Retention of Fluorescein dye over corals in the presence and absence of vermetids in Moorea, French Polynesia from June to July 2017 (Vermetids_Corals project)

Website: https://www.bco-dmo.org/dataset/720777
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
Brown, Anya L.	University of Georgia (UGA)	Principal Investigator, Contact
Osenberg, Craig	University of Georgia (UGA)	Co-Principal Investigator
Biddle, Mathew	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Table of Contents

Coverage

Spatial Extent: **N**:-17.47279 **E**:-149.78277 **S**:-17.48365 **W**:-149.84698
Temporal Extent: 2017-06-23 - 2017-07-06

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). Retention of Fluorescein dye over corals in the presence and absence of vermetids, and corals in contact with algae in the presence and absence of vermetids.

Related Datasets:

- BrownOsenberg_2018- Fluorescein dye: https://www.bco-dmo.org/dataset/717831
- BrownOsenberg_2018- FlDyeSurvey: https://www.bco-dmo.org/dataset/720777 (The current page.)
- 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 vermtetids 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. The time until the dye visually dissipated from a 1x1 cm2 area under the net was recorded. The net was then removed, and then after several seconds, dye was again released and the time until the dye visually dissipated again was recorded. This was done on coral surfaces and coral-algal interfaces.

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
- added ISO Date format generated from date and time values

[table of contents | back to top]

Parameters

Parameter	Description	Units
ISO_DateTime	Local date and time the data was collected in ISO 8601:2004(E) format	unitless
Date	Date data was collected in dd-Mon-yy format.	unitless
Time	Time of data collection in HH:MM AM/PM format.	unitless
Location	Site name: Hilton BR (back reef) or Ava Iti	unitless
Observer	Data collector (Anya Brown (ALB) or Julie Zill (JZ))	unitless
block	block based on pair and date	unitless
block2	block based on pair and date	unitless
net_presence	presence or absence of vermetid mucus net (net or no net)	unitless
algae_presence	name of algae or absence of algae (absent; algal turf; damselfish turf)	unitless
coral_species	coral species or taxon name or none (Massive Porites or None)	unitless
start_time	start time in H:MM:SS format	unitless
end_time	end time in H:MM:SS format	unitless
ret_time	retention time of dye in M:SS format	unitless
ret_time_s	retention time of dye in seconds	seconds (s)
Notes	Additional comments provided by the recorder	unitless

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	
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.

[table of contents | back to top]

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

[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]