Ecophysiological responses of *Lithothamnion crispatum* and *Sonderophycus capensis* to alterations in temperature, *p*CO2 and nutrients

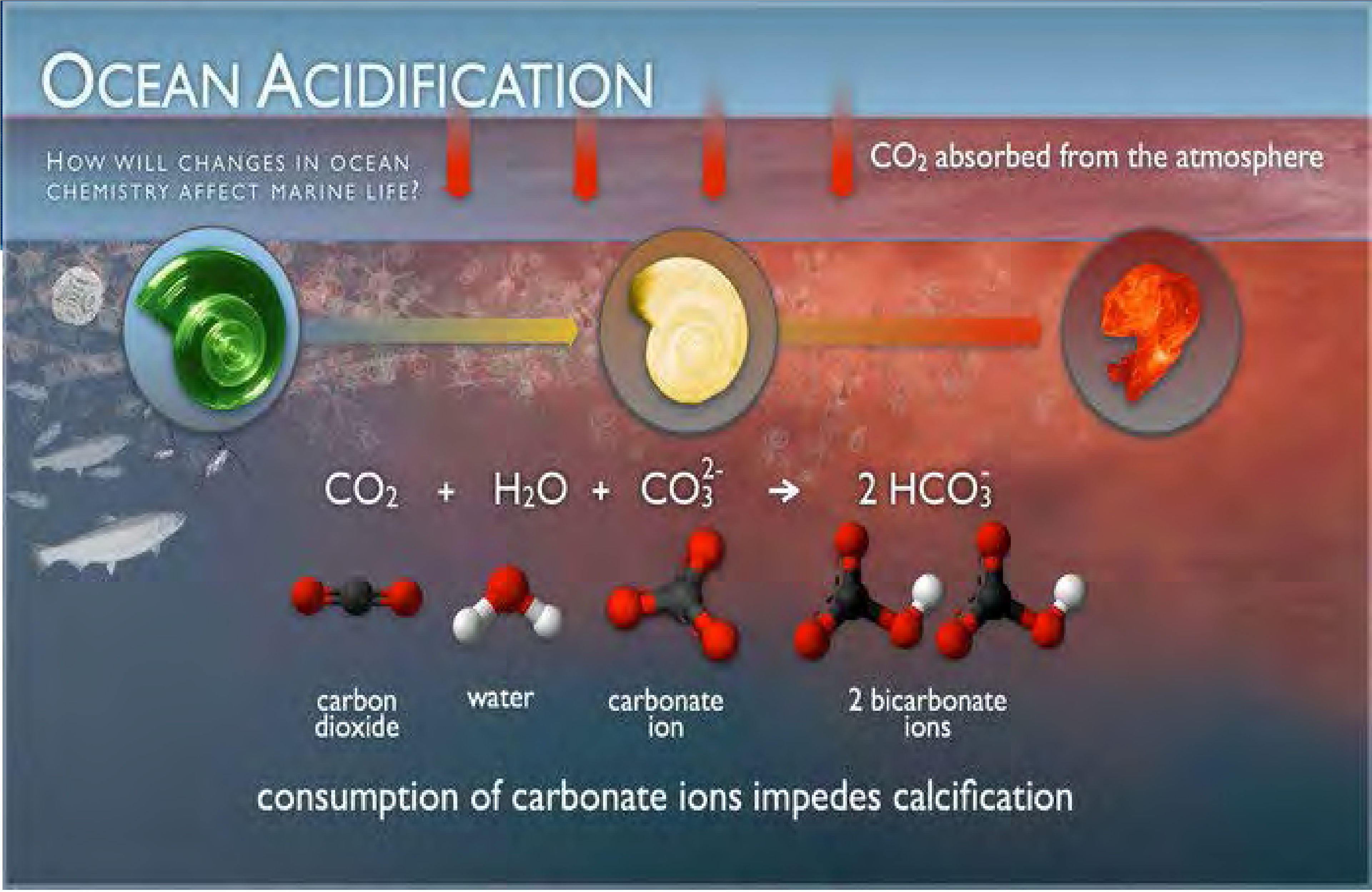
pahorta@hotmail.com.br

REBENTOS
Rede de Monitoramento de Habitats Bentônicos Costeiros

Zonas Costeiras | Rede CLIMA INCT para Mudanças Climáticas

SISBIOTA MAR
REDE NACIONAL DE PESQUISA EM BIODIVERSIDADE MARINHA

Projeto Coral Vivo

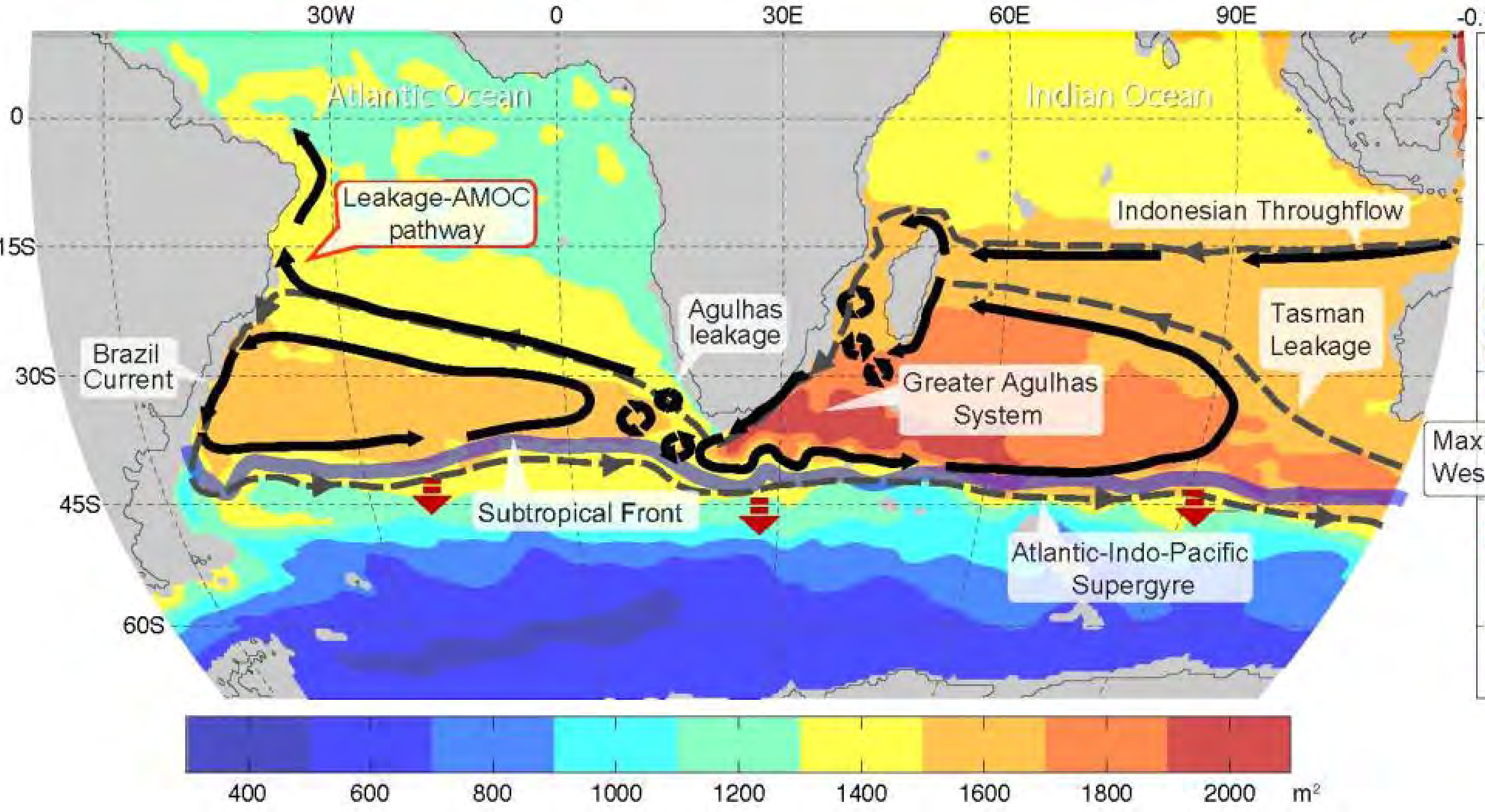

OCEAN ACIDIFICATION
HOW WILL CHANGES IN OCEAN CHEMISTRY AFFECT MARINE LIFE?
CO_2 absorbed from the atmosphere
$CO_2 + H_2O + CO_3^{2-} \rightarrow 2\,HCO_3^{-}$
carbon dioxide
water
carbonate ion
2 bicarbonate ions
consumption of carbonate ions impedes calcification

Heating our discussions!

REVIEW
28 APRIL 2011 | VOL 472 | NATURE | 429
doi:10.1038/nature09983

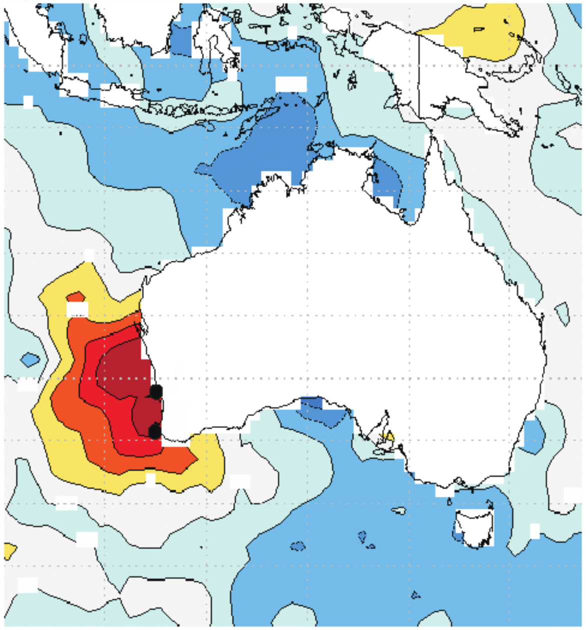
On the role of the Agulhas system in ocean circulation and climate

Lisa M. Beal[1], Wilhelmus P. M. De Ruijter[2], Arne Biastoch[3], Rainer Zahn[4] & SCOR/WCRP/IAPSO Working Group 136*



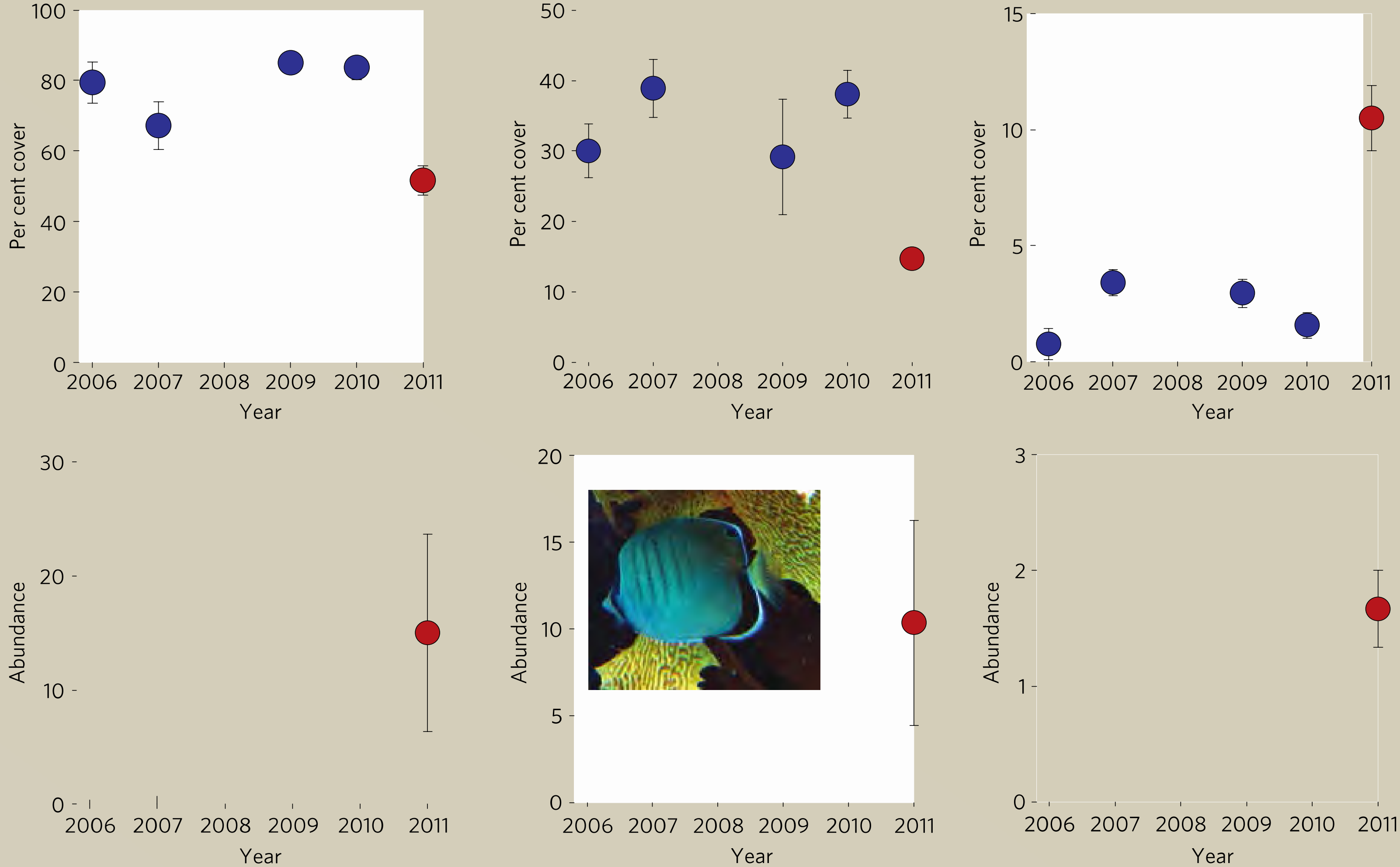
LETTERS
PUBLISHED ONLINE: 22 JULY 2012 | DOI: 10.1038/NCLIMATE1627
nature climate change

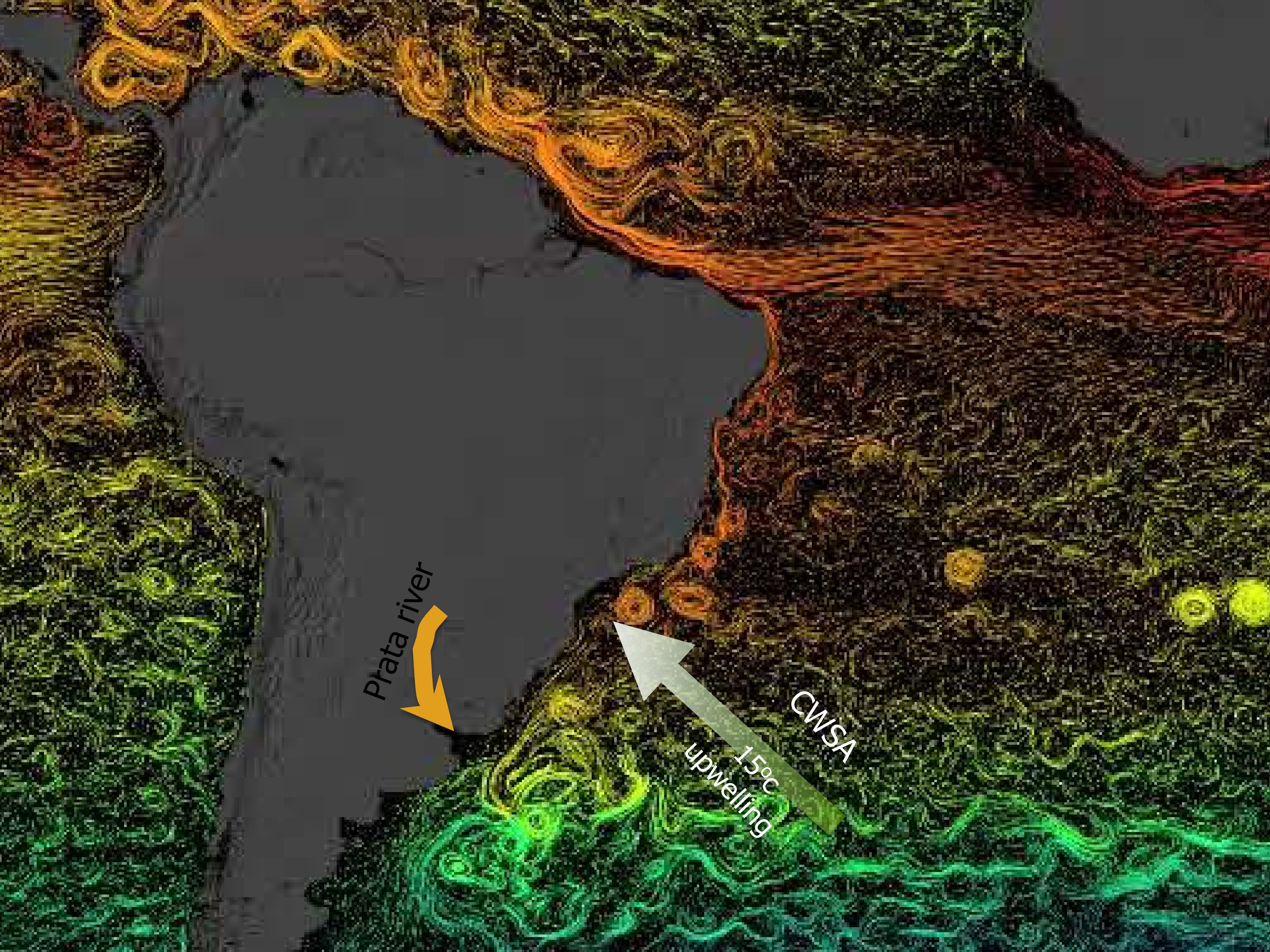
Heat wave



LETTERS
PUBLISHED ONLINE: 22 JULY 2012 | DOI: 10.1038/NCLIMATE1627
nature climate change

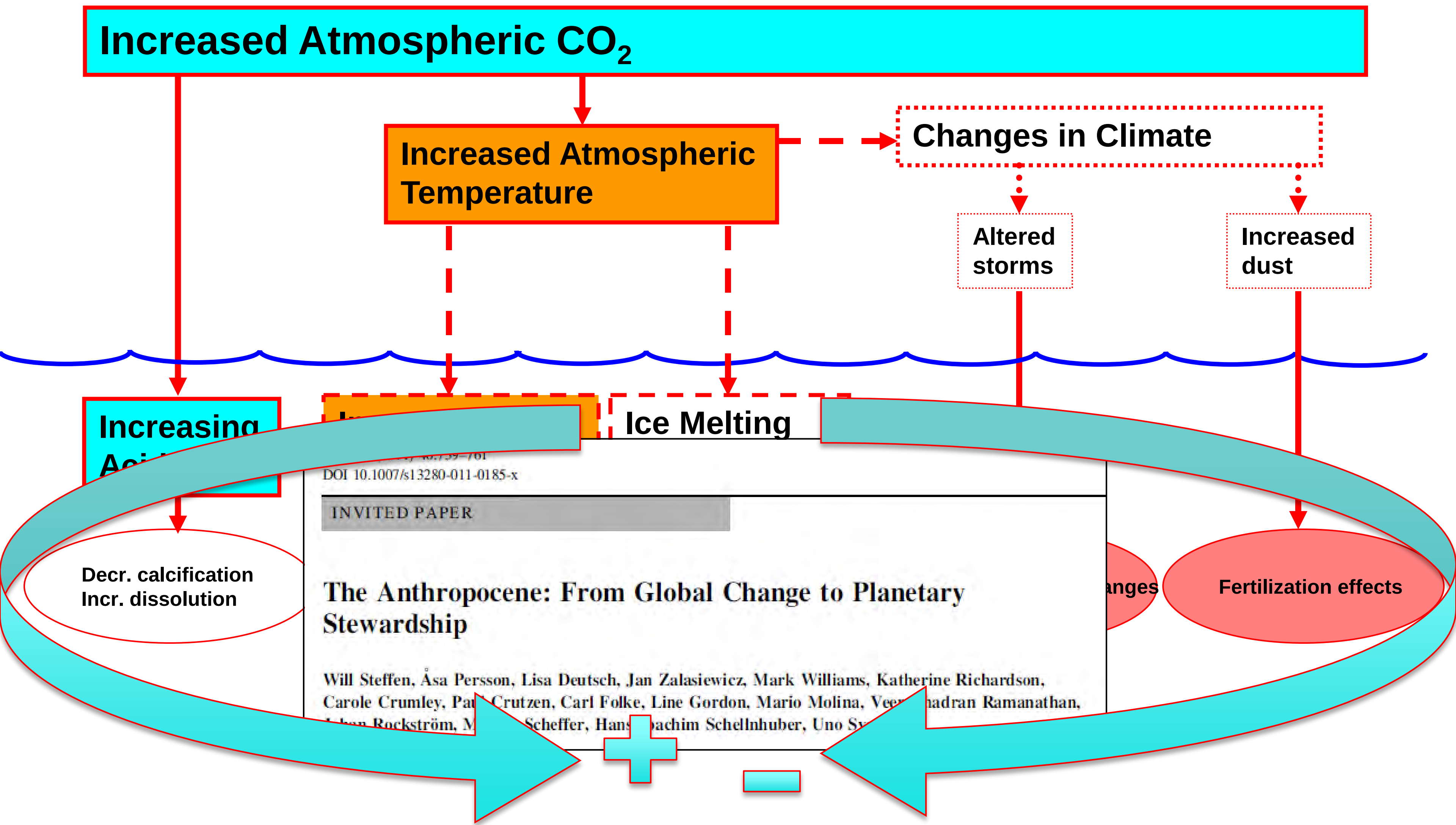
Community shift





Prata river
CWSA
15°c
upwelling

Potential Effects of Increasing Atmospheric CO_2 on Phytobenthos?

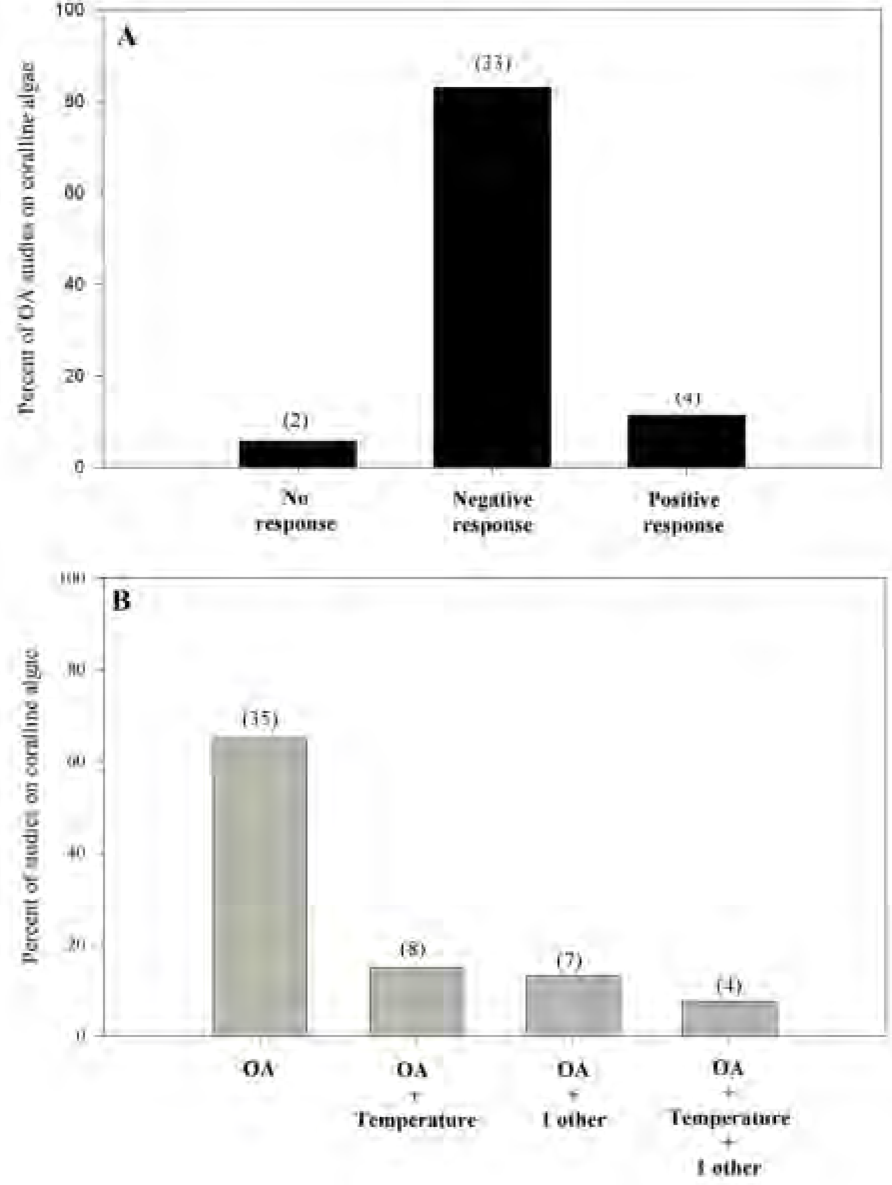


Global Change Biology (2013) **19**, 1884–1896, doi: 10.1111/gcb.12179

Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming

KRISTY J. KROEKER*, REBECCA L. KORDAS†, RYAN CRIM‡, IRIS E. HENDRIKS§, LAURA RAMAJO§¶, GERALD S. SINGH†, CARLOS M. DUARTE§‖ and JEAN-PIERRE GATTUSO**††

Horta et al. (accepted in Brazilian Journal of Oceanography)



Mesocosm

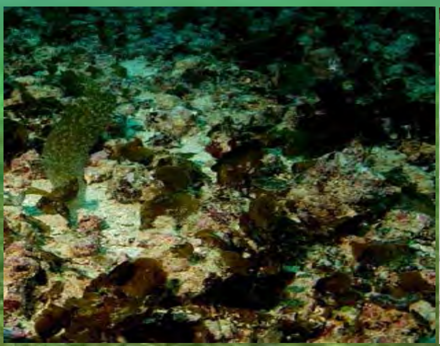
Mesocosmos recifal do Projeto Coral Vivo - BA

Mesocosms Arraial

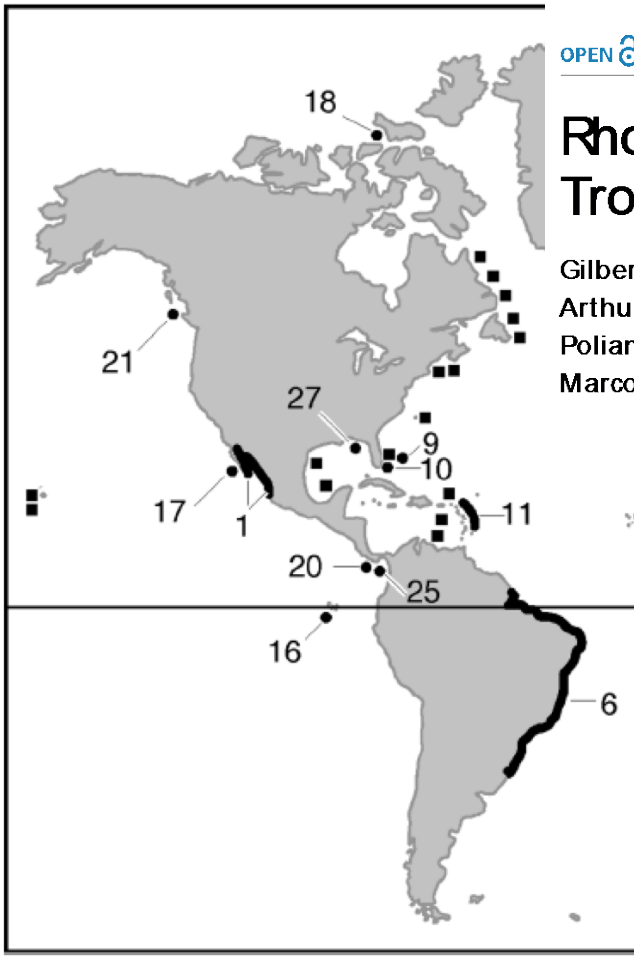
Objective

- Evaluate in a microcosm experiment the effects of the temperature, CO_2 and nutrients increases on the physiology of two subtidal calcareous algae from the Brazilian coast: *Lithothamnion crispatum* Hauck and *Sonderphycus capensis* (M) M.J. Wynne.

Rhodolith bed



Distribution



OPEN ACCESS Freely available online

PLoS one

Rhodolith Beds Are Major $CaCO_3$ Bio-Factories in the Tropical South West Atlantic

Gilberto M. Amado-Filho[1], Rodrigo L. Moura[2*], Alex C. Bastos[3], Leonardo T. Salgado[1], Paulo Y. Sumida[4], Arthur Z. Guth[4], Ronaldo B. Francini-Filho[5], Guilherme H. Pereira-Filho[6], Douglas P. Abrantes[1], Poliana S. Brasileiro[1], Ricardo G. Bahia[1], Rachel N. Leal[1], Les Kaufman[7], Joanie A. Kleypas[8], Marcos Farina[9], Fabiano L. Thompson[2]

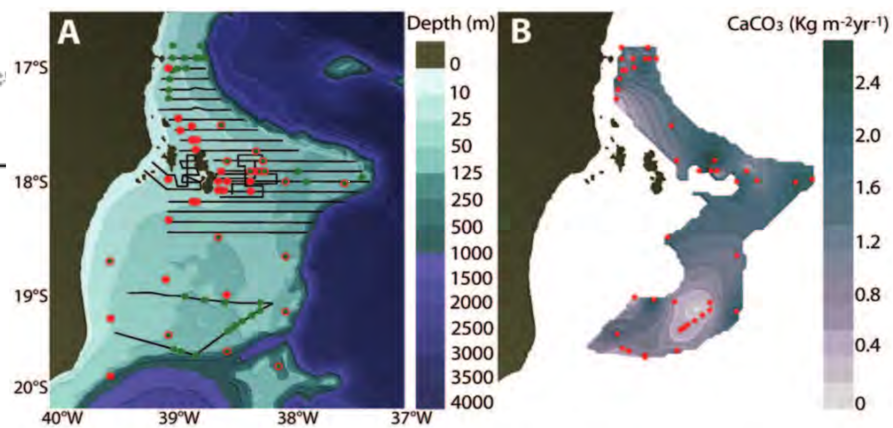
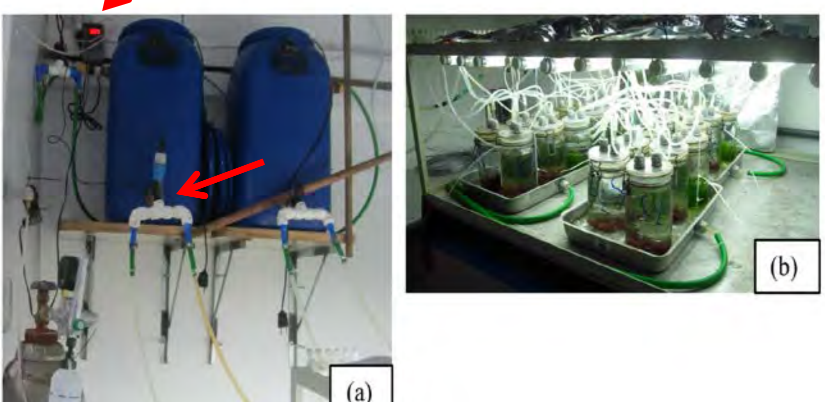


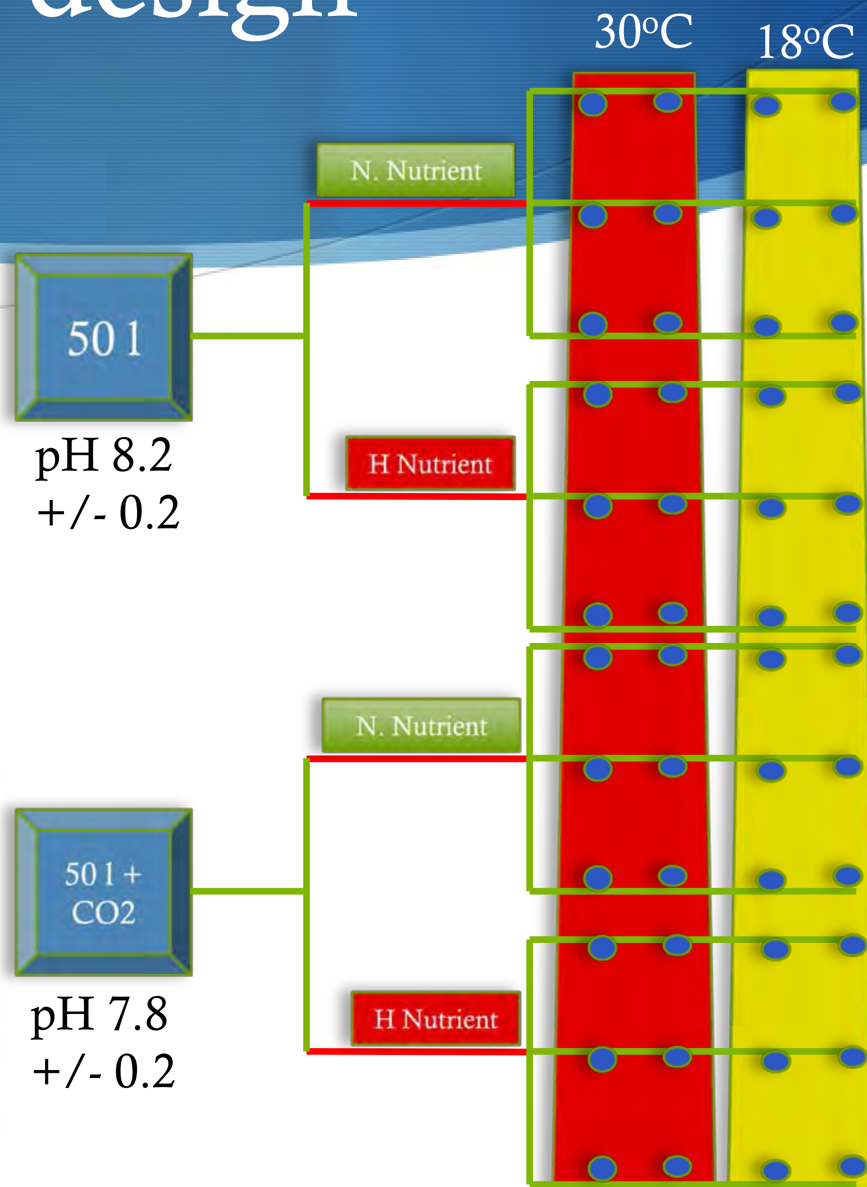
Figure 2. The study region off eastern South America, Abrolhos Bank. (A) Bathymetric map showing the areas surveyed with SSS (black lines), ROV ground truth sites (red dots) and mixed-gas dive collecting sites (green dots). (B) Distribution, and annual calcium carbonate production of rhodolith beds. The gray area indicates the total area occupied by the rhodolith beds, whereas the gray scale variations correspond to estimates of the annual calcium carbonate production (expressed as kg m^{22} yr^{21}).
doi:10.1371/journal.pone.0035171.g002

Figure 1. World distribution of living rhodolith beds (from Foster 2001).

Experiment design

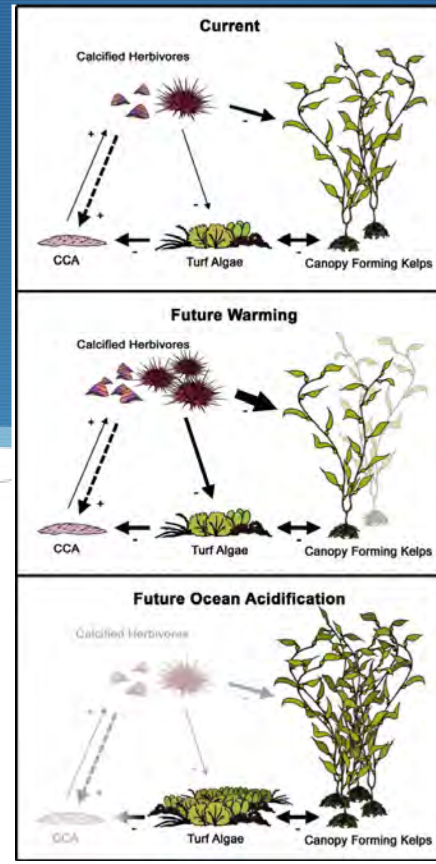
pH 7.8

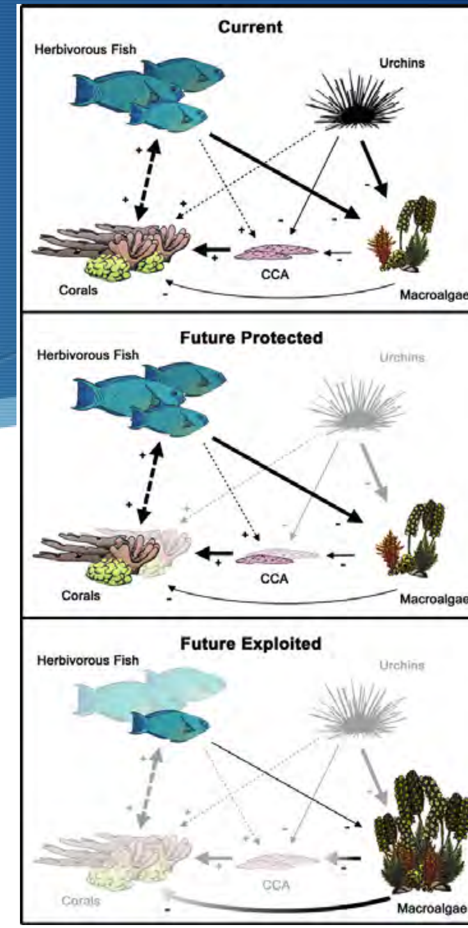




Main parameters

Challenges





etails.

J. Phycol. 48, 1064–1078 (2012)

DOI: 10.1111/j.1529-8817.2012.01224.x

MINIREVIEW

EFFECTS OF CLIMATE CHANGE ON GLOBAL SEAWEED COMMUNITIES[1]

Christopher D. G. Harley,[2] Kathryn M. Anderson, Kyle W. Demes, Jennifer P. Jorve, Rebecca L. Kordas, Theraesa A. Coyle

Department of Zoology and Biodiversity Research Centre, University of British Columbia, 6270 University Blvd, Vancouver, British Columbia, V6T1Z4, Canada

and Michael H. Graham

Moss Landing Marine Laboratories, 8272 Moss Landing Road, Moss Landing, California, 95039, USA

Highlights

- Multifactorial experiments are crucial to robust biological evaluation
- Decalcification of *Sonderophycus* was higher than in *Lithothamnion*
- Evaluation o interaction between climate change factors and local stressors should be regarded with priority.
- Introduce our results about algae biology in the discussion - mitigation e remediation programs
- Support networks to optimize infra-structure and students formation

Team

- **Researchers**
  - José Bonomi (UFSC)
  - Leonardo Rorig (UFSC)
  - Alessandra Fonseca (UFSC)
  - Paulo Pagliosa (UFSC)
  - Sergio Floeter (UFSC)
  - Zenilda Bouzon (UFSC)
  - Eloir Schenkel 9UFSC)
  - Pio Colepicolo ((USP)
  - Fungy Chow (USP)
  - Mariana Cabral (USP)
  - Clovis Castro (UFRJ)
  - Carlos Ferreira (UFF)
  - Marcos Nunes (UFBA)
  - Sonia Pereira (UFRPE)
  - Pablo Riul (UFPB)
  - Tito Lotufo (UFC)
- **Students**
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  - Manuela Batista (PhD)
  - Leidson Allan de Lucena (PhD)
  - Venessa Freira (PhD)
  - Fernando Scherner (PhD)
  - Marina Sissini (MSc)
  - Pamela Munoz (MSc)
  - Paola Sanches (MSc)
  - Eduardo Bastos (MSc)
  - Vanessa Borges (MSc)
  - Lidiane Golveia (MSc)
  - Rafael Almeida (IC)
  - Leticia Peres (IC)
- **Pos docs**
  - Fernanda Ramlov
  - Eder Schmidt
- **International partners**
  - Jason Hall-Spencer (PLY Univ.)
  - Marcos Milazzo (Plaermo Univ)
  - João Silva (Faro Univ.)
  - Felix Figueroa (Malaga Univ.)
  - Rafael Riosmena (Baja California Univ.)

Thank you!

CNPq
Conselho Nacional de Desenvolvimento
Científico e Tecnológico

CAPES

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