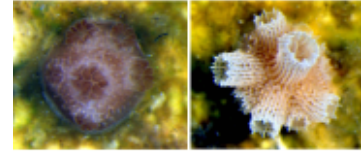


Cumulative Effects of Nutrient Enrichment and Elevated Temperature Compromise the Early Life History Stages of the Coral *Acropora tenuis* (NERP TE 5.2 and NESP TWQ 2.1.6, AIMS and JCU)

Coral recruit ~ 5 mm diameter after 59 days exposure to treatment conditions



27°C and Low nutrients 32°C and High nutrients

Photos: Adriana Huterea

[Metadata](#) | [Metadata \(XML\)](#)

Title	Cumulative Effects of Nutrient Enrichment and Elevated Temperature Compromise the Early Life History Stages of the Coral <i>Acropora tenuis</i> (NERP TE 5.2 and NESP TWQ 2.1.6, AIMS and JCU)
Date	2016-06-08
Date type	Publication
Abstract	<p>This dataset shows the measured response of early life history stages to different levels of nutrient enrichment and temperatures in experiments conducted in 2014-2015.</p> <p>The data is presented as one Excel spreadsheet file. Each tab contains data from experiments (Exp. 1a,b; Exp 1c,d; Exp. 2; Exp 3) on different life stages exposed to the same conditions. Measured logged water quality (Nutrients) and temperature (Temperature) data taken during the experiment are also presented in different tabs.</p> <p>The aim of this study was to:</p> <ol style="list-style-type: none"> 1) understand the combined effects of elevated temperature and degraded water quality when they co-occur; 2) identify the most sensitive early life history stages to elevated temperatures and nutrient enrichment, and 3) provide a minimum estimate of their combined effects on population replenishment. <p>Methods:</p> <p>Early life history stages or processes of <i>Acropora tenuis</i>, a coral species common in inshore reefs of the Indo Pacific and the Red Sea, were exposed to different levels of nutrient enrichment and warming temperatures. Gamete fertilization, larval survivorship, larval settlement, juveniles photophysiology, growth, weight and survivorship were measured after exposures. Experimental concentrations of nutrients were chosen to lie within the range of those measured on inshore GBR reefs, while temperature levels corresponded to an increase between +2 to +5°C during spawning periods in reefs of the GBR. All experiments were conducted under controlled conditions in the National Sea Simulator.</p> <p>Please refer to the following publication for specific details of the methodology employed in each of the 3 experiments:</p> <p>Humanes A, Noonan S, Willis B, Fabricius K, Negri A. (in press). Cumulative Effects of Nutrient Enrichment and Elevated Temperature Compromise the Early Life History Stages of the Coral <i>Acropora tenuis</i>. PLoS ONE.</p> <p>Format:</p> <p>Excel Spreadsheet with one tab per experiment and tabs for logged temperature and nutrient conditions during the experiment in the other tabs.</p>

Data Dictionary:

- Replicate: number of replicates of a single treatment or measurement type
- Low: nutrient concentrations in control seawater, see "Nutrient" tab for details
- Medium: nutrient enriched seawater, see "Nutrient" tab for details
- High: nutrient enriched seawater, see "Nutrient" tab for details
- Total: total number of coral gametes, embryos, larvae or recruits
- NA: data not available, see notes in each tab for explanation
- DOC: dissolved organic carbon
- TOC: total organic carbon
- TDN: total dissolved nitrogen
- TN: total nitrogen
- TDP: total dissolved phosphorus
- Fv/Fm: maximum quantum yield

All temperature measurements are in degrees Celsius

References:

Humanes A, Noonan S, Willis B, Fabricius K, Negri A. (in press). Cumulative Effects of Nutrient Enrichment and Elevated Temperature Compromise the Early Life History Stages of the Coral *Acropora tenuis*. PLoS ONE.

Data Location:

This dataset is saved in the eAtlas enduring data repository at: data\NERP-TE
\5.2_Cumulative-pressures\

Metadata language	eng
Character set	UTF8
Hierarchy level	Dataset

OnLine resource

Linkage	https://eatlas.org.au/data/uuid/c2d91a7e-9e9d-415b-8d56-b93faeb5cd73
Protocol	WWW:LINK-1.0-http--metadata-URL
Linkage	https://eatlas.org.au/nerp-te/gbr-aims-combined-water-quality-climate-effects-5-2
Protocol	WWW:LINK-1.0-http--related
Linkage	https://eatlas.org.au/pydio/data/public/nerp-te_5-2_aims-jcu_temp-nutrients_zip
Protocol	WWW:LINK-1.0-http--downloaddata
Linkage	https://eatlas.org.au/nesp-twq-2/gbr-cumulative-impacts-2-1-6
Protocol	WWW:LINK-1.0-http--related

Point of contact

Individual name	Negri, Andrew, Dr
Organisation name	Australian Institute of Marine Science
Position name	
Role	Point of contact
Topic category	Biota

Keyword

Keyword	Laboratory Experiment
Keyword	National Sea Simulator
Type	Theme

Extent

Description	Coral collection site, Great Barrier Reef, Australia
Description	National Sea Simulator (AIMS)

Geographic bounding box

West bound	146.85
East bound	146.85
South bound	-19.1
North bound	-19.1
West bound	147.05509
East bound	147.05509
South bound	-19.26762
North bound	-19.26762

File identifier	c2d91a7e-9e9d-415b-8d56-b93faeb5cd73
Metadata language	eng
Character set	UTF8

Metadata author

Individual name	eAtlas Data Manager
Organisation name	Australian Institute of Marine Science (AIMS)
Role	metadataContact
Date stamp	2019-02-27T04:11:30