

# Forum Phycologicum



Newsletter of the  
**Phycological Society  
of Southern Africa**

**Vol. 72**  
**March 2010**



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### From the Editor

Welcome to the first edition of *Forum Phycologicum* for 2010. As is always the case, it was good seeing the familiar faces, and the many new ones, at the recent PSSA congress held at the Saasveld Campus of the Nelson Mandela Metropolitan University. I would like to take this opportunity of thanking our hosts Eileen Campbell and Derek du Preez, and their many competent helpers for a task “well done”! Except for the notable absence of a few “hardy perennial phycologists”, this congress delivered the usual high standard of participation as we have become accustomed to.

Continuing with tradition, the first edition of the year is largely devoted to the annual conference and presented herein are the reports presented at the AGM, a summary of the congress itself, and of course, the list of prize winners. As in previous issues, these are intended largely for those who were unable to meet up with us. We also had our elections and I take this opportunity of congratulating our president-elect (Wendy Stirk) and new membership secretary (Deborah Robertson-Andersson) on their respective portfolios. We wish them well in the fruitful years to come.

In addition to the congress reports, there is the usual *News and Reviews* segment bearing summary reports on two recently held meetings. The various conferences and symposia of phycological interest are detailed for your attention. While the congress for 2011 is still being finalized, we ask that you keep an eye on the society’s website.

Until the next issue.  
Best wishes  
Sincerely

*Synarthrophyton patena*  
epiphytic on *Gelidium capense*

Gavin W. Maneveldt

### Reports presented at the annual general meeting held at the Paternoster Lodge, Paternoster, Western Cape, South Africa, 22 January 2009

#### 1. President’s Report – Eileen Campbell

The Phycological Society of Southern Africa was particularly active in 2009. While international collaborations were fewer than in 2008, those collaborations were big ones. Vince Ordog visited Wendy Stirk from Hungary to further her research, while both Gilberto Amado-Filho (visited Gavin Maneveldt) and Clarisse Odebrecht (visited Eileen Campbell & Derek du Preez) came from Brazil.

The conference schedule was a full one. After the January PSSA24 in Paternoster, John Bolton hosted the IPC9 conference in Tokyo, also attended by Linekela Kandjengo and Gavin Maneveldt. Deborah Robertson-Andersson and Flower Msuya attended the WIOMSA conference in Zanzibar. Predictably, a large contingency of society members attended the Aquaculture Society of Southern African meeting in Namibia: John Bolton, Mark Cyrus, Linekela Kanjengo, Deborah Robertson-Andersson and Dina Shuuluka. Gavin Maneveldt was involved in the Darwin 200 Symposium at UWC.

In addition, several workshops gave society members a platform for interaction: Rob Anderson attended the 6th International Multi-Purpose Reef Symposium (Jeffrey’s Bay). John Bolton and Graham Stansell attended the 1<sup>st</sup> SA Algal Biofuels Workshop in Cape Town. John Bolton and Juliet Brodie ran a Workshop at IPC9 on a Global Seaweed Strategy. The Integrated Environmental and Coastal Management Unit, chaired by Derek du Preez ran an Information Workshop on the current status of Sandy Beach research in South Africa – Eileen Campbell, Nelia Garner, Karien Wolmarans and Wendy Todkill attended.

Society members are well connected. Stuart Sym, Graham Stansell, Ashira Roopnarain and Siphon Mhlambi are collaborating with Vince Gray on Algal Biofuels and Derek du Preez has developed a partnership with Innoventon and Ben Zeelie on



the same topic. Alan Critchley is involved with work on Acadian Seaplants (*Ascophyllum* & *Chondrus*). Stuart Sym collaborates with Pierre Durand on cell death and the University of Köln on phylogenetics. Eileen Campbell is managing a collaboration between the University of Oldenburg and the NMMU on a project on Biodiversity, Land Use, Marine & Coastal Management. Gavin Maneveldt has collaborations with Gilberto M. Amado-Filho (Brazil), Claude Payri (New Caledonia), Han-Gu Choi (Korea) and Bill Woelkerling (Australia).

Members of the Society are involved in all the major aquatic national initiatives:

- South African National Biodiversity Institute (SANBI) on Beach Biodiversity – Eileen Campbell, Derek du Preez
- South African Biosystematics Initiative (SABI) on Seaweed Biosystematics – John Bolton, Rob Anderson
- South African Biodiversity Information Facility (SABIF) in digitizing Herbaria – Neil Griffin
- South African Institute for Aquatic Biodiversity (SAIAB) – Tommy Bornman
- International Barcode of Life (iBOL) by analyzing 500 samples – Seaweed Unit, MCM
- Agulhas Somali Currents Large Marine Ecosystem Project (ASCLME) in Biodiversity and Habitat research – Tommy Bornman, Tinus Sonnekus, Bevan O'Reilly
- African Coelacanth Ecosystem Programme (ACEP) with Biodiversity and Habitat research – John Bolton, Rob Anderson, Chris Boothroyd
- South Africa Environmental Observation Network (SAEON) with Algoa Bay Ecosystem Dynamics and the Port Alfred Upwelling system – Eileen Campbell, Tommy Bornman, Derek du Preez and Kim Bernard
- South African National Committee for the Scientific Committee on Oceanic Research (SCOR) - Gavin Maneveldt serves on the committee

Our VIPs are John Bolton as Chairman of the IPC and Stuart Sym who is an editor for Phycologia. Rob Anderson was made an Honorary Associate Professor at UCT, Stuart Sym is the Assistant Dean of Science at Wits and Derek du Preez is the

Director of the School of Environmental Sciences at NMMU. Gavin Maneveldt is chairman of the Botanical Society of South Africa's *Veld & Flora* Editorial Advisory Committee. Gavin also received the Compton Prize for the best paper appearing in the *South African Journal of Botany* during 2007 – awarded during February of 2009.

It is evident that the PSSA is a healthy society with interactive, engaged and influential members, balanced by developing phycologists. The new and interesting directions for the society include Algal Biofuels, Seaweed in the South African Biosystematics Initiative, Novel Products from Algae, Seaweeds in Estuaries and Mixed Substrate Shore Biota.

## 2. Secretary Treasurer's Report – Mark Rothman

The Society has a Money Market Account that is held at First National Bank. Money Market Accounts have a basic monthly charge, a cash handling fee and have higher interest rates than conventional current accounts. There is a cheque book linked to the account for convenient handling of the account. There are two signatories (currently John Bolton and Mark Rothman), although withdrawals or cheques only require one of the two's signature.

The following financial report is for the period 4 February 2009 till 4 December 2009. The Society had an opening balance of 36,670.00. Although the 24<sup>th</sup> PSSA meeting in Paternoster made a profit of over R7,000.00, capital gain for the period, February 2009 till 4 December 2009, is R450.00. This is because the profit was already reflected in the report for 2009. Bank statements are available for your perusal.

This year, once again, society subscription fees have been included in the congress registration fees. Best oral and poster presentations are again sponsored by SASCA and we thank them in their absence for their continued support of Phycology and the Association.





Newsletter of the Psychological Society of Southern Africa

**PSSA BALANCE SHEET**  
**03 January 09 - 04 December 09**  
**Money Market Account (First National Bank)**

	Credit	Debit	Balance	
Brought forward February 2009			R 36,219.19	
Bank fees		R 644.36	R 35,574.83	see Note1
Prize money		R 2,500.00	R 33,074.83	
Payments Made		R 21,866.00	R 11,208.83	see Note2
Interes	R 1,945.49		R 13,154.32	
Payment received	R 23,514.68		R 36,669.00	
<b>Total Assets</b>			<b>R 36,669.00</b>	

Capital Gain for Period 4th February to 4th December R 449.81

Note 1

i) Monthly account fees	R 345.00
ii) Service Fees	R 210.00
iii) Cash deposit fees	R 89.36

Note 2

Accommodation: Paternoster Lodge	R 16,786.00
NPA Lighthouse entry	R 3,800.00
Fossil Park entry fee	R 1,280.00

Profit from Paternoster Conference R 7,101.38

Directly after this meeting we will have our bi-annual elections for a new council. I would suggest to the new council to amend the constitution to make provision for an electronic ballot (via e-mail or web-based application) to be used to make this process more efficient and paperless.

It has been a pleasure serving as Secretary-Treasurer for this past year. Thank you!

### 3. Newsletter Editor's Report – Gavin W. Maneveldt

This year's report bears an air of gloom. Despite regular contributions from only a very small, committed sector of the society, for the first time in a very long time, the society was unable to produce its regular three newsletters for the year. This year saw only two issues circulated (in March and December). While general submissions from ordinary members pertaining to *News and Reviews* are still regularly received (but not nearly as regular as in previous years), contributions from our student

members are lacking. This past year saw the inclusion of only one student article. In the last three AGMs we discussed ways of encouraging students to contribute. One suggestion was to change the name of the newsletter to make it resemble a society journal. This was done (with the newsletter now being known as *Forum Phycologicum*), but still we have had no increase in student participation. In fact, we have had the opposite effect of what we had hoped to achieve. I fear that it will now take supervisor intervention if we are to succeed in increasing student input.

I again take this opportunity of reminding you that the newsletters (in pdf format) and all the articles therein are also available for download from the society's website ([www.bcb.uwc.ac.za/pssa/](http://www.bcb.uwc.ac.za/pssa/)). If you have not received your pdf copy via email recently (and for those new members) please feel free to download them from the society's website. Please also be so kind as to inform potential interested persons of the online newsletters in order to broaden the society's visibility.



I would also like to draw your attention to missing and/or inaccurate membership details on the website. Many members have no doubt left to work elsewhere, broadened their research interests, and changed portfolios, and so on. If you are aware of such members (perhaps you are such a member), please have them contact the membership secretary so that we can capture your new personal details. I am receiving an increasing number of email returns because we have outdated membership records. In this regard, I urge you all to visit the website on occasion to check for accuracy and ongoing additions.

Once again, thank you to all who have contributed to the success of the newsletter.

## The Annual Conference

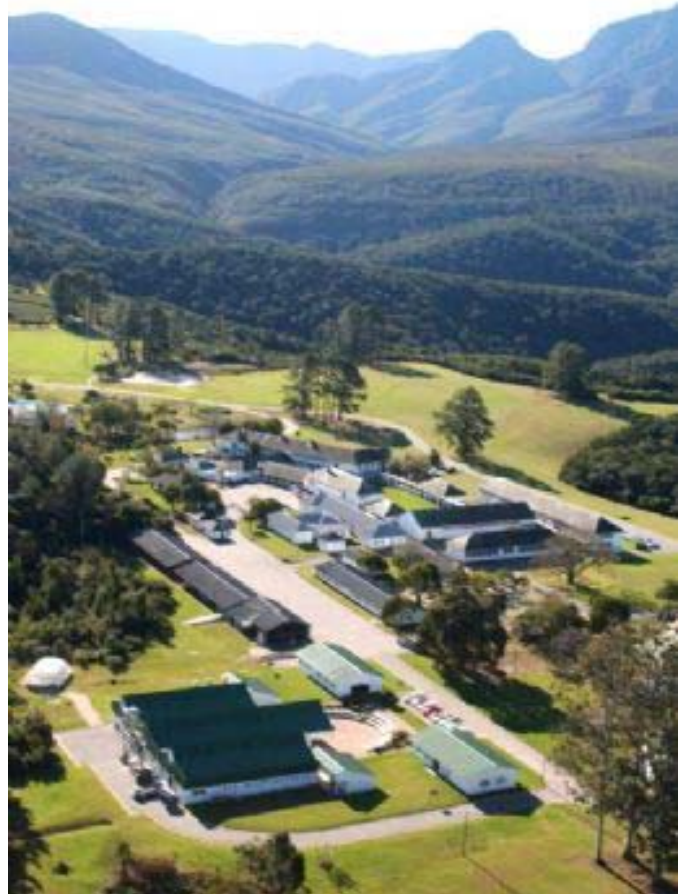
### Summary and Prize Winners

#### The Phycological Society of Southern Africa goes Silver!

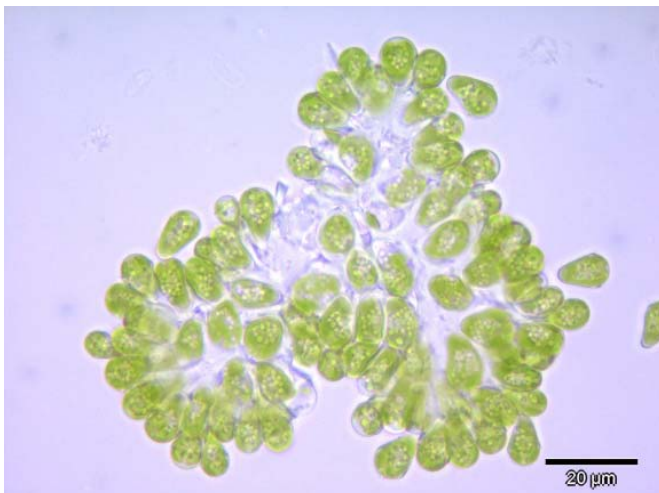
The focus of the PSSA25 conference was a celebration of the silver anniversary, and the spectacular setting at the George campus of the Nelson Mandela Metropolitan University delivered an exceptional venue for the event.

Clarisse Odebrecht from Brazil gave the conference a distinctly Sandy Beaches flavour, but the co-hosting of the conference with the SA Algal

Biofuels Workshop provided a unique experience both for the phycologists and the chemical engineers.



An aerial view of the Saasveld campus.



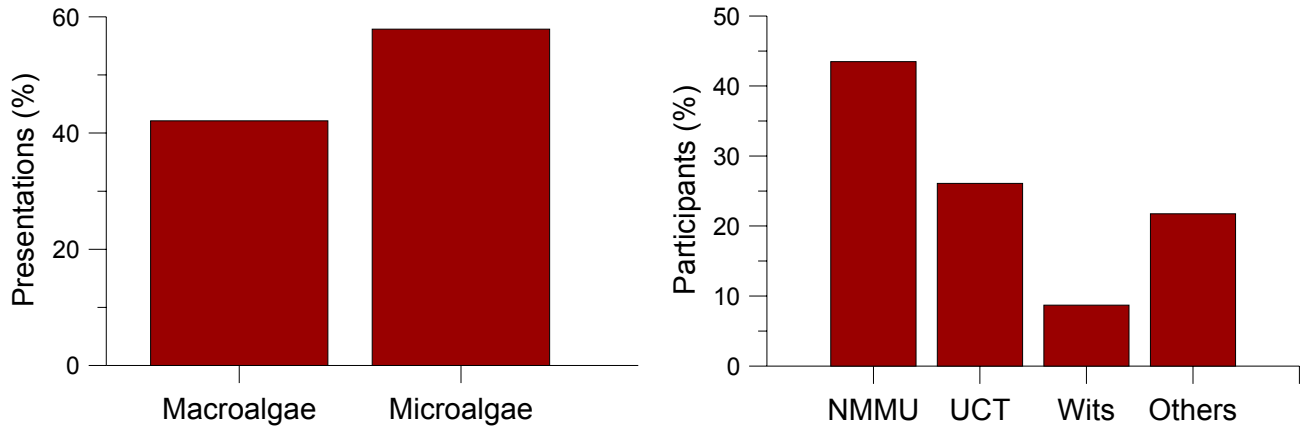
SA Algal Biofuels Workshop opening slide.



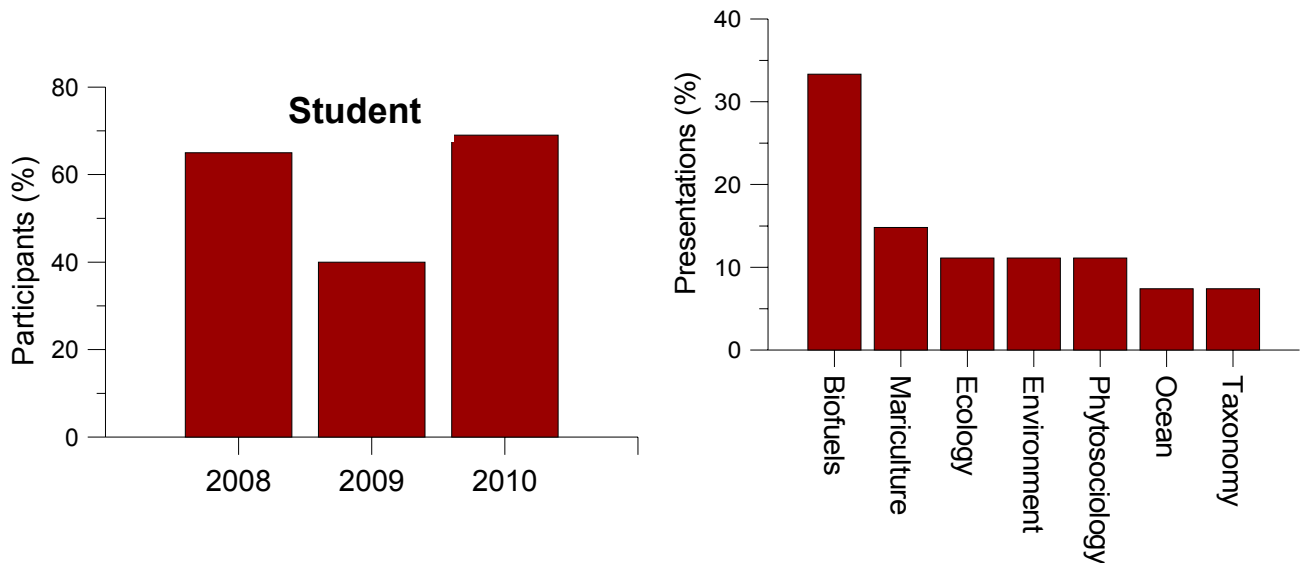
The Sandy "Peaches" focus.



While some hardy perennial phycologists were absent from the conference, the papers presented reflected a healthy balance of phyco-subjects. Not surprisingly, microalgae dominated the conference due to the *Biofuels* and *Sandy Beaches* emphasis while the participants were dominated by the hosting institution.



Particularly pleasing is that the student participation was restored after the low attendance of students in 2009. Predictably, *Algal Biofuels* delivered a strong component – a feature we are hoping to encourage in the future. As usual, the remainder of the presentations delivered a well-balanced portfolio of topics.



The conference kicked off with presentations on algal biofuels followed by a workshop on the way forward for Algal Biofuels research in South Africa. Among other issues raised, PSSA was commissioned to develop a register (catalogue) of algal cultures and our collaboration with chemical engineers in terms of developing a molecular identification database showed signs of promise. A late afternoon icebreaker gave everyone an opportunity to meet and greet each other.

The second day commenced with a keynote address by the visiting speaker, Clarisse Odebrecht from Brazil. Her work on surf diatoms represents the only other long-term studies on these highly productive systems. Conference presentations were followed by the General Meeting in the late afternoon.





During the mid-conference excursion on Thursday, the delegates visited the Goukamma Nature Reserve to view storm damage as well as the Victoria Bay beach. A short visit to a beach near the Great Brak river mouth presented an opportunity for careful driving (mostly panic stricken passengers) and a near-drowning in an attempt to collect the surf diatom *Anaulus australis* Drebes *et* Schulz (bottom left). Tinus did manage to catch several *Aulacodiscus petersii* Ehrenberg (bottom right).

A short forest walk woke everyone up the following morning, after the Conference Dinner of the night before. A last round of talks concluded a superb time of science, discussion, planning, interacting and fun. Thank-you to all who attended.

**Eileen Campbell**  
Department of Botany  
Nelson Mandela Metropolitan University

Photographic highlights  
of the congress can be  
found on the following  
pages!



Storm damage in the Goukamma Nature Reserve.







A view of the congress venue on the Saasveld campus.



The 2010 PSSA participants.



The 2010 guest speaker Prof. Clarisse Odebrecht from the Fundação Universidade Federal do Rio Grande, Brazil.



Participants visiting the field station along the Great Brak River.



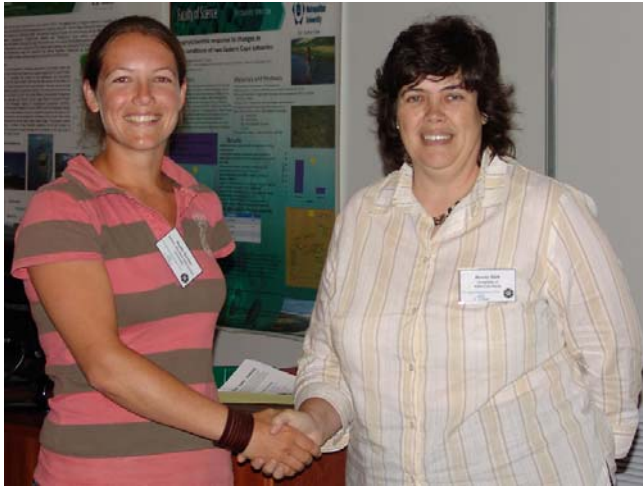
Participants relaxing for lunch at Victoria Bay during the mid-congress excursion.



Some of the participants who ventured into the surrounding forest of the Saasveld campus.

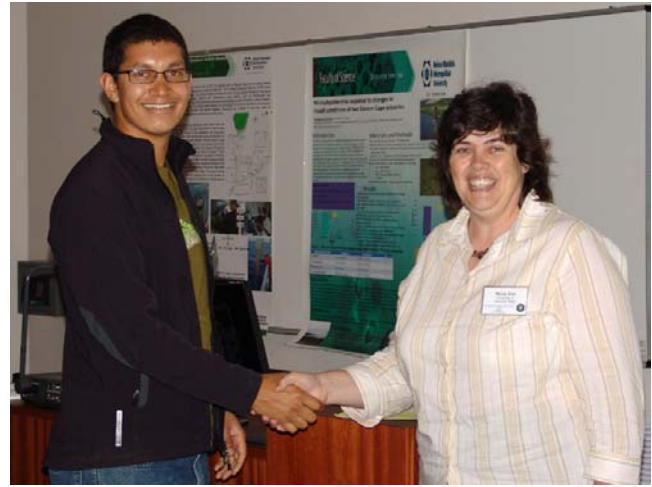


### PSSA 2010 Prize Winners



**Best PSSA student oral paper:**

**Nette Gordon** – Paleolimnology of a coastal wetland on the Southern Cape coast of South Africa: Sediment geochemistry and diatom distribution



**Best PSSA student poster presentation:**

**Reinhardt Scholtz** – Feeding preference of *Tripneustes gratilla* (Echinodermata: Echinoidea) and the prospect of Echinoculture in South Africa.



**SASCA award for the best (applied) oral paper:**

**Mark Cyrus** – Development of an artificial diet for the production of export quality gonads from the sea urchin *Tripneustes gratilla*.





**PSSA 2010 General images & Dinner**



Meeting up with old acquaintances.



Getting to know the new members.



Experimentation at an advanced stage.



The congress dinner.



The congress dinner.



The congress dinner.





## News and Reviews

### 1. Mariculture in the Western Indian Ocean region – Challenges and Prospects, A WIOMSA/IFS Workshop Zanzibar, Tanzania, 30 November - 4 December 2009

The Western Indian Ocean Marine Science Association (WIOMSA) is a regional, professional, non-governmental, non-profit, membership organization, registered in Zanzibar, Tanzania. The Association consists of about 1000 individual members and about 50 institutional members from within and outside the region. WIOMSA is dedicated to promoting the educational, scientific and technological development of all aspects of marine sciences throughout the Western Indian Ocean (WIO - Somalia, Kenya, Tanzania, Mozambique, South Africa, Comoros, Madagascar, Seychelles, Mauritius, Reunion) region, with a view toward the sustainable use and conservation of its marine resources. To this end WIOMSA hosts a number of regional workshops and meetings that provide the linkage between science and management.

Coastal aquaculture development within the Western Indian Ocean region is currently at a crossroad. Dwindling catches in capture fisheries and the degradation of coastal ecosystems has limited access to affordable and sustainable seafood to the poor. In addition the WIO population is increasing and so too the demand for fish. As a consequence Sub-Saharan Africa now imports low-valued fish. This has led to an increase in fish prices and has been a huge incentive for aquaculture production in the region.

The purpose of this workshop was to gather together marine scientists, coastal practitioners, and institutions involved in the advancement of marine science research. The aim was to development and highlight, together with presenters of successful aquaculture projects, as well as scientists involved with sustainable aquaculture research, share lessons learnt in order to discuss and guide future development and research priorities in the right direction. The workshop was jointly hosted by the International Foundation for Science (IFS) and WIOMSA, in collaboration with The Beijer

Institute. Funding came from the Swedish International Developmental Agency (SIDA) and The Foundation for Strategic Environmental Research (MISTRA).

Of the four workshop days, two were devoted to lectures, one was spent in workshops, and one was spent visiting various successful aquaculture projects in Zanzibar.

Workshop presentations were divided into three themes:

#### Theme 1: Aquaculture in Africa - an overview

In this theme Ian Bryceson presented a plenary lecture on the “*Main challenges for coastal aquaculture development in the WIO region - who are the winners and losers?*” The presentation examined the history of aquaculture production by WIO countries and compared some examples with other aquaculture producing countries. The plenary lecture was then followed by an overview of mariculture activities in the WIO region, with a country representative reporting on all aquaculture activities for that country.

#### Theme 2: Aquaculture and sustainability - sharing experiences

In this theme there were two plenary presentations by Max Troell and Malcolm Beveridge on “*Aquaculture and the environment - an ecosystem approach*” and “*Aquaculture and climate change – what are the challenges for the WIO region?*” The talks highlighted current environmental concerns for aquaculture and also the mistakes made by other aquaculture producing countries. This theme was continued on the second day with presentations by Selina Stead, Eurico de Oliveira, Jurgenne Primavera, Jason Rubens and Hampus Eriksson on “*Sustainable aquaculture development in Europe – what’s the message for East Africa?*”; “*Perspectives on sustainability in South American Aquaculture development*”, “*Using mangroves for aquaculture – why should we?*”; “*WWF – lessons learned on artisanal mariculture in Tanzania*”, and “*Environmental considerations for an expanding sea cucumber*



*farming industry – something to learn from other regions?”* respectively.

### **Theme 3: Facilitation mechanisms for sustainable aquaculture, success stories and learning prospects**

Here talks ranged from seaweeds, sea cucumbers, shrimps, pearl farming, abalone and finfish. My oral contribution (see below) to the workshop was included under this theme and the paper was well received. We were especially commended on our collaborative efforts with academic, government and commercial sectors, something that is being encouraged and becoming increasingly popular within scientific circles.

#### **Presentation:**

Robertson-Andersson D, JJ Bolton, M Troell, RJ Anderson, GW Maneveldt, C Halling, A J Smit, T Probyn and S Peall. Integrated abalone / seaweed farming in South Africa.

**Deborah V. Robertson-Andersson**

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## **2. XX International Seaweed Symposium, Ensenada, Mexico – review of days 1-2 from a hydrocolloid specialist**

In hydrocolloid terms, the Seaweed Symposium was not as academic and scientific as other hydrocolloid venues IMR has attended, but there were many PhD presentations. Notably, however, the opening plenary presentation was a commercial one by Pete Bixler and Hans Porse. There were three subdivisions of the sessions. It was impossible to attend more than a sample of the many presentations available.

Some thoughts and notes from **day 1** include:

Hydrocolloids extracted from seaweed, agar, alginate and carrageenan, form the largest segment of seaweed value with significant growth in the last decade, from \$644 million in 1999 to \$1,020

million in 2009. There are good growth prospects for all three seaweed based hydrocolloids but the dynamics of end-use and functionality are changing. For example, agar sales as a single ingredient at the retail level are declining but consumption in formulated foods is picking up. Carrageenan in meat continues to grow and more than make up for any decline in other applications.

There is reference to the commoditization of hydrocolloids. A thought - "Is it the product that is becoming a commodity, or is it the buyer that fails to see and value the specialty aspects?"

Several presentations touched on the need to monitor and control harvesting of seaweed to assure sustainability. There was a high level of employment at the farming and harvesting level for all three hydrocolloids. *Gelidium* harvesting in Morocco for example, assures employment to over 10,000 persons. It would be an interesting analysis to calculate the number of jobs created per \$million in sales of hydrocolloids. The socio economic value of hydrocolloids has not been sufficiently analyzed and promoted in the opinion of IMR.

### **Day Two**

More PhD papers with much theory and science, BUT, some very commercial presentations also.

Controlling the proliferation and expansion of invasive and non-endemic seaweed species appears virtually impossible. The example of species transmission from Alaska to Southern California was given. This raises questions about the validity and practicality of implementing international protocols for the transfer of a seaweed species from a native location to a non-endemic location eg. *Eucheima cottoni* from The Philippines to Colombia. Nevertheless, a raised awareness and attempts at controlling the spread of seaweed must be maintained and enhanced.

Biofuels from seaweed was a hot topic and so it should be. Considering alternative sources of biofuels, eg. ethanol from corn, seaweed has significant economic and socio economic advantages. There are many projects ranging from



Chile to Norway evaluating the potential of seaweed biomass for fuel extraction. Government funding has been made available in some cases.

The non-food use of seaweed raises the interest of geneticists who could tailor seaweed for energy production in biofuels. The specter of genetically modified (GM) seaweed vs non-GM was little discussed, and it should have been. There was a planned presentation on this subject, entitled *Genetic Engineering in Seaweed Biorefinery: Challenges and Perspectives*. Unfortunately, the presentation was cancelled for undisclosed reasons. The prospect of genetic modification in aquaculture raises issues more difficult to control than those facing terrestrial farming methods.

Extracting bioactive elements was a relatively new segment to the seaweed industry. It was certainly one with good long-term potential and significant added value. Regulatory approvals and allowed label declarations will be the major obstacle to market growth in this segment.

Symbiotic and synergistic developments between seaweed and fish farming hold much potential. The negative connotation of fish farming waste and pollution could be reversed with its harnessing for enhanced growth of beneficial seaweed.

There has been much research on phycocolloids from seaweed, but none with immediate commercial relevance. Questions regarding the tight supply of gelling grade alginates in the market elucidated only nebulous answers from several respondents.

These and other topics will be discussed in more detail in the next issue of *The Quarterly Review of Food Hydrocolloids* and/or the Berlin conference, April 25-27 (see calendar of events).

**Dennis Seisun**

IMR International

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## Conference Countdown

Wits University, under the chair of Stuart Sym, has graciously agreed to arrange the PSSA congress for 2011. Please keep an eye on the society's website ([www.bcb.uwc.ac.za/pssa/](http://www.bcb.uwc.ac.za/pssa/)) for information updates.

## Calendar of Events

### Upcoming Conferences

1. 2<sup>nd</sup> Algae World Europe Conference. Brussels, Belgium, 22-23 April 2010.  
<http://www.cmtevents.com/aboutevent.aspx?ev=100411>
2. 2010 IMR Conference: Food Hydrocolloids. Berlin, Germany, 25-27 April 2010.  
<http://hydrocolloid.com/Conferences/conferen.htm>
3. Scientific Committee on Antarctic Research (SCAR) Open Science Conference. Buenos Aires, Argentina, 3-6 August 2010.  
<http://www.scar.org/news/scarbusiness/>
4. 8<sup>th</sup> International Conference on Recirculating Aquaculture. Roanoke, Virginia, USA, 20-22 August 2010.  
<http://www.recircaqua.com/icra.html>

