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Inside this issue:

First CoastGIS symposium in Africa	3
In memory of Roddy Ward	5
SA's sustainable hake fishery	7
Of mangroves, larvae and other tales	8
Hi-tech tracking tags	10
ORI celebrates 30 years of citizen science	12
SAMREC works to save the African Penguin	14
What's your #SASSI story?	15
3rd Southern Ocean Seasonal Cycle Experiment	16
SAMREF Kickstart Workshop	18
New book on WIO fisheries and biodiversity	19
Mike Bruton's autobiography	20
Volunteer drivers needed at SANCCOB	20
SANCOR's Twitter Account	21
SANCOR Forum 2015	23
New SANCOR Representatives	25
SANCOR's History	26
SANCOR's Postdoctoral Fellows	29
Dr John Field awarded IOC-UNESCO medal	31

## *Africa's earliest known coelacanth found in the Eastern Cape*

Various specimens of Africa's earliest coelacanth have been found in a 360 million year-old fossil estuary near Grahamstown, in South Africa's Eastern Cape.

More than 30 complete specimens of the new fossil species, *Serenichthys kowiensis*, were collected from the famous Late Devonian aged Waterloo Farm locality, by palaeontologist Dr Robert Gess and described by him in collaboration with Professor Michael Coates of the University of Chicago.

Gess did the research whilst he was completing his PhD at the Evolutionary Studies Institute at the University of the Witwatersrand. An article describing the new species will be published in the prestigious *Zoological Journal of the Linnean Society of London* in August.

"Remarkably, all of the delicate whole fish impressions represent juveniles. This suggests that *Serenichthys* was using a shallow, waterweed-filled embayment of the estuary as a nursery, as many fish do today," says Gess.

The fossils come from black shales originally disturbed by road works at Waterloo Farm. These shales are the petrified compacted remains of mud, which was deposited in the quiet reaches of an estuary not unlike some of those along the Eastern Cape coast today.

"This earliest known record of a coelacanth nursery foreshadows a much younger counterpart, known from the 300 million year old Mazon Creek beds of Illinois in the United States," says Gess.

"This glimpse into the early life history of ancient coelacanths raises further questions about the life history of the modern coelacanth, *Latimeria*, which is known to bear live young, but whether they, too, are clustered in nurseries remains unknown," explains Coates.

360 million years ago, Africa was part of the southern supercontinent Gondwana, made up of Africa, India, Australia, Antarctica and South America. At that time, the rocks of Waterloo Farm were forming along the shores of the semi-enclosed Agulhas Sea, not far from the South Pole.

Gess originally identified coelacanth remains from the locality whilst carrying out excavations at Waterloo Farm in the mid-1990s under the supervision of Dr Norton Hiller, of the Rhodes University Geology Department. These fossils were not,

however, well enough preserved to be reconstructed and described. His painstaking excavation of tons of shale salvaged during subsequent roadworks has now shed light on dozens more specimens, a few of which are preserved in exquisite detail.

These were prepared under a microscope and have allowed the species to be reconstructed in minute detail. They prove to be a new genus and species.

Coelacanths are believed to have arisen during the Devonian Period (about  $419.2 \pm 3.2$  million years ago), however only five species of reconstructable Devonian coelacanths have previously been described, in addition to a number of very fragmentary remains. None of these came from Africa, but rather from North America, Europe, China and Australia. The new species gives important additional information on the early evolution of coelacanths.

"According to our evolutionary analysis (conducted by Gess and

Coates), it is the Devonian species that most closely resembles the line leading to modern coelacanths," says Gess.

The new species was discovered a mere 100km from the mouth of the Chalumna River, off which the type specimen of *Latimeria chalumnae* (the first discovered modern coelacanth) was caught in 1938.

Furthermore, the Geology Department at Rhodes, where Gess was based when he found his first fossil coelacanth, is on the site of the former Chemistry Department where *Latimeria* was first described. In keeping with the naming of its living relative (after an Eastern Cape river), the species name of the new fossil form, *kowiensis*, is after the Kowie River which rises among the hills where it was found, and the genus name, *Serenichthys*, honours Serena Gess, who provided land for the storage of more than 70 tons of black shale rescued from roadworks for ongoing research - in which all the new material was found.

All specimens have been deposited in the palaeontological collection of the Albany Natural History Museum, in Grahamstown, Eastern Cape Province, South Africa. ☞



*Serenichthys* coelacanth holotype is shown. Credit: Wits University



## CSIR and University of Stellenbosch host first CoastGIS symposium in Africa

By

**Reyhana Mahomed**

*Natural Resources and the Environment, CSIR*

The CSIR and the University of Stellenbosch successfully hosted the first CoastGIS symposium in Africa, under the theme; Rich data, poor data: Geospatial creativity and innovation for managing changing coastal systems, in Cape Town from 22 – 24 April 2015.

“Compared with developed countries from Europe and North America, South Africa recognises the paucity of spatial data required for decision-making,” said Dr Louis Celliers, CSIR coastal system research group leader and scientist during the welcome plenary, “in addition, developing nations, including South Africa, lack the spatial data infrastructure and information systems required to maximise the return on investment made in collecting the often limited data that is available. In this regard, we can learn much from our European counterparts”.

The symposium theme refers to the increasing demand on decision-makers and managers to be aware of changes in the coastal and marine environment. “Not only must there be

a much greater emphasis on the measuring of change, but also increasingly explore creative options for data poor and rich environments alike to act on the observed changes. These may have either positive or negative societal impacts,” said Dr Celliers, who was also the conference chair.

Geographic information systems (GIS) were designed to capture, store, manipulate, analyse, manage, and present all types of spatial or geographical data. GIS is a very relevant and appropriate tool with which coastal and marine scientists can measure and visualise environmental change in the oceans and coasts. “It is hoped that hosting this conference in South Africa will boost the prominence and application of coastal and marine GIS and remote sensing in the country,” said Adriaan van Niekerk, Director of the University of Stellenbosch Centre for Geographical Analysis and CoastGIS co-chair.

The 12th CoastGIS symposium had three objectives:

- Create a platform for information exchange,
- Create an opportunity for



Dr Louis Celliers, CSIR Coastal System Research Group Leader and scientist, who was also the CoastGIS 2015 symposium chair.



Ron Furness, a hydrographer and co-founder of the GIS conference.

networking and the start of future collaborations and

- Promote concepts of geospatial creativity in developing countries.

“This symposium has always been structured to showcase the use of GIS in coastal science,” said Ron Furness, a hydrographer and co-founder of the GIS symposium, which was first held



in Ireland in 1995. Furness was delivering the first keynote address of the three-day conference. Furness further expressed his enthusiasm for hydrography, cartography and GIS as building blocks of the fundamental knowledge required to unlock the potential of increased benefit from the coastal and oceans – “blue” or ocean economies”.

Furness was one of six keynote speakers at the symposium. Prof Shankar Aswani, a lecturer from the Rhodes University Department of Anthropology, delivered the final keynote address. His presentation explored the role of geospatial analysis for understanding human coastal interactions. He explained that a better understanding of the geospatial characteristics of communities and the supporting environment improves resource management. “The use of geospatial analysis can help in the analysis of various dimensions of human behaviour and its impact on the natural environment,” said Prof Aswani

who comes from the Interdepartmental Graduate Programme in Marine Sciences at the University of California in Santa Barbara, USA. His research has previously focused on a diversity of subjects including property rights and common property resources, marine indigenous ecological knowledge, demography, and human behavioural ecology of fishing. Prof Aswani emphasised that spatial research can contribute towards the development of theory, “as we test on-the-ground human ecological interaction”.

The symposium itself had ten sessions with a focus on, among others, risk and vulnerability, decision support and spatial planning, risk, vulnerability and climate change, and innovative applications of geospatial technologies. Symposium presentations covered a wide variety of subjects including the determination of coastal flooding levels in South Africa; spatial

modelling for shoreline best management practices; decision support tools for enhancing ecological services and coastal resiliency in Virginia, USA; and semantic integration of marine debris data from multiple clean-up organisations working to reduce the impact of marine debris along the USA West Coast.

The symposium, attended by delegates from all corners of the world, including Tunisia, Brazil, Malaysia, Mauritius - most of the European countries and Australia - included an excursion to Diep Estuary, Rietvlei and Big Bay in Milnerton. The excursion was an opportunity for both international and local delegates to experience the coastal planning challenges faced by a transforming society in a developing nation, and how these are being addressed by local government. Louis hopes that bringing the symposium to Africa, and South Africa specifically, will spark local and regional interest in coastal GIS as an important tool in the



The excursion to Diep Estuary, showing delegates the coastal planning challenges faced by a transforming society in a developing nation, and how these were overcome.



The CoastGIS 2015 symposium was the first to be held in Africa.

toolbox of coastal and marine scientists and managers.

Also part of the symposium was two preceding workshops; the first focusing on the application of light detection and ranging data (LiDAR) for coastal management; and the second, a coastal/marine spatial data infrastructure capacity building workshop titled: "Managing big data challenges". The conference itself had ten sessions focusing on, among others, risk and vulnerability, decision support and spatial planning, risk, vulnerability and climate change, and innovative applications of geospatial technologies.

The goal of the CoastGIS symposium series, now in its 20th year, has always been to focus on how information technologies, including GIS and remote sensing, are used in coastal zone management, science and research. For more information on the outputs from the workshop and symposium please contact Louis: [lcelliers@csir.co.za](mailto:lcelliers@csir.co.za). ☞



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## In memory of Roddy Ward

By  
Scotty Kyle

*Ezemvelo KZN Wildlife*

It was an honour and privilege to have known Roddy and been able to call him friend. His passing not only deprived us of an amazing scientist and naturalist but also signalled the end of an era. None of us are in a good position to adequately comment on his life as we all only knew him for limited periods and from individual perspectives.

My family knew him from 1980 when his late son, Mark, worked for the then Bureau of Natural Resources but he soon became a firm favourite with our whole clan from the young children to us more mature specimens. We can only mention what we know of him during the period of our interactions but there was much more to him and his activities spanned many decades.

I know that in 1953 he was one of the first scientists employed by the Natal Parks Board at a time when there was almost unlimited enthusiasm, energy, passion and only limited cash and capacity. It was an exciting time with new discoveries and great advances in conservation



and Roddy's contributions must have been immense and critically important. He then moved to what became the University of Durban Westville, for about twenty five years, during which time I am sure he trained and mentored many people who are now very influential in environmental circles in SA and elsewhere.

Despite his scientific credentials the things that stand out with Roddy were his warmth, honesty and integrity, humility and, in one word, he was a "gentleman" in the best sense. Anyone who knew him had to be impressed with these qualities at a time when many of us had to cut corners, bend information and please head offices or bankers. I just read that in the early days of NPB he was apparently almost the first to suggest culling animals to

look after the ecosystems at a time when animals and the preservationist approach were paramount. As a consultant he was known as one who could not and would not write anything but the facts and if you saw his name associated with a project then you could relax and know that this EIA was worthwhile.

Everyone I have spoken to about him have used very similar wording to describe Roddy but almost always there was the word "gentleman". Ricky Taylor said that "he taught holistic ecology. Ecology where one needs to understand the landscape and its formation; sediments and geology; hydrology and climate and the interactions between plants; between plants and animals and between plants and humans." He was a great teacher and leader but in the humblest way. It is not possible to list all his attributes but all of us who knew him felt the same way.

Our children loved him. I well remember one time when he stayed with us at Kosi Bay and he was to leave in the morning but we managed to squeeze in one more walk in the forest before he went. We finally got home in the late afternoon with serious dehydration, hungry and exhausted but also very happy and almost inspired. He had a way of enthusing anyone on his pet subjects and singlehandedly must have led many people to study botany.

We only really knew him in the terrestrial context but he was also

intimately and passionately involved with the marine environment and made enormous contributions in this field. I remember his passionate discussions about seagrass and I once accidentally stood on one of his precious reseeded plants and felt his short lasting wrath.

We have lost many colleagues and friends over the years but in Roddy there is an added aspect in that it really marks the end of an era where individual passion was paramount, when we were naturalists not scientists and when top decision makers occasionally listened more closely to us.

Roddy was an optimist much of the time and never stopped working for and being passionate about the environment. I really hope that all his information, in his wee pocket books and elsewhere, can somehow be captured and collated.

Roddy had a full life and will be fondly remembered all over the world and his various legacies will continue to enrich the world and his friends. Rest in peace Roddy, you made a difference and you are being sorely missed. ☘

## SHORT COURSE

The Department of Environmental Science and the Environmental Learning Research Centre at Rhodes University is offering a short course on [Community-Based Natural Resource Management](#).

The course will be held during  
30 Nov - 4 Dec 2015.

Apply before  
30 November 2015



## South Africa's hake fishery is sustainable and well managed

By  
**Claire Attwood**  
 Media Consultant  
**SADSTIA**

The 51 trawler owners and operators in South Africa's Deep Sea Trawling Industry Association (SADSTIA) received a further five-year certification from the Marine Stewardship Council in May this year.

SADSTIA's members are the trawler owners and operators that deliver hake to fish & chip shops in every corner of South Africa; process and package fish fingers and other popular hake products for local supermarkets; and also supply a demanding international market with a range of value-added hake products.

"The certification is an important achievement for the deep-sea fishery and very good news for South Africa," said Dr Johann Augustyn, secretary of SADSTIA.

"Recent economic studies have shown that securing the health of the deep-sea fishery has prevented the loss of up to 12 000 jobs within the fishing industry and growing demand (particularly in northern Europe) for certified sustainable seafood products has resulted in the expansion of export markets worth US\$197 million (R2.24 billion)."



Photo Credit: MSC

According to Tim Reddell, chairman of SADSTIA and a director of Viking Fishing, one of the advantages of holding MSC certification is that it has made trawler owners and operators more aware of the ways in which their vessels and operations interact with the environment. "It has focused our attention on ensuring that we achieve the criteria of sustainable utilisation of the resource," says Reddell.

This is the third time the hake trawl fishery has secured certification from the MSC, the world's leading certification and eco-labelling program for sustainable wild-caught seafood. In 2004 it became the first hake fishery in the world to be judged by the MSC as "sustainable and well managed"; after the initial five-year certification period came to an end in 2009, the fishery was re-assessed

and re-certified for a five-year period in 2010. The latest certification comes after a rigorous 12-month re-assessment process during which an independent certification agency scrutinised every aspect of the fishery's management and once again found it to comply with the MSC's main principles. These are:

- a fishery is conducted in such a way that it does not lead to over fishing or a decrease in the stock;
- fishing operations do not impact on the health of the marine ecosystem;
- fishing is managed and regulated in a responsible way.


Since the initial MSC certification in 2004, improved fishing practices have resulted in major environmental achievements. For instance:

- Trawl grounds have been "ring

fenced" so as to prevent damage to lightly trawled areas and protect natural refuges for hake. Trawling outside the ring fenced zone requires an environmental impact assessment.

- There has been a 99% reduction in the number of albatrosses that are accidentally injured and sometimes killed by trawl gear.
- Bycatch (species other than hake that are caught in trawl nets, including kingklip and monk) is better managed than ever before.
- The industry is funding and supporting a ground-breaking, long-term research project that will examine the impacts of trawling on the marine environment. The research is being conducted in partnership with the Department of Agriculture, Forestry and Fisheries, the University of Cape Town and the South African Environmental Observation Network.

South Africa's deep-sea trawl fishery is the only fishery in Africa to have achieved accreditation from the MSC. It is one of approximately 250 fisheries around the world that have been certified by the MSC. Together, MSC-certified fisheries currently catch about nine million metric tonnes of seafood annually – close to 10% of the total harvest from wild capture fisheries.

The MSC public certification report is [available here](#). 

## Of mangroves, larvae and other tales:

a field course for postgrads from Walter Sisulu and Fort Hare

By

Paula Patrick and

Francesca Porri

SAIAB

Through an ongoing collaboration with the South African Institute for Aquatic Biodiversity (SAIAB) African Coelacanth Ecosystem Programme's (ACEP) Phuhlisa Programme, 13 students from Walter Sisulu University (WSU) and the University of Fort Hare (UFH) attended an aquatic ecology course. This 10 day field-based course was held at the Mngazana Estuary, just south of Port St Johns, known to support the third largest area of mangroves in South Africa.

Funded through the Knowledge, Interchange and Collaboration (KIC) of the National Research Foundation (NRF) and the ACEP Phuhlisa programme, the course was geared to provide intensive postgraduate training in several areas of aquatic ecology. This course provided young postgraduates, the opportunity to meet and engage with leading international and national established researchers.

The course was facilitated by Dr Francesca Porri (SAIAB), Dr Stefano Cannicci and Professor Uta Berger. Dr Cannicci, affiliated to the University of Florence and University of Hong Kong, specialises in ethology, ecology and taxonomy of decapods and molluscs in coastal systems, specifically in mangroves. The research interests of



Dr Stefano Cannicci introducing the postgraduate students to mangrove forest ecology.



Professor Berger, of the Technische Universität Dresden, Germany, include modelling dynamics of tropical and subtropical coastal ecosystems, particularly mangrove forests and the dynamics of complex biological systems. Dr Cannicci's and Professor Berger's lectures focused on mangrove ecology, while Dr Porri presented a short course in larval ecology.

The theoretical modules were strongly linked to a field component, led by Dr Thembinkosi Dlaza (WSU), Dr Paula Patrick (SAIAB), Dr Cannicci, Professor Berger and Dr Porri, through which students were exposed to experimental design and sampling using a variety of techniques, in various coastal habitats including the rocky shores, estuaries, and mangroves. Students collected samples from the estuary and rocky shores, which were then later processed in a field laboratory, to tackle early ontogenetic taxonomy of vertebrates and invertebrates. In addition, during the 10 day field course, the team attended several

topical seminars. Each night, after dinner, a guest speaker gave a lecture "under the stars" on various topics, ranging from plankton to macrobenthos to seaweed biology.

With the students now equipped with the necessary skills to undertake research in the field, they were subdivided into smaller groups and given the opportunity to undertake their own small research project over the course of the last 5 days of the course. All course co-ordinators were on standby to assist the students where necessary with experimental design, statistical analysis and graph preparation. This allowed students an opportunity to hone their statistical skills.

The field course culminated with the students presenting their small research projects. Mkhayisi Centane from WSU won the prize for the best presentation, with second place for best presentation awarded to Lusando Gxalo from UFH.



Dr Berger assisting students.



Students assessing rocky shore biodiversity using quadrats.

This field course was a great success and was an excellent opportunity for early postgraduate students to interact with leading researchers. In addition, the field course provided a platform for students to collaborate with one another and get a broader understanding of ecological research. The continued and intensive interactions among students and researchers was also a major target of the course, to inspire postgraduates and show how motivation, hard work, sharing information, collaborative effort and ... fun are key elements of science and more broadly knowledge advancement.

*Photos by Dr Thembinkosi Dlaza. ☞*



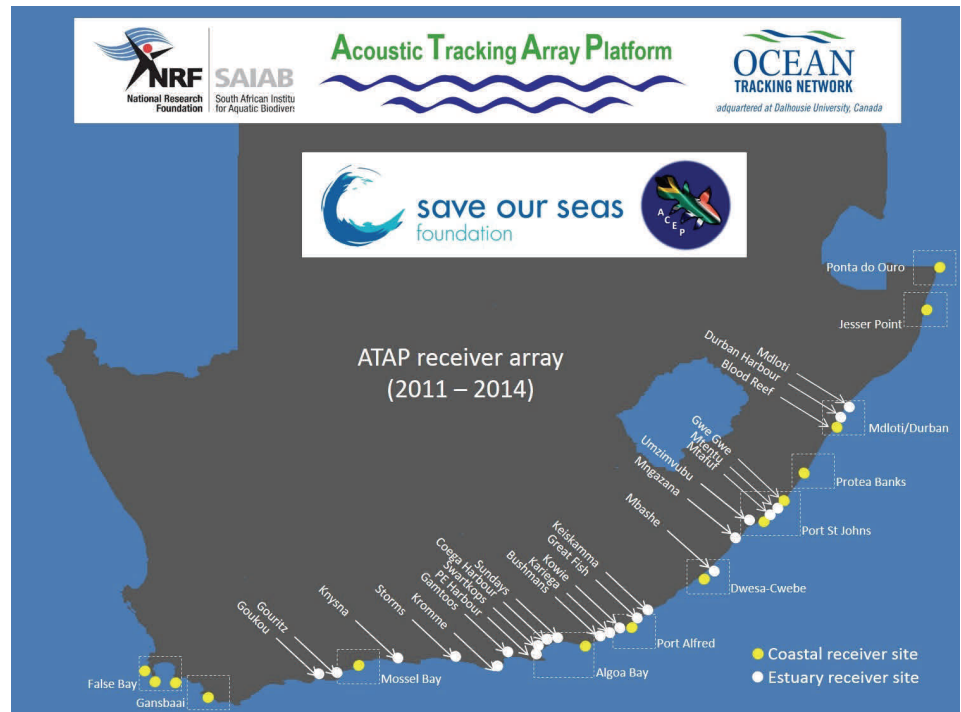
## Big things come in small packages— The oceans' internet fits on a transmitter smaller than a USB

Hi-tech tracking tags are redefining how we discover, understand and manage ocean life. A new paper, published in *Science*, details the explosion in aquatic animal tracking research over the past 30 years and its impact on discoveries about the movements, migrations, interactions and survival of both common and elusive aquatic species.

The review describes a profound revolution, including over 20 examples of scientific breakthroughs, in global ocean observation science achieved through advancements in acoustic and satellite telemetry—tracking via electronic tags placed on organisms ranging from tiny neonate fish to large whales, which transmit data to fixed or mobile receiver stations or orbiting satellites.

Electronic tags can now weigh less than a one Rand coin, can transmit for more than 10 years, and can be attached to almost any species, at any life stage, to collect high-resolution data in four dimensions (2D-horizontal, depth and time).

“The vastness and impenetrability of the ocean has historically limited our ability to acquire and process information on animal movements. Telemetry has significantly enhanced our capacity to predict and plan in the face of climate change and human



The Acoustic Tracking Array Platform (ATAP) is an Ocean Tracking Network (OTN) affiliated marine science programme that monitors the movements and migrations of inshore marine animals using an expanded network of automated data-logging acoustic receivers moored to the ocean's floor around the South African coastline.

influence,” said Sara Iverson, scientific director of the Ocean Tracking Network and corresponding author on the paper.

Telemetry data have revealed the often-mysterious migrations of endangered marine animals like leatherback turtles, basking sharks, European eels and Pacific bluefin tuna. These discoveries, and the increasingly sophisticated technology behind them, generate critical knowledge towards conservation recommendations. Tracking studies also pinpoint successes and limitations of current management

plans. For example, acoustically tagged reef fish were shown to regularly move outside their Marine Protected Area (MPA), putting them at risk.

“In the future, we could be looking at spatially dynamic MPAs, which move annually with predictions of animals' response to their environments,” said Nigel Hussey, lead author and researcher at the University of Windsor with the Ocean Tracking Network.

Acoustic and satellite telemetry studies are being combined with other



Willy Kokose, ATAP Technician, preparing equipment for deployment. Photo by Paul Cowley.

biological measurements like genetic analysis or physiological status. These data help determine drivers behind animal behaviour to forecast how anthropogenic and climate changes will affect species and populations.

Aquatic animal movements and migrations transcend geopolitical, economic, and management boundaries. Telemetry studies in the last decade have documented movement over transoceanic scales, to regions unreachable by humans, and into some of the harshest parts of the ocean, providing the groundwork for “next-generation aquatic governance frameworks.”

“The study of aquatic animal movement behaviour has inseparably been linked to technological advances. A nation-wide array of deployed acoustic receivers managed by the [South African Institute for Aquatic Biodiversity](#) currently provides an unprecedented opportunity to study marine animal migrations around the southern tip of Africa: a biodiversity hotspot divided by two contrasting Oceans”, said Paul Cowley,



A retrieved ATAP receiver and acoustic release. Photo by Ryan Daly.

contributing author and Principal Scientist at SAIAB.

“The ocean will continue to change,” said Hussey. “Global collaboration—among industry and science sectors, and researchers themselves—is imperative to get ahead of these changes before they catch up to us.”

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✂

## 2015 Symposium of Contemporary Conservation Practice



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This symposium offers  
a platform for the  
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community to share  
and explore issues and  
recent developments in  
the science and practice  
of conservation, and in  
understanding and  
communicating the  
value of biodiversity to  
society.

[Click here for the  
conference website.](#)

## ORI celebrates 30 years of citizen science through its cooperative tag and release project

By

**Stuart Dunlop**

*Oceanographic Research  
Institute*

A yellowfin tuna tagged off Cape Point was recaptured just under two years later, off the Seychelles, having travelled an incredible distance of +5 100 km. This means that the fish swam a minimum of 7.3 km per day, assuming it travelled in a straight line! Of greater significance is the fact that this yellowfin tuna has shown us there is some connectivity between tuna populations that occur in the Atlantic Ocean off South Africa and those found in the Indian Ocean around the Seychelles. This finding is invaluable, particularly for the future management of these fish populations that were once thought to be separate fish stocks. This tuna recapture is also the furthest recorded distance moved by any fish tagged on the Oceanographic Research Institute's Cooperative Fish

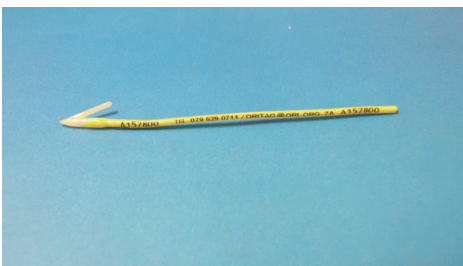


Fig 1: A plastic dart tag used in the Oceanographic Research Institute's Cooperative Fish Tagging Project.



Fig 2: 'Rocky', the yellowbelly rockcod that has been recaptured nine times in three years in the Pondoland MPA.

Tagging Project (ORI-CFTP).

The ORI-CFTP was the brain-child of past ORI Director Rudy van der Elst. Rudy realised the potential for a well-managed cooperative fish tagging project to generate much-needed data on linefish and, being spurred on by a growing concern amongst anglers of poor fish catches, the ORI-CFTP was launched in 1984. After 30 years, this project is still going strong and is undoubtedly one of the most enduring and successful environmental projects of its kind in South Africa. It involves the cooperation of conservation-conscious anglers (i.e. anglers who voluntarily tag and release their fish) and the marine angling public at large, who report the majority of the recaptures (i.e. a fish that is recaptured

with a tag in it) to ORI. Despite the voluntary nature of this project, the tagging of fish still has great scientific merit, allowing us to learn more about the movement patterns, growth rates, mortality rates and population dynamics of our important linefish species. This information is extremely valuable and is used by scientists and managers around the country for policy and decision making on linefishery management. Despite the large quantity of important scientific data collected by this long-term project, the tagging project has also made a major contribution towards changing the ethics of anglers with regard to catch-and-release, which undoubtedly goes far beyond the pure scientific value of the data collected. Not only do anglers now have a reason to capture and release a fish, they are

in actual fact contributing to a better understanding of the biology and ultimately the conservation of that species. This added bonus goes a long way in improving angler awareness about our marine linefish species, as well as contributing towards sustainable fishing.

There are many different types of tags used on different fish species (e.g. PIT tags, satellite tags, acoustic tags, archival tags, etc.); however, the most common method is conventional tagging and involves the use of external dart tags, which are the preferred type used in the ORI-CFTP. Each tag consists of a monofilament vinyl streamer attached to a plastic barb, much like a miniature version of a spear from a speargun (Figure 1). Each tag is inscribed with a unique alpha-numeric code (e.g. D123456) and contact details (i.e. email address, cell phone number and postal address). Tags are generally inserted with a sharp, hollow, stainless steel applicator, into the dorsal musculature of a fish or shark, although this may differ in certain fish species (e.g. rays). Upon initial tagging (and subsequent recapture of a tagged fish) anglers record the following information: fish species, length (fork or total), tag number, exact locality and date. The use of external tags by the ORI-CFTP is particularly favourable as it is relatively cheap compared to other tagging methods, relatively little training is required to insert tags, no software is required to download information from each tag, and the tagging equipment is very basic. This

allows a relatively large number of fish to be tagged at little cost and allows citizens who are not trained scientists to be involved, similar in some respects to the South African Bird Ringing Unit. However, considerable attention has been focused on ensuring that the best available tag and tagging equipment is used and that our taggers are shown how to handle and tag fish correctly, in order to minimize post-release mortality.

Currently some 5 500 members have joined the ORI-CFTP since 1984 and they have accounted for the capture, tagging and release of an incredible 285 177 fish, mostly in South African coastal waters, but also occasionally in Mozambique and Namibia. Note should be taken that this represents 285 177 fish that were released to 'fight another day' and hopefully reproduce for future generations. Of the fish tagged, 15 915 (5.6%) have been recaptured and reported to ORI. Our top five fish tagged include: galjoen (59 218), dusky kob/kabeljou (16 799), leervis/garrick (13 424), dusky sharks (12 499), spotted grunter (10 963) and copper/bronze-whaler sharks (9 153). Unfortunately, a large proportion of recaptured fish are not reported to ORI, which would, with greater awareness, undoubtedly increase the recapture rate substantially. If you see or hear of any angler who has caught a tagged fish, please offer to assist them in recording the relevant information (tag number, species, correct length measurement, exact locality, date,

angler name and contact details, and whether the fish was kept or re-released) and even offer to send the information in to us on their behalf (email: [oritag@ori.org.za](mailto:oritag@ori.org.za) / Tel: 031 328 8222 / sms +27 79 529 0711).

Over the past 30 years there have been some amazing recaptures reported to ORI. The fish species with the highest recapture rate is speckled snapper with 1 893 fish tagged of which a remarkable 804 (43%) have been recaptured, owing largely to its highly resident behaviour. Galjoen, our national fish, is the most tagged species on the project, with 59 089 fish tagged, accounting for 21% of the total number of fish tagged to date. Much of this is thanks to the efforts of the research team that has been tagging galjoen in the De Hoop Marine Reserve since 1987 and some avid taggers fishing along the Cape Peninsula. The longest recorded time free (the length of time a fish was at liberty between the initial tagging and first time recaptured) for a bony fish was for a red steenbras tagged in the Tsitsikamma National Park in 1989. This fish was recaptured off the Kei Mouth in the Eastern Cape in 2011, some 22.1 years later, providing strong evidence of the longevity of this species. Similarly, a ragged-tooth shark tagged at Southbroom on the KZN south coast in 1988 was recaptured in Mossel Bay in 2011, a staggering 22.6 years later and 1014 km away from its original tagging location. The most recaptured individual fish on the project is 'Rocky', a yellowbelly rockcod tagged in the

Pondoland MPA just south of Port Edward, which has been recaptured no less than nine times on the same reef over a three-year period (Figure 2)! It is these incredible recaptures and the numerous others on the tagging database that make this project so exciting and beneficial.

We would like to express our sincere gratitude for the financial and administrative support received from the following organizations during the 30-year history of this project: the South African Association for Marine Biological Research (SAAMBR), Stellenbosch Farmers Winery (now called Distell) who generously funded the tagging project for 22 years under their Sedgwick's Old Brown Sherry brand, the South African Nature Foundation which became WWF-South Africa, the Tony and Lisette Lewis Foundation and most recently the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA), without which we would have been unable to continue this important project. Most of all, we would like to thank all of our past and currently active tagging members for their valuable contributions towards this project. David Hall (Hallprint@Australia) is thanked for his excellent service and on-going supply of high quality tags and applicators. Lastly, we would like to thank Rudy van der Elst for his foresight in developing this remarkable "citizen science" project long before the coining of the phrase; and to Elinor Bullen for running the project as ORI's "Tagging Officer" for an incredible 27 years (1984-2011)! ✂

## SAMREC works to save the African Penguin



The South African Marine Rehabilitation and Education Centre (SAMREC) is based at Cape Recife in Port Elizabeth. As such it is ideally situated to receive and rehabilitate injured and oiled penguins from the largest remaining colony of African Penguins in the world on St Croix and Bird Islands in Algoa Bay.

However, the emphasis of SAMREC is on much more than just rehabilitating penguins, as important as this is. As the name implies, education forms an important component of SAMREC's work, and visitors are encouraged to come and learn about the marine environment and all the life it supports. In particular, classes of school children come to experience the coast and all it has to offer – the future lies with them, and we need to inculcate a love of nature at an early age.

SAMREC works with other rehabilitation centres, and

also encourages cooperation with local universities. We can achieve a much better understanding of the plight of the African Penguin by working together, and it is only by doing this that we can hope to save it from extinction.

As a non-profit organisation, SAMREC kindly asks the public to donate towards its work. But more than that, we ask that you visit us and find out what we are doing – and even more than that, join us!

Website address: [samrec.org.za](http://samrec.org.za) ✂



## Fishing for stories - what's your #SASSI story?



Our oceans face multiple threats such as overfishing, climate change, pollution and increasing user conflicts over limited marine resources. When faced with news of these growing threats most people feel overwhelmed and disempowered by the enormity of the problem others feel that they cannot influence the direction that things are going in.

However, what many people don't realise is, as a consumer, they in fact play a pivotal role in how our oceans are managed and protected. Consumers can use both their voices and their spending power to influence the seafood products that are sold in restaurants, retailers, hotels and wherever else seafood is offered.

This is the central theme of WWF Southern Africa's South Africa Sustainable Seafood Initiative (SASSI). Well known for its easy reference traffic light system, SASSI classifies seafood into either Green (Best Choice), Orange (Think Twice) or Red (Don't Buy) based on what species it is, how it was caught or farmed and where it comes from. Together these factors determine the sustainability of the species. We now need to ask our supermarket fishmonger, fish shop server or restaurant waiter about the



sustainability of our seafood: 'What is your sustainable seafood story?'

SASSI has become a very powerful agent for leveraging change across the supply chain in the seafood industry. The new #SASSIstories campaign aims to build on this momentum by highlighting inspiring stories about seafood sustainability from fishers, retailers, chefs,

"If you think one individual cannot make a difference, try to sleep with a mosquito in the room"  
adapted from the Dalai Lama

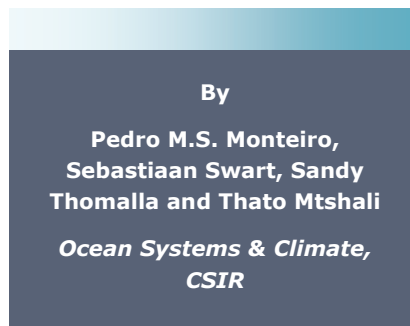
consumers, researchers and others who have driven positive change in an often complex sector. The #SASSIstories campaign chronicles diverse stories, such as that of the South African trawl companies that, together with NGOs and scientists, changed how they fish in order to reduce their impacts on the iconic and threatened albatross.

The adjacent image illustrates another great example of a Durban magistrate who sentenced a restaurant, found selling illegally caught fish, to attend SASSI training to learn more about sustainable seafood. There are lots of great stories out there of people doing things differently for the love of our oceans.

All of these inspiring narratives of the #SASSIstories are based on true accounts of people and companies that have chosen to make a difference. These stories have been captured in illustrations and poetry and will be shared with the SASSI community over the next 6 months. Hearing about what others are doing not only helps to build support for existing activities including WWF's work with retailers and fisheries but also inspires people to create their own stories. So what's your story? Visit [www.sassistories.co.za](http://www.sassistories.co.za) to share our stories, to share your success stories and to hold your fishmonger accountable to their sustainable seafood commitments by emailing them directly from the SASSIstories website. You have a choice. Make it green! ☘

## Plans underway for SOSCEX III

*The 3rd Southern Ocean Seasonal Cycle Experiment*



The Southern Ocean is a key component of the earth system, being responsible for 50% of ocean uptake of atmospheric CO<sub>2</sub> and 30% of carbon export flux to the deep ocean. Climate models and decadal data sets predict changes in the Earth's climate that will influence the effectiveness of the Southern Ocean CO<sub>2</sub> sink through adjustments to sea surface temperature, stratification and mixing, all of which affect the nutrient and light supply necessary for phytoplankton production (and associated carbon export). The challenge in predicting long term trends in the Southern Ocean carbon cycle lies in our ability to resolve interannual variability and the link between seasonal and intraseasonal dynamics in physical drivers and biogeochemical responses. Despite their importance, surface ocean processes at these scales are poorly understood and quantified due to operational limitations of ships and moorings. This has necessitated the use of autonomous, remotely sensed and modeling platforms that are able to address the temporal and spatial

scale gaps in our knowledge of a hitherto under sampled ocean.

### Aims

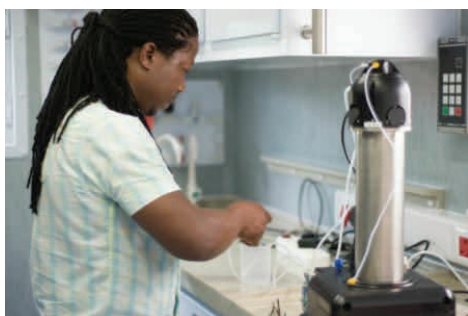
- Understanding through seasonal scale observations, the role of fine scale upper ocean physical dynamics on CO<sub>2</sub> fluxes and primary production in the Southern Ocean and its impact on large-scale carbon-climate sensitivities.
- To make a significant contribution to improving the way global climate models reflect CO<sub>2</sub> and primary productivity climate sensitivities in the Southern Ocean.

A novel aspect of SOSCEX III is the integrated multi-platform approach, which aims to explore new questions about the climate sensitivity of carbon and ecosystem dynamics and how these processes are parameterized in models.

### Observational Approach

The observational approach employs the research ship together with robotics-based continuous year-round, high-resolution observations of the upper ocean. The primary objective is to understand how meso- to sub-mesoscale features (eddies and fronts) interact with seasonal to subseasonal scales (heating & transient storms) to characterize the seasonal cycle of upper ocean mixed layer depth, CO<sub>2</sub>



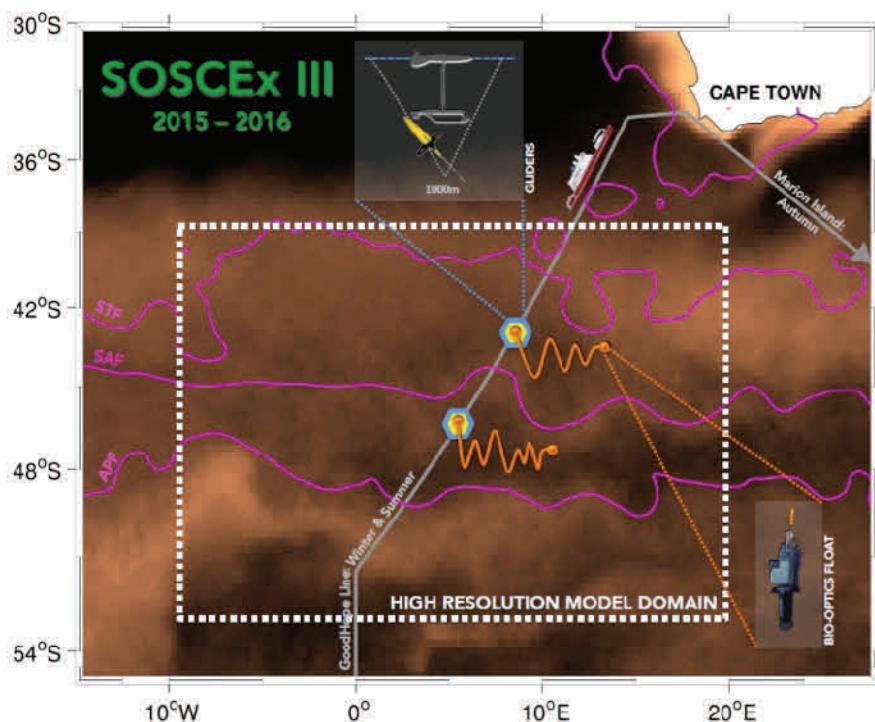


Dr Thato Mtshali setting up the Fast Repetition Rate Fluorometer (FRRf) inside a trace metal clean laboratory container.



Robotic Seagliders and Wave Gliders housed in the Southern Ocean

fluxes, Fe and light availability, primary production and associated carbon export. The observation plans are centered on three seasonal ship-based cruises (using South Africa's polar research vessel the *SA Agulhas II*) of the Atlantic Sub-Antarctic Southern Ocean in winter 2015, summer 2015 and autumn 2016 spanned by continuous high resolution robotics-based observations (buoyancy gliders, wave gliders and bio-optics floats). An additional observational approach so addressing the aims of SOSCEX includes the use of ocean colour remote sensing that provides synoptic high frequency observations of biological and physical parameters across oceanic ecosystems over decadal time scales.



A synthesis of the observing strategy for SOSCEX III depicting the use of the ship, ocean gliders, bio-optics floats and numerical models. The yellow-blue hexagons represent the twinned ocean glider deployments, the orange curve shows the Lagrangian float trajectories and the high-resolution modeling domain is depicted with a white dashed line. The mean locations of the oceanic fronts are shown in magenta lines as derived from satellite altimetry data. The underlying shading represents the mean summer chlorophyll-a concentration for the region (i.e. lighter shading = high chlorophyll-a areas).

**Modelling Approach**

A hierarchy of medium to ultra-high resolution forced ocean model domains (NEMO-PISCES) will be used to test our understanding of the links between surface boundary layer physical drivers and the biogeochemical response scales, especially in terms of air-sea CO<sub>2</sub> fluxes, ocean productivity and associated carbon export.

The third seasonal cycle experiment builds on the experience gained in SOSCEX I & II, which were the first

continuous high-resolution seasonal cycle experiments that enhanced our understanding of the system and provided proof of our capacity to undertake these forms of observations. In doing so we are confident that we are now able to embark on the broader objectives put forward in SOSCEX III. ☞

## *Kickstarting collaboration: research opportunities presented by offshore oil and gas exploration*



The Kickstart Workshop of the Offshore Oil and Gas Environmental Research Collaboration Project was held during 23-24 July 2015 in Kirstenbosch. The aim of the meeting was to introduce the project to stakeholders and get early feedback. The meeting was attended by 86 participants from government, the private sector, NGO's, universities and research institutions. Dr Thomas Auf der Heyde (Deputy Director-General, Department of Science and Technology) chaired the workshop. This represented the first step in the development of new public-private partnerships for the collection of ecosystem information in South Africa's offshore domain.

Offshore oil and gas exploration has the potential to provide a unique opportunity to gather important research information that would normally be difficult to obtain due to expenses of a dedicated research voyage. Industry vessels and fixed platforms frequently put to sea and hence have the capacity to obtain and share such data. In turn, the marine research community has the knowledge to help best guide industry in how to get maximum potential from the data they are collecting.

The Offshore Oil and Gas Environmental Research Collaboration Project is a project to implement Operation Phakisa's Offshore Oil and Gas Exploration Initiative B3: Exploiting the broader research opportunities presented by offshore oil and gas exploration.

The overall objective of the project is to support the inclusive process of development of the South African Marine Research and Exploration Forum (SAMREF). SAMREF will be a multi-sector forum, inclusive of public and private sectors that would:

- Identify and take advantage of opportunities provided by oil and gas exploration activities and platforms, to gather important marine ecosystem data which would otherwise be difficult and expensive to obtain.
- Facilitate new collaborative offshore studies that would increase South Africa's state of knowledge of the offshore marine environment, related to renewable energy potential, marine biodiversity and ecology, climate change and ecosystem functioning.



*Photo by Johan Pauw*

The National Research Foundation has been contracted by the Department of Science and Technology to set up the South African Marine Research and Exploration Forum. The project management team reports to a Working Group consisting of various government departments and the private sector.

The meeting resulted in the exchange of information critical to the project, a better understanding of the interests and needs of the various sectors, identification of early-stage opportunities for SAMREF, as well as weaknesses and possible threats that should be mitigated. Opportunities to engage other marine industries such as mining and the fishing sector were welcomed.

Source: [Kickstart Workshop Report of the Offshore Oil and Gas Environmental Research Collaboration Project](#)

## ***New book on West Indian Ocean fisheries and biodiversity***

The West Indian Ocean Marine Sciences Association (WIOMSA) and the Oceanographic Research Institute (ORI) have announced the publication of: "OFFSHORE FISHERIES OF THE SOUTHWEST INDIAN OCEAN: their status and the impact on vulnerable species" (edited by Rudy van der Elst and Bernadine Everett).

This 450 page volume brings together in one document the status of some of the region's largest fisheries together with an evaluation of the impact these fisheries impose on vulnerable organisms. This multi-authored compendium is broadly based on results generated by the Southwest Indian Ocean Fisheries Project (SWIOFP) and deals with offshore fisheries in the EEZ of nine countries in the Southwest Indian Ocean. Included are trawl and trap fisheries for crustaceans, a range of pelagic fisheries as well as a diversity of demersal fisheries. For each of these sectors several databases, a range of research cruises and a wide spectrum of literature is analysed to reflect historic trends and report on the status of selected key species. Attention is given to the prevalence of bycatch whilst individual chapters are devoted to the status of vulnerable biota namely seabirds, marine mammals, elasmobranchs, sea tur-

### **OFFSHORE FISHERIES OF THE SOUTHWEST INDIAN OCEAN:** their status and the impact on vulnerable species



OCEANOGRAPHIC RESEARCH INSTITUTE  
Special Publication No. 10  
Rudy van der Elst and Bernadine Everett (editors)



bles and threatened teleost fishes. This volume concludes with identification of 59 of the region's biodiversity hotspots that justify special protection and can serve as biodiversity reference sites. There will be a formal launch during the 26-31 October WIOMSA Scientific Symposium, at which time hard copies of the book will be available. Digital copies can also be downloaded from the ORI website.

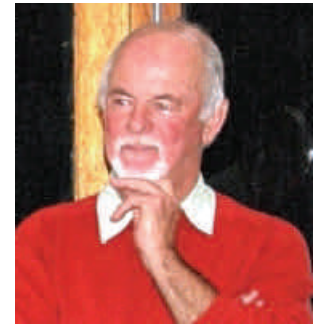
Van der Elst RP and Everett BI. 2015. (eds). Offshore fisheries of the Southwest Indian Ocean: their status and the impact on vulnerable species. Oceanographic Research Institute, Special Publication, 10. 448pp. <http://www.ori.org.za/content/page/special-publications> ☒

## Mike Bruton's autobiography

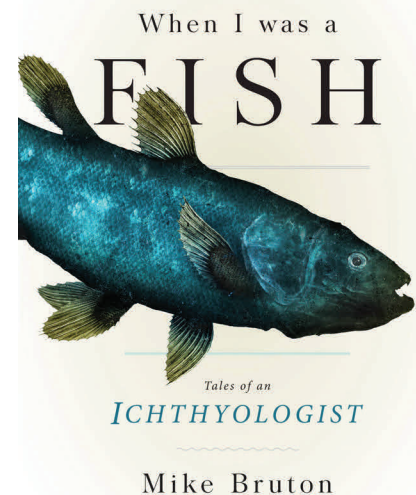
This fast-paced, highly readable book recounts the extraordinary life of Mike Bruton, one of the leading fish biologists in Africa. Mike was born in the town where the first living coelacanth was discovered and studied at Rhodes University in South Africa at the same time as the great ichthyologist, Professor JLB Smith, who first described 'old fourlegs'. Mike became Director of the Ichthyology Institute named after Smith and pioneered searches for the coelacanth in southern and eastern Africa. Together with colleagues from all over the world he made many new discoveries on the biology of this extraordinary fish and campaigned internationally for the conservation of the coelacanth.

Mike's research on the freshwater fishes of Africa and the Middle East led to entanglements with crocodiles, hippopotami, giant snakes and military operations but also allowed him to contribute to international efforts to conserve wetlands and endangered species. Whether you are a naturalist, fisherman, aquarist or sushi eater, you will be fascinated by these astonishing tales of a man who almost became a fish!

'When I was a Fish. Tales of an Ichthyologist', Jacana Media, April 2015, 310 pages.



"This remarkable and highly readable book will appeal to all naturalists."  
- ALEXANDER McCALL SMITH



## Volunteer drivers needed at SANCCOB

SANCCOB (the Southern African Foundation for the Conservation of Coastal Birds) is urgently looking for volunteer drivers at its seabird centre in Cape Town. Using official SANCCOB vehicles, volunteer drivers assist with collecting rescued birds in-and-around the Cape Town area and transporting rehabilitated birds for release back into the wild. Licensed drivers needed for weekdays and weekends. To apply, simply contact [volunteers@sanccob.co.za](mailto:volunteers@sanccob.co.za) or call (021) 557 6155.



## How Tweet It Is (in 140 characters or less)

By  
**Rita Steyn**  
*SANCOR Student  
Representative and  
Official SANCOR Tweeter*

Does Twitter have your feathers ruffled? Are you a “tweeter” (write tweets) or a “tweader” (read tweets)? Do you have a “handle” or even know how to “hashtag”? Do any of these words make sense to you?

Twitter is, simply put, another platform for communication. But it’s a small platform, with only enough space for 140 characters or less. It was originally an idea between friends in and co-founders Jack Dorsey (@Jack), Evan Williams (@Ev), and Biz Stone (@Biz) aimed at just being another kind of text messaging, in 2006 at a time when smartphones were booming and Facebook was two years old.

The catch was that you only had 140 characters, or less, to say (tweet)

whatever it was that you wanted to. Nowadays, there are ways around that of course, with programs and algorithms that will spread your tweet over multiple messages, or shorten website addresses for inclusion in a tweet, or even re-direct readers/tweaders to another site for a full story. But the original 140 character limit came from the fact that your phone and my phone (yes, even my phone) have a limit of 160 characters in one SMS. The remaining 20 characters are for your “handle” - your username, your @whatever.

Since the definition of twitter is “a short burst of inconsequential information” and “a series of chirps from birds”, the first tweets were sometimes called chirps, but over the years Twitter lingo and jargon has even changed the way we talk in every day conversation, for that see a nearby #teenager (hashtag teenager).

Even Big Data has found Twitter, with over 100 million users logging in

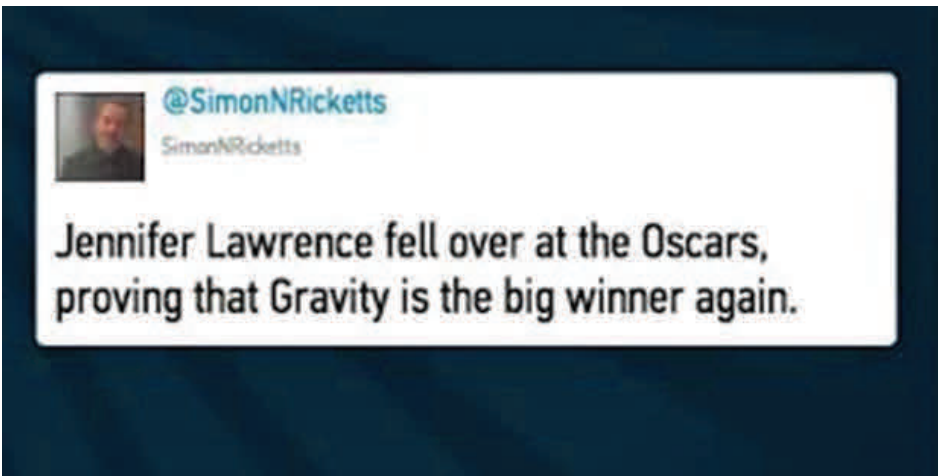


daily. You can tweet from a smartphone, a computer, or a tablet. The most up to date information I could find showed about a billion registered users (at least 1 in every 7 people on the planet!) and 550 million active (have sent at least one tweet) accounts. Even on Twitter you can lurk in the background.

No surprise that celebrities, politicians and sports figures have the most followers on Twitter. Currently, @katyperry leads the pack with 71.41 million followers, and the non-human entity @YouTube ranks 5th with 51.97 million followers.

Fear not though, science “tweeps” (twitter peeps), you too can have millions of followers! The top science stars of Twitter are @neiltyson (Astrophysicist) with 2.4 million followers, @ProfBrianCox (Physicist) with 1.44 million followers, and @RichardDawkins (Biologist) with 1.02 million followers. You can also follow large institutions, such as @NOAA, space missions and astronauts, such as @ESA\_Rosetta and @Cmdr\_Hadfield, and even imaginary characters, such as @Lord\_Voldemort7. You could arrange tweet-ups with your tweeps (translation: meet-ups with other





accounts-for-science-nerds#.dlW86Kynb

- <http://www.crushable.com/2015/01/02/entertainment/funny-twitter-accounts-follow/>
- <http://webtrends.about.com/od/twitter/tp/Funny-Twitter-Parody-Accounts.htm>



tweeters and followers) or have an AMA (Ask Me Anything) session. You can share photos, thoughts, questions, musings, findings, facts, rumours, the list is endless, and have those re-tweeted to the ends of the earth.

As long as it's 140 characters or less, because, as Einstein said "If you can't explain it simply, you don't understand it well enough". Go forth and tweet!

stats/

- <http://www.statista.com/statistics/273172/twitter-accounts-with-the-most-followers-worldwide/>
- <http://news.sciencemag.org/scientific-community/2014/09/top-50-science-stars-twitter#full-list>
- <http://www.buzzfeed.com/kellyakes/must-follow-twitter->

Still need help? See below...

**How to Tweet**

- <http://michaelhyatt.com/the-beginners-guide-to-twitter.html>
- <https://support.twitter.com/articles/215585>

**Online Sources**

- <http://twitter.about.com/od/Twitter-Basics/a/The-Real-History-Of-Twitter-In-Brief.htm>
- <http://www.socialnomics.net/2013/01/23/the-history-of-twitter/>
- <http://expandedramblings.com/index.php/march-2013-by-the-numbers-a-few-amazing-twitter->

**See how SANCOR's twitter account is doing!**

Tweets	44	Tweet impressions	9,584
Profile visits	300	Mentions	19
New followers	25		

## *SANCOR Forum 2015—crossing boundaries in marine research*

The annual Forum Meeting was held on 20 August 2015 in the DAFF Marine Research Aquarium in Sea Point. This topical forum was themed: "Crossing boundaries – the role of marine science in transdisciplinary research" and aimed to bring together South African marine and coastal research community to build on common positions and perspectives towards understanding and advancing transdisciplinary research.

The meeting aimed to demonstrate constructive natural and social science integration, show examples of inter and transdisciplinary research, offer a local and regional perspective on how scientific information is integrated in marine and coastal management and to discuss how transdisciplinarity can strengthen the science-policy interface.

Dr Serge Raemakers, SANCOR Steering Committee National Forum Representative for Social Science introduced the topic, referring to Poul Degnbol's paper on "Painting the floor with a hammer: Technical fixes in fisheries management" (doi:10.1016/j.marpol.2005.07.002). The authors claimed that improvements in fisheries management will be realized not through the promotion of technical fixes but instead by embracing and responding to the complexity of the management problem.

Dr Raemakers added that there are not too many South African case studies to prove that this is possible. He defined terminology multi, inter- and trans-disciplinary and described the challenges of different disciplines working together. Marine and coastal systems are complex socio-ecological systems and their understanding requires interdisciplinary and transdisciplinary research approaches.

Carmen Visser, SANCOR Secretariat, reported on SANCOR activities in the past year. Student Travel Winner for 2014, Ms Mia Wege, based at the University of Pretoria, presented on cross-seasonal directional foraging fidelity of Subantarctic fur seals: implications for conservation areas.

Mr Andrew Zaloumis, CEO of iSimangaliso Wetland Park Authority, described the historical and current challenges and successes facing the Park. In his presentation 'Developing to Conserve or Turning Paradise into a Parking Lot - Future Conservation', he described the balancing act required in managing land claims through co-management and revenue sharing, while conforming to the requirements of a World Heritage Site. Dr Georgina Cundill, Senior Lecturer at the Department of Environmental Sciences, Rhodes University, shared transdisciplinary insights from small scale fishery governance in Chile. She reflected on lessons learned from the collapse of the macha fishery.



The SANCOR Steering Committee thanks all participants in this annual event. From L-R: Kim Prochazka, Jimmy Khanyile, Rita Steyn, Louis Celliers, Anusha Rajkaran, Serge Raemakers, Lara Atkinson, Ticky Forbes and Carmen Visser. Not pictured here: Ursula Scharler, Zini Manana and Andy Cockcroft.

Dr Kim Prochazka, Director of Resources Research at the Fisheries Branch of the Department of Agriculture Forestry and Fisheries, illustrated transdisciplinarity in action in the science-management interface, specifically in the fisheries arena. She explained how marine scientists, through scientific working groups (maths/stats, oceans, biology, physics and ecology) interface with management (law, business, household, resources). In this mutually directed process scientific recommendations are directly made to the resource manager and this allows for stakeholder and involvement, the inclusion of policy direction, legal requirements, business or community needs, health considerations and international agreements and commitments. She concluded that a needs-driven approach is most likely to foster multi-, inter- and trans-disciplinarity. There should be a focus on "operational" science with strong quality control and adaptiveness while establishing structures for transfer of scientific information.

Dr Louis Celliers, Principal Scientist and Research Group Leader: CSIR showed the implementation of Integrated Coastal Management as a forum of interaction and a feedback mechanism. Each province has a Provincial Coastal Committee which feeds into the management system. Barriers to the integration of science could potentially be overcome by offering training courses in science communication and training managers in scientific processes. Dr Andrew



2014 SANCOR Student Travel winner, Mia Wege reported on her attendance of the Biologging Conference held in France.

Green Senior Lecturer: Department of Geology, University of KwaZulu-Natal, gave an overview of multidisciplinary applications for Marine Geoscience. Most of the marine geoscience activities he has focused on relates to remote sensing of the seabed and of the subsurface as well as the examination of both seabed and seafloor via sampling activities.

The panel discussion chaired by Dr Raemakers highlighted that transdisciplinarity can be strengthened by focusing on a common problem. Transdisciplinary research is built on trust with stakeholders. Despite the high cost and complexity of transdisciplinary research, we do have a window of opportunity in that we have a relatively well-kept resource base. ☞

*Photos by Rita Steyn*

## PECS 2015 Conference

### Program on Ecosystem Change and Society (PECS)

#### Social-ecological dynamics in the Anthropocene

3-5 November 2015

Spier, Stellenbosch

PECS 2015 will gather scientists from various disciplines, from within and beyond the PECS network, to share cutting-edge research insights on social-ecological dynamics in the Anthropocene.

The conference will engage and involve multiple stakeholders concerned with sustainable development and who are interested in developing new solutions and strategies. The conference is intended to highlight PECS achievements and ambitions, and to synthesize and integrate PECS-related research to provide a basis for a future social-ecological research agenda, especially in light of [Future Earth](#).

[Click here](#) for the conference website.





## New SANCOR Steering Committee Members

SANCOR is pleased to announce the appointments of the Western Cape / Northern Cape Representative Dr Deena Pillay and NRF Representative, Mr Jonathan Diederiks.

Deena has a particular interest in estuarine ecology, especially the role of



Deena Pillay

animals spanning from sandprawns to hippos, and the effects of drought on St Lucia. He is currently a Senior Lecturer at the University of Cape Town. In 2014 he was the recipient of the SANCOR 'Emerging Scientist' award. He has also been the recipient of the Young Researcher Award from the College of Fellows, University of Cape Town, and a Claude Leon Award for young lecturers, both obtained under highly competitive circumstances. He has a strong postgraduate school, and has published 24 peer-reviewed articles and chapters. He is a/so the subject

editor covering Marine Ecology and Invertebrates for the journal *African Zoology*, and has refereed articles for 21 national and international journals.

The Steering Committee also welcomes the new NRF Representative, Mr Jonathan Diederiks, who has been appointed on 1

September 2015 as the Director for the Global Change Unit (under which SANCOR is managed) in the NRF's Knowledge Fields Development Directorate. For the past five years Jonathan has been the National Director for the Southern African Science Centre for Climate Change and Adaptive Land Management (SASSCAL) SA Office, which is a regional initiative (Head Office in Namibia) in partnership with Botswana, Angola, Namibia, Zambia



Jonathan Diederiks

and Germany, doing research (85 projects in the region) related to Climate Change in 5 thematic areas (water, forestry, biodiversity, climate change and agriculture). And then looking at how the 'science' can/should be used to improve livelihoods, policies, development planning etc. in the region. In 2007 Jonathan was Programme Manager for a DfID Programme (Urban LandMark) that was looking at the access to urban land for the Urban poor within a post-apartheid context in SA. In 2003, he was Programme Manager at DANIDA (Danish International Development Agency) with a portfolio of development programmes looking at sustainability and the environment.

We welcome and congratulate Deena and Jonathan and wish them every success in their new roles. We would like to extend our gratitude to outgoing representative Dr Juliet Hermes for dedicating her time and efforts to the activities of SANCOR.

Acknowledgement: Deena's brief biography from Prof George Branch. ⚡

### Research Vacancy: Post-doctoral fellow

#### Global learning for local solutions: Reducing vulnerability of marine-dependent coastal communities (GULLS)

GULLS is an international research project funded through the International Opportunities Fund of the Belmont Forum and G8 Research Councils Initiative on Multilateral Research Funding. It aims to contribute to improving community adaptation efforts by characterizing, assessing and predicting the future of coastal-marine food resources through the provision and sharing of knowledge across regional change "hotspots" i.e. fast-warming marine areas and areas experiencing social tensions as a result of change. Applications are invited for the South African component of the project. The position can be based at either Rhodes University or the University of Cape Town. [Click here for details](#). Apply before 9 October 2015.

## SANCOR: History and Role in Marine and Coastal Research

The South African Network for Coastal and Oceanic Research (SANCOR) is a non-statutory network to exchange knowledge in order to promote the sustainable use and management of marine and coastal resources and environments. It also plays an important role in keeping members up to date regarding theoretical advances in ecological and other relevant literature, as well as events in the marine resource management field (e.g. policy changes and upcoming conferences and workshops).

It has played a key role in strengthening collaboration among researchers in the field of marine science as well as managing marine research since 1956. SANCOR therefore provides an institutional structure and 'research arena' in which researchers from many scientific disciplines and from across the country, produce and exchange their knowledge related to marine and coastal issues.

The objectives of SANCOR are to:

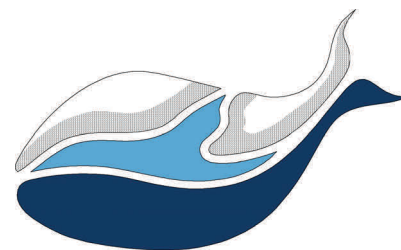
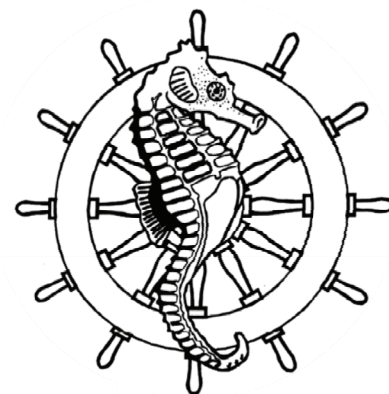
- Provide a forum for interaction, collaboration and communication about science in the marine and coastal environment (SMCE), and generate debate on current issues;
- Contribute to planning for future demands on marine and coastal environments and resources; co-ordinate and integrate activities by

stimulating appropriate interdisciplinary and inter-institutional collaboration;

- Contribute pro-actively to policy development; advise on the optimal use of financial, technical and logistical resources;
- Help develop capacity in all sectors; market the benefits and promote the use of research findings; and
- Act as a 'broker' between national and international funding agencies and researchers.

SANCOR was originally established in 1956 as the South African National Committee on Oceanographic Research (SANCOR) with a focus, in the early stages, on oceanographic research. It was then that the first coordinated and substantial funding of basic marine research in South Africa occurred with grants received from the CSIR's Scientific Co-operative Programmes. SANCOR was instrumental in coordinating, liaising with funders and managing these early marine research programmes.

In the late 1970s, when the national Foundation for Research and Development (FRD) (later to become the NRF) took over the funding of scientific research from the CSIR in South Africa, SANCOR redefined its



mandate and introduced a number of new innovations: namely, the student travel prize, student bursaries, the SANCOR Newsletter, and the South African Marine Science Symposium (SAMSS) (first held in 1970). The SANCOR Newsletter was first published on 1 December 1977 with the 100th Newsletter being published in December 1986, and the 200th Newsletter in 2012. In 1985, the triennial Gilchrist Memorial Medal for distinguished marine scientists and the Derek Krige Award for outstanding support in technology and logistics were instituted. Since then the Marine and Coastal Communicator Award and the more recent SANCOR Emerging Scientist Award are also awarded every three years.

SANCOR's name was changed in 1993

and the new logo was developed in 1997, which is still in use today (it was previously a seahorse profiled against a ship's wheel). The new name was the South African Network of Coastal and Oceanographic Research (SANCOR), which enabled it to retain the same acronym but to be more inclusive as the focus had become much broader than only oceanography. In 1978, the Department of Oceanography at UCT offered to hold monthly marine science seminars to provide regular opportunities for networking across disciplinary and institutional boundaries, which continue today and are advertised by SANCOR as the MARE SANCOR Seminars.

In 1993, SANCOR was restructured and the SANCOR Forum was instituted which allowed for a meeting of an inclusive body of researchers in the marine and coastal environment to meet once a year, with a smaller Steering Committee meeting more frequently throughout each year. Represented on this Steering Committee today are the funding agents; the National Research Foundation and the two government departments, DAFF and DEA, as well as representatives of the different geographical regions in which marine research takes place.

By the mid-1990s, SANCOR developed a strategic plan to become the 'principle voice of South Africa's marine science, engineering and technology communities'. In 1995, a marine

research programme, the Sea and Coast Programme, was developed and received national funding through a Joint Venture Agreement (JVA) which was signed between the then national Department of Environmental Affairs and Tourism (DEAT) which housed the Branch: Marine and Coastal Management [MCM] and the National Research Foundation (NRF). A Joint Venture Agreement Committee, was set up in 1999 to support SANCOR and its research programme. It was concluded in 2010. In 2010 the DEAT Branch MCM was restructured to become the Department of Environmental Affairs (DEA) Branch Oceans and Coasts and the Department of Agriculture, Forestry and Fisheries (DAFF) Branch Fisheries Management. The NRF was established through the National Research Foundation Act (Act No 23 of 1998), following a system-wide review conducted for the then Department of Arts, Culture, Science and Technology (DACST).

There have been two successful Sea and Coast Programmes followed by one SEACHange Research Programme (2007-2014). The title of the Programme changed to SEACHange (Society, Ecosystems and Change) in 2007 as it was proposed that coastal and marine resource and environmental management issues needed to be conceptualised more holistically and that multi-disciplinary and interdisciplinary research was necessary. Researchers from a broader range of disciplines needed to be

included to be able address these issues. Today, the focus includes research in a wide range of natural science disciplines such as oceanography, marine geoscience, botany, zoology, biological sciences, marine biology, ecology, ornithology and biotechnology, with increasing efforts to 'broaden the knowledge fields' and involve researchers from law, engineering, the humanities and social sciences. Throughout these research programmes SANCOR has supported the need for both basic and applied research, and the need for racial and gender transformation in the marine science community.

In addition to managing the research programmes, in the mid-1990s SANCOR also set up a number of Coordinating Groups, for example, the Marine Linefish Research Group, which provide focused research networks for marine scientists, although they are no longer funded by SANCOR (see website for the full list). Over the years SANCOR also continued to set up Task Teams to address relevant issues, such as the Capacity Building Task Team and the Communications Task Team. SANCOR has developed an increasing concern for careers and capacity-building in marine science in the post-1994 period and initiated three studies on capacity building between 1998 and 2006 to map the career paths of marine scientists.

SANCOR made substantial inputs into the development of the Living Marine

Resources Act of 1995, with regional workshops being held in all major coastal cities and substantive contributions being made to the final Act. Members also participated in the advisory Subsistence Fisheries Task Group, which made recommendations on how to manage subsistence fisheries, culminating in a series of papers published in the *South African Journal of Marine Science* in 2002.

Marine and Coastal Educator's Network (MCEN), a co-ordinating group established by SANCOR, has been extremely successful, and has taken on an independent life of its own and runs vibrant annual trips and conferences that disseminate and share information with and between marine educators.

SANCOR continues to reframe itself in line with the broader restructured institutional and policy context in South Africa, as well as embracing international and national research trends. The shift in vision to include social science in marine and coastal research; to include a shift to interdisciplinary research; and to gear student and research funding allocations to meet the national social redistribution and justice goals of the country is slowly being realized.

One of SANCOR's primary achievements has been in its role of networking and communicating. SANCOR's role as a medium of communication has encouraged the

emergence of a sense of 'community' among marine scientists and is the 'glue' that keeps them together. Through the application of a transparent and participatory bottom-up approach, SANCOR continues to influence the direction of marine research in South Africa. In this way, SANCOR has played a critical role in getting researchers and officials together to communicate and debate; it works from the 'bottom-up', assembling all stakeholders together to talk about issues. SANCOR has over the years, in its unique way, fostered a co-operative ethos among researchers in the marine and coastal environment, and it will continue to play this role as well as liaising between the marine science community and the national funders of marine research. With its primary roles of communication and networking, supporting and managing research opportunities, SANCOR can be called a 'community of practice'.

SANCOR is managed by the NRF and the Secretariat office is hosted by the Department of Agriculture, Forestry and Fisheries (DAFF) Branch Fisheries Management in Cape Town. ☞

*This article has been written by a team of researchers in the marine and coastal environment.*

## OBIS/OTGA Training Course Marine Biogeographic Data Management

(contributing and using OBIS)

30 November - 4 December 2015,  
Oostende, Belgium

The course provides an introduction to the Ocean Biogeographic Information System (OBIS). This includes best practices in marine biogeographic data management, data publication, data access, data analysis and data visualisation.

### Aims and Objectives

- Expand the OBIS network of collaborators
- Improve marine biogeographic data quality
- Increase awareness of international standards and best practices related to marine biogeographic data
- Increase the amount of open access data published through OBIS and its OBIS nodes
- Increase the use of data from OBIS for science, species conservation and area-based management applications

[Click here](#) for more information.

## SANCOR Postdoctoral Fellows for 2015

*SANCOR is proud to announce the granting of 4 postdoctoral fellowships. These fellowships are expected to stimulate new research and to encourage the development of early career scientists. We introduce these new postdoctoral fellows, their research expertise, interests and projects.*

Ryan Reisinger received a BSc degree in 2007, a BSc (Honours) in 2008 and an MSc in 2011, all in zoology and all from the University of Pretoria. He spent a year on Marion Island collecting data for his MSc dissertation on the ecosystem role of killer whales, which was awarded the Junior *Kaptein Scott gedenkmedalje* by the *Suid-Afrikaanse Akademie vir Wetenskap en Kuns* (Captain Scott Memorial Medal from the



Ryan Reisinger

South African Academy of Science and Art). He then spent a second year on Marion Island, working on the foraging and social ecology of killer whales. Under the supervision of Dr Nico de Bruyn, Dr Mark Keith, and Prof Rus Hoelzel, he completed the resulting PhD thesis in 2015 at the University of Pretoria. Dr Pierre Pistorius (Department of Zoology, Nelson Mandela Metropolitan University) supervises the project.

Ryan's postdoctoral project is entitled: "Marine top predator distribution and diet at the Sub-Antarctic Prince Edward Islands". Marine top predators have been studied extensively at the Prince Edward Islands, Southern Ocean, but most of this research has been conducted on a species by species basis. The project will collate and archive existing tracking and dietary data on seals and seabirds at the Prince Edward Islands and will use these data to identify important habitat for marine top predators, to predict possible range changes due to climate change, and to assess long-term diet changes due to changing environmental conditions. The project should allow a better understanding of recent climate-driven changes in the

Southern Ocean and will attempt to forecast distribution changes in top predators. In addition, habitat modelling will aid spatial management of marine resources within South Africa's Exclusive Economic Zone surrounding the Prince Edward Islands.

Raïssa Philibert was born and raised in Mauritius. She moved to Cape Town in 2007 to start her undergraduate studies and never left! After a BSc (Honours) in Chemistry at the University of Cape Town, she joined the Oceanography Department in 2011 for a MSc



Raïssa Philibert

investigating the nitrogen cycle in the Southern Ocean and the Benguela upwelling system. Her MSc project was upgraded to a PhD in 2012. Raïssa's thesis was approved in 2015. Over the last year she joined the Earth Sciences department at Stellenbosch to investigate how trace metals concentrations and light limitation affect phytoplankton growth.

The aim of Raïssa's research project "Effects of light and iron on Southern Ocean phytoplankton" is to improve the current understanding about the effects iron and light co-limitation on Southern Ocean diatoms as this plays an important role in regulating the marine carbon cycle, the marine food web and the Earth's climate. The Southern Ocean, accounts for 4% of global carbon fluxes and is expected to play an important role in the uptake of the anthropogenic carbon dioxide. However, the efficiency of the biological pump (the mechanism through which carbon is removed from the surface ocean due to the sinking and

subsequent sequestration of organic matter produced by phytoplankton) in this region is still debated. The efficiency of the biological pump is affected by several factors such as the phytoplankton community structure and the rate of primary productivity. Their growth is regulated by light and nutrients availability. In the Southern Ocean, however, phytoplankton are limited by the low iron availability (iron limitation) which is considered to be the cause of the high nutrients, low chlorophyll conditions observed in this region. This iron limitation might also be compounded by the light conditions experienced by Southern Ocean phytoplankton. Given their importance for the regulation of climate and biogeochemical cycling of nutrients, the adaptation of Southern Ocean diatoms to iron and light limitation will be studied by conducting incubation experiments of summer and winter phytoplankton communities as well as laboratory culture experiments. Her supervisors are Dr Susanne Fietz and Prof Roychoudhury at Stellenbosch University.

Els Vermeulen was born in Antwerp, Belgium. Els always had an interest in marine mammal conservation. In 2003 she obtained a Master Degree in Biological Science from the Free University of Brussels and a PhD degree in 2014 from the University of Liège. After a short field trip to Argentina during her masters course, she was inspired to live there and set up a national conservation programme for coastal marine mammals. She co-founded and directed the Marybio Foundation (an independent NGO) for 6 years. Els also co-founded Whalefish ([www.whalefish.org](http://www.whalefish.org)), a global network of diverse stakeholders, including scientists, students, NGOs, governmental organizations, and others, aiming to enhance marine conservation efforts. Her research expertise lies in animal behaviour, ecology and population biology. She aims to understand the causal factors affecting marine mammal conservation in order to aid in enhancing conservation



**Els Vermeulen**

management strategies. Els has been involved in several educational projects in Argentina including the creation of an interpretation centre for marine mammals, the creation and free distribution of a children's book on dolphins (based on her PhD thesis) entitled *Toninas de la Bahía* (Dolphins of the Bay, English translation available [here](#)). She was an external advisor for the Provincial Department of Wildlife within Argentina and later a scientific advisor as part of the Belgian Delegation of the International Whaling Commission. Els also served as committee member of the Marine Mammal Observer Association, an organization which represents environmental consultants in the gas and oil industry.

Els' postdoctoral research is entitled: "Population structure and viability of South Africa's most endangered cetacean - humpback dolphins (*Sousa plumbea*) on the Cape south coast." The cetacean community around southern Africa is one of the richest in the world with at least 51 of 86 species of whale or dolphins known to occur here. Her research project aims to provide a first comprehensive assessment of the species' population status, structure and viability along the Cape south coast through dedicated field surveys and the establishment of a national collaboration with other research groups. The results will assist in the identification of causal factors affecting their conservation status feeding directly into the identification of priority conservation actions for this species and its habitat. Her research is supervised by Dr Simon Elwen, University of Pretoria.

Lucienne Human's passion for the environment started at an early age, often spending time along the banks of an estuary. This inspired him to learn more about these dynamic systems. After completing an MSc on the temporarily open closed East Kleinemonde Estuary in 2008 and publishing his first paper on reeds as indicators of



**Lucienne Human**

nutrient enrichment, he started to specialize in estuarine water quality. This path eventually led him to complete a PhD in 2013 where his research was focused on the contribution of submerged macrophytes and macroalgae to nutrient cycling in the Great Brak Estuary. His research area of expertise now includes the water quality of estuaries with emphasis on the interaction between the benthos and water column; the dynamics of the macrophytes in relation to eutrophication and its causes and consequences; the management of estuarine water quality; mangrove ecology; phytoplankton dynamics and community structure.

His postdoctoral project involves the study of the structure and function of selected micro-inlets along the Eastern Cape coast of South Africa. This is a multidisciplinary project with Prof Alan Whitefield as the team leader. Other botanists on this project include Prof Janine Adams and Ms Lyndle Naidoo. The second project is entitled: The extent and impact of a macroalgal bloom in the Knynsa Estuary. Collaborators are Prof Brian Allanson and Prof Janine Adams. The goal of this project is to understand why a macroalgal bloom of *Ulva lactuca* has colonised the lower reaches of the estuary. Significant progress has been made and a publication can be expected early next year.

✂

## Dr John Field awarded IOC-UNESCO medal

Dr John Field, Emeritus Professor and Deputy Director of the Marine Research Institute (Ma-Re) at the University of Cape Town, has been awarded the Intergovernmental Oceanographic Commission's (IOC-UNESCO) N. K. Panikkar Memorial Medal.

Dr Field delivered his memorial lecture on 17 June at the Ocean Science Day. Recent developments in ocean science were presented to the IOCs 147 Member States, networks and partners. The overall objective was to improve decision makers' understanding and awareness of current challenges and emerging issues around ocean science and governance through lectures and panel discussions with eminent experts.

Presentations and debates focused on the linkages between ocean health and human wellbeing, the potential of the latest advancements in monitoring technology, current scientific challenges in the Arctic and the legacy of the International India Ocean Expedition (IIOC) as well as the need to develop new ocean knowledge and technologies for the benefit of society.

Dr Field shared his experience on board cruise 7 of RV *Anton Bruun* during the first International Indian Ocean Expedition (IIOE) in the 1960s. The IIOE was one of the greatest international,



interdisciplinary oceanographic research efforts. It was carried out from 1962 to 1965, with over 40 oceanographic research vessels participating under 14 different flags. It was a remarkable success, and began to illuminate the Indian Ocean's far-reaching influences on surrounding regions and the globe in general through tele-connected ocean/climate processes.

Now, 50 years later, IOC-UNESCO is planning the second IIOE in partnership with the Scientific Committee for Oceanic Research (SCOR) and the Indian Ocean GOOS (IOGOOS), to take place from 2016 to 2020.

Dr Field provided insights on the legacy of the first IIOE, and the fundamental changes that have revolutionized our understanding of the global ocean in the 50 years since then and exploring the potential of IIOE-2 in light of new technological advances.

[Source: MA-RE Website](#)

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## Echinoderm & Algae Taxonomy Workshop

The South African / Belgian Echinoderm & Algae Partnership would like to announce a workshop to be held at the University of KwaZulu-Natal (Westville campus) on:

*Echinoderm & Algae  
Taxonomy*

*23 & 24 January 2016*

*Durban,*

*University of KwaZulu-Natal*

The workshop will cover the following topics:

- Introduction to the taxonomy of echinoderms & algae
- Hands-on training in the handling of collections
- Hands-on training in the taxonomy of echinoderms & algae
- Introduction to zoological and botanical nomenclature
- Introduction to phylogenetic

analysis

- How to score biodiversity data in ABCD (Access to Biological Collection Data) Format

Further details to follow in November 2015.

If interested in participating, please contact:

Jennifer.Olbers@kznwildlife.com

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### Our Focus: Science in the Marine and Coastal Environments

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Disclaimer: SANCOR's main function is to disseminate information. SANCOR encourages robust, indeed provocative debate about any matters relevant to the marine science community. The views and opinions expressed in all communication from SANCOR are not a reflection of the views of SANCOR or the SANCOR Secretariat.

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