

# CURRICULUM VITAE

## DR. DANIELA CECCARELLI

**MARINE ECOLOGY CONSULTANT**  
ABN 22 755 762 146

**Citizenship:** Australian / Swiss / Italian

**Qualifications:** PhD in Marine Ecology, James Cook University of North Queensland, Townsville

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**Affiliations:** IUCN World Commission on Protected Areas  
International Society for Reef Studies  
Australian Marine Sciences Association  
ARC Centre of Excellence for Coral Reef Studies (Adjunct Senior Researcher)  
Australian Coral Reef Society  
Sea Research - <http://searesearch.com.au/about.html>  
Alofa Tuvalu - <http://www.alofatuvalu.tv/>  
OEMG-Global - <http://oemg-global.com/about.html>  
Coral Sea Foundation - <http://coralseafoundation.net/>  
Trojan Diving Services - <http://trojandiving.com/>  
SAMERS - <http://ww12.samesgroup.com/>  
Reef Ecologic - <http://www.reefecologic.org/>  
O2 Marine - <https://o2marine.com.au/>  
GHD Australia - <https://www.ghd.com/en-au/index.aspx>  
Schmidt Ocean Institute - <https://schmidtocean.org/cruise/visioning-the-coral-sea-marine-park/>

## CAPABILITY STATEMENT

Dr. Daniela Ceccarelli is an independent marine ecology consultant with extensive training and experience in tropical marine ecosystems, specializing in field surveys of coral reef fishes and invertebrates. She is an excellent project manager and team member of field teams and discussion panels. Her fieldwork has taken her to Tonga, Tuvalu, the Marshall Islands, the Great Barrier Reef, Papua New Guinea, and to remote reefs of northwest WA and the Coral Sea, where she has worked closely with local communities, management agencies and fellow scientists. For the last 10 years she has worked as a consultant for government, non-governmental organisations, industry, education and research institutions on diverse projects requiring field surveys, monitoring programs, data analysis, reporting, teaching, literature reviews and management recommendations. She also continues to collaborate with colleagues in academic institutions to further her publication record and her research interests on coral reefs. Daniela's research and review projects have included studies on coral reef fish and invertebrates, seagrass beds and mangroves, and have required field identification skills for fishes, benthic organisms and invertebrates, and a good understanding of topics such as commercial shipping impacts, the effects of marine debris, the importance of apex predators, and the physical and biological attributes of large marine regions such as the Coral Sea. Daniela holds an ADAS Part 1 Commercial Diver certification with >1,800 hours logged diving

## PROFESSIONAL HISTORY

### January 2010 to present: Marine Ecology Consultant

#### Projects Summary

#### **Marine Protected Area Data Analyst and Writer, USAID Sustainable Ecosystem Advanced (SEA) Project, Indonesia (September 2020 – present)**

- Data management, analysis and interpretation of large, complex coral reef benthic and fish dataset collected by multiple NGOs in 14 new MPAs in Maluku, North Maluku and West Papua Provinces, Indonesia
- Liaison with government, NGOs and scientists
- Report writing
- Preparation of peer-reviewed publication

#### **Scientific writer for the Cook Islands Ridge to Reef Program (June 2020 – present)**

- Desktop review of designated bioregions and Special, Unique Marine Areas and marine bioregions to assist with marine spatial planning in the Cook Islands
- Liaison with government, NGOs, scientists and planners
- Workshops and direct consultation
- Data and referencing management
- Report production

#### **Research Scientist for Australian Institute of Marine Science - Long Term Monitoring Program, Great Barrier Reef (May 2020 - present)**

- Field surveys of reef fishes
- Manta tow surveys of reef condition
- Data entry and reporting
- Review of 2020 Marine Monitoring Program report

#### **Research Scientist for AIMS – NESP Project 3.3.1 – Scientific writer: Quantifying the linkages between water quality and the thermal tolerance of GBR coral reefs (March 2020 – present)**

- Review of existing information
- Preparation of final report
- Collation and revision of collaborator contributions
- Liaison with collaborators
- Report writing and collaboration on peer-reviewed publication

- <https://nesptropical.edu.au/index.php/round-3-projects/project-3-3-1/>

**Scientific Writer for IUCN's Marine Spatial Planning Program in Samoa (February 2020 – present)**

- Desktop review of designated bioregions and Special, Unique Marine Areas and marine bioregions to assist with marine spatial planning in Samoa
- Liaison with IUCN team
- Data and referencing management
- Report production

**Marine Ecologist for O2 Marine (January 2019 – present)**

- Coral reef ecologist for Port of Townsville Dredging Program Coral Monitoring Project
- Review of proposal and design of field surveys
- Field surveys of benthic communities, including genus-level corals, using photography and point intersect transects
- Establishing and maintaining permanent transects
- Data analysis and interpretation, contribution to report writing

**Research Scientist for AIMS and TropWater - Reef Restoration and Adaptation Program: (March 2018 – present)**

- Review of existing technologies/ pilots and new initiatives
- Editorial assistance
- Design and execution of fieldwork
- Liaison with international collaborators
- Presentation of ideas and project results
- Report writing and collaboration on peer-reviewed publication
- Workshop organisation and participation

**Reviewer of the 2020 Marae Moana Outlook Report for the Cook Islands Government (May – July 2020)**

- Provision of an expert review of the Outlook Report
- Collaboration with review team and Ridge to Reef Project team
- Liaison with scientists, government agencies and co-reviewers

**Researcher for 3-year program of ecological monitoring of Coral Sea reefs for the Department of the Environment and Energy, ARC Centre of Excellence for Coral Reef Studies (April 2018 – April 2020)**

- Field monitoring surveys of reef fishes to species level on Coral Sea and outer GBR reefs
- Logistics and data collection
- Data analysis
- Reporting and publications

**Postdoctoral Research Fellow at Southern Cross University (September 2019 – March 2020)**

- Invertebrate fisheries projects with resident marine ecologists led by Dr. Steven Purcell
- Searches, synthesis and summary of primary literature
- Statistical analyses and interpretation
- Preparation and submission of peer-reviewed manuscripts

**Isobel Bennett Marine Biology 2020 Fellowship to survey fish and corals on Lizard Island, Great Barrier Reef, following severe disturbances in 2015-2017 (January – March 2020)**

- Field survey of fish communities on reefs around Lizard Island
- Planning and field logistics
- Contribution to Lizard Island blog
- Data analysis
- Production of publications

**Reporting on ecological values, patterns and processes in Commonwealth Marine Reserves, for Reef Life Survey (September 2019 – January 2020)**

- Data interpretation
- Preparation of multiple survey reports to the Federal Department of the Environment

**Researcher for subtropical reef surveys for the University of Leeds, UK (September 2019)**

- Underwater visual surveys – fish species identification, counts and size
- Field logistics
- Data handling

**Project Researcher for RIMReP GBR monitoring project, ARC Centre of Excellence for Coral Reef Studies (August 2016 – September 2019)**

- Field monitoring surveys of coral reef fishes on inshore fringing reefs of the GBR (Palm Islands, Magnetic Island, Whitsunday Islands, Keppel Islands) to assess effects of Marine Protected Areas
- Field logistics and data collection
- Data analysis
- Report writing
- Production of publications

**Surveys of Ashmore Reef Marine Park as part of a CSIRO team reporting to Parks Australia (June 2019)**

- Field surveys of coral reef fish to species level, including size
- Biodiversity swims capturing all sighted fish species for species list compilation
- Identification and visual counts of macro-invertebrates
- Photo-transects for benthic community assessment
- Data entry

**Reporting on ecological values, patterns and processes in Commonwealth Marine Reserves, for Reef Life Survey (August 2018 – April 2019)**

- Digitisation of benthic photo quadrats (benthic identification)
- Data analysis
- Preparation of multiple survey reports to the Federal Department of the Environment
- Collaboration with James Cook University on coral reef survey methods report

**Scientific Writer for the Government of Niue for the Marine Bioregions of Niue project (November 2018 – April 2019)**

- Preparation of “Marine Bioregions of Niue” report.

**Scientific Writer for IUCN’s Marine and Coastal Biodiversity Management in Pacific Island Countries (March 2017 – November 2018)**

- Several writing projects towards the following goals:
  - The economic value of marine and coastal ecosystem services is considered in national development planning
  - An Exclusive Economic Zone-wide spatial planning framework that takes into account the results of regional ecosystem-based workshops and provides the basis for aligning national marine and coastal protected area systems with the requirements of ecosystem conservation, allowing further expansion of these systems.
  - Best practices for the management of marine protected areas, including payment for environmental services, and the resulting benefits, are demonstrated at selected sites.
  - Tried and tested concepts and instruments for the sustainable management of marine and coastal biodiversity are disseminated regionally and internationally.

**Coordinator of information review on Reef Restoration through Macroalgal removal, for AIMS (June 2016 – August 2018)**

- Participation in meetings and discussions on the prospect of reef restoration on the Great Barrier Reef
- Literature review and knowledge gap identification
- Publication of peer-reviewed paper
- Methods development

- Collaboration with multiple agencies and stakeholders

**Researcher for historical analysis of Coral Sea data, ARC Centre of Excellence for Coral Reef Studies (March - May 2018)**

- Collection and collation of benthic and fish community data for the Coral Sea, 1984 to present
- Data analysis and interpretation
- Manuscript preparation

**Coral Reef Biodiversity Adviser to Tongan Government for Climate Resilience Sector Project, funded by the Asian Development Bank (April 2016 – March 2018)**

- Advice and collaboration on establishment of Special Management Areas in the Vava'u archipelago
- Baseline coral reef survey of fish, macroinvertebrate and benthic communities
- Literature review on Vava'u reefs
- Development of methodology and indicator species
- Extensive field logistics
- Design and prepare training material
- Training of survey team
- Extensive liaison with government agencies, NGOs and communities
- Data analysis, interpretation and reporting

**Coral Sea and Great Barrier Reef bleaching survey results for Reef Life Survey (April – December 2017)**

- Digitisation of benthic photo quadrats (benthic identification)
- Data analysis

**Research scientist / Scientific writer for Southern Cross University (April – November 2017)**

- Liaison with resident marine ecologists led by Dr. Steven Purcell
- Data analysis
- Preparation of manuscripts for publication.

**Reporting on ecological values, patterns and processes across the Commonwealth Marine Reserve Network, for Reef Life Survey (June 2016 – August 2017)**

- Digitisation of benthic photo quadrats (benthic identification)
- Data analysis
- Preparation of multiple survey reports to the Federal Department of the Environment

**Research Scientist for IUCN report on Tonga's Special and Unique Marine Areas (SUMA) (February – June 2017)**

- Desktop review of designated SUMAs to assist with marine spatial planning
- Liaison with IUCN team
- Data and referencing management
- Report production

**Isobel Bennett Marine Biology 2017 Fellowship to survey fish and corals on Lizard Island, Great Barrier Reef, following severe disturbances in 2015-2016 (January - February 2017)**

- Field survey of fish communities on reefs around Lizard Island
- Planning and field logistics
- Contribution to Lizard Island blog
- Data analysis
- Production of publications

**Coral Reef Expert for teaching and training AUIP students for the pilot Reef Restoration Project, Magnetic Island, for Reef Ecologic (May – June 2016)**

- Assistance and lecturing to American University students on sustainability and coral reef ecology
- Conducting fieldwork on macroalgal removal and Reef Health and Impact Surveys (RHIS)
- Leading and assisting students in field surveys

**North Commonwealth Marine Reserve report for Reef Life Survey (January 2016 – present)**

- Digitisation of benthic photo quadrats (benthic identification)
- Data analysis
- Preparation of survey report to the Federal Department of the Environment

**Project Researcher for NESP- funded survey of the Keppel Islands, ARC Centre of Excellence for Coral Reef Studies (August 2015 – March 2016)**

- Field monitoring surveys of reef fish and benthic communities on inshore fringing reefs of the Keppel Islands to assess effects of Marine Protected Areas
- Logistics and data collection
- Data analysis
- Report writing
- Production of publications

**Marine Ecologist for Brighton Grammar Sea Change Program for ReefEcotours, Lizard Island Research Station (June 2015)**

- Lecturer, snorkelling guide and project supervisor for Year 9 student group.

**Isobel Bennett Marine Biology 2015 Fellowship to survey fish and corals on Lizard Island, Great Barrier Reef, following severe tropical cyclone Ita in April 2014 (January-August 2015)**

- Field survey of fish communities on reefs around Lizard Island
- Planning and field logistics
- Contribution to Lizard Island blog
- Data analysis
- Production of publications

**Project Researcher for NERP-funded GBR monitoring project, ARC Centre of Excellence for Coral Reef Studies (July 2010 – December 2014)**

- Field monitoring surveys of reef fish and benthic communities on inshore fringing reefs of the GBR (Palm Islands, Magnetic Island, Whitsunday Islands, Keppel Islands) to assess effects of Marine Protected Areas
- Logistics and data collection
- Data analysis
- Report writing
- Production of publications

**Shark and fish surveys on reefs of the Republic of the Marshall Islands for University of Queensland (July 2014)**

- Field logistics and preparation
- UVC surveys of sharks and large fishes using long transects
- Data analysis and reporting

**Coral Sea survey report for Reef Life Survey (May-December 2014)**

- Digitisation of benthic photo quadrats (benthic identification)
- Data analysis
- Preparation of survey report to the Federal Department of the Environment

**Field Surveys of coral trout populations of the southern GBR and Lizard Island (May-June 2014)**

- Field survey of three reefs in the Hydrographer's Passage Area and surrounding Lizard Island of the GBR with Drs Tony and Avril Ayling
- Rapid assessment of benthic cover

**Coral Sea article for The Conversation or similar media outlet, for CSIRO (May-June 2014)**

- Popular article about the importance of the Coral Sea

**Review of sedimentation / erosion impacts to coral reefs, for Sandrine Job (New Caledonia) (April – November 2014)**

- Literature review
- Assessing monitoring options and indicators
- Recommending monitoring protocols

**Contribution to Biodiversity chapter of Climate Change Adaptation Report, for National Climate Change Adaptation Facility (April-May 2014)**

- Literature review
- Data compilation
- Editorial and bibliography

**Data summary and editorial assistance for major review on Tropical Marginal Seas, and lead author on a major review on the Coral Sea, by CSIRO – (November 2011 – November 2013)**

- Compilation of spreadsheet and EndNote library of all available literature on the Coral Sea (Australian, Papua New Guinea, Solomons, Vanuatu and New Caledonia EEZs)
- Summary of research trends in space and time
- Editorial assistance to lead author of major AIMS-CSIRO review on Tropical Marginal Seas, submitted to Annual Reviews of Marine Science
- Lead author on multi-national review team to prepare a peer-reviewed publication on the Coral Sea

**Coral reef surveys pre- and post-dredging of Mackay Harbour through Sea Research (July - September 2013)**

- Assistance with field surveys (Photo transects and sedimentation assessment)

**Coral reef surveys and reporting on potential impacts of dredge spoil dumping for Gladstone Port Corporation Pty Ltd through Sea Research (June 2012, August 2013)**

- Logistics, sampling design and fieldwork
- Analysis and reporting on the condition of reefs in Impact and Control Sites

**Marine Ecologist for Odyssey Travel's Australian Museum Members group for ReefEcotours, Lizard Island Research Station (August 2013)**

- Lecturer, snorkelling guide and on-site coordinator for senior Australian Museum Members group

**Invertebrate survey to test new field methods at Ashmore Reef aboard the Ashmore Guardian by the ARC Centre of Excellence for Coral Reef Studies for DSEWPaC – (March – April 2013)**

- Team leader for field survey; logistics and organisation
- Comment on report detailing new methodology
- Implementation of methodology
- Liaising with Customs crew on Ashmore Guardian
- Data preparation and report writing

**Write research chapter of Pew Environment Group submission to the Australian Government on the management plan of the newly declared Coral Sea Marine Reserve (December 2012)**

- Synthesis of existing information and knowledge gaps
- Preparation of research protocols and budget
- Identifying monitoring targets for all Coral Sea habitats

**Baseline study for EIA of Fitzroy Terminal Project, Port Alma, through CQG and Sea Research (March-December 2012)**

- Detailed literature review of current data and knowledge
- Design of field sampling methods
- Field surveys
- Data analysis and reporting

**Marine ecology expertise for EIA of Sino Iron Project, Cape Preston, WA, through GHD and Sea Research (May 2012)**

- Assistance with field surveys (Genus-level coral identification)

**Review of current knowledge on occurrence and distribution of cetaceans in the North-west Marine Region, for IFAW (September – November 2011)**

- Scientific literature review of knowledge on cetaceans in the North-west Marine Region;
- Summary of values and threats;
- Recommendations for conservation and research; and
- Follow-up media interviews, minor reporting and commentary.

**Reef fish expert for coral and fish biodiversity surveys at Lizard Island, for the Australian Museum (September 2011)**

- Field assistance to Dr. Zoe Richards, coral ecologist from the Australian Museum;
- Reef fish diversity, abundance and size estimation along belt transects in a variety of habitats; and
- Data management and analysis and production of scientific papers.

**Review all current knowledge of the biological and physical attributes of the Coral Sea Conservation Zone, for Pew Environment Group – Australia (March - August 2011)**

- Scientific literature review of biological and physical knowledge about the Coral Sea Conservation Zone;
- Summary of major findings;
- Identification of major knowledge gaps; and
- Follow-up media interviews, minor reporting and commentary.

**Field Ecologist for JCU / ARC Centre of Excellence for Coral Reef Studies (August 2011)**

- Fish identification and quantification expertise for the assessment of zoning effects on predators, fish communities and benthic communities on the GBR (Keppel Island group)

**Field Surveys of Cyclone Yasi Impacts on the southern and central GBR (May 2011)**

- Field survey of three reefs in the Hydrographer's Passage Area and Townsville Sector of the GBR with Drs Tony Ayling
- Rapid assessment of benthic cover

**Seagrass and reef surveys in and downstream of dredge spoil grounds for the Gladstone Port Corporation Ltd (April-May 2011)**

- Logistics, sampling design, fieldwork, analysis and reporting on a baseline study to:
  - Document and the presence or absence of seagrass within the Spoil Grounds
  - Provide a baseline assessment of the condition of reefs in Impact and Control Sites

**Advisor for Independent Study Projects, School for International Training / World Learning Australia (April-May 2011)**

- Supervised School of International Training Students Ryan Deroo, Jennifer Canelli and Tirzah Abbot
- Advice on sampling design, field techniques and data analysis, consultation on statistical processing of data, the ecological implications of the results and the format of the written report.
- Report Titles:
  - Investigating the effects of soil type and pH on the zonation of mangrove crab density, Magnetic Island, QLD
  - Influences of environmental gradients on mangrove structure and zonation, Magnetic Island, Australia
  - A comparative study of foraminiferal assemblages in three coastal environments on Magnetic Island, Queensland

**Marine Ecologist for Brighton Grammar Sea Change Program for ReefEcotours, Lizard Island Research Station (March 2011)**

- Lecturer, snorkelling guide and project supervisor for Year 9 student group.

**Experimental Scientist for AIMS<sup>1</sup> (July 2010 – June 2011)**

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<sup>1</sup> This project was undertaken as a contractor.



- Coral ecologist for Scott Reef Research Project (Team 5), researching coral reproduction at Scott Reef, Western Australia
- Data analysis and report writing for the detection of coral reproduction patterns

**Review the benefits of marine protected areas for pelagic and migratory species, for Pew Environment Group – Australia (February – March 2011)**

- Literature review of empirical and theoretical benefits of marine reserves for the protection of mobile species;
- Assess applicability of findings to Australia's Coral Sea

**Review of all research conducted in the Coral Sea, for DSEWPaC (October 2010 – January 2011)**

- Literature review of all research and monitoring ever undertaken in the Coral Sea;
- Summary of major findings;
- Identification of major research and monitoring gaps, and options for filling those gaps;
- The establishment of an Endnote library; and
- Extensive liaison with government and research institutions.

**Research scientist for JCU / MTSRF<sup>2</sup> (October 2010 – July 2010)**

- Investigator on MTSRF project: '*Influence of the Great Barrier Reef Zoning Plan on inshore habitats and biodiversity*'
- Data analysis and report / paper writing for the assessment of zoning effects on predators, fish communities and benthic communities on the GBR, for JCU/MTSRF

**Marine ecologist for fish biodiversity study, contracted by Alofa Tuvalu (<http://www.alofatuvalu.tv/>) for the Tuvalu Marine Life Project (2010 - 2012)**

- Defining the methodology used for assessing fish biodiversity and marine resource stocks (fish and macro-invertebrates)
- Conducting training (classroom and field) on fish and macro-invertebrate stock assessment, in collaboration with Ms. Sandrine Job (New Caledonia) and Alofa Tuvalu local counterparts.
- Assisting in the development of field material (data sheets, identification sheets, methodology, etc.).
- Leading fieldwork for fish biodiversity and associated habitat assessment
- Conducting marine resource stock assessment
- Management and analysis of field data and preparation of reports and publications

**Workshop to Develop Qualitative Models of Key Ecological Features in the East Marine Region for DEWHA (March 2010)**

- Provided expertise on the key ecological features of the East Marine Region (especially reefs and cays of the Coral Sea and North Tasman) to DEWHA and CSIRO
- Participation in follow-up interviews and qualitative model development

**Review of research conducted in all current Commonwealth Marine Protected Areas for DEWHA (June 2010)**

- Literature review of all research and monitoring ever undertaken in the current Commonwealth MPA estate;
- Summary of major findings;
- Identification of major research and monitoring gaps, and options for filling those gaps;
- The establishment of an Endnote library; and
- Extensive liaison with government and research institutions.

**Data management for UQ<sup>3</sup> (March 2010)**

- Data entry and database management for fish surveys conducted in the Republic of the Marshall Islands

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<sup>2</sup> This project was undertaken as a contractor.

<sup>3</sup> This project was undertaken as a contractor.

**Assessment of heavy metals contamination in Cleveland Bay for C&R Consulting (February 2010)**

- Desktop assessment and report of toxicity and potential for contamination of selected heavy metals around the Port of Townsville, with consideration of natural values of Cleveland Bay

**April 2006 to January 2010: C&R Consulting**

***Marine Ecologist***

**Projects Summary**

**Field Ecologist for JCU / MTSRF (2009)**

- Fish identification and quantification expertise for the assessment of zoning effects on predators, fish communities and benthic communities on the GBR

**Review of the Role, Importance and Vulnerability of Apex Predators on the GBR (2009)**

- Literature and data review of the role, importance and vulnerability of apex predators on the Great Barrier Reef for the GBRMPA

**Shoreline Erosion Management Plan (2009)**

- Provision of background marine ecology information to Coastal Engineering Solutions for Townsville City Council
- Desktop review of marine values of Rowes Bay and Nelly Bay

**Reef Ecology Field Teaching of High School and University Level Students through ReefEcotours (2009)**

- Providing teaching services for:
  - American Universities International Program (AUIP)
  - Discovery Student Adventures (through Reef HQ)
  - Local and regional high schools

**Field Surveys of Cyclone Hamish Impacts on coral trout Populations of the southern GBR (2009)**

- Field survey of three reefs each in the Hydrographer's Passage Area and southern Pompeys Cluster of the GBR with Drs Tony and Avril Ayling
- Rapid assessment of benthic cover

**Survey of Lihou Reef National Nature Reserve (2009)**

- Coral reef field surveys and reporting of fish and invertebrate communities in the Coral Sea for the Department of the Environment, Water, Heritage and the Arts

**Impacts of Plastic Debris on Australian Marine Wildlife (2009)**

- Desktop review of existing data and reports for DEWHA

**Impacts of Vehicles on Beaches in the Burdekin Dry Tropics NRM (2009)**

- Desktop review of general impacts of vehicles on beaches, and specific assessments of risks to beaches in the Burdekin Dry Tropics NRM Region, for NQ Dry Tropics
- Organisation and participation in workshop to broker multi-agency framework decisions for management of vehicles on beaches

**Seabirds and Shorebirds in the Great Barrier Reef World Heritage Area in a Changing Climate (2008)**

- Data management, workshop coordination and report preparation to begin the process of assessing the status of seabirds and shore birds for GBRMPA

**Townsville Ocean Terminal (2007 – 2008)**

- Seagrass and benthic habitat mapping of development footprint area for Queensland DPI&F

- Sampling design and field surveys for baseline study of Nature Conservation and Water Quality components of TOT EIS
- Seagrass mapping
- Review, reporting and risk assessment for Nature Conservation and EPBC Act Technical Reports of TOT EIS

#### **Science for Management of Remote Coral Reef Marine Protected Areas 2008**

- Discussions and recommendations to DEWHA on the science and research needs for informing the management of coral reefs in Commonwealth Reserves

#### **Survey of Coringa-Herald National Nature Reserve**

- Coral reef field surveys and reporting of fish and invertebrate communities in the Coral Sea for the Department of the Environment, Water, Heritage and the Arts (2008)

#### **Benthic surveys of coral reefs around Hamilton Island, Whitsunday Islands Group**

- Assistant to Drs. Tony and Avril Ayling in fieldwork for a baseline study on the impacts of constructing a landing jetty on surrounding coral reefs (2008).

#### **AEDA Workshop, 2008**

- Discussions and publications relating to the design, implementation and management of marine protected areas, Orpheus Island 2008
- Preparation and publication of papers relating to marine conservation planning

#### **Ensham Mine Flood Study**

- Advice on statistical analyses of rainfall data (2008)

#### **Mega Uranium Pty Ltd (Ben Lomond)**

- Baseline assessment of aquatic ecology and ecotoxicology of a proposed mine development (2008)

#### **Lauderdale Quay, Derwent River Integrated Impact Statement**

- Chemical modelling and ecotoxicology assessment for canal estate development (2008)

#### **Surveys of Ashmore Reef National Nature Reserve**

- Coral reef field surveys and reporting of fish and invertebrate communities at Ashmore Reef (north-west WA) for the Department of the Environment, Water, Heritage and the Arts (2007)

#### **South-East Marine Region: Risks from Impacts of Commercial Shipping on the Ecological Values of the SEMR**

- Extensive review and risk assessment of commercial shipping impacts in Commonwealth Waters off South Australia, Tasmania and Victoria for the Department of the Environment, Water, Heritage and the Arts (2007)

#### **East Marine Region: Review of the Indigenous Interests in the East Marine Region**

- Review of the knowledge, issues and aspirations of Indigenous groups on the east coast of Australia for the Department of the Environment, Water, Heritage and the Arts (2007)

#### **Ecological Values of Louisa Creek**

- Desktop review of ecological values of Louisa Creek (2007)

#### **Horseshoe Bay (Magnetic Island) Sewage Treatment Plant Decommissioning Study**

- Ecological values assessment for freshwater lagoon habitat associated with sewage treatment plant adjacent to the GBR Marine Park (2006)

#### **June 2005 to April 2006: UniQuest**

Marine Ecology Consultant on two projects for the Department of Environment and Heritage (DEH)

- Provided expertise to the Department of the Environment and Heritage on the impacts of commercial shipping on Ningaloo Marine Park (June 2005 – January 2006) and marine surveys of Ashmore and Cartier Reefs (September – December 2005)
- *Impacts of commercial shipping on Ningaloo Marine Park*: provide a desktop literature review of the potential impacts of commercial shipping on Ningaloo Marine Park (Commonwealth Waters), including impacts on ecological, cultural and economic values of the Marine Park
- Assemble and synthesize literature and legislation
- Liaise with Government Departments and other information sources
- *Ashmore Reef surveys*: Assessing abundance and diversity of fish, corals and invertebrates (primarily Trochus, giant clams and Holothurians)
- Extensive fieldwork in a remote location (Ashmore and Cartier Reefs), identification of reef fishes and invertebrates, data analysis (including multivariate analyses and standardizing results for comparison with previous studies) and report writing.

### **November to December 2005: World Learning Australia**

Advisor for Independent Study Projects

- Supervised School of International Training Students Annie Portilla, Katie Branch, Sean Dooley, Melissa Anselmo and Tim Westbrook
- Advice on sampling design, field techniques and data analysis, consultation on statistical processing of data, the ecological implications of the results and the format of the written report.
- Report Titles:
  - Size and abundance of *Sphyræna flavicauda* on five fringing reefs on Magnetic Island.
  - Factors affecting territorial behaviour of the Australian Gregory *Stegastes apicalis* and Ward's damselfish *Pomacentrus wardi* on Magnetic Island.
  - Factors affecting agnostic behaviour of *Stegastes apicalis* on fringing reefs of Magnetic Island.
  - Coral-coral competitive strategies and algal effects on varying morphologies at four fringing reefs on Magnetic Island (Queensland, Australia).
  - Species composition of gobies (family: Gobiidae) on 3 inshore fringing reefs of Magnetic Island.

### **September to October 2005: James Cook University**

Tutor: Marine Conservation Biology

- Provide assistance during demonstration of set tasks involving a number of software packages and statistical techniques
- Demonstrate understanding of topics related to rarity, endangered species, marine reserves
- Lecturing and marking assignments

### **June 2005: James Cook University**

Tutor: Sampling and Experimental Design

- Provide assistance during demonstration of the statistical software Statistica
- Demonstrate an established understanding of both univariate and multivariate statistical techniques (ANOVA, regression, PCA, MANOVA, CDA) and exploratory graphical analysis of marine ecological data
- Assist in formulating interpretations of statistical and graphic output

### **May to June 2005: ReefEcotours (Tevene'i Marine)**

Coordinate and carry out educational snorkeling ecotours on coral reefs around Magnetic Island

- Organizing and running group snorkeling tours

- Providing assistance with fitting and using snorkeling equipment
- Assisting novice snorkelers
- Providing expert commentary on coral reef ecology, both through a pre-snorkel briefing and in the water

### **May 2005: Scientific Marine Pty Ltd**

Research assistant for seagrass surveys

- Assisting David Williamson of Scientific Marine Pty Ltd on impact assessment for the laying of a new power cable from Townsville to Magnetic Island.
- Identification of seagrass species in Rowes Bay, Cleveland Bay and Picnic Bay

### **December 2004: C&R Consulting**

Consulting marine ecologist

- EIA Field study of benthic flora and fauna in Airlie Creek, Airlie Beach, North Queensland.
- Impact assessment report describing the benthic ecology of the creek and the likely impact of earthworks in the area.
- Field trip organization, field sampling, species identification, report preparation

### **November-December 2004: World Learning Australia**

Advisor for Independent Study Projects

- Supervised School of International Training Student Nick Bailey
- Advice on field techniques, sample processing and analysis, consultation on statistical processing of data, the ecological implications of the results and the format of the written report.
- Report Title: Habitat selection or resource competition? Causes for the distribution and abundance of herbivorous fish on three fringing reefs of Magnetic Island.

### **August 2004: Tevene'i Marine**

Consulting lecturer

- Preparation and presentation of lecture on management of the Great Barrier Reef to visiting students of Arcadia University.
- Extensive research on GBRMPA management policies and methods.

### **1997 to 2001: Tevene'i Marine**

Proprietor and principal consultant

- Formed Tevene'i Marine (with Dr. A. Lewis), a coral reef ecology consulting and ecotourism business based in Townsville.
- Technical marine biology expertise
  - sampling designs and analytical strategies for impact assessment and monitoring in tropical reef environments
  - information on the ecology of reef organisms for scientists and film-makers
  - field education programs for groups of tertiary students
  - custom-designed reef ecotourism packages for scuba divers and sailboarders
- Maintenance and development of the business, including field operations, accounting, internet & website development, permit approvals, insurance, planning, personnel training, and marketing.

## Education

### **October 2004: Doctor of Philosophy, James Cook University (Graduated April 2005)**

Title: Herbivorous fishes as determinants of the structure of coral reef communities: farmers, foragers and their interactions.

Supervised by Dr. G.P. Jones and Dr. L.J. McCook. Upgraded and expanded from Master of Science project.

- Extensive fieldwork, both descriptive and experimental, in different coral reef environments from inshore Great Barrier Reef environments to pinnacles in Kimbe Bay, Papua New Guinea.
- Organizational skills in planning, coordinating and carrying out all aspects of fieldwork, labwork data handling and thesis writing.
- Skills in the field include identification of all major fish families, basic coral and algal identification and extensive sampling of benthic algae and invertebrates, as well as the construction and maintenance of experiments.
- Laboratory techniques include microscopy, stereomicroscopy, decalcifying and drying of algal samples for biomass estimation, preservation of samples and dissection of fish for gut contents analysis.
- Statistical techniques for data analysis included the use of SPSS for Windows, S-Plus for Windows, and extensive use of Excel spreadsheets. Commonly used multivariate techniques included Multivariate Analysis of Variance, Multiple Regression, Principal Components Analysis and Canonical Correlation Analysis.
- Writing to peer-reviewed publication standards.

### **1999 Master of Science (Qualifying), James Cook University.**

Supervised by Dr. G.P. Jones and Dr. L.J. McCook. Courses studied at Postgraduate level:

- Multivariate Methods in Marine Biology (HD)
- Ecology of Reef Fishes (HD)
- Special Topic I (HD)
- Literature Review and Proposal (HD)
- Minor Project and Seminar (HD)

The Minor Project report, titled "*The distribution of territorial damselfishes in relation to the zonation of benthic communities on two inshore fringing reefs*", included approximately 2 months of fieldwork and 3 weeks of data analysis and report preparation. The main results were presented in a seminar of the same title on December 6<sup>th</sup>, 1999.

### **1995 - 1998 Bachelor of Science, James Cook University.**

Major in Marine Biology. Courses studied at 3rd year level include:

- Advanced Biological Statistics (HD)
- Coral Reef Ecology (HD)
- Design and Analysis of Ecological Data (HD)
- World Heritage and National Estate Processes (D)
- Biology of Reef Corals (HD)
- Biology of Reef Fishes (HD)
- Techniques in Marine Biology (HD)
- Environmental Impact Assessment (D)
- Marine Conservation Biology (HD)
- Ecology of Tropical Mangrove Ecosystems (HD)

## Publications and Reports

### Peer-reviewed publications

- Ceccarelli, D. M.**, Davey, K., Jones, G. P., Harris, P., Matoto, V., Raubani, J., and Fernandes, L. (in prep) Biophysical design guidelines for offshore networks of no-take Marine Protected Areas. *Aquatic Conservation: Marine and Freshwater Ecosystems*
- Smallhorn-West, P., Gordon, S., Stone, K., **Ceccarelli, D.**, Malimali, S., Halafihi, T., Wyatt, M., Bridge, T., Pressey, R., and Jones, G. (in press) Biophysical and anthropogenic influences on the status of Tonga's coral reefs and reef fish fishery. *PLoS ONE*
- Ceccarelli, D. M.**, McLeod, I. M., Boström-Einarsson, L., Bryan, S. E., Chartrand, K. M., Emslie, M. J., Gibbs, M. T., Gonzalez Rivero, M., Hein, M. Y., Heyward, A., Kenyon, T. M., Lewis, B., Mattocks, N., Newlands, M., Schläppy, M. -L., Suggett, D. J., and Bay, L. K. (in press) Substrate stabilisation and small structures in coral restoration: state of knowledge, and considerations for management and implementation. *PLoS ONE*
- Purcell, S. W. and **Ceccarelli, D. M.** (in press) Population colonization of introduced trochus (Gastropoda) on coral reefs in Samoa. *Restoration Ecology*
- Edgar, G. J., Cooper, A., Baker, S. C., Baker, W., Barrett, N. S., Becerro, M. A., Bates, A. E., Brock, D., **Ceccarelli, D. M.**, Clausius, E., Davey, D., Davis, T. R., Day, P., Green, A., Griffiths, S. R., Hicks, J., Hinojosa, I. A., Jones, B., Larkin, M. F., Lazzari, N., Ling, S. D., Mooney, P., Oh, E., Pérez-Matus, A., Pocklington, J. B., Riera, R., Sanabria-Fernandez, J. A., Shaw, I., Shields, D., Shields, J., Smith, M., Soler, G. A., Stuart-Smith, J., Turnbull, J., and Stuart-Smith, R. D. (2020) Establishing an ecological basis for conservation of shallow marine habitats globally through Reef Life Survey. *Biological Conservation* 252, e108855.
- Lowe, J. R., Williamson, D. H., **Ceccarelli, D. M.**, Evans, R. D., and Russ, G. R. (2020) Environmental disturbance events drive declines in juvenile wrasse biomass on inshore coral reefs of the Great Barrier Reef. *Environmental Biology of Fishes*. doi.org/10.1007/s10641-020-01022-2
- Smallhorn-West, P., Stone, K., **Ceccarelli, D.**, Malimali, S., Halafihi, T., Bridge, T., Pressey, R., and Jones, G. (2020) Community management yields positive impacts for coastal fisheries resources and biodiversity conservation. *Conservation Letters*, http://dx.doi.org/10.1111/conl.12755
- Purcell, S., Gossuin, H., and **Ceccarelli, D.** (2020) Fishery management and spatial variation of giant clam stocks: lessons from New Caledonia. *Ocean and Coastal Management* 193: 105243.
- Purcell, S., Tiitii, S., Aiafi, J., Tone, A., Tony, A., Lesa, M., Esau, C., Cullis, B., Gogel, B., Seinor, K., **Ceccarelli, D.**, and Tagliafico, A. (2020) Ecological and socioeconomic impacts of trochus introductions to Samoa. *SPC Fisheries Newsletter* 160: 36-40.
- Boström-Einarsson, L., Babcock, R. C., Bayraktarov, E., **Ceccarelli, D.**, Cook, N., Ferse, S. C. A., Hancock, B., Harrison, P., Hein, M., Shaver, E., Smith, A., Stewart-Sinclair, P. J., Suggett, D., Vardi, T., McLeod, I. M. (2020) Coral restoration – A systematic review of current methods, successes, failures and future directions. *PLoS ONE* 15(1): e0226631. <https://doi.org/10.1371/journal.pone.0226631> See also <https://www.gbrcoralrestoration.org/restoration-database>
- Ceccarelli, D. M.**, Evans, R. D., Logan, M., Mantel, P., Puotinen, M., Petus, C., Russ, G. R., and Williamson, D. H. (2019) Long-term dynamics and drivers of coral and macroalgal cover on inshore reefs of the Great Barrier Reef Marine Park. *Ecological Applications* 30: e02008. <https://doi.org/10.1002/eap.2008>
- Beger, M., Wendt, H., Sullivan, J., Mason, C., LeGrand, J., Davey, K., Jupiter, S., **Ceccarelli, D.**, Dempsey, A., Edgar, G., Feary, D., Fenner, D., Gauna, M., Grice, H., Kirmani, S. N., Mangubhai, S., Purkis, S., Richards, Z., Rotjan, R., Stuart-Smith, R., Sykes, H., Yakub, N., Bauman, A., Hughes, A., Raubani, J., Lewis, A., and Fernandes, L. (2019) National-scale marine bioregions for the Southwest Pacific. *Marine Pollution Bulletin* 150: 110710. <https://doi.org/10.1016/j.marpolbul.2019.110710>

- Lowe, J. R., Williamson, D. H., **Ceccarelli, D. M.**, Evans, R. D., and Russ, G. R. (2019) Responses of coral reef wrasse assemblages to disturbance and marine reserve protection on the Great Barrier Reef. *Marine Biology* 166:119. <https://doi.org/10.1007/s00227-019-3566-5>
- McLeod, I., Taylor, S., Srinivasan, M., Read, M., Boxer, C., Mattocks, N., **Ceccarelli, D. M.** and Williamson, D. H. (2019) Logistics and early effects of repositioning 400 tonnes of displaced coral colonies following cyclone impacts on the Great Barrier Reef. *Ecological Management & Restoration* 20: 262-265. DOI:10.1111/emr.12381
- Ceccarelli, D. M.**, Loffler, Z., Bourne, D. G., Al Moajil-Cole, G. S., Boström-Einarsson, L., Evans-Illidge, E., Fabricius, K., Glasl, B., Marshall, P., McLeod, I., Read, M., Schaffelke, B., Smith, A. K., Torras Jorda, G., Williamson, D. H., and Bay, L. (2018) Rehabilitation of coral reefs through removal of macroalgae: State of knowledge and considerations for management and implementation. *Restoration Ecology* 26: 827-838.
- Strain, E. M. A., Edgar, G. J., **Ceccarelli, D.**, Stuart-Smith, R. D., Hosack, G. R. and Thomson, R.J. (2018) A global assessment of the direct and indirect benefits of marine protected areas for coral reef conservation. *Diversity and Distributions* 25:9–20.
- Stuart-Smith, R. D., Brown, C. J., **Ceccarelli, D. M.**, and Edgar, G. J. (2018) Ecosystem restructuring along the Great Barrier Reef following mass coral bleaching. *Nature* 560: 92-96.
- Purcell, S. W., Fraser, N., Tagica, S., Lalavanua, W., and **Ceccarelli, D. M.** (2018) Discriminating catch composition and fishing modes in an artisanal multispecies fishery. *Frontiers in Marine Science* 5: 243. doi: 10.3389/fmars.2018.00243.
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- Williamson, D. H., **Ceccarelli, D. M.**, Evans, R. D., Jones, G. P. and Russ, G. R. (2014) Habitat dynamics, marine reserve status and the decline and recovery of coral reef fish communities. *Ecology & Evolution* 4: 337-354.
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- Ceccarelli, D. M.**, Frisch, A. J., Graham, N. A. J., Ayling, A. M. and Beger, M. (2014). Habitat partitioning and vulnerability of sharks in the Great Barrier Reef Marine Park. *Reviews in Fish Biology and Fisheries* 24: 169-197.
- Ceccarelli, D. M.**, McKinnon, A. D., Andrefovet, S., Allain, V., Young, J., Gledhill, D., Flynn, A., Bax, N., Beaman, R., Borsa, P., Brinkman, R., Bustamante, R., Campbell, R., Cappo, M., Cravatte, S., D'Agata, S., Dichmont, C., Dunstan, P. K., Dupouy, C., Edgar, G., Farman, R., Furnas, M., Garrigue, C., Hutton, T., Kulbicki, M., Letourneur, Y., Lindsay, D., Menkes, C., Mouillot, D., Parravicini, V., Payri, C., Pelletier, B., Richer de Forges, B., Ridgway, K., Rodier, M., Samadi, S., Schoeman, D., Skewes, T., Swearer, S., Vigliola, L., Wantiez, L., Williams, A., Williams, A. and Richardson, A. (2013) The Coral Sea: Physical environment, ecosystem status and biodiversity assets. *Advances in Marine Biology* 66:213-290.
- Lukoschek, V., Beger, M., **Ceccarelli, D.**, Richards, Z., and Pratchett, M. (2013). Enigmatic declines of Australia's sea snakes from a biodiversity hotspot. *Biological Conservation* 166: 191-202.
- Ceccarelli, D. M.**, Emslie, M. J and Lewis, A. R. (2013) Farming versatility by *Pomacentrus wardi*. *Marine and Freshwater Research* 64: 558-561
- Ceccarelli, D. M.** (2012) Australia's Coral Sea – how much do we know? Proceedings of the 12th International Coral Reef Symposium, Cairns, Australia, 9-13 July 2012
- Emslie, M. J., Logan, M., **Ceccarelli, D. M.**, Cheal, A. J., Hoey, A. S., Miller, L. and Sweatman, H. P. A. (2012) Regional scale variation in the distribution and abundance of farming damselfishes on Australia's Great Barrier Reef. *Marine Biology* 159: 1293-1304
- Ceccarelli, D. M.**, and Williamson, D. H. (2012) Sharks that eat sharks: Opportunistic predation by wobbegongs. *Coral Reefs* (also published in New Scientist magazine:  
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- Ceccarelli, D. M.**, Richards, Z. T., Pratchett, M. S., and Cvitanovic, C. (2011) Decadal (1999-2009) increase in coral cover on an isolated coral reef, the Ashmore Reef National Nature Reserve, north-western Australia. *Marine and Freshwater Research* 62, 1214–1220.
- Ceccarelli, D. M.**, Beger, M., Kospartov, M. C., Richards, Z. T., and Birrell, C. L. (2011) Population trends of remote invertebrate resources in a marine reserve: trochus and holothurians at Ashmore Reef. *Pacific Conservation Biology* 17: 132-140.

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- Barneche, D. R., Floeter, S. R., **Ceccarelli, D. M.**, Ferreira, C. E. L., Frensel, D. and Dinslaken, D. L. (2009) Feeding macroecology of territorial damselfishes (Perciformes: Pomacentridae). *Marine Biology* 156: 289-299.
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- Ceccarelli, D. M.**, Hughes, T. P. and McCook, L. J. (2006) Impacts of simulated overfishing on the territoriality of coral reef damselfish. *Marine Ecology Progress Series* 309: 255-262.
- Ceccarelli, D. M.**, Jones, G. P. and McCook, L. J. (2005) Effects of territorial damselfish on an algal-dominated coastal coral reef. *Coral Reefs* 24: 606-620.
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- Ceccarelli, D. M.**, Jones, G. P. and McCook, L. J. (2001) Territorial damselfish as determinants of the structure of benthic communities on coral reefs. *Oceanography and Marine Biology: an annual review* 39, 355-389.

## Peer-Reviewed Reports and Theses

- Cantin, N. E., Baird, M. E., Morris, L. A., **Ceccarelli, D. M.**, Mocellin, V. J. L., Ferrari, R., Mongin, M. and Bay, L. K. (2020) Assessing the linkages between water quality and coral bleaching on the Great Barrier Reef. Report to the National Environmental Science Program. Reef and Rainforest Research Centre Limited, Cairns (151 pp.).
- Boxer, C., **Ceccarelli, D. M.**, McLeod, I. M., Mattocks, N., Read, M., Srinivasan, M., Taylor, S., and Williamson, D. H. (2019) Bommies away! How we pushed 400 tons of coral back into the ocean after a cyclone. Case study for Reef Resilience Network website. <http://reefresilience.org/case-studies/australia-restoration>
- Wendt, H., Begger, M., Sullivan, J., LeGrand, J., Davey, K., Yakub, N., Kirmani, S. N., Grice, H., Mason, C., Raubani, J., Lewis, A., Jupiter, S., Molisa, V., **Ceccarelli, D.**, and Fernandes, L. (2019) Marine bioregions of Niue. MACBIO (GIZ, IUCN, SPREP), Suva, Fiji, and Tofia Niue, Niue. 60 pp.
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- Reside, A. E., **Ceccarelli, D. M.**, Isaac, J. L., Hilbert, D. W., Moran, C., Llewelyn, J., Macdonald, S., Hoskin, C. J., Pert, P. and Parsons, J. (2014) 2. Biodiversity – Adaptation pathways and opportunities. In: C. Moran, S. Turton, R. Hill (Editors) Adaptation Pathways and Opportunities for the Wet Tropics NRM Cluster region: Volume 1. Introduction, Biodiversity and Ecosystem Services. James Cook University, Cairns. Available at: <https://www.terranova.org.au/repository/adaptation-pathways-and-opportunities-for-the-wet-tropics-nrm-cluster-region-volume-1-introduction-biodiversity-and-ecosystem-services>
- Ceccarelli, D.**, McCrea, I., Collis, M. and Nicoll, R. (2011) Australia's last great whale haven: Cetacean distribution and conservation needs in the North-west Marine Region. Report for the International Fund for Animal Welfare. Available at: [http://www.ifaw.org/Publications/Program\\_Publications/Whales/asset\\_upload\\_file583\\_72303.pdf](http://www.ifaw.org/Publications/Program_Publications/Whales/asset_upload_file583_72303.pdf)
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- **Coral Reefs**, July 2004, May 2005, February 2006, July 2008, June 2009, July 2009, April 2010, July 2010, February 2013, November 2013, June 2014, September 2014, August 2017, August 2018, January 2020
- **Diversity and Distributions**, September 2017
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- **Ecosphere**, May 2013, April 2015
- **Environmental Biology of Fishes**, September 2010
- **Frontiers in Marine Science**, November 2020
- **Frontiers in Zoology**, June 2014
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- **Journal of Fish Biology**, June 2007, June 2009, April 2010, March 2012, October 2015, May 2018, August 2018, November 2019
- **Marine Biodiversity**, June 2015, July 2015
- **Marine Biology**, July 2006, June 2009, January 2010, April 2010, February 2012, August 2012, February 2013, November 2019
- **Marine & Freshwater Behaviour & Physiology**, March 2013
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- **Marine Ecology**, March 2012
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- **NESP Tropical Water Quality Hub Technical Report** May 2018
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- **Revista de Biologia Tropical**, August 2012, October 2013, September 2015
- **Scientific Reports**, September 2018, November 2019, November 2020
- **Zoological Studies**, November 2008

## Technical and other skills

### Technical Qualifications

- PADI Divemaster
- Commercial Diver AS 2815.1
- Extensive underwater fieldwork experience (1900+ dives)
- Recreational speedboat license
- Radio operator's license
- Senior First Aid Certificate (Allens Training)
- Advanced Resuscitation Certificate (Allens Training)
- Elements of Shipboard Safety Certificate (Queensland), including:
  - Survival at sea in case of vessel abandonment,
  - Safety and emergency procedures on a coastal vessel, and
  - Fight and extinguish fires on board a coastal vessel.

### Languages

- English, Italian, German, Swiss German (fluent, including reading and writing)
- French, Spanish (fair, including reading and writing)
- Arabic (basic; previously fair, including reading and writing)

### Referees

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