

# Chlorophyll-a, cyanobacteria, fluorescence and total protein in healthy and diseased sponges in the Bahamas and Belize from 2008-2011 (Etiology of ARBS sponge disease project)

Website: <https://www.bco-dmo.org/dataset/3609>

Version:

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## Project

» [Aplysina Red Band Syndrome: Investigating the etiology, pathogenesis, and ecology of an emerging marine disease](#) (Etiology of ARBS sponge disease)

Contributors	Affiliation	Role
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## Dataset Description

To assess the interacting effects of nutrients and disease on *Aplysina cauliformis*, we provided nutrient enrichment to healthy and diseased sponges in a factorial experiment at LSI in the summer of 2009. Impacts on ARBS virulence (rate of lesion growth) and host response (growth and physiology of both the sponge and its cyanobacterial symbionts, *Synechococcus spongiarum*) were assessed.

## Methods & Sampling

Sponge samples were collected from patch reefs near the Perry Institute for Marine Science, Lee Stocking Island, Bahamas.

## Data Processing Description

Units for measurements of the analyses:

chl-a: micrograms of chlorophyll-a per milligram of sponge wet weight;

cyanobacteria: cells per 2886 micrometers viewing area;

fluorescent yield: no units;

total protein: micrograms protein per mg sponge tissue (lyophilized prior to extraction)

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## Data Files

File
<b>nuts_ARBS.csv</b> (Comma Separated Values (.csv), 7.60 KB) MD5:5d48059ca28a0fe9e136f20b8da070c5
Primary data file for dataset ID 3609

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## Parameters

Parameter	Description	Units
analysis_type	chlrophyll-a;cyanobacteria; fluorescence; total protein measured	text
condition	initial condition of sponge specimen; healthy or diseased	text
nutrients_treatment	experimental treatment; enriched or none	text
sponge_id	identification number of the sponge specimen used in the experiment	1 to 12
rack_id	rack number: sponges were placed on racks for experimental exposure with 2 sponges per rack	1 to 24
initial	initial measurement of the analysis. chla: micrograms of chlorophyll-a per milligram of sponge wet weight;cyanobacteria: cells per 2886 micrometers viewing area;fluorescent yield: no units;total protein: micrograms protein per mg sponge tissue (lyophilized prior to extraction)	number
final	final measurement of the analysis; same units as initial measurements	number

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## Deployments

### lab\_Olson\_ARBS

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58772">https://www.bco-dmo.org/deployment/58772</a>
<b>Platform</b>	Unknown Platform
<b>Start Date</b>	2008-07-21
<b>End Date</b>	2011-08-07
<b>Description</b>	Study of disease on a marine sponge.

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## Project Information

### **Aplysina Red Band Syndrome: Investigating the etiology, pathogenesis, and ecology of an emerging marine disease (Etiology of ARBS sponge disease)**

The emergence of new diseases and the re-emergence of adapted forms of familiar diseases have renewed interest in the roles of pathogens in natural ecosystems. Pathogens are important regulating factors within host populations, as they can impact distribution, growth and reproduction. In the marine environment, epidemic outbreaks of unknown diseases have been reported with alarming frequency over the last two decades, yet little is known regarding the causes of these diseases or their effects on hosts, host populations, and communities.

Gochfeld and colleagues recently described a new disease affecting Caribbean sponges of the genus *Aplysina*, a dominant component of Caribbean coral reef communities. *Aplysina* Red Band Syndrome (ARBS) is widespread in the Caribbean, and has rapidly increased in prevalence, making it an ideal study system to increase our understanding of emerging diseases on coral reefs. The research is timely and studying a non-coraline model of marine diseases is significantly beneficial, particularly in light of restrictions on collecting corals, even for research purposes.

The goals of this research proposal are to characterize the etiology (causes) and pathogenesis (effects) of ARBS as a newly emerging disease on coral reefs. This research addresses four objectives:

- (1) Characterize the microbial community associated with ARBS;
- (2) Examine host responses to ARBS at the ecological, physiological and biochemical levels;
- (3) Examine the relationships between ARBS prevalence and other members of the coral reef community; and
- (4) Investigate the effects of environmental stressors on ARBS susceptibility and virulence. The research takes a multidisciplinary approach to the study of marine diseases.

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## Funding

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0727996</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0727833</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0726944</a>

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