

## **Sub-Saharan Africa Regional Steering Committee**

Chairperson

Prof Charles Griffiths

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Vice Chair-person: None appointed

Project Manager: none

Education and Outreach Network Liaison: none

### **1. 2006 ACCOMPLISHMENTS & SCIENTIFIC HIGHLIGHTS**

This is a small group, consisting of (a percentage of the time of) Charles Griffiths and his research students, who are conducting research on African marine biodiversity patterns, a regional committee, who have not met in person this year, but have contributed to two regional meetings, and the AfrOBIS node, which is managed by Marten Grundlingh, and which will submit its own report separately. Our scientific activities in the last year are listed under subheadings below.

#### **a) Research findings**

Several research projects dealing with marine biodiversity in the region are underway under the supervision of the regional chair. These include:

-A project being undertaken by Hannah Medd (MSc student) attempting to estimate the unknown marine biodiversity of South Africa. We have used a variety of techniques to evaluate our current state of knowledge, which gives the known number of marine faunal species as 11 130. Comparisons between the taxonomic composition of African and European faunas indicate that at least 6 000 additional macroscopic marine species remain to be described, mainly among the smaller sized taxa, such as Nematoda, Copepoda, Platyhelminthes, etc. An analysis of the species richness of benthic samples collected from different parts of the country shows that samples from the east coast are far more species rich than those from the south, which are in turn richer than those from the west. Sampling has, however been most intense in the west and south, but sparse to the east. As a result east coast diversity is greatly under-represented and remains a priority for future sampling effort.

-Another Masters thesis by Robyn Scott is examining biodiversity and range patterns of marine species around the coast of Southern Africa. The west coast shows lowest diversity of all taxa. Many groups become progressively more species rich as one moves into the tropical east coast, but others show maximum species richness in the south, declining again to the east. The net result is that overall species richness appears low in the west and relatively uniform along the south and east coasts (but note the latter is under-sampled –see above). A very interesting finding is that large numbers of species are restricted to very narrow ranges (of 300 km or less) around the ecotones between biogeographic provinces, especially where the warm south and cold west coast provinces join at Cape Point.

-In a third masters project Kate Watermeyer is attempting to use Ecopath and Ecosim models to recreate trophic flows in the Benguela as they existed before the arrival of western settlers. This is a

contribution to the Benguela HMAP project and develops on the review of human impacts in the Benguela by Griffiths et al. (2004).

- A morphological and genetic study by honours student Max Edkins has shown that the well-known and widespread crab *Hymenosma orbiculare* is in fact five well separated species. A paper is complete and about to be submitted to Crustaceana.

-Other scientific highlights include the discovery of a number of interesting new taxa by the group. The most significant of these was a new and impressively large species of rock lobster from the Madagascar Ridge (Groenevelt, Griffiths and van Dalsen 2006). This is already attracting the interests of commercial fishers and unfortunately lies in international waters, where fisheries control is impossible. Other discoveries include two new commensal species from crinoids – a new shrimp (*Hippolyte*) and the first record of the enigmatic group Myzostomida from the region. Several new taxa parasitic on sharks are also under description by PhD student Eleanor Yeld, including the first record of an elasmobranch trypanosome from the region (Yeld and Smit 2006).

#### **b) OBIS node**

A full report on the node will be submitted elsewhere, but since scouting for OBIS data in particular has been an activity of members of this committee a summary is provided below

**Summary:** Over the first 9 months AfrOBIS activities shifted from system development to data scouting and loading. Digitisation of data from the Iziko Museum, Cape Town involved two digitisers (one resigned in November and was replaced on 1 January). To date the following organisations have become **data providers** to AfrOBIS:

South African Institute for Aquatic Biodiversity (SAIAB), Grahamstown  
Iziko Museum (Cape Town)  
Natal Museum (Pietermaritzburg)  
MCM (Cape Town)

Organisations that have agreed **in principle** to become data providers (but whose data needs to be digitised) are

Bolus Herbarium, University of Cape Town  
Selmar Schonland Herbarium, Grahamstown  
Oceanographic Research Institute, Durban  
East London Museum, East London

The amount of data that the scouting has located to date exceeds 360 000 records.

The data **submitted** to AfrOBIS until 31 March 2006 was 220 167 records. This includes marine mammals, sharks, plankton, seals, pelagic fish, demersal fish and molluscs.

A total of 86 854 records have been **loaded** until 31 March 2006. The rate to date has been about 40 000 – 50 000 per quarter (for two quarters), with another 3 quarters to go.

The digitisation of seaweed data from the Bolus Herbarium (Cape Town) is being pursued. The data scouting from the rest of Africa is not progressing as hoped.

Since this report was compiled another 1 million records have been located, mostly line-fish data from Marine and Coastal Management, and will be processed shortly. Although we have had remarkable success and collaboration in our interactions with South African based data holders, the lack of positive response from other African countries is a concern

**c) Committee activities and regional meetings**

The regional NRIC has not held a face-to-face meeting since its original conference meeting in 2003, communication between members being by email. This is partly for logistical reasons (South African regulations prohibit the purchase of air tickets in South Africa that do not land in South Africa, so only meeting here are possible!) but mainly because no issue specifically demanding a face-to-face meeting has been identified. There have nevertheless been two CoML related meeting held in the region at which the committee was represented. These were:

- A NaGISA Indian Ocean Protocol Workshop held in Mombasa in June 2006 and attended by Charles Griffiths on behalf of the NRIC. This meeting brought together researchers interested in rocky shore and seagrass systems from throughout the continent and initiated several potential projects. These include a possible latitudinal seagrass transect from the equator to the Cape, for which the South African samples have already been collected (student Vanessa Anastassiou working under CLG).
- A joint meeting of the Indian Ocean and African NRICS held in Dar-Es Salaam in September 2006 at which the African group was represented by Charles Griffiths, Yunus Mgaya and Edward Kimani. This discussed a host of issues relating to collaboration, participation in field projects etc. Full minutes are still being compiled and will be available shortly

**d) Conference presentations and publications**

Members of my group have made quite a large number of conference presentations since our last report, as follows:

**Dynamic Planet Conference, Cairns Australia, September 2005**

- Griffiths, C. L. Getting to grips with Africa's unexplored marine biodiversity (**Invited address**)

**34<sup>th</sup> Congress of the Parasitological Society of Southern Africa. September 2005**

- Yeld EM, Smit NJ & Griffiths, CL. Biodiversity and community structure of the parasites of two endemic catshark species.

**Oceans Past: Multidisciplinary perspectives on the history of marine animal populations. Denmark, October 2005**

- Watermeyer K & Griffiths CL Ecopath models of the Benguela in eras past.

**Census of Marine Life: second All-programme Meeting, Hamburg, Germany, November 2005.**

- Griffiths, CL Africa's undiscovered marine biodiversity

**Diversitas: OSC1. Oaxaca, Mexico, November 2005**

- Griffiths, CL Getting to grips with Africa's unexplored marine biodiversity (*invited address*)

**Indian Ocean Marine Workshop, Muscat, Oman, January 2006**

- Griffiths CL: Fisheries of SE Africa
- Griffiths, CL: Indian Ocean Biodiversity

**CoML/NaGISA Indian Ocean Workshop, Mombasa, June 2006**

- Griffiths, CL The Census of marine Life Programme in Africa

**100 South African Society for Systematic Biology, Kruger Park, July 2006**

- Griffiths, CL: Hotspots of Biodiversity and endemism in the South African marine fauna

Relevant publications are listed under that heading below

## **2. SOCIETAL BENEFITS, IMPACT & APPLICATIONS**

- South Africa has a vigorous marine conservation policy with over 20% of the coastline under conservation. Our data has been used in helping to plan this reserve network.
- We have contributed to the South Africa 'State of the Environment Report for 2005' with special reference to marine biodiversity.
- Our data have been directly applied by the South African National Biodiversity Initiative and Spatial Biodiversity Assessment.

## **3. WORK PLANNED FOR 2007**

Over the next 12 months the following plans are in place:

- To attend the SSC meeting in Nara Japan in October 2006, followed by the NaGISA World Congress
- - To apply for joint NaGISA/HMAP funding to repeat the coastal survey of South Africa undertaken by Stephenson, Day and co-authors in the 1930's and to look for changes in species ranges and possible indicators of marine climate change since that time.
- Embark on a new South African National Research Foundation funded project to evaluate the effects of trawling on marine biodiversity along the west coast of southern Africa. This funding includes posts for taxonomic research on anemones, crabs and echinoderms
- Several project are also underway to describe specific new taxa eg four new species of *Hymenosoma* crabs recently revealed by genetic work (see above).

## **4. EDUCATION & OUTREACH**

Much of our work is educational in that it involves training of graduate students. Public outreach has been limited, although Charles Griffiths delivered the prestigious and public JLB Smith Memorial Lecture in Grahamstown in September 2005 on the topic of marine biodiversity in Southern Africa. The recent discovery of a new lobster species has also received some press coverage, with other magazine articles still to appear.

## **5. GEOGRAPHIC EXPANSION**

Charles Griffiths attended a meeting in Oman in January 2006, one of the aims being to expand CoML onto the Gulf region. Useful contacts were made at the Sultan Qaboos University and Dr Michel Claereboudt expressed his willingness to convene a CoML group. This information has been transmitted to SSC members for possible action.

Interaction with other African countries has been disappointing, both because they lack capacity and because they appear extremely reluctant to contribute data to OBIS (for ownership reasons). However an invitation was made to partially fund committee member A K Armah from NRIC funds to attend and deliver a talk at the Dynamic Planet meeting in Cairns, which he did.

## 6. PARTNERSHIPS & COLLABORATION

### a. Partnerships

Organization Name	Point-of-Contact (Name)	Nature of Relationship
BCLME	Dr Neville Swiidj	collaboration
ASLME	Dr David Laroche	collaboration
African Coelacanth Ecosystem Programme	Prof Tony Ribbink	collaboration

### b. Links to CoML Ocean Realm Projects

Project Name	Liaison or Cross-over personnel	Nature of Relationship
NaGISA	Edward Kimani, Robin Rigby	collaboration

### c. Links to other CoML National and Regional Implementation Committees (NRICs)

NRIC	Liaison or Cross-over personnel	Nature of Relationship
Australia		
Canada		
Caribbean		
China		
Europe		
Indian Ocean	Mohideen Wafer	Close collaboration, shared meetings and interests and shared area of interest
Japan		
South America		
Sub-Saharan Africa		
USA		

### d. Liaisons to CoML Cross-Cutting Groups.

Project Name	Liaison Name & Institution	Nature of the Relationship
OBIS	Marten Grundlingh	AfrOBIS manager
HMAP	Charles Griffiths	Local team leader
FMAP		
SCOR Tech Panel		
E&O		
Barcoding		

### e. Effectiveness of the Partnerships and collaborations

Relationships are few but good.