

NELSON MANDELA

UNIVERSITY

CMR

COASTAL & MARINE
RESEARCH

2025 | Research Symposium

Science to Impact



12–14 November 2025 | Ocean Sciences
Campus, Nelson Mandela University

RSVP by 7 November:

<https://forms.office.com/r/w3Yf6CGBfx>



Welcome to the 2025 Symposium

It is my great pleasure to welcome you to the Institute for Coastal and Marine Research (CMR) Annual Research Symposium, held under the theme **"Science to Impact."** This symposium reflects our shared commitment to advancing coastal and marine research that deepens understanding, informs policy, inspires stewardship, and supports sustainable futures.

This year, we celebrate the creativity, collaboration, and dedication that define the CMR community, with special recognition of **Prof Mandy Lombard** and her decade of pioneering leadership as the **SARChI Chair in Marine Spatial Planning**. Her visionary work and mentorship have shaped a generation of scholars and continue to influence how science guides ocean governance and management. Alongside this milestone, we showcase the breadth of CMR's research — spanning ecosystem restoration, ocean economy resilience, governance, and innovation — demonstrating how knowledge translates into meaningful, real-world impact. Together, these efforts strengthen CMR's role in bridging disciplines and sectors to advance a more sustainable and equitable ocean future.

We invite you to engage, question, and collaborate as we share ideas, celebrate achievements, and envision new pathways for science that truly makes an impact.

Dr Denise Schael

*Director: Institute for Coastal and Marine Research
And the entire CMR Team: Tara Bonnesse, Ammaarah Raza, Landile Mondile, Moefeda Mahadev*



DAY 1: 12 NOVEMBER 2025

Time	Item
08:00-08:30	Registration
08:30-08:45	Prof Azwinndini Muronga (DVC: RII) Welcome
08:45-09:00	Prof Mandy Lombard A decade of marine spatial planning research
09:00-09:30	Keynote Speaker - Prof Elizabeth Wentz Spatial solutions for a complex planet: from ocean currents to urban networks
09:30-10:00	Mr Njabulo Mdluli Influence of submarine canyons on zooplankton communities in the east coast of South Africa Dr Zoleka Nontlantla Patricia Filander Spatial planning for South Africa's cold-water corals: priorities, gaps, and management pathways Dr Theoni Photopoulou White shark movement behaviour
10:00-10:30	Comfort break
10:30-12:30	Dr Jonathan Botha Geographic variation in the foraging distribution and trophic ecology of Cape fur seals Dr Gwenith Penry Cetacean research: science to policy, rare species records & collaborative large-whale ecology Mr Angus van Wyk Bridging gaps in underwater fish observation research Dr Victoria Goodall Baseline and comparative assessments using BRUV data in Robben Island and Table Mountain National Park MPAs

10:30-12:30	Dr Talicia Pillay Benthic habitat mapping using marine geophysics and machine learning on the continental shelf of South Africa Dr Charles von der Meden Marine ecosystem types of the Prince Edward Island EEZ Dr Myriam Johanna Perschke Guiding conservation for people and nature with ecological infrastructure Dr Lize von Staden What can counterfactuals reveal about the effectiveness of South Africa's landscape approach to biodiversity conservation Dr Giulia la Bianca A standardised ecosystem services framework for the deep sea Prof James Blignaut An estimate of the economic value of the marine and coastal ecosystem services of Algoa Bay, South Africa Ms Tayla Ginsburg Penguins and purse-seines: bridging conservation needs and economic realities Ms Victoria Stockdale Integrating state-space modelling and systematic conservation planning to recommend penguin-fishery management zones in Algoa Bay Ms Nina Faure Beaulieu Shark and ray catches in South Africa's bottom trawl hake fishery Dr Jodie Reed Spatial fisheries management options for inclusion in Marine Spatial Planning Dr Minke Tolsma Assessing the sustainability of boat-based whale-watching in Plettenberg Bay, South Africa
12:30-13:30	Lunch
13:30-15:00	Prof Berny Snow Shifting disciplinary baselines, learning by doing

13:30-15:00	Dr Mia Strand The value of arts-based participatory research for more equitable ocean governance in South Africa Dr Nina Rivers Integrating indigenous and local knowledge in marine spatial planning with multiple stakeholders Dr Alejandra Vargas-Fonseca Cumulative pressures and impacts to global marine ecosystems Dr Kelly Ortega Cisneros Supporting marine spatial planning with an ecosystem model of Algoa Bay, South Africa
	Dr Jai Kumar Clifford-Holmes How system dynamics modelling can support MSP Dr Estee Miltz Applying system dynamics modelling to support marine spatial planning Dr Anne Lemahieu Developing a methodological framework for marine spatial planning in Algoa Bay Ms Tidimalo Maphoto Spatial analysis of the impact of human activities on the marine environment in Algoa Bay, South Africa Ms Hannah Truter MSP in Algoa Bay: lessons learned
	15:00-15:30
	Comfort break
	Dr Kaylee Smit An MSP situational assessment that kicked off the WIO MSP Strategy Dr Rachael Chasakara Constitutional and Human Rights Aspects of MSP Dr Tegan Carpenter-Kling Designing a High Seas MPA network across the Indian sub-Antarctic Ocean
	16:00-16:30
	Prof Mandy Lombard & Prof Elizabeth Wentz Summary & Thanks

DAY 2: 13 NOVEMBER 2025

Time	Item
08:00–08:30	Registration
08:30–08:40	Dr Denise Schael Welcome and Introduction
08:40–09:10	Keynote Speaker - Mr Loyiso Dunga Beget caring conservation—the significance of traditional ecological indigenous knowledge and science
09:10–09:40	Dr Carla Dodd Contributing to the long-term in the short-term – initiating long-term ecological research of microbialite ecosystems.
09:40–10:10	Dr Nomtha Hadi Promoting resilient prosperity for South Africa's ocean economy
10:10–10:40	Comfort break
10:40–11:10	Prof Lara van Niekerk 2025 National Biodiversity Assessment: estuarine realm - Ecosystem threat status, protection levels and condition
11:10–11:40	Prof Janine Adams and Ms Yolokazi Galada Restoration of South Africa's estuaries – towards the 30 x 30 targets
11:40–12:10	Prof Susan Taljaard A practical sustainability performance index for African ports
12:10–12:40	Dr Rachael Chasakara Stewards of the sea: reimagining the state's public trustee obligation in South African marine spatial planning
12:40–13:40	Lunch
13:40–14:10	Prof Francesca Porri From larvae to impact: how a blue science career shapes blue action
14:10–14:40	Mr Reetumetsi Malefane The paradox of a water scarce coastal city: design direction towards water resilience in Gqeberha

14:40–15:10	Comfort break
15:10–15:40	Prof Syden Mishi From evidence to action: behavioural pathways to sustainability and impact
15:40–16:10	Prof Joleen Steyn Kotze Voices from the depths: expert insights into advancing gender-inclusive ocean accounting framework
16:10–16:20	Dr Denise Schael Closing

DAY 3: 14 NOVEMBER 2025

Time	Item
08:00-08:30	Registration
08:30-08:45	Dr Denise Schael Welcome and Introduction
08:45-10:30	Dialogues for Policy, Practice, and Impact: Translating Coastal and Marine Science into Action This dialogue brings together key partners from government, research, and conservation sectors to explore how research produced within CMR can better inform decision-making and policy. The discussion focuses on expectations, opportunities, and mechanisms for enhancing science communication, co-designing impactful research, and building stronger partnerships that translate coastal and marine knowledge into real-world outcomes for society and the environment. Moderator Prof Janine Adams Panelist Prof Lara van Niekerk (CSIR) Dr Cloverly Lawrence (SANParks) Ms Yolokazi Galada (DFFE) Dr Gilbert Siko (DSI)
10:30-11:00	Comfort break

11:00-11:30	Deep Dive & Quick View: Coastal and Marine Research Shorts This curated collection of videos offers a glimpse into the diverse research, fieldwork, and community engagement by CMR members. Through visual storytelling, these “research shorts” highlight innovative projects and real-world collaborations that translate coastal and marine science into action. Each clip provides meaningful insight into how CMR’s work contributes to understanding, protecting, and sustaining our ocean and coastal environments.
11:30-12:00	Early-Career Ocean Professionals - South Africa (ECOP-SA) Dr Mia Strand Mr Brishan Kalyan Ms Nina Faure Beaulieu
12:00-12:10	Dr Denise Schael Thanks
12:10-13:10	Lunch



MGP Research Group

Mr Njabulo Mdluli: Doctoral Student at University of South Africa

Dr Zoleka Nontlantla Patricia Filander: Research Associate at CMR, and a Researcher at Department of Forestry Fisheries, and Environment

Dr Theoni Photopoulou: Research Fellow in the Centre for Research into Ecological and Environmental Research, University of Cape Town

Dr Jonathan Botha: Senior Zoologist at Biosis

Dr Gwenith Penry: Research Associate at CMR, and a Research Fellow at the Mammal Research Institute Whale Unit, University of Pretoria

Mr Angus van Wyk: Doctoral Researcher at the South African Institute for Aquatic Biodiversity

Dr Victoria Goodall: Senior Statistician at VLG Statistical Services

Dr Talicia Pillay: Applied Scientist at the National Oceanography Centre, Southampton, England, United Kingdom

Dr Charles von der Meden: Senior Lecturer at the University of KwaZulu-Natal

Dr Myriam Johanna Perschke: Postdoctoral Research Fellow at the University of Southern Denmark

Dr Lize von Staden: Senior Scientist at South African National Biodiversity Institute

Dr Giulia la Bianca: Benthic Ecologist at the Plymouth Marine Laboratory

Prof James Blignaut: Professor at Stellenbosch University, Honorary Research Associate at SAEON, and the Director of ASSET Research and Beatus

Ms Tayla Ginsburg: Proposal Development Coordinator at Global Humane Conservation Fund of Africa

Ms Victoria Stockdale: Junior Software Tester at iPay

Ms Nina Faure Beaulieu: Doctoral Student at Nelson Mandela University





MGP Research Group

Dr Jodie Reed: Fisheries Consultant and Marine Scientist at Capricorn Marine Environmental

Dr Minke Tolsma: Research Associate at CMR

Prof Berny Snow: Senior Lecturer in Marine Social Science at the Scottish Association for Marine Sciences, and Adjunct Professor at CMR

Dr Mia Strand: Postdoctoral Fellow at Nelson Mandela University

Dr Nina Rivers: Research Associate at CMR

Dr Alejandra Vargas-Fonseca: Research Associate at CMR, and the Marine Programme Manager at the Natures Valley Trust

Dr Kelly Ortega Cisneros: Research Officer at the Marine Sustainability Lab, in the Department of Biological Sciences, University of Cape Town

Dr Jai Kumar Clifford-Holmes: Research Associate at CMR

Dr Estee Miltz: Research Associate at CMR, and a Development Policy Analyst for the Millennium Institute

Dr Anne Lemahieu: Monitoring, Evaluation and Learning Officer of the RECOS Project at the Indian Ocean Commission, Mauritius

Ms Tidimalo Maphoto: GIS Technician at the Housing Development Agency (HDA)

Ms Hannah Truter: Professional Associate at CMR, and a Doctoral Student at Nord University, Norway

Dr Kaylee Smit: Postdoctoral Research at the South African National Biodiversity Institute

Dr Rachael Chasakara: Transformation Office at the Nelson Mandela University

Dr Tegan Carpenter-Kling: Postdoctoral Fellow at Nelson Mandela University



A Decade of Marine Spatial Planning Research

Prof Amanda Lombard



Healthy oceans underpin healthy societies, but we are pushing the boundaries of human influences and extractive activities further and deeper into the ocean.

We take food and minerals out of the ocean and we dump our pollution and global warming heat into it. We do this unsustainably. We need to act fast, as a global community, to reverse the negative trends of these activities. We need to make decisions now that will deliver a functioning world in the long-term. Since the inception of the Chair in 2016, our marine spatial planning (MSP) research group has aimed to conduct the research required to provide decision makers with the support they need to make difficult decisions, particularly in the current policy landscape of “ocean economies”. To do this, we have worked across many different disciplines to tackle the complex and wicked problems that are impacting our oceans today. Our work has included biophysical mapping of previously unsurveyed marine environments, mapping and modelling of the distributions of threatened marine species, top predator movement modelling, the development of decision-support tools for trade-off analyses, and policy development for marine spatial planning and integrated ocean management. We have done this work within a social-ecological systems framework, and our team includes biologists, oceanographers, social scientists, statisticians, economists, system dynamics modellers, and governance professionals. In a series of speed presentations, we will share the highlights of ten years of MSP research, focusing on what we learned and how this knowledge can be used to reduce our impacts on the ocean.

Prof Lombard holds the NRF's South African Research Chair in Marine Spatial Planning. She focuses on applied research that can be implemented for effective sustainable-use outcomes and has a special interest in conservation planning and top predators. She has worked in terrestrial, coastal and marine systems globally and has experience in local, national and regional conservation assessments, plans and strategies. Her current areas of focus include the Western Indian Ocean region, the Southern Ocean and Antarctica.



Spatial Solutions for a Complex Planet: From Ocean Currents to Urban Networks

Keynote: Prof Elizabeth Wentz

Our planet's most pressing sustainability challenges unfold across interlinked systems of land and sea.



This keynote examines how spatial science provides a framework for understanding and solving complexity in both marine and urban environments. Integrating insights from Mandy Lombard's marine spatial planning and Elizabeth Wentz's urban spatial analytics, the presentation demonstrates how spatial data, modeling, and visualization enable more adaptive and equitable solutions. By comparing how cities and oceans manage competing demands for space, energy, and ecological balance, the talk reveals how shared spatial strategies can guide global sustainability. Ultimately, it calls for a transdisciplinary approach to planetary problem-solving—one that leverages spatial thinking as a bridge between science, policy, and design.

Prof Wentz is the Vice Provost and Dean of the Graduate College and a professor in the School of Geographical Sciences and Urban Planning at Arizona State University. She is the Founding Director of the Knowledge Exchange for Resilience, an ASU initiative to support Maricopa County, Arizona by sharing knowledge, catalyzing discovery, and exchanging responses to challenges together, in order to build community resilience. Her research focuses on the design, implementation and evaluation of geographic technologies with particular emphasis on how such technologies can be used to understand urban environments.



Beget caring conservation—the significance of traditional ecological indigenous knowledge and science

Keynote: Mr Loyiso Dunga

There is widespread consensus on the ecological benefits of marine protected areas among other spatial conservation measures, as seen by their clear ecological benefits including abundance, biomass, sizes, and reproductive outputs, which have spillover impacts.



However, questions of illegitimacy continue to haunt ocean conservation efforts, since realising their social and economic potential remains a challenge. The majority of local and indigenous coastal communities cannot discern between contemporary marine conservation measures from colonial and apartheid historic measures. More than 300 years before South Africa's first MPA was established, in the Western Cape, the very first fishing restriction was documented with lasting impacts. Contemporary marine conservation measures continue to have biased trade-offs and to overlook the deep-rooted and diverse connections local and Indigenous communities have to the ocean. The silence of indigenous knowledge in design, implementation and management processes is deafening. This exacerbates mistrust and inequitable management outcomes and undermines critical elements of "thriving culture for nature", along with often overlooked cultural benefits to ecosystems and subsequently the ecosystem services. This missed opportunity impedes support for future expansions and the development of comprehensive, reciprocal, and inclusive marine conservation strategies for ocean life and livelihoods. Building inclusive and effective conservation strategies, it is essential to integrate diverse knowledge systems and recognise the deep connections between language, culture, and biodiversity. Most significantly for the African context, caring conservation takes a form that recognises that language and culture are intricate manifestations of biological diversity. Our biggest challenge is that one continues to eat the other!

Mr Dunga is a marine biologist by training (with a focus of kelp forest ecosystems), a conservationist at heart. His work places him in the nexus of science-policy-society, where he works to build bridges that bring together multiple disciplines in order to co-design strategies to safeguard South Africa's marine heritage for people and nature.



Contributing to the long-term in the short-term –
initiating long-term ecological research of
microbialite ecosystems.

Dr Carla Dodd



Microbialites are carbonate rocks that are formed by microorganisms in aquatic settings.

These rocks have existed throughout most of earth's geological history and fossilised examples provide evidence of early life on earth. Along the South African coast, microbialite systems are actively forming as fresh groundwater mixes with seawater in rock pools. These pools are important in terms of aquatic biodiversity and host, for example, an endemic species of tanaid. After a decade of research on the south coast systems, a long-term ecological research approach was launched in October 2024 with the purpose of systematically collecting data on the hydrological and biological drivers of the systems' functioning. In terms of hydrology, water quality and groundwater discharge rates are being monitored, which can also act as indicators of coastal aquifer health. This research is especially important as multiple pressures are acting on the coastal groundwater systems and groundwater development for private residential and municipal use is increasing.

Dr Dodd is an NRF postdoctoral research fellow in Geology at the Nelson Mandela University. Her research interests include environmental geology, specifically with regards to ecohydrology and groundwater-dependent ecosystems. Her current research focus is on coastal groundwater discharge dynamics as influenced by anthropogenic activities, as well as natural processes.



Promoting resilient prosperity for South Africa's ocean economy

Dr Nomtha Hadi



The vital role of oceans and seas in achieving sustainable development is widely recognised including through their contribution to poverty eradication, economic growth, food security sustainable livelihoods and decent work.

Since 2010, the South African government has invested considerable resources in the development of the country's Oceans Economy. Although the potential offered by the oceans has previously enjoyed strategic attention, the current policy drive is characterised by imperatives of both growth and wide distribution of resulting benefits. The challenges experienced by the country in achieving impactful growth since at least 2016 resulted in the urgency to develop new initiatives that can promote resilient prosperity for South Africa's ocean economy and provide recommendations that can assist to address long-standing economic issues of unemployment, inequality, poverty alleviation and underdevelopment through key ocean economy sectors.

Dr Hadi is the Research Director at the South African International Maritime Institute (SAIMI). She previously lectured at Nelson Mandela University's Business School, teaching Business Strategy, Port Management, and coordinating the Master of Maritime Management programme. Her research interests include maritime management, blue ocean economies, development planning, and mixed methods research, with a strong focus on multidisciplinary and transdisciplinary approaches.



2025 National Biodiversity Assessment: Estuarine Realm - Ecosystem Threat Status, Protection Levels and Condition

Prof Lara van Niekerk



The NBA 2025 show that than 54% of SA estuaries are relatively healthy, but this amounts to only 18% of total estuarine extent, comprised mostly of small estuaries.

Concerning, more than 70% of estuarine area is significantly modified. Representing an overall 1% decline in Natural/Near Natural estuaries and a 7% increase in degraded extent. The estuarine realm is one of the most threatened in South Africa with 99% total estuarine area threatened - 1% Critically Endangered, 57% Endangered and 41% Vulnerable. Overall, estuaries are moderately (59%) to Poorly (32%) protected in South Africa, less than 1% of area is well protected.

Pressure evaluation shows that a third of freshwater flow no longer reaches the coast (22% of systems severely impacted). Wastewater discharges amount to about 655 000 m³/d (32% of estuaries under severe pollution pressure), with harmful algal blooms (HABs) now recorded in 18% of estuaries in response to declining water quality. Estuaries, especially in KZN and Wild Coast, are under severe pressure from illegal gillnetting, with systems under severe pressure increasing from 15% to 21% to 28% between 2011, 2018 and 2025 (75%, 78% and 85% of area), significantly compromising the multiple benefits derived from estuaries. Over 22% of estuaries are also subjected to severe habitat modification.

Excellent progress has been made in the management of estuaries. DWS has determined the ecological water requirements of all estuaries, with 100% of them subjected to the "Classification" of freshwater resources. In addition, about 20% of estuaries have Estuary Management Plans in various stages of completion under the guidance of DFFE, provinces and conservation agencies.

Prof van Niekerk is a Principal Researcher at the Council for Scientific and Industrial Research (CSIR) and a Visiting Professor at CMR. Her research investigates coastal systems and earth observation as well as ecological flow requirement methods, and the strategic and operational policies and legislation required for effectively managing South Africa's estuaries.



Restoration of South Africa's estuaries – towards the 30 x 30 targets

*Prof Janine Adams &
Ms Yolokazi Galada*

Ecological restoration has become increasingly relevant across the world's ecosystems, with this decade (2021 – 2030) being declared the 'UN Decade on Ecological Restoration'. Restoration is the process of assisting the recovery of damaged, degraded or destroyed systems to improve biodiversity, ecosystem services and societal benefits.

As member to the Convention on Biological Diversity, South Africa aims to have 30% of the extent of degraded Blue Carbon Ecosystems under restoration by 2030, for reporting to Target 2 of the Global Biodiversity Framework. Critical estuaries for restoration of environmental flows have been identified as well as those systems where restoration of seagrass, salt marsh and mangroves are feasible. The National Biodiversity Assessment for estuaries provides a detailed understanding of pressures; removal of these allows for restoration. Estuary research has informed restoration in terms of the sites and number of hectares the national department has committed to as well as the plan for rolling out rehabilitation over the next 5 years. An adaptive socio-ecological systems framework is recommended where objectives are set, restoration actions implemented and then monitored and improved. Restoration is achievable through the implementation of Estuary Management Plans that converge all existing management actions in estuaries to achieve integrated environmental management.

Prof Adams is a distinguished professor at the Nelson Mandela University, Deputy Director of CMR and occupies the SARChI Shallow Water Ecosystems. Her research is investigating blue carbon ecosystems and responses to climate change and successfully links science, policy and management through extensive collaboration and networking.

Ms Galada is a marine, coastal, and estuarine management professional with over 14 years of experience across national, provincial, and local government sectors. She currently serves as a Control Environmental Officer at DFFE, where she is responsible for the national coordination and management of estuaries.



A Practical Sustainability Performance Index for African Ports

Prof Gusan Taljaard



With growing public awareness and regulatory pressures, ports around the world can no longer operate without incorporating societal and environmental considerations in planning and management to secure their 'license to operate'.

As a result, ports are increasingly required to report on sustainability performance. Various formal top-down performance assessment approaches have been developed but come with challenges as their universally defined techno-scientific definitions are often difficult to apply in local or smaller-scale contexts - sustainability may mean different things to different people. This often discourages place-based action, so it has been argued that the definition of sustainability should be locally relatable but within a globally objectifiable framework.

In this study we adopt a design science approach, incrementally building on existing international practice, to develop a port sustainability performance (PSP) index that would be locally relatable within an African context while remaining globally comparable. Framed within the key pillars of sustainability, and aligned with the UN's 17 SDGs, the PSP Index offers a practical tool for ports not only to track sustainability performance, but importantly to assist in prioritizing specific sustainability-related issues requiring management intervention.

Prof Taljaard is Principal Researcher at the Council for Scientific and Industrial Research (CSIR) and an Adjunct Professor at CMR. She investigates biogeochemical characteristics and processes in coastal systems (including estuaries) and responses to global change pressures. She develops integrated coastal management plans and best practice guidelines, and she is involved in the application of policies and methods linked to the effective management of estuaries.



Stewards of the Sea: Reimagining the State's Public Trustee Obligation in South African Marine Spatial Planning

Dr Rachael Chasakara



This presentation examines the scope of the South African State's public trustee obligation in the context of marine spatial planning (MSP).

Rooted in the common law public trust doctrine and constitutionally affirmed by the environmental right in section 24, this obligation mandates an active, vigilant guardianship of our marine domain for both present and future generations, extending far beyond mere resource management. The recent *Sustaining the Wild Coast* case provides a good example of the inherent legal and governance complexities involved in reconciling these profound trustee duties with competing developmental imperatives. Against this backdrop, this presentation argues that MSP offers an indispensable mechanism to systematically embed ecological sustainability, intergenerational equity, and social justice into the very fabric of ocean governance. MSP enables the State to translate its constitutional obligation to a healthy, sustainably developed marine environment into reality.

Dr Chasakara is a Postdoctoral Research Fellow under the South African Research Chair in the Law of the Sea and Development in Africa. Her work critically examines the legal aspects of marine spatial planning, focusing on its influence on ocean governance, sustainable development, and the State's responsibilities as a public trustee of marine resources.



From larvae to impact: how a blue science career shapes blue action

Prof Francesca Porri



This presentation traces a research journey from foundational studies on larval ecology to transdisciplinary action for coastal sustainability.

Early work focused on marine population connectivity, the exchange of individuals among subpopulations through processes such as larval dispersal, settlement, and recruitment, highlighting how biological traits and physical oceanographic processes jointly influence population persistence and biodiversity. This understanding provided critical insights into the mechanisms driving population dynamics and ecological resilience. Building on this foundation, the research has evolved to address contemporary challenges posed by ocean sprawl, where engineered infrastructure along urbanising coastlines transforms habitat complexity and ecosystem function. In response, a non-conforming approach to ecological engineering has been developed, centred on co-creation with Indigenous Peoples. Rooted in the Eastern Cape, this work integrates scientific, heritage, and ecomusicology perspectives to design and test biodegradable, nature-based coastal structures, embedding Indigenous knowledge and cultural values into rehabilitation practice. Guided by Ubuntu principles of equity and inclusion, the project fosters trust-based partnerships, local participation, and multilingual educational materials. By blending ecological science with cultural expressions such as weaving, the research reframes conservation as both heritage preservation, youth engagement, and local co-creation, creating pathways for long-term stewardship. This science-to-action model demonstrates how a career rooted in larval ecology can evolve into inclusive innovation for ecosystem rehabilitation, aligning community identity with sustainable coastal futures.

Prof Porri is a senior scientist at the South African Institute for Aquatic Biodiversity (NRF-SAIAB), specialising in coastal ecology. With a background in marine and larval ecology and experimental design research, she investigates early life history processes that shape invertebrate population dynamics across habitats such as rocky shores, mangroves, sandy beaches, estuaries, and urban coastlines.



The paradox of a Water Scarce Coastal City: Design Direction towards water resilience in Gqeberha

*Mr Reetumetsi
Malefane*



In a world of pluriverses, Gqeberha lives in a paradox. How can a coastal city lack basic water delivery.

In understanding this phenomenon, the paper underpins the local reality of water supply in the metro, and the infrastructure, governance issues that make the system unreliable for future development. It then reflects on a discussion with Prof. Igor Litvine on emerging water purification technologies, such as reverse osmosis, nanofiltration, solar-assisted pumping as possible conditions of design intervention along the coast of Gqeberha.

From this technical foundation, the paper asks what is the best suited architectural intervention that can mediate between the open ocean and urban fabric, towards a pathway for long-term sustainable water supply in the metro. The paper concludes by proposing a design strategy through an intervention of 'coastal treatment/reservoir nodes' that harvests and reticulates water at a commercial scale to service the needs of the city. The findings offer a framework for equivalent coastal cities/towns in South Africa for sustainable development.

As an early-career Academic and Lecturer at Nelson Mandela University, Mr Malefane brings a blend of professional experience and academic rigor to the field of architecture. With industry-built practice as a Professional Architect, he has honed an understanding the application of architectural principles and their real-world applications. His current research focuses on Decolonizing Architectural Pedagogy, fostering experimental and qualitative methodologies through the integration of Indigenous knowledge Systems in the curriculum, challenging epistemic canon of knowledge production in architectural education.



From Evidence to Action: Behavioural Pathways to Sustainability and Impact

Prof Gyden Mishi



Understanding and influencing human behaviour is vital for addressing societal challenges. This talk presents measuring and modifying behaviour as the foundations of impactful, action-oriented research.

Behavioural measurement provides tools to quantify choices and values, including those related to non-market goods such as oceans and ecosystems, while behavioural modification applies these insights through nudges, incentives, and social norms. Drawing on Behavioural Economics, sustainability science, and policy research, the presentation illustrates how evidence-driven behavioural insights advance implementation science—turning understanding into influence and transforming research into a catalyst for social, economic, and environmental good. I challenge researchers to ask two fundamental questions—Who cares? and So what?—as gateways to relevance and impact. By combining behavioural measurement, modification, and communication, the talk demonstrates how evidence can shape action, policy, and sustainable outcomes for society and the environment.

Prof Mishi is a Mandela Rhodes Scholar and is an Acting Deputy Dean in the Faculty of Business and Economic Sciences at Nelson Mandela University. His research bridges Behavioural Economics and sustainability, focusing on understanding and influencing human behaviour to inform evidence-based policy and sustainable development. As Principal Investigator and Lead Researcher on several multidisciplinary projects, he applies advanced methods to measure non-market goods, generate behavioural insights, and test policy and resource management interventions. His work spans and integrates environmental themes—including the oceans economy, climate change, biodiversity, water security, and waste management—as well as socio-economic challenges such as poverty, inequality, education, health, and gender.



Voices from the Depths: Expert Insights into Advancing Gender-Inclusive Ocean Accounting Framework

Prof Joleen Gteyn Kotze



The oceans are increasingly recognised as critical to achieving inclusive economic and social prosperity, forming the foundation for human well-being and sustainable development (Ocean Accounts Global Framework, 2020).

However, the integration of gender perspectives within ocean governance and accounting remains limited. In this presentation I examine how gendered dimensions can be embedded in the Ocean Accounts Framework to enhance equity, inclusivity, and sustainability. I interrogate how policy narratives and governance structures shape the visibility, value, and agency of women in the ocean economy, and how these dynamics reflect broader inequalities within global development paradigms within the ocean spaces. Drawing on feminist political economy perspectives (Peterson, 2006; Krizsan & Lombardo, 2013), the study challenges approaches that render women as passive beneficiaries of capacity-building rather than as active agents in decision-making, knowledge production, and resource governance. Methodologically, the research employs expert surveys with academics, policymakers, and practitioners specialising in gender and ocean governance. I present the exploration of perceptions of gender inclusivity across key themes, including access to marine resources, participation in governance, training and education, and policy implementation, and analyses the structural and discursive barriers that hinder gender mainstreaming within ocean spaces and the Ocean Accounting Framework.

Prof Kotze is a Chief Research Specialist in Democracy and Citizenship at the HSRC's Developmental, Capable and Ethical State division, and a Research Fellow at the University of the Free State's Centre for Gender and African Studies. Her academic interests are rooted in democracy theory, focusing on substantive democratisation and socio-political citizenship with a focus on gender and youth issues as well as gender and the ocean economies.



Panelist



Prof Lara van Niekerk is a Principal Researcher at the Council for Scientific and Industrial Research (CSIR) and a Visiting Professor at CMR. Her research investigates coastal systems and earth observation as well as ecological flow requirement methods, and the strategic and operational policies and legislation required for effectively managing South Africa's estuaries.



Dr Cloverley Lawrence has worked in marine conservation for over 20 years. She is currently a Marine Scientist at the South African National Parks (SANParks). Her research interests include increasing understanding of natural systems and the influence of conservation management in maintaining the functioning of ecosystems particularly within marine protected areas (MPA).



Ms Yolokazi Galada is a marine, coastal, and estuarine management professional with over 14 years of experience across national, provincial, and local government sectors. She currently serves as a Control Environmental Officer at DFFE, where she is responsible for the national coordination and management of estuaries.



Dr Gilbert Siko is a Director of Marine & Polar Research at the Department of Science and Innovation. His role within the Research Development and Support Programme is to promote the development of research, the production of scientific knowledge, and human capital development in science areas in which South Africa enjoys a geographic advantage, that includes Antarctic and marine research.

ECOP-GA



Dr Mia Strand is an Ocean Nexus Postdoctoral Research Fellow at Nelson Mandela University, focusing on transdisciplinary knowledge co-production processes to centre equity in ocean governance.



Mr Brishan Kalyan is a PhD student at Nelson Mandela University and specialises in phytoplankton ecology and taxonomy, remote sensing and barcoding.



Ms Nina Faure Beaulieu is a PhD student at Nelson Mandela University. Her interests lie in the spatial conservation of sharks and rays using tools such as systematic conservation planning and species distribution modeling.



Important Information for Symposium Participants

We look forward to welcoming you to the CMR Research Symposium.

Please take note of the following important information to help ensure a smooth and sustainable event:



Sustainability

- In line with our commitment to environmental sustainability, we encourage all participants to bring their own reusable water bottles.
- A water refill station will be available in the venue to reduce the use of single-use plastics.
- Printed materials will be kept to a minimum — the programme and abstracts will also be available digitally.



Recording & Streaming

- The symposium will be streamed online to allow broader participation.
- Sessions will be recorded and shared on the CMR website after the event.
- Photographs and video footage will be taken throughout the symposium and may be used for CMR communication and promotional materials.
- Please notify the organisers if you have any concerns about being recorded or photographed.



Registration Details

- Registration will take place from 08:00–08:30 every morning.
- For any on-the-day queries (logistics, directions, or general assistance), please contact Tara Bonnesse at 072 317 1352.





Venue Access & Security

- Attendees without a Nelson Mandela University staff or student card will be required to present a driver's licence at the gate for campus access.
- Please follow the blue arrows on the campus map to reach the designated parking area and venue entrance

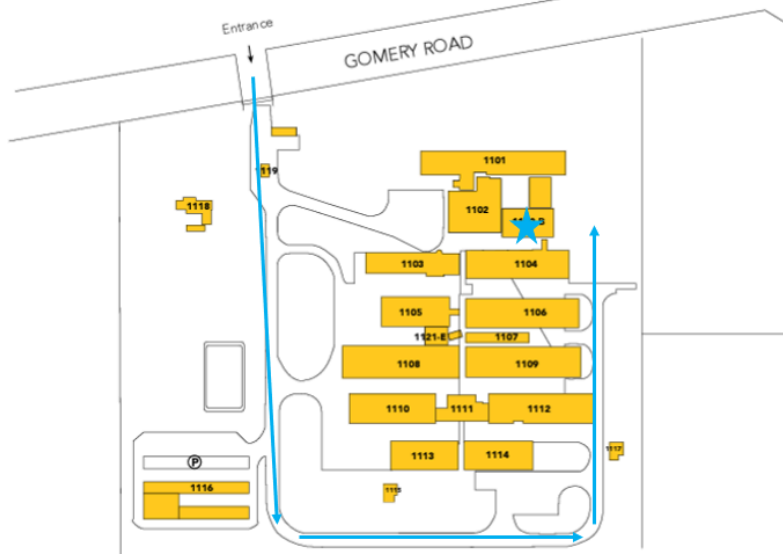


Wi-Fi Access

- Guest Wi-Fi login details will be displayed inside the venue for your convenience.

Ocean Sciences Campus, Summerstrand

Nelson Mandela University
Nelson Mandela Bay



UNIVERSITY WAY

1101	A Block
1102	B Block
1102-B	Block Commons/Cafeteria & Conference facilities
1103	C Block
1104	D Block
1105	E Block
1106	F Block
1107	G Block
1108	H Block
1109	I Block
1110	J Block
1111	K Block
1112	L Block
1113	M Block
1114	N Block
1115	P Block
1116	Q Block
1117	R Block
1118	Eleanor Xiniwe (SRMA offices)
1119	Entrance
1121-E	Link



Notes



CMR

COASTAL & MARINE
RESEARCH

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Change the World