

Nathalie Marquet

Post-doctoral researcher in CCMAR – Center of Marine Sciences
Universidade do Algarve, Faro, Portugal

Personal details

Nationality: Belgian
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Education

- 2013 – 2017: **Ph.D candidate in Marine Ecology**
Center of Marine Sciences (CCMAR), Universidade do Algarve, Portugal
- 2009 – 2011: **MSc in Marine Biodiversity and Conservation (Great Distinction)**
Ghent University, Belgium (1st year); University of Oviedo, Spain (2nd year) – Erasmus Mundus
- 2008 - 2010: **High school teaching certificate in Biology and Chemistry (Distinction)**
Free University of Brussels
- 2005 – 2007: **MSc in Biological Sciences, Specialty: Zoology (Great Distinction)**
Free University of Brussels.
- 2003 – 2005: **BSc in Biological Sciences**
Free University of Brussels

Research experience

December 2017 – Present: **Post-doctoral researcher | CCMAR, Universidade do Algarve, Portugal**

Project: Intraspecific chemical communication for aggression in the Siamese fighting fish.
Supervisors: Prof. AV Canário, Dr. PC Hubbard.

March 2013 – November 2017: **Ph.D candidate | CCMAR, Universidade do Algarve, Portugal**

Thesis: Study of the reproductive biology and chemical communication of sea cucumbers (*Holothuria arguinensis* and *H. mammata*). Supervisors: Prof. AV Canário, Dr. PC Hubbard, Dr. M González-Wangüemert

- Study of the reproductive cycles in sea cucumbers (histology, gonad index, environmental parameters, first sexual maturity).

- Development of bioassays to determine whether and how sea cucumbers communicate during reproduction, and preliminary identification of putative pheromones through HPLC and mass spectrometry.
- Characterization of the sensory structures in sea cucumbers through histology, histochemistry and immunohistochemistry.
- Characterization of the chemosensory G-protein-coupled receptors in target tissues with a potential role in chemosensation (transcriptome analysis, RNA sequencing, BLAST searches, phylogeny).

April 2012 – September 2012: **Research assistant | University of Mons, Laboratory of biology of marine organisms and biomimicry, Belgium.**

Project: Evaluation of the ecological role of sea cucumbers: effects of *Holothuria scabra* in tropical areas. Supervisor: Dr I Eeckhaut

January 2011 – June 2011: **MSc student | CCMAR, Universidade do Algarve, Portugal**

Thesis: Endolithic parasitism of the intertidal mussel *Mytilus galloprovincialis* in its native and invaded ranges. Supervisors: Dr. GI Zardi, Dr. KR Nicastro

- Assessment of the degree of endolithic infestation and endolith-induced mortality of *M. galloprovincialis* in native (Portugal) and invaded (South Africa) ranges over small (intertidal) and large (latitudinal) spatial scales.
- Identification of endolithic microorganisms from mussel shells.
- Measurement of the sub-lethal effects (shell strength, shell attachment, condition index and cover by epibiotic barnacles) associated with endolithic parasitism of *M. galloprovincialis* in its native range.

June 2010: **Trainee | Royal Belgian Institute of Natural Sciences**

Project: ESPER (Esponjas del Peru) - taxonomy of the sponge fauna along the Peruvian coast. Supervisor: Dr. P Willenz.

- Identification of sponges.
- Use of scanning electron microscope.
- Management of databases.

February 2009 – August 2009: **Research assistant | University of Azores, Department of Biology, Portugal (Eurodyssée Programme)**

Project: Evaluation of Sites of Community Importance (SCI) for the practice of tourism related to nature. Supervisor: Dr M da Anunciação Mateus Ventura

- Identification of marine and terrestrial trails
- In situ survey of cultural and landscape values of each SCI
- Identification of organisms
- Creation of didactic materials

January 2007 – September 2007: **MSc student | Laboratory of marine biology, Free University of Brussels**

Project: BIANZO – biodiversity of three representative groups of the Antarctic Zoobenthos.

Thesis: Fluctuations *in natura* of feeding behavior in echinids Echinacea. Supervisor: Prof. C de Ridder

- Determination of the diet of two species of sea urchins, *Paracentrotus lividus* and *Sterechinus antarcticus*, through three analyses:
 - 1) Genetic: PCR, cloning, sequencing, phylogenetic trees
 - 2) Isotopic: $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$
 - 3) Microscopy: photonic and electronic microscopes

Additional courses

February 2010: **Marine Data Management**, International Oceanographic Data and Information Exchange (IODE, UNESCO), Ghent University.

June 2008: **Infocycle (Belgian Technical Cooperation)** – International cooperation and problematic of North/South relations, Brussels.

August 2006: **Program of intensive courses (PIC) Erasmus “Marine Biodiversity”**, zoology and marine ecology at the Biological Station of Roscoff, University Pierre and Marie Curie (France).

Publications

Peer-reviewed international journals

Marquet N., Hubbard P.C., Da Silva J.P., Afonso J. and Canário A.V.M. (2018). Chemicals released by male sea cucumber mediate aggregation and spawning behaviors. *Sci Reports* 8: 239.

Marquet N., Conand C., Power D.M.P., Canário A.V.M. and González-Wangüemert M. (2017). Sea cucumbers, *Holothuria arguinensis* and *H. mammata*, from the southern Iberian Peninsula: variations in reproductive activity between populations from different habitats. *Fish Res* 191: 120-130.

Marquet N., Nicastró K.R., Gektidis M., McQuaid C.D., Pearson A.P., Serrão E.A. and Zardi G.I. (2012). Comparison of phototrophic shell-degrading endoliths in invasive and native populations of the intertidal mussel *Mytilus galloprovincialis*. *Biol Invasion*, 15: 1253-1272.

Technical reports

Ventura M.A., Queiroz R.E., Resendes R., Marquet N. and Melo J.A. (2010) Caracterização e avaliação dos percursos pedestres da ilha de Santa Maria. XIV Expedição Científica do Departamento de Biologia, Universidade dos Açores, 36 pp. 167-182. <http://hdl.handle.net/10400.3/675>.

Workshops and conferences

Marquet N., Power, D.M., Hubbard, P.C. and Canário V.M. Mapping of the chemosensory system in *Holothuria arguinensis*. Mares Conference – Marine Ecosystems Health and Conservation, February 1-5, 2016, Olhão, Portugal (poster).

Marquet N., Conand C., Power D.M., Canário V.M. and González-Wangüemert. The reproductive cycle of the sea cucumber *Holothuria arguinensis* in the Algarve (Southern

Portugal). Mares Conference – Marine Ecosystems Health and Conservation, November 17-21, 2014, Olhão, Portugal (poster).

Marquet N., Conand C., Power D.M., Canário V.M. and González-Wangüemert. Reproductive cycle of the sea cucumber *Holothuria arguinensis* in the Algarve (Southern Portugal): preliminary results. Workshop “Sea cucumber: the new resource for a hungry fishery”, May 2014, Faro, Portugal (oral presentation).

Personal skills

Language skills

French: native language
English: read, written and spoken fluently
Dutch: upper secondary school level
Portuguese: pre-intermediate level
Spanish: notions

Computer skills

Microsoft:	Word, Excel, PowerPoint
Computer Graphics:	Paint, Photoshop, Image J, Inkscape
Statistical Analysis:	GraphPad InStat, Statistica, SPSS
Sequencing:	BioEdit, MEGA5, AliView, ClustalW
Phylogeny:	Phylip, FigTree, ATGC Bioinformatic Platform
Geographic Information System:	ArcGIS, SAGA GIS
Oceanographic Analysis:	Ocean Data View

Research interests

Marine biodiversity and conservation, Aquaculture and restocking of marine species, Impacts of climate change, Physiology and biology of intertidal organisms, Chemical communication, Marine Parasites.

Additional information

Travels

Daily life: Congo-Brazzaville, Burundi, Ivory Coast, Azores, Spain, Portugal
Tourism: Ghana, Kenya, Madagascar, Ireland, France, Congo RDC, Mauritius

Activity

Swimming, Piano, Hiking