

## **Sam Crickenberger, PhD**

The Swire Institute of Marine Science  
The University of Hong Kong  
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### **Education**

**Clemson University**, Clemson, SC, USA August 2007 – May 2014  
PhD in Biological Sciences  
Supervisor: Dr. Amy L. Moran

**University of Washington**, FHL, WA, USA Summer 2009  
Larval Ecology Course

**College of Charleston**, Charleston, SC, USA August 2003 – May 2007  
BS in Marine Biology, *cum laude*

### **Academic Positions**

**Postdoctoral fellow** July 2017 – current  
University of Hong Kong, Hong Kong  
Supervisor: Dr. Gray Williams

**Postdoctoral fellow** July 2014 – June 2017  
University of South Carolina, Columbia, SC, USA  
Supervisor: Dr. David Wethey

**Graduate research/teaching assistant** Fall 2007 – Spring 2014  
Clemson University, Clemson, SC, USA

**National Estuarine Research Reserve Fellow** June 2008 - November 2012  
ACE Basin NERR/Clemson University, Clemson, SC, USA

**Ernest F. Hollings Undergraduate Scholar** Fall 2005 – May 2007  
NOAA Shellfish Program, North Cape, RI/College of Charleston, Charleston, SC, USA

### **Research Interests**

Biogeography; ecophysiology; larval ecology; species distribution modeling; invasion biology; climate change; local adaptation; spatial ecology; behavioral ecology

### **Publications**

\*Undergraduate co-author

#### **Peer-reviewed Publications**

Wares J, **Crickenberger S**, \*Skoczen K, Trapnell D, Hamrick J, Wethey DS, Govindarajan AF. The cryptic biology of *Chthamalus fragilis* (Darwin 1854) on the Atlantic coast of North America. Submitted to *Journal of Crustacean Biology*.

**Crickenberger S, Wethey DS.** 2018. Annual temperature variations as a time machine to understand the effects of long-term climate change on a poleward range shift. *Global Change Biology*. 24(8).

**Crickenberger S, Wethey DS.** 2017. Reproductive physiology, temperature, and biogeography: the role of fertilization in determining the distribution of the barnacle *Semibalanus balanoides*. *Journal of the Marine Biological Association of the United Kingdom*. DOI: <https://doi.org/10.1017/S0025315417000364>.

**Crickenberger S, Walther K, and Moran A.** 2017. Lower thermal limits to larval development do not predict poleward range limits of the introduced tropical barnacle *Megabalanus coccopoma*. *Invertebrate Biology*. 136(1): 37-49.

**Crickenberger S.** 2016. Predicting a range shift and range limits in an introduced tropical marine invertebrate using species distribution models. *Hydrobiologia*. 763(1): 193-205.

**Crickenberger S, Walther K, Marchant S, Marko P, and Moran A.** 2015. Acclimatization of thermal tolerance in larvae of the rocky-shore barnacle *Pollicipes elegans*. *Invertebrate Biology*. 134(4): 291-302.

**Crickenberger S, Moran A.** 2013. Rapid range shift in a tropical marine invertebrate. *PLoS ONE* 8(10): e78008. DOI:10.1371/journal.pone.0078008.

Walther K, **Crickenberger S**, Marchant S, Marko P, and Moran A. 2013. Thermal tolerance of larvae of *Pollicipes elegans*, a marine species with an antitropical distribution. *Marine Biology*. 160(10): 2723-2732.

**Crickenberger S, Sotka, E.** 2009. Temporal shifts of fouling communities in Charleston Harbor with a report of *Perna viridis* (Mytilidae). *Journal of the North Carolina Academy of Sciences*. 125(2): 78-84.

#### Manuscripts in Preparation

**Crickenberger S, Hui TY, Yuan FL, Bonebrake TC, Williams GA.** Preferred temperature of intertidal ectotherms. In preparation for *Journal of Thermal Biology*.

Chan KYK, **Crickenberger S**, Tso H, Cheng M, Williams GA. Larvae cannot use behaviour to avoid lethal temperatures in the rocky intertidal. In preparation for *Marine Environmental Research*.

**Crickenberger S, Yeung ACY, Cheng M, Tso H, Chan KYK, Williams GA.** Size assortative mating despite no evidence of mate choice in *Nerita yoldii*. In preparation for *Invertebrate Biology*.

**Crickenberger S, McAlister JS, and Wethey DS.** Embryos are not energetically limited in the barnacle *Semibalanus balanoides*. In preparation for *Marine Biology*.

### **Fellowships, Grants, and Awards**

- 2018 The impacts of temperature anomaly and land reclamation on the mollusk population dynamics in the typical bays of Taiwan Strait. Submitted to China NSF. Role: contributing author
- 2017 Predicting the impacts of climate change on future patterns of biodiversity in the tropics. Submitted to HK GRF. Requested \$147,950; Role: primary author
- 2014 Best Graduate Student Poster, Benthic Ecology Meeting
- 2014 Professional Enrichment Grant, Clemson University \$1000; Role: sole author
- 2013 BIOSCI Graduate Student Association travel award \$400; Role: sole author
- 2009 NERRS Graduate Fellowship Program \$34,373; Role: primary author
- 2008 NERRS Graduate Fellowship Program \$28,572; Role: primary author
- 2007 Clemson University Graduate Dean's Fellowship \$10,000
- 2005 Ernest F. Hollings Undergraduate Scholarship Program \$24,000.00; Role: sole author
- 2006 AYRA Mini-Grant \$300.00; Role: sole author

### **Seminars and presentations**

#### Invited seminars

- April 2018 The University of Hong Kong, Hong Kong. Annual temperature variation as a time machine to understand the effects of long-term climate change.
- April 2018 Lingfeng forum #67: Marine organisms and ecological processes under influences of ocean global changes, Xiamen, China. Range limits throughout life-history.
- February 2018 Xiamen University, Xiamen, China. Annual temperature variation as a time machine to understand the effects of long-term climate change.
- February 2018 Xiamen University, Xiamen, China. A survey of biogeographic modeling and a little about larval dispersal.
- March 2017 Moravian College, Bethlehem, PA, USA. Ecophysiology and biogeography in the rocky intertidal.
- April 2014 College of the Holy Cross, Worcester, MA, USA. Ecophysiology and biogeography of two tropical marine invertebrates.

#### Recent presentations (past 5 years)

- Nov 2017 1<sup>st</sup> Singapore-Hong Kong Hard Shore Ecology Workshp. University of Hong Kong, Hong Kong. From behaviour to biogeography in neritid snails.
- Aug 2017 International Society for Littorinid Biology, Tjärnö, Sweden.  
Does sexual selection promote or hinder adaptation to climate change?
- March 2017 Benthic Ecology Meeting, Myrtle Beach, SC, USA. Reproductive physiology, temperature, and biogeography: the role of fertilization in determining the distribution of the barnacle *Semibalanus balanoides*.
- January 2017 Society for Integrative and Comparative Biology, New Orleans, LA, USA.  
Do temperature and competition interact to define a range limit?

- March 2016 Benthic Ecology Meeting, Portland, ME, USA. Comparing the effects of extreme events and long-term climate change on the distribution of the barnacle *Semibalanus balanoides*
- March 2015 Benthic Ecology Meeting, Quebec City, Canada. Mechanisms of reproductive failure in the barnacle *Semibalanus balanoides*.
- March 2014 Benthic Ecology Meeting, Jacksonville, FL, USA. Predicting a range shift and range limits in an introduced tropical marine invertebrate using species distribution models
- January 2014 Society for Integrative and Comparative Biology Meeting. Austin, TX, USA. Lower thermal tolerance of larvae and adults of the introduced barnacle *Megabalanus coccopoma*: implications for range limits.
- March 2013 Benthic Ecology Meeting, Savannah, GA, USA. Rapid range shift in an invasive tropical marine invertebrate.

### **Teaching Experience**

#### **Instructor of Record**

Environmental Biology Fall 2016, Spring 2017  
University of South Carolina, Columbia, SC, USA

#### **Guest Lectures**

Marine Environmental Science Summer 2016  
& Conservation  
Shoals Marine Lab, Appledore Island, ME, USA  
Lectured on conservation genetics

Principles of Ecology Fall 2014, 2015  
University of South Carolina, Columbia, SC, USA  
Facilitated small group and whole class discussions on various topics in ecology;  
Lectured on biogeography

#### **Teaching Assistantships**

Invertebrate Zoology Teaching Assistant Spring 2008 – 2010, 2013-14  
Clemson University, Clemson, SC, USA

Introductory Biology Teaching Assistant Fall 2007, 2013  
Clemson University, Clemson, SC, USA

### **Professional Development**

NSF Proposal Writing Strategies Workshop March 2016  
Francis Marion University, Florence, SC, USA

Teaching workshops titled: April 2016  
“Creating Equity and Inclusivity in the Classroom”  
“Beyond the Red Ink: Responding Effectively to Student Writing”  
University of South Carolina, Columbia, SC, USA

## **Student Mentoring**

Hong Kong University, Hong Kong

Undergraduates:

Jackson Lau (2018): How does the thermal preference of an intertidal snail, *Nerita yoldii*, help it survive thermal stress?

Max Tin (2017): Tail the snails – Trail following behaviour in intertidal gastropods during mating season

Postgraduates:

Kayson Lo (2017-2018): The influence of the ecosystem engineer, *Septifer virgatus*, on tropical rocky intertidal biodiversity

Clemson University, Clemson, SC, USA

Undergraduates:

Hannah Rutter (2010), Paul Lagarenne (2012), Molly Willison (2012), Larissa Clark (2013), Max Stroebel (2013), Benjamin Childes (2013), Kelsey Zielinski (2014), Carrie Hemphill (2014)

## **Service**

**Marine biology demonstration-** The Harbour School; Spoke with 12 year olds about evolution of marine organisms (May 2018)

**Marine biology demonstration-** The Harbour School; Spoke with four to six year olds about my job and marine organisms (February 2018)

**Marine biology demonstration-** Cutler Jewish Day School; Spoke with four year olds about my research and marine organisms as part of their marine biology unit (March 2015)

**Invertebrate demonstration-** Clemson Elementary; Presented and discussed what makes an animal an invertebrate with all of the 2<sup>nd</sup> graders at Clemson Elementary using live and preserved animals along with other members of my lab (May 2013)

**BSGSA Treasurer-** Clemson University; Managed budget of over \$10,000; Managed and awarded travel grants; Oversaw reimbursements to graduate student BSGSA members (2011-2012)

**BSGSA Senator-** Clemson University; Attended graduate student government meetings as a representative for BSGSA; Reported relevant information at BSGSA meetings (2011)

**Darwin Day-** Clemson University; Discussed and explained concepts in evolution to Clemson undergraduate students and the general public as part of the Darwin Week celebrations held annually at Clemson University (February 2008-2013)

**Science Day-** La France Elementary; Presented and explained what makes an animal an invertebrate to all of the 2<sup>nd</sup> graders at La France Elementary as part of Science Day using some examples from my research (October 2007)

**Reviewer** for *American Malacological Bulletin*, *Journal of Crustacean Biology*, *Marine Ecology Progress Series*, *Biochemical Systematics and Ecology*, *Marine Biology*, *Pacific Science*, *Helgoland Marine Research*, *Journal of Thermal Biology*, *PLoS ONE*