

NELSON MANDELA
UNIVERSITY

The Institute for Coastal and Marine
Research (CMR)

Research Symposium



Showcasing the CMR Research Chairs

2021

CMR
COASTAL & MARINE
RESEARCH

INTRODUCTION

The Institute for Coastal and Marine Research (CMR) is a **leading ocean and coastal sciences transdisciplinary research institute** that spans across all seven Nelson Mandela University Faculties, reporting directly to the **Deputy Vice-Chancellor: Research, Innovation and Internationalisation**. Established in the 1980s, the CMR focuses on trans-disciplinary research and the building of capacity to serve the needs of South Africa, the African continent, and beyond, in a sustainable manner. Its membership is ever growing, with 148 members in 2021, including external research groups, stakeholders and international collaborators. With its position at the **Ocean Sciences Campus**, the institute contributes significantly to the University's Ocean Sciences Strategy and the University's drive towards excellence.

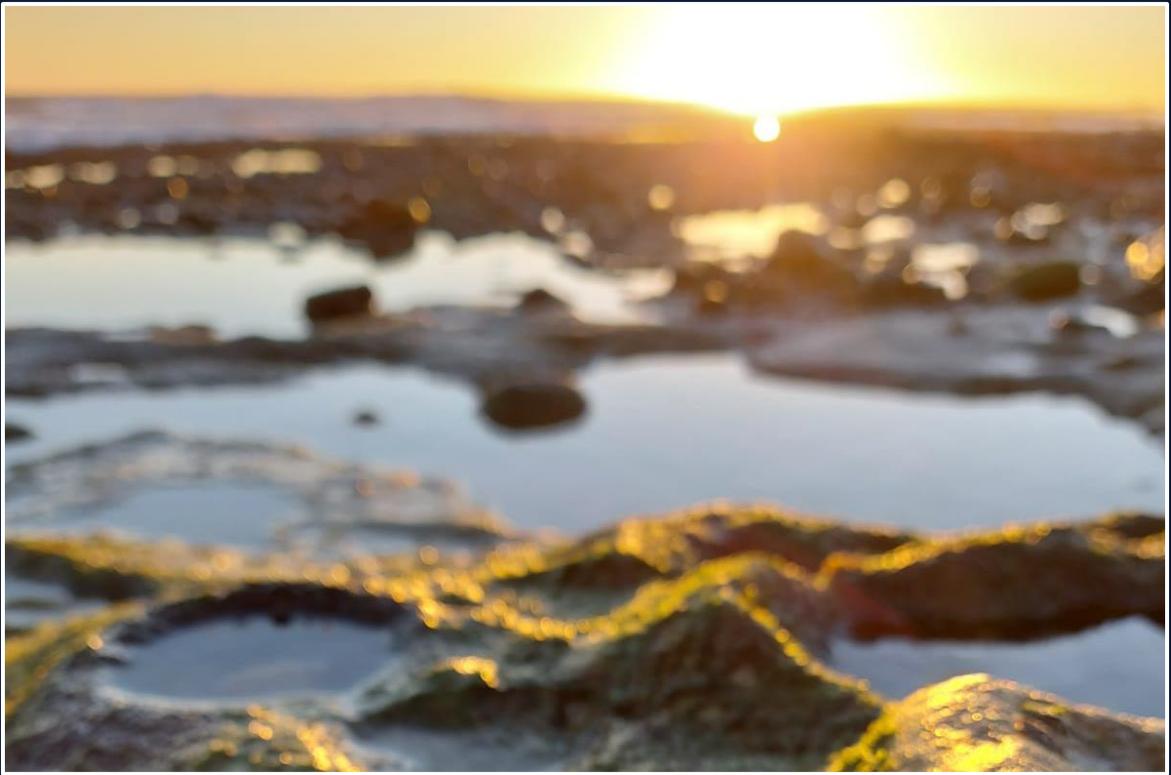
The CMR is the administrative host of five NRF Chairs. The **South African Research Chairs Initiative (SARChI)** was established in 2006 by the **Department of Science and Technology (DST)** and the **National Research Foundation (NRF)**. It is designed to **attract and retain excellence in research and innovation** at South African public universities through the establishment of Research Chairs at public universities in South Africa with a long-term investment trajectory of up to fifteen years. The main goal of the Research Chairs initiative is to **strengthen and improve research and innovation capacity** of public universities for producing high quality postgraduate students and research and innovation outputs. **The key objectives of SARChI are to:**

- **Expand the scientific research and innovation capacity of South Africa**
- **Improve South Africa's international research and innovation competitiveness while responding to social and economic challenges of the country**
- **Attract and retain excellent researchers and scientists**
- **Increase the production of masters and doctoral graduates**
- **Create research career pathways for young and mid-career researchers, with a strong research, innovation and human capital development output trajectory.**

This year, the CMR is showcasing the work of the **five SARChI holders** it is hosting. These include the Shallow Water Ecosystems chair **Prof Janine Adams**, the Marine Spatial Planning chair **Prof Mandy Lombard**, the Law of the Sea and Development in Africa chair **Prof Patrick Vrancken**, the Ocean Science and Marine Food Security chair **Prof Mike Roberts** and the Ocean Cultures and Heritage chair **Prof Rose Boswell**.

PROGRAMME

Time	Item
09:00-09:10	Start
09:10-09:30	Welcoming address Dr Kwezi Mzilikazi: Director Research Management
09:30-10:30	South African Research Chair in the Law of the Sea and Development in Africa Professor Patrick Vrancken
10:30-10:40	Comfort break
10:40-11:40	South African Research Chair in Shallow Water Ecosystems Professor Janine Adams
11:40-11:50	Comfort break
11:50-12:50	South African Research Chair in Ocean Cultures and Heritage Professor Rose Boswell
12:50-13:50	Lunch break
13:50-14:50	South African Research Chair in Ocean Science and Marine Food Security Professor Mike Roberts
14:50-15:00	Comfort break
15:00-16:00	South African Research Chair in Marine Spatial Planning Professor Mandy Lombard
16:00-16:15	Final thoughts and close



SPEAKERS INFORMATION





PROFESSOR PATRICK VRANCKEN

South African Research Chair in the Law of the Sea and Development in Africa

Prof Vrancken plays a leading role in advising SAMSA, other organs of State and the Nelson Mandela University in their efforts to develop the maritime training and research capacity in South Africa. His research foci include State Ocean jurisdiction, the law of the sea in Africa, transnational organised fisheries crime, port law and marine tourism law. His presentation will provide a brief overview of the work of the Chair, focussing particularly on the Ocean Accounts Framework Community of Practice, the publication project on “The Law of the Sea: Contemporary Norms and Practice in Africa” and Prof Vrancken’s work on state ocean jurisdiction.

Additional Presentations

- Rachael Chasakara: Marine Spatial Planning by the State as trustee of coastal public property.
- Nonhlanhla Hlazo: The Work in Fishing Convention as an instrument to combat forced labour on fishing vessels: A South African perspective.
- Hashali Hamukuaya: Drug trafficking as an element of racketeering to combat fisheries crime in Namibia: Lessons from South Africa.





PROFESSOR JANINE ADAMS

South African Research Chair in Shallow Water Ecosystems

Estuaries, their functioning, conservation, and management is the specialist research field of Professor Janine Adams, who has been appointed by the National Research Foundation (NRF) as the Chair Holder for this SARCHI Shallow Water Ecosystems until 2023. This Research Chair's current focus areas are blue carbon ecosystems and response to climate change, mangrove and salt marsh ecology, and water quality management of estuaries. Professor Adams and her team play an important role in ensuring science and knowledge of aquatic environments is communicated to managers and policymakers. The team consists of a productive group of 30+ postgrads, post-docs and assistants. In 2021 they have published 20 articles in highly ranked journals and 10 book chapters and reports. Their research is producing new knowledge on the response of blue carbon habitats to climate change, investigating the response of mangroves and salt marshes at a global distribution limit. They are studying the vulnerability of coastal habitats to sea-level rise so that mitigation plans can be developed to meet predicted challenges. Their research is aligned with the UN Decade of Ecosystem Restoration as they focus on innovative methods for estuary water quality improvement and inform restoration for the delivery of multiple ecosystem services.

Additional Presentations

- Dr Gavin Rishworth
- Dr Daniel Lemley
- Dr Jackie Raw
- Dr Olisah Chijioke
- Dr Monique Nunes
- Vusumzi Tsipa
- Anesu Machite
- Priscah Lakane
- Emily Whitfield



PROFESSOR ROSE BOSWELL

South African Research Chair in Ocean Cultures and Heritage



Professor Rose Boswell is the former Executive Dean of the Faculty of Arts at the University. The anthropologist, NRF-rated researcher and poet is currently Professor of Ocean Cultures and Heritage at the University's Ocean Sciences Campus who hopes that the new Chair would contribute to the strategic area of growing the Mandela University footprint on the African continent. "Much of the research that has been done is focused elsewhere in continental Europe and also in Asia," Prof Boswell has said. In addition to wanting to emphasise Africa, she is also keen to expand the role of the humanities in the oceans economy. Although the focus is often on the natural sciences, social sciences and humanities have a lot to say to policymakers and corporate funders in this field. If the humanities can be given a voice in that space, and there can be more transdisciplinary work, our graduate students can really contribute to Government's Operation Phakisa.

Her talk will focus on "Risking Danger for Culture: Fieldwork for Ocean Sustainability during Covid-19" and will be co-presented with Dr Jess Thornton and Mr Ryan Pillay. The Covid-19 pandemic has affected field research practice in a variety of domains. In the social sciences, field research involves face-to-face interaction with poorly resourced communities, participant observation in such communities, as well as extended periods of time in socially imbricated locales. The requirements and condition of field research, described specifically as 'fieldwork' in anthropology and sociology, specifically requires risky in-person engagements to provide discipline accepted evidence of research. This presentation will offer a brief overview of the evolution of field research from the inception of anthropology to present times, the various dangers affecting field researchers and the ongoing relevance of field research in South Africa, a country recently engaging with issues of ocean sustainability and development. The main argument is that while field researchers have always faced dangers of various kinds, risking danger for culture has become imperative especially in the field of ocean development and sustainability. Fieldwork has therefore become central to environmental activism and decolonial practice, as it is becoming more important to include local voices and paradigms in national and global processes that threaten not only the Earth's climate but the life of all species. Thus, fieldwork and field research in general, will become even more risky, not only because of the continuing threat of globalized pandemics that put all humans in the epidemic space, but because of neoliberal interests to develop the oceans for exclusive economic benefit.



PROFESSOR MIKE ROBERTS

South African Research Chair in Ocean Science and Marine Food Security

His research investigates the underpinning processes that sustain marine food security (i.e. ecosystem functioning) with a strong focus on the impacts of climate change and a changing ocean on marine upwelling systems in the western Indian Ocean. It requires a full multidisciplinary approach from physics to fish to forecasts (security), and encompasses and couples the fields of physical oceanography, biogeochemistry, ocean productivity, trophic ecology, fisheries and coastal communities – all quantified by end-to-end ecosystem and socio-economic modelling. Prof Roberts' research program, called the Western Indian Ocean Upwelling Research Initiative (WIOURI), embraces this approach and uses modelling not only to understand, couple and quantify processes, but also to make the research program more focused on the ultimate deliverable – how and by how much is climate change and a changing ocean going to impact food resources in the WIO. Great emphasis is placed on linking and transferring these research outputs into ocean governance and food security structures including national governmental departments, SAPHIRE, ESPA, Nairobi Convention, the FAO and UN structures. Indeed, the FAO is thoroughly involved in WIOURI as its EAF–Nansen program is a core partner. WIOURI is a major contribution the International Indian Ocean Expedition (IIOE) 2 which ends in 2025.

Additional Presentations

- Dr Margaux Noyon: Ocean fronts and eddies and their impact on marine life: one step further towards understanding fine-scale processes. Fronts and eddies are often seen as “oases” in the world ocean, attracting top predators. However, the underlying mechanisms are still not fully understood, partly due to the highly dynamic nature of these environments and the difficulty to sample these features. The RESILIENCE cruise (2022) aims at investigating the fine-scale bio-physical coupling within fronts and eddies in the southwest Indian Ocean, using automated high-resolution instrumentations.
- Dr Bernardino Malawene: A new WIOURI project: Recruitment success in Mozambique fisheries in a highly Turbulent shelf edge ocean ecosystem - ReMoTURB (2021-24).
- Sixolile Mazwane: Seasonal and long-term stability of Net Primary Production on the Agulhas Bank, 1998 - 2018.
- Esenathi Mvundlela: Sardine run and the Waterfall Bluff gateway hypothesis.



PROFESSOR MANDY LOMBARD

South African Research Chair in Marine Spatial Planning

Prof Lombard focuses on applied research that can be implemented for effective sustainable use outcomes and has a special interest in systematic conservation planning (SCP), top predators and systems analysis. Her current work includes biophysical mapping, marine protected area design for top predators, decision-support tool development, marine spatial planning and integrated ocean management.

Her talk will focus on “An ecosystem-based approach to MSP”. South Africa’s large exclusive economic zone includes the Indian, Atlantic and Southern Oceans. Management of this ocean space has traditionally been undertaken within sectors, leading to conflict amongst sectors, and between sectors and the need for environmental protection. As the demand for ocean space and marine resources increases, in response to a growing oceans economy, a more integrated approach to management is required to ensure that both ecological and socio-economic objectives are met. Marine spatial planning (MSP) has emerged in many countries as an effective process to achieve this integration, and in 2016, South Africa became the first African country to draft MSP legislation. However, Marine Spatial Planning (MSP) approaches should not be applied in isolation, but rather under an umbrella of Integrated Ocean Management (IOM) approaches that include integrated coastal zone management (ICZM), ecosystem approaches to fisheries (EAF), area-based management approaches such as marine protected areas (MPAs) and vulnerable marine ecosystems (VMEs), pollution regulations, consumer incentives, etc. Especially challenging is the lack of IOM tools for areas beyond national jurisdiction (ABNJ).

To further an integrated ocean management agenda, the research programme of the Chair builds on the premise that healthy ecosystems underpin healthy societies and adopts an ecosystem-based approach to MSP. Research questions address both the structure and function of ecosystems, the delivery of ecosystem services, cumulative impacts of human activities on marine environments, and the development of decision-support tools to guide MSP.

Additional Presentations

- Dr Talicia Pillay: Benthic habitat mapping from a machine learning perspective on the Cape St. Francis inner shelf, Eastern Cape, South Africa.
- Dr Kaylee Smit: Measuring ecosystem condition for marine spatial planning: A case study using rocky reef ecosystems.
- Dr Jodie Reed: Spatial analyses to assess the effects of new offshore marine protected areas on a pelagic longline fishery with recommendations to inform future marine protected area design.
- Dr Gwenith Penry: Using species-specific behavioural data to mitigate Bryde's whale entanglements in coastal fishing gear.
- Dr Estee Vermeulen: An exploratory system dynamics model to support ecosystem-based marine planning in Algoa Bay, South Africa.
- Dr Anne Lemahieu: Designing a marine spatial plan for Algoa Bay, Port Elizabeth, South Africa.



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