NEWSLETTER OF THE

Endpoint

AUSTRALASIAN SOCIETY FOR ECOTOXICOLOGY
(now SETAC-AU)

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CONTENTS

SETAC Australasia

Message from the Editor

Welcome to the fisrt issue of Endpoint for 2013. I have to start with giving an apology for the tardiness of this issue which was originally scheduled for late 2012. A number of reports in Endpoint come out of our Council meetings however over time it appears that the scheduled publication dates for Endpoint and the scheduling of Council meetings have become more and more dissociated. I have therefore flagged some changes with the timing of future issues of Endpoint so they are synchronised with Council meetings in the future.

Once again I also have to pass on all my thanks to our representatives who have provided submissions for this issue. Of course without the effort on the part of these people there would be no Endpoint.

Everyone has probably heard that Queensland is following the lead of other States by recommencing a uranium mining industry. Premier Campbell Newman announced the establishment of a Uranium Mining Implementation Committee (UMIC) which will report on a best practice framework for the regulation of uranium mining in Queensland. I am pleased to have been selected to participate in the secretariat for the UMIC to develop recommendations on the environmental regulation of uranium mining. The committee (and a select few from the secretariat) have been travelling around Australia visiting existing and closed uranium mines including Ranger and Mary Kathleen mines.

One of the most enjoyable aspects of being the editor for Endpoint is getting to see the news early from our Council and members. It was with great pride and joy that I read Dayanthi's news of being appointed to the Independent Expert Scientific Committee to Advise on Coal Seam Gas and Large Coal Mining. Not only is this a great achievement for Dayanthi but also demonstrates the growing influence of SETAC AU in the science world and in the community more generally.

In a similar vein, I was also extremely pleased to hear about the election of Ross as the President of Science and Technology Australia (STA). Ross's appointment as President of STA is very much deserved. Over the years Ross has been very active in the participation of ASE and now SETAC AU with STA (and the former FASTS). In particular Ross has been a great advocate for our involvement in Science Meets Parliament (SMP) over the years.

While mentioning SMP, make sure you read Tom's report on this year's event. The Parliamentary Friendship Group for Science looks like a very positive and exciting development for all involved in a scientific endeavour. I am also very jealous of the cocktail party.

I trust everyone had a safe and happy Christmas and you took the opportunity to take some time out to be with family and friends. I expect a lot of us had a very hectic 2012 and needed some time to relax and refresh to get ready for a prosperous and successful 2013.

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

Sustaining Members

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

Department of Sustainability, Environment, Water, Population and Communities
http://www.environment.gov.au

Hydrobiology
http://www.hydrobiology.biz

Ecotox Services Australasia
http://www.ecotox.com.au

Advanced Analytical Australia
http://www.advancedanalytical.com.au

From La Presidenta

Welcome to our February issue of EndPoint.

Appointment to IESC for the Federal Government

I will begin this report with some personal news which is very closely related to the work we do through SETAC Au. I am honoured to have been appointed to the *INDEPENDENT EXPERT SCIENTIFIC COMMITTEE TO ADVISE ON COAL SEAM GAS AND LARGE COAL MINING* by the Hon. Tony Burke, Minister for Sustainability, Environment, Water, Population and Communities. The media release was on the 27th of November and my biodata includes that I am the current President of our Society. I will do my best to serve the interests of the environment and aim at minimising water pollution from mining through the work of this committee which will work very closely with the Office of Water Science in Canberra. I am unsure who nominated me, but I am truly grateful for this opportunity to emerge from the sidelines and hope we can contribute to ensure sustainable practice.

Conferences

SETAC AP

The SETAC Asia Pacific 2012 conference in Kumomoto was a great success, we had great plenaries, scientific talks and posters, the venue was excellent, the catering was interesting (I had my fill of Japanese Bento boxes!) and we made a lot of new Japanese friends, while learning that exact timing for social events was paramount! Several SETAC Au members chaired sessions and delivered excellent oral and poster presentations. Kumamato itself was a beautiful city and the free tour of the castle a highlight of the conference. I was fortunate to join the Minimata symposium and the opportunity to visit Minimata, and listen to a speaker who was affected by Hg poisoning and Minimata disease was a chance in a lifetime. All Ecotoxicologists learn about Minimata in the very first weeks of "Ecotoxicology 101" and it took me right back to my student days. The museum there was excellent and despite being a seasoned pollution biologist, I was very moved to see the stark reality of the result of man's ignorance of toxic chemicals and industrial carelessness.

Soon after most international visitors had left – the typhoon hit and Kumomoto was battered by rain and winds – I had chosen that very day to take a post-conference trip up Ahso Mountain – a live volcano, and to say it was an interesting visit would be an understatement!

At the conference dinner in Kumamoto it was announced, as agreed by Council email vote that the next SETAC AP meeting would be held in conjunction with the SETAC Au meeting in Adelaide. I gave a short presentation at the closing ceremony on behalf of the Adelaide organisers on the "attractions of Adelaide" in order to encourage SETAC AP members to attend in 2014.

SETAC North America in Longbeach was held in November and though I did not attend I am assured that it was an excellent meeting although with a lower number of attendees than other years.

SETAC EU will be in Glasgow 2013 in May as usual and I hope several of our members submitted abstracts by the deadline of 30th November. It was while submitting an abstract that I realised that the new RMIT gmail system does not recognise the email I registered with SETAC – so I have had no updates from SETAC global or the Globe since August!

SETAC Au Melbourne 2013

We are progressing with the organisation of Melbourne 2013 as detailed in the advertisement on page 14. I would encourage as many members as possible to attend what will be a very good conference. Keep an eye out for more information in future issues of EndPoint.

Science and Technology Australia

It was a pleasure to attend the STA AGM on Friday the 23rd of November when our

illustrious immediate past president Ross Smith was unanimously elected President of STA. I know that he will do us proud and ensure SETAC Au is recognised as a premier scientific society.

We were also privileged to be addressed by Professor Ian Chubb, the Chief Scientist of Australia and listen to his vision for shaping science in Australia. He stated that the draft National Research Involvement Plan is now with Government after the comments and reviews. It states that the Government should invest in research capacity, however that research should be prioritised as in the EU, UK and US. There are likely 5 most significant challenges identified. The one most relevant to SETAC Au would be "Living with a changing Environment". He discussed his ideas on improving innovation, a plan to place fresh PhD students in Industry and awarding cash initiatives and tax breaks to do so and making it compulsory for Universities to have a single semester placement for undergraduates in industry. He has proposed longer periods for research grants – up to 5 years and simplifying IP contracts – to make a single IP contract for all Universities and Industry. Also proposed are new schemes for ECRs. There was also discussion on not penalising academics for working for a period in industry and women taking family time when a lack of publications was evident.

When I had the opportunity to ask a question I asked Prof Chubb why it has been so difficult in the last few years to encourage Australians to undertake PhDs in Science (while heaps of internationals apply) and he answered that it was clear that academic places were saturated and that we should encourage our PhD students to diversify, take jobs in Industry and not become clones of ourselves!

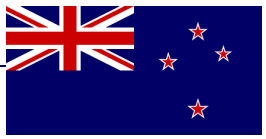
I trust all SETAC Au members had a very merry Christmas and a Happy New Year and thank you for your support in 2012.

Dayanthi Nugegoda (dayanthi.nugegoda@rmit.edu.au)
President

Melbourne — host of SETAC Au 2013 Conference (More on p. 14)
(Image source:http://goaustralia.about.com)

Regional Reports

New Zealand



A few updates from the Environmental Chemistry Group at the University of Canterbury led by Sally Gaw. Congratulations to Francine Smith who successfully defended her PhD "Investigating Cyanotoxin-Production by Freshwater Benthic Cyanobacteria in New Zealand" in July and is now applying for post-doctoral positions. PhD candidate Phil Emnet is getting ready to return to Antarctica for 5 weeks in November and December where he will be investigating the distribution of micropollutants in Erebus Bay. Fathimath Mohammed and her samples arrived safely back from the Maldives where she is investigating trace metal accumulation in aquatic food chains.

Chris Glover from the School of Biological Sciences at the University of Canterbury is continuing his research focused on characterising mechanisms and impacts of metals in the aquatic environment. One theme focuses on the development of bioindicators of coastal metal toxicity. Current work being conducted by Ph.D. candidate Rathi Chandurvelan (supervised by Chris Glover, Islay Marsden and Sally Gaw). Her project involves the development of native bioindicators of coastal metal toxicity, with a particular focus on the NZ green-lipped mussel. The second major theme is examining the mechanisms of metal toxicity in NZ's native galaxiid fish species, and this work is being performed by Ph.D. candidate Rachel Harley (supervised by Chris Glover, Jon Harding and Sally Gaw). PhD candidate Tristan Stringer (co-supervised by Chris Glover, Vaughan Keesing(Boffa Miskell) and Louis Tremblay) will finally get the opportunity to defend his thesis "Development of bioassay approaches to evaluate the impacts of pollution on New Zealand estuaries using the marine copepod *Quinquelaophonte* sp." in November. It is worth mentioning the Tristan did a fantastic job as student rep initially with ASE and then SETAC-AU.

In an effort to shift the tendency from red flag raisers to solution-driven research, a new Research area is being developed by scientists from the Cawthron Institute (Louis Tremblay, Olivier Champeau, Jamie Ataria, Ian Challenger), ESR (Jacqui Horswell, Jinny Baker), Scion (Lisa Hack, Alan Leckie) and Nagi Tahu (Raewyn Solomon, Sarah Watson). Too often in environmental research, we tend to assess and characterise the presence of contaminants that are found in the environment. That leaves a feeling of being the ambulance at the bottom of the cliff.

In an effort to include more solution-driven research, the team developed the "'Up-the-Pipe solutions" Project, funded by the New Zealand Ministry for the Environment's Waste Minimisation Fund. The research builds on the Ministry of Business, Innovation and Employment (formerly MSI) funded Biowastes multi-disciplinary project by exploring how individuals can contribute to reduce the contamination found in household wastes.

This project combines cutting edge biophysical science on emerging contaminants and community engagement approaches to raise awareness and make 'visible' the concentrations of contaminants in household wastes, and help reduce the contaminant loadings in the receiving environment.

The biophysical science focuses on a waste of significance to small rural communities from across New Zealand: septic tank sludge. The community is engaged by involving the Kaikoura secondary school children to identify commonly used products, and to stimulate discussions about behavioural patterns and motivations behind the use of household products. The Natural Step (TNS) framework helps to inform this process. The research team will assess the risk associated with the presence of toxicants in the commonly used products around the house.

The project is a natural extension of the Biowastes programme and builds on our strong track record working in close partnership with community. The aim is to develop a best practice framework that can be used to reduce the release of persistent contaminants across a range of daily domestic activities.

Over the last three years University of Otago Associate Prof. Barrie Peake (Chemistry Department), Dr Rhiannon Braund (National School of Pharmacy), and Mr Alfred Tong (PhD candidate) have initiated a comprehensive study of the disposal and environmental levels of a range of pharmaceuticals commonly prescribed in New Zealand. The analytical method that we are implementing is based on the solid phase extraction followed by LC-MS/MS detection using an AB SCIEX 3200 instrument as described by (Vanderford, Pearson et al. 2003). They are planning to use this technique to measure the levels of various therapeutic classes of pharmaceuticals in samples of influent and effluent from NZ wastewater plants.

The research (Tong, Peake et al. 2011; Tong, Peake et al. 2011) has shown the high potential for unused /unwanted/expired medications to be disposed of by patients, caregivers and community pharmacies into the sewage system.

The team has also been looking at the use of advanced oxidation processes (AOPs) such as UV photolysis on its own and in conjunction with hydrogen peroxide (H_2O_2) and with Fe(II) /H_2O_2 (photo Fenton system) to degrade pharmaceuticals in aqueous solution. We have used these three processes to degrade aqueous solutions of Oseltamivir (Tamiflu) to form products that have no measurable ecotoxicity (Tong, Braund et al. 2011).

References

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Louis Tremblay (Louis.Tremblay@cawthron.org.nz)
New Zealand Regional Representative

Regional Reports

South Australia

Well, after a brief hiatus, I'm back on deck to report on the goings on in SA; I am sticking by the "new baby" excuse because it seems to make it so much harder for people to stay upset with me. Having said that, my apologies for my omission from the last excellent Endpoint issue. And so I'd like to give a belated double thumbs up to Fred, Beate and the team who put together a wonderful meeting in Brisbane all those months ago and I'm already looking forward to seeing what Vin and his crew can cook up for their meeting in Melbourne next year. Speaking of SETAC Australasia meetings, Dayanthi announced a joint meeting between SETAC Australasia and Asia-Pacific in Adelaide 2014, with Anu and Rai leading the charge to maintain the high quality of these meetings. Something else to look forward to in the not too distant future.

Above the usual humdrum of day to day project requirements there have been a few developments within our group that stand out. First, Rai Kookana has recently visited the USA to have the significant accolade of having a fellowship for the Soil Science Society of America bestowed on him. Of the more than 6000 members within the SSSA, only 0.3% are admitted as fellows, which is approaching odds encountered in Saturday night's Powerball draw. With the obvious difference being that one requires years of consistent high quality work with the other requiring no more than pure luck, of course. Oh, and a few million dollars, too. Nonetheless, our congratulations go to Rai!

Also, our position of OCE post-doctoral researcher has been filled by Meritxell Gros, who was previously working within Damia Barcelo's team at ICRA in Spain. Meri had been working as a post-doc, developing methodology for pharmaceuticals, antibiotics and veterinary products on UPLC-MS/MS, working on the identification of pharmaceutical transformation products derived from biodegradation and identification of endogenous metabolite biomarkers following exposure to environmental stressors, including contaminants. She therefore brings with her extensive expertise in the use of high resolution mass spectrometry techniques for elucidation of unknown organic compounds (such as pharmaceuticals) in environmental matrices. Which is just as well, since the post-doc project relates to the use of high resolution mass spectrometry techniques for elucidation of transformation products produced from the degradation of parent compounds, such as pharmaceuticals. Sounds like a perfect match and we are looking forward to seeing what she gets up to in the lab. On top of this, she has to be one of the friendlier people around so make sure you say g'day (or hola) if you see her around the traps.

To finish off with a bit of humdrum, the Contaminant Chemistry and Ecotoxicology team has recently started a project attempting to characterise the ecotoxicological risk within the upper Murrumbidgee and lower Murray River regions. It may sound a tad ambitious at first but a number of project teams have been cobbled together bringing expertise in various fields of chemistry, ecotoxicology and hydrogeology. While it is mainly driven from an ecotoxicological perspective, I think it is an excellent opportunity for a diverse range of scientists to get together and exchange ideas. I (and the others) am looking forward to it!

On a final final note, if there is anyone else out there in SA who would like to update the rest of the SETAC Australasia community on their adventures in science, please send me an email and let me know what you are up to. And on a final final final note, congratulations to all the council members and state reps who were elected at the AGM in Brisbane.

And, as an absolute last word, I trust everyone has had a productive and successful 2012 and I wish everyone all the best for 2013!

All the best,

Mike Williams (Mike.Williams@csiro.au)

Reports from SETAC-AU members in Queensland may have been scare over the past few editions but this month we are hearing from some of our zealous members at The University of Queensland, Central Queensland University and the Department of Science, Information Technology Innovation and the Arts.

National Research Centre for Environmental Toxiocology (Entox), University of Queensland

"Bioanalytical Tools" group lead by Beate Escher

It has been a busy year for our group and we have been working on a number of projects including stormwater, mixture toxicity, transformation products, engineered nanomaterials and disinfection by-products.

Two postdocs from US and Europe joined us early in 2012 in the transformation product research area. Marcy Card, who did her PhD at Ohio State University, is looking into the biodegradation products of organic micropollutants and thus far has developed a prioritisation scheme for testing based on the prediction of potential transformation products and the structural alerts for toxic effects in these transformation products. Daniel Stalter, who did his PhD at Frankfurt University, is working on the bioanalytical assessment of disinfection by-products.

Sophie Day has recently completed her honours project looking on 'Which size fractions of organic matter have the greatest disinfection by-product formation potential' in conjunction with Water Quality Research Australia (WQRA), Seqwater and the Advanced Water Management Centre at UQ. She applied a number of techniques including organic carbon characterisation, chemical analysis, adsorbable organic halogen (AOX) analysis and bioassays for genotoxicity and oxidative stress to evaluate DBP formation and toxicity in the laboratory.

Daniel Stalter working on the adsorbable organic halogen (AOX) analyser

Continuing on the DBP theme, a paper on DBP formation and toxicity in a drinking water treatment plant was recently published in Environmental Science and Technology, with colleagues from Advanced Water Management Centre at UQ, Seqwater, The University of New South Wales and Curtin University (Neale et al. (2012) Environmental Science & Technology 46, 10317–10325). A number of bioassays indicative of early warning endpoints, such as oxidative stress, genotoxicity and glutathione detoxification, as well as the Microtox assay for baseline toxicity, were applied to assess the toxicity of DBPs formed during disinfection, along with AOX and chemical analysis. An increase in toxicity by all endpoints was observed after chlorination, which correlated with an increase in DBP and AOX formation. The study demonstrates the applicability of bioassays to investigate the formation and toxicity of DBPs. Our group will continue working on DBP formation and toxicity in a number of water sources, including another honours project in 2013.

Peta Neale and Beate Escher b.escher@uq.edu.au

Centre for Environmental Management, CQUniversity Australia
www.cem.cqu.edu.au

Who would have thought a few years back that Gladstone would be the centre of the known world! Well maybe that it slight over statement but what with the countless media outlets filing TV, radio and print stories and various state, federal and international agencies 'testing the waters' so to speak, interest in the health of Gladstone Harbour and the Great Barrier Reef has been at fever pitch. This has meant that we have been busy fronting the media and supporting, aiding and carrying out research and monitoring activities in line with this increased vigilance.

Amongst this our VP Scott Wilson has been investigating effects of micro-plastics and marine debris in nearshore environments and has recently been invited as Australian representative on the GESAMP advisory panel to the UN on this issue.

Meanwhile our students have been continuing on their merry way.

- Amie Anastasi's experimentation and toxicity testing for her PhD is nearly done, finally. Oxidation tests are wrapping up at the moment and if only her jellyfish would breed for her, then her tox tests would be finished too. When she's not been working on that, her project studying the baseline water quality in Rosslyn Bay (near Yeppoon) is still ongoing with at least fortnightly sampling and equipment maintenance meaning she still manages an outing on the boat every now and then.
- Khurshida Siddiqua has completed all her experimentation with her latest results showing some distinct differences in sensitivities of amphibian larval life stages to atrazine, which she presented at the SETAC A/P meeting in Kumamoto in September.
- Krista Verlis has completed her pilot phase of her project examining the effects of marine debris to seabirds in the GBR. She has found plastics to prevalent in chicks of wedge-tailed shearwaters and a colour preference of the plastics found in the birds stomachs. The next phase will involve determining POPs levels in the birds and ascertain whether plastics are a potential route for chemical exposure.

There are two upcoming additions to the Centre. One will be Steve Melvin, who will take up a post-doc to work on the development of biological early warning sensors for evaluation of waste water contaminants. This will be part of a larger project involving the Smart Water Research Centre, Griffith University, Sunshine Coast University and a number of industry partners. The second is Chantal Lanctot who will start her PhD into the effects of coal-derived contaminants on amphibian development and morphology. Both will be joining us from Canada.

Amie Anastasi sampling in Rosslyn Bay.

Scott Wilson s.wilson@cqu.edu.au

Department of Science, Information Technology Innovation and the Arts

The Water Quality and Investigations (WQI) team (previously called the Catchment Water Sciences team) headed up by Michael Warne has had a very busy year with the usual coordination of monitoring nutrients, pesticides and total suspended solids (TSS) in the Great Barrier Reef (GBR) Catchment area for the Reef Water Quality Protection Plan and South-East Queensland (SEQ) catchments for Healthy Waterways. This year became particularly busy with the post-flood monitoring in South-East Queensland and the investigation of water quality associated with the fish health issues in Gladstone Harbour as well as a number of other investigations throughout QLD led by Susi Vardy. We had Dr Claudia Arango join us this year to help out with the Gladstone fish health issue – our efforts on this issue can be seen at: http://www.ehp.qld.gov.au/gladstone/reports.html#waterquality . A final report on water quality issues over the 12 months of monitoring is due to be released by early 2013.

Current and recent projects and collaborations from the Great Barrier Reef Catchment Loads Monitoring Program (Ryan Turner, Rachael Smith, Rohan Wallace, Rae Huggins, Susi Vardy and Michael Warne) include:

- Providing nutrient, TSS and pesticide loads for validation of Paddock to Reef Models for Reef Plan 2009;
- Assisting with the Reef Plan Relative Risk Assessment of the impacts of total suspended solids, nutrients and pesticides and the writing of the Reef Scientific Consensus Statement and underlying Technical Reports;
- EDC effects in Barramundi in the Wet Tropics with Frederieke Kroon (CSIRO);
- Assisting Ben Kefford (UTS) with his SPEAR project;
- "The smoking gun" pesticide paper: Large-scale pesticide monitoring across Great Barrier Reef catchments – Paddock to Reef Integrated Monitoring, Modelling and Reporting Program;
- Catchment-specific pesticide dissipation half-lives using a convolution integral model - collaboration with Freeman Cook (CSIRO); and
- Providing pesticide concentration data to the APVMA for their review of the use of diuron.

The SEQ Monitoring and Evaluation Program (Ryan Turner, Belinda Thomson, Britt Rogers, Richard Gardiner, Ben Ferguson and Michael Warne) has been very busy this year. In addition to their usual loads monitoring they have established a number of new sites to determine the impacts of urban development on water quality and have completed a Healthy Country funded project in collaboration with SEQ Catchments that evaluated the effectiveness of current soil erosion prevention methods and the effectiveness of waterway rehabilitation works. In addition, they have completed three major reports:

- The loads of TSS and nutrients in waterways of SEQ between July 2007 to July 2011;
- A new framework for determining the best method to calculate the loads of various parameters in Queensland rivers;
- A report (in collaboration with SEQ Catchments) that assesses the effectiveness of waterway rehabilitation works.

Copies of these reports are available upon request.

Susi Vardy and Michael Warne have also been supporting investigations teams across the state. Investigations are covering a diverse array of activities - from mine spills to damage relating to overspray of pesticides. The majority of investigations at present are related to illegal dumping of regulated waste and potential environmental impacts to both aquatic and terrestrial ecosystems. In Sep-

tember we had a successful outcome where a waste transporter was sentenced to six months jail, fined $40 000 and ordered to pay $47 000 in costs for the failing to properly dispose of contaminated waste. Another major case where we provided expert scientific support related to cyanide releases into Gladstone Harbour by Orica. They pleaded guilty to breaches of the Environmental Protection Act and were fined almost $500 000 and committed to spend $30 million to upgrade its facility at Yarwun. The team (along side the Department of Environment Heritage and Protection (EHP) and Biosecurity Qld) was also involved with the investigation into the cause of the death of 8000 fork tailed catfish in the Brisbane River. Chemical pollution and an algal bloom were ruled out based on water quality testing and tissue residue testing, and it was found that the cause of the deaths was most likely *Ichthyophthirius multifiliis*, commonly known as white spot disease, and a freshwater fungus.

The group has accomplished all of this while also battling a strange variety of debilitating afflictions: rare bacterial infection of the leg (Michael), 2 cases of Ross River fever (Richard & Rohan), broken foot (Billie), gall bladder removal (Rachael), being crushed by train doors (Billie), knee surgery (Rohan), back surgery (Billie) and a numb arm (Susi). Ryan and his wife have had a lovely baby girl - Grace and Rohan's wife is pregnant.

Catchment Water Science was previously part of the Department of Environment and Resource Management (DERM). However, there has been a major restructure of Government Departments and we are now part of the Department of Science, Information Technology, Innovation and the Arts (DSITIA).

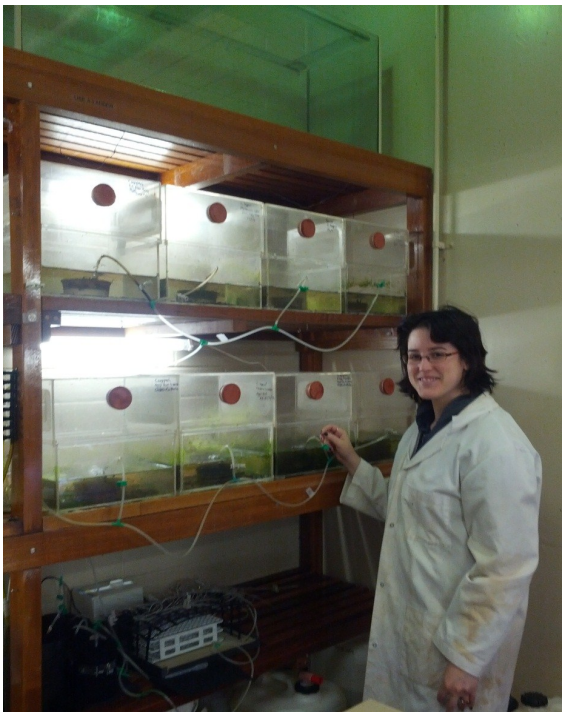
Also part of DSITIA, Jason Dunlop, Sarah Lindemann and Glenn McGregor from the Water Planning Ecology group are assessing the cumulative hydraulic and water quality impacts of coal seam gas water discharge to streams. This involves assessing the impacts of alterations to the flow regime and water quality using modelling approaches, evaluating the toxicity of CSG discharge waters and biomonitoring of impacts. Outputs will help develop improved regulatory frameworks that consider cumulative effects of multiple discharges.

Michael Bartkow (mbartkow@seqwater.com.au)
Queensland Regional Representative

Example of a fish infected with *Ichthyophthirius multifiliis* (Image source: http://aqua-culture.blogspot.com.au)

EndPoint Feature

Student Profile — Lee Engelstad



Name: Lee Engelstad
Degree: PhD Science

Institute: University of Melbourne and the Centre for Aquatic Pollution Identification and Management (CAPIM)

Estimated time of completion: 2015

Thesis topic: A comparison of the effects of complex mixtures of aquatic pollutants on estuarine and freshwater invertebrate species.

The main focus of my project is studying how interactions within complex mixtures of pollutants can change how they affect invertebrate species and communities. I'll be looking at mixtures involving both heavy metals and pesticides that commonly pollute Australian waterways in order to get the best possible picture of potential interactions. The project is supervised by Professor Mick Keough and Dr Sara Long, and co-supervised by Professor Ary Hoffmann and Dr Allyson O'Brien.

My project has two major components. The first involves using laboratory cultures of freshwater and saltwater invertebrates to run a series of contaminant mixture exposures. These tests will look at growth and reproduction endpoints, including protein biomarkers and number of viable offspring. This should provide information on the differences between single and multiple contaminants, allowing comparison between freshwater and estuarine species, as well as species with different life history characteristics. It will also allow me to identify any synergistic or antagonistic effects between the chosen contaminants.
The second component of my project involves observing the effect of the same pollution mixtures in the field. Microcosms of contaminated sediment placed in local waterways will allow me to measure the effect of mixtures on natural invertebrate communities. This will identify whether some species are more sensitive to contaminants than others and validate conclusions drawn in the lab about pollution mixtures and how they affect freshwater and estuarine environments. There is also the potential for further protein biomarker work from field sampled invertebrates.

So Far…
Being only four months into my PhD, I'm only in the initial stages of the project. Currently this involves a series of pilot studies in order to validate the use of a Nereid (polychaete worm) species for use in the previously mentioned toxicological exposures as well as starting a viable laboratory population.

In the future…
In the short term I hope to have several well established laboratory cultures of local invertebrate species with which to start my main experiments.

Lee Engelstad
(l.engelstad@pgrad.unimelb.edu.au)

Strategic Directions Report

Hi- this is Beate, I am your new SETAC AU Liaison Officer. My role is to assure our lines of communication with other SETAC chapters and units. Many of you are already well involved in SETAC and participate at some of the Global Advisory Groups.

The new SETAC website has recently been launched, which is a great improvement over the old one but one down side is that you have to re-enrol in your preferred advisory groups. After you log in on the SETAC website (usually with your email address and your membership number) just click the menu and go to "get involved" and then "Advisory Groups"- here you can join you preferred group. If you have not joined yet, there will be a "Join Group" link below the name of the group in the heading. Click it and you are a member. This is also a good opportunity to join a new group. Being member in an advisory group will help you to stay informed and linked to a great network. An additional benefit is that advisory groups usually get a session at the SETAC conferences in their area of work.

We are also working with SETAC head offices to start opportunities for regional advisory group- if you are interested in hearing more or possibly initiate your own group, please drop me a line via b.escher@uq.edu.au.

Finally we want to explore links with other environmental science related societies in Australia and establish permanent lines of communication. If there is a professional group where you play a role and want it to be closer linked with SETAC AU, please also let me know.

Beate Escher (b.escher@uq.edu.au)
SETAC Liaison Officer

Save the Date!

SETAC AU 2013 Conference: "Multidisciplinary approaches to managing environmental pollution"

1-3 October, 2013
Melbourne, Australia

Preparations are now well underway for next year's SETAC AU conference, to be held at the University of Melbourne in early October 2013. This conference aims to bring together ecotoxicologists and environmental chemists in a forum that will showcase how scientists from several disciplines can work together to provide "big picture" answers to government and policy makers on environmental pollution problems.

A list of proposed conference sessions, pre-conference workshops and invited speakers will be available soon.

Looking forward to seeing you all in Melbourne next year!

Vin Pettigrove
SETAC AU Conference Chair

Endpoint Feature

Science Meets Parliament 2012

Scott Wilson and I attended Science Meets Parliament in Canberra in September. This is an annual event, hosted by Science and Technology Australia (STA), where two scientists from each STA member organisation (e.g. SETAC-AU) are sent to meet policy makers and media representatives for two days.

The first day was all about preparation for our meetings with individual MPs or Senators. We started off with a presentation from Prof. Graham Durant (Inspiring Australia) who discussed ways of communicating science. We were informed that there are plans of creating a national database of scientists including names and areas of interests, such that it will be easier to find people to collaborate with. I know SETAC-AU had a similar plan so I imagine we could create our own database and then feed this into a national database, presumably hosted by STA.

We had a very interesting *"Meet the Press"* presentation hosted by Steve Howard with Lyndal Curtis (ABC Radio), Phil Coorey (Sydney Morning Herald), James Massola (Australian Financial Review Online) and Mark Riley (Channel 7 Network) on the panel. The main point of discussion was around online media being as important as print (if not more so) and the fact that journalists do not have as much time to spend on each story due to the 24hr news cycle. They also mentioned that this leads to less time being spent on a story before publishing with less people reviewing the story (used to be 11 stages of checking; now 1 or 2). The use of social media is powerful to develop a story, which once it has gained enough mass, the media will be more likely to report it. In fact, we had a session on setting up a Twitter account with some purporting that Twitter is becoming an essential tool in research networking and that several international papers have been published because of this social media tool, although I am yet to be converted.

We also had a session on *Evidence Based Policy in the Australian Public Service* hosted by Patricia Kelly. The discussion was around the fact that scientists should be more policy-literate and politicians should be more science-literate in order to achieve the best outcomes. Patricia mentioned that publically-funded scientific organisations will be encouraged to educate their staff in relevant policy issues in the future and re-iterated that the public service and government need to maintain good relationships with scientists (e.g. in the case of the recent super trawler debate).

We then had a session on Science and the Coalition with Sophie Mirabella MP. Sophie outlined that when talking to politicians, be inquisitive; don't be afraid to challenge conventional thinking when entering into discussions with politicians. One of the Coalition's key priorities discussed was for quality science education, especially in primary school children.

The evening of the first day was the gala dinner in the Great Hall of Parliament House. It was here that the *Parliamentary Friendship Group for Science* was launched by its champions, ALP member The Hon Richard Marles MP and Liberals member Mrs Karen Andrews MP. The Parliamentary Friends of Science has three key goals. Firstly, to enable a meaningful dialogue between scientific leaders and parliamentarians about the science that underpins policy and to inform political debate.

Secondly, to provide a forum for eminent Australian and visiting scientists to engage with parliamentarians. Thirdly, to provide a mechanism for parliamentarians to seek expertise from scientists in relevant disciplines. This launch was well received by the audience and looks to have a very promising future. The evening also enabled some more informal discussions with some parliamentarians and staffers.

The second day was down to the business of meeting the parliamentarians. My main meeting was with Senator The Hon. Bill Heffernan (Liberal Senator for New South Wales) along with Dr. Lyndsey Vivian (CSIRO Plant Industry in Canberra). We mainly talked to Senator Heffernan about our research into water resource usage and specifically discussed the Murray-Darling Basin Plan as Senator Heffernan is currently chairing the Management of the Murray-Darling Basin Committee. The Senator was very aware of the need for the requirement of sound science to underpin policy and was keen to inform us of the current state of the Murray-Darling, as well as water usage in the north of Australia. The meeting went well and although Senator Heffernan did not request any further information about our research or SETAC-AU, it was a great experience to have a one-to-one with a Senator on science issues.

One of my other highlights of the second day was sitting in on Question Time in the House of Reps. During this session, Greens member for Melbourne, Adam Brandt, asked the Treasurer whether he would guarantee that science funding would be protected in this financial year. This was partly in response to a letter from the Deputy Vice-Chancellor of the University of Melbourne, who was concerned about the potential job implications in Victoria if NHMRC and ARC grants are not proceeded with. The Treasurer, Minister Wayne Swan, informed the house that funding to scientific research and innovation has increased 35% since 2007. However, the Minister did not explicitly talk on whether science funding would be protected this year. Mr. Brandt sought leave to table the letter from the Deputy VC of the University of Melbourne but leave was not granted. I guess we will all have to wait till the mid-year budget review to determine the fate of science funding.

To finish things off there was a final cocktail reception hosted by the Greens. Adam Bandt, Christine Milne and Larissa Waters were in attendance. It was good to chat with them on a more informal basis and discuss issues openly.

Overall, the experience of Science meets Parliament was a very worthwhile one and I encourage other members of SETAC-AU, especially Early Career Researchers, to attend in the future. It is important that the policy makers of Australia are kept aware of the very important work we are all undertaking and to keep reiterating the importance of sound science in underpinning policy. I would like to than SETAC-AU for the opportunity to send me to Canberra for this event.

Tom Cresswell (cresswell.t@gmail.com)

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