

# Concentration of Fluorescein dye after release over corals in the Moorea, French Polynesia (Vermetids\_Corals project)

**Website:** <https://www.bco-dmo.org/dataset/717831>

**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
<a href="#">Brown, Anya L.</a>	University of Georgia (UGA)	Principal Investigator, Contact
<a href="#">Osenberg, Craig</a>	University of Georgia (UGA)	Co-Principal Investigator
<a href="#">Biddle, Mathew</a>	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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## Coverage

**Spatial Extent:** N:-17.47279 E:-149.78277 S:-17.48365 W:-149.84698

## Dataset Description

Belongs to set of datasets that evaluate how vermetid (*Ceraesignum maximum*) modify physical and chemical conditions above coral-algal interactions (i.e., light, flow and oxygen).

### Related Datasets:

- BrownOsenberg\_2018- Fluorescein dye: <https://www.bco-dmo.org/dataset/717831> (The current page)
- BrownOsenberg\_2018- FIDyeSurvey: <https://www.bco-dmo.org/dataset/720777>
- BrownOsenberg\_2018- InitO2\_DBLthick: <https://www.bco-dmo.org/dataset/720822>
- BrownOsenberg\_2018- LightSensor: <https://www.bco-dmo.org/dataset/720874>
- BrownOsenberg\_2018- OxygenConcentrations: <https://www.bco-dmo.org/dataset/720960>

## Methods & Sampling

Experiments and surveys were conducted in the field to determine how vermetids affect light, flow and oxygen concentrations. Below are the methods for one of the field surveys on the effects of vermetids on flow over coral-algal interactions.

For each coral, algae or coral-algal interaction that was encountered covered by a mucus net, a syringe with a needle attached to it would be inserted under the net, and 2ml of 40mg/L of Fluorescein dye was inserted under the net. After 2s, 2ml of water was taken up by a rinsed syringe and placed in a vial to be checked later by a fluorometer. The net was then removed, and the after several seconds, dye was again released and re-

sampled. This was completed on coral surfaces and coral-algal interfaces. Corals were massive Porites and algae were algal turf.

Materials: snorkel gear, dive slate, stopwatch, 40mg/L Fluorescein dye, syringe, needle, flourometer.

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

## Data Processing Description

effect\_difference column is the difference between net\_presence-net\_absence.

### 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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## Parameters

Parameter	Description	Units
Date	Date data collected in yyyyymmdd format	unitless
Observer	data collector: Anya Brown (AB) or Julie Zill (JZ)	unitless
algae_presence	presence (Interaction) or absence (coral)	unitless
net_presence	Dye concentration in presence of mucus nets	unitless
net_absence	Dye concentration in absence of mucus nets	unitless
effect_difference	Difference between net_present and net_absent	unitless

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## Instruments

<b>Dataset-specific Instrument Name</b>	
<b>Generic Instrument Name</b>	Diving Mask and Snorkel
<b>Generic Instrument Description</b>	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.

<b>Dataset-specific Instrument Name</b>	
<b>Generic Instrument Name</b>	Fluorometer
<b>Generic Instrument Description</b>	A fluorometer or fluorimeter is a device used to measure parameters of fluorescence: its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. The instrument is designed to measure the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into a water sample or in situ.

<b>Dataset-specific Instrument Name</b>	
<b>Generic Instrument Name</b>	Underwater Writing Slate
<b>Generic Instrument Description</b>	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

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/644752">https://www.bco-dmo.org/deployment/644752</a>
<b>Platform</b>	Osenberg et al Moorea
<b>Start Date</b>	2003-05-19
<b>End Date</b>	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
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1130359</a>

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