

Dr Pierre BOUVAIS

Marine biologist / Conservationist

28/12/1985

French / Australian Permanent resident

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CAREER OVERVIEW

To use my knowledge and skills in the field of Marine Biology in a company or governmental agency focusing on coastal environmental impact assessments, audits, field monitoring conservation and research. My principal skills are:

- Marine and coastal ecology;
- Conservation management;
- Proven ability in managing and planning a range of scientific research projects;
- Experience in monitoring anthropic pressures in coastal ecosystems;
- Experience in recording and monitoring marine and coastal habitats and communities;
- Sediment deposition and re-suspension monitoring;
- Technical experience of laboratory processes in a wide range of analyses (stable isotopes, flow cytometry, pigments, TSS, organic matter...);
- Taxonomy: copepods, cladocera, amphipods, benthic macro-fauna, seagrass and macro-algae;
- Experimental design;
- Univariate and multivariate statistics (PRIMER/PERMANOVA ; R)
- Use of benthic index (AMBI, BQI ...);
- Excellent written and verbal communication and presentation skills;
- Experience of field research within local and remote locations;
- Excellent boating experience (Coxswain grade 2 NC);
- Highly experienced scientific research scuba diver (ADAS restricted part 1 ; >400 dives);
- Financial planning and health and safety experience;
- Environmental and coastal law, geography and GIS knowledge;
- Ability to work independently and as part of a team;

EDUCATION

CURRENT, RECENT AND RELEVANT EMPLOYMENT



Coastal Officer 2020 - present



WA LANDCARE NETWORK (WALN) THE COASTAL AND MARINE
COMMUNITY NETWORK (CMCN), AUSTRALIA.

(Community engagement through the sharing of good practice, knowledge of coastal and marine processes and ecological data, and the facilitation of education and training, conservation, and management outcomes)

Consultant in charge to deliver the following activities for the Coastal and Marine Community Network (CMCN): Strategic Plan Development; Administrative Tasks; Communications; Seeking Funding; Organizing networking opportunities and regional forums.



Environmental Consultant 2020 - present

OCEANWISE AUSTRALIA, AUSTRALIA.

(Research, environmental management & monitoring, education & ecotourism)

Marine Environment Consultant in Integrated Coastal Zone Management, Marine Spatial Planning, experimental design, field data collection to achieve project outcomes in monitoring and evaluation of conservation projects with Oceanwise Australia.



Chief Resilience Officer 2019 - 2020

CONSERVATOIRE D'ESPACES NATURELS, NOUVELLE-CALEDONIE.

(marine environmental strategies, local and national conservation policies, climate change adaptation tools, finance mechanisms, education and communication planning and project reporting)

Development and implementation of a resilience strategies that address the threats facing both the reefs and the communities that depend on them in the lagoons of New Caledonia and as part of the Reef Resilient Initiative.

The Resilient Reefs project is a bold initiative that goes to the heart of protecting the world's coral reefs by building their resilience to climate change. Over four years, this project supports five of the world's most treasured UNESCO World Heritage-listed coral reef sites and the communities that depend on them, to identify and prioritize actions to give the reefs the best possible chance to survive and adapt in the face of great change, complexity and uncertainty. The initial sites are the Lagoons of New Caledonia, Palau's Rock Islands, Australia's Great Barrier Reef and Ningaloo Coast, and the Belize Barrier Reef.



Marine environment project officer 2017 - 2019

DEAL 976. MAYOTTE.

(marine environmental strategies, local and national conservation policies, project management, police missions and controls, education and communication planning, reporting, accounting, environmental law and regulation)

The marine environment officer is part of a team dealing with biodiversity issues on both terrestrial and marine environment. He also collaborates with the agents in charge of other environmental themes such as, water management, natural and industrial risks, environmental police, but also contributes to local policies such as town planning, regional planning...

The main missions of the marine environment officer are as follows:

- Contribute to the implementation of biodiversity strategy on local policies;
- Inventory existing knowledge of the island's marine biodiversity in order to implement a local protection and management strategy;
- Develop and finance scientific programs in order to implement knowledge on marine habitats and species;
- Manage conservation national action plans designed to define the necessary conservation and restoration measures of marine turtles and dugong;
- Be the local referent for the French Initiative for Coral Reefs (IFRECOR);
- Implement regulations for compensation of environmental impacts from development projects;
- Establish a marine network of protected areas and develop management and adapted regulations;
- Process "protected species" permits, CITES permits, and other procedures;
- Ensure environmental police missions;
- Develop an environmental education and communication programs.



Conservation Manager / Curator

2016 - 2017

Management of the terrestrial and marine National Natural Reserve of M'bouzi Islet.

Les Naturalistes de Mayotte. FRANCE.

(field work diving, GCRMN surveys, field fauna and flora surveys, Indicators, managing plan writing, education, communication, reporting, accounting, team management)

Abstract: The M'bouzi islet is the second largest islets of the Mayotte lagoon (82ha). For decades, 70% of the surface of the islet was dedicated to farming. However, the end of the agricultural activity in the early 90's led to a spontaneous reforestation. Moreover, the 11 hectares of land that always remained preserved from human activities shelter among the last remain of Mayotte dry forest characterized by *Diospyros comorensis* trees, endemic to Mayotte and Mohéli. This outstanding terrestrial environment, in terms of Flora, allowed to classify the islet as a National Natural Reserve on January 26, 2007. This is the first and only national natural reserve present in Mayotte.

M'bouzi islet is also surrounded by a fringing coral reef and many large coral pinnacles. Initially disregarded, the marine environment, included in the reserve's perimeter, is now at the heart of the conservation issues of the reserve. Out of the 343 National Natural Reserves created to date in France, the M'bouzi islet is among the rare which has both a marine part (140ha) and a terrestrial part (82ha). This singularity is a richness, but also a considerable challenge for the manager since he has to deal with two reserves in one, in addition to the insularity constraints imposing important technical and human means.



DOCTORAL RESEARCHER

2012 - 2016

Doctor of Philosophy in Marine Ecology.

Effects of increased suspended sediment on suspension-feeders assemblages within seagrass meadows

Edith Cowan University. AUSTRALIA.



Supervised by Pr. Paul Lavery (p.lavery@ecu.edu.au) at **Centre for Ecosystem Management** (CMER), Edith Cowan University (Australia) (<http://www.ecu.edu.au/schools/natural-sciences/research-activity/centre-for-marine-ecosystems-research>) and Dr. Mat Vanderklift at the CSIRO Marine and Atmospheric Research.

Abstract: Increased suspended sediment in the water column has the potential to significantly impact marine environments through increases in turbidity, light attenuation, smothering of the benthos and changes in food resources. Due to their relative immobility, suspension-feeders are likely to be negatively impacted by increased sedimentation through coastal development such as land use, road building, logging, mining and dredging... For the same reason they are assumed to be good candidates to indicate changes in ecosystem functioning. This project aims to understand the mechanisms through which increased suspended sediment can impact suspension-feeder assemblages and their key functions in the ecosystem. The poster will outline the structural and functional diversity of the suspension-feeder assemblages along a gradient of suspended sediment concentration. In addition, impact of increased suspended sediment on the feeding activity and plasticity of the suspension-feeders will be examined in order to evaluate the functional consequences for the ecosystem trophic web. For this project, I am using stable isotopes and flow cytometry analysis to understand feeding ecology of suspension-feeders. Stable isotopes analyses are not only used to trace C and N pathways or determine contributions of food sources. But I am also trying to develop new approaches coupling these results with flow cytometry analysis to better understand how co-occurring suspension-feeders species can share or not their food and if suspended sediments could affect these processes.

Key words: Stable isotopes, Flow cytometry, Trophic plasticity, Suspension-feeders, Suspended sediments.



RESEARCH ASSISTANT

2011 (1 year)

Study of the impact of sewage disposal on macro-algae assemblages on coastal rocky reefs

(field work diving, samples analyses, malcro-algae taxonomy, multivariate statistics)

Supervised by Dr Paul Lavery (p.lavery@ecu.edu.au), Britta Munkes (b.munkes@ecu.edu.au), Kathryn McMahon (k.mcmahon@ecu.edu.au) at **Centre for Ecosystem Management** (CMER), Edith Cowan University (Australia) (<http://www.ecu.edu.au/schools/natural-sciences/research-activity/centre-for-marine-ecosystems-research>).

Research assistant in a research project realized to determine whether and which kind of impact land-based sewage discharge has on macro-algae assemblages of adjacent reefs and to explore potential algal species as early eutrophication indicators. This project provides clear guidance for the Industry partner, novel insights into the mechanisms of sewage-impacts on rocky reefs and improves monitoring processes. In this work, I was conducting manipulative experiments in the field (diving), processing the samples in the laboratory and analyzing the data using multivariate statistics (PRIMERS)., I also worked within other CMER projects in 2010: Britta Munkes project (grazers identification) and a project focusing on the extent of connectivity between reef and seagrass ecosystems. The objective of the current study was to determine the amount of kelp that is imported into seagrass meadows, and how much is retained within that meadow. The results will improve our understanding of the significance of this link between reef and seagrass ecosystems and will inform spatial planning processes for marine parks and reserves.



RESEARCH ASSISTANT

2010 (2 months)

Study of effects of western rock lobster on benthic, shallow water assemblages

(field work diving, samples analyses, amphipods and gastropods taxonomy, acoustic telemetry)

Supervised by Dr Philippa Moore (pim2@aber.ac.uk) **Centre for Ecosystem Management** (CMER), Edith Cowan University (Australia) (<http://www.ecu.edu.au/schools/natural-sciences/research-activity/centre-for-marine-ecosystems-research>).

Research assistant of Dr. Philippa Moore post-doctoral research fellow, working in a research project using a combination of field surveys, manipulative experiments, acoustic telemetry, stable isotope and fatty acid analyses, this project investigated the effects of lobster behaviour and trophodynamics on the community structure and functioning of shallow water ecosystems of temperate Western Australia. Such research is vital for understanding the effects of lobster removal, through fishing, on the sustainability of shallow water ecosystems, and will feed into the Ecologically Sustainable Development processes for the fishery.



RESEARCH ASSISTANT

2010 (8 months)

Study of the ability of small grazers (amphipods and gastropods) under different hydrodynamic conditions to ameliorate the effects of nutrient enrichment in seagrass meadows

(field work diving, samples analyses, amphipods and gastropods taxonomy, multivariate statistics)

Supervised by Dr Britta Munkes (b.munkes@ecu.edu.au) at **Centre for Ecosystem Management** (CMER), Edith Cowan University (Australia) (<http://www.ecu.edu.au/schools/natural-sciences/research-activity/centre-for-marine-ecosystems-research>).

Research assistant of Dr. Britta Munkes Post-doctoral research fellow, working in a research project realized to evaluate the ability of small grazers (amphipods, gastropods ...) under different hydrodynamic conditions to ameliorate the effects of nutrient enrichment in seagrass meadows. This project would be improving management efforts for sustainable ecosystems. In this work, I was conducting manipulative experiments in the field (diving), processing the samples in the laboratory and analyzing the data using multivariate statistics (PRIMERS). Besides, I work within other CMER projects as well, so I could see a broader range of different ecosystems and methods.



RESEARCH ASSISTANT



2009 (6 months)

Study of the spatial and temporal variability of the mesozooplanktonic community structure along the Charente estuary: abiotic and biotic parameters

(field work, communities structure and dynamic, stable isotopes C, N, mésozooplankton taxonomy)

Supervised by Drs Fichet (denis.fichet@univ-lr.fr) and David (valerie.david@univ-lr.fr) at **Coastal and Environment Institute (LIENSs)**, La Rochelle University (France) (<http://lienss.univ-larochelle.fr>).

Research project in second year Master in Oceanography and Marine Environment realized to describe spatial and temporal patterns of the mesozooplanktonic community structure along the Charente estuary and to characterize the environmental and trophic relationship influences on it.



RESEARCH ASSISTANT

2008 (4 months)

Study to determine the effect of shrimp fishing at the coast of Sonora state (Mexico) through the evaluation of some population parameters of one common fish species (*Syacium ovale*) from the shrimp by-catch
(DNA extraction, PCR, Electrophoresis, RFLP)

Research project in first year Master in **Environment and Coastal Areas**, supervised by Dr Hernandez (nhernan04@cibnor.mx) at **Centro de Investigación Biológica del Noroeste (CIBNOR)**, La Paz, B.C.S (Mexico) (<http://www.cibnor.mx>).



RESEARCH ASSISTANT



2007 - 2008 (school year)

Studies of nematodes predation by foraminifera, and of the bacteria and virals populations in the Marennes Oléron Bay

(field work, samples analyses, nematodes and foraminiferas identification, fluorescence microscopy)

Supervised by Drs Dupuy (cdupuy@univ-lr.fr) and Montanie (helene.montanie@univ-lr.fr) at Coastal and Environment Institute (LIENSs), La Rochelle University (FRANCE) (<http://lienss.univ-larochelle.fr>).

Research projects realized during the first year Master in Environment and Coastal Areas, to evaluate nematodes predation by foraminifera and the spatial and temporal variability of bacterial and viral abundances in the Marennes Oléron Bay.



RESEARCH ASSISTANT



2007 (3 months)

Study of the spatial and temporal variability of phytoplankton abundances and communities in the north-western Mediterranean sea

(field work, pigment assay, phytoplankton taxonomy, flow cytometry, BEM)

Supervised by Dr Lantoine (francois.lantoine@obs-banyuls.fr) at Laboratory of Biological Oceanography, Marine station of Banyuls sur mer (France) (<http://www.obs-banyuls.fr>).

Research project in third year bachelor's in biology, specializing in marine biology.

TEACHING



2013

Form and Function in Biology: SCI1187

This unit is an introduction to plant and animal structure and function. It focuses on the morphology and anatomy of living organisms, as well as their physiological processes, life cycles and behaviour.



2012 - 2013

Australia's Physical Environment: SCI1184

This unit examines the nature and origin of the major features of Australia's physical environment. It will explore links between features of the physical environment and the formation of some key Australian habitats ranging from arid to alpine.

OTHER EMPLOYMENT

Tutor, deckhand, lifeguard, carer for children, teenager and disabled adults, farm worker, delivery boy, furniture removalist, landscaper, worker for a catering company, barman, fisherman, worker in a frozen shrimp company...

EDUCATION



DOCTOR OF PHILOSOPHY IN MARINE ECOLOGY



2012 -2016

Effects of increased suspended sediment on suspension-feeders' assemblages within seagrass meadows
Edith Cowan University. AUSTRALIA.



Master of Science (2nd year)

2008 -2009

Oceanography and Marine Environment, specializing in coastal ecosystems
Pierre et Marie Curie University. FRANCE.



Master of Science (1st year)

2007 -2008

Environment and Coastal Areas
University of La Rochelle. FRANCE



Bachelor of Science

2004 -2007

Biology, specializing in marine biology,
University of La Rochelle. FRANCE

PROFESSIONAL QUALIFICATIONS AND AFFILIATIONS

- Diving: ADAS restricted part1 (2012); CMAS *** (2010); n >400 dives
- DAN O2 oxygen provider
- Senior First Aid (St. John Ambulance)
- French environmental police inspector
- Coxswain grade 2; n >300 h
- French, English and Spanish.
- Driving license

INTERESTS

- Diving, surf, bodyboard, freediving, mountain biking, boxing and interests for travel (Burkina Faso, Mexico, Australia, Europe, Indonesia, Philippines, South Africa ...)
- Personal interest in music, cinema and reading.
- Former member of L'azikumanie association, La Roche sur Yon, FRANCE, from 2005 to 2007 (Conception and organization of *music events and promotion of humanitarian project*).
- Former member of Surftrider foundation in Perth from 2012 to 2013.
- Member of WADDI (West Australian Divers for Diversity Incorporated)

PUBLICATIONS

- Modéran¹, J., Bouvais¹, P., David, V., Le Noc, S., Simon-Bouhet, B., Niquil, N., Miramand, P. and Fichet, D., **Zooplankton community structure in a highly turbid environment (Charente estuary, France): Spatio-temporal patterns and environmental control.** *Estuarine, Coastal and Shelf Science* 88, no. 2 (2010): 219-232. (¹ The first two authors contributed equally to this work)
- Modéran, J., David, V., Bouvais, P., Richard, P. and Fichet, D., **Organic matter exploitation in a highly turbid environment: Planktonic food web in the Charente estuary, France.** *Estuarine, Coastal and Shelf Science* 98 (2012): 126-137.
- 3 other articles in progress

CONFERENCES

- Modéran, J., Bouvais, P., LeNoc, S., Simon-Bouhet, B., Miramand, P., Fichet, D., David, V., **Spatial and temporal patterns of the mesozooplankton community structure in a highly turbid estuary (Charente estuary, France).** 45th Estuarine & Coastal Science Association International Symposium (Trinity College Dublin, Ireland, September 2009)
- Modéran, J., Bouvais, P., David, V., LeNoc, S., Simon-Bouhet, B., Niquil, N., Miramand, P., Fichet, D., **Zooplankton community structure in a highly turbid environment (Charente estuary, France): spatio-temporal patterns and environmental control.** Workshop on Estuarine and Riverine Systems (Toulouse, France, March 2010)
- Bouvais, P., Lavery P., Vanderklift, M., **How dredging impacts on benthic filter-feeders: a structural and functional approach.** 49th Annual Conference for the Australian Marine Sciences Association Inc (Hobart, Australie, June 2012)
- Bouvais, P., Lavery P., Vanderklift, M., **How increased suspended sediment impacts on benthic suspension-feeders: a structural and functional approach.** 10th International Temperate Reefs Symposium Pierre Bouvais, (Perth , Australie, Janvier 2014)

REFERENCES

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