

# Survey to quantify habitat availability for juvenile *T. hardwicke* in Moorea, French Polynesia from 2005-2007 (CDD\_in\_Reef\_Fish project)

**Website:** <https://www.bco-dmo.org/dataset/726732>

**Data Type:** Other Field Results

**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>	Department of Conservation - Wellington, New Zealand	Principal Investigator, Contact
<a href="#">Biddle, Mathew</a>	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

## Abstract

This dataset is from a study examining the influence of structural refuge, competition and their interaction on the early post-settlement survival of transplanted *Thalassoma hardwicke* (the sixbar wrasse).

## Table of Contents

- [Coverage](#)
- [Dataset Description](#)
  - [Methods & Sampling](#)
  - [Data Processing Description](#)
- [Data Files](#)
- [Related Publications](#)
- [Related Datasets](#)
- [Parameters](#)
- [Deployments](#)
- [Project Information](#)
- [Funding](#)

## Coverage

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

**Temporal Extent:** 2005 - 2007

## Dataset Description

This dataset is from a study examining the influence of structural refuge, competition and their interaction on the early post-settlement survival of transplanted *Thalassoma hardwicke* (the sixbar wrasse).

This dataset specially refers to a survey used to quantify habitat association for juvenile *T. hardwicke*. Please see Related Datasets below for additional data associated with this project.

## Related Datasets:

- Geange\_2010 Larger Heterospecifics Factorial Experiment: <https://www.bco-dmo.org/dataset/726353>
- Geange\_2010 Larger Heterospecifics Field Assay Experiment: <https://www.bco-dmo.org/dataset/726693>
- Geange\_2010 Larger Heterospecifics Habitat Association: <https://www.bco-dmo.org/dataset/726717>
- Geange\_2010 Larger Heterospecifics Habitat Availability: <https://www.bco-dmo.org/dataset/726732>  
(Current page)

## Methods & Sampling

Three transects within Moorea's northern lagoon were established. Each transect was approximately 800 m in length, and ran from shore to the barrier reef crest. Along each transect, five approximately equally spaced sites were identified (90 (SE = 3), 180 (SE = 7), 289 (SE = 7), 409 (SE = 7) and 508 (SE = 11) m from the reef crest). Within each site, 16 patch reefs (hereafter reefs) of similar size (n = 240 reefs: average surface area = 7.98 m<sup>2</sup>, SE = 0.24; average height = 0.83 m, SE = 0.01) were haphazardly selected. For each reef, and a one-meter halo surrounding the reef, percent cover of 16 substrate categories was visually estimated: *Porites* massive; *Porites* rus; *Montipora* spp.; *Pocillopora* spp.; *Acropora* spp.; other live coral; *Turbinaria* spp.; *Dictyota* spp.; *Halimeda* spp.; turf (a mixed filamentous red algal assemblage consisting predominately of *Polysiphonia* spp.); sponge; bare; other; sand; coral rubble; and pavement). For a subset of 45 reefs, the accuracy of visual estimates of percent cover against Fixed Point Contact (FPC) estimates of percent cover (a commonly accepted standard; Floyd & Anderson 1987) was evaluated. Visual estimates of percent cover were 84.8% accurate relative to FPC estimates and include better estimates of rare habitat than FPC (Meese & Tomich 1992). Habitat surveys were conducted between 7 March and 29 April 2005. On each reef and the surrounding one-meter halo, the identity of all juvenile labroids was recorded and their Standard Length (SL; to the nearest mm) visually estimated. The substrate directly below each individual at the time it was first observed was also recorded. Juveniles were defined as individuals less than 25mm SL. The accuracy of visual estimates of SL made in the field were evaluated by capturing a subset of fish (n = 298 from 8 different species) and comparing visual estimates of SL for these individuals to SL measured in the lab with callipers. Based on mean absolute error (MAE), visual estimation of SL was 94.7% accurate. Fish surveys were conducted between 0800 and 1600 hours (peak activity time for diurnal benthic fishes: Galzin 1987) from 27 May to 6 June 2005.

## 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

[ [table of contents](#) | [back to top](#) ]

---

## Data Files

File
<b>Geange_2010_LargerHeterospecifics_Habitatavailability.csv</b> (Comma Separated Values (.csv), 40.58 KB) MD5:8df667c55f86906562d9ae251afd00cf
Primary data file for dataset ID 726732

[ [table of contents](#) | [back to top](#) ]

---

## Related Publications

Geange, S. (2010). Effects of larger heterospecifics and structural refuge on the survival of a coral reef fish, *Thalassoma hardwicke*. Marine Ecology Progress Series, 407, 197–207. doi:[10.3354/meps08569](https://doi.org/10.3354/meps08569)  
*General*

[ [table of contents](#) | [back to top](#) ]

---

## Related Datasets

## IsRelatedTo

Geange, S. (2021) **Field assay experiment data to determine if the presence of larger individuals of *T. hardwicke* adversely affects the survival of focal individuals in Moorea, French Polynesia from 2005-2007 (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.726693.1 [[view at BCO-DMO](#)]

Geange, S. (2021) **Survey to quantify habitat association for juvenile *T. hardwicke* in Moorea, French Polynesia from 2005-2007 (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.726717.1 [[view at BCO-DMO](#)]

Geange, S. (2021) **The influence of structural refuge, competition and their interaction on the early post-settlement survival of transplanted *Thalassoma hardwicke* (the sixbar wrasse) in Moorea, French Polynesia from 2005-2007 (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.726353.1 [[view at BCO-DMO](#)]

[ [table of contents](#) | [back to top](#) ]

---

## Parameters

Parameter	Description	Units
site	unique identifier for each reef in survey	unitless
habitat	habitat type	unitless
cover	proportional habitat cover	unitless

[ [table of contents](#) | [back to top](#) ]

---

## Deployments

### Osenberg et al Moorea

Website	<a href="https://www.bco-dmo.org/deployment/644752">https://www.bco-dmo.org/deployment/644752</a>
Platform	Osenberg et al Moorea
Start Date	2003-05-19
End Date	2015-07-12

[ [table of contents](#) | [back to top](#) ]

---

## 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](#)).

[ [table of contents](#) | [back to top](#) ]

---

## Funding

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

[ [table of contents](#) | [back to top](#) ]