First Issue of a New Newsletter for SAIAB

Historically the South African Institute for Aquatic Biodiversity (previously the JLB Smith Institute of Ichthyology) put out a quarterly newsletter, ICHTHOS. However, due to sponsorship cutbacks this was discontinued at the end of 2005. The newsletter was a great tool in terms of public engagement, enabling researchers, staff and students to report on their research, fieldwork and other topics of interest in a popular and accessible manner. So we have decided to come up with a new quarterly newsletter for SAIAB, the Nomathotholo. The name has more than one meaning, the first being “tiny messengers”. These little spirits, no bigger than walnuts, are sent all round the world to gather knowledge (Penny Miller, 1979, Myths and Legends of Southern Africa p.101). Nomathotholo is also an old Xhosa word for the radio (which broadcasts news/messages)!

This newsletter is a brief review of SAIAB’s highlights and achievements.

Best Emerging Young Scientist  By Penny Haworth

Dr Nadine Strydom, a larval fish biologist at SAIAB, was awarded “The Best Emerging Young Scientist” award by The Department of Science and Technology (DST). The annual DST Women in Science Awards aim to profile the achievements of leading women scientists within the South African science system.

Dr Strydom was recognised for her work in the biology and ecology of larvae of coastal fishes through which she has successfully and independently identified research gaps. The adjudicators praised her work by saying it has the potential to impact not only the fishing industry but also the environmental debate surrounding marine resources.

Dr Strydom has also designed and implemented a larval fish lecture course that is currently included in the Ichthyology second year syllabus at Rhodes University and the Zoology Honours syllabus at the University of Fort Hare. Previously, the research discipline was not represented in course content. Dr Strydom’s work has also made an impact internationally and one example of her growing international recognition came when a research scientist at the Tasmanian Aquaculture & Fisheries Institute, Dr Francisco J. Neira, commented that Dr Strydom’s “experience in the field of larval fish biology in estuaries was a key factor for her to be nominated as the international examiner of a student who just completed a PhD thesis at the University of Tasmania”.

Freshwater Needs of Estuaries Assessed  By Alan Whitfield

In April 2005 the Consortium for Estuarine Research and Management initiated a multi-disciplinary and multi-institutional project to investigate the freshwater requirements of small Intermittently Open Estuaries (IOEs) such as the East Kleinemonde. A major goal of the project, led by Dr Alan Whitfield at SAIAB, was to gain an improved understanding of the link between river, estuary and the sea that will assist the Department of Water Affairs and Forestry in determining fresh water allocations to small estuaries in the Eastern Cape.

During 2006 a considerable amount of fieldwork was conducted on the East Kleinemonde Estuary in a number of different disciplines, including sediment dynamics, hydrodynamics, aquatic plants, invertebrates, fishes and birds. This research informed a Resource Directed Measures (RDM) workshop held in April 2007 in which the freshwater requirements of the estuary were examined in detail and an Ecological Reserve (water quantity and quality) calculated for this system.

Important outcomes of the workshop included the allocation of the estuary to a Category B ecological status or “largely natural with few modifications”. It was also determined that the East Kleinemonde Estuary is very vulnerable to non-flow related human activities such as fishing, power boating and nutrient loading. The present level of urban development around the estuary acts as a constraint and prevents the system from being rehabilitated to a Category A. Thus, the workshop concluded that the recommended Ecological Reserve for the estuary into the future be maintained in a Category B. This will require the co-operation of local councillors, planners, developers, managers, farmers and residents of Kleinemonde.

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Have your say:

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Aerial view of the East and West Kleinemonde Estuaries (left and right respectively)
SAIAB’s scientists and technical staff are making a meaningful contribution to the Consortium for the Barcode of Life’s (CBOL) collaborative attempts to produce a reference DNA sequence for every species on the planet. More than 700 specimens, representing 400 species of marine fish from the Western Indian Ocean, and 82 specimens (36 species) of southern African freshwater fish have been barcoded, directly through SAIAB’s involvement.

SAIAB’s commitment and involvement at an organizations level saw Prof. Paul Skelton attending a high-level strategizing meeting in Guelph earlier in the year, where funding and capacity needs and opportunities were discussed. Recently, Dr Monica Mwale attended a barcoding workshop in Nairobi, Kenya organised by the East African Barcoding Initiative (EABI) and the Museums of Kenya on barcoding of cyprinids. This meeting was a first for the African regional working group the Fish Barcode of Life (FISH-BoL) initiative and was attended by fisheries scientists and taxonomists from Kenya, Tanzania, Uganda, Rwanda and Ethiopia. Earlier in the year, Monica had also attended a training workshop in Lucknow, India, hosted by the National Bureau of Fish Genetic Resources and supported by CBOL and the Census of Marine Life. In September, Dr Ernst Swartz attended the 2nd Barcode of Life Conference and associated meetings (such as the Marine Barcode of Life meeting) in Taipei, Taiwan. He presented an overview of the progress made and challenges faced by the African FISH-BoL Working Group, as well as to fisheries management agencies at a separate FISH-BoL meeting. As SAIAB’s Western Indian Ocean and Eastern Atlantic projects develop, the idea of combining barcoding data for the whole Southern Hemisphere with partners from Australasia and South America may become a reality.

Development of the biomaterials collection facility, which underpins SAIAB’s contribution to the global barcoding initiative, is progressing well. The new National Fish Collection building is undergoing some minor modifications to accommodate the freezers and a designated working area for processing tissue and DNA samples and the team is currently recruiting a biomaterials officer to assist in the managing and organization of the facility and the rapidly expanding collection.

**SAIAB Leads Global Barcoding Efforts in Africa**

By Monica Mwale, Poogendri Reddy, Ernst Swartz & Gavin Gouws

Mozambique Ecosystem Survey

By Elaine Heemstra

Phil and Elaine Heemstra were invited to participate in the Mozambique Ecosystem Survey on the Norwegian research vessel, R/V Dr Fridtjof Nansen, from 27 September to 10 November 2007. The survey covered the continental shelf between 20 and 100 m with bottom trawling, pelagic trawling, hydroacoustics, plankton and benthos samples from near the South African border with Mozambique to north of Pemba. The Heemstras monitored the trawls and were involved with fish identification during the survey. They preserved and photographed specimens and collected material for otolith extraction and DNA analysis. Phil and Elaine were helped by teams of Mozambican scientists as well as staff from the Institute of Marine Research in Norway.

**Angola Fish Diversity Project**

By Ernst Swartz

SAIAB and the Instituto Nacional de Investigação Pesqueira (INIP) in Angola are collaborating on their first project, focussing on the fish diversity of the middle and lower Kwanza River. INIP has been tasked to investigate the fisheries potential of the river and has prioritised biodiversity investigations and a species list, before accurate assessments of fisheries potential can be done. The main sponsor of the project is the National Research Foundation through its Southern African Regional Collaboration Fund.

The two year project is nearing the end of its first year and more than 50 species have already been recorded in three short surveys and one extensive survey. A simple guide to the fishes of the Kwanza River is being developed and is updated after every survey to include species that are new to the project. Some species may even be new to science, but morphological and genetic analyses will be done before such species can be described.

The Kwanza fish diversity project has a fisheries component led by Dr Olaf Weyl from the Department of Ichthyology and Fisheries Sciences (DIFS, Rhodes University), which allows the project team to make a preliminary assessment of fisheries activities, around which future fisheries research can be planned.

Collecting techniques, fish identification and curation procedures will be the main topics of workshops that will be held at SAIAB in 2008, attended by project participants from SAIAB, INIP and other Angolan partners. During this time, the project leaders and principles will plan the final field surveys and research products and publications for 2009.

**Snippets:**
- Dr Martin Villot, of the Department of Zoology and Entomology, Rhodes University, and Honorary Research Associate of SAIAB, has been recently promoted to full professor.
- Franz Uiblein, Principal Scientist from the Institute for Marine Research in Bergen, Norway, visited SAIAB at the end of November and also gave a public talk on the ecology and systematics of goatfishes.
Roger Bills, freshwater aquatic biologist at SAIAB, presented a Fish Identification Course, from 10 to 14 September 2007. The aim of the course was to improve the skills of Mozambican Department of Fisheries Officers in identifying freshwater fishes. Experience in the field in Mozambique has shown that using keys to identify fish is a skill that needs developing, so this course has been designed specifically around identification keys. Attention is turning to artisanal fisheries as well as the larger commercial fisheries, so there are many more species involved and the need for accurate identification covers all species that are caught. Identifying these species has become a critical first step in being able to manage fisheries resources in Mozambique.

In most cases fishes and examples used in the course were from or relevant to Mozambique. Talks given were about fish diversity in southern Africa, characteristics of fishes used for identification, the use of identification keys and methods of field work.

The SAIAB-IUCN project mapping system, developed to keep track of fish distribution in Africa, was demonstrated and digital copies of the system were provided to the participants. The use of the SAIAB-Department of Ichthyology (Rhodes University) Library was demonstrated and participants encouraged to use this during free time. Participants were also taken out into the field where Roger demonstrated various methods of collection, fish preservation and data collection.

In the future, SAIAB researchers will visit Mozambique to help with further developing fish identification skills. This will be done by running follow-up identification courses in the field and/or biodiversity surveys together with fisheries officers. During biodiversity surveys time will be set aside for fish identification and survey technique skills development. The bonus for this latter method would be the development of biodiversity records for areas of poor knowledge.

ACEP Entering New Phase  By Professor Paul Skelton

The African Coelacanth Ecosystem Programme (ACEP) has recently completed an exciting and successful cruise that included the Mozambique channel and waters offshore of Tanzania where as many as nine coelacanths were observed and filmed using a Remote Observation Vehicle (ROV). The 2007 cruise was the final exercise for the programme under the management of Dr Tony Ribbink who has been the leader and driving force for the project since its beginnings in 2002. ACEP is now entering a new phase of development under a new contractual agreement between the DST and the NRF with SAIAB as the executing unit. The new phase is a five year programme worth R25 million starting in 2007 and ending in 2012. The new phase will see ACEP working closely in tandem with the larger Agulhas Somali Current Large Marine Ecosystem Programme (ASCLME) in the region, funded by the United Nations Development Programme (UNDP) and Global Environmental Facility (GEF). In the new phase, ACEP will function within a revised funding model by which SAIAB will manage and develop the programme, a portion of the funds will be available to provide the research platform in the form of annual cruises and workshops and the majority funds will be as grants to researchers under an NRF open call for proposals. The NRF ACEP research call is currently open and proposals will be submitted by January 2008 and successful proposals determined by March 2008. SAIAB is presently setting up a new management for the project so that the planning and development can proceed without delay in conjunction with ASCLME and other major partners such as MCM in Cape Town.

Dr Angus Paterson has been appointed as the new ACEP manager and the programme will be run through the SAEON Elwandle Node which is hosted by SAIAB.

ASCLME By David Vousden

A new major regional Programme for management of the marine ecosystems of the western Indian Ocean was recently launched at the Conference of the Nairobi Convention in Johannesburg.

The Agulhas and Somali Current Large Marine Ecosystems Programme (ASCLME) is a multi-project, multi-agency initiative to institutionalise cooperative and adaptive management of these Large Marine Ecosystems. The Programme consists of three sister projects: one that address land-based sources of pollution (implemented by UNEP); one that builds knowledge for the purposes of managing industrial fisheries (implemented by the World Bank); and a third project which is run by the United Nations Development Programme (UNDP) and which is addressing offshore oceanography and ecosystem mapping as well as near-shore fisheries and related species and habitat concerns. The UNDP Project is also responsible for coordination between the sister projects and within the overall ASCLME Programme. This UNDP Project is being hosted by SAIAB. Doctor David Vousden has recently arrived in Grahamstown as the new Project Director for the ASCLME project.

The Project is funded for five years by the Global Environment Facility (GEF) and involves nine countries - Comoros, Kenya, Mauritius, Mozambique, Seychelles, Somalia, South Africa, and United Republic of Tanzania.

International Year of the Reef 2008

International Year of the Reef 2008, as designated by the International Coastal Reef Initiative, is a worldwide campaign to raise awareness about the value and importance of coral reefs and threats to their sustainability, and to motivate people to take action to protect them.

http://www.iyor.org/

2008 - Year of the Frog

The main goal of The Year of the Frog campaign, led by AArk, is to generate public awareness and understanding of the amphibian extinction crisis which represents the greatest species conservation challenge in the history of humanity.

http://www.amphibianark.org/yearofthefrog.htm

We’re on the Web! http://www.saib.ru.ac.za
Plymouth, UK 9-13 April 2007

As part of the GOOS-Africa Remote Sensing Working Group, I attended a working meeting at the Plymouth Marine Laboratory (PML) for the development of a proposal for a collaborative FP7 Specific Support Action Project to develop capacity for marine remote sensing in Africa. The proposal builds on several current projects and initiatives, including the Remote Sensing Server Project developed by ACEP and now hosted at the Ma-Re Institute (UCT), and the ChlorOGIN Project (a pilot project of GOOS-Africa).

In addition to the immediate benefits of consistently and rapidly delivered data products, the programme is intended to reinforce and strengthen ongoing national and regional efforts to develop and profit from marine remote sensing. Our European partners are also in full agreement that training should take place in Africa, be led by African institutions, and have a strong focus on sustainable capacity development.

Mombasa, Kenya 15-22 April 2007

At the WIOOMSA conference in Mauritius of August 2005, a resolution was passed to create a forum of leaders of projects and institutions which are active in the Western Indian Ocean region. The first meeting of the forum was held in Mozambique in 2005 and the second was held in Tanzania in 2006. I was invited to attend the next workshop in the series in Mombasa, which was a bid-writing workshop, in which institutions were invited to work together to develop a proposal for a new project to strengthen capacity and funding for WIO-driven research.

It was most important that ACEP make input into this joint proposal in Mombasa to ensure that regional projects such as ACEP and the ASCLME contribute to, and are partners in the new marine project. Regional work done to date will inform the new project, which must also be complimentary to existing and ongoing projects in the WIO. Our representation was essential to ensure that we were part of the project consortium.

The workshop was successful in that there is now a clear way forward for the development of the proposal which will take place at subsequent meetings in the region, the next being held immediately after the WIOMSA conference in Durban in October.

Ostend, Belgium 2-9 June 2007

The Ocean Data and Information Network for Africa (ODINAFRICA) project identified the development of marine atlases as their key flagship project for development in 2006. A digital GIS atlas library of marine data was produced for Africa, containing a broad spectrum of informative geo-information about the coasts and oceans. The African Coelacanth Ecosystem Programme, on the basis of its activities in the WIO region, and on the development of its own pilot marine GIS atlas, was identified as a key stakeholder in the Western Indian Ocean Region. I was designated one of five editors, with the responsibility for managing the African Biosphere data themes. As such I will be involved with the development and production of atlas products.

The African Marine Atlas will continue to be augmented with new datasets, as the partners discover and convert them to GIS formats, a considerable undertaking. Participants in the AMA initiative include representatives from UNEP, ACEP and data managers from Benin, Ghana, Kenya, Mauritania, Mauritius, Mozambique, Namibia, Senegal, Seychelles, South Africa, Tanzania and the USA.

Local Education Outreach

By Noziphiwo Hambaze

The Bloukrans River Water Quality Monitoring Project is part of SAIAB’s Educational Outreach programme, initiated by Mr Gaji Magajana (Senior Education Officer) with Makana Primary School as a pilot project. The Bloukrans River runs through Grahamstown, and at this stage the project involves three local schools, Makana Primary, N.V.Cewu Primary and D.D.Siwisa Primary.

The aim of the project is to introduce learners to basic scientific methods of investigation that they would not normally be exposed to. It also aims to assist educators to deal with environmental issues in the curriculum by creating awareness about concerns in the local context.

In October this year, D.D. Siwisa learners spent time in the field over a five day period, taking and analyzing water samples, learning about aquatic invertebrates and gaining an understanding of basic water quality monitoring and observation methods.

The Great Trek: Collections Move

After months of packing and moving, the National Fish Collection is now housed in the new Collections Facility next door to the SAIAB building. Type specimens, very large specimens and the DNA collection will soon follow.