Experiment 2: Settlement challenge experiment after 6 days post hatch in Moorea, French Polynesia from October 2009 (Vermetids_Corals project)

Website: https://www.bco-dmo.org/dataset/725973
Data Type: experimental
Version: 2017-10-05

Project
» Spatial patterns of coral-vermetid interactions: short-term effects and long-term consequences (Vermetids_Corals)

Contributors	Affiliation	Role
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Coverage

Spatial Extent: **N**:-17.47279 **E**:-149.78277 **S**:-17.48365 **W**:-149.84698
Temporal Extent: 2009-10-10 - 2009-10-16

Dataset Description

These data are from an experiment that test the nutritional strategies of Ceraesignum (Dendropoma) maximum larvae. For additional datasets see related files.

Related Datasets:

- Phillips_2011 - Experiment 1 Larval Mortality: https://www.bco-dmo.org/dataset/725276
- Phillips_2011 - Experiment 1 Larval Size: https://www.bco-dmo.org/dataset/725317
- Phillips_2011 - Experiment 1 Settlement Challenge 10: https://www.bco-dmo.org/dataset/725335
- Phillips_2011 - Experiment 1 SettlementChallenge18: https://www.bco-dmo.org/dataset/725392
- Phillips_2011 - Experiment 2 Larval Mortality: https://www.bco-dmo.org/dataset/725880
- Phillips_2011 - Experiment 2 Larval Size: https://www.bco-dmo.org/dataset/725943
- Phillips_2011 - Experiment 2 Larval Velum Size: https://www.bco-dmo.org/dataset/725957
- Phillips_2011 - Experiment 2 Settlement Challenge 6: https://www.bco-dmo.org/dataset/725973 (Current page)
- Phillips_2011 - Experiment 2 Settlement Challenge 8: https://www.bco-dmo.org/dataset/726002

Methods & Sampling

In this experiment, larval growth and metamorposis was tested using different food levels.

Larvae hatched on October 10, 2009 and ~50 were distributed into each tubs on 500mL filtered sea water (FSW). Because the greatest metamorphic success was in the *Isochrysis galbana* treatment during experiment 1, only that species was used in this experiment. Three food densities were created high food (4 x 104 cells mL-1), low food (4 x 103 cells mL-1) plus an Unfed treatment in which larvae were raised in FSW.

Larvae in this experiment were placed in settlement challenges at 6- and 8-day post-hatch. Procedures were as in the first experiment, except that on each day 15 larvae from each replicate container within each food treatment were pooled, then redistributed into three replicate containers with coral rubble in 200 mL FSW (total N = 45 larvae from each food treatment). Also, mortality was so high in the 6-day challenge that the challenge was terminated after 2 days rather than 3.

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
- empty values were replaced with 'nd' (no data).

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Data Files

File	
Phillips_2011_Expt2_SettlementChallenge6.csv	(Comma Separated Values (.csv), 923 bytes) MD5:b06763dee131c6bd0072f97688973409
Primary data file for dataset ID 725973	

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Related Publications

Phillips, N. E. (2011). Where are larvae of the vermetid gastropod Dendropoma maximum on the continuum of larval nutritional strategies? Marine Biology, 158(10), 2335–2342. doi:10.1007/s00227-011-1737-0
General

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Parameters

Parameter	Description	Units
Larval_food_treatment	type of food given to larvae (Isochrysis galbana = Iso; Dunaliella tertiolecta = Dun; 1:1 ratio of Iso and Dun = Mixed)	unitless
Replicate_settlement_container	replicate tub	unitless
initial_number_larvae	initial number of larvae	unitless

day_1_number_live_larvae_with_velum	number of live larvae with velum day 1 after start of challenge	unitless
day_1_number_dead	number of dead larvae on day 1 after start of challenge	unitless
day_1_number_missing	number of larvae missing on day 1 after start of challenge	unitless
day_1_number_larvae_without_velum	number of larvae without velum on day 1 after start of challenge	unitless
day_1_number_metamorphosed	number of larve that metamorphosized on day 1 after start of challenge	unitless
day_2_number_live_larvae_with_velum	number of live larvae with velum day 2 after start of challenge	unitless
day_2_number_dead	number of dead larvae on day 2 after start of challenge	unitless
day_2_number_missing	number of larvae missing on day 2 after start of challenge	unitless
day_2_number_larvae_without_velum	number of larvae without velum on day 2 after start of challenge	unitless
day_2_number_metamorphosed	number of larve that metamorphosized on day 2 after start of challenge	unitless
end_number_live_larvae_left_with_velum	number of live larvae end of challenge	unitless
end_number_dead	number of dead larvae end of challenge	unitless
end_number_missing	number of larvae missing end of challenge	unitless
end_number_larvae_left_without_velum	number of larvae without velum end of challenge	unitless
end_number_metamorphosed	number of larve that metamorphosized end of challenge	unitless

end_percent_without_velum_plus_metamorphosed	Percent of larvae without velum and that metamorphosized at end of experiment	unitless (percent)

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Instruments

Dataset-specific Instrument Name	hemocytometer
Generic Instrument Name	Hemocytometer
Dataset-specific Description	Investigators used a hemocytometer to count algal cells and calculate densities of phytoplankton stocks and amount of stock to add to containers for each treatment.
Generic Instrument Description	A hemocytometer is a small glass chamber, resembling a thick microscope slide, used for determining the number of cells per unit volume of a suspension. Originally used for performing blood cell counts, a hemocytometer can be used to count a variety of cell types in the laboratory. Also spelled as "haemocytometer". Description from: http://hlsweb.dmu.ac.uk/ahs/elearning/RITA/Haem1/Haem1.html.

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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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