

Phycological Society of Southern Africa



**Newsletter
No. 61
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From the Editor

As you are all aware, the upcoming joint PSSA/SASAqS conference is well underway. I hope you've all registered by now, or at least contacted the organisers (Richard Greenfield - rgr@na.rau.ac.za) to arrange to register later, as the registration deadline has been reached (28 February 2006).

You would have noticed that we've included the 2006 ballot papers for the election of the new PSSA council. Please mark your choice and return your ballot papers as soon as possible ... before you forget ... despite the May deadline stipulated. Included in the *News and Reviews* segment are notifications of 3 documents for your perusal. These can be downloaded from the Society's website; just follow the *Notices* navigational link. Please take note that there are deadlines, so please respond timeously to avoid invalidation of your responses.

Remember to send any and all information you think may be of interest to the society on to your regional collators (details below).

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Best wishes

Sincerely

Gavin

Synarthrophyton patena
epiphytic on *Gelidium capense*



News and Reviews

1. Election of New PSSA Council

The PSSA Council consists of five people – the President, either the President Elect or Immediate Past President, the Secretary/Treasurer, the Membership Secretary and the Newsletter Editor. The Secretary/Treasurer, Membership Secretary and Newsletter Editor are elected prior to every second General Meeting (GM). The President Elect will serve on the Council for four GMs for which he/she will hold the posts of President Elect (1 GM), President (two GMs) and Immediate Past President (1 GM). All retiring Council members are eligible for re-election.

The President is responsible for the co-ordination of the Society's business and will preside at all PSSA meetings. For a bit of PSSA trivia – Rob Anderson and Bruce Robertson hold the record for presiding over the shortest GMs lasting only 50 min (Meerensee 1996 and Swakopmund 1999 respectively). The President Elect/Immediate Past President will perform the duties of the President if he is unable to do so. The Secretary/Treasurer maintains the records of the Society such as minutes of the GM and controls the financial transactions of the Society. The Secretary/Treasurer must also present a financial report at each GM that has been audited by another member of the Council. The Membership Secretary is responsible for the membership records and the collection of the annual subscription. The Newsletter Editor disseminates information concerning the Society and matters of mutual interest. This takes the form of newsletters produced 3-4 times a year and maintaining the Society's webpage.

The procedure for the election of PSSA Council Members is laid out in the PSSA Constitution. The Secretary/Treasurer of the Society requests nominations for the various portfolios prior to every second GM. If nominations are not forthcoming, the council can appoint an Electoral Officer who will solicit nominations from the membership. Luckily this did not happen this time with replies being received from five members. The people nominated are then asked if they are



prepared to stand on the PSSA council. For this current election, many nominees felt they were not able to stand due to other work commitments or in the case of student members, uncertain futures.

The ballot is then sent to all members. It is specified in the Constitution that this be a postal ballot but with the rising postal costs and advent of e-mail, perhaps discussion should be given to changing the Constitution to allow voting by e-mail as at the last election in 2003, very few ballots were returned. If any of the nominees receive the same number of votes, there will be a further vote of the members present at the GM and if necessary, the President will have the casting vote. The new council is then ratified at the GM and assumes their duties for the next 2-3 years, depending on the timing of the subsequent PSSA Congresses.

Wendy Stirk

PSSA Secretary/Treasurer

2. Invitation from BotSoc

The Botanical Society of South Africa (BotSoc) greatly welcomes diverse inputs from all those who are concerned with biodiversity conservation of the South African flora. BotSoc itself focuses primarily on terrestrial systems, and we are well aware that members of the PSSA have our aquatic habitats as their focus area. As such BotSoc would really welcome articles dealing with many aspects of aquatic plants (all algae and higher plants) for their quarterly magazine *Veld & Flora*; which has an estimated readership of at least 22,000. Thus BotSoc would be delighted if PSSA members would keep in mind the possibility of writing popular and quasi-science articles and submitting these to V&F. We would also greatly appreciate good illustrations and ask that these be of a quality that is of sufficient detail reproduced clearly. In today's digital world it is particularly important that photographs have at least 2 million pixels if they are to be of sufficient quality for the magazine – and details of how the V&F editorial Committee wishes to receive submissions can be



obtained by emailing info@botanicalsociety.com, for attention Simone.

Eugene Moll

Chairman – Botanical Society of South Africa

<http://www.botanicalsociety.org.za/>

3. SAEON Graduate Student Network

(<http://www.saeon.ac.za/students/>)

First Student Workshop: 29 March 2006,
Centurion, Gauteng, South Africa.
Second Student Workshop: November 2006.

The 1st SAEON Graduate Student Workshop will be launched at the SAEON Summit in March 2006. The one-day workshop is aimed to create awareness and encourage alignment of student's research with SAEON programmes. It will also serve as a platform for students to get a broader understanding of ecological research with an expanded context in which to view their own research.

The workshop's key objective will be to inform students about activities of the SAEON Graduate Student Network, such as the website, future workshops and symposiums, and to educate the students more about how SAEON can help them in their current and future research projects. We aim to have four speakers/trainers. The workshops will be designed to be informative while at the same time encouraging student participation and discussion. Students will be requested to complete a short questionnaire at the end of the workshop sessions identifying beneficial and non-beneficial issues and aspects of the workshops, so as to enable the IC to improve on the planning of future workshops sessions.

Should you still wish to attend the workshop, you should contact the interim committee at:



South African Environmental Observation
Network

<http://www.saeon.ac.za/students/contact.html>



4. SEACChange programme

Science in the marine and coastal environment in South Africa is at a critical stage, with greater demands than ever for scientific advice within a globally changing scientific environment in which the ecosystem effects of human endeavours have become a strong focus. Economic and social imperatives are increasingly coming to the fore indicating the need for scientific knowledge to balance societal needs with sustainability.

The South African Network for Coastal and Oceanic Research (SANCOR) has been intensely involved in marine research and management for over thirty years and has a proud record of addressing the country's needs including the development of two phases of the national Sea and Coast Programme, which has maintained South Africa at the global forefront of marine science. These earlier phases have been objectively evaluated by independent international review panels and have been considered outstanding in terms of the quality of research and the training they have provided. An exceptional number of postgraduate students has been produced, many of whom are now playing a leading role nationally and internationally. The programme has also been outstanding in its record of transformation and has a strong legacy of leadership in marine science.

It must however, be recognized that marine science in South Africa is in crisis. Several departments have been closed and many vacant posts remained unfilled. Access to ships' time and research equipment has declined, hampering research. There is a continuing loss of skills and the number of publications on marine science has dropped. In addition to this, it has been recognized that in line with national and international trends there is a need for more integrated research and the broadening of the research focus in the marine and coastal environment to include the social sciences, economics, law and humanities.

Against this backdrop of opportunities, challenges and crisis, SANCOR is now in the process of developing a third phase of the Sea and Coast Programme, which will be called SEACChange (Society, Ecosystems and Change), reflecting a) the

important place of humans in the dynamic marine ecosystem, b) the need to shift to an ecosystem-based approach to management and c) the fact that both natural environments and societal processes are changing at an unprecedented rate.

Excellence in science will underpin the programme, which has been designed to assist South Africa to position itself strategically within Africa and the rest of the world and to fulfill its own needs as an emerging nation. The geographic location of South Africa further elevates it to a unique position to be at the forefront of research on early-warning systems and biodiversity protection. Recognizing that science in the marine and coastal environment is a domain that cuts across multiple disciplines, the programme was constructed in a democratic manner by the broader marine science community, including researchers, managers, social scientists, economists, educationists and legal experts. The knowledge generated will meet the national mandate of science and technology for economic growth.

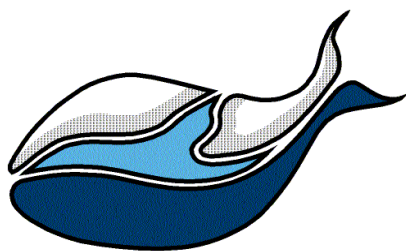
This new programme takes cognizance of the new challenges, including the need for multi-disciplinary and interdisciplinary training, transformation and dissemination of information, the loss of skilled scientists, the changing face of the employment market and global climate change. South Africa is falling behind in its ability to meet these challenges and hence to plan for or react to them. This threatens not only the safety and security of individuals but the nation's optimal use of the sea. SEACChange will play a pivotal role in strengthening scientific capacity, and the programme emphasizes the need to build on a basis of cutting-edge innovative research in the marine and coastal environment that is relevant to society.

On the 28th of February 2006, the **updated SEACChange programme document** as well as a **report** that was put together **from the discussions that took place at the four SEACChange thematic workshops** held in early February 2006 at UWC, was circulated by email to the wider SANCOR community. Both of these reports are



available for download from the PSSA website under “Notices”. The track changes have been retained in the SEAC hange programme document so that you can take note of where changes have been made. These changes will, however, only come into effect in the 2007 call for proposals as the 2006 call is already out.

If you haven’t received the reports by email, please feel free to download the reports and submit your comments on both of these documents to Pavs Pillay (ppillay@deat.gov.za) by the 14th of March 2006.



SANCOR

South African Network for Coastal and Oceanic Research
<http://www.bcb.uwc.ac.za/sancor/>

4. Marine and Coastal Science for Management (MASMA) programme

MASMA, the first regional competitive research grant mechanism, provides funding and technical support for coastal and marine research, training and communications in the Western Indian Ocean (WIO) region. The Western Indian Ocean Marine Science Association (WIOMSA) and the Coastal Management Research Center (COMREC) of the Södertörn Högskola coordinate the program, which was initiated in December 2000. MASMA is funded by the Swedish International Development Agency (Sida)/SAREC.

MASMA was established to reduce predominance of narrowly focused natural science research, limited emphasis on interdisciplinary research, and limited attention to the critical links between science and the larger societal issues in the region. Consequently, MASMA seeks to strengthen **applied** and **interdisciplinary** research on both the **natural** and **social science aspects** of coastal environmental issues for the purpose of advancing knowledge that is directly **relevant to society and resource management**.

In recognition of the fact that coastal and marine ecosystems are dynamic multidimensional entities, containing both natural (physical, chemical, biological, etc) and social (institutions, knowledge, perceptions, economic and cultural values, etc) processes, MASMA encourages and supports transdisciplinary and participatory research as a means for advancing coastal management research and for providing comprehensive and integrated information necessary for effective coastal management.

A principal component of the MASMA program is a competitive grants program to support regional research. Through these grants, MASMA encourages and supports multi/trans-disciplinary effort research; promotes regional collaboration in research amongst the experts from the different countries in WIO and partnerships between scientists from within and outside the region; and more importantly, it aims at building of professionalism and competence of researchers in designing and coordinating research projects.

The call for Letters of Intent document is also available for download on the “Notices” page of the PSSA website.



Western Indian Ocean Marine Science Association
 Email: secretary@wiomsa.org





Featured Article

Acidifying oceans could trigger mass extinction

Pollution is quickly making the world's oceans more acidic, and if unchecked this could cause a mass extinction of marine life similar to one that occurred when the dinosaurs disappeared.

The researcher, Ken Caldeira of the Carnegie Institution of Washington, D.C., has developed computer models predicting a continuation of a trend other scientists have also noted: *the oceans are slowly turning into mild acids* (see earlier report on next page). Caldeira said he compared his computer models predicting how far this will go in the next century, with evidence from the fossil record, and has found some startling similarities.

The finding offers a glimpse of what the future might hold for ocean life if society does not drastically curb carbon dioxide emissions, he added. "The geologic record tells us the chemical effects of ocean acidification would last tens of thousands of years," Caldeira said. "But biological recovery could take millions of years. Ocean acidification has the potential to cause extinction of many marine species."

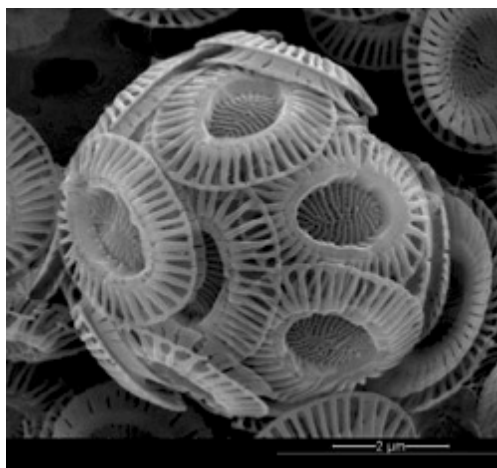
When carbon dioxide from the burning of coal, oil, and gas dissolves in the ocean, some of it becomes carbonic acid. Over time, accumulation of this carbonic acid makes ocean water more acidic. Previous estimates, Caldeira said, suggest that in less than a century, the pH of the oceans could drop by as much as half a unit from its natural value of 8.2 to about 7.7. On the pH scale, lower numbers are more acidic and higher numbers are more basic. This trend would especially damage marine animals such as corals that make shells out of a mineral

called calcium carbonate, Caldeira added. Under normal conditions the ocean is full of this substance, making growth easy for such creatures. A more acidic ocean would more easily dissolve calcium carbonate, putting these species at severe risk, he added.

The last time the oceans endured such a drastic change in chemistry, he added, was 65 million years ago, when the dinosaurs went extinct. Though researchers don't yet know what caused this ancient acidification, it was related to the cataclysm that wiped out the giant beasts, he added. The extinction pattern in the ocean was consistent with ocean acidification, he explained: the fossil record reveals a plunge in the number of

species with calcium carbonate shells in the upper ocean, especially corals and plankton. During the same period, species with shells made from resistant silicate minerals were more likely to survive.

"Our energy system could make the oceans corrosive to coral reefs and many other marine organisms," Caldeira cautioned. He presented the findings *Monday 20 February 2006* in Honolulu at the Ocean Sciences Meeting of the American Geophysical Union and the American Society of Limnology and Oceanography.



©Victoria J. Fabry

Tiny, photosynthetic plankton, such as this coccolithophorid, form the base of the ocean's food chain. As the carbon dioxide pours into the oceans, the water becomes more acidic, and these creatures find it more difficult to form a calcium skeleton.

Feb. 21, 2006 - <http://www.world-science.net/>

Pollution slowly turning oceans to acid

(Reported: July 2, 2005)

Pollution could be turning the world's ocean into acid, a new report says. The reason is that carbon dioxide, a byproduct of human burning of fossil fuels such as coal and petroleum, turns water acidic.



If carbon dioxide emissions continue to rise, researchers said ocean acidity could increase by the end of this century to a point at which oceans would be considered mildly acidic. The process has already begun, they added.

“The oceans will become so acidic by 2100 it could threaten marine life in ways we can’t anticipate,” said Ken Caldeira, co-author of the report and scientist at the Carnegie Institution’s Department of Global Ecology in Stanford, California. The Royal Society, a scientific academy in the UK, released this report on June 30 2005.

Many scientists view the world’s oceans as an important “sink” for absorbing the human-produced carbon dioxide, a so-called greenhouse gas also considered responsible for global warming. The oceans could thus help slow down global warming, according to this view.

Carbon dioxide also has some benefits for sea creatures. Marine plants soak up the gas as they breathe it in and convert it to food. Other organisms use it to make their skeletons and shells. With the explosion of fossil fuel burning over the past 200 years, researchers have estimated that oceans have absorbed more than a third of the human-originated greenhouse gas. Although sea creatures need some carbon dioxide, Caldeira and colleagues presented research showing too much of it in the ocean could lead to ecological disruption and extinctions.

When the gas dissolves into the ocean it produces carbonic acid. This corrodes shells and can interfere with oxygen supply, the report said. If current trends continue, the scientists added, acidic water could disrupt shell and coral formation and hurt organisms dependent on corals and shellfish. The acidity could also harm organisms that are the most important players at the base of the planet’s food chain, such as phytoplankton and zooplankton, the researchers said. “We can predict the magnitude of

the acidification based on the evidence that has been collected from the ocean’s surface, the geological and historical record, ocean circulation models, and what’s known about ocean chemistry,” continued Caldeira. “What we can’t predict is just what acidic oceans mean to ocean ecology and to Earth’s climate. International and governmental bodies must focus on this area before it’s too late.”



©Trevor Garf

An increase in carbonic acid would especially damage marine animals such as corals that make skeletons out of a mineral called calcium carbonate.

Acidity is measured on a scale of 1 to 14, with 7 being neutral and anything lower being acidic. This means a lower reading on the scale corresponds to more, not less acidity. The scientists calculated that over the past two centuries, surface sea-water acidity has risen by an amount corresponding to a 0.1 drop on the scale. There will be another drop by five times that amount by the end of this century, if widely accepted predictions about future carbon dioxide levels hold up, the researchers said. This

would bring ocean acidity to a level not seen for millions of years, they added. This acidity level, about 6.5, is generally considered mildly acidic.

The changes in the oceans’ chemistry will also compromise their ability to absorb carbon dioxide from the atmosphere, the researchers said, accelerating global warming. “This report should sound the alarm bells around the world,” said Chris Field, director of the Carnegie Department of Global Ecology. “It provides compelling evidence for the need for a thorough understanding of the implications of ocean acidification. It also strengthens the case for rapid progress on reducing” carbon dioxide emissions.

Courtesy:

*The Carnegie Institution, Washington DC, USA
and World Science*

<http://www.world-science.net/>

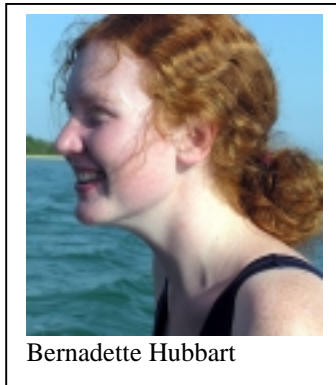


Getting to Know your New Members

New Members for 2005/6

Bernadette Hubbard (student member)
(hubbart@gecko.biol.wits.ac.za)

Bernie, as she is often called, is currently registered for a post-graduate certificate in education at the Wits School of Education.



Bernadette Hubbard

Bernadette is passionate about teaching biology and next year she hopes to look at microzooplankton grazing in the Benguela in affiliation with MCM and UCT. Her personal interests include SCUBA diving, reading, and extreme gardening (especially Bonsai and Zen).

Flower E. Msuya (Ordinary member)
(msuya@ims.udsm.ac.tz)

Dr. Msuya is a principal scientist at the Institute of Marine Sciences on the island of Zanzibar, Tanzania.



Flower E. Msuya

Her research focus is on seaweed farming, integrated mariculture, seaweed bio-filters, and environmental and socioeconomic impacts of aquaculture. In her spare time, she enjoys reading watching movies, traveling and exercising.



Conference Countdown

The next PSSA congress will be held jointly with SASAqS in Mozambique: 19-23 June 2006.



“FROM SOURCE
TO SEA”



The conference venue will be the Pestana Rovuma Hotel, Maputo, Mozambique. The conference will focus on aspects related to shared water resources and includes themes on research, conservation and management of aquatic resources in southern Africa. During the conference week the presentations will be scheduled within multi-disciplinary sessions that are structured around the theme “From Source to Sea”. Each day will begin with a plenary session, introduced by a guest speaker and then move on to the presentation of contributed papers. Arrangements have been made for parallel sessions. Poster papers are welcome and will be displayed for the duration of the conference. Prizes will be awarded for the best general presentation, the best student presentation and the best poster. Time allowed for oral presentation will be strictly 15 minutes followed by 5 minutes discussion. Posters should not be more than 90cm wide x 110cm long and should be easily readable from a distance of 1m.

Submission of abstracts: abstracts of no more than 350 words will be due by 31 March 2006. Abstracts must contain a concise title with the authors’ affiliation and email addresses included. Abstracts must be sent to Richard Greenfield (email below).

DEADLINES:

Reserved registration and accommodation – OVERDUE! - 50% deposit was due by 28 February 2006.

Abstracts - 31st March 2006.

Contact Person: Richard Greenfield
(rgr@na.rau.ac.za).



Calendar of Events

Upcoming Conferences

1. 21st PSSA Congress held jointly with SASAqS. Maputo, Mozambique, 19-23 June 2006. <http://www.bcb.uwc.ac.za/pssa/conference/>.
2. 7th International Temperate Reef Symposium. Santa Barbara, California, USA, 26 June – 1 July 2006. <http://ucsb.piscoweb.org/ITRS/>.
3. 60th Meeting of the Phycological Society of America. Juneau, Alaska, 7-12 July 2006. <http://www.psaalgae.org/>.
4. 6th Asia-Pacific Conference on Algal Biotechnology. Makati City, Philippines, 12-16 October 2006. <http://www.bio-edge.cn>.
5. 8th International Marine Biotechnology Conference. Eilat, Israel, 11-16 March 2007. <http://imbc2007.ocean.org.il>.
6. The XIX International Seaweed Symposium (ISS). Kobe, Japan, 26-31 March 2007. <http://www.seaweed.ie/isa/default.lasso>.
7. 4th European Phycological Congress (EPC4). Asturias, Spain, 23-28 July 2007. <http://www.congresosasturias.com>.

