

Settlement of *Ceraesignum* (previously *Dendropoma*) maximum to plots where the amount of live coral is manipulated in Moorea, French Polynesia from 2008-2009 (Vermetids_Corals project)

Website: <https://www.bco-dmo.org/dataset/722208>

Data Type: Other Field Results

Version: 2017-10-05

Project

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

(Vermetids_Corals)

Contributors	Affiliation	Role
Phillips, Nicole	Victoria University of Wellington	Principal Investigator, Contact
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Coverage

Temporal Extent: 2008-10-02 - 2009-04-02

Dataset Description

These datasets all provide data for the settlement of *Ceraesignum* (previously *Dendropoma*) maximum to live coral.

Related Datasets:

- Experiment 1 day: <https://www.bco-dmo.org/dataset/722097>
- Experiment 2 hours: <https://www.bco-dmo.org/dataset/722118>
- Experiment 3 minutes: <https://www.bco-dmo.org/dataset/722135>
- Settlement to Quadrats: <https://www.bco-dmo.org/dataset/722208> (The current page.)
- Settlement to Rubble: <https://www.bco-dmo.org/dataset/722226>

Methods & Sampling

On 02 October 2008, ten pairs of small focal patch reefs (2–6 square meters in area) were selected that were

predominately (80 %) live *Porites lobata* and separated from nearest neighbouring reefs by at least 0.5 m of sand. One member of each pair of reefs lacked populations of adult *C. maximum*; the other member of the pair had *C. maximum* adults present. Although these were not quantified, densities appeared approximately similar to densities on *P. lobata* reefs reported elsewhere (e.g., Shima et al. 2010). These reefs also had corresponding morphological differences: i.e., reefs without vermetids were rounded, and those with vermetids were flattened (see Shima et al. 2010).

On the same reefs, and over the same time period, two haphazardly positioned 15 x 15 cm quadrats (each with 100 % live coral cover) were marked on each reef by embedding a cable tie into marine epoxy in each of the four corners. One quadrat on each reef was left with 100 % coral cover (called 'unmanipulated'). In the other, 50 % of the live coral (evenly distributed through the quadrat) was chipped and scraped away with a geology hammer to mimic disturbance to live coral (e.g., due to fish grazing or anchor chains); we refer to these as 'scarred' quadrats. Each quadrat was photographed. Six months later (April 2009), quadrats were photographed again, the vermetids were counted and identified, and the substrate they were on (e.g., live coral, non-living substrate - bare/dead patch, marine epoxy).

Data Processing Description

BCO-DMO Processing:

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

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Data Files

File
Phillipsetal_2014_Settle2Quad.csv (Comma Separated Values (.csv), 556 bytes) MD5:40b936dd1942f25e6f230d4f3b4c007a
Primary data file for dataset ID 722208

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Related Publications

Phillips, N. E., Shima, J. S., & Osenberg, C. W. (2014). Live coral cover may provide resilience to damage from the vermetid gastropod *Dendropoma maximum* by preventing larval settlement. *Coral Reefs*, 33(4), 1137–1144. doi:[10.1007/s00338-014-1198-2](https://doi.org/10.1007/s00338-014-1198-2)
General

Shima, J. S., Osenberg, C. W., & Stier, A. C. (2010). The vermetid gastropod *Dendropoma maximum* reduces coral growth and survival. *Biology Letters*, 6(6), 815–818. doi:[10.1098/rsbl.2010.0291](https://doi.org/10.1098/rsbl.2010.0291)
Methods

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Parameters

Parameter	Description	Units
reef_num	identification of reef where manipulations were made	unitless
reef_type	presence or absence of C. maximum adults	unitless
settler_scarred_to_nonliving	number of C. maximum settlers on non-living substrate in the scarred plots (i.e. scarred area; cable ties; marine epoxy)	unitless
settler_control_to_nonliving	number of C. maximum settlers on non-living substrate in the control plots (i.e. cable ties; marine epoxy)	unitless
settler_scarred_to_live	number of C. maximum settlers to live coral in scarred plots	unitless
settler_control_to_live	number of C. maximum settlers to live coral in control plots	unitless

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Instruments

Dataset-specific Instrument Name	photographed
Generic Instrument Name	Camera
Dataset-specific Description	Each quadrat was photographed.
Generic Instrument Description	All types of photographic equipment including stills, video, film and digital systems.

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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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