

# NELSON MANDELA UNIVERSITY



## Institute for Coastal and Marine Research (CMR) Report 2017





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# LIST OF ABBREVIATIONS

AEON	-	Africa Earth Observatory Network
ASCLME	-	Agulhas and Somali Current Large Marine Ecosystems
BCC	-	Benguela Current Convention
BCLME	-	Benguela Current Large Marine Ecosystem
BCRE	-	Bayworld Centre for Research and Education
CCP	-	Centre for Coastal Palaeoscience
CONICET	-	National Scientific and Technical Research Council
CoP	-	Community of Practice
CSIR	-	Council for Scientific and Industrial Research
DAFF	-	Department of Agriculture, Forestry and Fisheries
DEA	-	Department of Environmental Affairs
DEDEA	-	Department of Economic Development, Environmental Affairs and Tourism
DoE	-	Department of Education
DST	-	Department of Science and Technology
EBEIT	-	Faculty of Engineering, the Built Environment and Information Technology
EBSA	-	Ecologically or Biologically Significant Marine Areas
GIZ	-	German Development Corporation
IBSS	-	International Bibliography of the Social Sciences
ISI	-	International Scientific Indexing
MAPRU	-	Marine Apex Predator Research Unit
MoU	-	Memorandum of Understanding
NMB	-	Nelson Mandela Bay
NOC	-	National Oceanography Centre
NRF	-	National Research Foundation
OH&S	-	Occupational Health and Safety
RCUK	-	Research Councils United Kingdom
RDU	-	Research Diving Unit
SAASTA	-	South African Agency for Science and Technology
SAEON	-	South African Environmental Observation Network
DAFF	-	Department of Agriculture, Forestry and Fisheries
SAIAB	-	South African Institute for Aquatic Biodiversity
SAMSS	-	Southern African Marine Sciences Symposium
SANBI	-	South African National Biodiversity Institute
SANCOR	-	South African Network for Coastal and Oceanic Research
SANParks	-	South African National Parks
SARCHI	-	South African Research Chair Initiative
SLA	-	Service Level Agreement
SLP	-	Short Learning Programme
SRU	-	Sustainability Research Unit
SST	-	Sustainable Seas Trust
STINT	-	Swedish Foundation for International Cooperation in Research and Higher Education
WESSA	-	Wildlife and Environment Society of South Africa
WIO	-	Western Indian Ocean
WRC	-	Water Research Commission
WWF	-	World Wildlife Fund



# MESSAGES FROM THE DIRECTORS

This annual report showcases the fantastic year 2017 was for our CMR. Not a seat could be found at our Research Symposium, a successful Southern African Marine Sciences Symposium was hosted at the Boardwalk, we participated in National Science Week, and enjoyed the opening of the Ocean Sciences Campus. We had international visitors from Sweden, Norway, Germany, France, the UK and China – indicating our growing profile and research excellence. The University Engagement Excellence Team Award acknowledged our outputs and research impact.

Going forward our Institute has an important role to play on Campus, nationally and internationally. Research expertise needs to grow in all disciplines of coastal and marine research through targeted appointments, Research and Post-Doctoral Fellows. This is needed to ensure that we engage in many international opportunities and grow our research expertise so that we can provide our students with the best experiences and opportunities possible.

Thanks to all members for your active participation in 2017 activities – it was an enjoyable and memorable year!

**Prof. Janine Adams**  
Director 2017  
Department of Botany



Professor Janine Adams provided strategic leadership in 2017 and this packed report is a testament to the busy and engaged year. Janine is on sabbatical for 2018, and I will act as Director for this period. We wish her well and hope she enjoys a productive sabbatical.

2018 heralds exciting changes and builds on the previous strategic directive as an Institution-wide research entity. Existing and new international collaborations and funding opportunities will provide capacity for transdisciplinary research and engagement.

The Algoa Bay Communities of Practice funding has provided a platform for collaboration across Research Chairs within the Eastern Cape. CMR Researchers, Research Chairs and Research Associates are actively involved in this project.

The CMR will continue to support and cultivate excellent research and student development on the Ocean Sciences Campus. I wish all our researchers a productive 2018, all completing postgraduate students all the best for this last stretch, and new postgraduates – enjoy the journey!

**Dr Bernadette Snow**  
Deputy Director 2017 – Acting Director 2018  
Department of Development Studies



# CMR OVERVIEW

- ▶ Historical Background
- ▶ Pillars
- ▶ Activities
- ▶ Strategies
- ▶ Governance Structures
- ▶ Goals & Targets
- ▶ Summary of Outputs



The tradition of coastal and marine research at the Nelson Mandela University goes back to the University of Port Elizabeth (UPE) in the early 1970s. This grew from a few postgraduate students to staff from several disciplines by the early 1980s. The CMR was first initiated as the Institute for Coastal Research (ICR) at UPE in 1983. **Collaborative interdisciplinary research** on the coast and ocean is therefore already three decades old at the University. Starting as a forum to promote collaboration among three academic Departments (Botany; Zoology; Earth Sciences), the ICR expanded its suite of activities in the 1980s to draw in the Department of Oceanography and to take on environmental consulting work. The initial funder was the Department of Environmental Affairs (DEA), followed by a variety of sources. The most notable was a major grant from South African Breweries (SAB), which underwrote ICR activities into the 1990s.

The Institute underwent a series of transformations until 2007, changing name to the SAB Institute for Coastal Resource Management in 1997, and then to the SAB Institute for Environmental and Coastal Management (IECM) in 2002. The focus was mainly on commercial contracts for environmental consulting. It then operated as a Unit in the Science Faculty until the University's strategic decision in 2013 to develop a strong marine and maritime Institutional Theme. This was expounded as the University's signature tune in the **Maritime and Marine Sciences Strategy** written for 2016-2020. It resulted in the establishment of the **Institute for Coastal and Marine Research (CMR)**, which was approved by Senate and Council in 2014. This emerged from recognition that marine and coastal ecosystems are threatened, and the University must play a role in addressing this challenge.

Initially defined as an entity within the Faculty of Science, the CMR was elevated to a **University-wide Institute** in 2016, reporting directly to the Deputy Vice-Chancellor: Research and Engagement (DVC: R&E). The appointment of a part-time Director at the start of 2016 has contributed to starting Institute activities, including reaching out to other University Faculties and entities in addition to Science. The Institute now spans across all seven Nelson Mandela University Faculties and includes members from over ten research entities external to the University. With its position at the Ocean Sciences Campus, the CMR will play a vital role in supporting the University's drive for excellence in maritime and marine sciences.

## VISION

CMR aims to be a **leading marine sciences institute**, conducting cutting-edge research, building capacity and advancing our understanding of the coastal and marine environment, to serve the needs of South Africa, the continent and beyond, in a sustainable manner.

## MISSION

CMR strives for excellence in **interdisciplinary research and training** related to coastal and marine environments. This will advance scientific knowledge and the Nelson Mandela University Institutional Research Themes; provide a scientific basis for management strategies that optimise maintenance of biodiversity and sustainable use of resources; and contribute to the education of the community at large in matters pertaining to the coast and ocean.

## VALUES

The activities of the Institute will promote the six Nelson Mandela University values, with special emphasis on the following three:

- ▶ **Respect for the natural environment** and adherence to the principle of sustainability.
- ▶ Inclusion of staff and students from disadvantaged backgrounds to promote **respect for diversity**.
- ▶ Emphasis on **excellence** in all aspects of research, training, and outreach.





A wide range of activities fall under the scope of the Institute, and can be broadly classified as **Research, Training, and Consulting**. These may overlap.

### RESEARCH

Research, particularly interdisciplinary research, is the CMR's primary activity and it forms the core on which other activities are based. Members address fundamental and applied problems through research. This is grouped under three broad thematic areas, detailed under *Research Structures* in this report.

### TRAINING

Members provide research-based training through Masters and Doctoral programmes, based in participating academic University Departments. The Institute offers short courses to train divers and can offer courses on other topics on demand. Programmes with an interdisciplinary nature are encouraged.

### CONSULTING

The CMR embraces a broad and unique spectrum of expertise relevant to coastal and marine issues through its members, who are drawn from varied disciplines. This pool of expertise is the broadest in the region, and is used to provide community service in the form of commercial consultancies on issues in the coastal zone and marine environment.



## OBJECTIVES

- ▶ Provide a **forum** to enhance collaboration among academics, researchers, and professionals, and build interdisciplinary teams of critical mass to address complex issues.
- ▶ Create a strong **brand** and market this collective expertise to develop partnerships and source funding in key areas.
- ▶ Build **capacity** in knowledge and skills through research-based postgraduate training and short courses.
- ▶ Provide community **service** through professional consulting, service on external boards and committees, and broader outreach.
- ▶ Provide infrastructure **support** for research, especially relating to diving, boating, and specialised marine equipment.
- ▶ Host meetings (regional and international) and other activities of wide interest to **showcase** expertise and achievements.
- ▶ Be the first point of **contact** for marine issues at the Nelson Mandela University and communicate, on behalf of the membership, with the external community and top management.

## STRATEGIES

- ▶ **Enhance** the breadth of CMR collaboration and range of coastal and marine expertise across the University and externally.
- ▶ **Increase** funding for research, studentships and resources to promote research and training.
- ▶ **Strengthen** branding and marketing to maintain a high profile nationally and internationally.
- ▶ **Build**, grow, and develop expertise and fill gaps in critical areas to build capacity and broaden expertise.
- ▶ **Develop**, maintain, and expand infrastructure at the Ocean Sciences Campus and across Campuses to strengthen marine research and capacity.



The CMR is headed by a Director, whom is assisted by a Deputy Director (both voluntary positions). They provide overall vision and leadership, and assume responsibility for the Institute's activities. The Director is supported by a **Management Committee** that represents a wider membership, and who oversees and guides the running of the Institute. The Director, (on behalf of the Management Committee), reports to the DVC: Research and Engagement who chairs an **Advisory Board**. This Board includes external stakeholders, and is responsible for screening CMR Annual Research Reports before submission to Senate, and advises on the CMR's overall direction and strategy.

CMR leadership and staffing changed at the beginning of 2017. Prof. Janine Adams took over as the Director from Prof. Anton McLachlan. Prof. Adams was supported by Dr Bernadette Snow as the Deputy Director, who relieved Prof Ronel Nel (Acting Deputy Director) from her position. Mr Anton Cloete remained the Head of the Research Diving Unit (RDU). Mrs Denise Scheepers remained the Secretary until her retirement at the end of June. Mrs Liza Rishworth was appointed as a Research Assistant to take over Mrs Scheepers' duties, to assist with growing CMR needs (especially reporting and arranging events), to support the SARChI Chair in Shallow Water Ecosystems, and to provide additional administrative support to CMR members and research groups. Committee members were also revised, and two additional Deans were welcomed to the Advisory Board. To ensure student involvement, a Post-Doctoral Fellow and a Masters Student Representative were also welcomed to both panels.





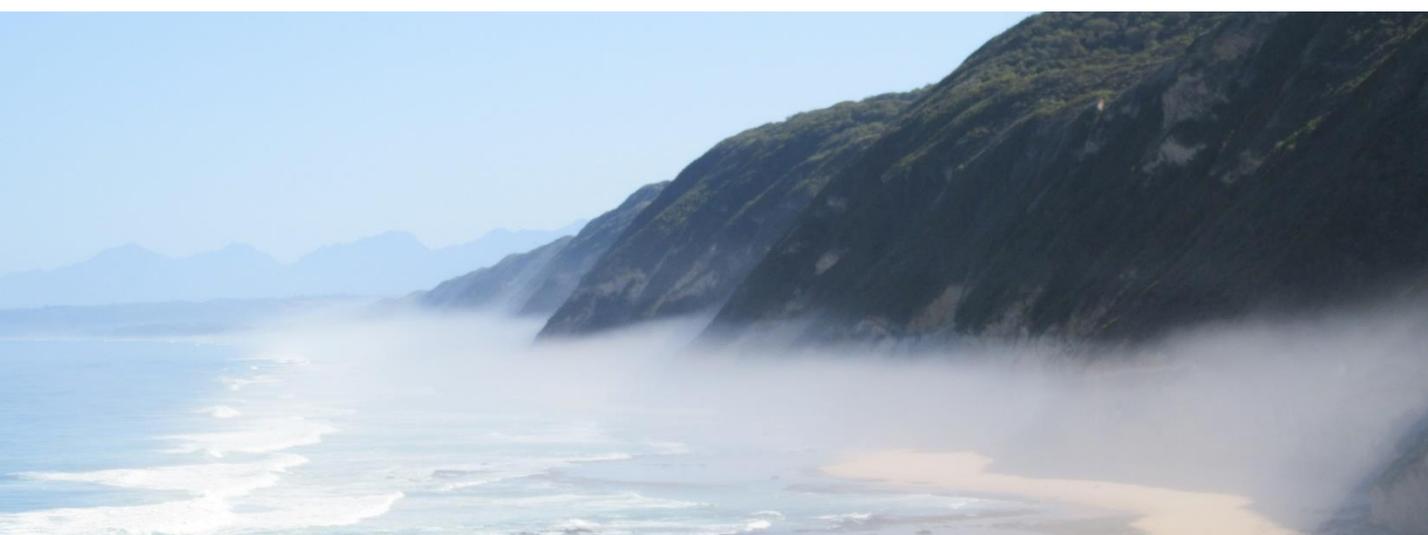
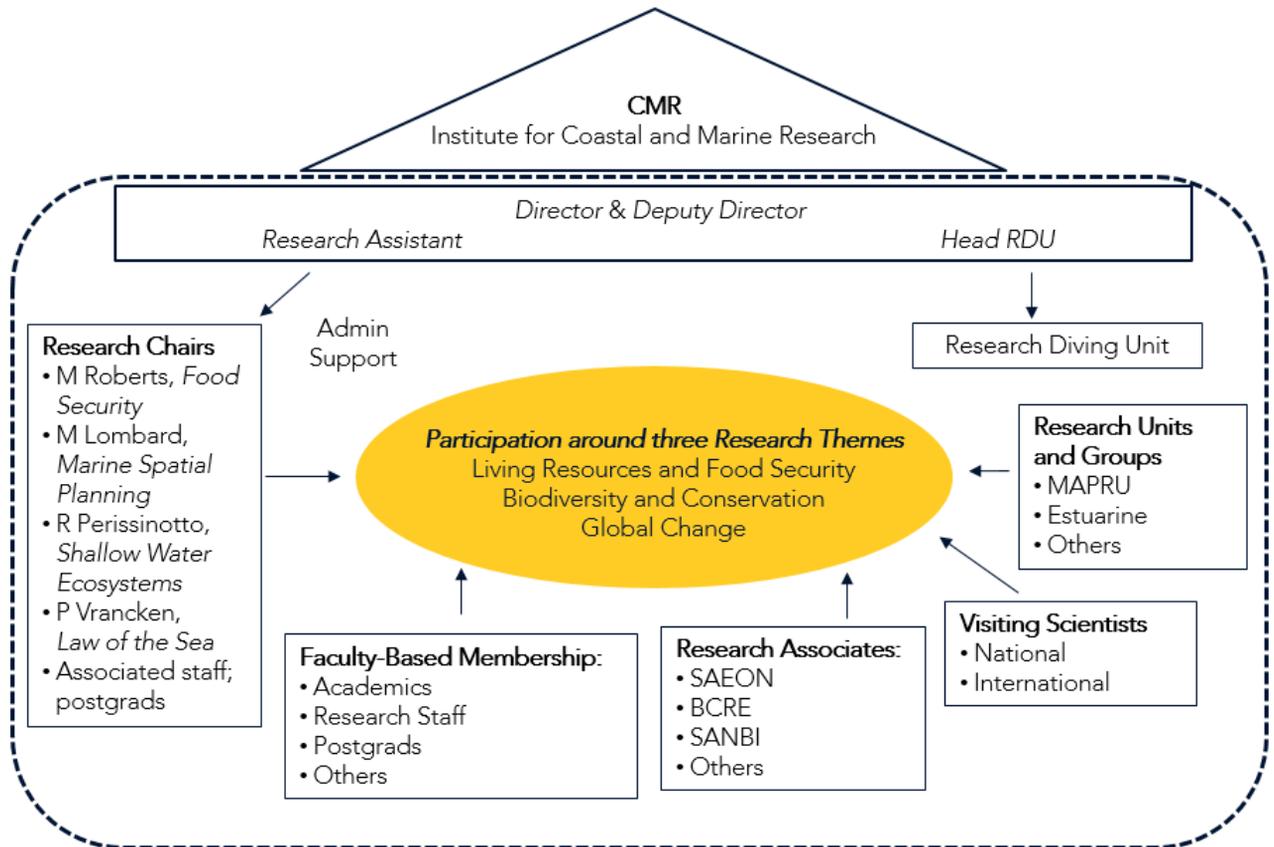
The CMR panels were constituted as follows during 2017:

MEMBERS	ADVISORY BOARD	MANAGEMENT COMMITTEE
DVC: R&E	Chair	
CMR Director	X	Chair
CMR Deputy Director	X	X
DoS: Environmental Sciences	X	X
Research Theme Coordinators	X	X
Dean: Science Faculty	X	X
Dean: Arts Faculty	X	
Dean: EBEIT	X	
Representative: DEA – Oceans & Coasts	X	
Representative: NRF	X	
Regional Director: ASCLME	X	
Representative: SAEON	X	X
Representative: SAIAB	X	
Representative: BCRE	X	X
Representative: NMB Metro	X	
Representative: NPA	X	
Representative: DAFF	X	
Head: RDU		X
Student Representative: Post-Doctoral Fellows	X	X
Student Representative: M & D	X	X
CMR Continuation 2016		X

The Advisory Board advises the Management Committee. It is then the Management Committee's responsibility to act on the recommendations from the Advisory Board.

Two Advisory Board meetings were held in 2017: 21 April and 27 November. The Management Committee met formally on two occasions (24 March and 23 June), and an extended Management Committee meeting (open to all CMR members, except students), was held on 2 November. Furthermore, a specific Research Theme Coordinator meeting was hosted on 27 October. The Director, Deputy Director, Head of the RDU, and Research Assistant met informally throughout the year.

The **CMR Structure** is outlined in the diagram below:



### Identify a full-time Director for the Institute

The Director and Deputy Director positions remain part-time, voluntary positions. A full-time Director has not been identified, and the CMR does not currently have the financial means to fund such salaries.

### Meet with the Advisory Board twice a year, and with the Management Committee four times a year

The number of Advisory Board meetings intended, was held. The Management Committee was kept well informed of CMR activities through regular e-mail updates, and it was therefore not deemed necessary to comply to the four meetings initially envisaged. Two standard Management Committee meetings were held, with an additional extended Management Committee meeting taking place. A specific Research Theme Coordinators meeting was called.

### Launch the CMR as a University-wide entity outside the Faculty of Science

2017 was the first full year where the CMR reported directly to the DVC: R&E. Through the CMR's planned events, and participating in events coordinated by other parties, the CMR's membership increased substantially. There was a strong focus on including members from all University Faculties.

### Run research diver training courses through the Research Diving Unit

During 2017, the RDU spent some time finalising 2016 diver courses that were interrupted by student protests. A 2017 Class V Scientific Diver course was completed.

### Continue research and postgraduate training on coastal and marine issues

A total of 100 postgraduate students were supervised by CMR members. At least 70 marine-related articles were published by CMR members during 2017.

### Develop the Nelson Mandela University/Norway HOME Marine Spatial Planning Programme through the SARChI: Law of the Sea and Development in Africa

This programme experienced numerous problems, including funding and form complications. The programme is, however, still being developed and might shift its focus to become an Ocean Sciences Masters. A new application and approach will be developed by the Science Faculty, with inputs from the CMR, during 2018.



## Prepare, plan and coordinate the hosting of the 2017 Southern African Marine Sciences Symposium (SAMSS)

SAMSS was hosted by the CMR and the Nelson Mandela University, under the auspices of SANCOR, at the Boardwalk Convention Centre from 4-7 July 2017. This was a hugely successful event, where three international and three national plenary speakers presented on their work. In total, 451 delegates from eight countries attended the conference. A Profit of R58 784,00 was deposited into the CMR's N186 cost centre.

### Host a number of events to showcase marine research

The CMR hosted and participated in a number of events during 2017, all of which are detailed under the *Public Engagement Events* section in this report. Events included the following:

- ▶ Research Symposium: 20 April
- ▶ SAMSS: 4-7 July
- ▶ *Reaching the interface between science and governance of ecological resources: Challenges and experiences from Swedish coastal waters* lecture by Prof. Mats Lindegarth, co-hosted by the CMR and International Office: 12 July.
- ▶ *Advancing Marine Sciences Tourism Road to National Science Week* lecture by Dr Lorien Pichegru: 1 August.
- ▶ Coordinated speakers, presentations, and visuals for the *Waves of Change Ocean Sciences Campus* information sharing session, in collaboration with the Marketing Department: 15 September.
- ▶ *Deep Secrets: Special Places and Species in the South African Seascape* lecture by Dr Kerry Sink: 28 November.

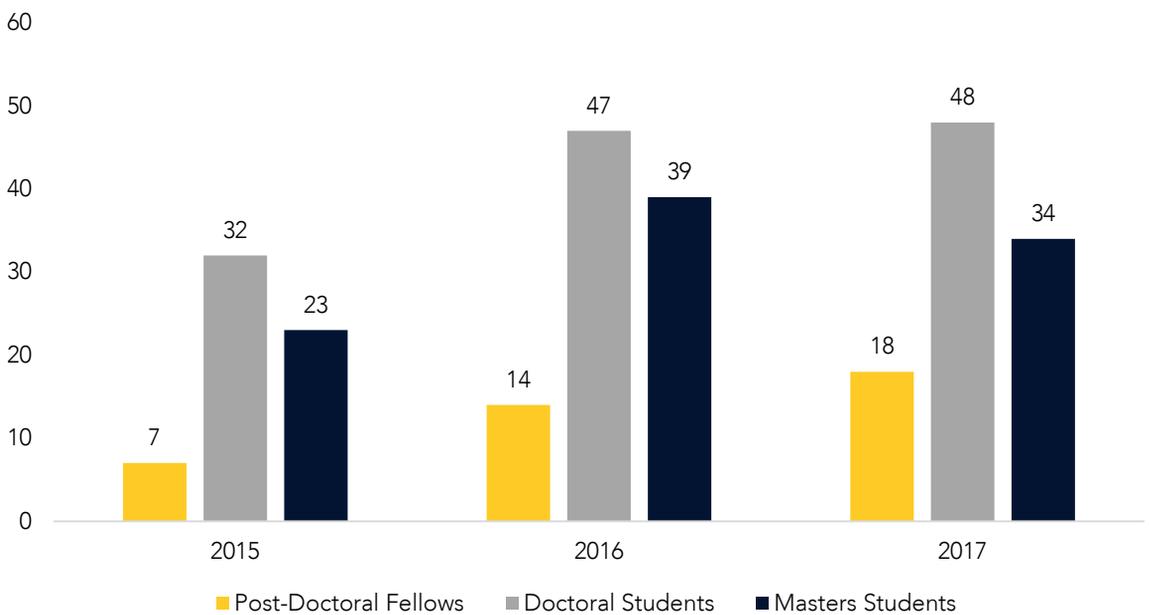
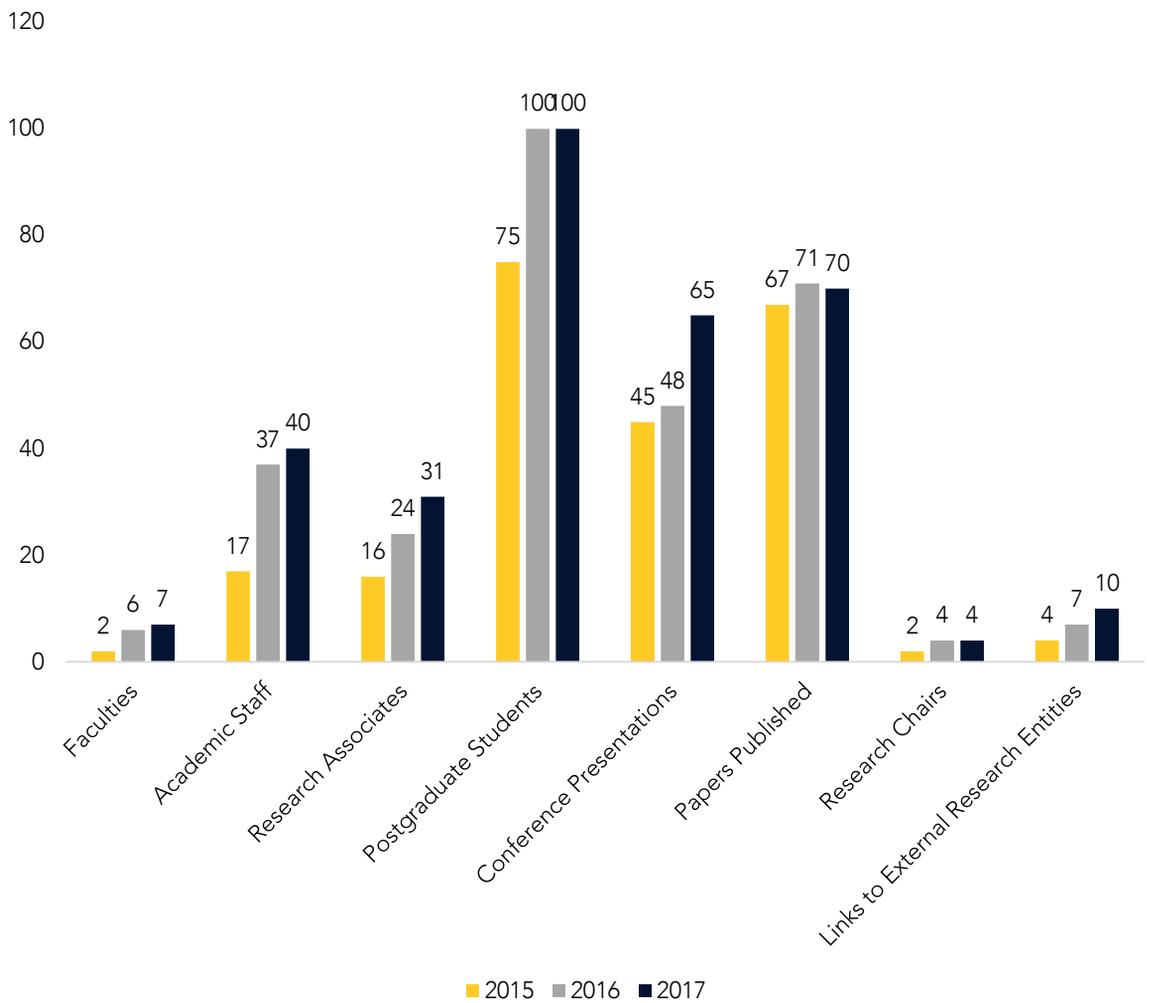
### Make use of opportunities under Operation Phakisa

This is a continuous process in collaboration with research partners within the University and those connected to external research entities.



CMR members enjoyed a very successful year. The graphs below indicate CMR growth from 2015 to 2017: general outputs and student membership growth, respectively.

# SUMMARY OF OUTPUTS



# RESEARCH STRUCTURES

- ▶ Research Themes
- ▶ Research Diving Unit (RDU)
- ▶ Marine Apex Predator Research Unit (MAPRU)
- ▶ SARChI Chairs



The wide range of coastal and marine research, consulting, public engagement, and capacity building activities undertaken under the auspices of the CMR, are grouped according to **three broad Research Themes**. These Themes are not rigid and some projects may span more than one Theme. Research under these Themes contributes to decision support to coastal and marine managers.

## LIVING RESOURCES & MARINE FOOD SECURITY

The focus for research under this Theme is studying and developing coastal and marine living resources which are, or can be, utilised as food sources. The emphasis is on sustainability.

Theme Coordinator: Dr Paul-Pierre Steyn (Nelson Mandela University, Botany Department).



## BIODIVERSITY & CONSERVATION

The majority of research covered by this Theme is applied science that has direct links to policy and the management of coastal and marine ecosystems. Projects relate to understanding, protecting, and managing coastal and marine ecosystems – both for conservation and sustainable human use.

Theme Coordinator: Dr Linda Harris (Nelson Mandela University, Zoology Department).



## GLOBAL CHANGE

This Theme covers a range of projects aimed at monitoring and understanding environmental change, both anthropogenic and natural, and how this impacts coastal and marine systems, as well as the human communities dependent on them.

Theme Coordinator: Dr Shaun Deyzel (SAEON, Elwandle Node).



The Research Diving Unit (RDU), headed by Mr Anton Cloete, is housed within the CMR and **supports marine research** and related academic programmes. This includes consulting contracts registered at the University by providing access to diver training, equipment, logistical support and expertise.

### RDU MANDATE

- ▶ Provide operational support to research projects and contracts.
- ▶ Provide and develop commercial diving capacity within the Nelson Mandela University through providing training, qualifications and experience.
- ▶ Provide Safety, Health, Environmental and Quality Assurance in all its training, personnel, operations and equipment as enforced by legislation. This includes ensuring copies of permits issued to researchers are available at the dive site as required by legislation.

### PERSONNEL & LEGAL ISSUES

Contract personnel are appointed as required, and this may include supervisors, skippers, divers, and vessel crew. This is an important legal structure which ensures the appointees are captured within the University's Occupational Health & Safety (OH&S) framework as employees for remuneration and Injury on Duty (IOD) purposes. For OH&S compliance, the RDU reports directly to the Nelson Mandela University OH&S Officer.

### DIVING OPERATIONS

2017 was the final year of a five-year plan for the RDU to consolidate its operations under the CMR. Diving activities took place on a total of 97 operational diving days. This equated to two diving operations per week, where subtidal and marine research was supported between 9 January and 12 December. Various research projects and Service Level Agreements (SLA) fell under Memorandum of Understanding (MoU) signed between the University and parties requiring diving support.





## **TRAINING**

Due to student protest-related complications, two Class IV Commercial Diver training courses started during 2016 could not be finalised. These rolled over to 2017 and were completed in July. A total of five candidates completed these courses. One Class V Scientific Diver training course was offered during 2017, with three candidates enrolled. Internal development and training, in collaboration with the University's Emergency Care Unit (ECU), was conducted as part of the Class V course.

## **SUPPORT**

The RDU continued to support the ECU Department by providing practical crew training for the 2<sup>nd</sup> and 3<sup>rd</sup> year paramedic students for their water rescue module. The RDU was serviced for a second year by a diving medical emergency service provider.

## **DEPARTMENT OF LABOUR AUDITS**

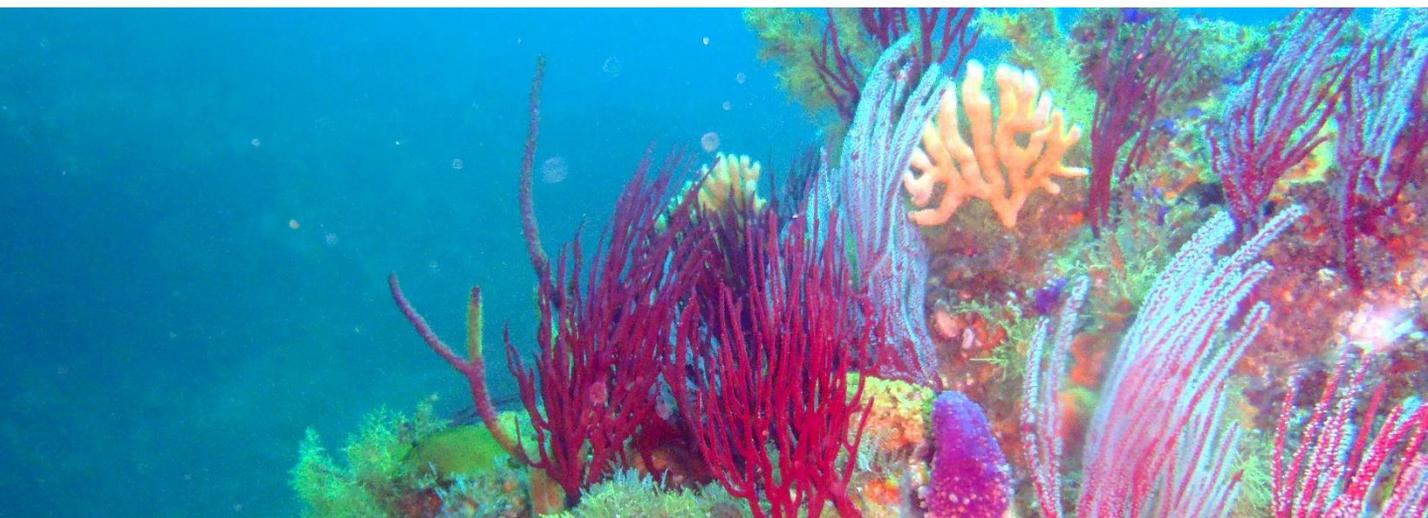
The RDU was not audited by the Department of Labour during 2017.

## **FINANCIAL MATTERS**

The RDU rigidly adhered to its financial plan.

## **OCEAN SCIENCES CAMPUS**

The RDU relocated all of its physical infrastructure to the University's Ocean Sciences Campus during 2017. By the last quarter of the year, all physical RDU operations were run from this Campus. Administration will be based at this Campus from 2018.





The **Marine Apex Predator Research Unit (MAPRU)** is a research Unit within the CMR. It was established in 2016, and is headed by Dr Pierre Pistorius.

### OBJECTIVES

- ▶ Conduct research on marine top predators, including seabirds, seals, sharks and cetaceans, particularly in relation to global change, conservation and sustainable resource management.
- ▶ Provide learning opportunities and train post-graduate students in various aspects involving marine top predators.
- ▶ Be involved in various forms of engagement, using charismatic predator species to stimulate public interest in marine biodiversity and conservation.

MAPRU focuses research activities on marine top predators as a group. Questions of fundamental and applied interest are addressed by drawing on a range of disciplines. Marine top predator species are threatened and research undertaken has a strong focus on conservation. At the upper limit of the marine food chain, marine top predators are generally good indicators of global change, as well as areas of high productivity. At the species and community level, marine top predators are therefore also used to better understand ecosystem changes and for conservation-based spatial planning.

Geographically, most of the projects are focused on the South African coastline and in the sub-Antarctic region, but also extend into Mozambique and Namibia. The majority of MAPRU members are based at the Nelson Mandela University, but a number are based at other institutions. Strong collaborative links are maintained with national and international institutions. Thirty peer-reviewed publications were produced by members during 2017



Membership for 2017 was as follows:

**STAFF**

Dr Pierre Pistorius:	MAPRU Head & Senior Lecturer (Zoology Department)
Dr Lorien Pichegru:	Research Fellow (CMR & Zoology Department)
Dr Malcolm Smale:	Research Associate (Zoology Department) & BCRE
Dr Maëlle Connan:	Research Fellow (CMR & Zoology Department)
Dr Stephanie Plön:	Research Fellow (AEON)
Dr Theagarajen Lingham-Soliar:	Research Fellow (Science Faculty)
Dr Greg Hofmeyr:	Research Associate (Zoology Department) & Port Elizabeth Museum & Bayworld

**POSTGRADUATE STUDENTS**

	Registered	Graduated
Masters	5	2
Doctoral	7	1
Post-Doctoral Fellows	5	





**Chair Holder: Prof. Renzo Perissinotto**

Water is a scarce commodity in southern Africa, where many aquatic systems are currently on a trajectory of rapid deterioration. The sustainable use of our water resources, and their rehabilitation where necessary, requires that adaptive management structures are continuously provided with scientific knowledge on the processes that govern aquatic ecosystems and their health.

Research focuses on the **integrated ecosystem functioning of estuarine and coastal systems**. The following are the three major marine projects that this Chair is involved in:

- ▶ Biogeochemistry of living stromatolites along the Eastern Cape coastline.
- ▶ Biodiversity, ecological functioning and rehabilitation of Lake St Lucia, iSimangaliso Wetland Park.
- ▶ Characterisation of micro-estuary systems along the eastern and southern Cape coast.

Members published 22 articles in international, peer reviewed journals during 2017.

SHALLOW WATER ECOSYSTEMS

MARINE SPATIAL PLANNING



**Chair Holder: Prof. Mandy Lombard**

Extractive ocean uses need to be managed more sensibly, ensuring that healthy ocean ecosystems are maintained. It is of vital importance that young professionals are equipped to deal with the science, policy, and socio-economic aspects of **managing ocean use**. To achieve this, transdisciplinary research is a necessity.

During 2017, this Chair hosted three Post-Doctoral Fellows, five Doctoral and three Masters students, as well as one LLM candidate. Eight articles were published. Research projects focus on: quantifying impacts of environmental change on the movement ecology of marine top predators; Bryde's whale population dynamics; mapping marine habitats of islands; spatial management options for fisheries; ecosystem-based condition assessments for marine habitats; marine top predator foraging and trophic ecology; taxonomic systematics; characterising marine benthic habitats; seabird conservation; human rights law aspects in relation to marine spatial planning.

SARCHI CHAIRS



**Chair Holder: Prof. Patrick Vrancken**

The research undertaken by the Chair focuses on the following three areas:

- ▶ South Africa and the law of the sea, including the legal regime governing the South African continental shelf and the exploitation of its resources.
- ▶ Development in Africa and the law of the sea, including relevant indigenous law.
- ▶ The legal aspects of marine tourism.

Main research project include:

- ▶ State ocean jurisdiction
- ▶ Intellectual property consequences of marine bio-prospecting
- ▶ Legal aspects of fisheries crime
- ▶ Marine scientific research
- ▶ Marine Spatial Planning
- ▶ Noise and plastic pollution at sea
- ▶ Renewable ocean energy
- ▶ Small scale fisheries

The Chair's main publication during 2017 is *The Law of the Sea: The African Union and its Member States*. In total four LLB, three LLM, and eight LLD students were supervised.

LAW OF THE SEA & DEVELOPMENT IN AFRICA

OCEAN SCIENCE & MARINE FOOD SECURITY



**Chair Holder: Prof. Mike Roberts**

This UK-SA bilateral Chair aims to develop a regional research and training capacity in ocean science based at the Nelson Mandela University, which will be used to undertake marine research in support of food security in the Western Indian Ocean (WIO). The research plan recognises nine upwelling regions in the WIO which sustain ecosystems and resources. This region has very limited scientific, institutional and ocean govern-ance capacity to address the challenges of over-exploitation, habitat destruction, and a changing Indian Ocean that threaten ecosystem health and livelihoods. An **'Innovation Bridge'** is being built between the University and leading ocean science institutions in the United Kingdom (University of Southampton; National Oceanography Centre), enabling immediate access to marine robotics, satellite observations, biogeochemistry, and modelling. The University houses research staff and postgraduate work space, ocean engineering workshops, a diving unit, laboratories, instruments and aquaria for ocean production experiments.

# HIGHLIGHTS & ACHIEVEMENTS



- ▶ Researcher of the Year
- ▶ Nelson Mandela University Awards
- ▶ Top Rated Researchers

**Professor Janine Adams** received the Nelson Mandela University Researcher of the Year Award for 2017. Her passion for research lies in exploring diverse ecosystems, while working with others in multi-disciplinary teams and growing our next generation of scientists.

Janine is a Professor in the Botany Department at the Nelson Mandela University, Director of the Institute for Coastal and Marine Research, and a member of the Sustainability Research Unit. Her specialist research field is estuaries: their functioning, conservation and management. Current research focus areas are blue carbon ecosystems and response to climate change, mangrove and salt marsh ecology, and water quality management of estuaries. Janine plays an important role in ensuring that science and knowledge on aquatic environments is communicated to managers and policy makers.



She has published over 110 articles in rated journals and has made a significant contribution to global knowledge in estuary ecology, aquatic botany and environmental water requirements. Her work is nationally acclaimed (she received the silver medal of the Southern African Society of Aquatic Scientists) and internationally, she is regularly sought out as an expert on international scientific panels and symposiums. She receives frequent invitations to participate in workshops, debates, and special conference sessions. She is currently associate editor for the international journal *Wetlands*, and involved with collaborative projects with the University of Lisbon, Delft University of Technology and University of California.



Janine works tirelessly to train the next generation of research scientists, and there is now a cohort of trained students in important jobs around the country who can tackle water quality and coastal conservation issues. She is a role model for woman scientists. With her passion, dedication and enthusiasm, she has led by example and ensured that postgraduate students have a quality education through exposure to diverse opportunities.



The CMR was awarded the **Engagement Excellence Team Award** (R20 000)



Prof. Janine Adams received the **Researcher of the Year Award**



Prof. Renzo Perissinotto was awarded the **Research Excellence Award** (Zoology)



Dr Alastair Potts received the **Emerging Researcher Award** (Botany)



The researcher rating system is a key driver in the National Research Foundation's aim to build a **globally competitive science system** in South Africa. This tool benchmarks the quality of South Africa's researchers against the best in the world. Ratings are allocated based on a researcher's recent outputs and impact, as perceived by international peer reviewers. The rating system encourages excellent quality publications in high impact journals and outlets.

The ratings are awarded within the following categories:

- A:** Leading international researchers
- B:** Internationally acclaimed researchers
- C:** Established researchers
- P:** Prestigious awards
- Y:** Promising young researchers

NAME	RATING	FACULTY	SPECIALISATION
Adams JB, Prof.	C1	Science	Estuarine & Coastal Systems; Plant Ecophysiology
Boswell R, Prof.	C1	Arts	Cultural Diversity; Social Justice
Connan M, Dr	C3	Science	Marine Ecology; Stable Isotopes; Genetics
Cowling RM, Prof.	A1	Science	Evolutionary Ecology; Palaeobotany; Conservation
Fabricius C, Prof.	C2	Science	Sustainability Science
Hattingh DG, Prof.	B3	Engineering	Friction Processing; Manufacturing Technologies
Leitch AWR, Prof.	C3	Science	Physics
Lombard AT, Prof.	C1	Science	Systematic Conservation Planning; Animal Welfare
Nel P, Prof.	C2	Science	Coastal Ecology & Conservation; Sea Turtles
Perissinotto R, Prof.	B2	Science	Aquatic Ecology; Invertebrate Biodiversity
Pichegru L, Dr	C2	Science	Seabird Ecology; Spatial Ecology; Conservation; Education
Pistorius PA, Dr	C1	Science	Marine Apex Predators; Population Ecology; Global Change
Shakantu W, Prof.	C3	Engineering	Building Economics; Construction Industry
Strydom NA, Prof.	C2	Science	Estuarine Ichthyology; Plankton Ecology
Vrancken PHG, Prof.	C1	Law	Maritime Law; Tourism Law & Legislation

# COLLABORATIONS & VISITS

- ▶ University of Gothenburg
- ▶ University of Southampton
- ▶ Plymouth University
- ▶ Smaller & Developing Collaborations
  - University of North Carolina Wilmington
  - Brunel University
  - CNRS
  - Ocean University of China
  - University of Oldenburg
  - Climate Service Centre
  - Other

The Nelson Mandela University and the University of Gothenburg collaborate on the **Erasmus Mundus + Staff and Student Exchange Programme**. The first round of funding, received in 2017, made provision for the following:

- ▶ 2 x Masters students (one each way) for a period of ten months
  - Ms Zanele Hartmann visited the University of Gothenburg Marine Station for three months.
  - Mr Pietro Dinmore from the University of Gothenburg visited and collaborated with Dr Wayne Goschen, based at SAEON in Port Elizabeth.
- ▶ 2 x Teaching staff (one each way)
  - Ms Nomtha Hadi visited the University of Gothenburg for two weeks.
  - Prof. Mats Lindegarth visited the Nelson Mandela University for eight days.

This programme has been renewed for another two years, and the new exchange will run until June 2019. The new programme aims to develop research collaborations and makes provision for the following:

- ▶ 2 x Masters students for ten months in total (hosted in Sweden)
- ▶ 1 x Teaching staff from Sweden to South Africa for 18 days in total
- ▶ 2 x Administrative staff (hosted in Sweden)

The funds allocated to administrative staff should be used for Doctoral students or young/emerging researchers with a need to travel for the purposes of capacity development and training related to writing proposals and grant applications. This funding is not intended for secretarial or general office administration purposes.

**Prof. Mats Lindegarth** was hosted by the CMR from 10-17 July. During this time, he delivered a public talk and presented a segment of the MARS412 lectures. Furthermore, he met with the International Partnerships Manager, Deputy Director International Office, Study Abroad Coordinator, and Senior Director International Education from the Nelson Mandela University. He also attended the *Goals and Academics* workshop as part of the second semester student orientation, participated in an estuary field trip, and he attended a Maritime Cluster meeting. In collaboration with Prof. Mandy Lombard, he co-wrote a joint STINT application for a three-year programme that will focus on marine spatial planning and marine governance. This application was unsuccessful.

**Dr Susanne Lindegarth** visited the University during October. She met with representatives from the CMR, Research Capacity Development (RCD), Research Management (RM), and the Innovation Office to discuss the way forward for Nelson Mandela University/University of Gothenburg collaborations.



The **RCUK-NRF Newton Fund International Partnering Scheme** facilitates building sustainable and long-lasting links between the United Kingdom and international research organisations to support the training of Doctoral students, as well as the development of an international cohort of early career researchers. Staff and students that participated in this exchange during 2017 are listed below:

## STAFF

- ▶ Prof. Patrick Vrancken (Nelson Mandela University): Develop partnerships to link marine maritime law.
- ▶ Ms Tanya Wagenaar (Nelson Mandela University): Intellectual property consequences of marine bioprospecting.

## STUDENTS

- ▶ Ms Tegan Carpenter-Kling (Nelson Mandela University): Skills and capacity development in geochemistry and stable isotope ecology relevant to marine top predator research (collaboration with Dr Clive Trueman).
- ▶ Mr Jonathan Botha (Nelson Mandela University): A region-wide, individual-level assessment of Cape fur seal foraging and trophic ecology (collaboration with Dr Clive Trueman).
- ▶ Dr Jacqueline Raw (Nelson Mandela University): Assessing and predicting the responses of South African mangrove ecosystems to global change (collaboration with Dr Jasmin Godbold).
- ▶ Mr Luke Holman (University of Southampton): Facilitate exchange of ascidian taxonomic skills (collaboration with Dr Shirley Parker-Nance – SAEON Elwandle Node).



*Prof. Patrick Vrancken*



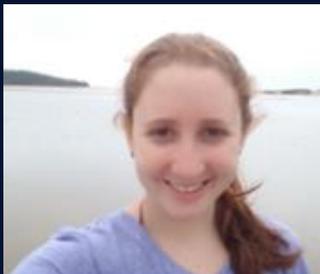
*Ms Tanya Wagenaar*



*Ms Tegan Carpenter-Kling*



*Mr Jonathan Botha*

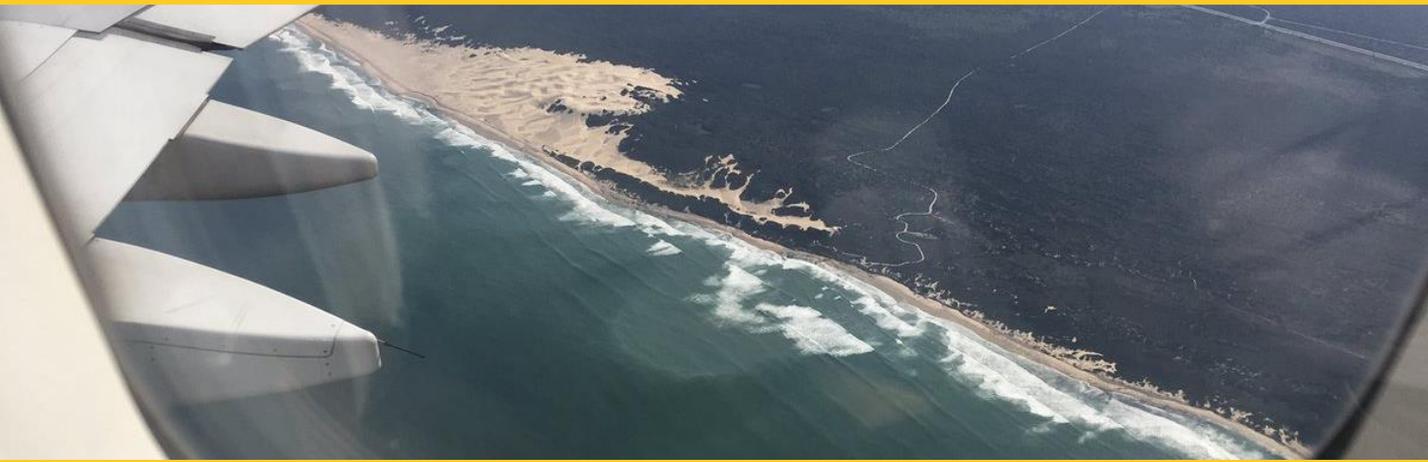


*Dr Jacqueline Raw*



*Mr Luke Holman*

**Dr Thomas Bornman** also visited the University of Southampton on a separate occasion during 2017 as part of a South African/Indian delegation to the United Kingdom to discuss collaboration in marine science.



During September, Prof. Gerd Masselink and Dr Tim Scott from Plymouth University visited the **Sundays River Beach** for the third consecutive year to conduct research into swash and surf zone dynamics, and to investigate the interaction between nearshore water motion and beach ecology. Together with Prof. Anton McLachlan and Dr Linda Harris, Prof. Masselink (assisted by four Plymouth University undergraduate students and three Nelson Mandela University postgraduate students) deployed a large number of water level sensors in the swash zone to record wave run-up over a rising and falling tide. As the tide moved up and down the beach, frequent sampling of the macro-invertebrates was conducted to identify the different types of survival strategies of the animals: some species migrated up and down with the tide, whilst others retreated into the beach sand matrix as the tide passed over them. Dr Scott (assisted by five Plymouth University undergraduate students and two South African life guards) investigated the relationship between the dense concentrations of surf diatoms common at this site, their dynamics, and the water circulation in the surf zone. Using a combination of in-situ measurements of diatom concentration and current velocity measurements, as well as visual data collected using an unmanned aerial vehicle, it was demonstrated that the occurrence and location of diatom patches was strongly linked to rip current circulation. Both projects were expertly supported by technicians from both Universities.



# SMALLER & DEVELOPING COLLABORATIONS

## UNIVERSITY OF NORTH CAROLINA WILMINGTON



Dr Bernadette Snow and Prof. Patrick Vrancken visited this University from 4-7 November 2017 to write a joint proposal around **aquaculture and food security development**. This collaboration is between the Nelson Mandela University, the University of Gothenburg, and the University of North Carolina Wilmington. Additional partners are being included as the proposal and project develop: IRD/Brest University and Malaysian partners. Co-badged, collaborative projects that include staff, students, and funding, will be put into place through a dedicated research programme to develop coastal- and marine-bound, sustainable livelihood and aquaculture projects. A MoU has been signed.

## BRUNEL UNIVERSITY



Brunel University invited the Nelson Mandela University to be part of a large consortium that submitted a Research Councils UK (RCUK) proposal for the establishment of a **Plastics and Society Research Hub**. The process was started in 2017, but the CMR will only be notified in 2018 if its draft proposal has been selected for the development of a full proposal.

## CNRS

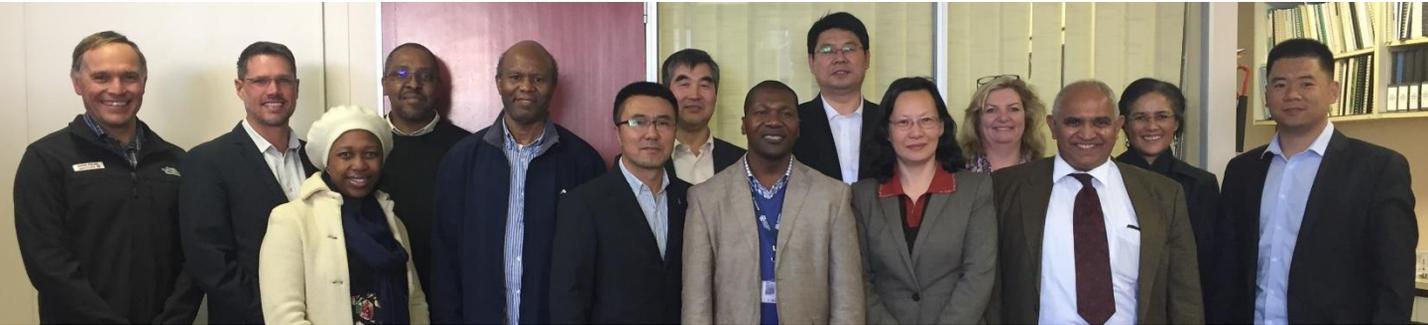
### **Centre d'Etudes Biologique de Chizé, Centre National de la Recherche Scientifique**



Dr Pierre Pistorius spent a week at Chizé (CNRS) in France, working with and developing closer ties with some of the lead French researchers involved in marine top predator research in the southern Indian Ocean.

## OCEAN UNIVERSITY OF CHINA

The CMR hosted a delegation from the Ocean University of China on 21 June 2017. The aim of this meeting was to encourage activities through the NRF and the bilateral agreement with China.



## UNIVERSITY OF OLDENBURG

A delegation from the University of Oldenburg, Germany, visited the Nelson Mandela University during November. They are interested in establishing marine sciences linkages. The development of this collaboration will continue during 2018,



## CLIMATE SERVICE CENTRE

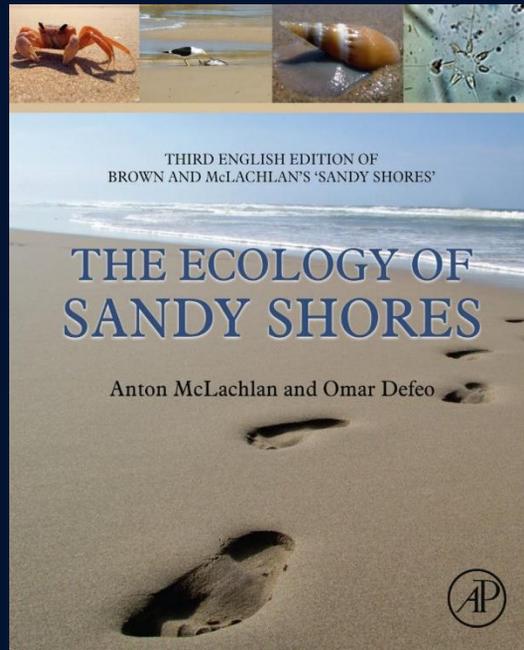
The Climate Service Centre (Germany) is interested in becoming involved in the Algoa Bay CoP Project, and they can contribute expertise in climate resilience and adaptation in coastal cities. This will provide funding for Post-Doctoral Fellows, and Prof. Mandy Lombard will be supporting students through her SARChI group. Dr Bernadette Snow (CMR) and Ms Melanie Leitch (Nelson Mandela University Innovation office) wrote a MoU for this joint research.



## OTHER

Dr Thomas Bornman and Mr Phumlile Cotiyane (Doctoral student) visited the Department of Paleoceanography at the University of Szczecin (Poland) for two weeks during 2017. Mr Cotiyane remained there for three months on an exchange programme as part of a South African/Polish Bilateral Grant.

Prof. Anton McLachlan hosted Prof. Omar Defeo (Uruguay) twice during 2017. This was to collaborate on the third edition of their book, *The ecology of sandy shores*.



Dr Lorien Pichegru hosted Dr Nicola Suarez from CONICET (National Scientific and Technical Research Council, Argentina) to collaborate on Katharine Reush's Doctoral project on the foraging ecology of kelp gulls in naturally and anthropogenically modified environments.

Dr Theoni Photopoulou (SARChI Marine Spatial Planning Post-Doctoral Fellow) was awarded the Sally Connally Hardie Visiting Researcher Bursary. She spent two months (August-September) visiting Prof. David Borchers in St Andrews to work on a collaborative project about the movement ecology of white sharks in False Bay, South Africa. Ms Zoleka Filander (SARChI Marine Spatial Planning Doctoral student) also visited the United States of America to research deep water corals.

During September 2017, Prof. Janine Adams hosted Dr Kerrylee Rogers from the University of Wollongong (Australia). Dr Rogers was invited as an international collaborator on the new Water Research Commission (WRC) Blue Carbon Ecosystems Project. She visited mangrove estuaries in the Eastern Cape and KwaZulu-Natal. Prof. Adams visited the Technology University of Delft, The Netherlands, from 25-29 September to participate in an international symposium on co-designing estuary inlet management: Policies, People and Practices. Furthermore, she also participated in an international network for salt marsh research (saltmarshNET). The first meeting was hosted by the University of Bangor, Wales, in December.

# COMMUNICATING SCIENCE



- ▶ Published Papers
- ▶ Popular Articles & Mixed Media
- ▶ Academic Engagement

The CMR enjoyed a very successful year during 2017 in terms of outputs. In total, at least 70 ISI, IBSS and DOE articles related to marine research were published, as well as one book, one book chapter, and thirteen research reports. At least fifteen international conference presentations were delivered at eight international conferences, and at least 50 national conference presentations were delivered at eight national conferences attended by CMR Members. Below is a list of the **marine-related journal articles** published by CMR members during 2017:

Ansorge I et al. 2017. Exploring South Africa's southern frontier: A 20-year vision for Polar Research through the South African National Antarctic Programme. *South African Journal of Science* **113**: 11-17.

Ansorge IJ & Pistorius PA. et al. 2017. Exploring South Africa's southern frontier: A 20-year vision for Polar Research through the South African National Antarctic Programme. *South African Journal of Science* **113**: 1-7.

Barbraud C, Bertrand A, Bouchón M, Chaigneau A, Delord K, Demarcq H, Gimenez O, Torero MG, Gutiérrez D, Oliveros-Ramos R, Passuni G, Tremblay Y & Bertrand S. 2017. Density dependence, prey accessibility and prey depletion by fisheries drive Peruvian seabird population dynamics. *Ecography*. <https://doi.org/10.1111/ecog.02485>.

Bird MS, Bilton DT & Perissinotto R. 2017. Diversity and distribution of polyphagan water beetles (Coleoptera) in the Lake St Lucia system, South Africa. *ZooKeys* **656**: 51-84.

Botha JA., Rishworth GM, Thiebault A, Green DB & Pistorius PA. 2017. Sex-specific foraging over space and time in Cape gannets during chick rearing. *Marine Ecology Progress Series* **579**: 157-167.

Caputo M, Froneman PW, Du Preez D, Thompson G & Plön S. 2017. Long-term trends in cetacean occurrence during the annual sardine run off the Wild Coast, South Africa. *African Journal of marine Science* **39**(1): 89-94.

Carpenter-Kling T, Dickens J & Pistorius PA, 2017. First record of an Adélie penguin at sub-Antarctic Marion Island. *Marine Biodiversity Records* **1**: 13-15.

Carpenter-Kling T, Dyer BM, Makhado AB & Pistorius PA. 2017. Plumage aberrations in Macaroni Penguins *Eudyptes chrysolophus* at sub-Antarctic Marion Island. *Polar Biology* **40**(9): 1907-1911.

Carpenter-Kling T, Handley JM, Green DB, Reisinger RR, Makhado AB, Crawford, RJM & Pistorius PA. 2017. A novel foraging strategy in gentoo penguins breeding at sub-Antarctic Marion Island. *Marine Biology* **164**: 33. <https://doi.org/10.1007/s00227-016-3066-9>.

Connan M, Bonnevie BT, Hagen C, van den Lingen CD & McQuaid CD. 2017. Diet specialization in a colonial seabird studied using three complementary dietary techniques: effects of intrinsic and extrinsic factors. *Marine Biology* **164**: 171. <https://doi.org/10.1007/s00227-017-3201-2>.

Costalago D, Miranda NAF, Strydom NA. & Perissinotto R. 2017. Using stable isotope analysis to study the diet of *Gilchristella aestuaria* larvae: preliminary insights into the foodwebs of six South African estuaries. *African Journal of Aquatic Science* **41**(4): 389-398.

Cotiyane P, Rajkaran A & Adams JB. 2017. Key factors that drive phytoplankton biomass and community composition in the urbanised Nahoon Estuary, Southern Africa. *Journal of Aquatic Sciences* **42**: 245-257.

Dąbek P, Ashworth MP, Witkowski A, Li C, Bornman TG, Goncalves V, Park J & Khim JS. 2017. Towards Multigene Phylogeny of the Cymatosiraceae (Bacillariophyta, Mediophyceae) I: Novel Taxa within Subfamily Cymatosiroideae based on morphological and molecular data. *Journal of Phycology* **53**: 342–360.

Dalu T, Wasserman RJ, Magoro ML, Mwedzi T, Froneman PW & Weyl OLF. 2017. Variation partitioning of benthic diatom community matrices: Effects of multiple variables on benthic diatom communities in an Austral temperate river system. *Science of the Total Environment* **601**: 73-82.

Dalu T, Wasserman RJ, Tokin JD, Mwedzi T, Magoro ML & Weyl OLF. 2017. Water or sediment? Teasing apart the role of water column and sediment chemistry in driving Austral stream macroinvertebrate communities. *Science of the Total Environment* **607**: 317-325.

Dicken ML, Hussey NE, Christiansen HM, Smale MJ, Nkabi N, Cliff G & Winter SP. 2017. Diet and trophic ecology of the tiger shark (*Galeocerdo cuvier*) from South African Waters. *PLoS One* **12**(6): e0177897.

Dilley BJ, Davies D, Schramm M, Connan M & Ryan PG. 2017. The distribution and abundance of Blue Petrels *Halobaena caerulea* breeding at sub-Antarctic Marion Island. *Emu: Austral Ornithology*: **117**(3): 222-232.

Downey-Breedt NJ, Roberts MJ, Sauer WHH & Chang N. 2017. Modelling transport of inshore and deep-spawned chokka squid (*Loligo reynaudi*) paralarvae off South Africa: the potential contribution of deep spawning to recruitment. *Fisheries Oceanography* **25**(1): 28-43.

Du Plooy SJ, Carrasco NK, Perissinotto R. 2017. Effects of zooplankton grazing on the bloom-forming *Cyanothece* sp. in a subtropical estuarine lake. *Journal of Plankton Research* **39**(5):826-835.

Duarte B, Neto JM, Marques JC, Adams JB & Cacador I. 2017. Marine angiosperm indices used to assess ecological status within the Water Framework Directive and South African National Water Act: learning from differences and common issues. *Ecological Indicators* **83**: 192-200.

Edwards MJK, Anderson CR, Perissinotto R & Rishworth GM. 2017. Macro- and meso-fabric structures of peritidal tufa stromatolites along the Eastern Cape coast of South Africa. *Sedimentary Geology* **359**: 62-75.

Filander Z & Griffiths C. 2017. Illustrated guide to the echinoid (Echinodermata) fauna of South Africa. *ZooTaxa* **4296**(1). <http://dx.doi.org/10.11646/zootaxa.4296.1.1>.

Filmater JD, Cowley PD, Potier M, Menard M, Smale MJ, Cherel Y & Dagorn L. 2017. Feeding ecology of silky sharks *Carcharhinus falciformis* associated with floating objects in the western Indian Ocean. *Journal of Fish Biology* **90**: 1321-1337.

Gaglio D, Cook T, Connan M, Ryan P & Sherley R. 2017. A non-invasive method using digital photography for studying the diet of prey carrying birds. *Methods in Ecology and Evolution* **8**: 214-222.



- Handley J, Connan M, Baylis A, Brickle P & Pistorius P. 2017. Jack of all prey, master of some: The influence of habitat on the feeding ecology of a diving marine predator. *Marine Biology* **164**: 82. <https://doi.org/10.1007/s00227-017-3113-1>.
- Haupt PW, Lombard AT, Goodman PS & Harris JM. 2017. Accounting for spatiotemporal dynamics in conservation planning for coastal fish in KwaZulu-Natal, South Africa. *Biological Conservation* **209**: 289-303.
- Jones S, Carrasco NK, Perissinotto R & Vosloo A. 2017. Association of the epibiont *Epistylis* sp. with a calanoid copepod in the St Lucia Estuary, South Africa. *Journal of Plankton Research* **38**(6): 1404-1411.
- Kampire E, Rubidge G & Adams JB. 2017. Characterisation of polychlorinated biphenyls in surface sediments of the North End Lake, Port Elizabeth in South Africa. *Water SA* **43**: 646-654.
- Kisten Y, Strydom NA, Perissinotto R & Paul, S. 2017. Modelling the occurrence of postflexion stages of a marine estuarine-dependent fish in temperate South African estuaries. *Scientia Marina* **81**(1): 27-35.
- Le Gouvello DZM, Nel R, Harris LR & Bezuidenhout K. 2017. The response of sandy beach meiofauna to nutrients from sea turtle eggs. *Journal of Experimental Marine Biology and Ecology* **487**: 94-105.
- Le Gouvello DZM, Nel R, Harris LR, Bezuidenhout K & Woodbourne S. 2017. Identifying potential pathways for turtle-derived nutrients cycling through beach ecosystems. *Marine Ecology Progress Series* **587**: 49-62.
- Lemley D, Strydom N & Adams JB. 2017. Testing the efficacy of an estuarine eutrophic condition index: Does it account for shifts in flow conditions? *Ecological Indicators* **74**: 357-370.
- Lemley DA, Adams JB & Taljaard S. 2017. Comparative assessment of two agriculturally-influenced estuaries: Similar pressure, different response. *Marine Pollution Bulletin* **117**: 135-146.
- Leos-Barajas V, Photopoulou T, Langrock R, Patterson TA, Watanabe Y, Murgatroyd M & Papastamatiou Y. 2017. Analysis of animal accelerometer data using hidden Markov models. *Methods in Ecology and Evolution* **8**: 161-173.
- Lübcker N, Reisinger RR, Oosthuizen WC, de Bruyn PJN, van Tonder A, Pistorius PA & Bester MN. 2017. Low trophic level diet of juvenile southern elephant seals *Mirounga leonina* from Marion Island: a stable isotope investigation using vibrissal regrowths. *Marine Ecology Progress Series* **577**: 237-250.
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- Nel L, Strydom NA, Perissinotto R, Adams JB & Lemley DA. 2017. Feeding ecology of *Rhabdosargus holubi* (family Sparidae) in multiple vegetated refugia of selected warm temperate estuaries in South Africa. *Estuarine, Coastal and Shelf Science* **197**: 194-204.



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Pistorius P, Hindell M, Crawford RJM, Makhado AB, Dyer B & Reisinger R. 2017. At-sea distribution and habitat use in king penguins at sub-Antarctic Marion Island. *Ecology and Evolution* **7**(11): 3894-3903.

Plön S, Hofmeyr GJG, Cockcroft VG, Shaughnessy P, Kemper CM & Beesley PL. 2017. Graham James Berry Ross 1945-2017. *Marine Mammal Science* **33**: 1255-1263.

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## TV/RADIO NEWS

On 10 October, Prof. Heather Nel (Senior Director, Institutional Planning)), Dr Gavin Rishworth (Post-Doctoral Fellow, Oceanography) and Mr Thanduxolo Nkala (Masters Student, Law) were interviewed for a SABC News insert on the Ocean Sciences Campus.



Dr Greg Hofmeyr was featured in the following TV and radio interviews:

- ▶ 31 March: Algoa FM News – dolphin mass stranding
- ▶ 3 April: SABC News – dolphin mass stranding
- ▶ 22 May: Kingfisher FM News – dolphin stranding
- ▶ 31 October: SABC News – fur seal rehabilitation

Ms Zoleka Filnader (SARCHI Marine Spatial Planning Doctoral Student) presented on the Agulhas II Open Day, and this received media coverage from Expresso and eNCA.



# The Herald

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## POPULAR ARTICLES

- ▶ *Stranded injured dolphin put down.* Gareth Wilson, The Herald (9 January 2017).
- ▶ *Nog 'n rob geskiet in 'oorlog' oor visbronne.* Cara-Lee Dorfling, Die Burger (21 January 2017).
- ▶ *Update: seal euthanised.* Elaine King, The Knysna-Plett Herald (6 February 2017).
- ▶ *Mysterious mass dolphin beaching.* Tremaine van Aardt, The Herald (1 April 2017).
- ▶ *Nature will be left to deal with dead dolphins.* Amir Chetty, The Herald (4 April 2017).
- ▶ *Mass dolphin stranding in Algoa Bay remains a mystery – SANParks.* Louzel Lombard Steyn, Traveller 24 (4 April 2017).
- ▶ *Mystery mass stranding in Algoa Bay.* Country Life (5 April 2017).
- ▶ *Rob swem 10 000 km na eilande.* Cara-Lee Dorfling, Die Burger (15 April 2017).
- ▶ *Bay on world map with ultra-rare stromatolites.* Guy Rogers, Weekend Post (22 April 2017).
- ▶ *No evidence of foul play in mass dolphin stranding.* Guy Rogers, The Herald (30 May 2017).
- ▶ *Need to consider environment too.* Editorial Comment, The Herald (18 July 2017).
- ▶ *Fur seals pay Bay a visit.* Garth Wilson, The Herald (31 July 2017).
- ▶ *Oceans could bring massive boost for jobs: Marine economy potential includes R177bn to GDP – NMU Researcher.* By Devon Koen, The Herald (2 August 2017).
- ▶ *Many curious to see whale carcass.* Guy Rogers, The Herald (15 August 2017).
- ▶ *Bly weg van walvis se karkas op verlate strand naby Baai.* Cara-Lee Dorfling, Die Burger (16 August 2017).
- ▶ *Sub-Antarctic seals on their way home.* Amir Chetty, The Herald (5 September 2017).
- ▶ *Turtles, seals heading home after recovering at Bayworld.* Guy Rogers, The Herald (7 November 2017).

WeekendPost

COUNTRY LIFE

KNYSNA-PLETT  
HERALD

## TRAINING

### BIO373: INTRODUCTION TO SOUTHERN AFRICAN MARINE BIOLOGY

This course, presented to students from the College of Saint Benedict and Saint John's University, was run through the CMR, in collaboration with the International Office. Dr Gavin Rishworth presented this course to nine students.



### MANAGEMENT OF ESTUARIES SHORT LEARNING PROGRAMME

In collaboration with the Western Cape Government, Prof. Janine Adams hosted a *Management of Estuaries* course at Stellenbosch in March 2017. Course components were compiled and presented by the Nelson Mandela University Estuarine Research Team. This is an official Nelson Mandela University Short Learning Programme (SLP), and it was attended by 53 people.



## ACADEMIC SUPPORT

### RESEARCH DIVING UNIT

The RDU supervised 97 dive days during 2017. This included services and facilities for:

- ▶ A number of postgraduate student research projects.
- ▶ The Abalone Seeding Project with Wild Coast Abalone.
- ▶ Plymouth University researchers with the Sundays River Beach case study.
- ▶ Facilitating the development of a Diving Centre along the Garden Route.
- ▶ Seahorse Project, in collaboration with SANParks.



# PUBLIC ENGAGEMENT EVENTS

- 
- ▶ Research Symposium
  - ▶ World Oceans Day
  - ▶ Southern African Marine Sciences Symposium (SAMSS)
  - ▶ Swedish Lecture
  - ▶ National Science Week
  - ▶ Waves of Change
  - ▶ Deep Secrets
  - ▶ National Marine Week
  - ▶ National Oceanography Centre (NOC)
  - ▶ Public Talks
  - ▶ Other
    - Schoenmakers Mining
    - Nelson Mandela Bay Maritime Cluster

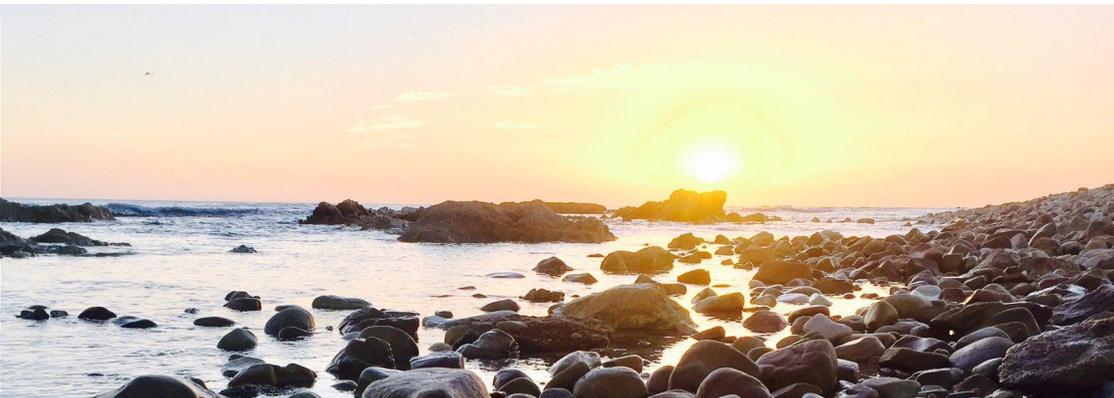
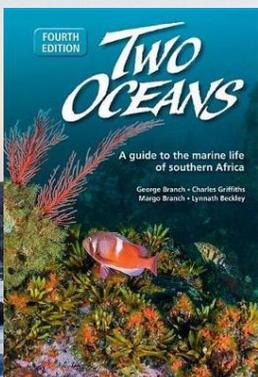
## RESEARCH SYMPOSIUM

The CMR hosted a very successful Research Symposium at the Nelson Mandela University Council Chamber on 20 April. The aim of this event was to **showcase the impact of CMR research across disciplines and Faculties**. The day was divided into three sessions in accordance with the CMR's Research Themes, and 25 CMR members presented on their work. All four SARCHI Chairs, the Sustainability Research Unit (SRU), and the Centre for Coastal Palaeoscience (CCP), were represented. Stakeholders from the DEDEA, CDC, NMU Business Chamber, NMB Metro, SAFF, SEAON, Transnet, SST, NMB Maritime Cluster, and members from the press attended. The 90-seater venue was filled to capacity.



## WORLD OCEANS DAY

World Oceans Day was celebrated on 8 June 2017, and the CMR held a photo competition to **celebrate** this occasion. The competition was open to all Nelson Mandela University students, and they were encouraged to submit their own best photographs portraying anything related to the ocean. A total of 63 entries were received, and the winning photograph was taken by Bulelwa Same, a Business and Economic Sciences student. Her photograph is featured on the cover of this report. The 4<sup>th</sup> edition of the most recently revised version of *Two Oceans: A guide to the marine life of southern Africa* was the prize.



## Embracing the Blue: Unlocking the ocean's economic potential whilst maintaining social and ecological resilience

The 16<sup>th</sup> Southern African Marine Sciences Symposium (SAMSS) was hosted by the CMR and the Nelson Mandela University, under the auspices of SANCOR. This event was held at the Boardwalk Convention Centre, Port Elizabeth, from 4-7 July 2017.

The first day consisted of a series of special sessions and themed workshops, followed by three days of presentations and poster sessions related to transdisciplinary marine research. Plenary speakers were as follows:

### INTERNATIONAL

Prof. Robert Costanza: The Australian National University (Australia)  
Prof. Omar Defeo: Universidad de la República (Uruguay)  
Prof. Callum Roberts: The University of York (United Kingdom)

### NATIONAL

Prof. Coleen Vogel: Global Change Unit (University of the Witwatersrand)  
Mr Craig Smith: DAFF (Fisheries Management)  
Prof. Mandy Lombard: SARChI Marine Spatial Planning (Nelson Mandela University)

The conference was attended by 451 delegates from eight countries. The CMR received the profit of R58 784,00.



## SWEDISH LECTURE



Mats Lindegarth, a Professor in marine ecology at the University of Gothenburg (Sweden) presented a public lecture on **Reaching the interface between science and governance of ecological resources: Challenges and experiences from Swedish coastal waters**. This event was hosted by the CMR, in collaboration with the International Office, at the South Campus Council Chamber on 12 July.

## NATIONAL SCIENCE WEEK



### Theme: Advancing Science Tourism

The Nelson Mandela University hosted the 2017 National Science Week. This is an annual initiative of the Department of Science and Technology (DST) and the South African Agency for Science and Technology (SAASTA).



During the *Road to National Science Week* pre-launch programme, Dr Lorien Pichegru delivered a public lecture on **Advancing Marine Science Tourism** on 1 August. The lecture was attended by over 100 people – University staff and students, members of the public, and the press.



The CMR had an exhibit at the **National Science Week Launch**, hosted at the University's Missionvale Campus from 4-5 August. A photographic display, information booklets, and items typically found washed up on beaches were used to introduce children to the marine environment, and to elaborate on the various career opportunities that the marine environment presents.



# WAVES OF CHANGE

The Nelson Mandela University's Marketing Department wanted to host a vibrant and fun event to advertise the Ocean Sciences Campus to all University staff and students. On 15 September an event entitled **Waves of Change** was held. Staff and students ranging from Sociology, Science, Law, Development Studies, Business and Economic Sciences, and Engineering shared their marine research in TED-talk style presentations. The Arts Faculty choreographed a dance – *Way of the Water* – that tells the story of people's reliance on the marine environment and this was also performed at this event. Questions based on the content of the presentations were asked, and University branded t-shirts were handed out to audience members for correct answers. The main prize was a boat trip into Algoa Bay, sponsored by Raggy Charters.

The CMR played an integral part in this event, and was tasked with coordinating the speakers, vetting presentations, and arranging visuals for this event.

The **Ocean Sciences Campus** was officially launched on 22 September 2017. Although the CMR was not involved in arranging this celebration, many CMR members attended this exclusive and high profile occasion. The CMR will be relocating to the Campus early in 2018.



## DEEP SECRETS

Dr Kerry Sink, A CMR Research Associate and the Marine Programme Manager at the South African National Biodiversity Institute (SANBI), delivered a public lecture on **Deep Secrets: Special Places and Species in the South African Seascape**. This event formed part of the CMR's end-of-year function. It was held at the South Campus Council Chamber on 28 November, and the venue was filled to capacity.



## NATIONAL MARINE WEEK

This is an initiative of the Department of Environmental Affairs and it aims to highlight the important role that the marine environment plays in our daily lives through **hands-on, interactive approaches**, to learners and educators from disadvantaged schools, as well as the general public. This event was held at Bayworld from 17-20 October, and a total of 52 learners and 15 educators attended. The following organisations were involved in arranging this event: Bayworld; Algoa Bay Hope Spot; Nelson Mandela University Enactus Group; Nelson Mandela Municipality Environmental Unit; Noordhoek Ski Boat Club; Noziqhamo Art & Craft Recycling; Raggy Charters; SANCCOB; Zwartkops Conservancy. Various CMR Members formed part of these groups. The CMR contributed R10 000 from its Engagement Excellence Award to this event to fund bus transportation for learners.



# NATIONAL OCEANOGRAPHY CENTRE (NOC)

In collaboration with the SARChI Chair in Ocean Sciences and Marine Food Security, a public lecture was presented by Mr Kevin Forshaw from the National Oceanography Centre, United Kingdom. This lecture was entitled **Sampling and monitoring the ocean using Autonomous Underwater Vehicles (AUV): An overview of the applications of AUVs** and was held on 20 September at the Business School Auditorium.



## PUBLIC TALKS

CMR Members are encouraged to engage with the public frequently. Details on public talks presented by a few CMR members are listed below:

### DR LORIEN PICHEGRU

She presented a talk, **Know Your Bay**, to school children at the WESSA Biodiversity Day in May 2017, as well as a talk about marine pollution and solutions at St John's Church as part of an environmental workshop. Dr Pichegru also arranged a number of outreach events and public talks hosted at Bayworld as part of the **Algoa Bay Hope Spot** initiative. These events were typically attended by 50-100 people, and talks included the following for 2017:

- ▶ Clean Water: our most important resources – Annette Lovemore (February)
- ▶ Dolphin Strandings in Algoa Bay – Greg Hofmeyr (May)
- ▶ Dolphin Sceneries in Algoa Bay – Lloyd Edwards (May)
- ▶ The Mandela Bay Agency Today – Dorelle Sapere (August)
- ▶ Sandy Beaches: marine desert or prized playgrounds – Anton Mc Lachlan
- ▶ Algoa Bay's surprising underwater beauty – Neal Bruton

## **DR GREG HOFMEYR**

During 2017, Dr Hofmeyr delivered the following talks:

- ▶ Stranding response in the Eastern Cape – Kromme River Trust (21 June)
- ▶ Bouvet Island – Society of St George (31 July)
- ▶ Stranding Response in the Eastern Cape – Dias Museum (18 November)
- ▶ Bouvet Island – Algoa Bay Rotary Club (21 November)
- ▶ Bouvet Island – Port Elizabeth Woman's Club (24 November)
- ▶ Bouvet Island – Probus Club (27 November)

## **DR GWENITH PENRY**

She presented two public talks:

- ▶ Marine Mammals of the Garden Route – Men's Probus Plettenberg Bay
- ▶ Conservation concerns for marine megafauna of the Garden Route – Wilderness Ratepayers Association

**MS KAYLEE SMITH** delivered an environmental awareness talk and arranged a beach clean-up at the Amanzimtoti Beach on 4 February 2017. Furthermore, she also arranged a public environmental movie screening and presentation evening to create awareness about conservation and marine research in KwaZulu-Natal.





## OTHER

### SCHOENMAKERS MINING

Schoenmakers Mining submitted an application for a permit to mine sand, building sand, stone aggregate and gravel in a five hectare area at Schoenmakerskop. The CMR registered as an Interested/Affected Party in April/May 2017, and a comment was submitted for the public participation process.

### NELSON MANDELA BAY MARITIME CLUSTER

- ▶ Dr Eckart Schumann delivered a presentation on climate change and the consequences thereof to the NMB Maritime Cluster on 26 April.
- ▶ On 17 July, the NMB Maritime Cluster, Nelson Mandela University Business School, and CMR hosted a conversation on Marine Spatial Planning in Algoa Bay.
- ▶ A Partnership meeting for 2017 took place on 24 October 2017. Dr Snow presented at this occasion.



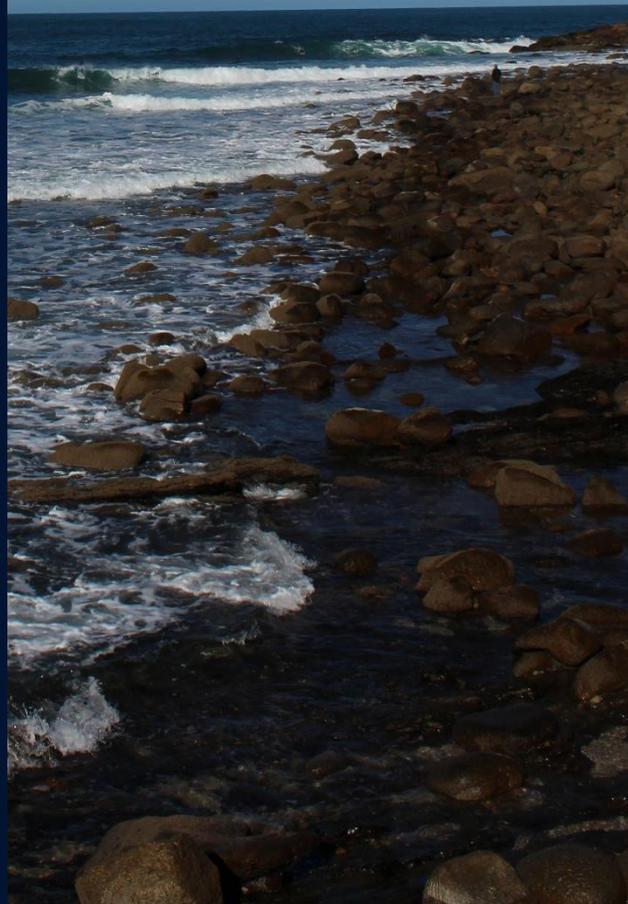
# PROJECT & FUNDING OUTPUTS

- ▶ New Funding
- ▶ New Projects, Collaborations & MoUs
- ▶ Contract Studies & Other

Prof. Ronel Nel was awarded a **Pew Fellowship** of \$50 000 for a period of three years. This was communicated during 2017, but the public launch took place early in 2018.

A collaborative project on **Marine Spatial Planning in Algoa Bay** was approved for funding through the **NRF Research Chairs Community of Practice (CoP)** led by Prof. Rosie Dorrington (SARChI Marine Natural Products – Rhodes University) and Prof. Mandy Lombard (SARChI Marine Spatial Planning – Nelson Mandela University). A sum of R7 million was received for Phase 1 that will span three years. The application for Phase 2 will be submitted in 2018.

Dr Pierre Pistorius received R5 million for the project **Southern Indian Ocean Top Predators: Linking ecology, oceanography and marine spatial planning needs** under **SANAP** (Southern African National Antarctic Programme). Dr Maëlle Connan also received SANAP funding (R1.887 million in total). Her project is in collaboration with Prof. Peter Ryan from the Percy FitzPatrick Institute, and is called **Small Procellariiformes as indicators of ecosystem changes and plastic pollution**. Both projects will run from 2018-2020.





## NEW PROJECTS & COLLABORATIONS

- ▶ Long term socio-ecological research in collaboration with the Sustainability Research Unit (SRU) and others.
- ▶ STINT Application: Community aquaculture and sustainable livelihoods, in collaboration with the University of Gothenburg and the University of North Carolina Wilmington.
- ▶ Plettenberg Bay research, monitoring and diving hub under SARChI Marine Spatial Planning, in collaboration with the World Wildlife Fund (WWF).
- ▶ Collaborations with the Faculty of Engineering, the Built Environment and Information Technology on drones to monitor abalone research.
- ▶ The Water Research Commission (WRC) funded a new project to provide the first national assessments for blue carbon ecosystems in South Africa (project designed in collaboration with partners from the University of the Western Cape, the CSIR, and SAEON). Prof. Janine Adams and Dr Tommy Bornman are heavily involved in this project.
- ▶ In collaboration with the CSIR and SANBI, Dr Taryn Riddin and Mrs Meredith Fernandes contributed extensively to the 2018 National Biodiversity Assessment by mapping macrophyte habitats of all South African estuaries.

## NEW MoUs

- ▶ CapeNature: joint research and diving
- ▶ SEAON & SAIAB: collaborative marine research
- ▶ Kouga Municipality: Seekoei Estuary and Mouth Management Project
- ▶ University of Fort Hare, Rhodes University and Lidomix: Abalone Seeding Project through Wild Coast Abalone





## CONTRACT STUDIES

The Benguela Current Ecologically or Biologically Significant Marine Areas (EBSA) project, led by Dr Stephen Holness, is funded by the German Development Corporation (GIZ) to the value of approximately R7.2 million. The CMR is providing professional and administrative support to the Benguela Current Convention (BCC), its three member states (Angola, Namibia, South Africa) and other key stakeholders in the marine management sector to reach the objectives of the BCC regarding the enhanced sustainable management and governance of the Benguela Current Large Marine Ecosystem's (BCLME) marine biodiversity and natural resources. The main focus of the project is capacity and development at various levels, to identify, describe, and assess vulnerabilities and improve the management of the Benguela EBSAs.

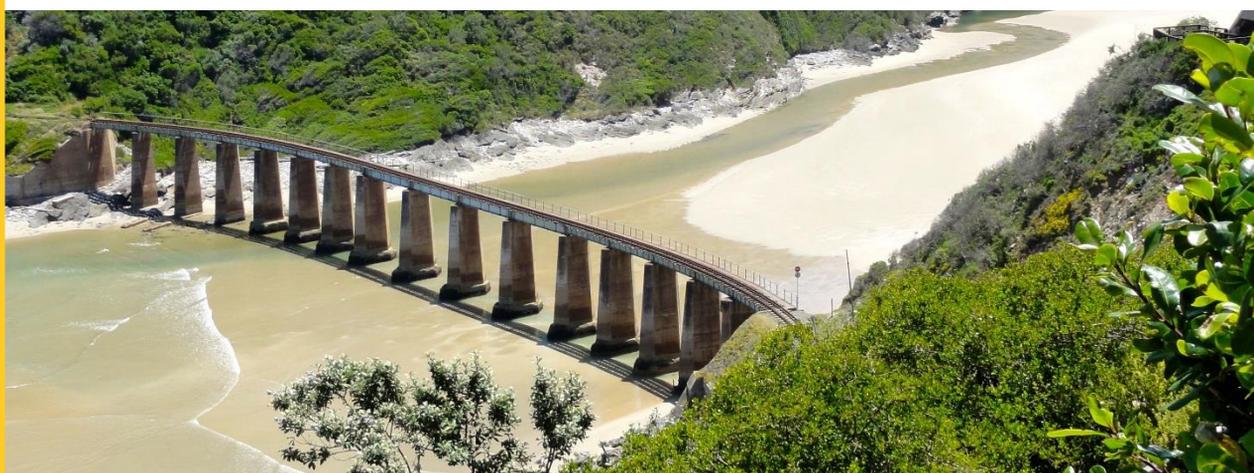
Department of Environmental Affairs: National Coastal Assessment. R333 470 total upon deliverables.

Seekoei Estuary and Mouth Management Plans (Kouga Municipality): R114 000 received.

Nelson Mandela Bay Development Agency: Water quality assessments for the North End Lake. R248 525,70 was invoiced in 2017, and will be received in 2018.

## OTHER

The CMR provided input to the International Office on the Merian Research Centre proposal led by Humbolt University on Entangled Sustainabilities.



# FINANCIAL STATEMENT





The Institute had a number of large expenses during 2016, impacting the opening balance and funds available for 2017. The CMR is working towards a plan to ensure financial sustainability. The financial report for the CMR's N186 (Contract) and N187 (Reserve) cost centres was prepared by Mr Rheinard van Onselen, Accountant Research and Third Stream Income.

**INCOME STATEMENT OF ISTITUTE FOR COASTAL MARINE RESEARCH**

**ENTITY NAME: INSTITUTE FOR COASTAL MARINE RESEARCH**

**ENTITY LEADER: PROF J ADAMS**

**FACULTY: SCIENCE**

**COST CENTRE(S): N186, N187**

**INCOME STATEMENT FOR PERIOD :**

**Year 2017**

**Year 2016**

**Opening Balance**

**765,275**

**1,329,266**

**INCOME**

**1,090,163**

**652,474**

Private grants restricted

1,030,705

576,187

Interest Received

59,459

76,287

**EXPENDITURE**

**854,304**

**1,216,465**

Salaries

440,921

446,395

Conference Expenses

80,000

Operating expenses

165,803

322,123

Catering

17,724

Admin Fee

129,866

Bursaries

20,000

Equipment

-

447,947

**Closing Balance**

**1,001,134**

**765,275**

Project Invoices not paid

248,526

**Available Balance**

**752,609**

**765,275**

**Name :**

Rheinard van Onselen

**Title :**

Accountant Research and Third Stream Income

**Signature :**

**Date :**

28-03-18

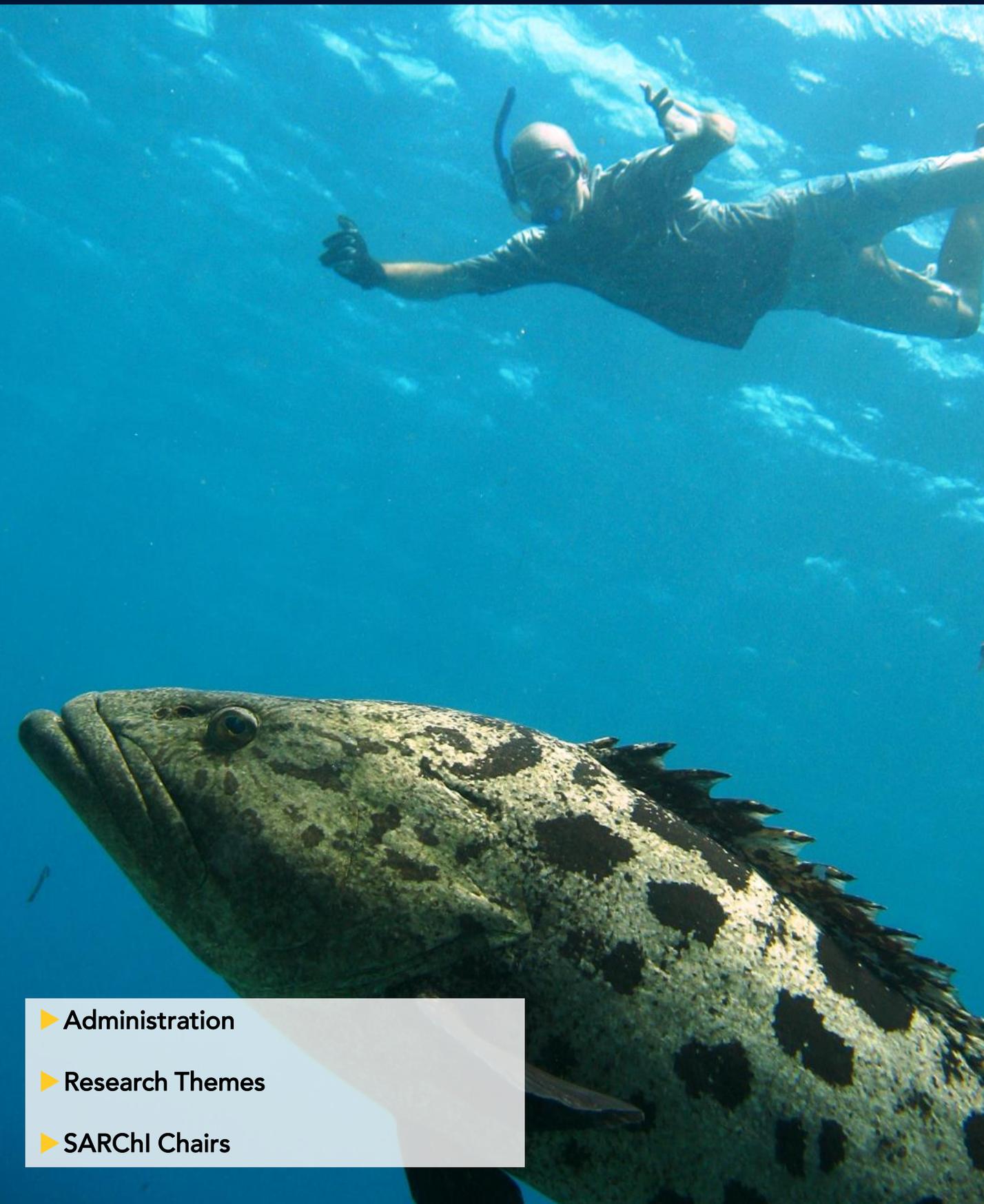
# ACKNOWLEDGEMENTS



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Andrew Witte: 17, 18, 31, 36, 55  
Bulelwa Same: front page, 45  
Climate Service Centre: 32  
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Country Life: 42  
Daniel Lemley: 25  
Die Burger: 42  
Elma de Koker: 48  
Elsevier & Academic Press: 33  
Eugin Bornman: 9  
Gavin Rishworth: 5, 6, 39, 47, 50, 54, 59, 60  
Gerd Masselink: 30  
Gothenburg University: 28  
Isabelle van der Linden: front and back covers  
Janine Adams: 7, 13, 24, 38, 40, 46, 52, 55, 56  
Jonathan Botha: 29  
Jonathan Handley: 6, 15, 57  
Kerry Sink: 49  
Knysna-Plett Herald: 42  
Larize Nel: 6, 7, 43, 53  
Laura Bekker: 58  
Leonette Bower: 3, 22, 25, 44, 45  
Luke Holman: 29  
Linda Harris: 16  
Liza Rishworth: 1, 4, 8, 10, 23, 27, 32, 47, 49  
Lorien Pichegru: 51  
Lynette Clennell: 21, 34  
Mandy Lombard: 21  
Mats Lindegarth: 47  
Meredith Fernandes: 43  
Nadine Strydom: 2  
Nelson Mandela Bay Maritime Cluster: 52  
Oldenburg University: 32  
Patrick Vrancken: 22, 29  
Paul-Pierre Steyn: 16, 31  
Pierre Pistorius: 20, 61, 62  
SABC News: 41  
Shaun Deyzel: 12, 16  
Sinegugu Mbense: 47  
Struik Nature: 45  
Tanya Wagenaar: 29  
Tara Naeser: 41  
Tegan Carpenter-Kling: 19, 20, 29, 52  
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Zanri Schoeman: 11

# CONTACT DETAILS



- ▶ Administration
- ▶ Research Themes
- ▶ SARChI Chairs

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Ocean Sciences Campus - Nelson Mandela University

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