

# Institute for Coastal and Marine Research (CMR)

## Research Symposium

**Date:** 9 November 2022

**Time:** 10:30 to 15:30

**RSVP (Mandela staff/students):** <https://bit.ly/3VP0U3D>

**RSVP (External organisations):** [cmr@mandela.ac.za](mailto:cmr@mandela.ac.za) by 7  
November

**Venue Details:** Conference Hall, B-Block, Ocean  
Sciences Campus

**Virtual Platform Details:** <https://youtu.be/UkMU8-TCZIM>

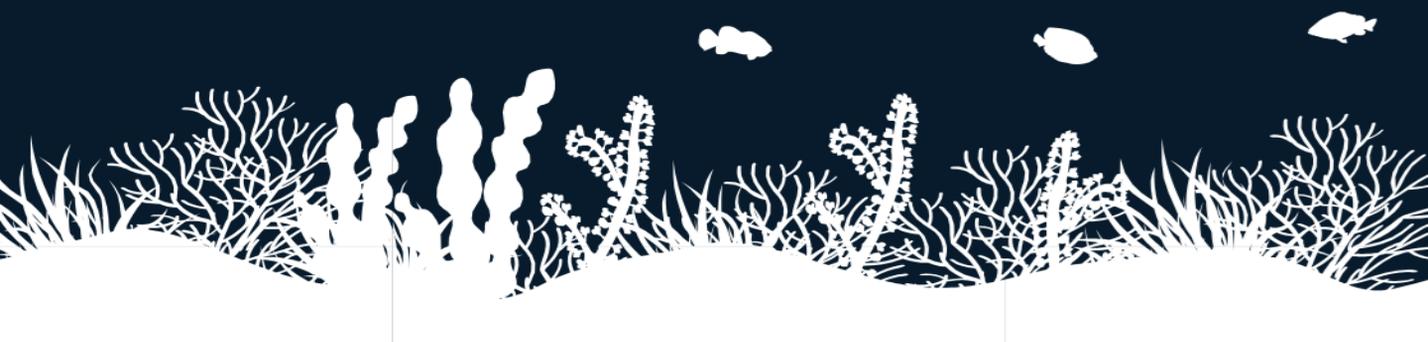
# SUSTAINABLE FUTURES 2022

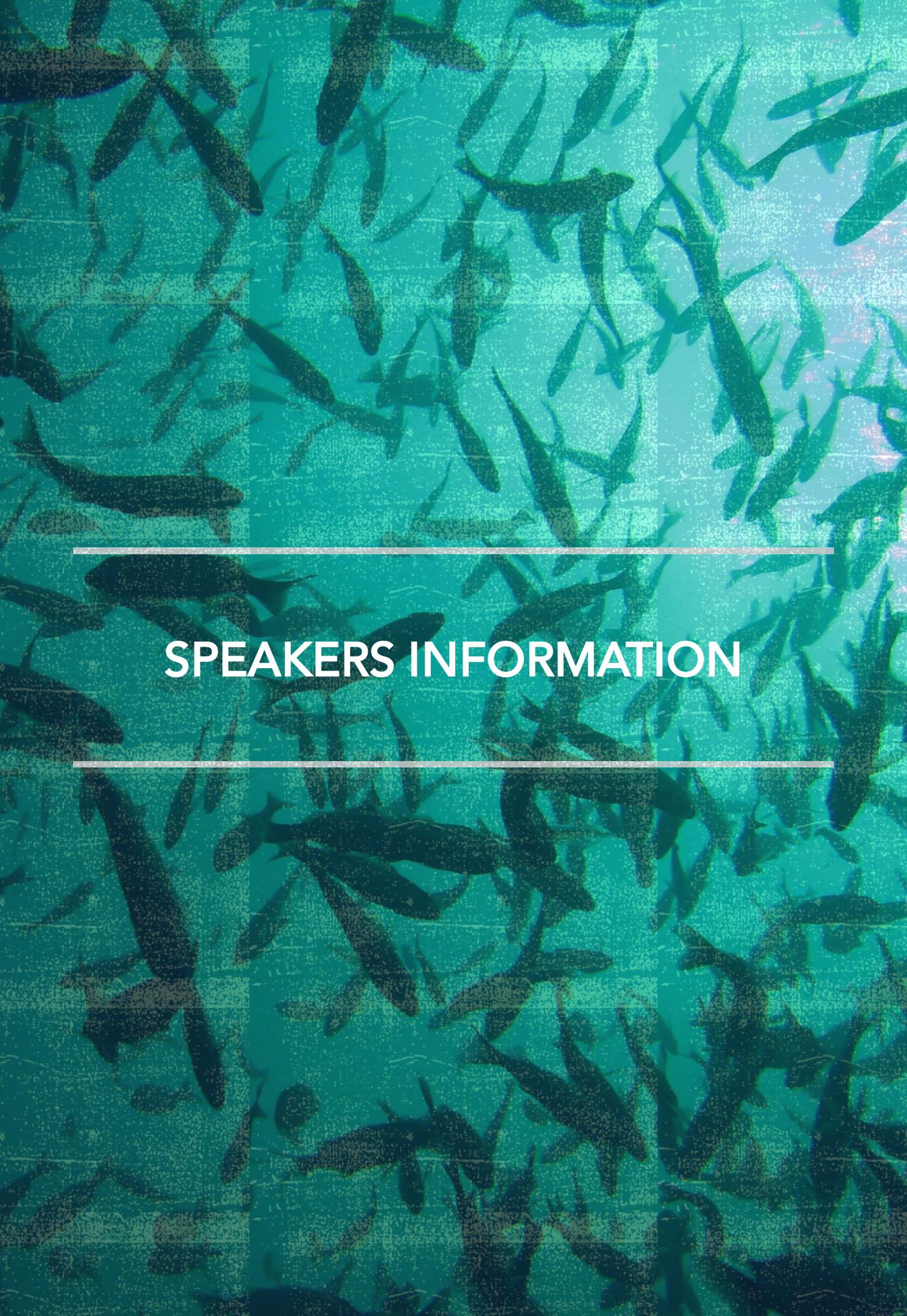
**CMR**  
COASTAL & MARINE  
RESEARCH



# PROGRAMME

Time	Item
10:30-11:00	<i>Coffee &amp; Muffins</i>
11:00-11:20	<b>Dr Kwezi Mzilikazi</b> Welcoming Address
11:20-11:50	<b>Dr Linda Harris</b> Prioritisation of Coastal and Marine Biodiversity in South Africa.
11:50-12:20	<b>Prof Francesca Porri</b> Nature-Based Solutions for Urban Coastlines.
12:20-12:50	<b>Dr Zanele Hartmann</b> Indigenous Use of Coastal Areas in Algoa Bay.
12:50-13:50	<i>Finger Lunch</i>
13:50-14:20	<b>Prof Paula Melariri</b> Water Quality and Human Health.
14:20-14:50	<b>Prof Patrick Vrancken</b> Land and Sea Integration through Jurisdiction.
14:50-15:20	<b>Adj. Prof Lorien Pichegru</b> Can Sardine Fishing be Sustainable for African Penguins?
15:20-15:30	<b>Prof Janine Adams</b> Vote of Thanks and Closure





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# SPEAKERS INFORMATION

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# Spatial assessment and prioritisation of coastal and marine biodiversity in South Africa

By Dr Linda Harris



South Africa is uniquely positioned at the confluence of three ocean basins: the Indian, Atlantic and Southern Oceans. It is a megadiverse country with the third-highest level of endemism globally. Given its vast complement of nearly 13 000 marine species, many of which are unique to the country, South Africa has an important responsibility to safeguard its biodiversity as a legacy for current and future generations. Furthermore, the wealth of coastal and marine biodiversity supports jobs, food security and climate resilience, and healthy ecosystems underpin thriving ecotourism, enhance human health and wellbeing, and promote social cohesion by providing spaces for people to play, connect and learn. Investing in healthy coastal and marine ecosystems thus means investing in the future of all South Africans. In this talk, the status of South Africa's coastal and marine biodiversity is shared by presenting the results from the most recent National Biodiversity Assessment, including the indicators of ecological condition, ecosystem threat status and ecosystem protection level. The identification of biodiversity priority areas for enhanced management in the mainland maritime domain is explained, including Ecologically or Biologically Significant Marine Areas, and South Africa's first National Coastal and Marine Spatial Biodiversity Plan, and how these form the basis for the biodiversity sector's input to the national Marine Spatial Planning process. Current work to align biodiversity priorities across the land-estuary-sea interface, and improve inclusion of human dimensions in planning is also highlighted. Key outstanding research gaps are identified, as well as recommendations for the type of research that can contribute to advancing real-world biodiversity assessment and planning in South Africa.

Dr Linda Harris is a Research Associate at the Institute for Coastal and Marine Research at Nelson Mandela University. She is a spatial ecologist working in coastal and marine systems with interests in systematic conservation planning, marine spatial planning, integrated coastal zone management, and mapping biodiversity patterns, ecological processes, and ecosystem services for inclusion in spatial prioritization. Dr Harris specializes in sandy beach ecology, and is passionate about advancing land-sea connectivity in conservation and management, especially across the dune-beach-(estuary)-sea interface. She is currently involved in three projects: Ecologically or Biologically Significant Marine Areas in the Benguela Current region (MARISMA); cross-realm coastal biodiversity assessment and planning in South Africa, including identification and integration of culturally significant areas in planning (CoastWise), and identifying offshore biodiversity priority areas to support expansion of Marine Protected Areas in South Africa (iAtlantic). Her favourite research is quantitative and hypothesis driven.



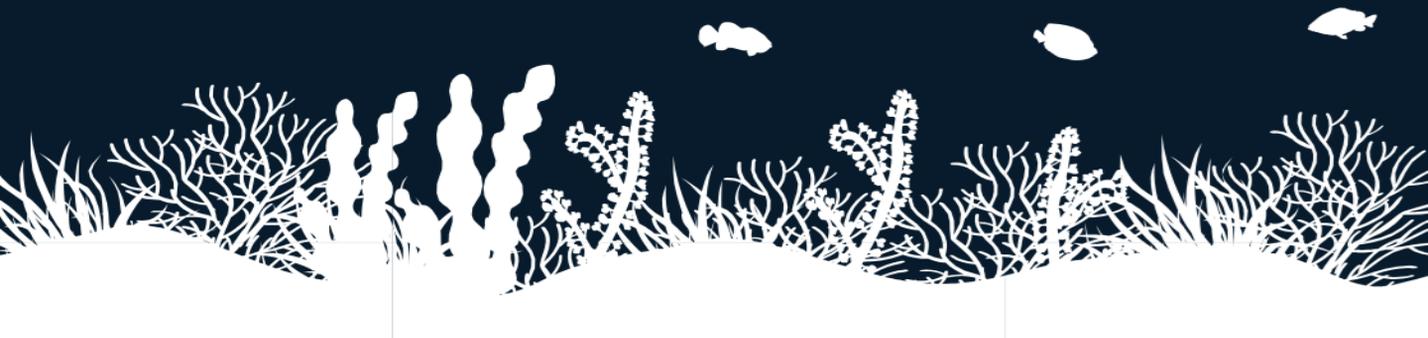
# Nature-Based Solutions for Urban Coastlines

By Prof Francesca Porri



Societal pressure on natural coastlines due to urbanisation cannot be (easily) reversed, especially with the added drivers of climate forcing on shorelines, posing challenges to the functioning of coastal ecosystems. Yet, coastal ecosystems are among the most productive natural systems on Earth and key providers of food security for humans. Ensuring and maintaining functionality and biodiversity is therefore a pressing requirement to build resilient coasts for a long-term sustainable reliance on blue economies. Within this framework, a new, nonconforming transdisciplinary research recently funded by the South African National Research Foundation, takes from the latest innovative and indigenous synergistic practices and aims to forge a deep collaborative partnership between scientists and members from a local rural community. Through the project, Indigenous Marine Innovations for Sustainable Environments and Economies (IMIsEE Project), natural structures are being co-created and tested the potential role to enhance the value of habitats in terms of usage by early-stage coastal fishes and invertebrates, functioning and diversity. The originality of the projects stands in the merging of scientifically innovative, eco-creative approaches and traditional cultural expressions (TCEs) with the potential to sustainably and ethically improve the functioning and diversity of coastal urban habitats.

Professor Francesca Porri is a senior scientist at the South African Institute for Aquatic Biodiversity (SAIAB) in Grahamstown/Makhanda, South Africa, with interests in the ecology of coastal systems. She completed her PhD at Rhodes University, examining the spatio-temporal mechanisms that drive larval connectivity of mussels on the south-east coast of South Africa. Professor Porri has a background in marine ecology and experimental design, mostly focusing on the dynamics of dispersal, recruitment, functioning of early life stages in coastal habitats, including rocky shores, sandy beaches, estuaries, mangroves as well as urbanised shorelines. Mechanisms of organismal responses to the environment and connectivity of benthic populations are key topics of the research she does, with strong inter- and multidisciplinary links to oceanography, physiology, ichthyology, genetics, theoretical ecology, indigenous knowledge, modelling, the arts and education.



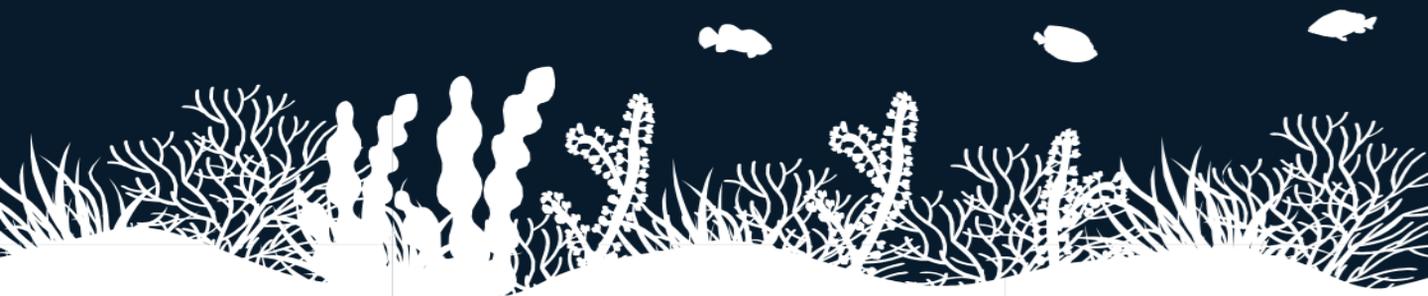
# Indigenous Use of Coastal Areas in Algoa Bay

## By Dr Zanele Hartmann



The actors that use the South African coastline are heterogeneous. The diversity of these actors also means that their use of the coastal area may vary. Thus far, the depth and complexity of cultural interactions between coastal communities and marine ecosystems are not well understood. Human traditional practices and belief systems that are upheld through various customs are largely unexplored in the coastal governance discourse. Through their cultural heritage practices, coastal people have been known to contribute to the regulation of marine resource use patterns and the restriction of certain forms of behaviour around these ecosystems that could be detrimental to the systems. These beliefs and practices are upheld through non-written context which is embedded in customary and traditional knowledge. Therefore, there is a need to recognise the importance of indigenous beliefs and practices in matters of marine and coastal governance, as these may indirectly contribute to sustainable marine and coastal outcomes. We applied anthropological research methods to investigate how local communities in Gqeberha, Eastern Cape Province in South Africa use coastal areas. We also explored people's shared values, histories, places and practices, and how these were reflected through their way of life. Documenting this history is part of a larger research project examining ocean sustainability and environmental conservation in South Africa.

Dr Zanele Hartmann is a Postdoctoral Research Fellow under the DSI-NRF SARCHI Chair in Ocean Cultures and Heritage at the Nelson Mandela University. She is researching coastal blue spaces and human well-being. Dr Hartmann is a social and a natural scientist. She also has extensive work experience in environmental management. Dr Hartmann has worked for government, parastatals and the private sector. Her research interest is motivated by her belief that people and nature are interconnected.



# Water Quality and Human Health

By Prof Paula Melariri



South Africa battles to meet its water security objectives primarily due to the interplay of environmental, built environment, socio-economic, and political drivers. Water, sanitation and hygiene (WASH) emphasizes the provision of safe water for basic human needs such as drinking, washing and domestic activities. Unsafe water can cause infectious diseases, including Schistosomiasis and diarrhoea. Globally, waterborne diseases are associated with more than 2 million deaths and diarrhoea which is associated with poor water quality, remains one of the leading cause of death in children below five years old. Assessment of water quality and mapping of water borne diseases in the Nelson Mandela Bay area, Eastern Cape Province South Africa, which currently is experiencing water shortages is vital in the face of potential water and hygiene related diseases. The water quality and human health research activities in the Faculty of Health Sciences, adopted the multidisciplinary and transdisciplinary research approach, to holistically address the psycho-social determinants of health in Nelson Mandela Bay Municipality. Through this project various postgraduate students will be trained by the various experts and reference group members involved in the project. A new predictive tool will be developed for the mitigation and management of water borne infections, the community via active involvement and participation will be empowered as awareness will be brought about, which will ultimately break the disease transmission cycle.

Professor Paula Melariri completed her PhD in the Division of Pharmacology in 2010 at the University of Cape Town, South Africa. She is an Associate Professor at the Nelson Mandela University, and currently the Acting Director of Research in the Faculty of Health Sciences.



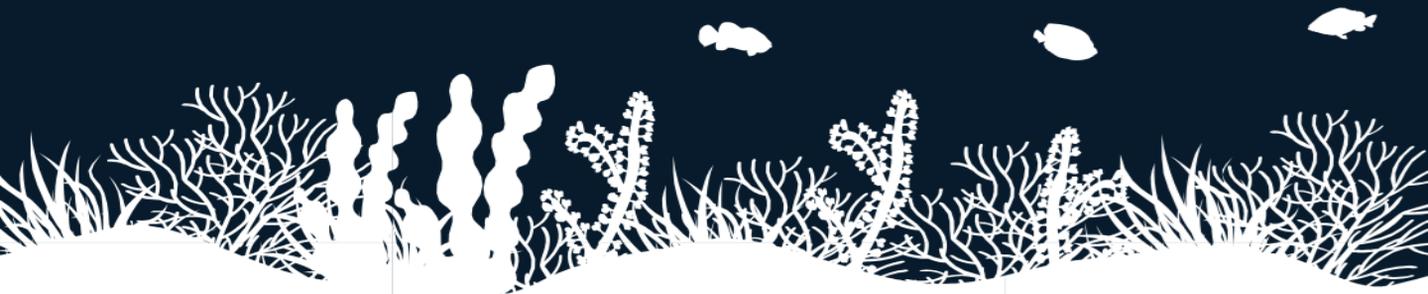
# Land and Sea Integration through Jurisdiction

By Prof Patrick Vrancken



The presentation illustrates the divide between land and sea in law, identifies some of its reasons and explores the potential of jurisdiction as an avenue to bridge the divide from both law and non-law perspectives.

Professor Patrick Vrancken is the incumbent of the South African Research Chair in the Law of the Sea and Development in Africa, which is funded by the South African National Research Foundation and hosted at Nelson Mandela University, where he is professor in the Department of Public Law.



# Can Sardine Fishing be Sustainable for African Penguins?

By Prof Lorien Pichegru



The African Penguin is an Endangered species. Following rapid decrease in their numbers, a unique experiment was set in place in South Africa in 2008 to assess the benefits of small pelagic fishing exclusion on the penguin populations. A Biodiversity Management Plan was also established in 2013. But fifteen years down the line, numbers continue to decline at an alarming rate. An overview of sustainable solutions for penguins will be discussed.

Professor Lorien Pichegru is the current acting Director of the CMR. She has been studying the impacts of anthropogenic changes and conservation measures on African Penguins and other seabirds in South Africa for the past 15 years. Professor Pichegru works closely with governmental institutions, NGOs and civic society to improve the conservation of these charismatic species.



NELSON MANDELA  
UNIVERSITY

# INAUGURAL RESEARCH WEEK

**7 - 11 NOVEMBER 2022**

**VENUE: OCEAN SCIENCE CAMPUS**

**GOMERY AVENUE, SUMMERSTRAND**

Please register on the below link:

<https://research.mandela.ac.za/RSVP-for-Research-Week>

