

# Description of the background community of reefs used in an experiment at Moorea, French Polynesia from February-August 2007 (CDD\_in\_Reef\_Fish project)

**Website:** <https://www.bco-dmo.org/dataset/726766>

**Data Type:** experimental

**Version:** 1

**Version Date:** 2017-10-05

## Project

» [Cryptic density dependence: the effects of spatial, ontogenetic, and individual variation in reef fish](#)

(CDD\_in\_Reef\_Fish)

Contributors	Affiliation	Role
<a href="#">Geange, Shane</a>	Victoria University of Wellington	Principal Investigator, Contact
<a href="#">Stier, Adrian</a>	University of California-Santa Barbara (UCSB)	Co-Principal Investigator
<a href="#">Biddle, Mathew</a>	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

## Abstract

This dataset is from a manipulative experiment investigating intracohort priority effects between two competing reef fishes (*Thalassoma hardwicke* and *T. quinquevittatum*). The study was conducted in the northern lagoon of Moorea, French Polynesia (17°30'S, 149°50'W), at the Gump Research Station between February and August 2007, using a grid of 28 live-coral patch reefs in water 2 to 4 meters deep.

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## Coverage

**Spatial Extent:** Lat:-17.5 Lon:-149.8333333

**Temporal Extent:** 2007-02 - 2007-08

## Dataset Description

This dataset is from a manipulative experiment investigating intracohort priority effects between two competing reef fishes (*Thalassoma hardwicke* and *T. quinquevittatum*). For additional data, please see files listed in Related Datasets.

## Related Datasets

- Geange\_and\_Stier\_2009 Order of Arrival: <https://www.bco-dmo.org/dataset/726744>
- Geange\_and\_Stier\_2009 Order of Arrival Size: <https://www.bco-dmo.org/dataset/726781>
- Geange\_and\_Stier\_2009 Order of Arrival Background Community: <https://www.bco-dmo.org/dataset/726766> (current page)

## Methods & Sampling

The study was conducted in the northern lagoon of Moorea, French Polynesia (17 30'S, 149 50'W), at the Gump Research Station between February and August 2007, using a grid of 28 live-coral patch reefs in water 2 to 4 meters deep.

## Experimental Design and Execution

This dataset is descriptive, listing all species within the community found on each of the 28 reefs used in the study.

## Data Processing Description

This is raw data.

### 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
<b>GeangeandStier_2009_Orderofarrival_BackgroundCommunity.csv</b> (Comma Separated Values (.csv), 119.97 KB) MD5:1a9d40873737b81cc5bd945958d1adff
Primary data file for dataset ID 726766

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## Related Publications

Geange, S. W., & Stier, A. C. (2009). Order of arrival affects competition in two reef fishes. *Ecology*, 90(10), 2868-2878. doi:[10.1890/08-0630.1](https://doi.org/10.1890/08-0630.1)  
*General*

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## Related Datasets

### IsRelatedTo

Geange, S., Stier, A. (2021) **Data generated from the manipulative experiments in Moorea, French Polynesia from February-August 2007 (CDD in Reef Fish project)**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2017-10-05  
doi:10.26008/1912/bco-dmo.726744.1 [[view at BCO-DMO](#)]

Geange, S., Stier, A. (2021) **Size of individuals used within each experiment at Moorea, French Polynesia from February-August 2007 (CDD in Reef Fish project)**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2017-10-05  
doi:10.26008/1912/bco-dmo.726781.1 [[view at BCO-DMO](#)]

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## Parameters

Parameter	Description	Units
experiment	Either the intraspecific or interspecific component of the experiment	unitless
species	Genus and species (T. (Thalassoma hardwicke) or T. (Thalassoma) quinquevittatum)	unitless
abundance	abundance of each species within the background community	unitless
reef	unique identifier for each reef in experimental array	unitless

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## Instruments

<b>Dataset-specific Instrument Name</b>	tanks
<b>Generic Instrument Name</b>	Aquarium
<b>Dataset-specific Description</b>	All captured fish were held in tanks with running seawater for 6–12 h, then individually tagged with different colors of Visible Implant Elastomer forward of the caudal peduncle.
<b>Generic Instrument Description</b>	Aquarium - a vivarium consisting of at least one transparent side in which water-dwelling plants or animals are kept

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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

**Cryptic density dependence: the effects of spatial, ontogenetic, and individual variation in reef fish (CDD\_in\_Reef\_Fish)**

**Coverage:** Moorea, French Polynesia (-17.48, -149.82)

*Description from NSF award abstract:*

Ecologists have long been interested in the factors that drive spatial and temporal variability in population density and structure. In marine reef systems, attention has focused on the role of settlement-the transition of

pelagic larvae to a benthic stage-and on density-dependent processes affecting recently settled juveniles. Recent data suggest that co-variance in settlement and subsequent density-dependent survival can obscure the patterns of density dependence at larger scales, a phenomenon called cryptic density dependence. This research will explore the mechanisms that underlie the spatial covariance of settlement and site quality - a process that has received little attention in the standard paradigm. These mechanistic studies of cryptic density dependence will facilitate the development of new frameworks for fish population dynamics that incorporate larval ecology, habitat quality, density dependence, life history, and the patterns and implications of spatial covariance among these factors. More generally, the work provides a specific empirical context, and a general theoretical treatment, of cryptic heterogeneity (hidden individual variation in demographic rates).

**Note:** Drs. Craig W. Osenberg and Ben Bolker were 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](#)). Dr. Bolker moved to McMaster University in 2010 ([current contact information](#)).

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## Funding

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0242312</a>

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