

**Postdoctoral Fellowship**  
**Institute for Coastal and Marine Research (ICMR)**  
**Nelson Mandela University (NMU)**

**Development of a dynamic simulation model of the Algoa Bay system, to inform marine spatial planning in a changing climate**

In September this year, the Department of Science and Technology (DST), through the National Research Foundation (NRF), awarded a grant to develop a Community of Practice (CoP) in Marine Science in the Eastern Cape. The recipients of the grant include a transdisciplinary team of marine researchers from Nelson Mandela University (NMU), Rhodes University (RU), the University of Fort Hare, the South African Institute for Aquatic Biodiversity, the South African Environmental Observation Network, and the Climate Service Center in Germany (GERICS). The team is led by six DST/NRF South African Research Chairs (see the media release copied below), but the Postdoctoral candidate will work with a much broader team including GERICS climate change scientists (Dr Louis Celliers and Dr Maria Manez), a resource economist (Prof. James Blignaut, ASSET Research), an ecosystem service modeler (Myles Mander, FutureWorks), an ecosystem modeler specializing in network analysis tools (Prof. Ursula Scharler, University of KwaZulu-Natal) and an anthropologist and Pew Fellow in Marine Science, Prof. Shankar Aswani (RU). Prof. Kevern Cochrane (also RU), a global leader in the integration of the natural and human sciences in informing marine management, is an advisor to the project.

The aim of the CoP is to develop scenarios for marine spatial planning in Algoa Bay, to inform the drafting of area-based plans required under South Africa's new marine spatial planning legislation. The team is taking a 'Systems Thinking' approach, and seeks a Postdoctoral Fellow to contribute towards the development of a dynamic simulation model of the Algoa Bay system. The model, constructed using tools such as agent-based models, network analysis models and Vensim software, will describe the relationships between different components in the Bay – these components will include coastal and ocean governance, the bio-physical system, and the social system, all within a changing climate.

Experience in applying Systems Thinking or Systems Dynamics Modelling will be an advantage but candidates who have a keen interest and willingness to work across scientific disciplines are encouraged to apply.

Expressions of interest are invited from candidates who have graduated with a PhD in the last five years (South African citizenship is not a requirement).

Value and tenure: The value of the fellowship is ZAR 240,000 per annum. No benefits or travel allowances are included in the value of the fellowship. The fellowship is tenable for 1 year, starting in early 2018, with the possibility for renewal for a second year, dependent on performance.

Academic base: The successful candidate will be based at the new Ocean Sciences Campus at the Nelson Mandela University in Port Elizabeth, South Africa.

Please email expressions of interest to:

Prof. Mandy Lombard (DST/NRF SARCHI Chair: Marine Spatial Planning, NMU)

[mandy.lombard@mandela.ac.za](mailto:mandy.lombard@mandela.ac.za)

Please provide a CV, short motivation regarding your interest in this project, and the email addresses of two academic references.

Applications close on 15 December 2017.

# Media Release

## 1 September 2017

### Eastern Cape marine scientists working together to plan for the future of Algoa Bay

Eastern Cape, South Africa – Seventeen scientists from across the Eastern Cape have launched a collaborative, two-year project to develop a marine spatial plan for Algoa Bay that harnesses the collective expertise of researchers in the natural sciences, humanities and law. The project marks the first step in developing a local marine spatial plan for South Africa.

Led by principal investigator Prof Rosemary Dorrington from Rhodes University (RU) and co-investigator Prof Amanda Lombard from Nelson Mandela University (NMU), the team includes 15 other lead researchers from institutions in the Eastern Cape including the University of Fort Hare, the South African Institute for Aquatic Biodiversity (SAIAB) and the South African Environmental Observation Network (SAEON), in addition to RU and NMU. More than fifty additional scientists will contribute to the project. Both Dorrington and Lombard are SARChI Professors (SARChI, the South African Research Chairs Initiative, is a joint programme of the National Research Foundation and the Department of Science and Technology to promote excellence in research and innovation).

The Algoa Bay project is funded through the NRF's Communities of Practice program, which promotes strategic research partnerships to conduct research that solves societal challenges and influences policy.

The project aligns with the objectives of South Africa's National Development Plan. More than 40% of South Africans live near a coastline and the country has more ocean territory than it has land. In 2014, government launched "Operation Phakisa" to unlock the economic potential of the oceans by developing the 'Blue Economy'. One of the three pillars of this endeavour is marine spatial planning.

Prof Lombard, SARChI Professor of Marine Spatial Planning at NMU, explains, "Marine spatial planning is about using marine resources sustainably. We bring together all the data and everyone with an interest in the oceans—government, fisheries, shipping, energy, tourism, conservation and recreation—to make coordinated, evidence-based decisions about how to use resources and manage our oceans. The goal is to optimise economic opportunities without compromising the environment."

The marine spatial plan for Algoa Bay will provide a case study on fulfilling the requirements of the new Marine Spatial Planning Bill, which dictates that four regional area plans will be consolidated into a national plan.

Prof Dorrington, SARChI Professor of Marine Natural Products at RU says, "We're delighted to have earned funding from the NRF for this project, which draws together a multidisciplinary group of researchers. The Eastern Cape is often overlooked as a centre for marine research and development, but we have excellent researchers, including six SARChI professors working in the marine sciences."

Dorrington continues, "We're harnessing our collective expertise on a project of critical national importance that will attract scientists and entrepreneurs to the Eastern Cape and develop economic potential to benefit everyone. We've brought together experts in law and ocean governance, molecular biology, ecology, marine biology, geography, geology, oceanography, conservation, fisheries, sustainable development—no single researcher could tackle this complex challenge alone."

The first two years of the project will focus on collating biological and physical data and creating a conservation plan for the Bay. "We're starting with what we know and what we know is biophysical," says Prof Lombard. Algoa Bay, which is a SAEON Sentinel Site for Long Term Ecological Research, is the best monitored coastal area in Africa and in the entire Southern Hemisphere and the fauna and flora of the system have been well studied."

"In the next phase of the project, we'll focus on people," says Prof Lombard. "We'll gather all the stakeholders to map everyone's needs and goals, from whale watchers to fishers to the Port Authority."

The next step is a legislative and governance framework, followed by combining everything into a draft regional marine spatial plan for Algoa Bay.

Prof Dorrington says, “We’ve reached out to colleagues in the Department of Environmental Affairs to offer our Algoa Bay project, the first of its kind, as a learning experience for scaling up the marine spatial planning process to the entire country.”

Algoa Bay contains ports, estuaries, islands, rocky reefs, dunes and Blue Flag beaches. It is a hotspot for biodiversity including charismatic whales, endangered African penguins, fish, an extraordinary diversity of invertebrates, seaweeds and corals, all of which are important to the functioning and health of the ecosystem. Coastal communities and industries, such as those of the Nelson Mandela Bay Metropolitan Municipality, depend on these resources.

**Contact:**

Prof Rosemary Dorrington, Rhodes University

Tel: +27-46-6038442/7

Email: [rosemary.dorrington@gmail.com](mailto:rosemary.dorrington@gmail.com)

Prof Amanda Lombard, Nelson Mandela University

[mandylombard2@gmail.com](mailto:mandylombard2@gmail.com)

**List of senior scientists included in the project by institution:**

*Rhodes University*

Prof Rosemary Dorrington      SARChI Professor, Marine Natural Products

Prof Christopher McQuaid      SARChI Professor, Marine Biology

*Nelson Mandela University*

Prof Janine Adams      Director, Institute for Coastal and Marine Research

Prof Amanda Lombard      SARChI Professor, Marine Spatial Planning

Prof Renzo Perissinotto      SARChI Professor, Shallow Water Ecosystems

Prof Michael Roberts      SARChI Professor, Ocean Science and Marine Food Security

Ms Bernadette Snow      Researcher, Development Studies

Prof Hennie van As      Researcher, Centre for Law in Action

Prof Patrick Vrancken      SARChI Professor, Law of the Sea and Development in Africa

*University of Fort Hare*

Prof Ken Lui      Researcher, Geology

Mr Jacques Mahler-Coetzee      Researcher, Nelson Mandela School of Law

*SAEON*

Dr Thomas Bornman      Manager, Elwandle Coastal Node

Dr Shaun Deyzel      Researcher, Elwandle Coastal Node

Dr Wayne Goschen      Researcher, Elwandle Coastal Node

Dr Shirley Parker-Nance      Researcher, Elwandle Coastal Node

*SAIAB*

Dr Gwynneth Matcher      Researcher, Aquatic Genomics Research Platform

Dr Francesca Porri      Researcher, Marine Ecology