid Counts](#)
- [LTVR - Vermetid Removal](#)
- [LTVR - Vermetid Sizes in Quadrat](#)

Methods & Sampling

Sampling and Analytical Methodology:

The number of individuals of all taxa of fishes closely associated with the experimental reefs were recorded by a diver using SCUBA. Additionally, the diver estimated the body size (TL in mm) of each individual fish counted. A small, handheld flashlight was used to search the internal cavities of the colonies for semi-cryptic species. The total time spent observing each colony varied with colony size such that the time spent searching per cubic meter of coral volume was approximately constant across all colony sizes.

Data Processing Description

Data Processing:

Fish biomass (body weight in g, fresh not dry weight) is estimated using the formula $w = aL^b$ where L is the fish fork length (FL) in cm and parameters a and b depend on species. Parameters were obtained primarily from Kulbicki et al. 2005. Diver observations of fish length are collected and reported in this dataset as total length. Fork length (FL), defined as the length of a fish to its tail fin fork, is calculated from total length (TL) using the formula $FL = Lb \cdot TL$. The conversion factor Lb was determined primarily using FishBase.

BCO-DMO Processing Notes

- Generated from original file "LTVR_FishSurvey.csv" contributed by Rebecca Atkins
- Parameter names edited to conform to BCO-DMO naming convention found at [Choosing Parameter Name](#)
- Any blank rows removed

Data version 1 replaced by data version 2:2018-01-26. Dataset extended to 2017.

BCO-DMO Data Manager Processing Notes for version 2018-01-26:

- * Added a conventional header with dataset name, PI name, version date
- * Modified parameter names to conform with BCO-DMO naming conventions
- * Rounded biomass to three decimal places
- * Time format inconsistent. Converted those not in hh:mm to hh:mm
- * Dates with value "2009-01-16" changed to "9/01/16" to match the format of the rest of the dataset (verified by R. Atkins)

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Data Files

File
LTVR_FishSurvey.csv (Comma Separated Values (.csv), 321.67 KB) MD5:d353867240c43994ff304dcc6ae17917
Primary data file for dataset ID 645663

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Parameters

Parameter	Description	Units
DATE	Date of data observation	DD-MMM-YYYY
Time_In	Time observer entered the water	HH:MM
Time_Out	Time observer exited the water	HH:MM
Coral_ID	Coral Id (number)	dimensionless
Vermetid	Treatment: Present=Control; Absent=Removal	text
Pairing	A function of the original experimental design showing how manipulated (vermetid removal) and unmanipulated coral bommies were paired	dimensionless
Coarse_Trophic	A broad category of trophic group into which the species fits	text
Fine_Trophic	A specific category of trophic group into which the species fits	text
Family	Taxonomic Family	text
Genus_species	Taxonomic genus and species	text
Count	Number of individuals of given species/length	number of individuals
TL_mm	Total Length	mm
Biomass_g	Mass calculated using the TL of the fish; and the pre-determined species-specific; values; a; b; and TL_to_FL	grams
a	Length to weight parameter a from the following equation: $W = aL^b$; where W is weight in grams and L is length in cm.	ratio
b	Length to weight parameter b from the following equation: $W = aL^b$; where W is weight in grams and L is length in cm.	ratio
TL_to_FL	Total length (TL) to fork length (FL) conversion	ratio

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Instruments

Dataset-specific Instrument Name	Mask and snorkel
Generic Instrument Name	Diving Mask and Snorkel
Generic Instrument Description	A diving mask (also half mask, dive mask or scuba mask) is an item of diving equipment that allows underwater divers, including, scuba divers, free-divers, and snorkelers to see clearly underwater. Snorkel: A breathing apparatus for swimmers and surface divers that allows swimming or continuous use of a face mask without lifting the head to breathe, consisting of a tube that curves out of the mouth and extends above the surface of the water.

Dataset-specific Instrument Name	Transect Tape
Generic Instrument Name	Measuring Tape
Dataset-specific Description	Materials: transect tape and slates
Generic Instrument Description	A tape measure or measuring tape is a flexible ruler. It consists of a ribbon of cloth, plastic, fibre glass, or metal strip with linear-measurement markings. It is a common tool for measuring distance or length.

Dataset-specific Instrument Name	Slate
Generic Instrument Name	Underwater Writing Slate
Dataset-specific Description	Materials: transect tape and slates
Generic Instrument Description	Underwater writing slates and pencils are used to transport pre-dive plans underwater, to record facts whilst underwater and to aid communication with other divers.

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Deployments

Osenberg et al Moorea

Website	https://www.bco-dmo.org/deployment/644752
Platform	Osenberg et al Moorea
Start Date	2003-05-19
End Date	2015-07-12

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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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