



# Marine Spatial Planning Research

NMMU 2016





What

**Marine Spatial Planning Research Group**

Institute for Coastal & Marine Research

Nelson Mandela Metropolitan University

When

**Started January 2016**

Where

**Virtual campus 2016**

New Marine and Maritime Campus 2017+

Vision

**To undertake research that will inform  
ecosystem-based Marine Spatial Planning in  
South Africa**

Acknowledgement

We thank Minister Naledi Pandor (Science and Technology) and the National Research Foundation for enabling this research.



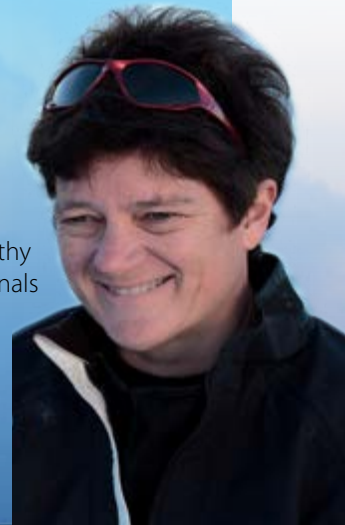


**Professor Mandy Lombard**  
**DST/NRF SARCHI Chair: Marine Spatial Planning,**  
**NMMU** (mandy.lombard@nmmu.ac.za)

*Undertaking research that will inform ecosystem-based Marine Spatial Planning in South Africa.*

Ocean space is getting more and more crowded, and we are pushing the boundaries of extraction further and further. We need to learn how to manage our extractive ocean uses sensibly, while maintaining healthy ocean ecosystems. We need to equip young professionals to deal with the science, policy and socio-economic aspects of managing ocean use, and for this we need trans-disciplinary research. This is the research space I hope to create.

I have gathered a group of great people to fill this space and I'd like to introduce you to them.





## Theoni Photopoulou (Postdoctoral Research Fellow)

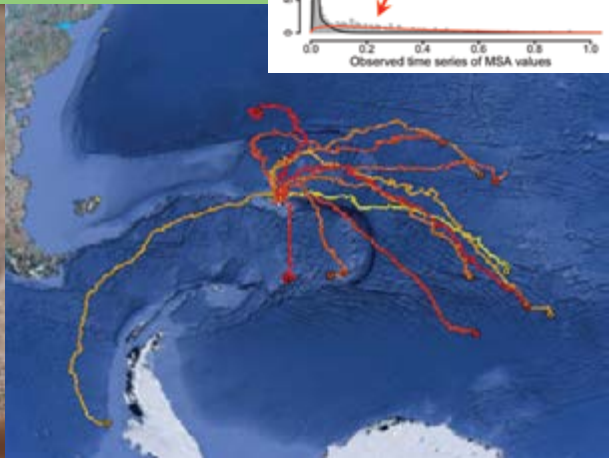
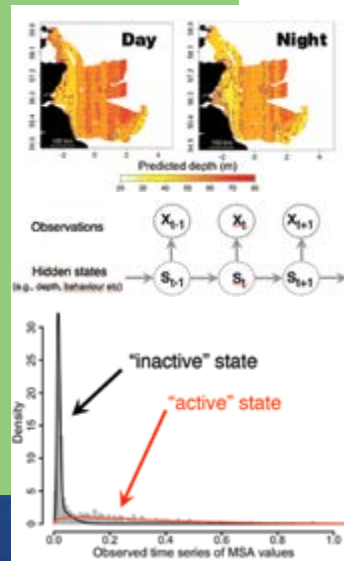
**Research:** *Quantifying the impact of environmental change on the movement ecology of marine top predators with applications to Marine Spatial Planning.*

Collaborators:

Dr Alison Kock (Shark Spotters, South Africa);  
Dr Pierre Pistorius (NMMU); Dr Ian Durbach (UCT); Dr David Borchers  
(University of St Andrews, Scotland).

### Why I am interested in marine research:

My special interest in the ocean and particularly its widely ranging top predators, stems from the ocean's vastness, its complexity and all of the secrets it still holds. Animals like albatross, sharks, whales and elephant seals manage to navigate and sometimes still thrive in an environment we exploit heavily but do not fully understand. I am interested both in blue sky science, because I believe it inspires people and embodies our natural curiosity, as well as producing results that can have real life impacts on the conservation and management of marine ecosystems.





	<i>Physeter macrocephalus</i>																			
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Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sex	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Length	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Weight	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin height	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin width	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin area	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin volume	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin mass	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin density	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin stiffness	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin strength	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin durability	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin lifespan	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin health	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin condition	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin quality	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin value	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin price	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin cost	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin benefit	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin utility	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Fin satisfaction	10	12	14	16	18	20	22	24	26	28	30	32								







## Zoleka Filander (PhD candidate)

**Research:** *Identifying and mapping offshore sensitive ecosystems.*

Collaborators:

Dr Kerry Sink (SANBI); Dr Lara Atkinson (SAEON);

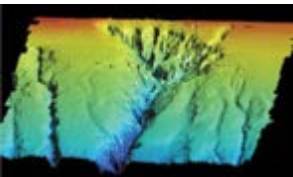
Dr Toufiek Samaai (DEA).

### Why I am interested in marine research:

My interest in marine spatial planning and conservation planning was ignited by my interaction with the community of Dwesa Cweba nature reserve. I first encountered this incredibly beautiful reserve when I was doing my Honours degree in Marine biology, for which Dwesa was my study area. I would occasionally meet members of the local community of all different age groups. One topic always came up when they discovered I was an upcoming scientist, and this was their perception of the demarcated MPA (what this meant for them and their livelihoods). There seemed to be a common message, along the lines of “we do not understand why the government is taking away our food”. This really hit home, as a person who comes from a disadvantaged background, so I wanted to be their voice in such consultations. I soon learnt that this process is not as straight forward as anticipated. So, in a nutshell, I am particularly interested in this field because of its complexity and not just the idea that I could be in a position of being the voice for communities like Dwesa, but also that I will help them understand the reason behind MPAs.



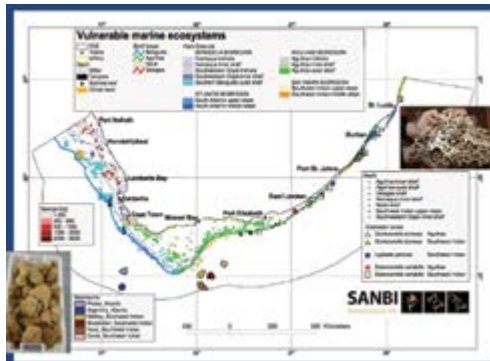
Leadsman & Chaka  
in northern KZN



Trawl by-catch



Potential sensitive systems mapped to date  
(Sink & Samaai, In press)



Unidentified cold-water coral species



Dead reef-building coral specimens collected from a dredge sample off the Cape Canyon head (2016)





## Jodie Reed (PhD candidate)

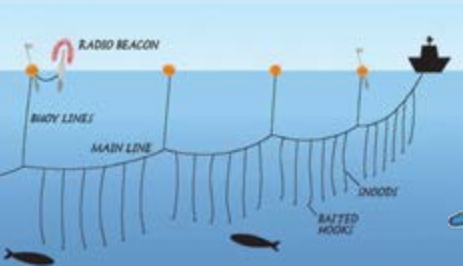
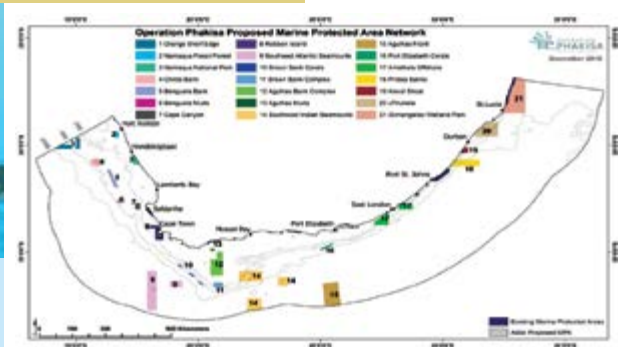
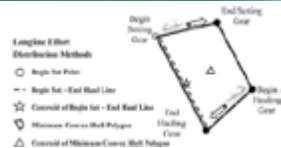
**Research:** *Analysis of legal instruments to support spatial management of fisheries for ecosystem-based management: case studies of specific industries.*

Collaborators:

Dr Kerry Sink (SANBI); Prof. James Blignaut (University of Pretoria); Dr Sven Kerwath (DAFF).

### Why I am interested in marine research:

I have been interested in marine research since my undergrad days when a part-time job as a research assistant had me hopping along our rocky shores. Since then my focus has moved towards marine conservation and the sustainable use of our marine resources. With the increasing demand on these resources, I see Marine Spatial Planning as an invaluable tool to reduce conflict in the marine environment. As ecological, economic and social objectives are taken into consideration, so we must ensure that ecosystems remain healthy and biodiversity is conserved.





## Kaylee Smit (PhD candidate)

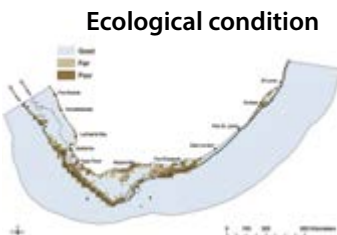
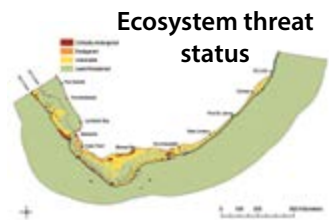
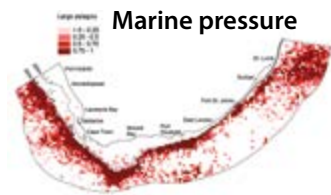
**Research:** *Assessment of ecosystem condition of consolidated and unconsolidated benthic habitats on the East coast of South Africa.*

Collaborators:

Co-Supervisor: Dr Anthony Bernard - South African Institute for Aquatic Biodiversity (SAIAB);  
Co-Supervisor: Dr Kerry Sink - South African National Biodiversity Institute (SANBI).

### Why I am interested in marine research:

I'll take a bad day at sea over an office day always... I love being outdoors, in nature and on the ocean doing research that I am passionate about, and contributing to marine conservation in South Africa. I have grown up on the coast, and really appreciate all that it has to offer, from years of snorkelling, SCUBA diving, learning to surf and later collecting data on various fieldtrips. I've realised the impact that we are having on our environment, and I want to do everything that I can to understand this and prevent it, ensuring the sustainability of our marine ecosystems.



Collecting data



# Hannah Raven

## (MSc candidate)

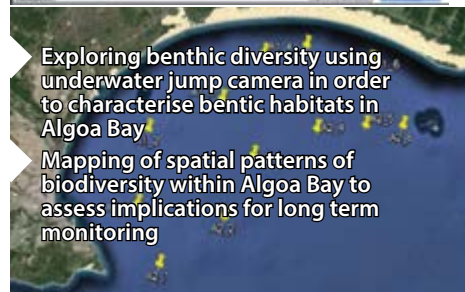
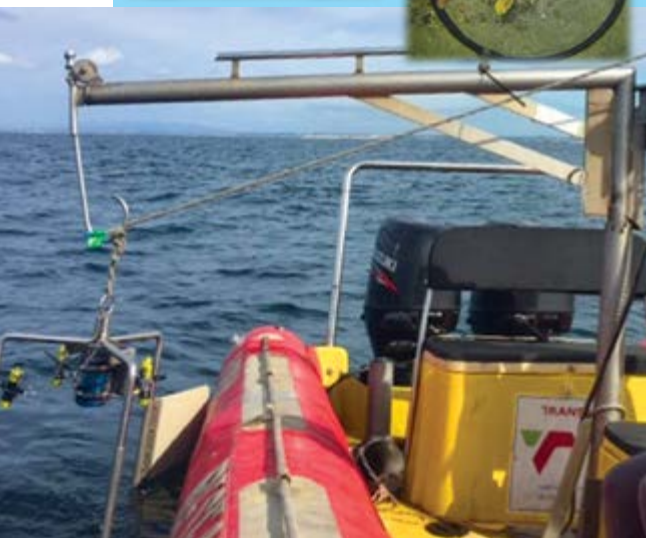
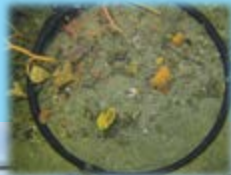
**Research:** *Habitat characterisation and epibenthic biodiversity in Algoa Bay.*

Collaborators:

Dr Lara Atkinson (SAEON), Dr Charles von der Meden (SAEON).

### Why I am interested in marine research:

I have been passionate about our oceans since a young age growing up in Cape Town and want to assist management in providing the best available knowledge of benthic ecology to utilise marine resources sustainably while conserving vital biodiversity.



Exploring benthic diversity using underwater jump camera in order to characterise benthic habitats in Algoa Bay

Mapping of spatial patterns of biodiversity within Algoa Bay to assess implications for long term monitoring



## Nokuthula Daweti (MSc candidate)

**Research:** *Using Baited Remote Underwater Video (BRUV) systems to assess deep water benthic fish communities of the KwaZulu-Natal (KZN) shelf to inform Marine Spatial Planning.*

Collaborators:

Dr Henning Winker, UCT; Bruce Mann, ORI.

### **Why I am interested in marine research:**

The marine environment became interesting to me at an early age. That was when I first discovered that planet earth was more ocean than land. I then developed an interest in different fish species that occur in the ocean – their biology and diversity. It was only during the second year of my BSc in Zoology that I developed an interest in ocean management. Having completed a BSc (Hons) in marine biology and learning about the conflicting interests for use of ocean space and biodiversity conservation needs, I am now even more passionate about marine biodiversity conservation.

I also learned that for management purposes, marine spatial planning and ecosystem based management are feasible options to minimize the conflicts. This facilitates equitable benefit sharing of ecosystem services the ocean provides without putting biodiversity at risk. Being involved in Marine Spatial Planning work to me is very exciting; especially in recent times when we are seeing an expansion on the scale of ocean exploration globally.



Phakisa proposed Reef MPA site





## Summer Newton (MSc candidate)

**Research:** *A spatial and socio-economic evaluation of recreational SCUBA diving in South Africa.*

Collaborators:

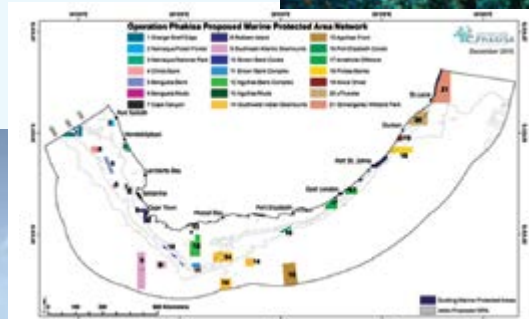
Prof. Ken Findlay, CPUT (Cape Peninsula University of Technology); Dr Jean Harris, Ezemvelo KZN Wildlife.

### Why I am interested in marine research:

I have a strong passion for marine biodiversity conservation, particularly that of marine megafauna. This passion started from a young age, blossomed throughout my high school career with countless hours spent snorkelling and watching nature documentaries. This led me to complete my Dive Master qualification and inevitably deciding to study Marine Biology at the University of KZN. I believe that conservation is crucial for ensuring the sustainability and integrity of our oceans resources for future generations. I am currently enrolled at NMMU for a Masters in Zoology to continue following my dreams to play a part in contributing towards conservation research into the future.



The role of Marine Protected Areas in contributing to SCUBA diving tourism







## Tsamaelo Malebu (Msc candidate)

**Research:** *Identifying and mapping strategic fisheries resource areas to support Marine Spatial Planning.*

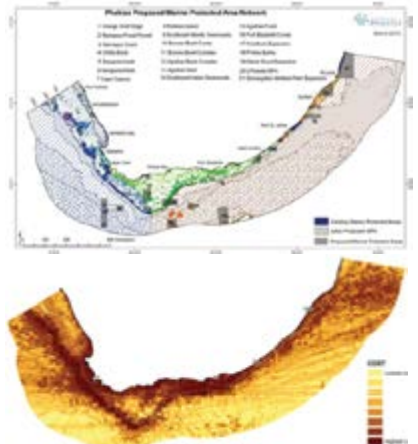
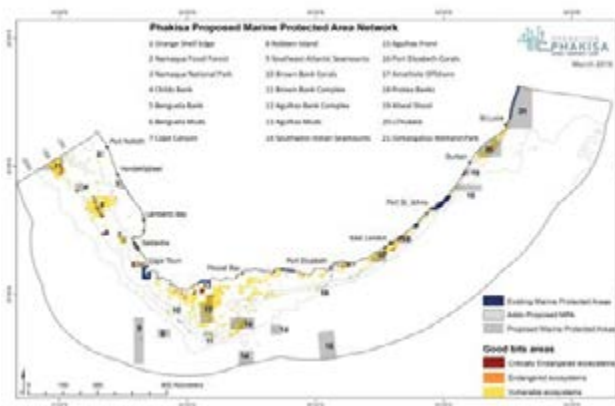
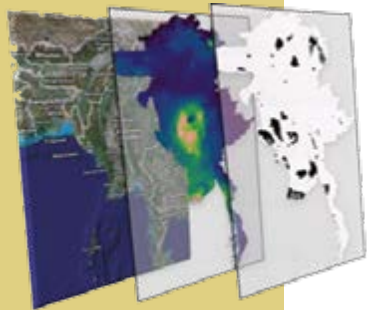
Collaborators:

Dr Kerry Sink, South African National Biodiversity Institute (SANBI);

Dr Carl van der Lingen, Department of Agriculture, Forestry and Fisheries (DAFF).

### Why I am interested in marine research:

I am passionate about presenting marine spatial data as maps – visualising and analysing data in this way helps us to make better decisions for marine spatial planning (MSP), management and policy development. MSP is an emerging field within South Africa with so much scope to learn, grow and provide inputs. Upon completion of my studies, I would like to be able to provide meaningful support (technically and theoretically) to the decision-making processes of how to best manage our ocean space.





## Rachael Chasakara (LLM candidate)



**Research:** *Legal aspects of Marine Spatial Planning*

- *Constitutional law aspects*
- *Environmental law aspects*
- *Planning law aspects*
- *the recently published Marine Spatial Planning Bill.*

Collaborators:

Prof. P.H.G. Vrancken – Incumbent of the Southern African research chair in Law of the Sea and development in Africa.

### **Why I am interested in Public Law of the Sea:**

Whenever I looked at the sea, I had a lot of questions which I did not know the answers to. It is these questions that captured my interest in the public law of the sea. Some of these questions are:

- Who looks after our seas? Because to me it seems to be only over used and polluted.
- Who is responsible for managing competing uses and protecting natural resources in the seas?



**THE LAW OF THE SEA**





## Jayne Titchener (Programme Coordinator)

I joined the Marine Spatial Planning Research Group as the Programme Coordinator in January 2016 and have thoroughly enjoyed the dynamic research team with its innovative and energetic students, and networks of collaborators. Each day brings new challenges, but also stimulation. Prof. Lombard creates a "happy space" as she calls it, for each of us to reach our full potential and she's always on hand to help us navigate the challenges. My main task is to make sure that the researchers get to do research, and not admin.

I love admin - so it works really well!





## National Collaborators





## Global Collaborators

