

Sandra Erdmann, M.Sc.

**Marine Environmental Scientist
Marine Consulting
Molecular Biologist
International Research and Teaching**

Personal Data:

M.Sc. Sandra Erdmann
15 Banyan Court, Annandale
Townsville, QLD, 4814

sandra.erdmann@my.jcu.edu.au
www.linkedin.com/in/sandra-erdmann
Professional Languages:
English, German, Italian

Competencies and Skills:

- Designing research experiments
- Sampling of aquatic systems and marine surveys (e.g. via scuba diving)
- Laboratory skills, including DNA extraction and gel electrophoresis
- Statistical and bioinformatical analysis of ecological and genomic datasets
- Scientific writing and presentation
- Project management

Professional Experience:

- Jun 2018 – Nov 2018 **Scientific Project Assistant** at the AIMS (Australian Institute of Marine Science) in Cape Ferguson, Australia
- Picture analysis with ImageJ to investigate sedimentation effects on coral recruits of the scleractinia *Acropora millepora*
- Settlement assays on coral larvae, such as *Acropora millpora* and *Acropora tenuis* as well as assistance during coral spawning period
- Jul 2018 – Aug 2018 **Scientific Project Assistant** at the JCU (James Cook University) in Townsville, Australia
- Analysis of tissue samples and the surrounding water column exposed to fluorescent microplastic beads of the soft coral *Lobophytum spec.* as well as the sponge species *Carteriospongia spec.*
- Jan 2015 – Apr 2015 **Scientific Assistant** at the ZMT (Leibniz Centre for Tropical Marine Research) in Bremen, Germany
- Analysis of nutrients and TEP samples, contribution to publications on marine microbiont species
- Sep 2013 – Nov 2013 **Student Trainee** at the KDM (German Marine Research Consortium) in Brussels, Belgium
- Research Project on “Ocean Observation Systems” and Marine Microplastics
- May 2013 – May 2013 **Student Supervisor** at the IfMB (Institute for Marine Biology) on the Island of Giglio, Italy
- Supervision of 20 students establishing research projects on behalf of the University of Oldenburg, scientific diving
- Mar 2010 – May 2010 **Teaching Assistant and Scientific Diver** at the IfMB (Institute for Marine Biology) on the Island of Giglio, Italy
- Assisting German, English and Italian marine biology courses, scientific diving, responsibility for aquariums, snorkeling and laboratory equipment

Employment History:

Since Jan 2020 **Research Officer** at C₂O Consulting based in Cairns, Australia

- Aug 2018 – Dec 2019

 - Project management, data analysis, technical report writing, workshop preparation, managing databases, creating graphical outputs in QGIS

Research Assistant Positions (casual) at the JCU (James Cook University) in Townsville, Australia

 - eDNA extractions using routine protocols and perform qPCR diagnostic assays for the Global Sawfish Search project
 - Scientific assistance for field operations around Magnetic Island assessing coral restoration in inshore coral reefs by macro-algal removal
 - RNA extractions from the tentacles of the abalone species *Haliotis asinina* in a PC2 Laboratory
 - DNA extractions from tissue samples of the coral *Acropora tenuis* in a PC2 Laboratory, preparations of DNA for whole genome sequencing as well as assistance with associated logistics
- Apr 2018 – May 2018
Sep 2017 – Oct 2017
May 2012 – Jul 2012
Apr 2011 – Oct 2011

Marine Scientist at the IfMB (Institute for Marine Biology) on the Island of Giglio, Italy

 - Organization and institute management assistance, personal management and introductory training of course assistants, teacher and leader of German, English and Italian marine biology courses for schools and student groups, assistance to universities, organising and guiding scientific diving activities including boat trips, responsibility for marine organisms in over 20 aquariums, maintenance of laboratory, diving and technical equipment
- Nov 2016 – Apr 2018

Lifeguard in the Sports and Swimming Club of Duisburg (indoor swimming facility) in Duisburg, Germany

 - Monitoring, control and adjustment of technical machinery and water quality, decision making, self-responsibility of staff and over 150 members each day, rescue and providing first aid, leading professional sports training, service
 - Redemption of study loans
- June 2016 – Oct 2016

Lifeguard in the Grugabad Essen (outdoor swimming facility) in Essen, Germany

 - Supervision and responsibility of up to 124.000 guests per year and 8.000 per day, rescue, providing first aid and service
- Nov 2015 – Mar 2016

English Teacher at the ABC Bilingual School in San Salvador, El Salvador and at the European Academy (part-time) in San Salvador, El Salvador
- Dec 2012 – Oct 2015

Lifeguard in the OLantis (indoor and outdoor swimming facility) in Oldenburg, Germany

 - Supervision and responsibility of up to 55.000 guests per year, rescue, providing first aid, monitoring of water quality and service

Education:

Since Oct 2020

Doctor of Philosophy (Natural and Physical Sciences; Ecology and Evolution/Marine Science) at the James Cook University in Townsville
James Cook University in Queensland is ranked in the top 2% of universities in the Academic Ranking of World Universities

Title of Thesis: “Genetic diversity and connectivity of *Acropora tenuis* populations at Magnetic Island, Australia”

Oct 2012 – Nov 2015

Master of Science (Marine Environmental Science) at the Carl-von-Ossietsky University of Oldenburg, Germany (High Distinction)

Took place at the interdisciplinary and research-oriented ICBM (Institute for Chemistry and Biology of the Marine Environment)

- Thesis on “Carbonic anhydrase expression in *Acropora millepora* at variable pCO₂ and nutrient levels using RT-qPCR“

Feb 2014 – Sep 2014

Abroad Semester (Marine Biology and Ecology) at the JCU (James Cook University) in Townsville, Australia

- Oct 2011 – Sep 2012 - Further education in coral reef ecology, fish ecology and evolution and biological conservation
Academic Master Year (Marine Biology) at the University of Pisa, Italy
Ranked the best university of Italy in 2010 by the Academic Ranking of World Universities and in 2011 by the European Research Ranking
 - Profound knowledge on marine biology, biological, chemical and physical oceanography and statistics
- Oct 2007 – Mar 2011 **Bachelor of Science (Biology)** at the HHU (Heinrich-Heine-University) in Düsseldorf, Germany
Received the grant for the Cluster of Excellence CEPLAS in the Excellence Initiative of the German Federal and State Governments
 - Thesis on "Control and treatment of fish parasites in freshwater aquaculture"
- Apr 2006 – May 2006 **Internship** at the University Hospital of Münster in the Department of Neurobiology in Münster, Germany
 - Report on "Experimental research on apoplectic strokes using the example of PCR"

Scientific Research and Publications:

- **Erdmann, S., Johnson, J. E., Abom, R., Waterhouse, J., and Westcott, D. A. (2021)** „Innovations in Crown-of-Thorns Starfish control on the Great Barrier Reef: A Synthesis of NESP Tropical Water Quality Hub research”, Report to the National Environmental Science Program. Reef and Rainforest Research Centre Limited, Cairns (63pp.).
- **González-Murcia, S. O., Erdmann, S. and Alvarado-Larios, R. (2020)** “Is this rock pool suitable habitat? Fish diversity in intertidal rock pools of El Zonte, El Salvador”, *Revista Mexicana de Biodiversidad*
- **Brodie, J., Johnson, J.E., Waterhouse, J., and Erdmann, S. (2019)** “Wastewater Pollution and Coral Reefs: Supporting Science.” C2O (Coasts Climate Oceans)
- **Master Thesis** titled “Carbonic anhydrase expression in *Acropora millepora* at variable pCO₂ and nutrient levels using RT-qPCR“ (publication in process)
- **Bachelor Thesis** titled “Control and treatment of fish parasites in freshwater aquaculture“

Further Skills, Memberships and Qualifications:

- **Language skills:** German (native), English and Italian (fluent), French and Spanish (basic)
- Experienced **Dive Master Certification** with about 250 dives (including night, beach, boat dives and low visibility)
- **Australian Boat License (RMDL – Recreational Marine Driver’s License)**
- **Australian Radio License (LROCP - Long Range Operator Certificate of Proficiency)**
- **German Paramedic and Lifeguarding Certification**
- **German Certification as a Swimming Teacher (Level C)**
- **Queenslander Driver License (Class C)**
-

Personal Interests:

- Sports (swimming, underwater hockey, diving, salsa, volleyball)
- Music (guitar, keyboard, singing)
- Nature & Crafting (gardening, woodwork, DIY crafting)

Sandra Erdmann

Townsville, 29th April 2024

Sandra Erdmann