

# Joana Figueiredo

## Assistant Professor

Oceanographic Center  
Nova Southeastern University

Cell phone: 516-592-1953

E-mail: [jfigueiredo@nova.edu](mailto:jfigueiredo@nova.edu)

<http://www.nova.edu/ocean/research/labs/figueiredo.html>

## RESEARCH

---

My research integrates experimentation and mathematical modeling approaches to elucidate how larval and juveniles development dynamics of marine invertebrates determine important ecological processes, such as dispersal, recruitment and connectivity among populations, and to predict how and to what extent climate change may alter these patterns. A solid understanding of current and future dispersal patterns is essential to conservation management as it assists in designing networks of protected areas that intend to effectively maintain biodiversity, bolster productivity and minimize risks associated with climate change.

## EDUCATION

---

- 2009            **Ph.D. Biology**, specialty **Marine Biology and Aquaculture** (Honors and Distinction) University of Lisbon, Portugal
- 2005            **Post-graduation Statistics Applied to Biology and Health Sciences** (equivalent to a M.A.Sc.) University of Lisbon, Portugal
- 2003            **B.Sc. Marine Biology** (Honors)  
University of Lisbon, Portugal

## PROFESSIONAL POSITIONS

---

- 2014 – present    **Assistant Professor**  
Oceanographic Center, Nova Southeastern University, USA
- 2010 – 2013      **Research Fellow (Academic Level B)**  
Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University, Australia
- 2009 – 2010      **Postdoctoral Fellow**  
Centre for Environmental Biology, University of Lisbon, Portugal
- 2009              **Visiting Scholar** Advisor: Prof. Joan Roughgarden  
Stanford University, U.S.A.
- 2004 – 2008      **Graduate Student** Ph.D. Advisor: Prof. Luís Narciso  
University of Lisbon, Portugal
- Visiting Scholar** Ph.D. Co-advisor: Prof. Junda Lin  
Florida Institute of Technology, U.S.A.
- 2001 – 2003      **Undergraduate Researcher**  
Institute of Oceanography, Portugal

### Peer-reviewed publications

- 22 - Baird, Andrew H., Cumbo, V. R., **Figueiredo, J.**, and Harii, S. 2013. A pre-zygotic barrier to hybridization in two con-generic species of scleractinian corals. *F1000Research*, 2: 193. <http://dx.doi.org/10.12688/f1000research.2-193.v2>
- 21 - **Figueiredo J.**, Baird A.H., Connolly S.R. 2013. Synthesizing larval competence dynamics and reef-scale retention reveals a high potential for self-recruitment in corals. *Ecology* 94(3), 650-659. <http://dx.doi.org/10.1890/12-0767.1>
- 20 - **Figueiredo J.**, Connolly S.R. 2012. Dispersal-mediated coexistence under recruitment limitation and displacement competition. *Ecological Modelling* 243: 133– 142. <http://dx.doi.org/10.1016/j.ecolmodel.2012.06.023>
- 19 - **Figueiredo J.**, Lin J, Anto J, Narciso L. 2012. The consumption of DHA during embryogenesis as an indicative of the need to supply DHA during early larval development: A Review. *Journal of Aquaculture Research and Development* 3:140. <http://dx.doi.org/10.4172/2155-9546.1000140>
- 18 - **Figueiredo J.**, Baird A.H. , Cohen M. F., Flot J.-F., Kamiki T., Meziane, T., Tsuchiya M., Yamasaki H. 2012 Ontogenetic change in the lipid and fatty acid composition of scleractinian coral larvae. *Coral Reefs* 31:613–619 <http://dx.doi.org/10.1007/s00338-012-0874-3>
- 17 - **Figueiredo J.**, Pereira H.M. 2011. Regime shifts in a socio-ecological model of farmland abandonment. *Landscape Ecology* 26, 737–749. <http://dx.doi.org/10.1007/s10980-011-9605-3>
- 16 - **Figueiredo J.** 2010 Tropical Coral Reefs (Appendix 10) in Biodiversity Scenarios: projections of 21<sup>st</sup> century change in biodiversity and associated ecosystem services, a technical report for the Global Biodiversity Outlook 3 (Eds. Leadley, P., Pereira, H.M., Alkemade, R., Fernandez-Manjarrez, J.F., Proenca, V., Scharlemann, J.P.W., Walpole, M.J.). Secretariat of the Convention on Biological Diversity, Montreal. Technical series no. 50, 125-132. <http://www.unep-wcmc.org/medialibrary/2010/10/27/06da6eff/cbd-ts-50-en.pdf>
- 15 - **Figueiredo J.**, van Woesik R., Lin J., Narciso L. 2009. *Artemia franciscana* enrichment model – How to keep them small, rich and alive? *Aquaculture* 294, 212–220. <http://dx.doi.org/10.1016/j.aquaculture.2009.05.007>
- 14 - **Figueiredo J.**, Penha-Lopes G., Lin J., Narciso L. 2008. Productivity and profitability of *Mithraculus forceps* aquaculture. *Aquaculture* 283, 43-49. <http://dx.doi.org/10.1016/j.aquaculture.2008.06.043>
- 13 - **Figueiredo J.**, Narciso L. 2008. Egg volume, energy content, and fatty acid profile of *Maja brachydactyla* (Crustacea: Brachyura: Majidae) during embryogenesis. *Journal of the Marine Biological Association of the United Kingdom* 88(7), 1401-1405. <http://dx.doi.org/10.1017/S0025315408002063>

- 12 - **Figueiredo J.**, Penha-Lopes G., Anto J., Narciso L., Lin J. 2008. Potential fertility and egg development (volume, water, lipid, and fatty acid content) through embryogenesis of *Uca rapax* (Decapoda: Brachyura: Ocypodidae). *Journal of Crustacean Biology* 28(3), 528-533. <http://dx.doi.org/10.1651/07-2937R.1>
- 11 - **Figueiredo J.**, Penha-Lopes G., Anto J., Narciso L., Lin J. 2008. Fecundity, brood loss and egg development through embryogenesis of *Armases cinereum* (Decapoda: Grapsidae). *Marine Biology* 154(2), 287-294. <http://dx.doi.org/10.1007/s00227-008-0922-2>
- 10 - **Figueiredo J.**, Narciso L., Turingan R. and Lin J. 2008. Efficiency of using emerald crabs *Mithraculus sculptus* to control bubble algae *Ventricaria ventricosa* (sin *Valonia ventricosa*) in aquaria habitats. *Journal of the Marine Biological Association of the United Kingdom*, 88(1), 95 – 101. <http://dx.doi.org/10.1017/S0025315408000192>
- 9 - **Figueiredo J.**, Penha-Lopes G., Narciso L., Lin, J. 2008. Effect of starvation during late megalopa stage of *Mithraculus forceps* (Brachyura: Majidae) on larval duration, synchronism of metamorphosis, survival to juvenile, and newly metamorphosed juvenile size. *Aquaculture* 274, 175-180. <http://dx.doi.org/10.1016/j.aquaculture.2007.10.052>
- 8 - Penha-Lopes G., **Figueiredo J.**, Narciso L. 2007. Modelling survival and growth of *Mithraculus forceps*'s larvae and juveniles (A. Milne Edwards, 1875) (Decapoda: Brachyura: Majidae) in aquaculture. *Aquaculture* 264, 285-296. <http://dx.doi.org/10.1016/j.aquaculture.2006.12.019>
- 7 - **Figueiredo J.**, Narciso L. 2006. Productivity improvement of *Lysmata seticaudata* (Risso, 1816) larval rearing protocol through modelling. *Aquaculture* 261, 1249 – 1258. <http://dx.doi.org/10.1016/j.aquaculture.2006.09.003>
- 6 - Penha-Lopes G., Rhyne, A., **Figueiredo J.**, Narciso L., Lin J. 2006. Can larvae produced from stored sperm in the ornamental crab *Mithraculus forceps* (A. Milne Edwards, 1875) (Decapoda: Brachyura: Majidae) be used in aquaculture? *Aquaculture* 257, 282-286. <http://dx.doi.org/10.1016/j.aquaculture.2006.02.065>
- 5 - Calado R., **Figueiredo J.**, Rosa R., Nunes M.L., Narciso L. 2005. Effects of temperature, density and diet on development, survival, settlement synchronism, and fatty acid profile of the ornamental shrimp *Lysmata seticaudata*. *Aquaculture* 245, 221- 237. <http://dx.doi.org/10.1016/j.aquaculture.2004.11.034>
- 4 - Cabral H. N., Marques J., Rego A.L., Catarino A.I., **Figueiredo J.**, Garcia J. 2003. Genetic and morphological variation of *Synaptura lusitanica* Capello, 1868, along the Portuguese coast. *Journal of Sea Research* 50 (2-3), 167-175. [http://dx.doi.org/10.1016/S1385-1101\(03\)00060-1](http://dx.doi.org/10.1016/S1385-1101(03)00060-1)
- 3 - Cabral H.N., Catarino A.I., **Figueiredo J.**, Garcia J., Henriques M.. 2003. Feeding ecology, age, growth and sexual cycle of the Portuguese sole, *Synaptura lusitanica* (Capello, 1868). *Journal of the Marine Biological Association of the United Kingdom*, 83, 613-618. <http://dx.doi.org/10.1017/S0025315403007549h>

## Other Publications

- 2 - **Figueiredo J.** Emerald crabs keep bubble algae under control. *JMBA Global Marine Environment* 7
- 1 - **Figueiredo J.** Productivity improvement of red clinging crab *Mithraculus forceps* through modeling. *World Aquaculture*, 40(3).

## MANUSCRIPTS IN REVIEW/PREPARATION

---

Figueiredo J., Baird A.H., Harii S., Connolly S.R. Ocean warming increases self-recruitment in corals. (under review: *Nature Climate Change*)

Figueiredo J., Thomas, C., Baird A.H., Connolly S.R. Effect of ocean warming on connectivity patterns of corals. (target journal: *Science*)

Figueiredo J., Baird A.H., Harii S., Connolly S.R. Using egg size to predict the impact of climate change on self-recruitment of corals. (target journal: *Ecology Letters*)

## EXTERNAL FUNDING

---

2012	<b>Smart Futures Fellowship</b> (Chief Investigator) Queensland Government and James Cook University	AU\$ 225,000
2012	<b>JSPS Postdoctoral Fellowship for North American and European Researchers (Short-Term)</b> Japan Society for the Promotion of Science	¥ 420,500
2011	<b>Discovery Project</b> (Chief Investigator) Australian Research Council	AU\$ 225,000
2010	<b>Postdoctoral Fellowship</b> Foundation for Science and Technology	€29,290
2009	<b>Postdoctoral Fellowship</b> Foundation of the Faculty of Sciences University of Lisbon	€7,785
2009	<b>Research Scholarship Luiz Saldanha/Ken Tenore</b> Luso-American Foundation and Institute of Marine Research	US\$ 4,200
2005	<b>Ph.D. Scholarship</b> Foundation for Science and Technology	€86,740
2004	<b>Research Scholarship Luiz Saldanha/Ken Tenore</b> Luso-American Foundation and Institute of Marine Research	US\$ 4,200
2003	<b>Honours Project Award</b> Portuguese Education Development Program (PRODEP)	€2,500

## RESEARCH PROJECTS

---

2012-2015 “Maximizing coral reef connectivity and recovery following disturbance: a modeling approach” Queensland Smart State Funds (J. Figueiredo, Chief Investigator)

2011-2013 “Climate change, larval dispersal and patterns of connectivity in coral metapopulations” ARC Discovery Project (A.H. Baird and J. Figueiredo, Chief Investigators)

## TEACHING EXPERIENCE

---

Spring 2013 **Guest Lecturer** in the course *Biology of Reef Corals*.  
James Cook University, Australia (lecturer: Dr. Mia Hoogenboom)

Spring 2008 **Teaching Assistant** and **Guest Lecturer** in the course *Marine Ecology*.  
University of Lisbon, Portugal (lecturer: Prof. Pedro Ré)

Fall 2006 **Guest Lecturer** in the course *Crustacean Aquaculture*.  
Florida Institute of Technology, U.S.A. (lecturer: Prof. Junda Lin)

## STUDENT SUPERVISION

---

2012 **Colleen O’Brien (co-supervisor)**  
M.A.Sc. Marine and Tropical Biology, James Cook University, Australia: *Self-attachment rates in coral fragments: Optimizing active reef restoration*

2014 **Francesca Fourney (principal advisor)**  
M.S. Marine Biology, Nova Southeastern University, U.S.A.: *Human impacts on early post-settlement mortality in corals*

## SUMMARY OF INTERNATIONAL COLLABORATIONS (in the past 3 years)

---

Prof. Sean R. Connolly, James Cook University, Australia

Dr. Andrew H. Baird, James Cook University, Australia

Dr. Johnathan Kool, Geoscience Australia, Australia

Prof. Saki Harii, University of the Ryukyus, Japan

Prof. Henrique Pereira, University of Lisbon, Portugal

Prof. Luís Narciso, University of Lisbon, Portugal

Prof. Junda Lin, Florida Institute of Technology, U.S.A.

Prof. Robert van Woesik, Florida Institute of Technology, U.S.A.

Dr. Andrew Baumann, National University of Singapore, Singapore

Prof. James Guest, National University of Singapore, Singapore

## PROFESSIONAL SERVICE

---

**Faculty of 1000** Associate Faculty Member (2011 – present)

**Reviewer for:** Aquaculture, Aquaculture Research, Coral Reefs, Ecological Modelling, Environmental Pollution, Functional Ecology, Invertebrate Reproduction and Development, Journal of Crustacean Biology, Journal of Experimental Marine Biology and Ecology, Journal of the Marine Biological Association of the United Kingdom, Journal of the World Aquaculture Society, Lipids, Marine Biology, and The American Naturalist

**Australian Research Council**, Reviewer of Discovery Projects and Early-Career Research Awards (2011, 2012, 2013)

**Seminar Organizer** at the ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia (2011)

**Elected Member of the Scientific Commission** of the Guia Marine Laboratory, University of Lisbon (2004-2008)

## RECENT PROFESSIONAL DEVELOPMENT

---

**Media Training Workshop** (2012) Townsville, Australia (E-Connect)

**Facilitation Skills Workshop** (2012) Townsville, Australia (Mr. Les Robinson)

**Ph.D. Supervisor Training** (2012) James Cook University, Australia (Prof. Helene Marsh)

**Theoretical Ecology Course** (2010) University of Lisbon, Portugal (Prof. Henrique Pereira)

**Fitting Empirical Data to Numerical Models: Uncertainty Analysis (Bayesian Statistics) Workshop** (2008) University of Coimbra, Portugal (Prof. Chris Damgaard)

**Ecological Modelling (STELLA) Workshop** (2007) University of Coimbra, Portugal (Prof. Sven Erik Jørgensen and Prof. Søren Nors Nielsen)

**Biogeochemical processes and fish dynamics in food web models for end-to-end conceptualization of marine ecosystems. Theory and use of ECOPATH with ECOSIM Workshop** (2007) Trieste, Italy (Prof. Villy Christensen)

**An Introduction to Biological and Ecological Modelling (MATLAB) Course** (2006) Florida Institute of Technology, Melbourne, U.S.A. (Prof. Robert van Woesik)

## PRESENTATIONS

---

### Invited presentations

- 2012 Guest Speaker **University of the Ryukyus, Japan**  
“Current and future patterns of coral larval dispersal and connectivity”
- 2011 Guest Speaker **Academia Sinica, Taiwan**  
“Effect of temperature on settlement competence of coral larvae – How will climate change affect larval dispersal”
- 2011 Guest Speaker **University of the Ryukyus, Japan**  
“Effect of temperature on settlement competence of coral larvae – How will climate change affect larval dispersal”
- 2008 Guest Speaker **Florida Institute of Technology, U.S.A.**  
“Development and improvement of aquaculture protocols through fatty acid analysis and modeling”

### Conferences

- 97<sup>th</sup> Ecological Society of America Meeting (2012), Portland, U.S.A.  
**Figueiredo J.**, Baird A.H., Harii S., Connolly S.R. Impact of climate change on the potential for self-recruitment in reef corals. (oral presentation)
- 10<sup>th</sup> International Larval Biology Symposium (2012), San Francisco, U.S.A.  
**Figueiredo J.**, Baird A.H., Harii S., Connolly S.R. Potential for localized recruitment in reef corals – now and under climate change. (oral presentation)
- International Coral Reef Symposium (2012), Cairns, Australia  
**Figueiredo J.**, Baird A.H., Harii S., Connolly S.R. The effects of global warming on patterns of connectivity in corals. (oral presentation)
- 93<sup>th</sup> Ecological Society of America Meeting (2008), Milwaukee, U.S.A.  
**Figueiredo J.**, Penha-Lopes G., Lin J., Narciso L. 2008. Productivity and profitability model for of *Mithraculus forceps* aquaculture (poster presentation)
- 6<sup>th</sup> European Conference of Ecological Modelling (2007), Trieste, Italy (attendance)
- World Aquaculture (2007), San Antonio, U.S.A.  
**Figueiredo J.**, Penha-Lopes G., Narciso L., Lin J. Aquaculture protocol improvement through modelling (oral presentation)  
Penha-Lopes G., Rhyne A.L., **Figueiredo J.**, Lin J., Narciso L. Can larvae produced from stored sperm in the ornamental crab *Mithraculus forceps* be used in aquaculture? (poster presentation)  
Penha-Lopes G., **Figueiredo J.**, Narciso L. Modelling survival and growth of *Mithraculus forceps*'s larvae and juveniles in aquaculture (poster presentation)
- Aquaculture America (2006) and Marine Ornamentals (2006), Las Vegas, U.S.A.  
**Figueiredo J.**, Turingan R., Narciso L., Lin J. How efficient are emerald crabs *Mithraculus sculptus* as bubble algae *Valonia* sp. controllers? (oral presentation)

The Sea and Health Sciences (2005), Costa da Caparica, Portugal

**Figueiredo, J.** Aquaculture, a challenge for this century (oral presentation by invitation)

World Aquaculture (2004) and Marine Ornamentals (2004), Waikiki, U.S.A.

Calado, R., **Figueiredo, J.**, Rosa, R., Pestana, L., Nunes, M. L., Narciso, L. Effect of temperature, diet and rearing density on the larviculture of *Lysmata seticaudata* (poster presentation)

5<sup>th</sup> International Symposium on Flatfish Ecology (2002), Isle of Man, U. K.

Cabral H. N., Marques J., Rego A. L., Catarino A. I., **Figueiredo J.**, Garcia J. Population differentiation of *Synaptura lusitanica* Capello, 1868, along the Portuguese coast. (oral presentation by H.N. Cabral)

## **OTHER QUALIFICATIONS**

---

PADI Rescue Diver and First-Aid

Computer programming: R, Maxima and Matlab

## **LANGUAGES**

---

<b>Portuguese</b>	Native
<b>English</b>	Fluent
<b>French</b>	Competent
<b>Spanish</b>	Competent

## **CITIZENSHIP AND RESIDENCE STATUS**

---

<b>Portugal</b>	Citizen
<b>U.S.A.</b>	Permanent Resident