Light sensor measurements in the presence and absence of vermetid mucus nets at Moorea, French Polynesia (Vermetids_Corals project)

Website: https://www.bco-dmo.org/dataset/720874
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

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Coverage

Spatial Extent: **N**:-17.47279 **E**:-149.78277 **S**:-17.48365 **W**:-149.84698
Temporal Extent: 2013-06-01 - 2013-07-31

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) at Moorea, French Polynesia.

Related Datasets:

- BrownOsenberg_2018- Fluorescein dye: https://www.bco-dmo.org/dataset/717831
- BrownOsenberg_2018- FlDyeSurvey: 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 (The current page)
- 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 at Moorea, French Polynesia. Below are the methods for surveys about on the effects of vermetids on light.

Light sensor data from two light sensors placed on reefs in June and July 2013. Sensors were placed near a vermetid (Net) or far from a vermetid (No Net) and measured light every second. A camera was set up to view the "Net" sensor. Every 30s a photo was taken. Photo times and the time of sensor were matched and sensor values were averaged for every 30s. Net cover of the sensor was determined by looking at the photographs,

and for each photo coverage was determined Y (yes) or N (no) for the sensors near vermetid mucus nets. Each day the location of the sensor was different, but remained in the same general area.

Data Processing Description

Light data were averaged every 30s.

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

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Parameters

Parameter	Description	Units
ISO_DateTime	Local date and time the data was collected in ISO 8601:2004(E) format	unitless
Date	Date of measurements in dd-Mon-yy format.	unitless
Photonumber	Photo ID from photo where Net/No Net was determined	unitless
NetCover	Whether net was covering the "Net" sensor [N(No) or Y(Yes)]	unitless
Time	Time of measurement in HH:MM:SS AM/PM format	unitless
Net	Light sensor data on "Net" sensor	micromol per photon second (umol photon-1 sec-1)
NoNet	Light sensor data on "Net" sensor	micromol per photon second (umol photon-1 sec-1)
Notes	Additional notes provided by the observer	unitless

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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

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).

Funding

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