



# Australasian Society for Phycology and Aquatic Botany

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## Editor's Corner



**Prue McKenzie**  
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Welcome to the first ASPAB newsletter of 2006! My name is Prue McKenzie and I am the new editor for the ASPAB newsletter. For those who do not know me, I am a PhD student at Deakin University, Victoria studying the potential for long-distance dispersal in the brown alga, *Hormosira banksii* (Neptune's Necklace).

In the strive of becoming environmentally friendly, this issue has been provided electronically to members. However, it is possible to provide hard copies if the demand is there. Please let me know what you would prefer.

I have included in this issue applications for students who wish to apply for travel grants to ASPAB meetings or for overseas conferences/workshops. I encourage student members to take advantage of these available grants.

I'm sure everyone has visited the new ASPAB website, which is looking fantastic. To date, the membership log-in section is incomplete, however when this section is ready, members will be notified with information on how to access this section. Hopefully, the next issue of the newsletter will also be available to members on the website. The web address is [www.aspab.org.au](http://www.aspab.org.au).

The next issue will be published November 2006, so if anyone who would like to contribute to the newsletter, whether it is news, views, short articles, pictures, cartoons or anything else that may be of interest to the readers, your contributions would be most welcome. Please email me with your material before 31<sup>st</sup> October 2006.

**Prue McKenzie**

ASPAB Newsletter

## President's Message



**John Beardall**  
ASPAB President

The annual ASPAB conference was a great success and I would like to once again express my gratitude to Shauna Murray and her team who worked so hard to ensure it all went so smoothly.

I was especially delighted to see so many student attendees at the conference and I really enjoyed their presentations and enthusiasm. The challenge will now be to maintain their membership and participation in ASPAB through, and after, their PhD programs. It is a good sign, I think, that one of their number, Prue McKenzie, is now editing this newsletter!

The committee has now chosen a web designer to set up the society's new web page. Work should begin on this shortly and I am optimistic that we can now make serious moves towards improving the society's profile and services to the membership. We must continue to be vigilant in promoting our discipline and, as much as possible, increasing our membership base. Please make efforts to make your students and colleagues aware of ASPAB and what we can offer (this will get easier to do as the web page and poster become available in the next few months). With the Asia Pacific Phycological Forum in Wellington in 2008, the International Botanical Congress in Melbourne in 2011 and a bid for the International Seaweed Symposium in 2013 coming up, there will be plenty of opportunities to promote phycology and aquatic botany in the future!

I have recently flagged, with the society, my discussions over the past year with Hiroshi Kawai, President of the Japanese Phycological Society (JPS), about the possibility of forming an association between ASPAB and JPS that would allow ASPAB members an option to subscribe to Phycological Research at attractive rates. This

was further discussed at the AGM and I will be pursuing the matter further with Hiroshi in coming months to see if a reasonable arrangement is feasible.

As ever, the strength of ASPAB, as with any Society, depends on the willingness of its membership to participate fully in its activities. You are the Society – please help us to drive ASPAB in the direction, and with the dynamism, you expect by letting the committee know your views and ideas - not to mention those items for the website and the next edition of this Newsletter!

*John Beardall*  
April 2006

## Minutes of the 2006 ASPAB Annual General Meeting

**Held: 14<sup>th</sup> February 2006, at the University of Sydney, Sydney**

*Meeting opened: 5:05 pm*

**Present:** Rosalind Hinde, John Runcie, Shauna Murray, John Raven, Andrew McMinn, Joanna Jones, Jacob John, Tom Cowling, Martina Doblin, Peter Ralph, Gustaaf Hallegraeff, Julie Phillips, Tracy Farr, Lesley Rhodes, Jeff Cosgrove, Adriana Verges, Sven Ihnken, Ellen Doxey, Kirsten Shelly, Rosanne Quinnell, Jacqui Pocklington, Prue McKenzie, Alecia Bellgrove

**Apologies:** Phil Orr, Margaret Clayton, Judy Broom, Lindsey Zemke-White.

### **Minutes of the previous meeting:**

It was accepted that the minutes of the previous meeting are an accurate record. Proposed by Jo Jones, seconded by Jacob John.

### **President's report**

The report was accepted. Proposed by Roz Hinde, seconded by Shauna Murray.

### **Treasurer's report (Australian chapter)**

One student grant was paid from Australian funds during the year.

We did not have to pay for the Newsletter which has not appeared since November 2003. Our members are still not getting their moneys-worth but a slight improvement should result from the mailing of meeting abstracts to paid-up members not at the meeting.

The high surplus was due, by more than three-quarters, to the profit from the Adelaide meeting.

In December 2004 the Society's two term deposit accounts were amalgamated and reinvested at the best rate available at the time. When this matures in June 2006 I intend to contribute some of the current account before reinvestment.

The accounts have not yet been audited. The financial statement that has to be submitted to Consumer Affairs Victoria in order to maintain our incorporation status does not require an audit. I will ask Dennis McHugh to do 2 years together.

### *Membership*

Paid-up members were as follows:

	2001/2	2002/3	2003/4	2004/5
<i>Full</i>	54	49	40	44
<i>Student</i>	12	12	5	7
<b>Total</b>	<b>66</b>	<b>61</b>	<b>45</b>	<b>51</b>

Membership showed a slight improvement. We hope for more.

### *Joanna Jones*

The report was accepted. Proposed by Shauna Murray, seconded by Alecia Bellgrove.

## Elections for Committee Positions

The candidates for election to committee positions were as follows:

		<b>Nominated by:</b>	<b>Seconded by:</b>
<b>President</b>	John Beardall	John Raven	Shauna Murray
<b>Vice President</b>	Lindsey Zemke-White	Alecia Bellgrove	John Beardall
<b>Treasurer</b>	Joanna Jones	John Beardall	Roz Hinde
<b>Secretary</b>	Martina Doblin	Peter Ralph	Andrew McMinn
<b>Committee Members</b>	Phil Orr	Gustaaf Hallegraeff	John Raven
	Judy Broom	Tracy Farr	Lesley Rhodes
	Alecia Bellgrove	John Beardall	Martina Doblin
	Shauna Murray	Peter Ralph	Gustaaf Hallegraeff
	Prue McKenzie	Alecia Bellgrove	Jackie Pocklington

Elections were not necessary as there was only one candidate for each position. Positions were declared filled.

## General Business

John Beardall discussed that Peter Thompson has agreed to host the next ASPAB conference at Marine Labs in Hobart, in the initial months of 2007.

John Beardall asked for guidance about whether to proceed with an arrangement with the Hiroshi Kawai to supply the journal *Phycological Research* to ASPAB members for \$65. It was discussed what we could do for them in return for this, and how many members would be interested in taking up this offer.

The position of Newsletter Editor was discussed. Lindsey Zemke-White indicated to John Beardall that he would continue as editor and would produce a newsletter. Prue McKenzie indicated that she would be prepared to act as a Newsletter Editor. It was suggested that she work together with Lindsey to produce the first edition.

It was discussed whether it could be placed on the website as a pdf file, and whether or not this could be in a 'members-only' section, with some items of 'breaking news' in a section open to all. Many members also wanted a printed copy. The frequency of Newsletters was discussed, and John Beardall mentioned it was normally 2 editions a year. It was also discussed that the newsletter be sent to other institutions and marine labs where potential members might be interested in it.

Lesley Rhodes stated that the 2008 ASPAB meeting will be held jointly with the APPF in Wellington, New Zealand, and she encouraged everyone to attend.

The website was discussed. We are still receiving feedback from the committee on 2 tenders for the re-design of the website, and will make a decision and begin re-development within a month.

The poster will be sent around to publicise the society.

It was discussed that ASPAB requires a new Public Officer, who has to be a resident of Victoria. Karen Kevekordes will retire before the next AGM as Public Officer. Any members interested are asked to let John Beardall know.

It was discussed whether ASPAB could take over the re-printing of several out of print phycology text books, including the *Seaweeds of Australia* and *Marine Botany*. Longman Cheshire had indicated they would not reprint *Marine Botany* as it was, because they believed it needed to be updated. Several members agreed it was important to update it. It was suggested that ASPAB could sponsor an updated Australian phycology text.

John Beardall reported that he was involved for a bid for an upcoming international Seaweed Symposium in Melbourne.

*Meeting closed at 5:50 pm*

## Reflections on ASPAB Conference 2006

The 20<sup>th</sup> ASPAB conference held at the University of Sydney in February 2006 was an absolute success with a high diversity of presentations ranging from macro / microalgal ecology, algal symbiosis, blooms and invasive species, taxonomic and systematics and algal physiology. The total attendees to the conference was 49, including 31 contributed papers and 9 posters.



John Beardall announcing student awards at conference dinner (Photo: Lesley Rhodes)

The conference commenced with a very fitting icebreaker at the Sydney Aquarium on Monday 13<sup>th</sup> February. Not only did the delegates get the chance to catch up with or meet fellow colleagues, but an enjoyable tour of the aquarium was also taken. During the conference proceedings, there were 2 plenary talks on both days; **Bob Creese** talked about '*Caulerpa taxifolia*: Research and control efforts in NSW' and **Brett Neilan** presented 'The evolution of cyanobacterial-algal toxin biosynthesis'. The meet was very fortunate to end the proceedings with **John Raven** presenting a public lecture on 'Environmental change and primary productivity in the ocean'.



Delegates enjoying the conference dinner at Marigold Restaurant, Sydney (Photo: Lesley Rhodes)

The conference dinner was held on the 15<sup>th</sup> February at Marigold's Restaurant where delegates could unwind and enjoy themselves. The student awards were announced and the recipients were:

**Best Poster for Algal Physiology:** Sven Ihnken, Monash University

**Best paper for Algal Physiology:** Ross Hill, University of Technology Sydney

**Best poster (other than physiology):** Kim Wilson, University of Technology Sydney

**Best paper (other than physiology):** Yola Metti, Royal Botanic Gardens Sydney

The abstracts of the student recipients have been included in this issue.



Delegates enjoying the conference dinner at Marigold Restaurant, Sydney (Photo: Lesley Rhodes)

The milestone 20<sup>th</sup> ASPAB conference was very enjoyable and all the presenters should be congratulated on the high standard of scientific content. **Shauna Murray** should be thanked and congratulated also on the well-organised conference. Also thanks to the following organising committee / volunteers who also contributed to the success: Yola Metti, Steve

Amoroso, Wiebke Nordmeier, Rosalind Hinde, Tony Larkum, Alan Millar, Peter Steinberg and Peter Ralph. The next conference is scheduled to be held in Hobart, Tasmania in February 2007. More information will be provided in next issue.

## Abstracts of presentations by award recipients

### Duration of light exposure and increased DIC affects fluorescence based photosynthesis parameters in *Chlorella emersonii*.

Sven Ihnken, Tara Higgins and John Beardall

School of Biological Sciences, Monash University, Clayton, VIC 3800. [Sven.Ihnken@sci.monash.edu.au](mailto:Sven.Ihnken@sci.monash.edu.au)

Estimation of the light acclimation status of algae is of considerable interest in aquatic ecology. Studies of photosynthetic activity *versus* applied actinic irradiances ( $P_{vs.E}$  curves) allow calculation of photosynthesis parameters such as the light intensity for saturation of photosynthesis ( $E_k$ ), maximal productivity ( $P_{max}$ ) and the efficiency of light harvesting under light limiting conditions ( $\alpha$ ). Pulse-amplitude modulated (PAM) chlorophyll *a* fluorometry is widely used to estimate photoacclimation. To date however, little attention has been paid to the effect of the duration of light actinic light exposure during  $P_{vs.E}$  curves on the photosynthetic parameters.

In this study the well investigated freshwater chlorophyte *Chlorella emersonii* (Shihira & Krauss, 1965) was subjected to  $P_{vs.E}$  curves of different duration and dark acclimation periods as well as normal (air-equilibrium) and increased (4mM  $NaHCO_3$ ) dissolved organic carbon (DIC) conditions. Photosynthetic parameters  $E_k$ ,  $rETR_{max}$  and  $\alpha$  were calculated from  $P_{vs.E}$  curves of 1.6 min. and 15 min. total duration. Measurements were conducted after dark acclimation periods ranging from 15-95 min.  $E_k$  increased with increasing  $P_{vs.E}$  curve duration. In this study all changes in  $E_k$  were due to changes in  $rETR_{max}$ ,  $\alpha$  being unaffected by the different treatments and growth conditions. In order to estimate if photosynthesis has reached a steady-state during the light increments applied in a  $P_{vs.E}$  curve,  $F'$  was

recorded continuously. Our results show that steady-state fluorescence was not established during  $P_{vs.E}$  curves and the duration of  $P_{vs.E}$  curves affects the point of saturated photosynthesis significantly. Increased DIC concentrations diminished the observed effects of all treatments applied.

### Thermostability of Zooxanthellae Thylakoid Membranes: Seasonal Variation and Bleaching Sensitivity



Ross Hill<sup>1</sup>, Karin E. Ulstrup<sup>1</sup> and Peter J. Ralph<sup>1</sup>

<sup>1</sup> Institute for Water and Environmental Resource

Management, and Department of Environmental Sciences, University of Technology, Sydney, Westbourne St, Gore Hill, NSW 2065, Australia.

Coral bleaching events are characterised by a dysfunction between the cnidarian coral host and the symbiotic dinoflagellate algae, known as zooxanthellae. Elevated temperatures, in combination with intense light, are well known causes of coral bleaching, where the zooxanthellae are expelled from the host tissue. The photochemical trigger of this potentially fatal process is yet unknown, although several sites of impact within the photosynthetic apparatus of the zooxanthellae have been suggested. Here, we investigated the sensitivity of the thylakoid membrane during exposure to intense light, elevated temperatures and a combination of both, in genetically identified cultures, freshly isolated and expelled zooxanthellae. The fluorescence-temperature curve technique, with thermal ramping at  $1^\circ C \text{ min}^{-1}$ , was used to determine the critical temperature ( $T_c$ ) at which irreversible damage to the thylakoid membrane occurred. Zooxanthellae from 10 coral species were analysed during summer and winter and a decline in the  $T_c$  of the thylakoid membrane, indicative of thermo-tolerance, was found from a summer range of  $36.9^\circ C$  to  $39.7^\circ C$ , to a winter range of  $32.5^\circ C$  to  $38.2^\circ C$ , depending on species. A diverse range of genetically distinct zooxanthellae were identified in the hosts of the 10 coral species, although no correlations between genotype and physiological response were found.

Cultured zooxanthellae were exposed to a series of light and temperature treatments over 9 h, as were nubbins of *Pocillopora damicornis* for 8 h. The freshly isolated zooxanthellae from *P. damicornis* (extracted at each time interval), along with the cultured zooxanthellae, responded in a similar manner, showing a rise in  $T_c$  from approximately 37° C to 42° C under elevated temperature conditions. These results indicate that changes in the thermostability of the thylakoid membrane is temperature dependent, but light independent, as no change in  $T_c$  was found under intense light treatments. Under bleaching conditions of intense light and elevated temperature, the thermostability of the thylakoid membrane increased within 4 h by 5.1° C, to a temperature far above bleaching thresholds, in both freshly isolated zooxanthellae from *P. damicornis*, as well as photosynthetically competent zooxanthellae expelled under these conditions. It is demonstrated that the thermostability of the thylakoid membrane increases in cultured, freshly isolated and expelled zooxanthellae under bleaching stress, suggesting it is not the primary site of impact during coral bleaching events.

**The morphology and molecular phylogeny of the red algal genus *Laurencia* (Ceramilales, Rhodomelaceae) in NSW including Lord Howe and Norfolk Islands**



Yola Metti<sup>1</sup> and Alan J.K. Millar<sup>1</sup>

<sup>1</sup> Royal Botanic Gardens Sydney, Mrs Macquaries Rd, Sydney NSW 2000, Australia

A common and important marine red algal genus is *Laurencia*, which is currently represented in NSW waters (including Lord Howe and Norfolk Islands) by 19 species. Not recent morphological or molecular studies have been undertaken on *Laurencia* species despite the fact that the genus has been the subject of major worldwide revisions

with the result that three genera now represent this complex. Problems with GenBank published sequences and their corresponding misidentifications and lack of vouchers are hampering efforts to properly assess the genera and species in this complex. Each of these 19 taxa is being re-examined to determine which genus (*Laurencia sensu stricto*, *Chondrophyucus* or *Osmundea*) they belong using both traditional vegetative and reproductive morphological techniques and plastic encoded DNA sequences (*rbcL* and RUBISCO spacer). Already certain traditionally stable characters, such as terete versus compressed axes, are being called into question by the molecular sequences, and several synonymised, cryptic species appear to require specific recognition.

**Impacts of dispersed oil on subtidal seagrass**



Kim Wilson and Peter Ralph

Aquatic Photosynthesis Group, School of Life and Environmental Sciences, University of Technology, Sydney, NSW 2007

Limited research exists on the toxic effects of different petroleum hydrocarbons on differing Australian seagrasses. The University of Technology, Sydney in conjunction with the Australian Maritime Safety Authority (AMSA) are working to establish new procedures to understand the impact of oil spills on seagrass meadows. The study aims to determine the toxic effects of bunker oil and crude oil, with and without dispersants, on various seagrass species. The study also seeks to determine seagrass contribution to the assimilation and degradation of petroleum hydrocarbons and the compositional changes to oil following exposure in the marine environment. The results of the study will be highly beneficial to oil spill mitigation and marine system managers.

# Conference Report

Prue McKenzie

**7<sup>th</sup> International Temperate Reefs Symposium,  
University of California, Santa Barbara, CA  
USA  
June 26 – 1 July 2006**

The picturesque University of California in Santa Barbara was the venue of the 7<sup>th</sup> International Temperate Reef Symposium attended by 180 delegates from 13 nations.



**Picturesque Santa Barbara**

The conference consisted of 4 main symposiums, 107 contributed papers, and 16 posters. There were a wide range of topics covered including recruitment, dispersal, trophic interactions, community ecology, spatial scale patterns, kelp ecology, larval ecology, patterns of disturbance and recovery, habitat ecology, and importance of biodiversity – just to name a few. After each of the 4 symposiums, student-led discussions were held, where problems and solutions were discussed about each of the symposium's topic. I was lucky enough to be nominated as one of these students where I chaired the discussion: "Ecological processes causing and maintaining small-scale spatial and temporal variability in marine populations". These discussions were very valuable, especially to fellow students and I, where we were able to listen and participate in discussions about key issues.



**Alecia Bellgrove and I about to snorkel off Santa Cruz Island**

A coastal social overlooking the University's beachfront was organised during the early days of the conference so that old friends could catch up or there were plenty of opportunities to become acquainted with new friends and colleagues. The conference banquet overlooked the University's coastal lagoon where delegates experienced a true "Californian-style" barbeque, which for all the Aussie's this equated to a true "Aussie roast!" There were also 2 field trips organised for one of the days, where delegates could choose either to explore the winecountry of Santa Barbara, or to board a boat exploring the Channel Islands. I choose the later and got to see humpback whales, snorkel the famous *Macrocystis* forests, and walk around Santa Cruz Island. It was a great day, however by the end of the day, most people were looking a little worse for wear as the swell had picked up!!



**Here I am bonding with the *Macrocystis*!**

The conference was very well organised and very enjoyable. Presentations ran smoothly and on-time which can often prove to be difficult when there are 3 simultaneous sessions. The 8<sup>th</sup> ITRS will be held in Adelaide, Australia

## Forthcoming conferences

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### **Australasian Phycology and Aquatic Botany**



The 21<sup>st</sup> ASPAB conference will be held in Hobart, Tasmania

**February 2007**

### *Australian Society for Limnology*

The 45<sup>th</sup> Annual ASL congress will be held at Albury-Wodonga

25<sup>th</sup> – 29<sup>th</sup> September 2006

visit [www.asl.org.au](http://www.asl.org.au) for details

### **Ecological Society of Australia and New Zealand Ecological Society**

Wellington, New Zealand

28<sup>th</sup> August – 1<sup>st</sup> September 2006

visit [www.vuw.ac.nz/ecology06/](http://www.vuw.ac.nz/ecology06/) for registration and details

### **International Conference on: “Riverine Hydroecology: Advances in Research & Applications”** *Incorporating:*

The 10<sup>th</sup> International Symposium on Regulated Streams (TISORS)  
*and*

The 2<sup>nd</sup> International Symposium on Wood in World Rivers (ISWWR)

**14<sup>th</sup> – 18<sup>th</sup> August 2006**  
**Stirling, Scotland**

[www.sbes.stir.ac.uk/riversconference/](http://www.sbes.stir.ac.uk/riversconference/)

### *International Society of Micropaleontology, Microbiology & Meiobenthology (ISEMMM)*

The 5<sup>th</sup> ISEMMM congress will be held at Erlangen, Germany

September 2007

visit [www.isemmm.org](http://www.isemmm.org) for details

### **Australian Society for Limnology & New Zealand Freshwater Sciences Society**

2007

**New Zealand**

# ASPAB Committee

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**AUSTRALASIAN SOCIETY FOR PHYCOLOGY AND  
AQUATIC BOTANY**

**APPLICATION FOR STUDENT TRAVEL GRANT TO ASPAB  
CONFERENCE**

Student name:

Are you a financial member of ASPAB?

Student Supervisor:

I \_\_\_\_\_ declare that the

\_\_\_\_\_ is a student at

\_\_\_\_\_

Student Address:

Title of presentation:

Cost for attending conference (please attach photocopy of receipt):

(send this form to the ASPAB Conference organizing committee)

**AUSTRALASIAN SOCIETY FOR PHYCOLOGY AND  
AQUATIC BOTANY**

**APPLICATION FOR STUDENT OVERSEAS TRAVEL GRANT**

**Conference, Workshop, Herbarium, Laboratory**

**Student name:**

**Are you a financial member of ASPAB?**

**Student Supervisor:**

I \_\_\_\_\_ declare that the

\_\_\_\_\_ is a student at

\_\_\_\_\_  
**Signed:**

**Date:**

**Student Address:**

**Outline reasons why this travel grant is being requested (at least 250 words)**

**Title of presentations (Conference, Workshop):**

**Herbarium/Laboratory to be visited:**

**Dates of Conference, Workshop, Visit:**

**Cost of travel** (please attach photocopy of receipt):

Return to, with all accompanying documentation, ASPAB secretary

## MEMBERSHIP and RENEWAL

(For all members and applicants. Please return with membership application or renewal)

**Renewals are due 1 July**

This is a RENEWAL/NEW MEMBERSHIP

*(delete whichever does not apply)*

**Name:** Dr / Ms / Mrs / Mr \_\_\_\_\_

**Affiliation:** \_\_\_\_\_

**Postal Address:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Country:** \_\_\_\_\_ **Postal Code:** \_\_\_\_\_

**Preferred email address:** \_\_\_\_\_

**Tel.:** \_\_\_\_\_ **Fax.:** \_\_\_\_\_

For members from New Zealand, "I agree that my contact details may be used by the Australasian Society for Phycology and Aquatic Botany Committee and New Zealand convener for the purposes of communication with the Australasian Society for Phycology and Aquatic Botany Incorporated".

Signature of Applicant \_\_\_\_\_

Date \_\_\_\_\_

Current membership Fees:

	AUSTRALIA (includes GST) <b>ABN 86 508 002 420</b>	NEW ZEALAND
Full Member	A\$33	NZ\$30
Student Member	A\$11	NZ\$10

NZ Members, please send renewals to the NZ Convener, Dr Wendy Nelson.  
All other renewals should be sent to the ASPAB Treasurer, Dr Joanna Jones