NEWSLETTER

Endpoint

SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY AUSTRALASIA

(SETAC AU)

Volume 21 Number 1

April 2014

CONTENTS

Message from the Editor

Welcome to the first issue of Endpoint for 2014. As you read through the contents herein you will no doubt realise that is a lot to look forward to in the coming 12 months ecotoxicologically speaking.

Of course I need to start off by welcoming Di Jolley into the role of President for SETAC Au and this issue starts off with Di's first President's report. The sad part of this is that Dayanthi has now 'retired' to the role of Immediate Past President. I am sure that Di will do a great job for us and infuse SETAC Au with her special direction while we still get the wisdom from Dayanthi's experience as President.

One of the more interesting aspects of being the Editor is seeing themes emerge from our regional representatives' contributions for each issue. There appears to be a theme this issue of reporting in detail on the work being done in each jurisdiction. I really enjoyed the content of these items which give a good appreciation of the work direction taken by various members across our geographical area. Make sure you take advantage of the opportunity this presents to network with other members of SETAC Au.

This issue of Endpoint includes a new (or perhaps revamped) regular feature – "What's New?". There are two categories in this feature that I would appreciate input into for future issues which are:

- *Conferences and workshops.* If you are aware of any conferences or workshops that are relevant to the goals of SETAC Au please be sure to let me know of the details.
- *Student publications.* We want to tell the world about the good work student members of SETAC Au are doing so if you are a student and have recently published (e.g. a paper or your dissertation) please let me know.

In addition to all the above of course this year our conference will be being held in Adelaide in cooperation with SETAC AP. Read more about this on page 20. Also we will shortly be sending Peta Neale and Andrew Hartford to Science Meets Parliament; we should all look forward to seeing their report on this event next issue.

Finally, Fred and I have been in contact with Pensacola and are hoping to have a regular feature in future issues of Endpoint from our "parent organisation". Watch this space and see what develops. Enjoy reading!

David Everett (david.everett@ehp.qld.gov.au)
Editor

Sustaining Member

NSW Office of Environment and Heritage
http://www.environment.nsw.gov.au

From La Presidenta

This is my first official report, and I must say that it is a great honour to have been elected to the position of President of SETAC-AU. When I was told I reflected on how our society has so rapidly evolved into such a strong, collegial network throughout Australasia. We would not be where we are today without the dedication of former presidents, committee members and all the members who contribute. It is this passion that reminds me of the words of Leonardo da Vinci "It had long since come to my attention that people of accomplishment rarely sat back and let things happen to them. They went out and happened to things." So my potential to move SETAC-AU forward will only be because of those before me who have gone out and "happened to things"! Many thanks to Dayanthi Nugegoda, who has done an excellent job as President for the past two years and has handed over to me a Society which is continuing to grow in membership, and gaining increasing recognition in the scientific community (soon everyone will want to join, who wouldn't?). Scott Wilson has also made huge contributions to many roles of the SETAC-AU council over the past decade, many unpublicised, with his particular strengths ensuring the recognition of student achievements, contributions to conference programs, and representing SETAC at Science Meets Parliament. And also a huge thankyou to Ross Smith, who has now stepped out of the Immediate Past president role on council into a very significant role as president of Science Technology Australia (out of the frying pan into the fire?). We wish you best of luck in this role!

I would like to thank all of those SETAC-AU Council members and state representatives who are now in office. We have new members for ACT (Gary Fan), Queensland (Erik Prochazka), Western Australia (Tristan Stringer), PNG (Riall Gabuogi) and New Zealand (Kimberly Hageman and Ajit Sarmah), as well as a new student representative (Rhys Cartlidge). Anthony Chariton has taken up a position as one of the Vice Presidents along-side Fred Leusch (previously Secretary) and Louis Tremblay is now the Membership Officer (previously Amanda Reichelt-Brushett and Grant Hose). Peata Neale is the new Secretary, and has already started by whipping us all into shape. Thank you all for investing your time to ensure the continued success of SETAC-AU. Thanks too to those who have quietly continued in their SETAC-AU

duties (or less quietly in some cases …. hi Munro!)

SETAC-AU is proud to be hosting the joint **SETAC Asia Pacific** and **SETAC Australasia (ASE) Conference** which will be held at the Adelaide Convention Centre 14-17 September 2014. The theme of SETAC 2014 is **Advancing Science for a Sustainable Environment**. The meeting is co-convened by Anu Kumar and Rai Kookana.

Check out the conference website http://www.setac2014.com.au/.

They have five speakers focussing on ecotoxicology: Paul M. Bertsch (is Chief of CSIRO's Division of Land and Water); Carolin Gaus (from ENTOX at the University of Queensland, the SETAC-AU Tony Roach Memorial Speaker); Norihiro Itsubo (from Musashi Institute of Technology, the former Tokyo City University); Phil Reeves (Chief Regulatory Scientist, Veterinary Medicines & Nanotechnology at the Australian Pesticides and Veterinary Medicines Authority in Canberra), and Charles Tyler (from University of Exeter). The deadline for the submission of abstracts is Monday 31 March, so don't miss out! It is shaping up to be a great event.

To encourage student participation at the SETAC AP/AU 2014 conference in Adelaide, up to eight Student Travel Awards are available for student members of SETAC AU. The awards are valued at $800 each to cover registration, travel and accommodation costs

associated with attending SETAC AP/AU 2014. Can I also encourage our recent honours student graduates to consider nominating for the honours prize? Check our website for details on both of these.

Science Technology Australia (STA) announced that Science Meets Parliament is on again this year, from 17-18th March in Canberra. Last year the event coincided with the election, and had to be postponed. We have two SETAC-AU representatives that will attend to promote the strengths of SETAC and the need for more funding for the sciences, Peta Neale (ENTOX, University of Queensland) and Andrew Hartford (Supervising Scientist Division, Department of the Environment, NT). I am looking forward to their report and photos in the next edition of Endpoint! STA has raised concerns with the Federal Government's decision to reduce funding to the nation's key independent granting body the Australian Research Council (ARC), and the flow on implications of this. Also, Australia's Chief Scientist Professor Ian Chubb today launched the free eBook *The Curious Country*. In 2013 a survey was commissioned asking people what issues they wanted science to address, what if anything concerned them and what inspired them. The results of the survey are presented in an eBook, which Ian Chubb claims to be an enjoyable read. So for members who are looking for that next exciting novel, this book is available for free download from the STA website (http://www.chiefscientist.gov.au/2013/11/the-curious-country/). Overall I think that SETAC-AU are benefitting from being an STA member, not least for the information flow on science issues and wider context for some of our work.

ARC journal review. This process is about encouraging ARC to broaden their ERA2015 journal list to include journals in appropriate Fields of Research (FoR) codes. Although on the surface this appears to be a tedious academic exercise, it is a serious process for SETAC-AU. It is very important that the journals in which we publish are recognised for their excellence and credibility. Having the relevant journals incorporated into this list provides opportunity for more discipline exposure, and providing a mechanism for greater recognition of Environmental Toxicology and Environmental Chemistry as dynamic and progressive disciplines within Australia. The hope is that this will lead to greater funding for our work. So what to do … every University in Australia will be assessed against world averages (as per previous years). So we need to ensure that the world standard reflects every possible journal that our research can be published in. Our top–tier journals are already listed on this site, so what we need to do is recommend many low impact journals we would never publish in to lower the world standard. Ideally they are listed with FoR codes that include Environmental Science, or as multidisciplinary journals. For general information about the Journal and Conference Consultation Interface (JACCI) consultation process, please read the JACCI Factsheet<http://www.arc.gov.au/pdf/ERA15/ERA%202015%20Consultation%20Fact%20Sheet.pdf>. For assistance in using the JACCI interface please read the JACCI User guide<http://www.arc.gov.au/pdf/ERA15/JACCI_user%20guide.pdf>. Personally I wouldn't waste your time on the draft ERA processes paper. ARC is on our side in this – they want quality to be apparently higher each time.

In other news, the review of the ***Australian and New Zealand guidelines for fresh and marine water quality*** - *2000* is continuing. Updates provided by the Joint Steering Committee (COAG Standing Council on Environment and Water; National Water Reform Thematic Oversight Group) for the Revision can be found on the website (http://www.environment.gov.au/topics/water/water-quality/national-water-quality-management-strategy) as the review progresses. The latest update was November 2013, which indicates that the process is inching its way forward.

To wrap up, there is a set of tasks generated from the AGM in Melbourne last October that we will be working on throughout the year. I will endeavour to keep you up to date with the progress.

Best wishes,
Dianne Jolley (djolley@uow.edu.au)
President

Regional Reports

Australian Capital Territory

The ACT regional branch of SETAC-AU held its first get together meeting after work on Friday 31 January 2014 at a local pub. Although only five members were present (two apologies were received), there aren't that many to choose from in the ACT to start with, so it was a pretty good turn out!

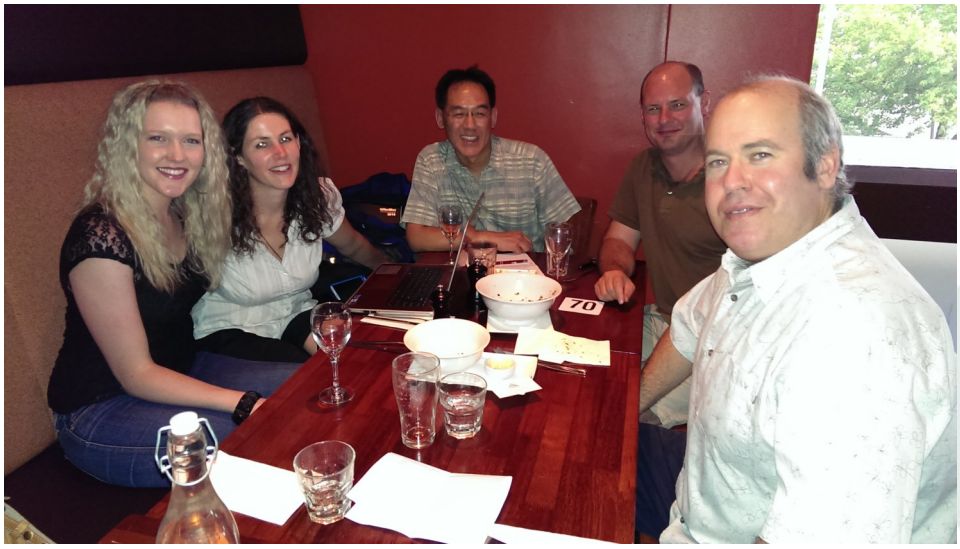
After the mandatory introductions and descriptions of everyone's backgrounds, work experience and ecotox/chem interests, we got down to the main business at hand of brainstorming what participants wanted to get out of the ACT branch and how to achieve those goals.

A main suggestion was to take advantage of being in the midst of the federal government and somehow influence policy decisions and actions that actually affect the Australian environment. It was thought that increasing interactions between researchers and policy makers could be a good start, and a presentation from SETAC-AU to key government agencies could get the ball rolling. Participants suggested the Department of the Environment and the Australian Pesticides and Veterinary Medicines Authority (the federal regulator for these chemicals) were likely first choices. However, presentations would need to be targeted to give the information these agencies would be most interested in hearing, such as how researchers could help fill data gaps in the regulatory framework. As a first step, I volunteered to liaise with the SETAC-AU Council to determine the desirability of the goal and feasibility of this approach.

Also discussed were what other ACT groups could be approached to further collaborate with. The Australian Limnological Society, CropLife Australia (the peak industry body for pesticides), CSIRO and students at the various universities in Canberra were suggested and assigned to various participants to action.

Given the lateness of the evening and that people had to get home to prepare for whatever their Friday nights had in store, the meeting ended with an agreement for get togethers to be quarterly (next one in April/May) and all ACT branch members to be invited to suggest further groups with whom we could collaborate.

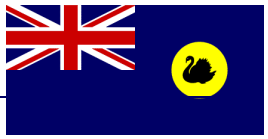
Gary Fan (Gary.Fan@daff.gov.au)
Australian Capital Territory Regional Representative



SETAC-AU ACT branch meeting attended by (from L to R) Jenna Roberts, Julia Jasonsmith, Gary Fan, Chris Lee-Steere and Ben Kefford.

Regional Reports

Western Australia



Intertek Geotech – Tristan Stringer (tristan.stringer@intertek.com)

At Intertek Geotech we have kicked the year off continuing with a heavy workload of commercial work as well as some exciting new method development. Currently we are focusing on expanding our tropical bioassays to be able to provide more environmentally relevant tests for our clients in tropical Australia; especially in the oil and gas sector. We are currently working on developing new methods with the spiny damselfish, the rock burrowing sea urchin (both fertilization and larval development bioassays), as well as tropical copepod development.

We have started a new partnership this year with Dr. Chris Rawson at Curtin University co-developing new bioassays with tropical Australian species. Our inaugural honours student is taking on the validation of a tropical sea urchin fertilization and larval development tests. We are looking forward to expanding the collaborations between our two groups with the potential for co-supervision of more students in the future; which is exciting and important for the expansion of ecotox in WA.

Curtin University – Chris Rawson (C.Rawson@curtin.edu.au)

The Curtin University Ecotox group continues to work closely with industrial partners, particularly in the resource sector. Monique Gagnon has been collaborating with a range of oil and gas companies in developing *a priori* oil spill operational and scientific monitoring programs. This builds on our group's experience with spill response. We have recently commenced a five years Applied Research Program where we will engage with partners in developing baseline datasets in the Browse Basin for key markers of exposure and effect in fish, particularly in commercially important species.

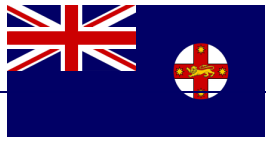
2013 saw the Curtin University Ecotox group graduate 2 honours students in ecotox related projects. Kade Parmenter investigated the transcriptional response of eurythermal Black Bream to aquatic heat waves (a phenomenon that is occurring with increasing regularity on the WA coast). Bodhi Williamson studied the oxidative stress response of mussels to contaminants found in industrial embayments in the Perth area and attempted to correlate these responses with those in caged animals. We have 3 honours and 1 MSc student starting in our group in 2014 working on developing local species for specific assay conditions and looking further into climate change impacts on fish at molecular and whole organism levels.

On the teaching side, we have recently embedded a dedicated core ecotoxicology unit in all our environmental science undergraduate (and some MSc) majors and an advanced ecotoxicology module in a final year marine science unit. We expect that this will produce graduates with an understanding of the crucial role ecotoxicology plays in environmental regulation, experience in conducting basic bioassays and the data analysis skills required to report ecotoxicological data.

Tristan Stringer (tristan.stringer@intertek.com)
Western Australian Regional Representative

Regional Reports

New South Wales



Happy New Year to everyone. Presumably, everyone is back in the full swing of environmental chemistry and ecotoxicology. I hope that 2014 is a successful year for you all.

Subtidal Ecology and Ecotoxicology Lab, UNSW – Katie Dafforn (k.dafforn@unsw.edu.au)

The Subtidal Ecology and Ecotoxicology Lab (SEE), UNSW have been enjoying the recent broadcast of "Coast Australia" in which our director Emma Johnston is a co-host. Emma took viewers on an underwater journey from Tasmania to Darwin and highlighted topics as diverse as the poleward migration of urchins and tropicalisation of Sydney Harbour. Emma begins filming Season 2 this year; stay tuned and follow @DrEmmaLJohnston!

The SEE Lab has recently said farewell to two of our members, Katelyn Edge and Ceiwen Pease. Katelyn Edge has taken up a position at the Office of Environment and Heritage (OEH). Katelyn has been keeping busy by hosting a "Meeting and Tweeting" workshop for UNSW postgraduates. She was also recently published in Chemosphere with her study entitled "A biomarker of contaminant exposure is effective in large scale assessment of ten estuaries" 100:16-26. The study assessed the applicability of biomarkers in large-scale monitoring programs and found lysosomal stability to be a robust indicator of contaminant stress. Katelyn maintains strong scientific (and social!) links with the lab and we look forward to future opportunities for collaboration. Ceiwen Pease has also flown the nest and taken a job with the Environmental Research Institute of the Supervising Scientist (ERISS) in Darwin. Ceiwen has been enjoying life at the "Top End" and experiencing research by helicopter.

PhD student Jaz Lawes has been jetsetting around to conferences and most recently attended "ECSA 53: Estuaries and coastal areas in times of intense change" in Shanghai, October 2013, and "Western Society of Naturalists" in California, November 2013 where she presented her study "Cop it sweet or sweeten the deal? Investigating effects of two common contaminants on sessile communities and their recruitment" and "Contaminant cocktails: effects of multiples stressors on sessile invertebrates" respectively. Jaz is currently juggling the completion of her PhD thesis with her new job at the University of New South Wales. She has also submitted a paper to review in Marine Ecology Progress Series "Contaminant cocktails: Interactive effects of nutrients and metals on marine invertebrate settlement and mortality".

PhD students Melanie Sun and Simone Birrer have recently returned from a visit to the Singapore Centre on Environmental Life Sciences Engineering, where they worked through metagenomics data to understand the effects of metals and nutrients on the recruitment and function of sediment microbial communities. Melanie is in the final stages of her PhD, which has focused on illuminating and understanding the effects of contaminants on marine microbes. She was recently published in Environmental Microbiology with her study entitled "Core sediment bacteria drive community response to anthropogenic contamination over multiple environmental gradients" 15: 2517-2531. Simone joined our lab in early 2013 and has been keeping busy with experimental work on the effects of pulse and press disturbances on marine microbes. She now joins our stormwater sampling program "Testing the waters: Impacts of contaminants on ecosystem structure and function in urban waterways".

Post-doctoral researchers Katie Dafforn and Tim Lachnit, together with PhD students Simone Birrer and honours student Michael Sutherland, have begun a temporally extensive study of the effects of stormwater on macro and micro sediment communities. Katie was recently published in PLoS ONE with her study entitled "Polychaete richness and abundance enhanced in anthropogenically modified estuaries despite high concentrations of toxic contaminants" 8: e77018. She has also been keeping busy planning a symposium entitled "Ports and Estuaries" for the upcoming Joint SETAC AP/AU 2014 Conference. Tim joins the team from the UNSW Centre for Marine Bioinnovation and will apply

New South Wales

his background in microbiology and virology to the study of viruses in the storm-water sediments. Vivian Sim joins the team to investigate distribution and ecological effects of sediment microplastics and you can follow her research @vivian_xy_sim. Michael is our newest recruit and is working closely with Peter Scanes and Jaimie Potts of OEH to understand sediment processes under stormwater regimes. The first baseline sampling was in early February and after months of warm sunshine; the Sydney drought broke on our first day of fieldwork! We will continue monthly baseline sampling and are on standby for increased temporal sampling when an intensive storm event occurs. The team's adventures (and fashions in the field!) can be followed at @DrKDafforn or #sydneystormchasers.

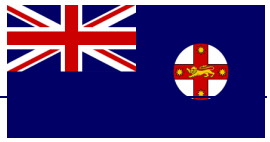
Collecting sediment for virus and metagenomics analysis

Skipper Viv Sim

Sydney storm chasers: Left to Right; Birrer, Sutherland, Lachnit, Sim

Regional Reports

New South Wales



CSIRO Land and Water, Lucas Heights – Merrin Addams
(Merrin.Addams@csiro.au)

In December, Jenny Stauber and Merrin Adams joined Anu Kumar and Peter Bain to run an ecotoxicology workshop in Lucknow, India. The workshop is one aspect of Anu's 3-y program that aims to build capability in ecotoxicological tools for managing environmental pollution due to pesticides and micro-pollutants; helping to ensure the safety of river water in India and educating women and children on environmental pollution issues. Hosted by the National Bureau of Fish Genetic Resources (NBFGR), we all enjoyed our time with the Indian scientists, regulators, academics and consultants in a workshop that incorporated lectures, practical sessions and a visit to a local tannery. Anu and Jenny also hosted a visit with women from a fishing village and local school children. The workshop dinner was a family affair with the participants, NBFGR colleagues and their families joining the social gathering on the grounds of the NBFGR (I can't say that our open-mic rendition of Waltzing Matilda was the highlight of the evening). We wish Anu every success as she continues to strive towards improving water quality in India.

Jenny has remained busy serving on a number of new advisory committees including the inaugural Science and Engineering Advisory Committee for EPA Victoria, chaired by John Stoker (ex CSIRO CEO). She is also helping develop a report card framework for Gladstone Harbour as part of the Gladstone Harbour Healthy Partnership's Independent Science Panel. Together with Ross Smith, she has also commenced helping the Nickel Producers Environmental Research Association (NiPERA) put together a workshop on nickel risk assessment in the Asia-Pacific region, targeting academics, regulators and consultants in SE Asia in particular. She is also on a steering committee to organise a Pellston-type workshop on ecosystem restoration in the US in June. The aim of the workshop is to bring together ecotoxicologists and restoration ecologists to help improve knowledge and outcomes in ecosystem assessment and restoration.

Graeme Batley continues to be heavily involved with aspects of the water quality guideline revision. In conjunction with Rick van Dam, Michael Warne, David Fox, Chris Hickey and Jenny, a draft report on 'Revision of the Method for Deriving Water Quality Guideline Trigger Values for Toxicants' has been completed. The incorporation of the last round of comments on the revision to the Sediment Quality Guidelines has also been completed and is awaiting sign off (this revision started in 2008!!). In a separate exercise, Anthony Chariton and Sharon Hook prepared a short review of potential monitoring and assessment applications and methodologies of ecogenomic approaches together with protocols for both microarray analysis and eDNA metabarcoding in water quality assessment for the revised Guidelines. Graeme is currently involved, with Ross Smith and Brian Bycroft, in the revision of Chapters 1, 2 and 3.1 of Volume 1 of the Water Quality Guidelines. In particular, he is working on advice for the incorporation of weight of evidence into water and sediment quality assessment.

In relation to the Handbook for Sediment Quality Assessment, Graeme and Stu Simpson, in collaboration with Anthony, Bill Maher and Anne Taylor, are currently revising this highly successful Handbook produced in 2005. The revision is a major update, likely to double the size of the previous version. Deadlines are tight and it was hoped that the new volume would be available in time for SETAC in Adelaide, although that now seems unlikely, given the other pressures on our time.

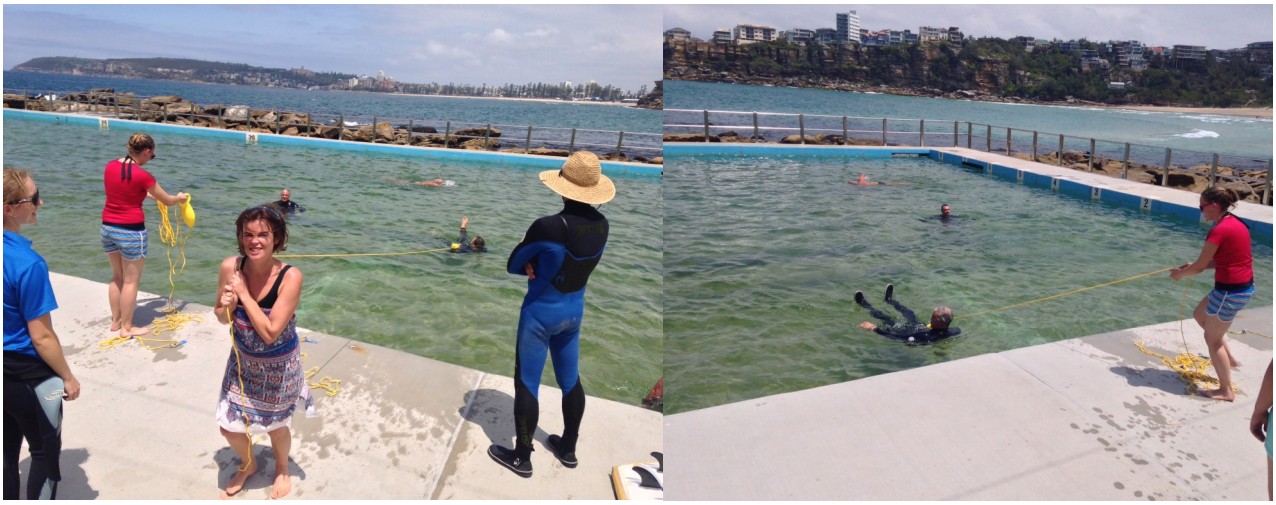
We also congratulate Lisa Golding on her success in being awarded an AINSE grant to investigate the bioavailability and trophic transfer of radioactive cerium dioxide nanoparticles along a freshwater food chain consisting of algae, snails and prawns. Lisa has been working with Tom Cresswell (ANSTO) using pulse-chase techniques and autoradiography with 141-Ce to address pressing questions on the fate of dietary nanoparticles in aquatic systems. With the experimental work now completed, watch out for the publications! Lisa, Brad Angel, Simon Apte and Graeme have also been drafting a manuscript for the derivation of a new high reliability trigger value for aluminium in marine waters based on the toxicity work conducted in collaboration with Australasian Ecotox Services. As a flow-on from that project, Megan Gillmore has recently started her honours project (co-supervised by Lisa, Brad and Dianne Jolley through University of Wollongong) investigating the sensitivity of three temperate marine diatom species to aluminium and measuring the changes in aluminium speciation over time. Megan was a trainee with us a year ago and so we warmly welcome Megan back to the group. Co-supervisor Brad has also been busy investigating factors affecting trace metal distributions in the Fly River Estuary with particular emphasis

on copper. And along with Merrin, David Spadaro and Elissah Granger, is revisiting the concept of one-off short-term exposures to contaminants....but more on this in later editions.

Exotox Services Australia – Zoe Fluit (fluit.zoe@gmail.com**)**

The ESA team had a quick break over Christmas, but were then back into a busy routine from January. The lab has been operating seven days a week, with lots of testing and culturing being carried out, and we are excited to welcome Victor Perez back as a casual staff member to help with this busy period! Julia Fracala has come on board with us on a full-time basis.

Before it gets too cold, we managed to get everyone away from the lab and into the great outdoors for a day to complete our annual ocean rescue course. The course is a lot of fun but also reminds us of the dangers of working in aquatic environments and the precautions we need to take in order to make our field work as safe as possible. The course is highly recommended for anyone working in the aquatic environment, particularly on open waters.



Some action shots from the ESA ocean rescue course

Chris is back from his long service leave and, when he can find the time, is continuing his research with Monique Binet (CSIRO) and Jane Williams (MQU) on the use of flow cytometry for assessing ocean acidification effects on sea urchin sperm. As soon as he returned, Anneke jetted off to New Zealand for a well-earned break, while Rick, Zoe, Julia and Amandine will be heading overseas on their own adventures in the coming months.

Zoe and Kat have been working on some copepod culturing techniques for the tropical copepod *Parvocalanus crassirostris*, with success in adapting acute toxicity test protocols using this species. They are looking into the possibility of developing a chronic toxicity test that can be used in routine toxicity testing.

Macquarie University – Grant Hose (grant.hose@mq.edu.au**)**

Busy times in ecotox at Macquarie Uni with theses submitted, papers written and new students joining the team. Ingrid Errington has joined the gang to start a PhD on the effects of residual hydrocarbons on soil biota of Macquarie Island and Casey Station, Antarctica. Ingrid is supervised by Grant Hose, Cath King (AAD) and Simon George (Macq Uni). She and Grant have just returned from a rather prolonged field trip. The 7 week trip to Macca turned into a 3 month subantarctic and Antarctic odyssey across the southern ocean as the trip home from Macca included a sightseeing tour of Casey station and then the Mertz Glacier to rescue passengers from a ship stuck in ice over the new year. Aside from the adventure on the high seas, the research work on Macca was fruitful with another round of field and mesocosm sampling undertaken and some preliminary soil and worm toxicity tests done.

Regional Reports

New South Wales

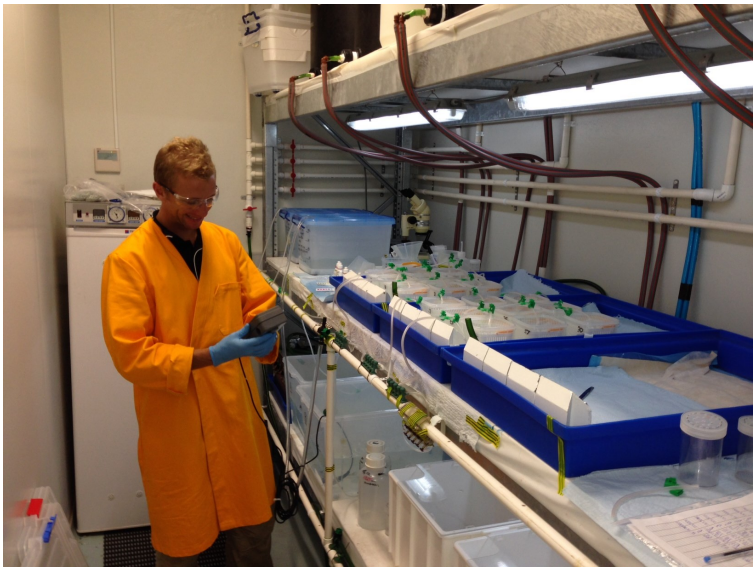
Ingrid was one of three Macq Uni students working with the AAD over Summer. Kostas Kotzakoulakis was helping set up and analyse marine invertebrate tox tests with petroleum hydrocarbons, and Danielle Camenzuli was working on the Casey remediation program. This was Danielle's second summer on station and her final experiments are underway.

Back home, Stephanie Gardham has been doing the final corrections to her PhD thesis on the effects of copper on model freshwater ecosystems. Well done Steph! Steph is now working in environmental consulting and is enjoying earning money as she plans the next steps of her career.

Lois Oulton is writing up her thesis and has been exploring sublethal effects of stormwater exposure on juvenile fish. This work is part of her overall project on the utility of stormwater retention ponds in reducing the toxicity of the stormwater. Steph is currently at home in the UK and is feverishly writing. Dan Kilgore has also completed his thesis corrections. Dan has been working with Simon Apte (CSIRO) on lipid soluble metal complexes. He will now return to the tourist traps of Europe.

Tracy White is a Masters of Research student who will be starting her field and lab work shortly to examine the effects of salinity on groundwater fauna.

Alan Baldry has been busy in the lab sorting jars and jars of invertebrates from pitfall traps collected around Fowlers Gap, near broken Hill. Alan is working on a project in collaboration with Uni of Wollongong and the Plague Locust Commission on the effects of locust control pesticides on non-target biota in the arid zone.



ANSTO Graduate Michael Corry attending to prawns during the radiotracer experiments.

Aquatic Ecosystems group, ANSTO Institute for Environmental Research – Tom Cresswell (tom.cresswell@ansto.gov.au**)**

We've been very busy in the lab in the last 3 months finishing up the work with Lisa Golding from CSIRO Land and Water on the nano cerium bioaccumulation project, which has gone really well. Michael Corry, who is on the ANSTO graduate program, has been working in our lab with Tom over the last couple of months on more freshwater prawn (*Macrobrachium* australiense) metal bioaccumulation studies using radiotracers. We are attempting to determine the kinetics of internal distribution of cadmium bioaccumulated through the dissolved phase over different exposure and depuration periods. This work will give us a better understanding of the metal regulatory mechanisms of these organisms and may allow us to better understand the exposure history of field-caught prawns.

University of Sydney PhD student Jung-Ho (John) Lee is visiting our lab for a couple of months to conduct some radiotracer studies with ^{65}Zn and the Sydney Rock Oyster. John is interested in determining the relative importance of the water and ingestion pathways for Zn bioaccumulation in the bivalve and the radiotracers will hopefully allow us to determine uptake and loss rates from water as well as assimilation efficiencies of Zn from any ingestion of metal-contaminated suspended sediment.

Tom Cresswell (tom.cresswell@ansto.gov.au)
New South Wales Regional Representative

Regional Reports

New Zealand

Landcare Research contact - Jo

A range of environmental contaminant research and monitoring projects have been ticking along, headed by researchers based at the Lincoln campus of Landcare Research (Jo Cavanagh, Penny Fisher, Lynn Booth) For this update we focus on a couple of projects that investigate contaminants in biota.

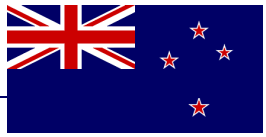
An Invercargill workshop hosted by Environment Southland in November 2012, discussed potential contaminants of concern in aquatic ecosystems of the region, and led to preliminary monitoring for selected contaminants in sediments and biota (fish and eels) May 2013. Sediments from rivers and streams draining urban areas unsurprisingly had higher concentrations of metals, and ∑DDT concentrations were also greater in sediments from the urban catchment compared to agricultural catchments. In contrast, cadmium was found at higher concentrations in some sediment samples from agricultural catchments. In contrast to the riverine sediments, estuarine sediments typically had low metal concentrations although nickel concentrations exceeded the ANZECC interim sediment quality guidelines at two locations in the upper reaches of one estuary. The estuarine sediments were also enriched in nutrients and organic carbon. Monitoring of eels and fish collected in the riverine systems highlighted the accumulation of mercury and ∑DDTs that were present at non-detectable or low concentrations in the sediments. Contaminant concentrations were typically higher in internal organs as compared to flesh – an exception being mercury which had higher concentrations in the flesh. Species specific differences in contaminant accumulation were also evident. Nonetheless, there appears to be a negligible health risk associated with the consumption of eels and fish from these systems. Testing of aquatic sediment and small samples of freshwater fish (liver and muscle) from four different catchments also indicated the presence of low concentrations of some anticoagulant rodenticides in some samples – we believe this is the first such investigation of these compounds in NZ aquatic ecosystems. These preliminary results suggest environmental transfer and exposure pathways not previously considered for these household pesticides, and we hope to follow this up with more extensive monitoring to better define their fate and potential impacts, in particular whether anticoagulants might be implicated in recent die-offs of native lampreys (kanakana).

Ongoing work has also demonstrated the utility of Australasian harriers (*Circus approximans*) as terrestrial biomonitors. These raptors are common across NZ and frequently scavenge carcasses of road-killed animals, often becoming victims of collisions with vehicles themselves – facilitating collection of fresh tissue for contaminant testing. Residues of anticoagulant rodenticides in North and South Island harriers collected and tested during 2010 were commonly detected – at least 80% of birds had been exposed to one, and often multiple, anticoagulant compounds (Penny Fisher). Testing of harrier tissue for a range of POPs (OCPs, PCBs, PBDEs, Dioxins/Furans, Perfluorinated compounds) in 2012 showed high concentrations of DDTs – amongst the highest reported internationally in birds of prey – and low concentrations of the remaining compounds – at the lower end of that reported internationally. While Canterbury has extensive agricultural land, the concentrations of DDTs in the soils is not expected to be high thus the high concentrations in the harriers were surprising.

As a taster for the next update….. We have been undertaking testing the toxicity of drilling mud wastes to earthworms and the indigenous soil microbial population with some surprising results – some further testing of soil mixed with drilling mud waste and aged for 6 months are to be undertaken shortly.

Regional Reports

New Zealand



Hazardous Substances Application and Assessments team, New Zealand Environmental Protection Authority (EPA)

The New Zealand Environmental Protection Authority (EPA) regulates hazardous substances and new organisms, and manages applications for major infrastructure projects of national significance. We also administer the Emissions Trading Scheme and New Zealand Emission Unit Register, and manage the environmental impact of activities in the Exclusive Economic Zone (EEZ), including prospecting for petroleum and minerals, seismic surveying and scientific research.

The Hazardous Substances Applications and Assessments team evaluate applications for new hazardous substances and undertake reassessments of existing approvals. The primary role of the team involves assessing the risks, costs and benefits of hazardous substances and applying controls to manage any risks. Our areas of responsibility is wide-ranging, regulating many different types of hazardous substances, including agricultural pesticides and veterinary medicines, industrial chemicals, vertebrate toxic agents and domestic use biocides. Our assessments are science-driven, and our work relies on robust technical analysis, including hazards classification and human health and environmental risk assessment. Our team has recently completed two major pieces of work: the reassessment of organophosphates and carbamate plant protection pesticides, and also a reassessment of antifouling paints.

The EPA are based in Wellington and Auckland and are always looking out for enthusiastic staff members to join our team. We are particularly interested in candidates with a passion for science and environmental protection, particularly those with a background in toxicology, ecotoxicology, hazard classification or chemical or biological science. Current available positions are posted on our website.

http://www.epa.govt.nz/careers/current-job-vacancies/Pages/default.aspx

National Institute of Water & Atmospheric Research – Hamilton – Insert Name

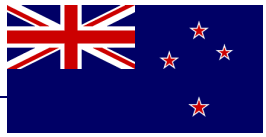
Introducing to Endpoint the NIWA Hamilton Chemistry and Ecotoxicology team, comprised of Craig Depree (group manager), Chris Hickey and Bob Wilcock (Principal Scientists), Sue Clearwater and Michael Stewart (Scientists), Mike Martin and Greg Olsen (Principal Technicians), and Karen Thompson, Marieke van Kooten and Anathea Albert (Technicians).

Our group continues to conduct a wide range of research and commercial ecotox work. Of particular note in recent months:

- We published our research on the toxicity of **copper, zinc** and **ammonia** to **freshwater mussel** larvae (glochidia) (Clearwater, S.J. et al. (2013) AECT avail on-line). These data demonstrate that glochidia are highly sensitive to copper and ammonia exposure. The information will support revision of the ANZECC water quality guidelines.
- Chris Hickey, Mike Martin, Karen Thompson & co. continue to test native species for nitrate toxicity including native fish (bullies *Gobiomorphus cotidianus* and whitebait inanga *Galaxias maculatus*), mayfly *Deleatidium* sp., and early life stage rainbow trout *Oncorhynchus mykiss*. These data will provide the National Objectives Framework (NOF) for freshwater, with updated nitrate guidelines to contribute to the standards for nitrate-nitrogen.
- Mike Stewart, Greg Olsen, Chris Hickey & Erica Williams (NIWA Wellington) have carried out a **human health risk assessment** in the consumption of **wild mahinga kai (food)** species from Te Waihora (Lake Ellesmere) and its tributaries near Christchurch. This work expands previous research led by NIWA in other areas of the country including South Canterbury, Rotorua Lakes and Northland (see http://www.niwa.co.nz/freshwater/projects/risk-assessment-of-contaminants-in-traditional-food-sources for more information).

Regional Reports

New Zealand



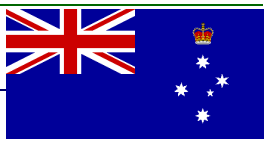
- Sue Clearwater, Chris Hickey & co. have tested recently hatched **freshwater crayfish** for **acute ammonia tolerance**;
- Anathea Albert completed 2 hour pulse-dose testing of **oil dispersants** on blue mussel larvae *Mytilus galloprovincialis* and amphipods *Paracorophium lucasi* for Maritime New Zealand to assist with classification of these products under the GESAMP Rating Scheme for Acute Aquatic Toxicity. This work complements earlier tests completed by Cawthron on the same species and the sand flounder *Rhombosolea plebeia* using 2 or 4 day exposures.
- We published our research on "The effect of chronic exposure to **phosphorus-inactivation agents** on freshwater biota" in Hydrobiologia (Clearwater, S.J. et al. 2014 avail on-line). The phosphorus-inactivation agents **alum** and **modified zeolite** (Aqual-P) are being used by Bay of Plenty Regional Council to improve water quality in the Te Arawa/Rotorua Lakes and our findings on **native freshwater species** (crayfish, fish, mussels, clams) can be used by lake managers to assist the selection of site-specific application rates for these products.
- Mike Stewart, Greg Olsen, Chris Hickey recently published paper (*Science of The Total Environment*, (2014): 468–469: 202-210) that is the culmination of two research projects carried out by NIWA and Spanish Collaborators on a whole range of **urban emerging contaminants** in the estuarine receiving environment around Auckland. Environmental concentrations were largely similar to those reported world-wide.
- Mike Stewart and Craig Depree recently published research (*International Biodeterioration & Biodegradation*, (2014): 88: 176-184) on the development of **synthetic mimics** of **natural antifouling** compounds. A major challenge in the development of antifouling agents is sustainable and economical supply, which chemical synthesis can satisfy. Two synthetic analogues demonstrated a pronounced antifouling effect by resisting biofouling in the sea for over 18 weeks, and with the ability to fine-tune the antifouling activity it is hoped to extend this further in the future.

Kimberly Hageman (khageman@chemistry.otago.ac.nz)
New Zealand Regional Representative

Milford Sound Fiordland National Park, New Zealand South Island (Source: http://globalconnection.com.au/wp-content/uploads/2013/08/Milford_Sound_Fiordland_National_Park_South_Island_New_Zealand.jpg)

Regional Reports

Victoria



Ecotoxicology Research Group at RMIT – Dayanthi Nugegoda
(dayanthi.nugegoda@rmit.edu.au)

Vuong Ho Vu was awarded his Masters by Research on the remediation of soil contaminated with caesium and lead. He also fathered a baby daughter during his short 1.5 year candidature at RMIT!

Following the relief of successfully staging SETC Au Melbourne and the passing of the SETAC Au President's batton to a super new candidate, Dayanthi Nugegoda has been travelling (what's new); and was invited to lecture at the summer school for the Department of Science and Technology in South Africa on the ecotoxicology of nanoparticles. Following this, in December to Januay, Dayanthi returned to her roots to help the University of Colombo in Sri Lanka develop a post-graduate diploma in ecotoxicology and, while enjoying her sojourn in the sunny isle, was invited to deliver a televised lecture on the effects of toxicants on the ecosystem and health to the Minister of Water Supply and the public in Sri Lanka.

On her return to Australia at the end of January, Minister Greg Hunt invited Dayanthi and 24 other key scientists to a round table discussion on science policy. Dayanthi also continued to strive to highlight the importance of considering ecotoxicological effects when serving on the Independent Expert Scientific Committee for Coal seam gas and Large Coal Mining. All this hobnobbing with Ministers (and also having to clear a lot of unused leave) has left the research lab needing a little TLC, however, it has recently been invigorated with several new student ecotoxicologists in 2014 who will (of course!) join the society soon.

Returning after completing a First Class Honours degree, Rhys Cartlidge was awarded an APA and will continue researching petroleum hydrocarbon toxicity for his PhD project. This project will also encompass the design of novel 3D printed assays specifically designed to increase the efficiency with which toxicity tests can be run. This "ecotoxicology on a chip" project will be co-supervised by ARC DECRA winner Dr Donald Wlodkowic who will help Rhys develop microplates with computer controlled delivery of toxicants allowing for very specific dosage control and continuous exposure.

Navdeep Bal is a new international student who will be investigating the effects of pharmaceuticals in the environment and be co-supervised by Dr Anu Kumar at CSIRO Adelaide. Navdeep is being introduced to a whole new world of ecotoxicology after completing a Masters which related to textile dyes.

Linda Kleinhenz is a new Honours student evaluating the toxicity of trace metals on sea anemones and sea urchins.

Two other international PhD scholars will join the group in the second semester of 2014. Meanwhile, PhD student Ana Miranda continues her research on the effects of Endocrine Disrupting Chemicals on Australian species and is beavering away trying to complete her last few experiments and Kavitha Chinnathamby is writing her PhD thesis.

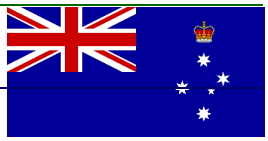
Recycled water is becoming a big issue around the world, but what are the risks involved with this process? Three researchers from Melbourne, Australia were funded by the NGWREF to find out.

Project Title: *Aquifer Storage and Recovery of Recycled Water: Identifying Emerging Contaminants in Source Water and Examining their Fate and Transport*

By *Dr. Oliver Jones and Dr. Matthew Currell (RMIT University)*

Regional Reports

Victoria



Melbourne is often voted one of the most liveable cities on earth. Its population is rapidly expanding but, in common with many places in Australia, it suffers from recurring droughts and chronic water shortages and groundwater reserves have also become depleted. This means that Australians have become very good at conserving and recycling water and are constantly thinking of new ways to do more with less. Using recycled water (e.g. treated sewage effluent) is an attractive water management strategy in drought prone areas worldwide, but is often held back by a lack of places to store the water. One way to potentially get round this problem is aquifer storage and recovery (ASR). This involves pumping highly treated wastewater into a depleted aquifer to replenish supply and then pumping this water back out when it is needed. ASR has considerable potential in urban water management because water companies don't need to build expensive new surface reservoirs and, since the water is stored underground, there is no loss by evaporation. This sounds good in practise but what if the recycled water still had potentially harmful contaminants in it? What would this mean for the future use of the water? The answer to this question is currently an area of NGWREF funded research.

"We don't know what is in the water or what happens to any pollutants that are there once they enter the aquifer," says Dr. Matthew Currell, a hydrogeologist at RMIT University in Melbourne.

To find out more about this problem, Dr. Currell teamed up with fellow RMIT scientists, Dr. Oliver Jones, an analytical chemist and Will McCance, an undergraduate engineering student. Their project looked at the Werribee ASR scheme, run by City West Water, as part of the West Werribee Dual Supply Project (WWDSP), that aims to provide recycled water to surrounding residential areas. Werribee is a Melbourne suburb, 32 km south-west of the city centre with a population of around 40,000 people and close to several protected wetlands. It is also the site of the Western Treatment Plant, which treats around half of Melbourne's sewage and produces almost 40 billion litres of recycled water each year.

The RMIT team focused on a selection of chemicals labelled by the US EPA as "contaminants of emerging concern" (or CECs); these are chemicals in water that have previously either not been detected, or which are now being detected at levels significantly different than expected. The term CEC refers to a diverse range of compounds including pharmaceuticals and personal care products, pesticides and food additives amongst others. Environmental regulators are worried about these compounds because the risk to human health and the environment associated with their presence or frequency of occurrence is unknown and there are very few (if any) regulations regarding their presence in the environment.

The team's first job was to decide which specific compounds to look for. After a detailed literature review and talking to the local environmental regulator; EPA Victoria, they selected a range of CECs including five pharmaceuticals, three disinfection by-products, two industrial chemicals, two pesticides and one food additive. Method development was the second stage of the work and was a considerable part of the pro-

ject. The team had to develop analytical protocols (primarily using gas chromatography mass spectrometry) for each compound and then thoroughly test them to determine recovery rates and detection limits before they could go sampling.

The team then took samples over a four-month period and found Acesulfame (an artificial sweetener), Nonylphenol (a detergent) and Cyanazine (a pesticide) Gemfibrozil and Carbamazepine (pharmaceuticals) and choloroform, bromoform, bromodichloromethane and dibromochloromethane (by-products formed when water is disinfected using chlorine) in the ASR source water. The team saw some differences in concentrations and presence of some of the compounds across the sampling period, which they think reflects either seasonal variability in the amount of these substances in the influent wastewater and/or differing degrees of persistence during treatment. Interestingly both Acesulfame and Nonylphenol were also identified in a groundwater sample taken from the target aquifer, following injection/recovery trials, and a twelve-month waiting period. While both substances were only just above the limits of detection, the fact that they were present at all indicates they have a significant persistence in the aquifer.

Much of the hard slog on this project was done by Will as part of his final year project for his degree. For him it was a highly useful chance to get some real work experience and learn new skills. Will said "The project appealed to me as it covered both groundwater and hydrogeology disciplines while requiring both field work and lab work and I was able to get face to face contact with industry. Once I started the project I realised the future applications of ASR schemes and this gave me an opportunity to understand the technicalities of these projects. I have enjoyed this project and would be interested in working in this area in the future. I'm really grateful to the NGWREF for funding the work".

This is a view echoed by Dr. Currell and Dr. Jones. "We were really glad that the NGWREF liked our proposal said Dr. Jones. "This is really exciting work as it is one of the very first times an ASR scheme has been investigated for CECs so the results are cutting edge research. The NGWRF have been great, their funding and support made the work possible". The whole team are now working on publishing their results as a scientific paper in the journal 'Ground Water' published by the National Ground Water Association. Will recently graduated with a top class bachelor's degree with a double major in Environmental Engineering and Environmental Science. Dr Currell and Dr Jones aim to continue working together in the area of emerging organic contaminants to help inform future environmental policy decisions and risk assessments.

Student Will McCance sampling recycled water during the project

Regional Reports

Victoria

In other Victorian news, Tarah Hagen (ToxConsult) has successfully completed her Masters in Environmental Toxicology and Pollution Monitoring (through the University of Ulster, Northern Ireland: distance learning course) and has had a manuscript of her research accepted for publication (some of you may have seen her presentation of this work at the Melbourne conference!). The manuscript entitled "Comparative chemical sensitivity between marine Australian and Northern hemisphere ecosystems: is an uncertainty factor warranted for water quality guideline setting?" has been accepted and will soon be published in Environmental Toxicology and Chemistry. Well done Tarah! Whilst over at Monash University, Dr Minna Saaristo and Dr Bob Wong have been making fantastic progress with their research looking at endocrine disruptors and fish behavioural assays. They have recently had some of this work published in Aquatic Toxicology:

Saaristo, M., Myers, J., Jacques-Hamilton, R., Allinson, M., Yamamoto, A., Allinson, G., Pettigrove, V., Wong, B.B.M. 2014. Altered reproductive behaviours in male mosquitofish living downstream from a sewage treatment plant. Aquatic Toxicology, 149, 58-64.

And finally, the CAPIM group at the University of Melbourne have recently welcomed two new PhD students, Bryant Gagliardi and Molly Hoak who will both be investigating the effects of pesticides on various aspects of invertebrate biology. Keep an eye out for more details of their individual projects and a student profile in a future Endpoint newsletter! In addition there are a number of new projects underway throughout the greater Melbourne area investigating urban pollution problems, as well as a few studies that are in the final stages of being wrapped up. Some of you might be familiar with CAPIM's "Dandenong Creek Project" which was originally presented at SETAC Darwin. This work has finally been published in the Journal of Applied Ecology:

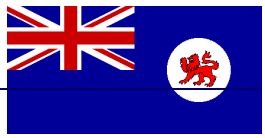
Claudette R. Kellar, Kathryn L. Hassell, Sara M. Long, Jackie H. Myers, Lisa Golding, Gavin Rose, Anupama Kumar, Ary A. Hoffmann and Vincent Pettigrove (2014). Ecological evidence links adverse biological effects to pesticide and metal contamination in an urban Australian watershed. Journal of Applied Ecology.

Kathryn Hassell (khassell@unimelb.edu.au)
Victoria Regional Representative

Mosquitofish (*Gambusia affinis*)
(Source: http://3.bp.blogspot.com)

Regional Reports

Tasmania



Australian Antarctic Division

The 2013/14 summer field season is drawing to a close so corridors at our head office in Kingston are becoming busier places again. The second last A319 flight of the season just returned from Casey with our tired but happy fuel toxicity team led by SCU PhD student Frances Alexander and Prof Peter Harrison, along with PhD students James Black (SCU), Trish Corbett (Deakin Uni) and Kostas Kotzakoulakis (Macq Uni). The team had a successful season investigating the toxicity of physically and chemically dispersed fuels and the behaviour of fuels and dispersants in cold Antarctic waters. They also managed to collect a range of live invertebrates which were returned to Australia on flights through the season and which are now being well looked after by Dr Ashley Cooper in our aquarium facilities at the AAD. Also recently returning from a summer at Casey was Anna Nydahl who, following on from her Honours research last year through the UOW, was collecting new samples of moss for further testing.

After an unexpected and long but wonderful trip around the Southern Ocean, Dr Grant Hose and PhD student Ingrid Errington (Macquarie University) returned from their season at Macquarie Island in January. This season they set up mesocosms with hydrocarbon spiked soils to examine the impacts of residual fuels in soils on microbial and invertebrate communities. The mesocosms will be sampled at the end of this season by members of the AADs remediation team, and then again next season and perhaps into the future to look at longer term impacts. PhD student Jess Holan (UOW) and Dr Bianca Sfiligoj remain at Macquarie Island, working away on a project investigating interactive impacts of climate change and metal contaminants on subantarctic marine biota. They are due to return on a voyage in March/April after a great season in which they have completed many more experiments than I suspect they thought was possible!

Francesca Gissi (UOW) is continuing experiments at CSIRO for her Honours research examining the toxicity of copper and modes of toxic action to two common Antarctic marine microalgae. Kathryn Brown (SCU) is continuing the write up of her PhD thesis on the toxicity of fuels on early life stages of Antarctic marine invertebrates, and has a couple of manuscripts nearing completion. Earlier this year we said a fond farewell to Tom Mooney (soon to be Dr Tom Mooney!), who moved up to Darwin to join the ERISS team as their new laboratory manager. Tom is just about through his PhD thesis revisions and by all reports loves his new job and the Darwin lifestyle and climate!

In late February we have several past and current research students from UOW and UTAS coming to the AAD for a 3 day writing workshop. The workshop is designed to take students through the art of scientific writing and provides a structure and approach to developing a successful manuscript for publication in a scientific journal. Most students should come away from the workshop with a full draft manuscript in hand. Finally, Dr Cath King and Dr Jane Wasley are continuing analysis and paper writing and editing to get through a backlog of data!

Catherine King (cath.king@aad.gov.au)
Tasmania Regional Representative

SETAC Asia Pacific and SETAC Australasia (ASE) Conference 2014

Call for abstracts now open
Abstracts are now invited for the SETAC Asia Pacific and SETAC Australia (ASE) joint Conference in Adelaide, South Australia from 14-17 September 2014 with the theme "Advancing science for a sustainable future." This is your opportunity to contribute to three days of thought-provoking discussion, information-sharing, strategizing and problem solving.

Please submit your abstract before the 31 March 2014 deadline at http://www.setac2014.com.au/cfp.html

There has been an excellent response to the invitation to submit session proposals with seven tracks planned to cover Aquatic and Terrestrial Ecotoxicology and Ecology; Environmental Analysis and Monitoring; Emerging Contaminants; Environmental Chemistry and Remediation; Effects and Exposure Modelling; Risk Assessment, Regulation and Public Perception, and Life Cycle Analysis and Sustainability. In addition, seven special sessions are planned covering environmental issues highly relevant to the Asia/Pacific and Australasian regions including environmental issues associated with coal seam gas production, offshore oil and gas and nano-risk research.

Conference registration is now open. For detailed information and to register online, please visit the SETAC Asia Pacific and SETAC Australasia (ASE) Conference 2014 meeting website at http://www.setac2014.com.au/ Register by 21 July 2014 and take advantage of the discounted registration fee.

We are looking forward to creating a stimulating program as well as an engaging space for you to network, reconnect with colleagues and meet new people.

Mark it in your diary now.

Key dates
Call for abstracts open – 15 January
Call for abstracts close – 31 March
Notification of acceptance – mid May
Author registration close – 15 July
Earlybird registration close – 21 July

Plevin and Associates Pty Ltd
SETAC 2014 Conference Manager

SETAC AU Student Travel Awards

To encourage student participation at the SETAC AP/AU 2014 conference in Adelaide, up to eight Student Travel Awards are available for student members of SETAC AU. The awards are valued at $800 each to cover registration, travel and accommodation costs associated with attending SETAC AP/AU 2014.

Eligibility: applicant must be a student member of SETAC AU and be the presenting author of an oral or poster presentation at SETAC AP/AU 2014.

Applicants will be assessed on merit and the selection criteria include:

- Length of time as a member;
- Stage of completion of study and whether studying full time or part time;

Availability of other sources of assistance.
The application form is at http://ww2.setac.org/sapau/noticeboard.html#prize_sta. The completed application form, along with a copy of the submitted conference abstract, should be sent to australasia@setac.org. The closing date for applications is

Report on Madang Workshop

Sekim kemikol long mama graun

SETAC AU held a two-day workshop in Madang, Papua New Guinea during November 2013. This was the second workshop of its kind held in PNG. The first workshop (also at Madang) was held during 2010 when our society was still the Australasian Society for Ecotoxicology (ASE).

The venue for this and the previous Madang Workshop was the Madang Resort hotel and conference centre. This venue provides good quality onsite accomodation and catering as well as having good conference/workshop facilities, and its location makes it accessible from other population centres as well as from Australia and Southeast Asia.

The Madang Resort

The workshop organising committee comprised Ross Smith, Riall Gabuogi, and Munro Mortimer. Sponsorship assistance was provided by BMT WBM, Barrick Porgera, Morobe Mining Joint Venture, Hydrobiology, and SETAC Asia-Pacific. Participants were charged a registration fee set at a level sufficient to cover their accomodation costs and allow the conduct of the workshop to be cost-neutral to SETAC AU.

There were 31 workshop participants, mostly Papua New Guineans employed in an environmental impact assessment role, either in field or laboratory operations, in the mining and/or related sectors.

Following the workshop, twelve PNG participants took up SETAC membership.

Report on Madang Workshop

Sekim kemikol long mama graun

Workshop participants

Presentations were given on a wide range of topics, including:

- A case study in marine oil spill response;
- Health risks associated with exposure to cadmium in volcanic dust;
- Management of emergency water discharges from mines and the definition of trigger values;
- Phytoremediation of closed mine sites in PNG;
- The role of time-integrated sampling devices in monitoring programs;
- Challenges of environmental monitoring at a mine site in PNG;
- Rope access methods for steep slope rehabilitation;
- A case study in the application of direct toxicity assessment following a mixed pesticides spill;
- Methods for analysis of cyanide species in environmental materials;
- A case study in cadmium contamination from an aircraft maintenance workshop;
- Assessment of environmental impacts from an accidental mining discharge in PNG;
- Use of the enzyme SDH as an effects marker downstream of a mine site in PNG;
- Sources and mechanisms of metal contamination in two PNG river systems;
- A case study in the minimisation of environmental impacts from petroleum exploration in PNG;
- Biodiversity in bauxite streams;
- Pitfalls in the use of biomonitors;
- Quality assurance in water sampling.

Workshop discussion sessions covered:

- The organisational structure of SETAC and SETAC AU and the potential for SETAC to foster the professional development of persons working in environmental assessment and protection roles in PNG;
- Potential regional approaches to developing water quaity guidelines for PNG.

Participants considered the workshop a great success, and voted with enthusiasm to continue the workshop series on a biennial basis.

Munro Mortimer (munro@ozemail.com.au)
Madang Workshop Organising Committee

What's Happening?

Conferences and Workshops

If you are aware of critical dates conferences or workshops that would be of interest to other members of SETAC – AU please email the details to the EndPoint Editor david.everett@ehp.qld.gov.au.

Please include a link to the Webpage for the event and the critical dates SETAC – AU members should be aware of.

SETAC AP/AU 2014 Conference
Adelaide, Australia
14 – 17 September 2014
Call for abstracts close: 31 Mar 14
Notification of acceptance: May 14
Author registration close: 15 Jul 14
Early bird registration close: 21 Jul 14
http://www.setac2014.com.au/cfp.html

Basel 2014 SETAC Europe
Basel, Switzerland
11 – 15 May 2014
Registration deadline: 15 Apr 14
http://basel.setac.eu/home/?contentid=763&pr_id=635

SETAC North America 35th Annual Meeting
Vancouver, Canada
9 – 13 November 2014
Abstract submission opens: 1 Apr 14
Training course proposals: 1 May 14
Registration opens: 7 Jul 14
Early bird registration close: 15 Aug 14
Pre-registration deadline: 19 Sep 14
Online registration close: 22 Oct 14
http://vancouver.setac.org/?page_id=26

Student Publications

If you have recently conferred your thesis or are a current student that has published a paper, let our editor know, david.everett@ehp.qld.gov.au, so that we can share your success and let everyone else know.

Please include a full reference to your thesis or publication and details of the institution you were/are enrolled at.

Jeppe, Katherine, J., Carew, M.E., Long, S, Lee, S.F., Pettigrove, V. and Hoffman, A.A. (in press) Genes involved in cysteine metabolism of Chironomus tepperi are regulated differently by copper and by cadmium, *Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology.*

Sun, Melanie, Y., Dafforn, K.A., Johnston, E.L. and Brown, M.V. (2013) Core sediment bacteria drive community response to anthropogenic contamination over multiple environmental gradients. *Environmental Microbiology* **15**: 2517-2531.

Australasian Bulletin of Ecotoxicology and Environmental Chemistry

Call for papers

We invite all SETAC AU members to submit new manuscripts to the *Australasian Bulletin of Ecotoxicology and Environmental Chemistry.* The *Bulletin* is a publication of the Australasian Chapter of the Society for Environmental Toxicology and Chemistry (SETAC AU), and is a regional publication dedicated to publishing original, scientifically-sound research dealing with all aspects of ecotoxicology and environmental chemistry relevant to Australasia. Papers published may be research reports, review papers, short communications, descriptions of new techniques and equipment, thesis abstracts, thesis literature reviews and comments on previously published papers.

All papers published in ABEEC will be made freely available through the website for SETAC AU. It will be an online publication only.

This is how the submission process works. Contributions should be submitted to the editor as a manuscript in the same manner as you would for any other journal. You also need to provide the name(s) of at least one reviewer to assess the manuscript. All manuscripts will be sent out for review by at least two experts in the field. After the review process, manuscripts will be sent back to authors for final revisions prior to online publication.

If you wish to submit a manuscript to *ABEEC* or would like to discuss publication of a manuscript, then please contact the editor. A copy of *Instructions to authors* is also available from the editor.

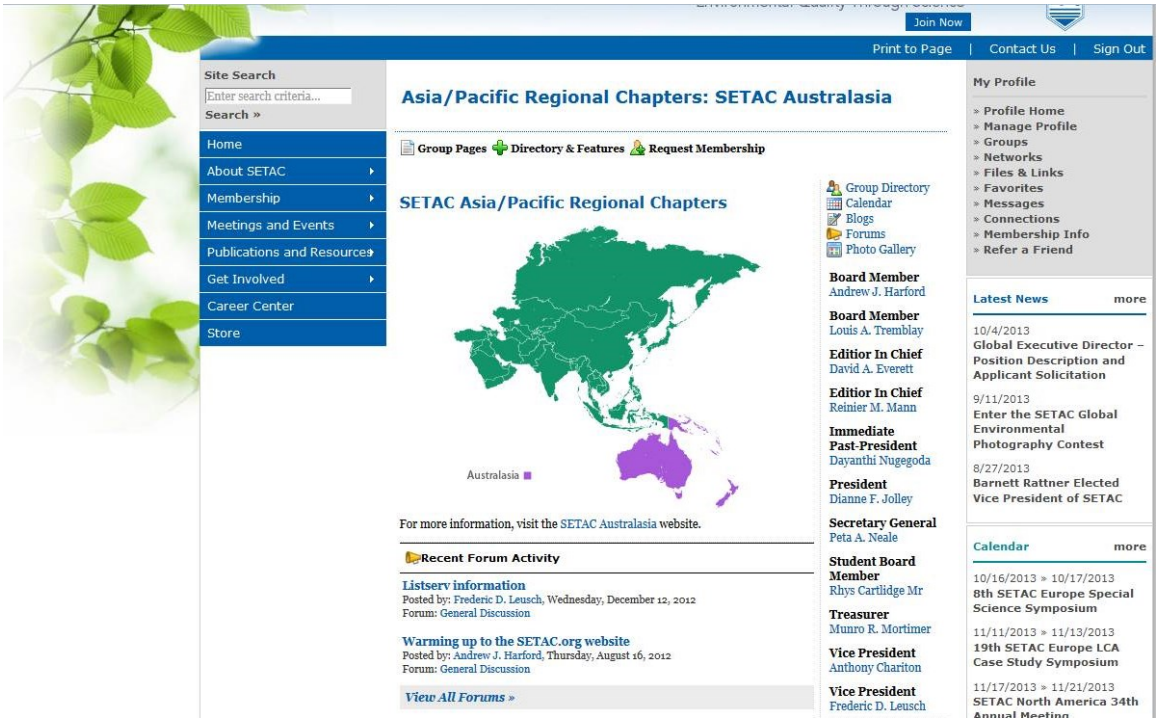
We look forward to receiving you manuscripts.

Reinier M Mann (reinier.mann@qld.gov.au)
Editor – *ABEEC*

Membership Details

How to join SETAC Australasia

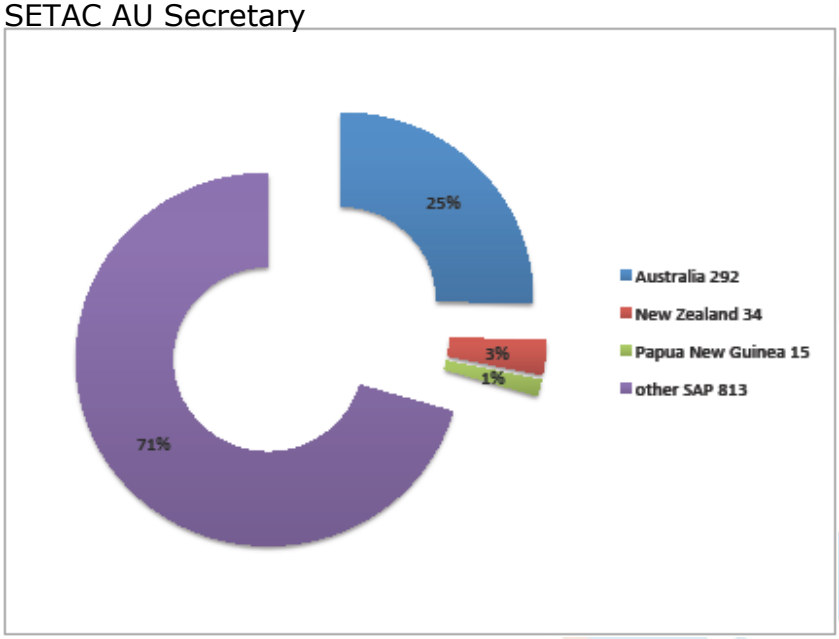
Even if you are a SETAC member based in Australia, New Zealand or PNG, you may not be a member of SETAC Australasia. You can join SETAC Australasia by going to http://www.setac.org/. After logging in, go to the SETAC Australasia page and click 'Request Membership' (see below). You can find this page by either searching 'Australasia' or going to the 'Get Involved' tab on the left of the page, then 'Regional Branches and Chapters', then 'Asia



Current SETAC Australasia Members

To make sure you don't miss out on attending SETAC get-togethers in your state or territory or contributing your latest research to Endpoint, please update your SETAC profile to include your location so your regional rep can get in touch with you. You can do this by logging into http://www.setac.org/ and selecting 'Manage Profile', then 'Edit Bio'.

Peta Neale (p.neale@uq.edu.au)
SETAC AU Secretary



Current SETAC AP Membership

It is interesting to note that SETAC AU membership currently accounts for almost 1/3 of the membership in SETAC AP. The graphic to the left shows which countries in the Asia Pacific region SETAC members come from.

Affiliate and Sustaining Memberships

Have you considered affiliate or sustaining membership or do you know an organisation that should? Affiliate memberships are suitable for not-for-profit organisations or academic institutions and sustaining memberships are suitable for for-profit organisations, government agencies, or individuals. They are cost effective means of covering membership and conference registrations as well as other benefits. Here are the details below:

SETAC-AU Sustaining Member

- For-profit group, government agency or individual
- **AUD1650 GST inc**
- 2 free registrations or 4 free student registrations or 1 full and 2 student registrations
- Meeting signage and program
- Meeting receptions free
- Membership Directory access
- Journal -Hardcopy & online
- Access to online newsletter
- Annual acknowledgement in journals (SETAC AU publication)
- Free advertising
- Free Job adverts online
- Listing on SETAC AU web page
- Acknowledgment for other assis-

SETAC -AU Affiliate Member

- Non-profit group or academic institution
- **AUD880 GST inc**
- 1 free registration or 2 free student registrations
- Meeting signage and program
- Meeting receptions free
- Membership Directory access
- Journal –online
- Access to online newsletter
- Annual acknowledgement in journals (SETAC AU publication)
- Free advertising
- Free Job adverts online
- Listing on SETAC AU web page
- Acknowledgment for other assistance such as student grants etc.

To follow up with these membership options please email me at p.neale@uq.edu.au and also pass this information on to anyone or any organisation you think might be interested. Remember we now represent ecotoxicology and environmental chemistry.

Peta Neale (p.neale@uq.edu.au)
SETAC AU Secretary

SETAC AU

Council Members

Position/Region	Elected Member
President	Dianne Jolley
Immediate Past President	Dayanthi Nugegoda
Vice Presidents	Fred Leusch Anthony Chariton
Secretary	Peta Neale
Treasurer	Munro Mortimer
Membership Officer	Louis Tremblay
Bulletin Editor	Reinier Mann
Newsletter Editors	David Everett Erik Prochazka
Strategic Directions Officer	Andrew Harford
Student Representatives	Rhys Cartlidge
Australian Capital Territory	Gary Fan
New South Wales	Tom Cresswell
Northern Territory	Andrew Harford
Queensland	Erik Prochazka
South Australia	Mike Williams
Tasmania	Cath King
Victoria	Kathryn Hassell
Western Australia	Tristan Stringer
Papua New Guinea	Riall Gabuogi
New Zealand	Ajit Sarmah Kimberly Hageman