

SANCOR NEWSLETTER

South African Network for Coastal and Oceanic Research

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Sea life must play catch-up to match changing climate

The global climate is changing, and to survive, species must respond by adapting.

Although adaptations are varied and sometimes subtle, the most obvious options include relocating to new areas where temperatures match those that a species is used to (this is called a range shift), or changing the timing of seasonal events, like flowering or breeding (this is called a phenological or seasonal shift). While these climate-change-induced responses have been well studied on land, to date they have been largely overlooked in the ocean.

A new study published recently in *Science* finds that although the amount of warming the ocean has experienced in the past 50 years is only about a third of that observed on land, the speeds at which these changes spread across land and sea are very similar. Results also show that typical spring and autumn temperatures in the ocean are generally

changing more rapidly than they are on land, with spring temperatures arriving earlier in the year and autumn temperatures arriving later. Regional variations in these measures mean that in many areas marine organisms must respond much more rapidly to changing climate than their counterparts on land. One such "hotspot" is the tropics, where marine biodiversity is particularly high. This raises concerns for marine conservation efforts.

The work was led by Dr Michael Burrows, from the Scottish Association for Marine Science, and Dr David Schoeman, a Research Associate at the Nelson Mandela Metropolitan University,



Marine organisms will need to relocate rapidly to respond to changing climate. Photo by Megan Saunders.



South Africa (who is currently at the University of Ulster, Northern Ireland), and was funded via the US National Science Foundation by the US National Center for Ecological Analysis and Synthesis, University of California Santa Barbara.

“This work started with a simple question: if we had no information other than global temperature records, could we predict how marine life might respond to ocean warming, and how would this compare to similar expectations for species on land?” explains Dr Schoeman.

“In answering this question, the results we obtained were surprising,” he continued. “To keep up with observed surface warming over the past 50 years, organisms both on land and at sea would have had to move about two-and-a-half kilometres each year. What’s worrying is that the warming we see now in the ocean is caused by greenhouse gas emissions from decades ago. Emissions and have accelerated rapidly, and continue to do so, so our next important question is whether sea life will be able to keep up in future.”

He went on to explain that while mobile animals like fish might be able to swim several kilometres in a day, many important marine species spend their lives attached to the seabed, and can move only from generation to generation, by releasing larvae into the water column. For these types of organisms, including corals, which support much of the ocean’s biodiversity, the future looks grim.

He went on: “From a local perspective, South Africa is in an fascinating position. Average yearly temperatures are moving down the east coast at 2 – 5 km per year and along the south coast in the direction of Cape Town at

5 – 10 km per year. Interestingly, on the cool west coast, temperatures are cooling in places as a result of increased upwelling. This means that marine species might need to move to warmer waters. If such critters took the shortest route to that warmer water, they would have to move offshore at a rate of 5-10 km per year! If, on the other hand, a

temperature-sensitive west-coast species were restricted to coastal habitats, it might need to move alongshore at rates far in excess of 20 km per year to match the pace of climate change. In terms of seasonal trends, typical spring seawater temperatures are arriving roughly 1 day per year earlier on the eastern and southern coasts, but are hardly shifting at all along the southwest coast and are actually arriving later by up to a day per year on the northwest coast. Typical autumn sea temperatures are arriving a day later each year over much of the east and south coasts, but up to two days later each year around Port Elizabeth; over much of the west coast, though, typical autumn temperatures are arriving later. South Africa’s complex terrain makes patterns of change in land temperatures far more complex, with rates of temperature change at more than 20 km per year over the plains of the Little Karoo and southern Kalahari, but much less change in more mountainous areas. Clearly scientists and government agencies will need to think carefully about how these patterns might be used to prepare for the inevitable effects of climate change over the next 20 – 50 years.”

“Working with a large group of researchers



Sea life living close to the poles could find itself overwhelmed by marine migrants moving in from warmer regions, in search of cool water. Photo by Hugh Brown.

with expertise in different aspects of marine science is really the only way to approach such a challenging topic,” Dr Schoeman concluded. “Finding ways to fund these sorts of interactions in the current financial crisis is the trick. This is particularly important for marine ecology: despite scientific progress in so many areas, much remains to be discovered in the sea. We cannot allow out of sight to be out of mind. The sea provides us with many services that society still doesn’t fully appreciate, and without an understanding of the changes they are likely to face, we have little capacity to plan.”

Journal Reference:

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Triple trouble - ocean acidification, warming and deoxygenation

By Thobile Hans

As huge amounts of financial investments are put into mitigating the effects of climate change on forests and renewable energy projects, marine scientists feel the oceans are being neglected by governments and policymakers.

As much as the land is affected by the climate change conditions, oceans are affected by acidification, warming and deoxygenation which are all detrimental to the marine ecosystem. Climate change influences oxygen levels in the oceans with a particularly harsh effect on the warmer waters as higher temperatures reduce oxygen solubility. Ocean acidification and nutrient run-off from streams and rivers can contribute to deoxygenation. These effects combine resulting in interconnected triple trouble for the oceans.

Dr Anthony Ribbink, CEO of Sustainable Ocean Trust in South Africa, and programme manager for the South African Institute for Aquatic Biodiversity, provides a human analogy where the world has two lungs - forests and oceans.

Ribbink says at the United Nations Framework Convention on Climate Change (UNFCCC) 16th Conference of the Parties (COP), billions of dollars were pledged to restore, develop and maintain forests. "This is welcomed as forests play such a critical role in maintaining the atmosphere and accommodating a stunning diversity of species. The focus of COP 16, therefore, was on one lung of the globe (the forests)."

The ocean covers nearly three quarters of the Earth's surface, contains 96% of its living space, provides around half of the oxygen we breathe and is increasingly becoming a source of protein for a rapidly growing world

population. In spite of this, the ocean is largely sidelined in international climate change discussions such as the current COP 17 conference in Durban, says Plymouth Marine Laboratory's (PML), Dr Carol Turley, who is one of the delegates at the conference.

"But what is less known is that oceans and seas form a major component of the earth system that supports all life in the planet. Our oceans and seas are the natural restorers of a balance that guarantees life," she adds.

Turley explains, "I am here to take the message to stakeholders and policymakers from a diverse group of organisations including, international science partnerships, oceanographic institutions and an NGO. Often forgotten in such discussions are ocean and the enormous and diverse source it provides, including food and other resources even half the oxygen we breathe."

"The health of the ocean is therefore relevant to every one of us on planet Earth and we are concerned about how these three stressors - ocean warming, acidification and deoxygenation - produce a very worrying combination which threatens the ocean and everything it provides us. We have produced a short ocean stress guide that sums up in clear language. We would urge everyone to read it."

While ocean acidification has recently been recognised as a high research priority topic leading to a growth of studies, deoxygenation has not reached that level of recognition. The study of warming is more mature but research at the level of ocean ecosystems and bio-geochemistry requires more attention.

Professor Bob Watson, chief scientist for the United Kingdom's Department of Environment, Food and Rural Affairs (Defra), echoed the need for the acceptance of these issues and the potential impacts of them working together.

He says, "The ocean is an incredible source of food and an amazing source of biodiversity. Now we see these irreplaceable resources facing not one but three stressors potentially acting together in ways that we are only just beginning to investigate and understand."

Highlighting this unholy alliance is essential if stakeholders and governments are to make decisions that will affect everyone on this planet. Carbon dioxide, the common factor, is related to energy, energy is related to economic growth and therefore, as we argue that we need to reduce the threat to climate change, ocean acidification or oxygen depletion, we will have to change way we produce and use energy, the way we manage our land as well."

This article was originally retrieved from <http://africafirst.com/stories/201112020417.html>



To download the Ocean Stress Guide produced by PML, visit http://www.pml.ac.uk/pdf/ocean_under_stress.pdf



Seabird bycatch is preventable, industry shows

By Bronwyn Maree and Alice Johnson



Major fishing industry players, along with WWF-SA and BirdLife South Africa are reducing seabird bycatch and collateral damage of fishing to seabird populations by improving bird-scaring devices used during certain fishing operations.

Fisheries “bycatch”, the incidental and unintentional impacts of fishing practices on seabird populations, is one of the single greatest threats facing the survival of many seabird populations. Globally, about 300 000 seabirds are killed every year due to fishing. Albatross populations, in particular, are under extreme pressure with 17 of the world’s 22 albatross species threatened with extinction. This family of majestic birds is now viewed as the most threatened group in the world.

The Responsible Fisheries Alliance (RFA) is the joining of the WWF-SA, Irvin & Johnson (I&J), Sea Harvest, Viking and Oceana around bycatch prevention and other common goals. The alliance, which has been active for two years, has committed itself to responsible fishing and the implementation of an Ecosystem Approach to Fisheries Management (EAF). This approach requires that the state of all marine organisms and interconnected processes are considered when fishing decisions are being made. Previously a single species approach to fishery management was followed. BirdLife South Africa has provided the RFA with input and advice on seabird-related issues.

Four of these threatened albatross species, along with some smaller petrel species, are accidentally killed in the local trawl fishery. This happens because seabirds are attracted to the trawlers when fish offal is discarded during on-board processing. The birds acci-

dentally collide with the cables holding the net in the water, become entangled, are dragged underwater and drown.

Seabird bycatch, however, is preventable and can be reduced with the use of simple and effective solutions. The local hake trawl industry has been using a bird scaring device called a

“tori line” which hangs off the back of the trawler to scare birds away from the trawl cables. BirdLife South Africa, the local partner of BirdLife International, has been testing and improving these lines since their inception in 2006. Through this research they have shown that the use of tori lines has already resulted in a significant reduction in seabird mortality in this fishery.

Due to the great threat fishing operations pose to seabird populations, the RFA commissioned a project to further improve the design and efficiency of these tori lines. A range of changes were proposed, both in design and in use. The key change was to ensure that fishing permits require vessels to always use bird scaring lines at times when fishing activities pose the highest risks to seabirds. Permit conditions ensure that all vessels in the fishery are obliged to use the best design, and to use them at all times.

With these new permit conditions the impact this fishery has on seabird populations is likely to be reduced even further. On board fisheries observers, together with BirdLife South Africa’s Albatross Task Force Instructors, will monitor mortality levels to ensure that the modified tori lines are having the desired effect. This forms part of the Alliance’s on-going pursuit of responsible fishing practices in local waters.

It is envisaged that positive improvements such as these will ultimately result in an improved sustainability status for certain



Photo by Bronwyn Maree

species. According to Bronwyn Maree, Albatross Task Force Leader for South Africa, scientists have “a very good idea” on how to reduce seabird bycatch in trawl fisheries. “BirdLife promotes the use of safe, simple and effective measures, such as bird scaring lines. When used correctly they make a huge difference.”

Although there is still more work to be done, the collaborative effort of stakeholders shows just how important this type of approach is in achieving what is best for the fishery and seabirds. “We’re confident that we are not far from solving the seabird bycatch problem within this fishery, and would like to commend the support and achievements of the trawl industry so far”, says Alice Johnson, WWF-SA’s Fisheries Programme Officer.

“What has been especially pleasing has been the willingness and seriousness with which our fisher folk have accepted the proposed changes,” says Russell Hall from Sea Harvest. “This together with the open cooperation between the member companies and NGOs has meant that the project objectives could be implemented relatively quickly and with minimal fuss”.

“This project included spending time on different types of vessels in the hake trawl fleet and seeing where improvements could be made in vessel types,” explains Barrie Rose, RFA consultant. “This was done with the input from the shore managers as well as the skippers to ensure buy in from all levels.”



WIOFish spreads its fins

By Bernadine Everett



Way back in 1999 an idea was formulated to develop a database that would house as much information as possible about fisheries of the western Indian Ocean. This was an ambitious thought since many of the fisheries in this region had not been formally identified or described. The need for such a database was identified since many people along the coastal areas of East Africa and the island states are very dependent on the sea for the daily provision of their protein requirements and there was much uncertainty about the sustainability of the fisheries. One option was to delve into the records and publications of fisheries organisations in the region and assimilate the existing information into an easily accessible platform that researchers and managers could interrogate to underpin decisions and also to highlight where research still needs to be conducted.

As the project was deemed to be a huge undertaking, it commenced with the involvement of five institutes in the region: Kenya Marine and Fisheries Research Institute (Kenya), Instituto de Marine Science (Tanzania), Instituto Nacional de Investigação Pesqueira (Mozambique), Seychelles Fishing Authority (Seychelles) and the Oceanographic Research Institute (KwaZulu-Natal, South Africa). The first step was to formulate a definition of what was considered a single fishery and for WIOFish this was "a distinct unit that can be managed as a separate entity". Following on from this, project

participants listed the fisheries that were operating in their countries and commenced sleuthing out as much information as possible about each fishery. This information included aspects such as catch data, vessel and gear information, habitats affected by the fishery, management strategies, monitoring programmes, seasonality, conflicts and basic socio-economic profiles. A scoring system was also developed to grade each fishery on a number of criteria providing a means to track the fisheries' status over time.

Once the database had been well established, a system was set up to review the data on an annual basis to ensure that the system provided fishery profiles that reflected the current state of fisheries. Over the next period the project worked at ironing out any glitches in the software and the data inclusion process to reach a stage where all the participants felt comfortable including fisheries from more countries in the region.

Expansion of the WIOFish initially occurred on three fronts: The Mauritian fisheries were added to the database by participants from the Albion Fisheries Research Centre and a French user -interface was developed to



After 10 years of development and tweaking of the WIOFish database, eight countries of the western Indian Ocean are represented and their fisheries profiles are publically available at www.wiofish.org.

accommodate the francophone countries of Comoros and Madagascar. It was also decided to include the foreign vessels licensed to fish in each country's EEZ.

In 2011, the fisheries of the Comoros and Madagascar were included by participants from the *Ministère de la Production Direction Regionale de la Peche Mohéli* and the *Ministère de la Pêche et des Ressources Halieutiques*, respectively. It was a good test of the French user-interface which passed with flying colours. Furthermore, in 2011, a decision was made to include historical fisheries

A small flotilla of dhows sets off from Stonetown, Zanzibar to their fishing grounds. Photo by Bernadine Everett.



that have ceased operations as well as illegal fisheries operating in the region. The completion of profiles for these last fisheries will, most likely, be one of the most challenging activities since data on them are hard to come by but at the very least it will be good to have a record of them in the database. Some new reports were added this year to allow for easy extraction of in-



formation on the markets the fisheries are supplying, the dependence on catches for personal protein supply and the participation of women in the fisheries. This brings the total number of extractive reports to 27. The last change to the database this year was the development of a new look and feel to modernise the interface and ensure that it is as user-friendly as possible.

WIOFish has grown over the last twelve years from the initial start of 163 fisheries from 5 countries to 254 fisheries from 8 countries recorded in the database. A basic analysis shows that the availability of fisheries data is inadequate in at least 50% of the fisheries documented, with 41% reporting concern about sustainability. Many of the fisheries of the region are not controlled through fishery policies or management plans and few co-management strategies are in place. A total of 57% of fisheries are listed as having high or comprehensive needs for management -related research and only 4% indicate having adequate research in place. Since a key objective of WIOFish is to highlight fisheries or parts of fisheries that are in need of research, the project has succeeded. It is now up to researchers, managers and students to utilise the database to focus research on fisheries or aspects of fisheries that need attention.

With this in mind the WIOFish project invites all who have an interest in the WIO fisheries to register on the database and use it as much as possible. The latest annual report is also available for download from www.wiofish.org which provides an overview of all the fisheries from each country in summarised tables. Feedback will be welcomed on how the system works or on how we can improve it to meet specific needs. These comments should be sent to wiofish@ori.org.za.

AFROBIS under new management

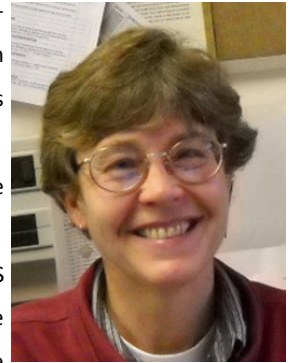
by Marten Gründlingh

The African Node of the Ocean Biogeographic Information System (AFROBIS) is the information component of the Census of Marine Life (CoML), a network of researchers in more than 45 nations engaged in an initiative to assess and explain the diversity, distribution, and abundance of life in the oceans - past, present, and future. OBIS maintains a close link with GBIF (Global Biodiversity Information Facility).

OBIS (and by implication AFROBIS) has now been moved into the IODE fold (International Oceanographic Data and Information Exchange of the UN Intergovernmental Oceanographic Commission). OBIS will continue to expand the global biogeographic data holdings (the Census is far from "complete"), and AFROBIS will still collate data from African data providers. Nevertheless, AFROBIS will also start helping with the collation, digitizing and management of South Africa's marine biodiversity data, and activities that will support this process.

AFROBIS has managed to contribute substantially to the Census, by collating more than 3 million data points for the central OBIS database. This data emanated largely from South African data providers (with data collected mainly off Southern Africa), and to a lesser extent from the rest of Africa. AFROBIS (<http://afrobis.csir.co.za>) and OBIS are complete open to users (the OBIS data

holdings exceed 30 million records). Users accessing AFROBIS are seamlessly linked to OBIS to ensure the best possible data globally.



*Ursula von Saint Ange,
Manager of AFROBIS*

Up to recently the project was executed by Marten Gründlingh and Ursula von St Ange (CSIR Stellenbosch) under the mentorship of Prof Charles Griffiths of UCT. Ursula has been a key member to make it work, and her responsibilities ranged from the system design and database creation, international linking and data transfer, data reformatting and loading, to interaction with users and data providers.

From April this year she has now taken over the general management of the database (in addition to her other responsibilities). Given her in-depth experience with the technical side of the data management, and insight into the data providers and stakeholders, we are confident that she will enjoy the support of data providers and continue the success of the database in the years ahead.

CENSUS
OF MARINE LIFE

 **OBIS** OCEAN
BIOGEOGRAPHIC
INFORMATION SYSTEM





BCC hosts its third science forum

By Claire Attwood

Over 100 marine and fisheries scientists from around the world attended the third Science Forum of the Benguela Current Commission (BCC) in Swakopmund, Namibia in October.

The annual BCC Science Forum provides an opportunity for scientists from the marine research institutes and universities of Angola, Namibia and South Africa (the three members states of the BCC), to report on their work and, in consultation with their peers, evaluate their progress. It also provides an opportunity for scientists from the region to identify areas of mutual scientific interest and discuss collaboration with their international colleagues.

Dr Gerd Hubold, General Secretary of the International Council for the Exploration of the Seas (ICES) delivered the keynote address. He described the work of ICES – the oldest inter-governmental organisation in the world concerned with marine and fisheries science – and drew some fascinating comparisons between ICES and the BCC.



At this year's Science Forum, scientists reported on 19 projects supported and funded by the BCC. The projects cover six broad thematic areas including the ecosystem approach to fisheries; living marine resources research and management; biodiversity and ecosystem health; water quality and pollution; oceanographic and coastal monitoring; and data and information management. They are implemented by scientists working for Angola's Institute of Fisheries Research (INIP) and the Institute of Artisanal Fisheries (IPA); Namibia's National Marine and Information Research Centre (NatMIRC); and South Africa's departments of Agriculture, Forestry and Fisheries and Environmental Affairs.

According to Dr Hashali Hamukuaya, Executive Secretary of the BCC, the scientific research carried out by the BCC will culminate in new policies, legislation and management practices to guarantee the future sustainabil-

ity of fisheries and the associated environment of the Benguela Current Large Marine Ecosystem or BCLME.

"One of the goals of the BCC is to provide the governments of the participating countries with the best available information and expert advice concerning the use and development of the BCLME," said Dr Hamukuaya.

"The carefully considered Science Programme, which is implemented by scientists from the national institutions of the three countries is helping us to achieve this goal."

The Science Programme of the BCC is managed by an Ecosystem Advisory Committee which ensures that scientific investigations are based on priority areas and respond to urgent information and data needs.

Implementation of the Science Programme is generously funded by the government of Norway, while the European Union has provided additional funding for stock assessment through a project known as ECOFISH.



Keynote speaker at the BCC annual Science Forum, Dr Gerd Hubold (General Secretary of the International Council for the Exploration of the Seas) is pictured with Mr Cleophas Mutjavikua, Governor of Namibia's Erongo Region; Dr Hashali Hamukuaya, Executive Secretary of the BCC; and Dr Johann Augustyn, chair of the BCC Ecosystem Advisory Committee.



The annual Science Forum of the BCC, which took place in Swakopmund, Namibia, in October was well attended and provided an ideal occasion for reviewing the scientific activities underway in the Benguela region (zoom to enlarge picture).



Management of estuaries in South Africa, George 2011

By Gavin Snow, Janine Adams and
Taryn Riddin



The coast of South Africa stretches for over 2500 km from the Orange River mouth in the cold temperate west to the Mozambique border, just north of Kosi Bay, in the subtropical east. The coastline is punctuated by over 270 estuaries that act as bottlenecks to rivers that drain catchments into the sea. Each estuary can be valued by the goods and services they provide, which include the supply of living resources such as mangroves, bait organisms and fish, and recreational areas for swimming, boating and fishing. However, estuaries are often cultural and historic centres for coastal communities, serving as focal points for local commerce and recreation. South Africa's population of nearly 50 million people is placing increasing pressure on the limited resources provided by estuaries emphasising the need for improved management.

The Short Learning Programme run by the Nelson Mandela Metropolitan University, Managing Estuaries in South Africa, was held at the Far Hills Country Hotel in George, 4-6 October 2011. This was the sixth presentation of this course and was attended by 28 participants from diverse backgrounds. Previous courses have been held in Port Elizabeth and Stellenbosch. Funding from the FETWater Programme ended in 2010 and the C.A.P.E. Estuaries Programme through CapeNature, coordinated by Mr Pierre de Villiers, agreed to fund this year's course. The C.A.P.E. Estuaries Programme aims to improve the management of estuaries in the Cape Floristic Region by developing Estuary



George 2011 course participants with the Great Brak Estuary in the background (Photo by Gavin Snow).

Management Plans (EMPs) and the capacity to implement them. The Programme is also cooperating with stakeholders to design an Estuary Health Programme for estuary monitoring.

The course was three days long with presentations and breakaway groups on days 1 and 3, and a field excursion to the Wolwedans Dam and Great Brak Estuary on day 2. The content of the estuary management course was presented by Gavin Snow, Janine Adams and Taryn Riddin (NMMU), Lara van Niekerk (CSIR Natural Resources and the Environment) and Pierre de Villiers (C.A.P.E. Estuaries Management Programme). Two NMMU George Campus MSc students, Ms Monique Nunes and Ms Tanja Kaselowski, contributed during the field excursion to the Great Brak Estuary. Topics covered included resource economics, the value and function of estuaries, activities that threaten estuaries, legal mandate and overviews of the C.A.P.E. Estuaries Management Programme and Estuary Management Plans. Each participant re-

ceived a course assessment guide & workbook, and CDs with copies of many publications relating to estuaries. Participants were required to complete an assignment based on four tasks as well as questions linked to the field excursion for evaluation. The assignments were based on knowledge gained from the presentations, tasks that were completed throughout the course and field excursion.

The course has been registered as a short-learning programme at NMMU and based on the positive feedback from the participants should be considered as a long-term method used to train people in estuarine management issues. The course is registered at the Nelson Mandela Metropolitan University as a Short Learning Programme at a proposed NQF level of 8.

If you are interested in attending future courses or just need additional information then please contact Gavin Snow (Gavin.Snow@nmmu.ac.za).



Prof Digby Cyrus awarded SASAqS Gold Medal

By Janine Adams



Prof Digby Cyrus from the University of Zululand was awarded the Gold Medal by the Southern African Society for Aquatic Sciences (SASAqS) at their Annual Conference in Itala Game Reserve, KwaZulu-Natal, which was held during 26-30 June 2011. The Gold Medal is awarded on rare occasions in recognition of an exceptionally high standard of research in the aquatic sciences, or an exceptionally valuable contribution to the management, conservation or development of aquatic ecosystems or resources, over an extended period.

Prof Digby Cyrus has been involved in Estuarine and Near-shore Marine Research for many years, particularly on estuaries and coastal lakes along the Zululand coastline. He has published extensively in national as well as international journals. His publication list to date include 142 publications in scientific journals on estuarine and freshwater

ecology and on coastal ornithology, with his research on Lake St Lucia estuarine system in particular making a significant contribution to our understanding of the ecological functioning of this important estuarine system.

He has also contributed to the publication of 5 books and contributed to a number of review papers on estuarine ecology in international journals. He is one of the founder members of the Consortium for Estuarine Research & Management (CERM) and has been actively involved in promoting estuarine research through CERM, serving on the CERM Steering Committee for seven years. He has served and is still serving on numerous scientific boards, steering committees and councils for many years and is currently on the editorial board of the internationally acclaimed journal, *Estuarine Coastal & Shelf Science*.

As part of the Estuaries Specialist Working Group tasked by the Department of Water Affairs and Forestry with developing meth-

odologies for the determination of Estuarine Flow Requirements and the Rapid Assessment of estuaries, Prof Cyrus has made a significant con-



Prof Janine Adams (SASAqS Vice-President) with Prof Digby Cyrus (SASAqS Gold Medalist).

tribution to the implementation of the National Water Act and Resource Directed Measures for estuaries in South Africa. As founder member of the Coastal Research Unit of Zululand, he was involved in more than 130 environmental research projects and Environmental Impact Assessments.

Prof Digby Cyrus has made a significant contribution as a researcher to the field of Aquatic Sciences in South Africa over the past thirty years—during this time the SASAqS Gold Medal has only been awarded 10 times.

Prof John Field receives prestigious Plymouth Marine Science Award

By Pavs Pillay



Prof John Field, Director of the UCT Marine Research Institute, was recently awarded the prestigious Plymouth Marine Science Award. This honour entailed Prof Field giving a public lecture on a topic of his choice after which he was presented with a silver medallion engraved with his name and an honorarium of £100. The award was established by the Plymouth Marine Science Partnership to provide an arena for prominent marine scientists to share their experiences with the new generation of marine scientists and students as well as the broader public. This annual award recognises researchers who

have made major contributions to their field during their careers.

The lecture series started in 1986 with an inaugural given by Professor John Steele, FRS who was then Director of the Woods Hole Oceanographic Institution. Since then the lectures have covered a wide range of fields in marine science, including the history of oceanography and the awardees have ranged from Prof. James Lovelock (1987 – The Role of the Oceans in Global Change), Prof. John Woods FRS (1993 - Simulating the Upper Ocean Ecosystem by the Langrangian Ensemble Method), Prof. Trevor Platt FRS (1999 - Control of Primary Productivity in High Nitrate Regions) to Prof. Peter S Liss FRS (1992 - How does the Atmosphere Affect

the Biogeochemistry of the Oceans and Vice Versa?) and Prof. Geoff Boxshall FRS (2010 - The Magnitude of Marine Biodiversity: towards a quarter of a million species but not enough copepods!) – to list a few. Prof. Field delivered a talk entitled: “Looking back, looking forward: some personal views on new developments in marine science” and also participated in the Sir Alistair Hardy Foundation plankton symposium that followed over the next three days.





Two Oceans Aquarium receives top marks

The Two Oceans Aquarium was recently awarded Platinum status by the Heritage Environmental Management Company in recognition of its efforts towards sustainability and reducing the impact of its operations on the environment. This achievement comes just four years after the first audit when the Aquarium achieved Silver status.

The Heritage Zoos and Aquaria Rating Programme was developed to provide operators of all types of zoos and aquariums with an effective environmental management system designed to reduce and limit the impact that their operations have on the environment.

Neal Dickinson, Operations Director for the Heritage Environmental Management Company said, "The Two Oceans Aquarium has throughout the years established itself as a leader in environmental management and animal husbandry. A distinct eco-culture has developed within the business, and this culture is mirrored by all staff members (regardless of position), onsite tenants, contractors and members of the general public. We were also very impressed with amount of work that has been done to streamline day to day operations and to reduce overall consumption and wastage".

The Aquarium's Managing Director, Dr Patrick Garratt, said, "We are thrilled with this achievement especially in light of the fact that we will be hosting approximately 500 of the world's top aquarium personnel for the 8th International Aquarium Congress in Sep-

tember 2012. One of the themes suggested by our international peers is sustainability. Our Platinum status not only provides us with credibility but also to showcase the Two Oceans Aquarium as a leader within the field of sustainability in aquariums".

Some of the Aquarium's recent significant achievements include the following:

- A wind turbine and solar panels were recently installed and the energy captured is used to supplement the requirements of the Aquarium's administrative block. Besides the introduction of this renewable energy technology, the Aquarium has also implemented a range of other energy saving initiatives which has enabled it to save over R200,000 in electricity costs.
- Solar panels were recently mounted to the roof of the Aquarium's outreach van which transports live marine animals to schools which cannot afford to visit the Aquarium. Solar energy is used to power the life-support systems for animals. Previously, the van had to be plugged into the electricity grid to charge the batteries, which in turn ran the life-support equipment and systems. Outreach teacher, Thabo Sabeko, confirmed that he has not run out of electricity on his daily trips to schools. Even on days with complete cloud cover, the solar panels still run on 81% capacity and the batteries, which supply electricity to the equipment, continue to charge.
- In July this year the Aquarium's onsite restaurant, Shoreline Café, became the

first restaurant in Africa to be awarded Chain-of-Custody certification from the Marine Stewardship Council (MSC). The certification now entitles Shoreline Café to use the MSC logo for all MSC-certified products sold in the restaurant, such as South African trawl-caught hake, and gives consumers independent assurance that the product is traceable back through the seafood supply chain to the sustainable fishery that caught it.

- Earlier this year, the chairperson of the Aquarium's Green Team, Hayley McLellan, launched a campaign called Rethink the Bag. The aim of this campaign is to encourage people to make use of reusable shopping bags rather than buying new ones every time they go shopping. As a result of this campaign, the Aquarium's Managing Director, Dr Patrick Garratt, banned staff and volunteers of the Aquarium from bringing plastic bags onto the premises.

This rating programme represents southern Africa's first eco-labelling option for zoos, aquaria and botanical gardens and enables businesses to demonstrate their environmental performance by being independently reviewed and rated. It is the only environmental rating system in this sector worldwide, and the pre-eminent environmental management system in this field in Africa, with evaluation standards generally exceeding those of countries such as the United States, Australia and the United Kingdom.

According to Greg McManus, Managing Director of the Heritage Environmental Management Company, "Heritage offers an opportunity for zoos and aquariums to change the way in which they interact with their environment - both natural and human, with a practical, hands-on approach to resource management that delivers financial returns, while at the same time positioning the facility as environmentally responsible".





Retailer commits to sustainable seafood procurement

By Chris Kastern



Pick n Pay recently positioned itself as one of the more responsible retailers in South Africa when it announced its decision to transform its fresh, frozen and canned seafood operations to only sell sustainable seafood over the next few years.

They committed that, by the end of 2015, they would strive to only sell seafood products that are either:

- 1) Certified by the MSC (Marine Stewardship Council);
- 2) Certified by the ASC (Aquaculture Stewardship Council);
- 3) Green Listed according to WWF SASSI (Southern African Sustainable Seafood Initiative); or
- 4) From fisheries engaged in a credible, time bound Fishery Improvement Project.

The announcement follows a three year engagement between Pick n Pay and WWF SASSI and resonates with similar public commitments made by other major retailers around the world.

In announcing a time-bound commitment, Pick n Pay sends a clear message to their suppliers and source fisheries that sustainability is not just a 'nice-to-have' and needs to be actively pursued. Pick n Pay has also pledged that where products do not meet their sustainability requirements, they will endeavour to engage with these suppliers/ fisheries to help them improve their operations in order to comply with their new procurement policy. This collaborative approach should serve as an example within the seafood industry of how the corporate



Dr Morné du Plessis (WWF South Africa's Chief Executive Officer) and Bronwen Rohland (Director of Marketing and Sustainability, Pick n Pay) at the launch of the WWF Fisheries: Facts and Trends South Africa report. Photo by Helen Gordon.

sector can actively get involved in driving positive change. A proactive step such as this will ensure a sustainable supply chain for the retailer that will hopefully in the long term, also provide stable pricing.

The retail sector plays a vital role in creating market-driven incentives to catalyse change at sea. Pick n Pay, by supporting sustainable seafood choices from legal and responsibly managed sources, can and will help drive positive change in fisheries. These views were echoed in response to the announcement by Dr Morne du Plessis, CEO of WWF-SA "This is a giant leap forward in our ongoing efforts to keep our fish stocks at healthy levels. WWF believe that corporate engagement is key to transforming markets as well as for adopting and promoting sector-wide shifts to sustainable development and corporate best practice. Many marine ecosystems are currently facing unprecedented threats from human activities such as over-fishing and climate change. We congratulate Pick n Pay for leading the way in setting these tangible conservation goals for the retail sector."

Pick n Pay's commitment also aims to recognise the significant strides various sectors within their supply chain have already made towards the sustainable supply of seafood. The important role suppliers need to play was evident by the fact that many were in attendance at the recent launch of the WWF Fisheries: Facts and Trends South Africa report, which was also used to publically highlight the significance of the retailer's commitment.

Bronwen Rohland, Pick n Pay's Director of Marketing and Sustainability said, "As one of the country's largest retailers, we cannot ignore the fact that seafood is inextricably linked to food security and that it provides the primary source of income for some 2.6 billion people globally. We see our role as a retailer and significant player in the seafood industry as driving positive change in the fishing industry by supporting and promoting sustainable seafood choices from legal and responsibly managed sources."

Rare fish found at Goukamma Nature Reserve

By Brenton Booysen



While on a routine foot patrol along the coast of the Goukamma Marine

Protected Area, Field Ranger Brenton Booysen made this discovery of a beached *Mobula japonica*, commonly known as a Devilray or Spinetail Mobula.

M. japonica is a fish species that occurs circumglobally in all temperate and tropical seas but its' distribution has not yet been defined. Its natural habitats are open seas, shallow seas, and coral reefs (Source: IUCN Red List - www.iucnredlist.org/) It attains a length of at least 310cm and has large fins and whip-like tails with a small dorsal fin. They have 2 horn-like fins on their heads which are called cephalic fins.

Devilrays are highly susceptible to gillnets. There is a high demand for Mobulas and they are targeted for their skin and meat. It is known to be landed in Mexico, Indonesia and the Philippines. Their gill rakers are in high demand in Mozambique, Brazil and Asia where it is believed that eating the gills boosts the body's immune system.

In 2004 Mobulas, or as they are more commonly known, Mantas, were identified by CITES on the IUCN list as Near Threatened. Despite this, the trade is following the same pattern as the shark fin business. These magnificent ocean creatures may silently disappear before our eyes.





New membership on the SANCOR Steering Committee



The Committee has seen several changes in its membership in the past year: Prof Ticky Forbes was elected as the new SANCOR Forum Chair. Prof Michael Schleyer was re-elected as the Kwa-Zulu Natal Representative and SANCOR Steering committee Chair. Dr Ronel Nel completed her term as the Eastern Cape Representative and Ms Anusha Rajkaran was elected to this position. Earlier this year, Ms Camilla Floros ended her term as the Student Representative and Ms Paula Patrick was elected at the 2011 South African Marine Science Symposium.

We welcome our new Steering Committee members and extend our gratitude to the outgoing members of the Steering Committee. They have served with dedication and enthusiasm. We would also like to extend a heartfelt thanks to Prof William Froneman who served as Steering Committee and SANCOR Forum Chair. We thank him for his leadership, commitment of time and for contributing to the activities of SANCOR over the years. Prof Schleyer is the new SANCOR Steering Committee Chair and we wish him every success in his new role.

Groupers of the World - A Field and Market Guide

Authored by Matthew Craig, Yvonne Sadovy de Mitcheson and Phillip Heemstra, *Groupers of the World* is a detailed but easy-to-use guide to all of the more than 160 recognised species of these mostly large, colourful, tropical reef fishes, also known as rockcod.

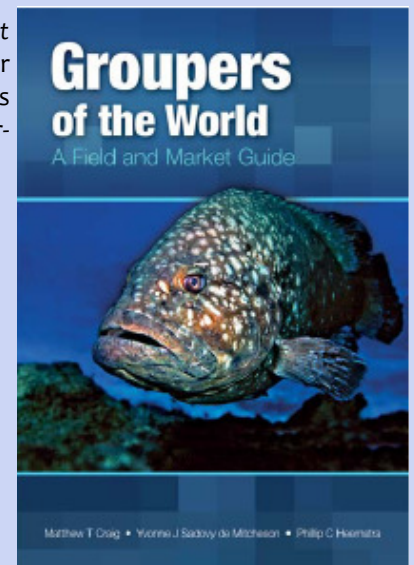
The book has detailed line drawings of each species and more than 350 colour photographs depicting the living fish in their natural habitat as well as dead specimens, mostly photographed in markets. Photographs show distinctive colour differences between adults and juveniles, as well as regional colour variations. The wealth of photographs and illustrations together with clear descriptions allow for reliable identification of any of the species, even by those unfamiliar with groupers.

Together with the outstanding photographs of these remarkable and important fishes, *Groupers of the World* has up-to-date biological, ecological and population information for each species, including an assessment of conservation status. Individual colour maps and descriptions summarise the known distribution of each of the groupers. The bibliography of almost 1000 references will be very useful to anyone working in the field.

Groupers of the World: a Field and Market Guide is an indispensable publication for fisheries scientists and managers, as well as for divers, anglers and those with an interest in reef fishes in general.

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