

Forum Phycologicum



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

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From the Editor

Welcome to the first edition of the official new *Forum Phycologicum* (An assembly of like-minded people [*forum*] with phycological interests). As far as I am aware, the idea arose in Maputo airport en-route to the previous PSSA conference, from a comment made by Kishan Sankar as to whether the *Newsletter* was a “real publication”. This was followed by a discussion between Rob Anderson and John Bolton who thought about the fact that the S.A. Assoc. of Botanist’s newsletter is called *Forum Botanicum*. Discussions at the AGM in Maputo suggested that it might be nice for ours to also have a name. Deborah Robertson-Andersson commented that we have had some interesting research articles in past issues and that this might stimulate more, particularly from students. And so, after some email calls for interesting names, it was decided that *Forum Phycologicum* was the most appropriate name from those suggested.

Continuing on with the theme of **Global Warming**, or should we perhaps rather not say **Global Warning** as in Al Gore’s presentation, the first edition for the year has again been devoted to this ever looming global catastrophe. Besides some interesting reading, which no doubt many of you are well acquainted with, the featured article makes an appeal to each and every one of us to add our voices to the ever-increasing call for immediate global action. Some other articles of interest are the new developments in marine aquaculture initiatives in South Africa and at the end of the issue is attached a review of the IPC8 that appeared in *Protist*.

Until the next issue.
Best wishes
Sincerely

Gavin W. Maneveldt

Synarthrophyton patena
epiphytic on *Gelidium capense*



News and Reviews

1. 4th European Phycological Congress

23 - 27 July 2007 in the Palace of Congresses - Audience "Prince Felipe" of Oviedo, Spain.

The Scientific Organising Committee (SOC) and the Local Organising Committee (LOC) would like to encourage you to attend the next EPC. The SOC includes 30 members, mostly from Europe, but also from Australia, South Africa, Korea and the US, while the LOC consists of fellow phycologists from Spain. Some of the OC first met in 2005 at the IPC in Durban, and they have since worked continuously towards the goal of producing a broad-themed and exciting EPC-4 programme. The breadth is reflected in the banner “*Advances in Phycology: From Genes to Global Ecology and Beyond*”, as well as in the Symposia Themes (see website).

Deadlines

Early registration: 30 April 2007.

Abstracts: 20 April 2007.

Website <http://www.ivepc.es/>

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2. Current Status of Marine Aquaculture in South Africa

March 2007

Aquaculture is one of the fastest growing food production systems in the world, largely as a consequence of the decline in global fisheries and a rising demand for fishery products. It has the potential to contribute significantly to food security, poverty alleviation and economic growth. In recent years, efforts have been made to develop South African marine aquaculture to meet the international growth rate and standards. The process is now moving towards a point where



government and industry are able to strategise on possible ways to develop this industry.

Current status

The number of Rights Holders has increased from 48 in 2005 to 53 in 2006, excluding research exemptions that were also issued in large numbers. The industry has since shown keen interest and cooperation in working with government to improve and develop the sector, e.g. the increased participation in government-led Marine Aquaculture Liaison Meetings and other government interventions. Species that are currently commercially cultured include abalone, oysters, mussels and seaweed, and those that are cultured but not yet commercial include salmon, kob, yellowtail, scallops and prawns. The total value of the sector is just above R150M with a total of 800 jobs being created.

The Department of Environmental Affairs and Tourism (hereafter referred to as the Department), realizing that the growth of this sector is dependent on government support, has since established a dedicated Marine Aquaculture Management unit within the Department. The unit is made up of a rich combination of aquaculture specialists/technical experts, administrators and project coordinators. The primary mandate of this unit is to promote, support and manage the industry, with major current initiatives being the coordination and involvement of the sector, promotion and support of existing initiatives, and development of legislation (i.e. a draft policy and sector development strategies are under development). These initiatives are seen as guiding tools in the management, growth and development of this sector and also to solicit support as high as political and international bodies.

There is also a dedicated research component (Frontier Programme) within the Department driving research initiatives within the sector. Research conducted by this component informs technical inputs that go into management strategic documents. In the same light this particular component assists the industry with their research needs, with some direct industry research being conducted at its research facility in Sea Point, Cape Town. The programme is funded by the South

African government primarily to look into research-related industry needs and constraints, and to address them.

Both industry and government efforts are currently being coordinated to allow realization of the growth potential of this sector. The marine aquaculture policy that is currently being developed is looking to champion such efforts by eliminating possible constraints and harnessing already existing initiatives.

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World Science

1. Report spurs backing for global body on warming

Feb. 3, 2007

Courtesy: Associated Press and World Science
[\(http://www.world-science.net/\)](http://www.world-science.net/)

Fear of runaway global warming pushed more than 40 countries to line up Saturday the 3rd of February behind France's bid for a new environmental body that could single out – and perhaps police – nations that abuse the Earth. “It is our responsibility. The future of humanity demands it,” French President Jacques Chirac said in an appeal to put the environment at the top of the world's agenda.

He spoke at a conference in Paris a day after the release of a grim landmark report from the world's leading climate scientists and government officials that said global warming is so severe that it will “continue for centuries” and that humans are to blame. The Intergovernmental Panel on Climate Change report sparked calls for fast, planet-wide action. But not everyone at Chirac's conference welcomed the idea of a body that would define and possibly enforce environmental rules. Key world polluters – including the United States,



China and India – steered clear, while Europeans embraced it. A total of 46 countries agreed to pursue plans for the new organization.

Former Vice President Al Gore, whose documentary (“*An Inconvenient Truth*”) on the perils of global warming has scored two Oscar nominations, cheered Chirac’s efforts. Friday’s (02.02.07) report was “yet another warning about the dangers we face. We must act, and act swiftly,” Gore said in recorded remarks shown at the conference. “We are at a tipping point.”

The 21-page report said man-made emissions of heat-trapping “greenhouse gases” are to blame for fewer cold days, hotter nights, heat waves, floods and heavy rains, droughts and stronger storms, particularly in the Atlantic Ocean. The report found that if nothing is done to change current emission patterns of greenhouse gases, global temperatures could increase as much as 11 degrees Celsius by 2100. But if the world does get greenhouse gas emissions under control – something scientists say they hope can be done – the best estimate is about 3 degrees Celsius. Also, sea levels are projected to rise 7 to 23 inches by the end of the century, the report said. By 2100, if nothing is done to curb emissions, the melting of Greenland’s ice sheet would be inevitable and the world’s seas would eventually rise by more than 20 feet, said Australian scientist Nathaniel Bindoff, a co-author of the report.

Authors of the report called it conservative: It used only peer-reviewed published science and was edited by representatives of 113 governments who had to agree to every word. It was a snapshot of where the world is with global warming and where it is heading, but does not tell governments what to do. The panel, created by the United Nations in 1988, releases its assessments every five or six

years, though scientists have been observing aspects of climate change since as far back as the 1960s. These reports are released in phases and Friday’s (02.02.07) report was the first of four for 2007.

2. Eminent scientists warn of disastrous, permanent global warming

Feb. 19, 2007

Courtesy: Environment News Service
<http://www.ens-newswire.com/>



Global warming is melting the Greenland ice sheet, researchers say (image courtesy NASA GSFC).

SAN FRANCISCO, California, USA – The leaders of the world's largest general scientific society, the American Association for the Advancement of Science (AAAS), issued an imperative climate change warning on Sunday the 18th of February 2007. “The atmospheric concentration of carbon dioxide, a critical greenhouse gas, is higher than it has been for at least 650,000 years. The average temperature of the Earth is heading for levels not experienced for millions of years.”

Global warming is not a theory; it is a fact based on a “growing torrent of information,” said the Board of Directors of the AAAS in its first consensus statement on climate change. The statement was issued at the association's annual meeting in

San Francisco. “Scientific predictions of the impacts of increasing atmospheric concentrations of green-house gases from fossil fuels and deforestation, match observed changes. As expected, intensification of droughts, heat waves, floods, wildfires, and severe storms is occurring, with a mounting toll on vulnerable ecosystems and societies,” the board said.

Approved by the board on December 9, 2006, nearly two months before a similar statement by the Intergovernmental Panel on Climate Change, the AAAS statement warns, “**Delaying action to address climate change will increase the environmental and societal consequences as**



well as the costs. **The longer we wait to tackle climate change, the harder and more expensive the task will be.** Accumulating data from across the globe reveal a wide array of effects: rapidly melting glaciers, destabilization of major ice sheets, increases in extreme weather, rising sea level, shifts in species' ranges, and more," the board stated. "The pace of change and the evidence of harm have increased markedly over the last five years. The time to control greenhouse gas emissions is now."

The 14-member board includes scientists from Harvard, Yale and Princeton, the University of Michigan, University of Utah, Ohio State, Lehigh, the California Institute of Technology, and the James S. McDonnell Foundation. Dr. John Holdren, who became board president at the gathering, told delegates in his presidential address, "Global climate change is real, humans are responsible for a substantial part of it, and it's taking us in dangerous directions."

Without swift and urgent action, he said, the problems could spiral toward disastrous, permanent changes for all of life on Earth. **"Climate change is not a problem for our children and our grandchildren - it is a problem for us.** It's already causing harm," said Holdren, who serves as director of the Woods Hole Research Center, and is the Teresa and John Heinz Professor of Environmental Policy at Harvard University.

Holdren's address was a review of evidence which, taken together, shows a planet under profound stress. One of the central problems, and the most complex, he said, is ending the reliance on fossil fuels that is damaging and destabilizing the Earth's ecosystem. The year 2005 was the hottest on record, he said. The 13 hottest years on record all have occurred since 1990. Twenty-three out of the 24 hottest years have occurred since 1980. The sort of heat wave that killed 35,000 people in Europe in the summer of 2003 is expected to become normal by 2050, he warned. By 2100, Holdren said, some projections say global temperatures could rival those of the Eocene epoch some 35 million years ago, a time of global warming that caused waves of extinction in Earth's ecosystem.

"Even if we stopped producing greenhouse gases immediately," said Lonnie Thompson – who has achieved global recognition for studying ice cores to learn about climate change – "we would not see an immediate benefit because there are still some gases and energy stored in the system."



Featured Article

Urgent Climate Wake Up Call!

While there have been many reports in the media and on the Internet recently on *Global Warming Awareness* (e.g. *An inconvenient Truth: A Global Warning* by Al Gore), it appears that little action is being taken to slow or stem this global catastrophe. Even more alarming is the fact that despite the overwhelming evidence, there are those skeptics who truly believe that global warming is not an ecological time bomb and that the recent enhancement in the earth's average temperature is no reason for alarm. So, while this topic has certainly been rehashed time and time again over the past few months (and years for that matter), and while I am no doubt preaching to the already converted, it seems only appropriate to continue to bombard you all with a constant array of *Global Warming Awareness* facts and updates of new – or perhaps not so new – and, for lack of a better word, *recycled* information on the topic.

If you can recall, in the March 2005 edition of the PSSA newsletter, I reported on the International Conference on "*Biodiversity: Science and Governance*" (Paris Conference) that met from 24-28 January 2005 at the headquarters of the United Nations Educational, Scientific and Cultural Organization (UNESCO), in Paris, France. The Conference, held independently from any intergovernmental negotiations, was part of the ongoing global effort to reverse the current rate of biodiversity loss by 2010, and ensure the long-term conservation and sustainable use of biodiversity, as well as the fair and equitable sharing of the benefits arising from genetic resources. The Conference produced two documents: the *Paris Declaration on Biodiversity* (an appeal by scientists on behalf of the Earth's



biodiversity) and a *Conference Statement*, which recalls governments' commitments to the 2010 Millennium target and supports the launch of an international multi-stakeholder consultative process to assess scientific information and policy options for decision making.

Despite these ongoing efforts, very little real progress is being made. In June of 2001, the then U.N. Secretary-General Kofi Annan launched the Millennium Ecosystem Assessment (MA) which was to help meet assessment needs of the Convention on Biological Diversity, the Convention to Combat Desertification, the Ramsar Convention on Wetlands, and the Convention on Migratory Species, as well as needs of other users in the private sector and civil society. It was anticipated

that an assessment process modeled on the MA would be repeated every 5–10 years and that ecosystem assessments would be regularly conducted at national or sub-national scales. The MA did not aim to generate new primary knowledge, but instead sought to add value to existing information by collating, evaluating, summarizing, interpreting, and communicating it in a useful form. Upon its completion in March of 2005, the bottom line of the MA findings was that human actions are depleting Earth's natural capital, putting such strain on the environment that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted. At the same time, the assessment showed that with appropriate actions it was possible to reverse the degradation of many ecosystem

Global warming is caused by green house gases, which trap in the sun's infrared rays in the earth's atmosphere, which in turn heat up the earth's atmosphere. This green house effect warming is called global warming. The effects of green house effect are visible more prominently in recent years, with a number of natural calamities on the rise in the whole world.

Global warming has happened in the past few years and is evident from the rise in mean temperature of the earth's atmosphere. The main causes for the global warming are attributed to release of green house gases by human activities. The main gases contributing to green house effect are carbon dioxide, water vapor, methane and nitrous oxide. The largest producers of these gases are the thermal power plants, which burn large quantities of fossil fuels. The second biggest sources of these green house gases are road vehicles and industries.

Global warming has led to an increase in the mean earth surface temperature and thus melting of polar ice. There are frequent melt downs of glaciers that result in floods and other natural calamities and this melting of the ice at the poles has led to a rise in the mean sea level. Further increases in temperature will further melt the ice and lead to further increases in mean sea level, which will engulf low lying countries and cities.

The effects of global warming are very evident on the animal kingdom. Some animals have become extinct, or are on the verge of extinction (e.g. Polar Bears), due to loss of their natural habitat or their inability to evolve to the rapid changes in the climate. Also, there is a change in their life style because of the changes in the seasons. Migrating birds, for example, have changed their time of travel and also their place of migration.

The effects of global warming can be felt on seasons too. There is a shift in the cycling of the seasons, as the summers are getting longer than the winters. This has affected many animals and made them change their lifestyles accordingly. Those who failed to do so have perished or are on the verge of extinction.

Global warming is also responsible for the introduction of many new diseases. Bacteria are more effective and multiply much faster in warmer temperatures compared to cold temperatures. The increases in temperature have led to an increase in the microbes that cause diseases.

Global warming is also effecting crop production, as the sudden change in temperatures or sudden onset of rains is destroying many crops. Flash floods and other natural calamities, in particular are affecting crops.

The earth's atmosphere is getting more unpredictable with heavy rains in certain areas. Areas that have had scanty rainfall or prolonged drought are experiencing higher than normal rainfall. The months of the year receiving rain have also been affected.

There are some people who believe that **global warming is a natural process** and cannot disturb our ecosystem. The earth's mean surface temperature was even higher a long time ago, and the ecosystem has evolved from that temperature to this. So it can evolve further. However, the changes that are happening now are rather fast compared to earlier times.

Source: *Global Warming* (<http://www.globalwarming.org.in/>)



services over the next 50 years, but the changes in policy and practice required are substantial and not currently underway. What this all means, is that we are simply running out of time. Two years on and we are still debating how we, as a global nation, are to implement the suggested management plans. The ongoing implementation of these plans are further being hampered by the continued lack of commitment by many of the world's top nations, many of whom are also the leading courses and sources of our environmental problems.

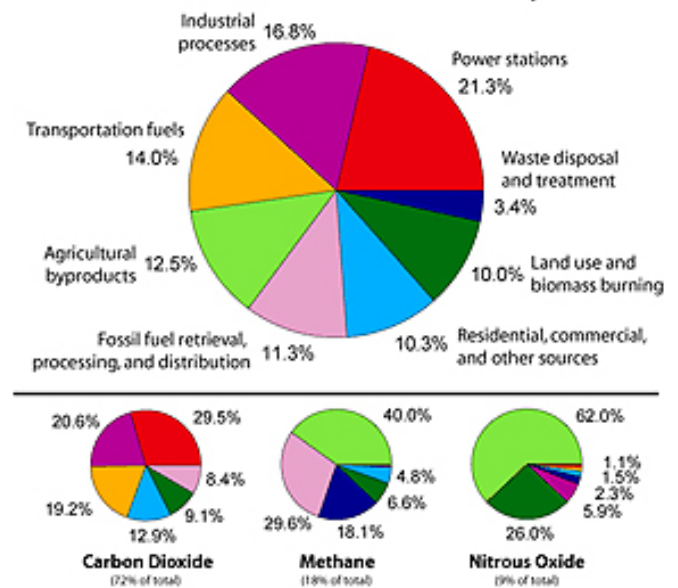
All of this said, the media is becoming increasingly bombarded with reports of **WARNING**. Scientists all over the world have been making predictions about the ill effects of Global warming and connecting some of the events that have already taken place in the past few decades as an alarm of global concern. The effect of global warming is increasing the average temperature of the earth. A rise in earth's temperatures no doubt in turn will root to other alterations in the ecology, including an increasing sea level and modifying the quantity and pattern of rainfall. These modifications, as is already being shown, will boost the occurrence and concentration of severe climate events, such as floods, famines, heat waves, tornados, and twisters. Other consequences we have already been witnessing, is lower agricultural outputs, glacier melting, lesser summer stream flows, species extinctions and rise in the ranges of disease vectors.

As an effect of global warming various new diseases have emerged lately. These diseases are occurring frequently due to the increase in the earth's average temperature since bacteria can survive better in elevated temperatures and even multiply faster when the conditions are favorable. The global warming is even extending the distribution of mosquitoes due to the increase in humidity levels. Various new diseases due to the ebola, hanta and machupo viruses are expected due to warmer climates

Marine life is also very sensitive to the increase in temperatures. It is expected that many cold-water species will die off or become extinct due to the increase in seawater temperatures, whereas various other species, which prefer warmer waters, will increase tremendously. Perhaps the most disturbing

changes are expected on coral reefs that are expected to die off as an effect of global warming. While we now know that on a global scale, more warm-water resistant corals are dominating coral reefs, even these have their temperature optima. Global warming is expected to cause irreversible changes in many marine ecosystems and particular in the behavior of animals such as polar bears.

Annual Greenhouse Gas Emissions by Sector



You Can Help Fight Global Warming

Many efforts are being made by various nations to cut down the rate of global warming. One such effort is the Kyoto agreement that has been made between various nations to reduce the emissions of various green house gases. As you are all well aware, the award winning documentary *An Inconvenient Truth* by Al Gore, one of the foremost U.S. politicians to have an alarm about the hazards of global warming, has been receiving world-wide acclaim for its *in-your-face, no-holds-barred* state of the global environment. If you haven't already seen it, make every effort to do so.

Also, the leaders of the world's most polluting countries will be meeting in Germany this June 2007. The priorities for this summit are still being decided right now. AVAAZ.ORG (which means "Voice", is a community of global citizens who take action on the major issues facing the world today) is currently airing a television ad in key



world capitals to send our world leaders a wake up call. AVAAZ needs your help to make them hear us. “Global warming is here, but our leaders just won't wake up,” says a voice. “Now you can sound the alarm by going to avaaz.org to send your leader a wake-up call.” **Sign the petition** to tell world leaders that we need bold action **NOW**. “We are asking people to send world leaders a wake-up call. The post-2012 stage of Kyoto is too important to be left to bureaucrats. World leaders need to get down to business.” said David Madden, a founder member of AVAAZ and an activist previously involved in the Australian group GetUp.org.au.

Sources of information:

<http://www.avaaz.org/>
<http://www.globalwarming.org.in/>

Where in the World?

News from the University of Witwatersrand

1. **Claudio Marangoni** is at present on research leave at the Stazione Zoologica "A. Dohrn" in Naples, Italy. He was invited across by Wiebe Kooistra and Marina Montresor during IPC8 in Durban in 2005. Claudio is undertaking sequencing work on two chloroplast genes' regions (rbcL & the psbC region) and 3 ribosomal regions (LSU, ITS1 and ITS2) to infer the phylogeny of the genus *Pseudo-nitzschia*. By all accounts, the work is going extremely well and he has proved very popular with the scientists there.

2. One of the youngest PSSA members, **Philippa Wing**, has just enrolled for an Honours degree and will be working on the cell biology of coccolith secretion. Philippa, along with Trevor Bell (a 2nd year Masters student) recently attended the BCLME/BENEFIT/IOC regional training workshop on harmful algal blooms in Swakopmund 22 Jan to 2 Feb, which they found a very useful experience.

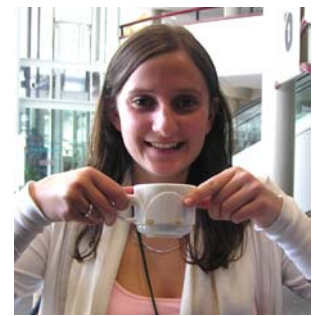
3. Believe it or not, **Richard Pienaar** is back in the laboratory after his stint as Deputy Vice Chancellor and Vice Principle at this Institution.

4. **Stuart Sym** will be going away for the month of March to visit the labs of Michael Melkonian in Cologne, Germany to complete and add to work started some time ago (molecular work on the Pyramimonadales).

5. Our other young PSSA member, **Bernadette Hubbart**, who finished her Honours at Wits in 2005, is registering for an MSc at UCT but will be working with Grant Pitcher at MCM looking at zooplankton population dynamics.



Claudio Marangoni



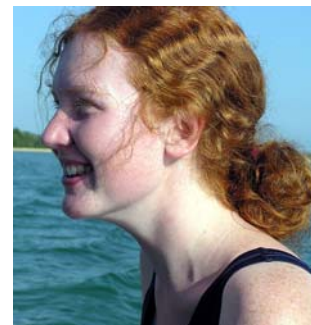
Philippa Wing



Richard Pienaar



Stuart Sym



Bernadette Hubbart

Conference Countdown

The next PSSA congress will take place in mid January 2008. A provisional booking has been made at Ellingham Resorts, Rocky Bay for 15th January (Tuesday) – 18th January 2008 (Friday).



The congress is just before the Wits field trip and is being organised and hosted by Wendy Stirk (Burnett) from the Research Centre for Plant Growth and Development, University of KwaZulu-Natal Pietermaritzburg. More details to follow shortly. Please also keep an eye on the website for regular updates.

Calendar of Events

Upcoming Conferences

1. ICS2007, 9th International Coastal Symposium, Queensland, Australia, 16-20 April 2007.
<http://www.griffith.edu.au/conference/ics2007/>
2. Oceans 2007, Aberdeen, Scotland, June 18-21, 2007.
<http://www.oceans07ieeaberdeen.org>
3. 4th European Phycological Congress (EPC4). Asturias, Spain, 23-28 July 2007.
<http://www.ivepc.es/>

