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South African Network for Coastal and Oceanic Research

SANCOR'S CURRENCY AND
STRENGTH IS INFORMATION

SANCOR Newsletter

Deep Secrets Revealed: Research Expedition Sheds Light on Deepsea Ecosystems

By

Kerry Sink

*South African National
Biodiversity Institute*

Last week, 13 scientists, technical experts and students returned from the 30 day "Deep Secrets" research cruise that deepened ocean knowledge in

South Africa. The team sailed from Cape Town on 26 September traversing the shelf edge from off Robben Island on the west coast to the outer shelf off the Kei River mouth via the very tip of the Agulhas Bank, the southernmost point of the African continental shelf. The cruise track covered more than 3000 km collecting information about the geology, oceanography, biodiversity and ecology at 61 research stations. Most of



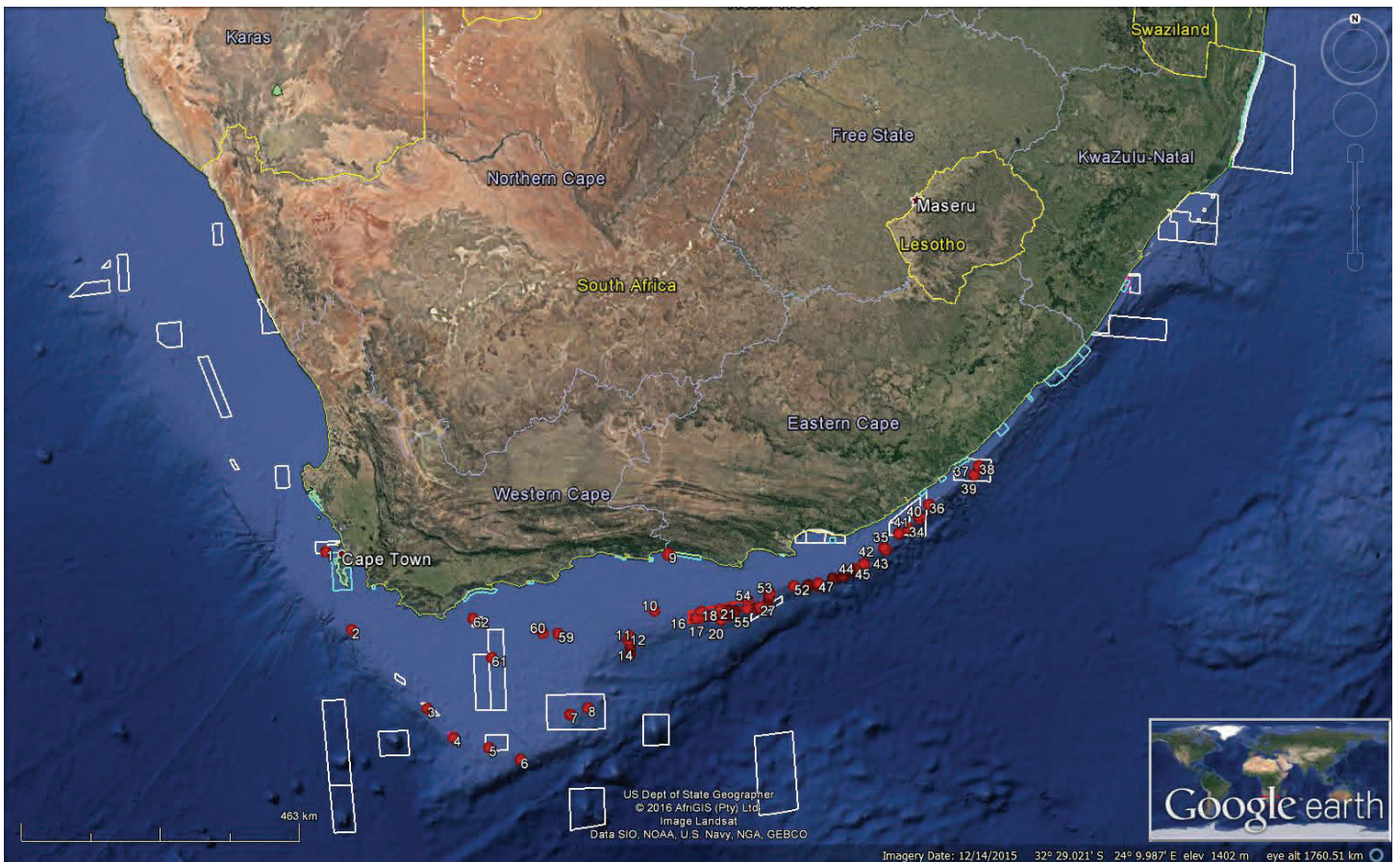
Scientists and technicians from 9 organisations collaborated in this multi-disciplinary expedition to deepen ocean understanding in South Africa.

the stations were below 200 m providing new insights into South Africa’s poorly studied deepsea ecosystems. The researchers used a towed camera and a Go-pro in specialized underwater housings to shed light on a range of never seen before habitats. The deepest station surveyed was at a depth of 1035m off Knysna and represents the deepest visual biodiversity survey in South Africa to date.

“Deep Secrets” is a project of the multi-disciplinary African Coelacanth Ecosystem Programme, catalysed through a joint initiative with the Oceans

and Coast Branch of the Department of Environmental Affairs and the Department of Science and Technology facilitated through the Presidential Operation Phakisa Oceans Economy Laboratory. The project and expedition was led by the Principal Investigator, Dr Kerry Sink, a scientist at the South African National Biodiversity Institute. One of the key project goals is to develop deepsea research capacity across multiple institutions and as such the expedition included staff from nine of the fifteen organisations collaborating on the project. These include the Oceans and Coasts Branch

of the Department of Environmental Affairs, the South African National Biodiversity Institute, the South African Institute for Aquatic Biodiversity, the South African Environmental Observation Network, Nelson Mandela Metropolitan University, the University of Cape Town, the University of the Western Cape, Eastern Cape Parks and Tourism and Scripps Institution of Oceanography in California. Research goals focused on characterising different habitats in the outer shelf, shelf edge and slope to inform management and spatial planning in South Africa’s ocean. This includes the development of offshore Marine



Map showing the 61 cruise research stations covering 15 habitat types and 7 of the proposed new Phakisa Marine Protected Areas in South Africa.

Protected Areas (MPAs) and the implementation of Marine Spatial Planning, a process to optimally zone the increasing number of activities in the sea.

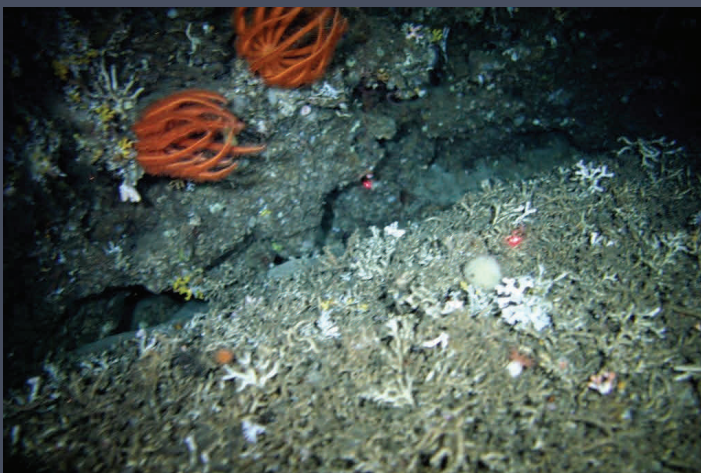
The cruise was hosted aboard the Department of Environment's Research Vessel *Algoa*. The sampling undertaken was designed to understand different aspects of the marine environment. Echo-sounder surveys were conducted to examine features on the seafloor, particularly submarine canyons, offshore ridges, deep reefs and thousands of year old mounds made by cold water corals. Although museum records indicated the presence of reef building corals in deep water, such habitats have never been observed in South Africa before now. Biodiversity sampling included deep water camera surveys and many specimens were collected using a sled (towed sampling device) and a grab (steel jaws that take a bite out of the

seabed). The biodiversity samples provided specimens so scientists can identify and count animals seen in photographs and video and examine the small creatures that live within seabed sediments. They will also be used for genetic barcoding and in studies to characterise the foodweb and understand energy flow. Innovative plankton sampling was also done using nets attached to the tow camera. Oceanographic sampling provided measurements of sea temperature, oxygen and the pH of the water which varies with depth and region. Such information is critical to help understand climate change sensitivity and impacts which must be factored into spatial ocean management.

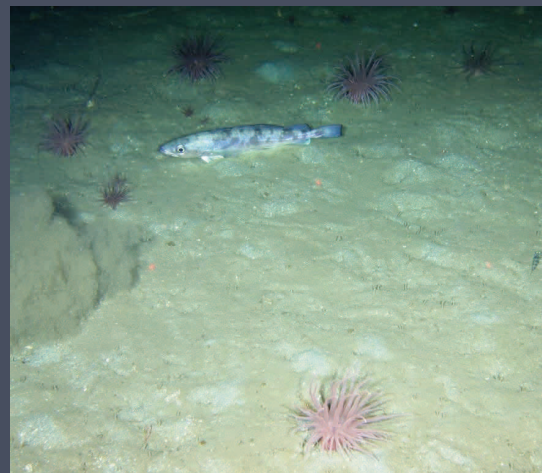
The findings of the cruise were extensive with over 3000 seabed images, many gigs of video footage and more than 600 biodiversity samples. A



Kerry Sink and scientist Zoleka Filander from the Oceans and Coast Branch of the Department of Environmental Affairs examine corals collected at the newly discovered Secret Reef, a reef composed of many years of coral growth on the shelf edge off Knysna.



Secret Reef - one of the first images of a cold water coral reef in South Africa's deepsea environment.




A hake in amongst a garden of anemones in an untrawled area off Port Elizabeth.

steep coral encrusted rocky ridge on the slope off Port Elizabeth, submarine canyons in the Amathole area and coral habitats at Browns Bank on the west coast are some the key undocumented features that were investigated by the team. “We were amazed at the complexity and variability in seabed ecosystems” said Sink reflecting on “the mosaic of sandy habitats, the diversity on gravel slopes, the strange creatures captured in the Agulhas muds and the beauty and fragility of the deep coral ecosystems”. Some of the more surprising finds included a garden of giant pink sea anemones off Port Elizabeth, kingklip in sandy burrows off Kenton and the presence of fish eggs and larvae in the fronds of soft corals across the study area. The latter discovery indicates that coral habitats may serve a nursery function for fish and the team is excited to learn the identity of the fish species involved.

The expedition covered seven of the 21 new proposed Phakisa MPAs, providing the first images in five of these areas and contributing baseline information to inform MPA implementation and management. Fortuitously, a port stop provided an opportunity to engage with fisheries stakeholders during a fuel stop and together with further radio communication at sea, this helped raise awareness and build understanding of the interaction between trawlers and south coast rock lobster fishers and cold water coral habitats.

The journey was not easy with a number of challenges such as equipment failure, contending with severe weather and port delays while trying to achieve project goals and pioneer new sampling approaches. Achievements could not have been realised without the skill of the navigating officers, capable technicians and dedicated crew aboard the vessel. Deep sea lectures were held to compliment the practical experience gained by the team with international collaborator Professor Lisa Levin (Scripps Institution of Oceanography) sharing scientific knowledge and application with links to the Deep Ocean Stewardship Initiative (DOSI).

Highlights of the expedition include the first photographs of deep water coral ecosystems in South Africa, new live coral specimens for further research, the discovery of the potential role of soft corals as fish nurseries and first observations of some fish and invertebrates in their natural deep water habitats. Areas of future research were identified including understanding the effects of climate change on deep water coral habitats and the impact of demersal trawling on deep-sea ecosystems. Next week, the team will return to their laboratories to analyse specimens, video, images, bathymetry and oceanographic data collected in the field. New student projects will also be developed offering exciting research opportunities for other young scientists to work with the Deep Secrets team in 2017 and beyond. 

PHD IN OCEAN BIOGEOCHEMICAL MODELLING

Call for Applications

The Department of Oceanography at the University of Cape Town is seeking a PhD candidate in ocean biogeochemical modelling for the attached project proposal. You will have an MSc in Applied Mathematics, Physics, Engineering, Computer Sciences or related disciplines and an interest in computational fluid dynamics and/or numerical modelling. Proven knowledge of computer programming in any language is essential. Background in oceanography is not a prerequisite and training courses will be available from the portfolio offered by the Department. This call for applications is specifically meant to attract graduate students from other South African universities and international students.

Deadline for applications:

30 November 2016

World's largest marine protected area declared in Antarctica

By
Matt McGrath
BBC News

Delegates from 24 countries and the European Union have agreed that the Ross Sea in Antarctica will become the world's largest marine protected area (MPA).

Some 1.57m sq km (600,000 sq miles) of the Southern Ocean will gain protection from commercial fishing for 35 years. Environmentalists have welcomed the move to protect what's said to be the Earth's most pristine marine ecosystem. They hope it will be the first of many such zones in international waters.

At this meeting in Hobart, Australia, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) agreed unanimously to designate the Ross Sea as an MPA, after years of protracted negotiations, New Zealand Foreign Minister Murray McCully announced.

The Ross Sea, its shelf and slope only comprise 2% of the Southern Ocean but they are home to 38% of the world's Adelie penguins, 30% of the world's Antarctic petrels and around 6% of the

world's population of Antarctic minke whales.

The region is important to the rest of the planet as the upwelling of nutrients from the deep waters are carried on currents around the world.

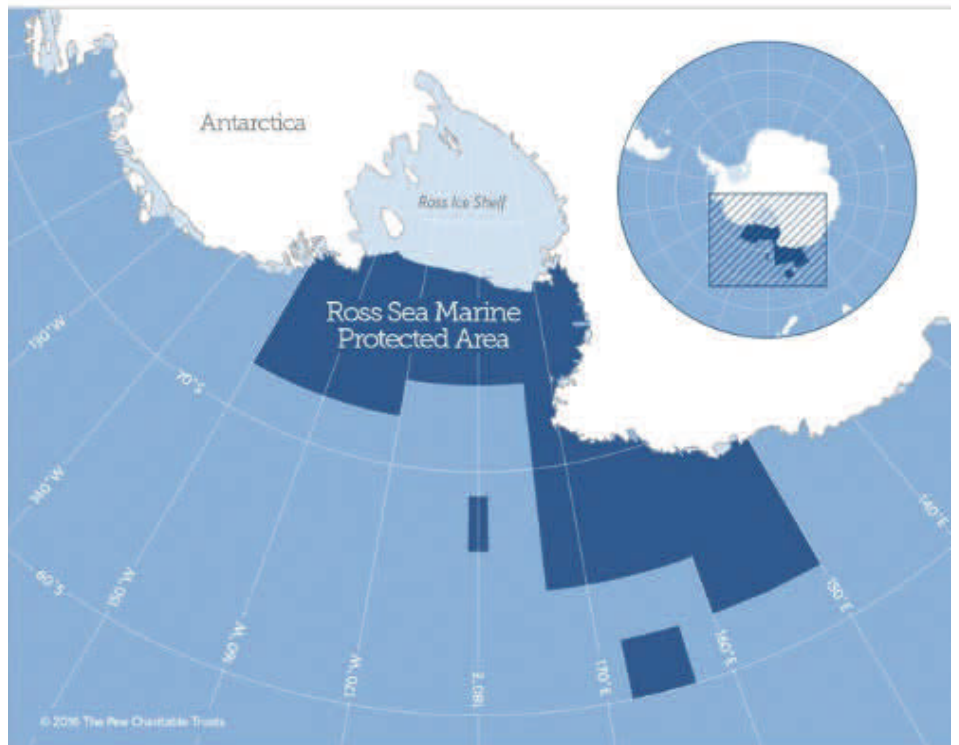
The Ross Sea is also home to huge numbers of krill, a staple food for species including whales and seals. Their oil is critical for salmon farming. However there are concerns that overfishing and climate change are having significant impacts on their numbers.

The proposal, introduced by New Zealand and the US, and accepted by all the other nations, will see a general protection "no-take" zone where nothing can be removed including marine life and minerals.

As part of the compromise that emerged in negotiations, there will be special zones where fishing from krill and toothfish will be allowed for research purposes.

[Full details available here.](#) 

Ross Sea Marine Protected Area



Source: New Zealand Ministry of Foreign Affairs and Trade

Shark conservation and kelp forests among the highlights at MPA Forum



Around a hundred stakeholders from across South Africa’s Marine Protected Areas gathered in the Sardinia Bay area from 25 to 27 October to discuss the challenges and opportunities for the protection of priority biodiversity areas in our seas.

Known as Marine Protected Areas (or MPAs), these areas are regarded as critical sanctuaries for the protection of our marine environment. At present less than 0,5% of South Africa’s oceans are formally protected compared to 8% of the land.

Among the topics highlighted at the 9th annual South African MPA forum are research results on kelp growth in the De Hoop area, whether MPAs help to conserve great white sharks and what we are learning from the growing body of work on baited underwater remote videos.

South Africa’s 24 MPAs include “no-take” zones where no fishing is allowed and “controlled” areas where limited fishing

activities are allowed. There are currently 22 new MPAs that have been proposed as part of the government’s Operation Phakisa, but they still need public support to make them a reality.

Participants in the forum, convened by WWF South Africa and the Department of Environmental Affairs, included representatives from government, management agencies, research organisations, academia, NGOs, coastal communities and others.

Forum coordinator Robin Adams comments: “Oceans play a critical role in regulating our climate and providing food resources. In South Africa, fishing and coastal development are among the main threats which place enormous pressure on marine biodiversity. This is one of the main reasons why we need to prioritise the protection of our coastal marine areas.”

Senior manager of WWF-SA’s Marine Programme John Duncan says: “Effective management of MPAs should benefit both the planet and people in many ways. By protecting natural habitats, we also guard against the impacts of climate change while species

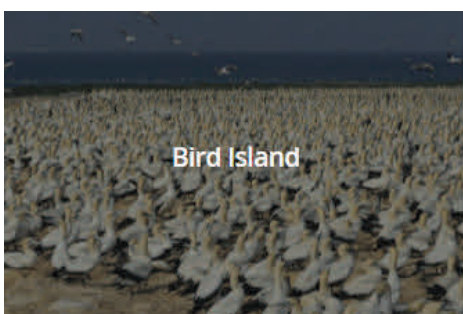


Sardinia Bay was the venue for the 9th annual South African MPA Forum.

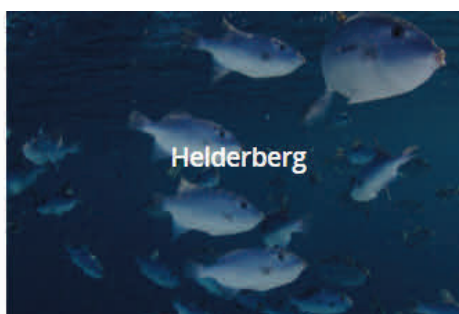
will benefit if migration routes and habitats become a safe haven for spawning of fish larvae and growth of juvenile fish to help with stock replenishment.”

A new website was also launched at the forum to enhance communication, management and training of MPA staff by ensuring that relevant, up-to-date information is easily accessible. WWF-SA has also helped to develop a short training course in MPA management which has been registered with Nelson Mandela Metropolitan University.

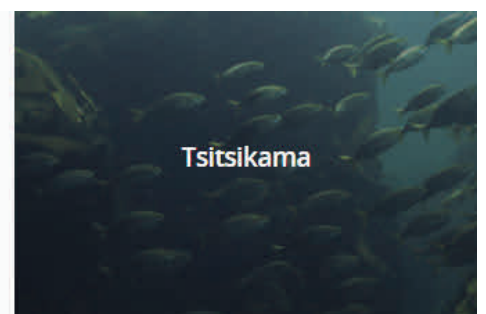
The three-day event, funded by the Department of Environmental Affairs Oceans and Coast branch and organised by the MPA forum secretariat.



Bird Island



Helderberg



Tsitsikama

WIOFish Revamped

By
Bernadine Everett
WIOFish

WIOFish is a database repository of electronic information on fisheries of the western Indian Ocean (WIO). Participating countries include Kenya, Tanzania, Mozambique, Seychelles, South Africa (KwaZulu-Natal only), Mauritius, Comoros and Madagascar. The regional management of WIOFish has, since inception, been the responsibility of the Oceanographic Research Institute based in Durban, South Africa while each country has a nominated national node responsible for in-country management. After ten years of the same database design, that became completely outdated and cumbersome for users to access information, WIOFish has a new look. This revamped design is much more user-friendly, quicker to use and it addresses repeated requests for more time series data.

Looking back briefly at the history of WIOFish, in 1999 a group of people from various countries in the WIO met in Mombasa, Kenya to establish a plan for collecting and collating information about the diverse and numerous small-scale fisheries of the region. At the time, very little was documented about these



fisheries. It was decided that this information should be housed in a central repository that was accessible to researchers, managers and funders. Initially all the information was stored in a series of text documents but of course this was not very accessible or searchable. To improve accessibility, the information was moved onto an MS Access database with the intention that the database could be distributed on request. This also wasn't such an effective plan due to complications with the security features within Access that changed with each version of the software installed on users' computers. In 2006, it was decided that the only way forward was to move the database onto the Internet. For the most part this has been a success and it has allowed many users to access the data and extract the relevant information for their projects and consultancies.

Over time though there have been many developments in web-based databases and WIOFish started to lag behind. The system was slow and increasingly became more susceptible to hackers as it was running on old software that was not protected by new security features. Furthermore, WIOFish's emphasis, as with many other online databases in the mid-2000s, was more about facilitating data capture than simplifying browsing and extraction of information. The necessity for moving onto updated software provided the perfect opportunity to refocus the database onto the users' needs.

Changes to the database have included dropping the requirement to register as a user. It was felt that even though registration was free, it still created a barrier that some users were unwilling to

cross. The previous layout of a single webpage for all the information about a particular fishery was cumbersome, so that feature has been improved. The database is now structured into themes which are selectable on the left side of the website. This makes it easier to navigate quickly to the theme of interest. We have also added the capability to include more time-series data. While the intention of WIOFish is not to be a statistical database, there have been many requests to include time-series of effort data (number of vessels, gears and fishers) along with the already incorporated annual total catch and catch rate data. This facility has been included and will be populated at the next series of data update workshops planned for 2017 in each participating country. The data extraction routines have also been simplified to provide an easy option for exporting the data for further analyses in spreadsheets.

To aid access to the database, we have made a [10 minute video](#) that gives an overview of how to use the database. We sincerely hope that the changes made will encourage more people to use the database to support fisheries management, as well as for research and funding applications. Please feel free to visit the database on www.wiofish.org to have a look at the extensive amount of information stored about each of the fisheries of the WIO. ☞

Tracking fish, catching rock lobsters and dissolving skeletons in acid

By

Varsha Naidu Moodley

*South African Association for
Marine Biological Research*

Each year SAAMBR hosts National Science Week activities, to bring science to the visitors to uShaka Marine World. The aim of National Science Week is to shine a spotlight on the role that science, maths, engineering and technology have in our everyday lives and is an initiative managed by the Department of Science and Technology through SAASTA (South African Association for Science and Technology Advancement).

During the August 2016 long weekend this meant chatting to a large proportion of the over 8 000 visitors who passed the stand in the uShaka Village Walk about ocean acidification, current fish telemetry and the need to use resources sustainably. SAAMBR staff were able to share with public and school groups the Oceanographic Research Institute staff's involvement in national projects and the leadership role of the DST, creating informed citizens and making science and technology appealing to learners and exposure to career options.

At SAAMBR we like to help guests experience science in exciting and stimulating ways through "games" and



Preleen Govender dissecting a squid for visitors. Squid dissections are one of the most popular activities during National Science Week .

experiments done by selected members of the public. This gives adults a chance to feel like a child again, and lets young people explore some amazing concepts about South African oceans, our impact on them, and some ideas of how individuals can contribute to their conservation.

Sustainable seafood is so much fun when you get to see how a particular seafood is caught and what the impact on the environment is. Visitors who played the ‘by-catch’ game with our staff learnt about which seafood is good to eat in terms of having the least impact on the ocean environment.

We shared the SASSI list with visitors to empower them to continue to make sustainable seafood choices. It is a great opportunity for people to learn where their food comes from and assisting them in making choices for healthy oceans.

Our ORI scientists gave insight into what research is conducted, focusing on acoustic tagging and tracking of fish and using this information to protect vulnerable species. This was linked to the how, what and why of Marine Protected Areas (MPAs). Many visitors have heard of MPAs but few have had the opportunity to hear first-hand their purpose in protecting our country’s natural resources.

Marine science has always seemed daunting, however our amazing uShaka Sea World Education staff aim to get people interested by using even the littlest creatures, like zooplankton. Artemia are often described as ‘related to prawns’ and this makes many people want to know more about these animals. Their role at the base of the ocean food chain earns them respect and showing visitors what they look like and how they swim is part of the wow factor.

Another element of Science Week is inviting learners to our facility for a “Work Experience” day to interact and converse with our research scientists and aquarists. The learners also had a chance to perform a fish dissection and learn about coral genetics, the impact of ocean acidification and how fish stocks are assessed. This gives them an opportunity to learn more about subject choices and choose a career where they have seen the real-world application of science and mathematics. A specific Marine Careers presentation was given to all 209 grade 9 learners who visited us.

Our science week display always aims to be intriguing and make science relevant to anyone. Marine science impacts our daily life, from the food we eat to the animals we may encounter at the beach. We want to help everyone make that connection to the ocean so that they can start their own relationship with the ocean, by caring for it in their own way.

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Accelerated growth in the sustainable seafood supply chain

The Marine Stewardship Council (MSC) has published its 2015-16 Annual Report, highlighting market engagement and growth in MSC certified fisheries and supply chain. The report, [From sustainable fishers to seafood lovers](#), showcases the organisations and individuals driving change from ocean to plate.

Become a citizen scientist: Help Sea Search do research

By

Monique Laubscher

*Sea Search Africa &
University of Pretoria*

We are already seeing some clear signs of changes in the climate and marine ecosystem around the South African coast in a range of plant and animal species as a response to global climate change (GCC). However, our understanding of the full effects of global climate change is fairly limited. Cetaceans, specifically, are amongst the least well studied animals when it comes to GCC.

The specific distribution ranges of marine mammals are considered critical habitats which are crucial for their survival and reproduction. Increases in sea water temperature as a result of GCC is predicted to affect these distribution ranges, as species track their most favourable environmental conditions. Changes in their distribution ranges is the most direct effect GCC is likely to have on marine mammals. Other effects include changes in their abundance and reproductive success. Water temperature fluctuations can also have indirect effects on cetaceans through



Dusky dolphins pictured off Hout Bay where they are seen regularly.

affecting their prey species – fish and plankton rely on a very specific set of environmental temperatures, thus their abundance and habitat ranges are also subject to change in response to changing water temperatures. The underlying concept driving these responses is known as niche conservatism: the tendency of a species to retain the desirable conditions of its fundamental niche over time.

The likely impacts of GCC on cetaceans in South Africa has not yet been studied. This is largely due to the hard-to-access habitat and large distribution ranges of marine mammals. If changing water temperature is predicted to alter

the distribution range of a species (which is considered to be critical habitats for their survival), it is crucial for us to know the current distribution area a species occupies in order to understand, and consequently predict, whether its ranges are likely to be negatively affected (e.g. decline) in response to GCC.

Present study – study area, species and aims

South African waters are recognised as a global hotspot for their diversity and abundance of cetacean species. This is largely due to the range of diverse habitats created by the confluence of the cool Benguela Current along the west coast and the warm Agulhas Current

along the east coast which meet and mix around the Western Cape. The range of five dolphin species ends within this region with the highest overlap within the ~100 km around the Cape Peninsula. Study species include; the Heaviside's dolphin (*Cephalorhynchus heavisidii*) and dusky dolphin (*Lagenorhynchus obscurus*) occurring on our west coast; the Indian Ocean humpback dolphin (*Sousa plumbea*) and Long-beaked common dolphin (*Delphinus delphis*) on the south coast; and the Indo-Pacific bottlenose dolphin (*Tursiops aduncus*) on the east coast. Our project aims to map the environmental conditions at the boundaries of species ranges for these five dolphin species that occur and have their ranges end around the Western Cape and to use this information to predict how they are likely to respond as these environmental boundaries shift and change over time.

We are using a multidisciplinary approach including conducting scientific surveys by boat to find and identify animals and their behaviour, using an array of hydrophones to detect animals 24 hours a day and to harness the power of citizen scientists to contribute local user knowledge to our study. Citizen scientists are members of the public who are keen to actively contribute to science and research. As researchers do not have eyes everywhere; water users including

tour operators, surfers, fisherman, beach walkers etc. can contribute to research by submitting sightings records of dolphins and whales to this study. This information is of importance for the management of

protected areas and species, and is critical to guide prediction models on the influences of GCC on cetacea.

How to submit a sighting

Members of the public can become citizen scientists by helping us better understand the factors driving the distribution of cetaceans in the western Cape. Their sightings can be submitted to our researchers directly via email: sightings@seasearch.co.za, or by adding observations to iSpot Nature (www.ispotnature.org) or through tagging our Facebook profile "Seasearch Sightings" in photos or sightings of animals. Sightings should please be submitted with as much detail as possible with Species, Location, Date (i.e. what, where and when) as well as Group size. Photographs are extremely valuable to help confirm information and the identification of species, so where



Heaviside's dolphins are endemic to the cold water Benguela Current Marine Ecosystem.

possible we ask observers to please submit all photographs taken of the sighting.

Further reading:

MacLeod CD. 2009. Global climate change, range changes and potential implications for the conservation of marine cetaceans: a review and synthesis. *Endangered Species Research* 7:125-136

Learmonth JA, MacLeod CD, Santos MB, Pierce GJ, Crick HQP, Robinson RA. 2006. Potential effects of climate change on marine mammals. *Oceanographic and Marine Biology* 44:431-464

Wiens JJ, Graham CH. 2005. Niche conservatism: integrating evolution, ecology, and conservation biology. *Annual Review of Ecology, Evolution, and Systematics* 36:519-539

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The IMBER (Integrated Marine Biosphere Research) ClimEco5 Summer School

By

Kelly Ortega-Cisneros

*Department of Ichthyology
and Fisheries Science,
Rhodes University*

The fifth IMBER ClimEco summer school was held in sunny and warm Natal, Brazil from August 10th-17th this year. I was one of the 66 participants from 25 countries selected to attend this event. The theme of the summer school was “Towards more resilient oceans: Predicting and projecting future changes in the ocean and their impacts on human societies”. IMBER summer schools target

students and early career scientists and take place every two years in different parts of the world, previous summer schools were held in China, France and Turkey. The lecturers at this summer school came from Australia, Brazil, Canada, France, Spain and the United States of America. It was a wonderful and unique experience to have the opportunity to attend lectures from such distinguished scientists.

All participants were asked to bring a poster to present their research and a poster session was held the first evening of the summer school, when we all had the opportunity to learn

more about each other and our work. I was the only participant from a South African university, my presentation titled “Modelling the impacts of climate change and variability on the southern Benguela system” uses two complementary modelling approaches to evaluate fishing strategies resilient to possible effects of climate change with a special focus on the small pelagics (sardine and anchovy) fishery in South Africa. I am conducting this work as a postdoctoral fellow with the international GULLS (Global Learning for Local Solutions) project. I was amazed at how diverse the research presented at the poster session was, the expertise



Participants at the IMBER ClimEco5 summer school in Natal, Brazil. Photo by Walter Pinaya

from the participants was very broad and ranged from ecology, to social sciences and economics.

The summer school's lectures were also very diverse, for instance, we had lectures on the economic impacts of climate change, uncertainties in climate change predictions to maximising research impact, and how to link science to policy. The schedule was very busy and we had a very intense seven days of lectures and group work, but we managed to take a day off to go on an excursion in Natal and get to know more of this beautiful part of the world. The first stop was Arituba lagoon, a breathtaking location, where we went on a boat trip on the estuary to the mangroves and it was absolutely amazing! At lunch time, we had typical Brazilian cuisine and then went to Pipa beach, considered one of the most beautiful beaches in Brazil, with dolphins jumping out of the water in front of us!

The following day we got back energized for more lectures and group work. While the schedule was very busy and lectures intense the lectures were very interactive and the quality of the talks was so high that I (and all participants) were just fascinated and super-entertained with all the information. We also had a debate on the perceptions on how natural and social scientists work. We were divided

into eight groups and assigned a topic to debate. We were not given the choice of which side to support and my group was given the challenging topic to defend the point that "Social science is not science". This exercise was extremely useful and fun, participating in the four debates as a panellist or as part of the audience was a very productive and entertaining exercise. I found myself having serious doubts as to which side of the debate to support after very convincing statements from the panellists. The debates were one of my highlights from the summer school.

Another highlight was the hands-on sessions we had most afternoons. We were taught about different statistical tools and modelling software. In order to apply all the theoretical and practical knowledge, all participants were divided into eight groups focusing on a particular research problem. We had the choice to join a group according to our research interests. It was extremely interesting as we all used different methods to approach the problem. My group evaluated the effects of climate change on cyclone frequency on the socio-ecological system of Moorea Island, French Polynesia. We used three different modelling approaches to get more insight on the effects of climate change on this island. The lecturers suggested that we should take our

group work further to get a publication out of it! The eight members of my group have been in contact since, to organize our approach.

The summer school ended with presentations from the eight groups, all presentations were really interesting, diverse and interdisciplinary.

The IMBER ClimEco5 summer school was an excellent learning opportunity and lots of fun. I highly recommend the IMBER summer schools to students and early career researchers you will get the chance to learn about integrated and interdisciplinary approaches, modelling techniques and so much more. They are also a great opportunity to meet colleagues from all around the world, network and build future collaborations.

Acknowledgments

I would like to acknowledge the sponsorship from the National Research Foundation – GULLS project, The Scientific Committee on Oceanic Research (SCOR)-Developing Country funds that enabled me to participate in the IMBER ClimECO5 summer school. Huge thanks to Lisa Maddison for making it possible for me to attend this summer school, and for organizing such a fantastic event. ✍

Highlights from the International Marine Conservation Congress

By
Mapula Makwela
*University of the
 Western Cape*

The International Marine Conservation Congress (IMCC) is one of prestigious marine conservation symposiums attended by marine scientists, researchers, conservationists, students and delegates all over the world. The most recent IMCC4 was held at St Johns New Foundland and Labrador in Canada from the 30th July to 4th August 2016. The conference was attended by 650 delegates from 53 countries such as Australia, Brazil, South Africa, Sri Lanka including Small Islands such as Belize, Kiribati, Channel Islands, just to name a few.

The theme of this year's conference was "making marine science matter", but my own deeper understanding of the conference's purpose was to emphasize how to communicate marine science to the public and how to apply science in evidence based decision making. The overall participation in this conference included 82 posters, 286 contributed oral, 41 speed presentations, 14 workshops and 2 short courses. There were also various late afternoon sessions

in which the New Foundland community was welcomed and this participation by the host community was different from other conferences I have attended.

Activities such as poster sessions also allowed for local art to be exhibited and sold. The storytelling session held at the local library was open to the public and this session really impressed me as it was a great way to educate people about our precious and mysterious oceans and even ordinary people could

Masters student,
 Mapula Makwela,
 shares highlights
 and insights from
 the IMCC4
 congress she
 attended in
 Canada.

relate to the stories which without data or graphics allowed the storyteller to use the spotlight to hold the interest of the



Mapula presented on the use of marine megafauna to classify ecosystems and to design MPAs.

audience in a way we seldom can with our usual presentations. This session made me appreciate the power of storytelling but I must admit that it depends on talent and one needs to prepare thoroughly to give an empowering story. The power of a picture or a movie was especially demonstrated by the large audience in the movie session at the local bakery and breakfast shop top roof hall. During this session we were shown the "Great Bear Sea" movie that really inspired both delegates and the locals. We were all given a complimentary copy of this movie and I hope to share this with a wide audience. This powerful film shows the importance of human relationships in effective Marine Spatial Planning. These activities impressed me and made a unique contribution in terms of marine science communication to the host community and beyond. All of these sessions were free to the public and indeed people attended in numbers.

My highlights and lesson learned

During plenary talks I was highly motivated by the talks of Dr. Asha De Vos and Dr. Max Liboiron. These two young marine scientists and activists explained the challenges they faced as young women biologists, and how they overcome against all odds. Dr. Asha De Vos is a marine biologist and activist from Sri Lanka, the very first Sri Lanka woman

to obtain a PhD degree in marine mammal related research and also the founder of the Blue Whale Project. In her talk she explained how she chooses to excel against all challenges that come with her high responsibility job in a male dominated field. She also shared her story of how she came to where she is today, this including having to write a letter every day for a whole three months to a whale research vessel asking to participate in their Sri-Lankan cruise until they agreed that she could join as a steward! Dr Max Liboiron is a marine scientist at Memorial University in Newfoundland. She is the director of the Civic Laboratory for Environmental Action Research (CLEAR), a research lab at Memorial University. Her research focus is based on citizen sciences and among other things they focus on environmental monitoring of plastic pollution. In her talk, she explained how they use general household equipment to conduct their projects, in order to cut costs. She highlighted how they engage the community in helping with their projects and she gave out tips on how to run a successful university lab.

I had an opportunity to attend a workshop on how to communicate science and to reach the targeted audience. As a budding marine conservation biologist it has always

been a challenge and often I ask myself how to inform the people in my circle and the communities at large about what I do and why I love doing it. The main challenge is how to get the attention to the right audience; so in this workshop I learnt about various ways to communicate my research in order to reach the targeted audience and also the dos and don'ts of science communication especially when the results are not yet finalised. The main outcome from this workshop was the blog that we compiled as delegates titled "10 delegate tips on how to use social media at #IMCC4" which can be accessed at <https://imcc2016.wordpress.com/>.

Another lesson learned includes how to work with communities, in most cases marine sciences projects include working with fishermen and coastal communities. It is very important to create lasting relationships with the people or communities that your research is based on. Most talks highlighted that it is hard to build relationships but demonstrated the value of winning the people's trust. They highlighted the importance of returning to the community once a project is finished to go and present back the results of the research and explain the implications of the results. These are simple details that are often overlooked by emerging scientists who may wonder why communities often lose interest in

helping or getting involved in research.

Highlights from this conference include: my presentation entitled “Marine Epifauna Matter: Application in Ecosystem Classification, Assessment and Marine Protected Area Design in South Africa”; which was based on a chapter of my MSc project. I was overwhelmed by the audience response, which showed a lot of interest towards the presentation as they engaged by asking questions after the presentation. Some of them were taking pictures of the presentation which also showed their interest. I was also impressed by the presentation of Dr Kerry Howell whose work is mostly related to my own habitat classification work and employed similar methods but provided new ideas and approaches. This was a great experience since I have been reading her published papers and now to

see her presenting her work was a priceless experience. I always get motivated by listening to our very own Dr Kerry Sink, she presented on 10 years’ work of South African marine habitat mapping. I am inspired by her and Dr Mandy Lombard’s work in marine spatial planning. Last but not least, I just loved how our country’s marine conservation work is known to the world, I often heard speakers making examples of the work done in South Africa. It really made me appreciate our local marine scientists’ contribution to this success.

This was a life time experience and I would like to acknowledge SANBI for their generous funding support for both the trip and my MSc project. I would also like to thank my supervisors Drs

Lara Atkinson and Kerry Sink for their continued guidance and support.

Mapula is registered at the University of the Western Cape and supervised by Prof AJ Smit, Dr Kerry Sink (South African National Biodiversity Institute (SANBI) and Dr Lara Atkinson (South African Environmental Observation Network (SAEON). Bursary and travel funding is received from SANBI and the African Coelacanth Ecosystem Programme. ✂



The Symposium will serve as a forum for discussion of societal information needs resulting from the important role the oceans play in Earth's life-support system and the challenge of minimizing the impacts of human activities on the oceans while utilizing the resources of the oceans to meet our needs. The symposium will also be a platform for the participating communities to exchange information on their activities and identify potential pilot and prototype projects for Blue Planet to focus on in the coming years.

<http://symposium.geoblueplanet.com/>

WWF-SA report on state of SA's oceans

Conservation of marine ecosystems should not be seen as separate from human survival and development, when in fact it is the foundation of ensuring that our oceans are able to produce the goods and services which we rely on.

In South Africa, coastal goods and services alone are estimated to contribute over a third – 35% – to our gross domestic product (GDP).

As a country with more ocean territory than land, our rich and productive coastal waters support thousands of jobs and contribute billions of rands to the national economy each year. In terms of fisheries alone, historically we have harvested around 600 000 tonnes of a fish a year which provides livelihoods to over 127 000 people and food security to millions. And as one of the most biodiverse marine nations on the planet, with almost 3 000 kilometres of coast and 13 000 species recorded in our waters, South Africa's oceans and beaches are also a global tourist attraction contributing billions to our economy!

These and other important facts are included in [WWF's Oceans facts and futures: Valuing South Africa's ocean economy](#) which provides a snapshot of the current state of South Africa's

oceans. Collating the findings of relevant research across multiple sectors, it shines a light on the socioeconomic value of the goods and services provided by the ocean and some of the key ecological indicators, as well as highlighting areas of concern and showcasing best practice solutions.

This report also includes a useful one-page graphic ocean scorecard which depicts a summary of fish stock status, key challenges and a grading of their level of concern as well as a graph tracking ocean trends across five topical marine issues. It closes with a chapter which describes four potential future scenarios depending on the choices we make today.



The Oceans facts and futures report reminds us that the value we derive from our oceans is directly dependant on the health of the marine ecosystems which underpin almost all of our ocean activities. ☞



The [WWF Living Planet Report](#) documents the state of the planet—including biodiversity, ecosystems, and demand on natural resources—and what it means for humans and wildlife. Published by WWF every two years, the report brings together a variety of research to provide a comprehensive view of the health of the earth.

Nominations invited for SANCOR Awards

Every 3 years SANCOR awards excellent performers in science in the marine and coastal environment.



Nominations are invited, providing an opportunity to acknowledge the sterling efforts of our deserving colleagues. Click on the links below to download the announcements and forms for the following awards:

The **Marine and Coastal Communicator Awards** are made to individuals or groups of individuals in recognition of their outstanding contributions towards communication of information about the marine and coastal environment to the public via various media at various levels.

[Announcement](#) / [Nomination Form](#)

The **Gilchrist Medal** is awarded to distinguished marine scientists. The Medal serves as recognition of the recipients' contributions to marine science, to further stimulate excellence in South African marine science, and to focus attention on South Africa's marine and coastal environments.

[Announcement](#) / [Nomination Form](#)

The **Derek Krige Medal** is awarded in recognition of outstanding achievements in the field of technical support to

marine science in South Africa. The award of this medal serves to emphasize the valuable contribution to marine science made by those who provide the technical and logistical support services that make research possible.

[Announcement](#) / [Nomination Form](#)

The **SANCOR Young Researchers Award** has been established to acknowledge a new generation of scientists and to encourage research excellence in science in the marine and coastal environment.

[Announcement](#) / [Nomination Form](#)

The awards are hosted under the auspices of SANCOR and will be presented at the banquet evening of the 16th Southern African Marine Science Symposium (SAMSS) which will be held in Port Elizabeth, 4-7 July 2017.

We welcome your nominations by **28 February 2017**.

To submit your nomination(s), please complete the relevant form and email it to sancor@daff.gov.za, with the subject heading "SANCOR Award Nomination". Receipt of nominations will be acknowledged within 3 days. Please enquire if you have not received an acknowledgement. ✉

Winner of the SANCOR travel grant

SANCOR is pleased to announce the granting of its International Student Travel Award to Mr Fannie Shabangu, PhD student and marine biologist at DAFF Fisheries Branch.



Fannie's PhD focuses on the acoustic assessment of the distribution, seasonal abundance and migrations of Antarctic blue whales in the South-eastern Atlantic Ocean at the Mammal Research Institute Whale Unit at the University of Pretoria. He will present his work at the American Cetacean Society's (ACS) 15th International Conference to be held November 11-13, 2016 in Monterey, California, USA. The theme of the conference in celebrating 50 years of whale conservation is "Reflections and Innovations". Fannie will present on "Sounds of Antarctic blue and fin whales off the west coast of South Africa".

The SANCOR International Student Travel Award has been instituted to promote and develop capacity building in science in the marine and coastal environment. It is presented annually to a PhD student in recognition of their work accomplished thus far. ✉

New book on mangroves

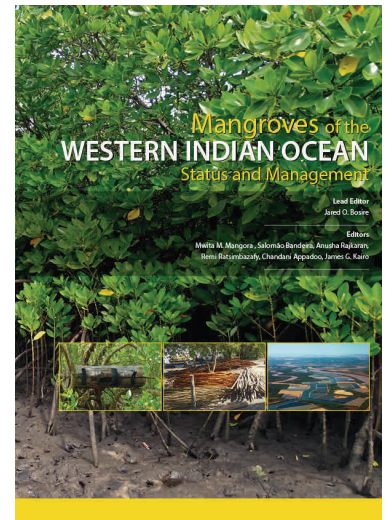
The Western Indian Ocean (WIO) Mangrove Network is proud and excited to introduce its newest book: *Mangroves of the Western Indian Ocean*. This book consists of nine chapters, 6 of which summarise the available knowledge and future research opportunities in 5 countries (Kenya, Tanzania, Mozambique, South Africa and Madagascar) and the small island states (Comoros, Mauritius and Seychelles) in the WIO region. The book analyses distribution of the mangroves, their conditions, utilization patterns, threats

and current management intervention to safeguard this critical ecosystem.

The mangrove book is available in the [WIOMSA store](#) at a price of 20 USD.

The lead editor (Dr Jared Bosire), co-editors (Mwita M. Mangora, Salomão Bandeira, Anusha Rajkaran, Remi Ratsimbazafy, Chandani Appadoo, James G. Kairo) and all contributing authors would like to thank WIOMSA for the financial support through MASMA/Publications/ 02/12 and the generous support from the Government of Sweden.

Please note that the Western Indian Ocean Marine Science Association (WIOMSA) has made a very significant reduction in price so that it can be accessible to as many people as possible including students. ☞



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