



The Phycological Society of Southern Africa

**Newsletter
No. 52
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The Board of the Phycological Society of Southern Africa for 2003

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From the Editor

For those who attended, it certainly was good to see you all at this year's annual conference. Although a small delegation, it was a wonderfully intimate gathering. Derek du Preez, Janine Adams and Paul-Pierre Steyn should be gratefully acknowledged for organizing such a splendid event. Not only were the conference proceedings refreshing (lots of presentations by prospective new student members), the venue was also superb. For those who could not attend, the conference *programme and book of abstracts* is available for download on the Society's website.

The Newsletter differs only slightly from the first issue of 2002. New to this issue is the introduction of the *Getting to Know your New Members* segment. Last year we had 2 new student members. I have been promised that this year will see the enrolment of a number of new members, some of who would have already registered by the time this newsletter is sent. I thought it would be a good idea to include profiles of all new members as a way to introduce them to the Society and at the same time welcome them.

The past conference has already yielded a number of submissions (particularly from students) for future issues of the newsletter so there will be lots more to keep you entertained. If you have any contributions to the Newsletter, anything you think the members should be aware of or may be interested to know, please do not hesitate to send them to me. Better still, give your regional collators some work and send it on to them.

Northern Areas

Stuart Sym

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All the best for a great 2003.

Sincerely

Gavin

Report's presented at the General Meeting of the P.S.S.A. held at the Mpekweni Sun, Eastern Cape, South Africa, 21 January 2003:

Presidents Report – Grant Pitcher

A brief overview of present activities relating to phycology in South Africa was presented. Active research was reported at the University of Potchefstroom [UP], University of Witwatersrand [WITS], University of Natal [UN], University of Port Elizabeth [UPE], University of Cape Town [UCT], University of Western Cape [UWC] and Marine & Coastal Management [MCM]. Strong collaboration between UCT and MCM, and WITS and MCM have strengthened Phycology at these Institutions.

University of Potchefstroom

Department: Botany Department

Research Focus: Physiology and Ecology of Freshwater Phytoplankton [Water Quality of Vaal River]

Research Programmes/Projects:

- Finnish-South African Collaboration Cyanobacterial Research

University of Natal

Department: Research Centre for Plant Growth and Development

Research Focus: Algal Physiology [Uses of Seaweeds]

Research Programmes/Projects:

- South African – Hungarian Collaboration on Use of Microalgae as Soil Conditioners

University Port Elizabeth

Department: Botany Department

Research Focus: Surf Zone Diatoms; Solar Salt Works; Microalgal Dynamics in Estuaries; Seaweeds

Research Programmes/Projects:

- DWAF Contract Project [Development of reserve methodologies for estuaries]

University Cape Town

Department: Botany Department

Research Focus: Seaweeds

Research Programmes/Projects:

- EU Project - Seaweeds of Africa [Internet Database – Meetings in Ireland and Kenya];
- South Africa – Netherlands SANPAD Project [Collaboration with Herre Stegenga of National Herbarium of Netherlands on Seaweeds of Proposed Pondoland Marine Reserve];
- South Africa – Flanders Project Seaweeds of KwaZulu-Natal [Identification Guide]

Marine & Coastal Management

Department: Inshore Resources - Seaweed Unit

Research Focus: Management of Seaweed Resources [Set Maximum Sustainable Yields for Kelp]

Research Programmes/Projects:

- EU Project Seaweeds of Africa [Establishment of Internet database]
- South Africa – Netherlands SANPAD Project - Phycological Training of Students from HBUs
- South Africa – Flanders Project Seaweeds of KwaZulu-Natal [Field Guide of Seaweeds of KwaZulu Natal]

Marine & Coastal Management

Department: Physical, Chemical & Biological Oceanography; Mariculture

Research Focus: Phytoplankton Physiology & Ecology; Harmful Algal Blooms

Research Programmes/Projects:

- SCOR-IOC GEOHAB [Global Ecology and Oceanography of Harmful algal Blooms] Programme – HABs in upwelling Systems
- Benguela Current Large Marine Ecosystem Programme – HAB Component
- International Atomic Energy Agency – HAB Project
- ENVISAT MERIS Project [Spaceborne derived ocean colour study]

University Western Cape

Department: Biodiversity and Conservation Biology

[Gavin Maneveldt replaced Derek Keats]

Research Focus: Coralline Algae

University Witwatersrand

Department: School of Animal, Plant and Environmental Sciences

[Richard Pienaar Deputy Vice Chancellor for Academic Affairs]

Research Focus: Systematics, Ultrastructure and Cell Biology of Microalgae

Research Programmes/Projects:

- Research Grant from International Foundation for Science [Sweden]
- BCLME Programme
- GEOHAB Core Project – HABS in upwelling systems

Conference & Workshop Participation

National Conferences

- South African Association of Botanists [UP]
- South African Symposium for Aquatic Systems [UP]
- Marine and Coastal Educators Network Conference [UWC]

International Conferences

- Southern African Marine Science Symposium [MCM, UWC, WITS, UCT]
- International Pacem in Maribus Conference [UWC]
- Xth International Conference on Toxic Algae [MCM]

PSSA to Host:

- XI HAB Conference [2004]
- 8th International Phycological Conference [2005]

Workshops

- Integrated Aquaculture Workshop [UCT & MCM]

- Workshop on Cyanobacterial Toxins and Molecular Ecology [UP and University of Helsinki]

Editorial & Committee Membership

- South African Journal of Botany [Sym, S – Sub-editor]
- South African Journal of Marine Science [Pitcher, G – Editor]
- Botanica Marina [Bolton, J – Editorial Board]
- Harmful Algae [Pitcher, G – Editorial Board]
- Proceedings 17th International Seaweed Symposium [Anderson, R – Co-editor]
- International Phycological Society [Sym, S – Council Member]
- SCOR-IOC GEOHAB Programme [Pitcher, G - Vice Chairman of SSC]
- International Botanical Association [Bolton, J – Committee for Algae]

Thanks to those who have contributed to this report: Anderson, R [MCM], Bolton, J [UCT], Du Preez, D [UPE], Kruskopf, M [UP], Maneveldt, G [UWC], Pitcher, G [MCM], Burnett, W [UN] and Sym, S [WITS]

Secretary-Treasurer's Report – Wendy Burnett

Firstly, thank you to Grant Pitcher and his co-workers for hosting the last PSSA conference. Although I was not able to attend, I'm sure it lived up to the PSSA tradition of excellence and fun. I would also like to thank Bernadette Brown for collecting the subs and Gavin Maneveldt for the three newsletters he put together this last year as well as keeping the Web page so informative.

I took over as Secretary-Treasurer from Eileen Campbell at the beginning of 2002 after Eileen had done a sterling job for quite a few years. The original plan was just to transfer the PSSA accounts from the Nedbank in Port Elizabeth to Pietermaritzburg and to change the signing authorities. However, I was given such a run around by Nedbank with excuses such as it involving too much paperwork that eventually after consulting with the rest of the committee, I asked Eileen to close both the current and Investment accounts with Nedbank and I then opened a new account with First National Bank in August this last year. I was advised to open a single account – a Money Market account where higher interest is earned than on other accounts. There is also a cheque book linked to this account, which is very convenient for the everyday running of the Society.

A summary of the financial activities for 2002 follows on the next page.

Balance sheet
January 2002 – 16th December 2002

Nedbank Investment Account	Credit	Debit	Balance
Brought forward December 2001	R29 203.05		R29 203.05
Interest	R 605.51		R29 808.56
Interest	R 942.55		R30 751.11
Transferred funds to Current Account		R30 750.00	<u>R 1.11</u>
Balance (closed account)			<u>R 0.00</u>

Nedbank Current Account	Credit	Debit	Balance
Brought forward December 2001	R 3 816.93		R 3 816.93
Awards (Cape Town 2002)		R 1 200.00	R 2 616.93
Cape Town 2002 Congress Profits	R 5 000.00		R 7 616.93
Subs	R 526.78		R 8 143.71
Funds from Investment Account	R30 750.00		R38 893.71
Advance to UPE for 2003 Congress		R 2 393.71	R36 500.00
Transferred funds to FNB		R36 500.00	<u>R 0.00</u>
Balance (closed account)			<u>R 0.00</u>

Money Market Account	Credit	Debit	Balance
Funds from Nedbank accounts	R36 500.00		R36 500.00
Newsletters (No. 49, 50 & 51)		R 1200.82	R35 299.18
Subs	R 1 843.60		R37 142.78
Interest (end of November 2002)	R 650.00		R37 792.78
Bank Charges (end of November 2002)		R 38.50	R37 754.28
SASCA 2002 Congress Awards	R 400.00		<u>R38 154.28</u>
Balance			<u>R38 154.28</u>

TOTAL ASSETS	R38 154.28
Capital gain for the period January 2002 (R33 019.98) to 16 th December 2002 (R38 154.28)	R 5 134.30

W.A. Burnett

S. Sym
(Auditor)

Membership Secretary's Report – Bernadette Brown

I hope this communication finds you all in good health and spirits. Below is a breakdown of membership changes and PSSA monies received and spent during 2002/2003.

1. Number of members as on 22 January 2003	69
2. New members:	2
3. Conversions to life:	2
4. Conversions to pensioner:	1
5. Total fees paid into new account at first national bank: DEPOSIT SLIP TOTALS (FAXED TO WENDY):	
5.1. R110	
5.2. R160	
5.3. R200	
5.4. R560	
5.5. R300	
5.6. R513.60 (US\$55)	
5.7. R80	

TOTAL: R1923.60

6. Costs to be repaid to B. Brown into bank account (receipts faxed to Wendy)

6.1. Cash Receipt Book	R 31.95
6.2. Postage	<u>R111.90</u>
TOTAL	<u>R143.90</u>

Bank: Nedbank
Account number: 1036 354 393
Branch: Bellville
Branch code: 10 36 10

Thank you for giving me the chance to be the membership secretary for 2002. All documentation will be returned to Wendy Burnett or the new membership secretary by mail.

Newsletter Editor's Report – Gavin Maneveldt

The year 2002 had come to an end so quickly. Hardly had I started my term of office when suddenly it was time to meet face to face at another annual conference.

During 2002, three newsletters were produced, namely March, June/July and December issues. This is the trend that I hope to follow as material for inclusion is always limiting. You must be aware by now that the format of the Newsletter has deviated substantially from the previous ones. The "*Featured Article*" segment in particular has been my way of informing the members of the current issues regarding all water related and therefore algal related matters, and matters arising in our education and information sectors. The introduction of the "*Popular Student Articles*" was another new addition to the Newsletter, with an annual prize of R400 going to the best-voted submission. This was suggested and decided on by the members at the annual general meeting held at the beginning of 2002 in an effort to encourage student participation in the Society's activities.

The newly constructed website has also been designed to compliment the Newsletter. All issues of the Newsletter can be downloaded from the website. This is particularly useful for those members who wish to see the colour images and photographs that are included in the newsletters. For this very reason, I would like to therefore encourage you all to access the website on occasion to get a good view of the colour images that have been sent in for inclusion in the Newsletter. This is another way to encourage positive criticism of the website itself.

The year has, however, been somewhat of an up and down for me as I have come to realize the difficult task that Derek du Preez (and prior to him, Janine Adams) must have gone through in preparing the Society's Newsletter. I have consistently been supported by a handful of dedicated members who have timelessly and with

unselfish regard for their valuable time sent information and articles for inclusion in the Newsletter. Although nameless (you know who you are), I will forever be grateful to them. There are however two points of concern.

First, the student response to the Newsletter has been very disappointing. Of a total of 20 student members (we should bear in mind that some of these members may no longer be active), only 2 had responded in 2002 to the request for submissions. Special thanks should go to Lizeth Botes and Debby Robertson-Andersson for their submissions. I feel it necessary to single out these members to encourage the rest of the student membership to offer some of their valuable time to this endeavour. Other than the annual conference, the Newsletter is the only Society activity that we are asked to partake in. I would therefore like to appeal to all supervisors to encourage your students to make a concerted effort to contribute to the “*Popular Student Article*” segment.

Furthermore, it seems that only a few members are accessing the website and those that do, do so infrequently. There have been a number of requests to members to update their membership details and to check that their details are in fact accurate. Many have still not responded to this call to update their records. If the website does not hold any attraction, please let me have your suggestions and comments so that we may improve on the present condition of the site making it more alluring to the members.

Please forgive the harsh words. It is not my intention to cause animosity or division. So, if you have any contributions to the Newsletter, anything you think the members should be aware of or may be interested to know, please do not for one minute hesitate to send it on to me.

Attention All

1. Student Submissions and Prizes

If you’ve already forgotten, or if you are unaware, this is a reminder to all student members. To promote written submissions for the newsletter, R400 will be awarded annually for the best student article. The prize for 2003 will be awarded at the following general meeting to be held at the 2004 conference.

Lizeth Botes and Debby Robertson-Andersson jointly took the prize for the best student submissions for 2002. Congratulations to both of them.

Guidelines: See the website! Just follow the *Featured Articles* navigational link. Remember, there is R400 up for grabs. Judging will be by an independent panel (authors of featured articles) that may have very little psychological background. It is therefore imperative that your articles be simple, yet informative. Try to avoid jargon wherever possible.

2. Contact Details and Research Areas

If you haven’t already done so, please check your particulars on the new website (<http://www.botany.uwc.ac.za/pssa/>) for omissions or incorrect details. We would like to know your specific research areas and not that you are just simply interested in *Phycology*. Also, for those members who have opted to describe their research interests in one or two key words, would you be so kind as to give the rest of us some greater insight into your area(s) of expertise. All *pop-up windows* (on the website) prompting you to check your membership details, has already been taken down, so there won’t be any more reminders.



Lizeth Botes



Debby Robertson-Andersson

The Annual Conference:

1. In a Nutshell

The Botany department of the University of Port Elizabeth hosted the 19th Congress of the Phycological Society of Southern Africa held at the Mpekweni Sun about 30 km east of Port Alfred in the Eastern Cape. The conference kicked off on Sunday 19 January 2003 with a workshop on Microphytobenthos with input from local researchers and a summary of work being done in Europe by the guest speaker, Graham Underwood from the University of Essex. Graham, who is a zoologist by training, became interested in the microphytobenthos of estuaries and mudflats and hasn't looked back since. After discussion about some of the problems involved in studying the microphytobenthos (spatial and temporal variation, patchiness in distribution, vertical migration by diatoms, to mention a few of the issues) the workshop moved to the Fish River estuary by way of a field trip, where the discussions continued. The participants of the workshop agreed that much still needs to be done on the microphytobenthos in South African estuaries. It was also agreed that standardization and inter-comparison of methods between different laboratories in South Africa dealing with microphytobenthos should be implemented.

The second day of the conference marked the first day of talks. The society's president Grant Pitcher from Marine and Coastal Management welcomed the participants and thanked the organizing committee for their efforts. Then the presentations got started in earnest with a talk by the guest speaker, Graham Underwood entitled "How important are species in the functioning of marine algal biofilms?" The issue Graham addressed is that of detail. Should we bother about the species composition of the organisms that give rise to biofilms? Graham presented evidence to show that the species composition of the diatoms at the sediment/water interface changes throughout the photoperiod. He also showed that the photosynthetic capacities and characteristics of species are very different, which means that measurements made at a single time in a day cannot

simply be multiplied up to produce an answer reflecting the activity of the diatoms as a whole.

Although there were only 22 registered delegates at the conference there were 16 oral presentations and six posters, showing a high degree of participation by the delegates. The standard of the presentations was excellent and many of the delegates said that they enjoyed each presentation despite them not having a direct interest in many of the research fields that were presented. Eleven of the papers presented were on microalgae and six on macroalgae. The high number of microalgal papers presented was probably the result of the emphasis at this conference on microphytobenthos, with six of the papers presented being on this topic.

2. Report Back on Microphytobenthos Workshop

Janine Adams¹ and Graham Underwood²

¹Department of Botany, University of Port Elizabeth, PO Box 1600, Port Elizabeth, 6000.

²John Tabor Laboratories, Department of Biological Sciences, University of Essex, Colchester, Essex. U.K. CO4 3SQ

Research trends

Guy Bate and Janine Adams outlined the current research activities in South Africa. Guy Bate and Pat Smailes are completing a 6 year Water Research Commission project on diatoms as indicators of water quality in the rivers and estuaries in South Africa. In 2003 manuals will be produced with pictures of the identified diatoms, where they were found and the water quality ranges associated with the different species.

Other UPE activities include Gavin Snow 's PhD research on the use of diatoms as indicators of trophic conditions in estuaries. Phumelele Gama has included measurements of benthic chlorophyll *a* in his

assessment of the response of phytoplankton to freshwater inflow in the Van Stadens and Maitlands estuaries.

Kogi Iyer from University of Natal, Durban briefly described the research activities of Renzo Perissinotto's group who are investigating mouth condition and biological response in the Mdloti and Mhlanga estuaries in KwaZulu – Natal.

William Froneman from Rhodes University is measuring microphytobenthic biomass in small temporarily open / closed Cape estuaries e.g. Kasouga.

Graham Underwood gave a presentation on current overseas research activities. These activities can be divided into four broad topics:

1. Cell level

Genes are being identified for specific chlorophyll binding proteins. These probes can be used on the mudflats to measure daily *in situ* photosynthetic patterns. Other gene systems for behaviour and photosynthesis are being investigated. Gene probes are also being developed to identify different species. These are exciting developments as molecular biologists are now working closely with ecologists.

2. Primary production / biomass

Early primary productivity work used oxygen microelectrodes. This was excellent at measuring the fine scale spatial distribution of photosynthesis within sediments but the data could not be scaled up to include whole mudflats / ecosystems as very large values were obtained. The introduction of PAM (pulse amplitude modulated) fluorometry has allowed for greater replication through easier, more rapid measurements as well as single cell measurements. This has given a clearer picture of scales of variation.

3. System level

Measurements are scaled up so that values for whole estuarine microphytobenthic biomass and primary production can be produced. Research has focused on the role of microphytobenthos in promoting sediment stability by the secretion of polymers (extracellular polymeric substances, EPS) and biofilm formation. Differences in the composition of the carbohydrates produced by these biofilms are being identified in collaboration with biochemists. Digital holography and other microscopic techniques are being used to investigate erosion and the formation of biofilms.

4. Remote sensing

Chlorophyll *a* can be quantified using remote sensing data allowing better estimates of microphytobenthic biomass. Because of the relationship between chlorophyll *a*, EPS production and the stability of mudflats, the latter can be quantified for large areas.

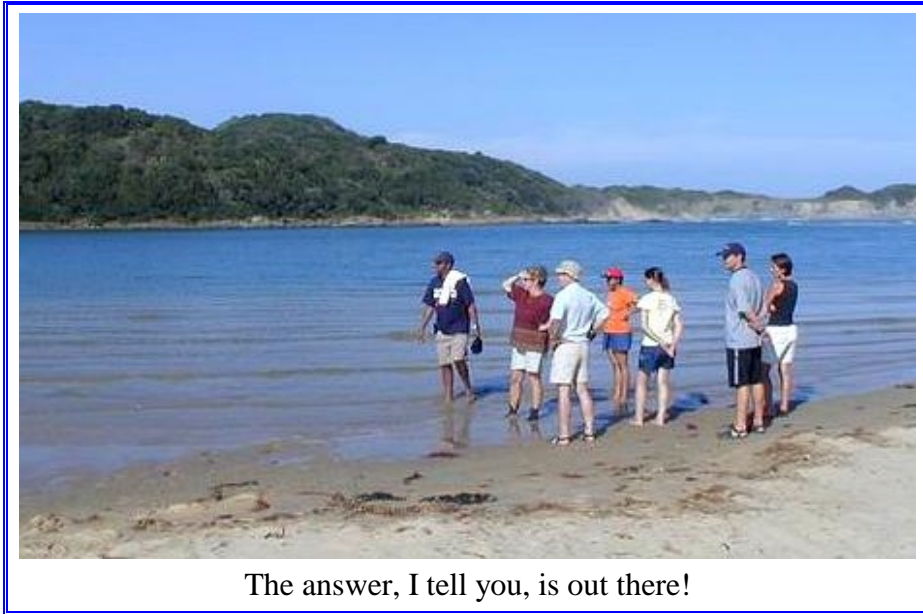
Sampling methods and problems

Guy Bate's project on the use of diatoms as indicators of water quality only considers the epipelagic component. The epilithon was originally used but is now disregarded because of the difficulty in removing the real epilithon from the stones; also not all systems have stones.

Microphytobenthic biomass shows a high level of variability spatially and temporally. There was discussion on the use of spectrophotometers, HPLC and fluorometry to determine chlorophyll *a*, which is a surrogate for biomass. It was decided that there should be some sort of cross calibration of the methodology between the UND and UPE teams.

Although identification and the taxonomy of diatoms will remain a problem there is a need to relate physiology and species composition as different species show different responses e.g. to light.

The workshop was concluded with a field trip to the Great Fish Estuary.



The answer, I tell you, is out there!

3. Conference Prize Winners

Best Student Paper:

Shalini Dukhan Sowki, Richard Pienaar and Stuart Sym. The ultrastructural study of *Lepidodinium viride* and its endosymbiont.

Best Student Poster:

Anita Ballantyne and Derek du Preez. A new mechanism of secondary pit plug formation found in *Gelidium pristoides* (Turner) Keutzing.

SASCA award for the best Student Poster:

Krishni Naidoo, G.W. Maneveldt, K. Ruck and J. Bolton. Growth of the abalone *Haliotis midae* in an integrated mariculture system.
Derek du Preez once again produced some lovely digital pictures of the prize winners and of our guest.



A special thanks to Graham Underwood for a wonderful workshop and conference.



Shalini Dukhan Sowki took the prize for the best student oral presentation.



Anita Ballantyne took the prize for the best student poster presentation.

Krishni Naidoo (*in absentia*) took the SASCA award for the best student poster presentation. Her supervisor, Gavin Maneveldt, presented her findings.

The SASCA (South African Seaweed Concessionaires Association) award is for the best contribution to industry.



2003 group photograph



Our president and immediate past-president very hard at work.



Winding off after a hard day's discussion.



Now, now Wendy, leave some for the guys.

This seems to have been a very popular table!

Thanks to Claudio Marangoni and Derek du Preez for these wonderful images.

Getting to Know your New Members

Gavin Snow (btbgcs@upe.ac.za)

Although an *old acquaintance*, Gavin joined the Society in 2002. He is presently in his third and final year of his PhD degree under the supervision of Janine Adams (UPE) and Graham J. C. Underwood (University of Essex, England).

“Estuarine ecology forms the basis of the research that I’ve been involved in during my postgraduate studies. My MSc was an investigation into the structure and dynamics of microalgae, phytoplankton and microphytobenthos (MPB), in the Gamtoos and Kromme estuaries. The first year of my PhD was spent in England learning sampling and analysis techniques from Dr Graham Underwood, a specialist in estuarine MPB ecology, and was funded by the Association of Commonwealth Universities (through the British Council). The primary aim of the study is to investigate the relationship between benthic diatoms and their environment, then to develop an estuarine diatom trophic index for the Eastern Cape.”



New Members for 2003

Belinda Clarke (btbbjc@upe.ac.za)

Belinda is presently registered for a PhD degree under the joint supervision of Eileen Campbell and Derek du Preez from the Univ. of Port Elizabeth. Her field of research is in sandy beach ecology, focusing on using microalgae as indicators of coastal pollution.

Kogilam Iyer (kogilami@yahoo.com)

Kogi is presently registered for a MSc. degree under the supervision of Prof. R. Perissinotto from Marine and Coastal Management at the University of Natal, Durban.

“Cool, collected and competent is the epitomy of my composure.... well, I try. I love the great outdoors, am game for adventure, sometimes a bit cautious (but not overly) and am generally very accepting of diverse ideas and things. I enjoy meeting new people and going to new places, and generally prefer the company of open-minded people. I am very spiritually conscious, enjoy going to church, and strongly believe that



everyone is entitled to his or her own spiritual beliefs and doctrines. My research interests focus on the role of benthic microalgae in estuarine systems, particularly in temporarily open and closed systems, and environmental policy formulation and implementation via EIA’s, SEA’s, .etc.”

Krishni Naidoo (knaidoo@uwc.ac.za)

Krishni is presently registered for a MSc. degree under the supervision of Gavin Maneveldt from the Univ. of the Western Cape.

“My interest in the marine field is broad and includes aquaculture and various floral and faunal interactions in the marine environment. Outside of my research, I’m involved in a host of artistic and creative activities. I enjoy being with family and friends, and I love travelling. I believe that with God all things are possible, that it is important to have a vision for your life, which combined with passion should be the underlying driving force to achieve. Life is an amazing gift worth exploring.”



Shalini Dukhan Sowki (shalini@gecko.biol.wits.ac.za)

Shalini has just recently joined the Society. She is presently registered for a MSc. degree under the joint supervision of Stuart Sym and Richard Pienaar from the Univ. of the Witwatersrand.

“I lived in Durban (where I did my undergrad and honours) and moved up to Joburg last year (miss the sea incredibly...but not the humidity). My first oral presentation was at the 19th PSSA congress; my first poster presentation was at MSSA at WITS (2001). I think phycology is awesome, you would never expect the kind of things you see under the microscope when studying the marine world. Organisms that look like dust particles to the naked eye take up the most brilliant form and function when studied more intimately.”



The Global International Waters Assessment (GIWA) project – The South African role

The Global International Waters Assessment (GIWA) aims to assess the environmental and socio-economic impacts of 22 environmental issues in transboundary marine and freshwater systems, examine the root causes of these, explore policy options, and ultimately prepare a strategic action programme for Global Environment Facility interventions. The work is being carried out in 66 subregions around the world, clustered into nine megaregions. Seven subregions are contained within the Megaregion of Sub-Saharan Africa, including the Canary Current, Gulf of Guinea, Benguela Current, Agulhas Current, Somali Coastal Current, East African Rift Valley Lakes, and Lake Chad Basin subregions. The Benguela Current subregion stretches from Angola's Cabinda Province in the north to Cape Agulhas on the South African south Coast, incorporating the exclusive economic zones of Angola, Namibia and South Africa, as well as the Agulhas Bank, and including the entire Orange-Vaal drainage basin.

GIWA assessments in the Benguela Current subregion were performed by a multidisciplinary team of natural, social and economic scientists. The preliminary phase of the project included a scoping exercise during which the team was required to define the severity of both socio-economic and environmental impacts of the 22 pre-defined environmental issues grouped into the five Major Concerns of (1) Freshwater shortage, (2) Pollution, (3) Habitat and community modification, (4) Unsustainable exploitation of fisheries and other living resources, and (5) Global change. The scoping exercise indicated that environmental impacts of almost half (10) of the 22 GIWA issues were considered severe in the Benguela Current subregion at present. Overall, the combined socio-economic and environmental impacts of three of the five Major Concerns (Freshwater shortage, Pollution & Habitat and community modification) were considered severe, while two (Unsustainable exploitation of fisheries and other living resources & Global change)

were considered moderate. A worsening of environmental impacts associated with all five Major Concerns was foreseen for the next two decades. Both current and likely future impacts were considered in the selection of two priority concerns, which formed the basis for further analyses. These included Freshwater shortage, and Unsustainable exploitation of fisheries and other living resources.

Within the marine environment, the causes of unsustainable exploitation were explored using the example of inshore finfish fisheries. Overexploitation of these resources appeared to be the overriding factor causing the identified environmental and socio-economic impacts. Too many people fishing, destruction of key habitats such as estuarine nursery areas, increased fishing power gained through improved technology and access to such technology, and the increasingly higher value placed on increasingly rare products, all contribute towards the unsustainable exploitation of inshore finfish.

Examination of the root causes of environmental and socio-economic impacts related to the Major Concern of Freshwater Shortage revealed that modification of stream flow through dam construction and over-abstraction of water are the primary causes of these impacts. Such artificial modification of stream flow exacerbates existing problems caused by the naturally low and variable rainfall in the subregion. Inappropriate use of water in industry and agriculture, wasteful use of water in urban environments, and inefficiencies in water management appeared to be the most important contributing factors. Creating strong awareness of the natural aridity of the area, and a shift from water demand management to water supply management are likely to be useful avenues for tackling problems related to freshwater shortages in the subregion in the coming decades.

Kim Prochazka, Director
International Ocean Institute-Southern Africa
(kprochazka@uwc.ac.za)

The GIWA website can be found at: <http://www.giwa.net/>

Conference Countdown

The School of Animal, Plant & Environmental Sciences at the University of the Witwatersrand, will host PSSA 2004. We will inform you of all particulars closer to the time. Alternatively, keep an eye on the Society's website for conference updates. Please also note that the Society is hosting two international conferences namely the HAB (2004) and the IPC8 (2005) conferences (see the website for particulars).

Calendar of Events for 2003

A. Upcoming Conferences

1. Second International Conference on River Basin Management, 28 - 30 April 2003. Website: <http://www.wessex.ac.uk/conferences/2003/riverbasin03/index.html>
2. Second International Conference on Water Resources Management, 30 April - 2 May 2003. Website: <http://www.wessex.ac.uk/conferences/2003/waterresources03/index.html>
3. Fourth International Conference on Ecosystems and Sustainable Development (ECOSUD), 4 - 6 June 2003. Website: <http://www.wessex.ac.uk/conferences/2003/ecosud03/index.html>
4. Wet 'n Wildlife! Joint meeting of the South African Society of Aquatic Sciences (SASAQS) and the Zoological Society of Southern Africa (ZSSA), 30 June - 4 July 2003. Website: <http://www.wetandwildlife.uct.ac.za>
5. The 5th Asia-pacific Conference on Algal Biotechnology, 14-17 July 2003. Website: <http://www.qdio.ac.cn/english/meeting/index.htm>

6. The 3rd European Phycological Congress, 21-26 July 2003. Website: <http://www.epc3.org/>

7. Botany 2003, 26-31 July 2003. Website: <http://www.2003.botanyconference.org/>

8. The Fourth International Symbiosis Society Congress, 17-23 August 2003. Website: <http://people.bu.edu/dzook/>

9. The 6th International Marine Biotechnology Conference, 21-27 September 2003. Website: <http://www.tuat.ac.jp/~marine/>

B. Upcoming Workshops

1. Permaculture design course for an integrated approach to sustainable development, 25 March - 5 April 2003. Contact Jeunesse Park on (011) 784 6399 or email progreen@isat.co.za.



Following favourable results from the head-space analysis, it was decided to conduct an identification and assay of the active constituent