

# Percent cover of coral and other sessile invertebrates at Caribbean reefs determined using the point-intercept method along transects in 2009 and 2011

**Website:** <https://www.bco-dmo.org/dataset/4005>

**Data Type:** Other Field Results

**Version:** 1

**Version Date:** 2013-09-06

## Project

» [Impact of the 2010 Caribbean Coral Bleaching Event: Assessing Changes in Coral Immune Function](#)

(Climate\_Corals\_Bleach\_Disease)

| Contributors                     | Affiliation   | Role                            |
|----------------------------------|---|---------------------------------|
| <a href="#">Weil, Ernesto F.</a> | University of Puerto Rico - Mayaguez (UPRM)         | Principal Investigator, Contact |
| <a href="#">Rauch, Shannon</a>   | Woods Hole Oceanographic Institution (WHOI BCO-DMO) | BCO-DMO Data Manager            |

## Abstract

This dataset includes percent cover of coral and other sessile invertebrates at Caribbean reefs determined using the point-intercept method along transects in 2009 and 2011.

## Table of Contents

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

## Coverage

**Spatial Extent:** N:19.3775 E:-61.75907 S:12.02697 W:-81.3835

**Temporal Extent:** 2009-09-12 - 2011-12-01

## Dataset Description

Percentages of live cover of corals, octocorals, zoanthids, hydrocorals and sponges in reefs studied in 2009 and 2011 at Curacao, Grand Cayman, Genada, and Puerto Rico.

## Methods & Sampling

The point-intercept method was used along the same transects (N=15 per reef) to assess the percentage of live cover of corals, octocorals, zoanthids, hydrocorals and sponges in each habitat and reef.

## Data Processing Description

BCO-DMO Processing Notes:

- Modified parameter names to conform with BCO-DMO naming conventions.

- Added lat and lon from the metadata provided.
- Replaced abbreviated reef names with full names.

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

---

## Data Files

| File   |
|--|
| <b>Percent_Cover.csv</b> (Comma Separated Values (.csv), 638.09 KB)<br>MD5:5816c1586d4ffb08e2e4fe9c7fb58ff7<br>Primary data file for dataset ID 4005 |

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

---

## Supplemental Files

| File   |
|--|
| <b>group_codes.csv</b> (Comma Separated Values (.csv), 199 bytes)<br>MD5:898b6c1f4d38981afad0115afd704544<br>Group Codes<br>From project: Impact of the 2010 Caribbean Coral Bleaching Event: Assessing Changes in Coral Immune Function<br>PI: Ernesto Weil<br>Version date: 30 July 2013 |

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

---

## Parameters

| Parameter  | Description   | Units           |
|------------|---|-----------------|
| location   | Name of the country where the reefs are located.                        | text            |
| reef       | Name of the reef.   | text            |
| year       | 4-digit year when reefs were surveyed.                                  | unitless        |
| habitat    | Description of the habitat: Deep, Intermediate (INT), or Shallow (SHA). | text            |
| lat        | Latitude of the reef.   | decimal degrees |
| lon        | Longitude of the reef.  | decimal degrees |
| transect   | Transect identification number.   | integer         |
| depth      | Sampling depth.   | meters          |
| rep        | Replicate number.   | integer         |
| date       | Date when the transect was surveyed.                                    | mm/dd/YYYY      |
| person     | Initials of the scientific investigator.                                | text            |
| group      | Type of coral or invertebrate. See Supplemental File "group_codes.csv"  | text            |
| genera     | Genus name or abbreviation.   | text            |
| species    | Species name or abbreviation.   | text            |
| line_cover | Length of the portion of the transect line surveyed.                    | centimeters     |
| cover_pcmt | Percent cover of the species in the "line_cover" area.                  | percent         |
| intercept  | Point intercept position along the transect.                            | centimeters     |

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

---

## Deployments

### Coral Bleaching Dives Weil

|                    |   |
|--------------------|---|
| <b>Website</b>     | <a href="https://www.bco-dmo.org/deployment/59046">https://www.bco-dmo.org/deployment/59046</a>   |
| <b>Platform</b>    | Caribbean_Coral_Reefs   |
| <b>Start Date</b>  | 2008-01-01  |
| <b>End Date</b>    | 2011-12-31  |
| <b>Description</b> | Coral reef surveys as part of the project "Impact of the 2010 Caribbean Coral Bleaching Event: Assessing Changes in Coral Immune Function". |

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

---

## Project Information

### Impact of the 2010 Caribbean Coral Bleaching Event: Assessing Changes in Coral Immune Function (Climate\_Corals\_Bleach\_Disease)

**Coverage:** Puerto Rico, Grenada, Caracao, Grand Cayman

The investigators requested RAPID funding to assess the impact of the 2010 Caribbean bleaching event on coral gene expression, immune function and coral reef communities. 2010 is currently tracking as the warmest year ever on record, potentially creating one of the largest thermal anomalies in the Caribbean basin and in the southeastern Caribbean, exceeding the previous record-breaking temperatures of 2005. These investigators will perform coral surveys at selected sites in the southeastern Caribbean and sample collections in Puerto Rico

during and after this transient event to compare coral health measures with previously collected pre-event data. The study will integrate several levels of data, from remote temperature sensing satellite records, to coral health, cover and diversity surveys, to studies of individual coral immune function and microbial assemblages. The scale of this thermal event is significant enough that the investigators hypothesize levels of disease will increase following this event, as was observed after the 2005 Caribbean bleaching event and the 2002 Australian bleaching event. The RAPID study will also test the hypothesis that this large scale thermal anomaly will stress corals in Puerto Rico and down-regulate immune gene expression in thermally sensitive species (*Montastrea* spp), but potentially up-regulate expression in a thermally resilient species (*Gorgonia ventalina*). The investigators also hypothesize that this expected level of coral bleaching will change the surface microbial communities of both species toward more *Vibrio*-based communities, and this is the first step in increased disease susceptibility to opportunistic pathogens.

This project is relevant to an understanding of the resilience of marine ecosystems and the impact of ocean warming events on coral physiology and biodiversity. Current understanding of the impacts of warm thermal anomalies is largely restricted to the bleaching response of the corals themselves, with much less known about how warm temperatures change the functioning of the coral holobiont via the microbial constituents and/or the immune responses of corals. There is tremendous value in following the physiology and gene expression of corals in the field through an extreme and transient event like this. Laboratory studies could never truly duplicate these field conditions, particularly with respect to disruptions to the natural resident microbial community that is so critical to the coral holobiont.

This RAPID project will focus on objectives for which pre-event data/samples exist:

- (1) Monitoring levels of coral disease, coral species diversity and coral cover in Puerto Rico, Grenada, Trinidad, the Mexican Yucatan, and Panama.
- (2) Assessment of coral immune responses and immune gene expression in a resilient gorgonian (*Gorgonia ventalina*) and a susceptible scleractinian (*Montastraea* spp). Sampling will occur pre-bleaching, during the heating event and after recovery.
- (3) Assessment of changes in total microbial community before, during and after the heating event in the two above mentioned species.

This project is associated with the project titled "[Influence of Temperature and Acidification on the Dynamics of Coral Co-Infection and Resistance](#)" (OCE-0849776).

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

---

## Funding

| Funding Source   | Award                       |
|--|-----------------------------|
| <a href="#">NSF Division of Ocean Sciences (NSF OCE)</a> | <a href="#">OCE-1105143</a> |

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