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Endpoint

SOCIETY OF ENVIRONMENTAL TOXICOLOGY
AND CHEMISTRY AUSTRALASIA
(SETAC AU)

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Message from the Editor

Well here we are again with a new issue of Endpoint; a little later than anticipated but, as they say, better late than never. Many people on the East Coast of Australia have been putting up with all sorts of inclement weather over the past month or so. I hope everyone managed to keep safe, all your loved ones are well and you did not suffer too much damage.

This month we have a number of regional reports with some very good reading on what they are up to in regards to research, staff comings and goings etc. In particular, NSW has been active with a member's meeting.

We were well represented this year at Science Meets Parliament by Kathryn and Francesca. Well done guys you have done us very proud. You will see in their report that they got to hob knob with some very important people including the PM.

It would also be remiss of me not to remind everyone of our annual conference. Louis has included some information in the issue of Endpoint above the Conference and where you can find more information.

Remember, that anyone can submit material for Endpoint. If it is something that relates to your region submit this to your regional representative as listed at the end of this publication. Alternatively, if you are a student and want to submit your profile then please feel free to drop Rhys a bio. If it is something more global, perhaps a book review, submit it directly to myself.

Thanks for reading I hope you enjoy the content for this edition of Endpoint.

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

Sustaining Member



Office of
Environment
& Heritage

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

From La Presidenta

Hello everyone,

We have recently had a council meeting and it is evident that SETAC-AU members have some great opportunities over the coming two years. There is a meeting in New Zealand later this year, and next year there are several meetings are planned including in Sydney, Singapore and the World Congress in North America.

The closest event is the **2015 SETAC-AU** meeting in Nelson New Zealand in August, and it is really ramping up. The theme is 'System Approach to Environmental Management' and recognises the continuity of environmental processes in space and time, a concept that your company is likely to help delegates shape and implement. You can visit the website, submit your abstract and register at <http://www.setac2015.org.nz/>. I look forward to seeing you there!

Science Technology Australia (STA) has its latest news on the web (<http://scienceandtechnologyaustralia.org.au/>). The top stories encompass: Science meets Policymakers event summary; Nuclear energy: the debate Australia has to have; the recent Science meets Parliament event; and Budget science cuts and changes.

In late March the Office of the Chief Scientist released a report on the importance of physics, chemistry, earth and mathematical sciences to the Australian economy. It is written from an economical perspective and a copy of the report can be found at <http://www.chiefscientist.gov.au/> and <https://www.science.org.au/publications/science-impacts-economy>. The key findings of the report include:

- Advanced physical and mathematical sciences make a direct contribution of around \$145 billion a year to the Australian economy or about 11 per cent of GDP
- When the flow-on impacts of these sciences are included, the economic benefit of these scientific fields expand to about \$292 billion a year, or 22 per cent of the nation's economic activity.
- 7 per cent of total Australian employment (about 760,000 jobs) is directly related to the advanced physical and mathematical sciences.



- Exports associated with the advanced physical and mathematical sciences activities are worth around \$74 billion a year. This is 28 per cent of Australia's goods exports and equivalent to 23 per cent of total Australian exports of goods and services.
- Labour productivity of workers in the advanced physical and mathematical sciences is estimated to be 75 per cent greater than workers in the rest of the economy.

Science meets Parliament 2015 was hosted in March, and attracted almost 200 scientists from across the nation, with more than 70 Federal Parliamentarians taking meetings and attending the Gala Dinner, including Chief Scientist Ian Chubb, Hon Ian Macfarlane MP, Minister for Industry and Science, and Ms Catherine Livingstone, President of the Business Council of Australia. We had two SETAC-AU members represent us at SmP, Kathryn Hassel and Francesca Gissi, and they have provided an exciting report for this edition of Endpoint.

And finally a note of thanks to those that contributed to this edition of Endpoint!

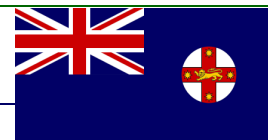
Best wishes,

A handwritten signature in blue ink that reads "D. Jolley".

Dianne Jolley (djolley@uow.edu.au)
President

Regional Reports

New South Wales



Member's meeting at UTS 18 March

We had a great meeting at UTS which was attended by 24 members and non-members. After a catch up over sandwiches, coffee and cake, we had a great presentation from visiting scientist Dr. Maria Vicenta Valdivia. Maria is working with CSIRO Land and Water Flagship at Lucas Heights on a one-year fellowship from Becas Chile. Dr. Valdivia is investigating the sensitivity of marine biota to arsenic speciation and will use the information to update marine water quality guidelines in Australia, and hopefully to develop new guidelines in Latin America.

We also had group reports from CSIRO Land and Water Flagship (Lisa Golding), UTS Centre for Environmental Sustainability (Anne Colville), the Contaminants and Risk Team at NSW Office of Environment and Heritage (OEHS; Karl Bowles), the Contaminated sites group at NSW Environmental Protection Agency (EPA; Niall Johnston) and ANSTO Institute for Environmental Research (Tom Cresswell). The meeting was a great way to communicate with other regional members in an informal setting and we plan to conduct more in the future.



Dr. Maria Vicenta Valdivia presenting to the SETAC NSW members' meeting at UTS

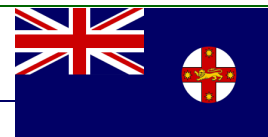
Aquatic Ecosystems group, ANSTO Institute for Environmental Research - Tom Cresswell (tom.cresswell@ansto.gov.au)

We have a new member to our team with the start of another ANSTO Graduate Program. Emily Prentice has joined the Aquatic Ecosystems group for two years after graduating from Griffith Uni. Emily will be working on several areas of research including live animal radioecology, stable isotope food web dynamics of wetlands and water resource management using stable isotopes.

The team have been successfully conducting radionuclide (^{85}Sr and ^{134}Cs) uptake studies from estuarine water using local mangrove crabs. The study is aimed at understanding accumulation and loss kinetics of the radionuclides, as well as organ distribution under differing conditions. At the end of the exposures, the organisms will be sectioned for autoradiography to determine organ distribution, which will be quantified and used for organ-specific dose modelling. We have also started a dietary accumulation study where we radiolabelled the crab's food with the two radiotracers and are conducting a pulse-chase exposure to determine whether the dietary pathway leads to different accumulation rates and organ distributions of the radionuclides. The work will provide us with a better understanding of the effects of nuclear accidents on aquatic biota and radionuclide transfer through an aquatic food chain.

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We have several collaborative studies this year funded through the AINSE award program including the investigation of a novel nanoparticle mediated biomolecule delivery system for plants (Deakin University), a study into selenium phytoremediation and biofortification in selected plants (University of Technology Sydney) and a study investigating nutrient cycling in grassland species affected by drought and fire (University of Sydney) We also plan to start our in-house work on investigating microplastics as vectors of contaminant bioaccumulation using radioisotope tracers, which we are all really excited about.



Mangrove crab *Paragrapsus laevis* getting ready to be radioanalysed and looking pretty excited!

CSIRO Land and Water Flagship, Aquatic Contaminants Group and CSIRO Oceans and Atmosphere Flagship, Molecular Ecology and Toxicology Team - Merrin Adams
(Merrin.Adams@csiro.au)

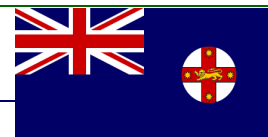
Here at Lucas Heights, it has been an exciting start to 2015 as we welcome new students, visiting scientists and a new state-of-the-art instrument.

But first, a big congratulations to Elvio Amato who recently submitted his PhD thesis after completing a joint project between CSIRO and University of Wollongong. Under the supervision of Stuart Simpson and Dianne Jolley (University of Wollongong), he assessed the performance of passive sampler diffusive gradients in thin films (DGT) for evaluating metal bioavailability in sediments. Through laboratory and field-based investigations, DGT was shown to provide robust predictions of toxicity to amphipods and bioaccumulation to bivalves exposed to metal contaminated sediments (estuarine and freshwater). Comparisons with traditional methods (e.g. acid-extractable metal analyses) indicated that DGT has the potential to improve sediment risk assessments. One research article based on Elvio's project has been published on ES&T (2014), one has been submitted (ES&T) and two are close to submission (ES&T and Environmental Pollution). As part of his PhD, Elvio also co-authored a paper published in Environmental Pollution (2015). A fantastic effort Elvio!

It's turning into a big year for visitors for the Molecular Ecology and Toxicology Team at Lucas Heights. For the next year, Dr Shinya Hosokawa a senior researcher from Port and Airport Research Institute is visiting from Japan. Shinya is working with Anthony Chariton, Graeme Batley and Stuart, developing sediment quality guidelines for coastal Japan. The Team was also recently visited by Ms Scarlett Graham (Western Washington University), who is doing a Masters degree with Anthony and Wayne Landis (WWU). The project focuses on using ecogenomic data to develop a Bayesian Belief Network for assessing the ecological risks of five Queensland estuaries. The Team is also delighted to host Assoc. Prof.

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Grant Hose (Macquarie University) for the next few months. Grant and Anthony will be working on integrating ecogenomics and groundwater ecology. Finally, the Team welcomes Taylor Dearie, a trainee, who will be learning the ins and outs of molecular ecology. A number of new and returning students were also recently welcomed (and welcomed back) to the Aquatic Contaminants Group. Kitty McKnight has joined us from Southern Cross University on an 8-week traineeship as a part of her Bachelor of Environmental Science (Resource Management). Kitty is working with Merrin Adams, Francesca Gissi and Jenny Stauber investigating the toxicity of nickel to a range of marine microalgae and this work will contribute towards the development of robust toxicity data for inclusion in deriving a nickel water quality guideline. Kathryn Goodwyn from the UoW is working with Brad Angel, Stuart and Dianne to study the effect of pulse duration and concentration on the toxicity of contaminants to freshwater algae as a part of her honours project. Timothy Remaili, former geochemical/environmental and hazardous materials consultant, has also joined CSIRO to pursue his PhD. Tim's research focuses on novel and rapid approaches for the assessment of toxicity in contaminated sediments and will have a strong emphasis on organism-sediment interactions and responses. Under the supervision of Dianne (UoW) and Stuart, Tim's research follows on from previous studies by Daniel Ward and Elvio. Tim has already completed stage one of his research on bioturbation and is currently editing his first publication.

Congratulations also go to Megan Gillmore who achieved first class honours last year. Megan investigated the toxicity of aluminium to three marine diatom species (co supervised by Lisa Golding, Dianne and Brad). Megan is also close to finishing a publication from her thesis and we are delighted that Megan will be staying with us as she pursues her PhD. Megan's PhD will be investigating the application of freshwater snail species in sediment bioassays and developing novel endpoints of sensitivity. Francesca Gissi has also decided to undertake a PhD and will transition from working full-time to part-time for the duration of her PhD. The focus of Francesca's PhD will be to investigate the impacts of nickel mining on tropical coastal marine ecosystems. Francesca will be working with Dianne (UOW), Jenny and Anthony and the project is in collaboration with NiPERA (Nickel Producers Environmental Research Association). In March, Francesca also attended Science Meets Parliament as the junior representative for SETAC-AU. Look out for the report from Francesca and Kath Hassel (CAPIM) on their experiences meeting with our politicians.

The analytical chemistry team has recently installed a new ICP-MS, the Agilent 8800 Triple Quad. This new ICP-MS offers 10 times greater sensitivity compared to our last instrument, and the triple quad design opens up a whole range of new possibilities for interference removal, and allows for quantification of just about any element in a wide range of sample matrices. Now some of the conventionally troublesome interferences on elements like As, Se, Co and Cr can be removed easily, and detection limits across the board are greatly improved. Needless to say the analytical chemistry team are very excited about the new possibilities that this instrument allows us to explore.

On a more personal note, two of our team are celebrating new additions to their families. Congratulations to David Spadaro and his wife on welcoming home their son Jacob. And, congratulations to Brad and his wife who welcomed little Lachlan into the world in March. Best wishes to you all.

Ecotox Services Australia (ESA) - Zoë Fluit (zfluit@ecotox.com.au)

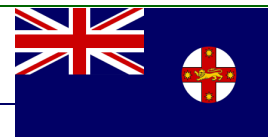
Something short and sweet from the team at ESA – an update on bee testing!

Amandine and Anneke were fortunate enough to take part in the OECD ring test for the test guideline "Honey bee larval toxicity test, repeated exposure". A ring test is the last experimental stage of newly developed protocols, consisting of checking the response from the reference substance between as many laboratories as possible, and validating the QA criteria set for the test. Ecotox Services Australasia was among 11 laboratories across the world who took part in this ring test. We were late in submitting our data due to the seasons being inversed, however, our results were accepted and are included in the final report, to be discussed at the OECD headquarters in Paris at the end of April 2015.

The "Bee larval toxicity test, repeated exposure" is an extension of TG 237 "Honey bee larval toxicity test, single exposure" (refer to Endpoint Volume 21, Number 2 for more information): The test lasts 22

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days as opposed to 7 days and the test chemical is administered on 3 occasions as opposed to 1. Newly hatched bee larvae are transposed or 'grafted' into specifically designed cups and fed a mixture of sugar and royal jelly throughout their larval stage. The larvae are kept in several incubators set at the appropriate environmental conditions where they are overseen throughout their pupal stage, and on to emergence. The newly emerged young bees are counted and observed for any abnormalities in development.

Historically, chemical toxicity was assessed using laboratory-based experiments with adult honeybees or using semi-field and field testing of whole honeybee colonies. The 7 day and 22 day larval tests offer a cheaper and more flexible option for assessing chemical toxicity to the honeybee larvae, which may decrease the need for expensive semi-field and field testing, and give sensitive and reproducible results in a timely manner.

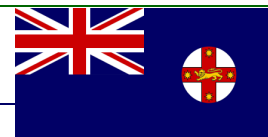


Honeybee larvae in the cups during testing. Photo: A. Ralph

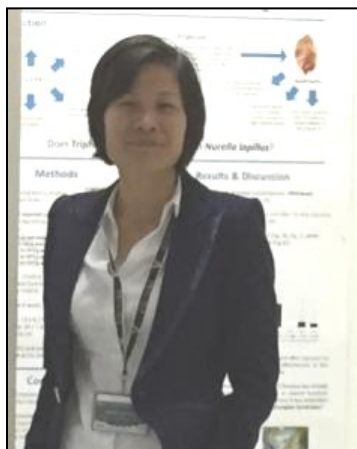
In other news, Katrina will be getting married shortly, and enjoying some well-deserved time off for her honeymoon! Zoë is heading off on maternity leave, and there are a few exciting holidays planned amongst ESA staff. Maybe in the next issue we will be able to share some ecotox-themed happy snaps from around the world!

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Special report from the University of Newcastle on the YES meeting - Thi Kin Anh Tran (thikimanh.tran@uon.edu.au)



Hi everyone, my name is Thi Kim Anh Tran and I am an international student from Vietnam. I have been enrolled at the School of Environmental & Life Sciences, University of Newcastle as a PhD student since 2012. My research topic is about investigation of molecular mechanisms underlying chemical-induced endocrine disruption in the Sydney rock oyster (*Saccostrea glomerata*). This research aims to discover the precise mechanism(s) through which vitellogenin gene transcription is mediated upon estrogenic exposure; thereby contributing unknown fundamental knowledge in molluscan endocrinology for basic science and availing a robust biomarker of endocrine disruption for environmental protection.

As an active SETAC student member since January 2014, I have had great opportunities to attend SETAC conferences which

have been held not only within Asian/Pacific region but in all SETAC geographical units. I have recently attended the 4th Young Environmental Scientist (YES) meeting in Petnica, Serbia. As you probably know, YES meetings are organized for SETAC students. The first YES meeting was held at the University of Koblenz-Landau in 2009 on the initiative of Student Advisory Council (SAC) of SETAC Europe. Since then, YES meeting was taken place every two years, 2011 in Aachen, 2013 in Krakow and 2015 in Petnica. YES meetings have now become a recognizable brand within SETAC and an annual event for students of SETAC. The 5th YES meeting has been scheduled to be held at the University of Florida on 28th February, 2016.



Opening ceremony

I had a wonderful experience at the 4th YES meeting. It was not only a scientific forum where I could share and discuss my updated results with peers but also a useful place to improve my presentation skills. Through multiple presentation styles such as platform presentation, poster highlight, poster corner, feedback is given to every presenter. Besides main conference time, we have screened the "PhD movies" and experienced the challenges of post graduate life through the seminar "Power of Procrastination" by Gorge Cham, the author of the famous PhD Comics series. There were also special activities such as career talks where we had the chance to talk with experienced experts from industry and science and last, but not least, laboratory training courses which were very useful and funny. I would recommend this beneficial meeting to our SETAC student members in Australasia not only for above advantages but this is free for registration, accommodation and ½ travel cost supported.

Further information on this year's YES meeting can be found at the website:

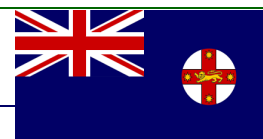
<http://yes2015.setac.eu>



Presentations at the meeting

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Career talks – Dr. Bart Bosveld, Executive Director of SETAC Europe, Belgium



Lab training course: HPLC, GC-MS group, Petnica Science Centre.

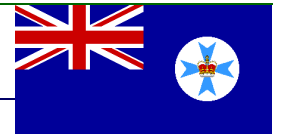


Students of SETAC at 4th YES meeting, Petnica Science Centre

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

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Queensland



Activities of Water Quality and Investigations (WQI) in the Department of Science, Information Technology, and Innovation (DSITI) - Rachael Smith and Michael Warne (rachael.smith@dsiti.qld.gov.au and michael.warne@dsiti.qld.gov.au)

It has been business as usual for the Water Quality and investigations team monitoring Great Barrier Reef (GBR) and South East Queensland (SEQ) catchments over the wet season, as well as undertaking a number of investigations of environmental foul play.

Alex Garzon-Garcia joined the team about six months ago – which has helped decrease workloads. Alex received her PhD from Griffith University and has expertise in the area of nutrient and carbon losses associated with gully erosion.

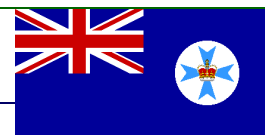
Here are some of the highlights from the team:

(The Team: Michael Warne, Susi Vardy, Ryan Turner, Alex Garzon, Rachael Smith, Rohan Wallace, Belinda Thomson, Rae Huggins, Dave Orr, Sarah Lindeman, Richard Gardiner and Ben Ferguson. Volunteers/students: Carlos del Monaco, Andrew Novic and Lauren Fisher).

- Alex, Michael, Rachael, Ryan and Susi were granted **honorary positions with the Australian Rivers Institute at Griffith University**
- Michael attended the Pellston International Workshop on **'Simplifying environmental mixtures - An aquatic exposure based approach via exposure scenarios'**, Valencia Spain, March 2015.
- Rachael attended the **'New diagnostics for multiply-stressed marine and freshwater ecosystems: integrating models, ecoinformatics and Big Data'** workshop 10-12 September 2014 at the Sydney Institute of Marine Sciences, Sydney, Australia.
- Rachael and Michael were contributors of the Great Barrier Reef (GBR) Pesticide Synthesis Report – **'Advancing our understanding of the source, management, transport and impacts of pesticides on the Great Barrier Reef 2011-2015'**, due to be released later this year. The synthesis report involved researchers from multiple agencies including James Cook University, QLD Government departments, CSIRO, AIMS and GBRMPA.
- Rachael, Michael and Ryan have been working with Frederieke Kroon (AIMS), Sharon Hook (CSIRO), and Fred Leusch and Jason van de Merwe (Smart Water, Griffith University) assessing **the potential of agricultural pesticides to cause endocrine disruption** in tropical fish.
- Olivia King from Smart Water (Griffith University) joined the team temporarily to **derive water quality guideline values** for an additional six pesticides relevant to the GBR; last year Rachael and Michael derived guideline values (currently in review) for five Photosystem II herbicides and the insecticide, imidacloprid. This work is of great significance for policy and management of pesticides in the GBR catchment area.
- One of the new focuses for the team is on **education and extension initiatives for farmers and industry representatives** in regional QLD regarding pesticide, nutrient and sediment runoff. Ryan Turner has been leading this work which has shown to be very successful for disseminating our scientific research to the public and industry and also in bringing farmers and farmer organisations on-board with initiatives to reduce off-site transport of contaminants that ultimately reach the GBR.
- Susi, Sarah, David and Michael (but mainly the first two) have been busy working on a very important **investigation of a large scale contamination** issue that you may have read about in the press.
- Susi and Sarah are also working to revise the Queensland Government **Water Sampling and Monitoring manual** working towards creating a Queensland Fish Kills database, populated with historic and current incidence. Both will be great resources once they are finished.
- Susi and Michael helped the Department of Environment and Heritage Protection win **a prosecution of illegal releases** from an old mine which has led to a fine of \$125 000 and there are still some charges that have not been resolved.
- Susi was part of an investigation in which 22 charges were laid against a mining corporation and its director. A total of **\$85 000 in fines** was awarded against a company and its director for the storage of unregulated waste.
- Susi with the assistance of some colleagues from other parts of DSITI led an investigation that led to 13 charges being laid against a quarry for **alleged deposition of quarry material into a creek**.

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Smart Water Research Centre (Griffith University) - Erik Procházka, Peta Neale, Jason Van de Merwe, Kimberly Finlayson, Jeroen van den Wildenberg, Kristyn Multer, and Fred Leusch

Warmest greetings from the *in vitro* tox group at **Smart Water Research Centre (SWRC)** at Griffith University on the Gold Coast! Here is some fresh news from us.

Dr. Jason van de Merwe and **Assoc. Prof. Frederic Leusch** have recently published a methods paper on a simple bacterial luminescence toxicity screen – the BLT-Screen, a sensitive, cost effective and high throughput alternative to the Microtox assay. BLT of course stands for Bacteria Luminescence-based Toxicity screen – what else?! Jason has been applying this new assay to a variety of research projects and direct toxicity assessments. Jason, along with **Assoc. Prof. Heather Chapman**, has also established two *in vivo* toxicity assays in the SWRC's wet lab – an Amphipod Acute (96 hr) Survival and Rotifer Acute (24 hr) Survival test.

We welcome a new PhD student to the SWRC, **Kimberly Finlayson**. Kim hails from Canada and is working with Jason and Fred on the establishment of marine turtle cell lines for *in vitro* toxicity assessment of environmental contaminants of health of wild marine turtle populations.

We also have two new visiting Master's degree students, **Jeroen van den Wildenberg** and **Kristyn Multer**. Jeroen is from Switzerland, studying Biogeochemistry and Pollutant Dynamics at the Swiss Federal Institute of Technology (ETH). He is currently researching tattoo ink toxicity for his master's thesis at SWRC supervised by Dr. Peta Neale and Fred. Jeroen is very motivated to get involved in a PhD project in Australia in the field of ecotoxicology and environmental chemistry after the completion of his master's thesis. **Kristyn** comes to us from RWTH Aachen University in Germany. She has recently started her project focusing on developing a method to extract chemical contaminants from a variety of food types for further *in vitro* bioassay analysis.

Our PhD candidates **Shima Ziajahromi**, **Chantal Lanctôt** and **Erik Procházka** are hard at work. Shima is preparing for her upcoming confirmation seminar (good luck!), Chantal and Erik are moving into the last year of their candidature. We will follow up on their further achievements in later updates.

In other news, here are some of the recent manuscripts from the group (and our collaborators) over the past 3 months:

- Considerations when assessing antagonism in vitro: Why standardizing the agonist concentration matters. *Chemosphere* 135: 20-23
- Bioanalytical evidence that chemicals in tattoo ink can induce adaptive stress responses, *Journal of Hazardous Materials* DOI: 10.1016/j.jhazmat.2015.04.051
- A sensitive and high throughput bacterial luminescence assay for assessing aquatic toxicity - the BLT-Screen. *Environ Sci: Processes Impacts* DOI: 10.1039/c5em00012b
- Degradation of a broad spectrum of trace organic contaminants by an enzymatic membrane reactor: Complementary role of membrane retention and enzymatic degradation. *International Biodeterioration & Biodegradation* 99: 115-122



New additions to our team: Kristyn, Shima, Kim and Jeroen (left to right)

Erik Procházka (e.prochazka@griffith.edu.au)
Queensland Regional Representative

Regional Reports

Victoria



ToxConsult Pty Ltd - Tarah Hagen (tarahhagen@gmail.com)

Two and a half years in, and we at ToxConsult thought we'd give you a brief snapshot of a few of the major projects we've been involved in over the past couple years. You may also be interested in reading the publications which are publically available.

Workplace Exposure Limit for Lead

Safe Work Australia has released a research review of the hazards and health effects of inorganic lead. The report was written by ToxConsult and makes recommendations for new blood lead removal levels and a change to the workplace exposure standard. Safe Work will use the report to inform a consultation Regulation Impact Statement on any proposed changes. The link to the report is below. Also available at this link is a short information sheet created by Safe Work Australia which is based on the report. <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/review-of-hazards-and-health-effects-of-inorganic-lead-implications-whs-regulatory-policy>.

Engineered Nanomaterials

Safe Work Australia has also released an updated report on the toxicology and work health hazards of engineered nanomaterials. The report was written by ToxConsult and builds on the findings of an earlier report and provides specific information about the health hazards of carbon nanotubes, titanium dioxide, zinc oxide, cerium oxide and nano-silver. Suggestions for workplace exposure standards are also made for some of the materials. The link to the report is below. <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/engineered-nanomaterials-update-toxicology>

Environmental hazard/risk assessment of tailings storage facility overflow

ToxConsult was asked to conduct a prospective desktop study investigating the potential environmental effects in the unlikely event of a significant overflow from a tailings storage facility at a heavy metals mine. Numerous scenarios were evaluated, and exposure and risk to both aquatic and terrestrial organisms was assessed.

Centre for Aquatic Pollution Identification and Management (CAPIM) – Kathryn Hassell (khassell@unimelb.edu.au)

The 2014 Australian Water Association's Victorian Water Awards were announced recently, and CAPIM won the Research Innovation Award for the Upper Dandenong Creek Catchment Project.

This project, which was a collaboration between CAPIM, Dept of Environment and Primary Industries, CSIRO Land and Water and Melbourne Water has significantly advanced the understanding of the causes of ecosystem stress within catchments. An innovative approach was used that has resulted in the ability to pinpoint sources of pollution thereby presenting a clear remedial path for environmental managers. The water industry is currently implementing the outcomes to improve the ecological condition and amenity of the Upper Dandenong Creek Catchment. The judges believe that this project is significant for the water industry in terms of its ability to monitor catchment condition and identify point sources of environmental concern.



Assoc. Prof. Vin Pettigrove and Dr. Kathryn Hassell, accepting the Research Innovation Award on behalf of CAPIM.

Regional Reports

Victoria



The Smell of Fear – Ollie Thomas

Oliver Thomas recently completed his Postgraduate Diploma with CAPIM/University of Melbourne. He conducted research on toxicant roles in olfactory disruption of a freshwater fish (*Galaxias maculatus*), which was supervised by Assoc. Prof Steve Swearer, Nicole Barbee and Kath Hassell. Specifically, he investigated whether a range of copper (II) ion concentrations would interfere with the natural response of common galaxiids to a conspecific alarm chemical odour. He found that the galaxiids significantly modified their swimming behaviour when exposed to an alarm chemical in comparison to both a neutral conspecific odour as well as a distilled water procedural control. He also found that *G. maculatus* altered its behaviour when exposed to increasing levels of copper. Interestingly, there was virtually no difference in behaviour change between the controls and the treatment group around the ANZECC Guidelines trigger value of 1.5 ppb. Oliver has now started a PhD and looks forward to future research into the disruption of biochemical mechanisms in fish.



Graduate Diploma candidate Oliver Thomas, hauling a net containing *Galaxias maculatus*

RMIT University - Rhys Cartlidge (rhys.cartlidge@rmit.edu.au)

Ecotoxicology Research Group

Dayanthi was an invited speaker at the International Congress for Water: from Pollution to Purification (ICW2015) organized by the Centre for Education and Environment Technology (CEET) at the School of Environmental Sciences, Mahatma Gandhi University, Kerala, India. Where she presented a talk on endocrine disruptors and learnt the intricacies of Kathakali (a traditional Kerala cultural performance)! She will attend SETAC Barcelona and present the talk that Andrea Prouse gave at SETAC Melbourne from her excellent Honours project. The research was conducted in collaboration with Andrew Harford, Rick Van Dam and Alicia Buckley at ERISS and was recently accepted for publication in ET&C. Dayanthi has taken on a new student this year, Sam Lekamge. Sam has a Bachelor of Science (Agriculture) from the University of Peradeniya in Sri Lanka and a Masters degree in Contaminant Hydrogeology from the University of Sheffield in the United Kingdom. He is now enrolled for a PhD where he will investigate the feasibility of phytoremediation of mining effluent and use of the resulting biomass for biofuel production. Ben Pham is progressing with his project on the effects of pesticides on yabbies', co-supervised by Graeme Allinson; Ana Miranda is trying to complete her PhD research while working part-time, Rhys is continuing his work on automation of tests for oil spill research and the impact of temperature; and Navdeep Bal, co-supervised by Anu Kumar is doing well at CSIRO, Adelaide and very excited over her results with snails as indicator species.

BioMEMS lab

Donald Wlodkowic has also taken on a new student. Tom Hartley has joined the team relocating all the way from Japan! He has enrolled in a master's degree and will be working closely with PhD candidate Yushi Huang on the automation and miniaturisation of artemia toxicity testing procedures. Donald and final year PhD candidate Feng Zhu will be travelling to Barcelona to attend two conferences, SETAC and SPIE (The international society for optics and photonics). Fortunately the conferences are on at the same time and Donald will be making presentations at both based on work from four of his students.

Regional Reports

Victoria



Biogeochemistry lab

Suzie Reichman and Bradley Clarke run the Biogeochemistry lab at RMIT's city campus. Areas of research expertise include:

- Biogeochemistry of heavy metals and trace elements in the terrestrial environment. Soil contamination and remediation, mine site rehabilitation, use of wastes as soil conditioners, phytoremediation and phytomining.
- Toxicity, bioavailability and rhizosphere processes in soil-plant systems and the potential for food-chain transfer of toxicants.
- Soil chemistry and plant nutrition

Hannah Mikkonen (2nd year PhD candidate) is sampling 320 locations across Victoria to characterize background concentrations of metals in the soil. The data generated from this work is being used to assist regional models that will provide a means for estimating geogenic metal concentrations, based on the concentration of earth metals such as iron and manganese.

Premgita Polster (honours student) is studying the bioavailability of lead in radish and lettuce and trying to find a correlation between pH and CEC. Initial data suggests that although these crops are being grown in soils that satisfy FSANZ guidelines, the organic matter that is produced can exceed safe consumption levels.

Erandika (2nd year PhD candidate) is investigating vanadium impacts on iron dynamics in plants. She has carried out dose dependent growth studies with increased concentrations of sodium metavanadate with *Triticum aestivum* (wheat) and *Phaseolus vulgaris* (common beans) as test species. Her research has demonstrated an interesting mechanism that enables plants to retain the bulk of vanadium within their roots.

Centre for Environmental Sustainability and Remediation (EnSuRe)

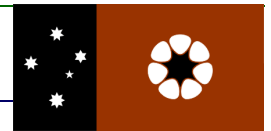
RMIT's analytical and environmental capabilities continue to grow. New staff at the city campus Graeme Allinson and Brad Clarke in the School of Applied Sciences and Jorge Paz-Ferreiro in the School of Civil, Environmental & Chemical Engineering. RMIT is now part of the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (<http://www.crccare.com/>) and has recently formed the Centre for Environmental Sustainability and Remediation (<http://bit.ly/18SySvX>) to complement the existing Water: Effective Technologies and Tools (WETT) Research Centre (<http://bit.ly/1Ei65xJ>). Analytical facilities at RMIT include new Agilent GC-QQQ-MS and Perkin Elmer time of flight instruments, which will greatly enhance the school's ability in the area of trace organic pollution. Further details of this can be seen at the school's facility webpage (<http://www.rmit.edu.au/about/our-locations-and-facilities/facilities/research-facilities/separation-science-and-mass-spectrometry-facility/>)

Oliver Jones and his group from the RMIT School of Applied Sciences have recently joined the Australian Centre for Research on Separation Science (<http://www.utas.edu.au/across>) which will expand RMIT links into this exciting research area.

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

Regional Reports

Northern Territory



Environmental Research Institute of the Supervising Scientist (ERISS) - Andrew Harford (andrew.harford@environment.gov.au)

Since our last report there have been a number of significant changes in the ERISS Ecotoxicology Program. Foremost, was the departure of Alicia Hogan from the group after serving the Department for 15 years. Alicia and her family have begun a sea-change adventure to the Cairns area and is she now working for Natural Resources Assessment Environmental Consultants. Melanie Trenfield has recently been promoted to the position of Research Scientist but will also continue with AIMS until her NAMRA fellowship is completed. She will be very busy developing up another final tropical marine protocol for the Rio Tinto funded project.

The Ecotox team have been busy completing a project for NiPERA, which tested the toxicity of Ni under varying concentrations of Ca and Mg. This will improve the understanding of the Ni Biotic Ligand Model. We have also recently adapted the snail toxicity test from a 4 day (acute) test to a 14 day (chronic) test. Interestingly, we found that extending the test for 10 days had no remarkable affect on the toxicity estimates for uranium. We are currently preparing a manuscript for publication.

In the near future we will be completing our toxicity testing of ammonia, which is needed for the Ranger uranium mine's closure criteria. As part of this we are investigating the development of a freshwater mussel toxicity test because they are a sensitive taxa to ammonia. Our cladoceran's diet will also receive some much needed attention with the aim of developing an off-the-shelf bacterial food source. Andrew is currently writing up the project that developed a Sediment Quality Guideline Value for uranium and will be co-managing an ecological risk assessment of Ranger rehabilitation.

Australian Institute of Marine Science (AIMS) - Melanie Trenfield and Joost van Dam (melanie.trenfield@environment.gov.au and J.vandam@aims.gov.au)

The ecotoxicology group at the Australian Institute of Marine Science in Darwin have been busy developing new chronic ecotoxicology methods for tropical marine organisms. This project has been a successful partnership between Charles Darwin University, the Australian Institute of Marine Science, Rio Tinto Alcan, the Northern Territory Research & Innovation Board and the Department of the Environment. Melanie Trenfield is set to finish her post-doctoral research project funded by North Australian Marine Research Alliance (NAMRA) in January 2016. In the first two years of the project she has developed toxicity testing methods to assess the effects of metal exposures to two tropical marine species; a microalga and a snail larva.

Joost van Dam, a postdoc with the Australian Institute of Marine Science (AIMS), has been focussing on new bioassays using crustaceans and successfully implemented an experimental system allowing for toxicity testing using pelagic invertebrate larvae; over the past few months he accumulated some exciting results with his newly developed hermit crab- and barnacle larvae tests. The project aims to develop additional species so that requirements for derivation of water quality guidelines can be met. Specific targets at this stage of the project are signature elements found in alumina refinery discharge (aluminium, gallium and molybdenum). However, the newly developed bioassays are applicable to a range of marine contamination issues across northern Australia and will assist regulators and industry in the realisation of ecologically sustainable development.



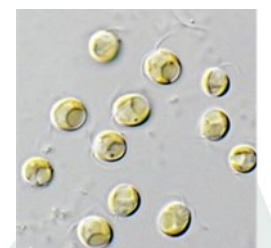
Hermit crab larva
(*Coenobita variabilis*)



Barnacle larva
(*Amphibalanus amphitrite*)



Snail larva
(*Nassarius dorsatus*)



Microalga
(*Isochrysis galbana*)

Tom Mooney (Tom.Mooney@environment.gov.au)
Northern Territory Regional Representative

Regional Reports

Western Australia



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

Intertek Geotech Ecotoxicology has continued to be busy with a large commercial work load with large oil and gas projects as well as quite a few industrial effluents and an increasing amount of work being done for the shipping industry under MARPOL and the UN GHS classification scheme. We have also been busy continuing to develop additional bioassays with tropical species. We have had a lot of success with the tropical sea urchin *Echinometra mathaei* with the larval development bioassay now giving very consistent results. The fertilisation bioassay, while significantly more difficult is also now giving good results after some trouble shooting to maintain sperm viability. *E. mathaei* is a year round spawning sea urchin which makes it great as a bioassay species being available all year round. We have also been running the tests with the milky oyster with success thereby adding a tropical mollusc to our expanding tropical bioassay suite.

Additionally, Tristan has partnered with Notre Dame University in Fremantle to assist with their Pollution and Ecotoxicology course. Tristan will focus on giving insights into the applications of ecotoxicology, how it fits into the regulatory framework, how bioassays are run, the pros and cons of ecotox testing, the limitations in Australia and also wave the SETAC – AU flag to try to get some more students interested in joining!

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

Marine Science research at Curtin University has grown rapidly over the last 18 months with the recruitment of large research groups and high quality post-doctoral researchers. The ecotoxicology group at Curtin is playing an active role in this growth with increasing collaborations with the marine resource and water utility sectors in Western Australia.

Monique Gagnon continues her strong linkages with the oil and gas industry, working on a number of projects developing the biochemical baseline information now required for the exploration and extraction of hydrocarbons. Monique recently spent 2 weeks with colleagues from CAPIM and an honours student collecting fish from Port Phillip Bay to compare current pollution exposure with data collected over a decade ago.

Chris Rawson is working with WA Fisheries and other Curtin researchers to develop multi-stressor systems for fish and invertebrates. He is co-supervising 2 PhD projects which will use these systems to investigate the impact of chemical and physical stress on recruitment, and over the life-cycle of commercially important invertebrates (e.g., western rock lobster, abalone).

Tristan Stinger (Tristan.stringer@intertek.com)
Western Australia Regional Representative

Student Profiles

Navdeep Bal

Name: Navdeep Bal

Institutions: RMIT University (VIC) and CSIRO (SA)

Degree: Doctor of Philosophy - Applied Biology/Biotechnology (Environmental Sciences)

Supervisors: Prof. Dayanthi Nugegoda (RMIT), Dr. Anu Kumar (CSIRO)

Estimated time of completion: March 2018

Thesis topic: Effect assessment of glucocorticoids and progestins in selected Australian freshwater invertebrates and vertebrates.

Background

From early school days, I have always had a passion for environmental science. I was born and brought up in North India, where we are fortunate to have abundance of freshwater lakes and rivers which normally supply more than adequate amounts of water to meet our environmental, industrial, and residential needs. However, rapid industrialisation and urbanisation has forced citizens and officials to question whether our current water resources are adequate to meet our country's increasing needs. While I was doing my Bachelor study in Textile Chemistry in India, I became aware of the adverse effects of textile dyes and chemicals on the aquatic environment. The effects of these pollutants in the aquatic environment left me with disturbing thoughts. I then had an opportunity to complete a Masters at RMIT University, Melbourne Australia and learnt the quality control processes and textile waste management from an Australian perspective. After completion of my Master's Study, I got in touch with Dr. Anu Kumar (CSIRO) in Adelaide and was fascinated by her work in ecotoxicology. She introduced me to Prof. Dayanthi Nugegoda who is a Professor of Ecotoxicology in The School of Applied Sciences at RMIT University. When I went to visit her labs at RMIT, I was very impressed with the quality of her research and I became passionate to pursue my PhD study in ecotoxicology. I



always desired to get involved into research that can contribute to reversing some of the harm that we humans have done to the environment and the aquatic species present in water bodies.

PhD research

The primary focus of my PhD is to assess the effect of selected glucocorticoids (GCs) and progestins (PGs) (alone and in mixtures) on selected Australian freshwater species, both invertebrates and vertebrates. The study will help in determining the safe concentration levels of GCs and PGs in the Australian riverine environment for the overall health of native aquatic biota. This is a collaborative project between RMIT University and CSIRO, SA. I am a full-time student based at CSIRO, Adelaide and currently I am in the second year of my candidature.

To date, much of the discussion on developmental reproductive toxicity of endocrine disruptive chemicals in Australia has focused on contaminants that interact with the estrogen receptor and elicit estrogenic and anti-androgenic responses. Worldwide detection of GCs and PGs in environmental samples is known but limited monitoring and systematic surveys have

Student Profiles

Navdeep Bal

been conducted in Australia to-date. Given the detection of GC and PG activity in the treated effluents, further studies are required to identify biomarkers of GC and PG exposure and to assess their potential ecological risk to aquatic biota in an Australian riverine environment.

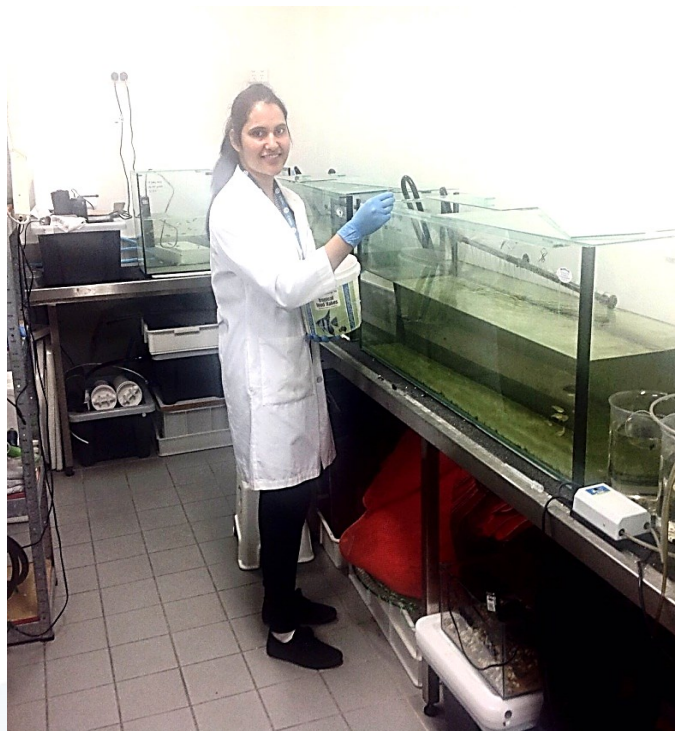
In my research project, I will be conducting short and long-term multi-generational studies, exposing selected freshwater species to a broad range of GCs and PGs (alone and in mixtures) under laboratory conditions. I will be using various molecular, biochemical, histological and physiological endpoints to quantify the drug effects. This research is an important step in determining the long-term consequences of these drugs when taken up by aquatic species in the environment. Finally, I will be conducting risk assessment of GCs and PGs in the Australian aquatic environment. It will be done by monitoring levels of GC and PG present in water and sediment samples from selected Australian rivers and creeks receiving wastewater treatment plant (WWTP) effluents. The information generated in this project will be of benefit to the regulatory and other agencies in prioritisation of compounds that have greater risk to ecosystem functioning and identifying those which need to be effectively removed during sewage treatment process before releasing into the aquatic environment. Compilation and analysis of available information as well as development of local data will pave the way for preserving the native aquatic species from the harmful exposure of pharmaceutical effluents (GCs and PGS) in the Australian riverine environment.

So far....

I was successful in conducting an initial exposure study and results were quite interesting. I have submitted one manuscript from this work which is under internal review. Currently I am doing multi-generational studies on freshwater snails and also compiling data of embryo-larval toxicity to native fish species. I also delivered a poster presentation at SETAC Asia Pacific conference in September 2014.

Future plans....

Firstly, I am fully focussed to do quality and valuable research in my PhD. I am really passionate to learn new techniques and to uncover all that I can do in this research field. Once I submit my thesis, I will look forward to future opportunities like securing Post Doctoral position and will keep my hopes positive throughout this research journey.



Navdeep Bal in laboratory

Conference Announcements

SETAC AU Nelson 2015



SETAC Australasia

Nelson 2015

25 to 28 August

The SETAC Australasia 2015 will be held in Nelson, New Zealand on 25 to 28 August. The ambitious theme is 'System Approach to Environmental Management' and recognises the continuity of environmental processes in space and time, a concept that can enable us to better manage the environment and contribute to the development of more sustainable solutions.

The theme is underpinned by our conference logo with strong local flavours and Māori and other Pacific cultures. The three kape (circles) inserted into the bottom border have dual significance: the productivity of our biosphere and the three aspects of the ecosystem (water, air and land).

Nelson is located on the northern tip of the South Island and is a popular destination as it captures some of the true essence of our Kiwi lifestyle. Nelson is a key centre for aquaculture in New Zealand and offers many examples of industry working closely with research providers to minimise environmental impacts.

A few workshops will be held prior to the conference including the Global Horizon Scanning Research Prioritization Project (GHSP) for the Australasian area and one sponsored by the NZ Environmental Protection Authority workshop. Please visit our web site to get an overview of our exciting programme and workshops (<http://www.setac2015.org.nz/>). Abstract submissions close on 1 June and early bird registrations on 1 July 2015.

The SETAC-Australasia 2015 conference organising committee wish you all safe travels and we look forward to seeing in Nelson, New Zealand.

Louis Tremblay, Conference Chair

(louis.tremblay@cawthron.org.nz)

Conference Announcements

EmCon/WiOW Sydney 2016



5th INTERNATIONAL CONFERENCE ON EMERGING CONTAMINANTS (EmCon2016) AND MICROPOLLUTANTS (WiOW2016) IN THE ENVIRONMENT



20-23 September 2016

University of Technology, Sydney, Australia
Aerial UTS Function Centre

Abstract submission opens: 15 October 2015

Abstract deadline: 1 March 2016 (oral presentations)

Abstract acceptances announced: 15 May 2016

Early bird registration closes: 15 July 2016

KEYNOTE SPEAKERS



JUDY BLACKBEARD

Melbourne Water

*WATER INDUSTRY'S PERSPECTIVE
ON EMERGING CONTAMINANTS*



SHERRI MASON

State University of New York at Fredonia

*MICROPLASTICS IN THE WORLD'S
LARGEST FRESHWATER SYSTEM*



KEVIN THOMAS

Norwegian Institute for Water Research (NIVA)

*FLUSHING OUT ILLICIT DRUG USE:
LARGE-SCALE WASTEWATER-BASED
EPIDEMIOLOGY*

EmCon COMMITTEE:

Dana W. Kolpin, USGS, USA; Bjarne W. Strobel, University of Copenhagen, Denmark; Edwards T. Furlong, USGS, USA; Thomas Borch, Colorado State University, USA; David M. Cwiertny, University of Iowa, USA; Keri C. Hornbuckle, University of Iowa, USA; Kevin Thomas, NIVA-Norway

EmCon and SETAC Australasia are proud to hold a joint meeting bringing together scientists from across the globe to discuss the latest research on all aspects regarding emerging contaminants and their many degradation products. Special themes include emerging contaminants in megacities, microplastics and nanomaterials.

CONFERENCE SCOPE

This conference provides an excellent forum for presenting the latest research and development on all aspects related to the topic of emerging contaminants across all environmental compartments (e.g. surface water, groundwater, bed sediment, soil, air, tissue, etc.). The key topics include but are not limited to:

SPECIAL THEMES

- Mining explorations and fracking
- Urban environments and megacities
- Waste, wastewater recycling and reuse
- Nanomaterials
- Microplastics
- Tropical ecosystems

GENERAL THEMES

- Sources and exposure pathways
- Treatment processes and technologies
- Sampling, analytical and characterisation methods and approaches
- Aquatic and terrestrial effects
- Risk assessment, risk management, regulations and policy

LOCAL ORGANISING COMMITTEE:

Rai Kookana, CSIRO, University of Adelaide; Anu Kumar, CSIRO; Stuart Khan, University of NSW; Richard Lim, University of Technology Sydney; Therese Manning, Enriska; Munro Mortimer, SETAC-Australasia; Fred Leusch, Griffith University, Qld; Vin Pettigrove, University of Melbourne; Mike Williams, CSIRO; Kathryn Linge, CWQRC; Francky Buseti, CWQRC; Brad Patterson, CSIRO

www.emcon2016.com.au



Science Meets Parliament 2015

Delegates' Report

On 24-25th March, Kathryn Hassell (University of Melbourne, CAPIM) and Francesca Gissi (University of Wollongong, CSIRO) attended Science meets Parliament, as representatives of SETAC-AU. We were also joined by SETAC-AU President, Associate Professor Dianne Jolley, and SETAC members-representing Science and Technology Australia, Professor Ross Smith (STA President) and Associate Professor Emma Johnston (STA vice-President).

Science meets Parliament is an annual event organised by Science and Technology Australia which aims to educate politicians on the merits of scientific research, by bringing together around 200 scientists for a couple of days in Canberra. It features a jam-packed two day program of seminars, workshops, networking and face to face conversations with Federal MPs and Ministers. The first day kicked off with an excellent panel session, "A day in the life of a journalist: what they need to turn your science into news" with Alison Carabine (ABC National Breakfast) and James Massola (Fairfax Media). It was fascinating to hear insights about a standard day in the life of a political journalist – a day which starts at 3 am and requires them to be across all forms of news distribution – from newspapers, to television, radio and increasingly, social media sources such as Twitter, in order to have the most up to date information and news stories ready for reporting in the daily media. Alison and James also told us about the rapid pace of news reporting and how hourly updating on stories and planning for the next headlines and lead news items are required. It was exhausting just hearing about their busy schedules!

Following on from that, we heard from Simon Banks (Hawker Britton) and Jannette Cotterell (Executive Counsel Australia) about "The art of the political meeting", and learned all about science communication and engagement, and especially for the need to be able to get a simple message across within 5 minutes. We also heard from Martin Hoffman (Deputy Secretary, Science Group, Department of Industry and Science, on "The messy nature of the policymaking process", and Professor Graham Durant (Director, Questacon) on "Who is inspiring Australia?". All these presentations carried the same underlying theme, of the need to communicate our science in a way that can engage non-scientists, by making it relevant, outcome-focused, and ideally, aligned with the key research and funding priorities of the current Government.

In the afternoon we heard from Laureate Fellow Professor Brian Schmidt, and Professor Hugh White on "How to talk/think like a policymaker", which was again a very engaging hour of conversation around science communication and advocacy, the value of networking and a person's 'sphere of influence', to the challenges of getting funding to support basic (Blue Sky) research. With some useful tips and the assistance of Dr Will Grant and Dr Rod Lamberts (Centre for the Public Awareness of Science, ANU) we also spent some time in the afternoon working on our "60 second pitch", ready for our parliamentary meetings the following day.

In the evening we attended the Gala Dinner, which was held in the Great Hall at Parliament House. Science broadcaster/comedian Adam Spencer was the MC for the night, and we were privileged to have Dr Anna Paradowska (Industrial Liaison Manager and Research Scientist, ANSTO), Catherine Livingstone, AO (President of the Business Council of Australia), Ian Macfarlane, MP (Minister for Industry and Science) and Bill Shorten, MP (Leader of the Opposition) as our guest speakers for the evening. Both Ian Macfarlane and Bill Shorten had great praise for our science community. The Hon Ian Macfarlane addressed the challenges faced by scientist and policymakers alike, and highlighted the need for a greater commitment from all disciplines and sectors to work together to "ensure our science and research structure works to deliver a stronger future for Australia". The Hon Bill Shorten also spoke about the need for science to be a political priority. Mr Shorten highlighted the decline in participation in science subjects over the last 20 years, and proposed that a national Science, Technology, Engineering and Mathematics (STEM) strategy should be implemented to foster a knowledge-based culture in our workforce, new initiatives in our schools, TAFEs and universities and new engagement with the community, students, parents, and employers and new international partnerships.

Science Meets Parliament 2015

Delegates' Report

On Day 2 each delegate was scheduled in for a meeting with a Minister, Senator or other Member of Parliament, to discuss their research and hopefully inform them about the importance of science in Australia. Kath met with Mr Laurie Ferguson, ALP Member for Werriwa (NSW) and discussed fish health, micropollutants and recycled water in the context of urbanisation, as well as outlining the role that SETAC-AU plays in facilitating ecotoxicological and environmental chemistry research and networking in Australia. Francesca and Dianne met with The Hon Warren Entsch, Liberal Member for Leichhardt (QLD), along with climate scientist, Helen McGregor from UOW. Mr Entsch is passionate about shaping the social, economic and environmental future of North Australia. The group discussed issues around development of industry in North Australia, including the use of ecotoxicological assessments to monitor and minimise industry's impact on the environment, and the study of corals to investigate changes in weather patterns specific to the tropics. Dianne also discussed the role of SETAC in forming international collaborations amongst scientists. In addition to meeting these two politicians, both Kath and Francesca were also very fortunate to meet with some other senior parliamentarians. Kath was part of a small delegation that met with the Prime Minister (Tony Abbott) and Francesca met with the Leader of the Opposition (Bill Shorten). Francesca and Mr Shorten discussed ways to make life easier for ECRs. Kath had to whittle down her 60 second pitch to a mere 30 seconds, but was able to have a short conversation with the Prime Minister about fish toilets, water supply catchments and Prozac!

Following our meetings, we attended lunch at the National Press Club, where Professor Ian Chubb AC, Chief Scientist for Australia gave a nationally televised address 'Aspiring to something magnificent'. In this address, he spoke about the roles of STEM to Australia's future, and he discussed many interesting aspects of science and technology in Australia from the value of science to the Australian economy (an estimated \$292 billion per year based on a report released by Mr Chubb that morning - <http://www.chiefscientist.gov.au/2015/03/report-the-importance-of-advanced-physical-and-mathematical-sciences-to-the-australian-economy-2/>) to the need to improve on our very low OECD ranking (32nd out of 33) of business to research collaboration.

On the second day there was also a Q and A session with Senator Kim Carr (Shadow Minister for Higher Education, Research, Innovation and Industry and Shadow Minister Assisting the Leader for Science) and a parliamentary forum on science and politics with Dr Len Sciacca (DSTO), Professor Warwick Anderson (NHMRC), Professor Aiden Byrne (ARC), Dr Dennis Jensen MP and Dr Andrew Laming MP.

The event was brought to a close with a cocktail function attended by Parliamentary Friends of Science, Karen Andrews MP, Adam Bandt MP and the Hon Richard Marles MP.

Science meets Parliament was a fantastic experience, teaching us so much valuable information about science communication and engagement, as well as providing an excellent networking opportunity to meet scientists from areas as broad as astrophysics, climate science, digital technology and nuclear waste disposal. We would highly recommend other SETAC members to consider attending this event in the future.

Kathryn Hassell and
Francesca Gissi
(k.hassell@unimelb.edu.au and
francesca.gissi@csiro.au)



Francesca Gissi, Di Jolley and Kathryn Hassell
at Science Meets Parliament 2015

Science Meets Parliament 2015

Delegates' Report



Science Meets Parliament 2015

Delegates' Report



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 Australasia Nelson, New Zealand 25 to 28 August 2015

Registrations & Abstracts Open: 23 Feb 15

Abstract Submission Close: 1 Jun 15

Early Bird Registration Close: 1 Jul 15

<http://www.setac2015.org.nz/>

SETAC Europe 25th Annual Meeting Barcelona, Catalonia, Spain 3 – 7 May 2015

Key dates: to be advised

<http://barcelona.setac.eu/?contentid=767>

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.

Jeppé, 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.

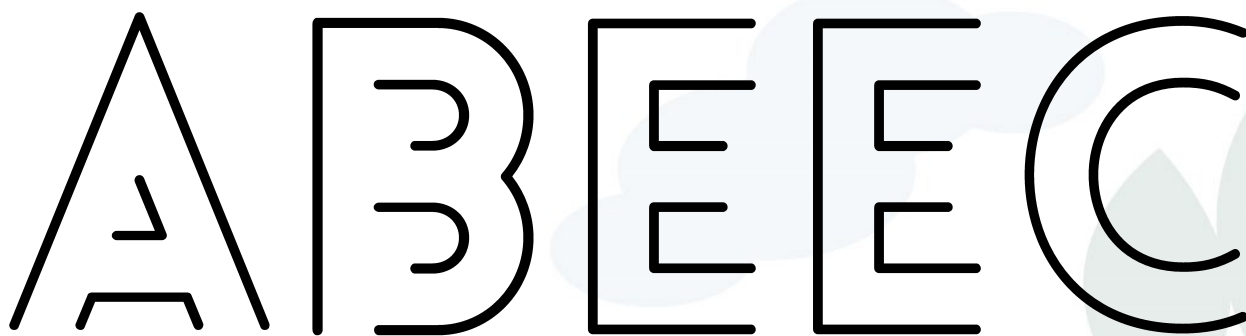
All papers published in ABEEC will be made freely available through the website for SETAC AU. It will be an online publication only.

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 your manuscripts.

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



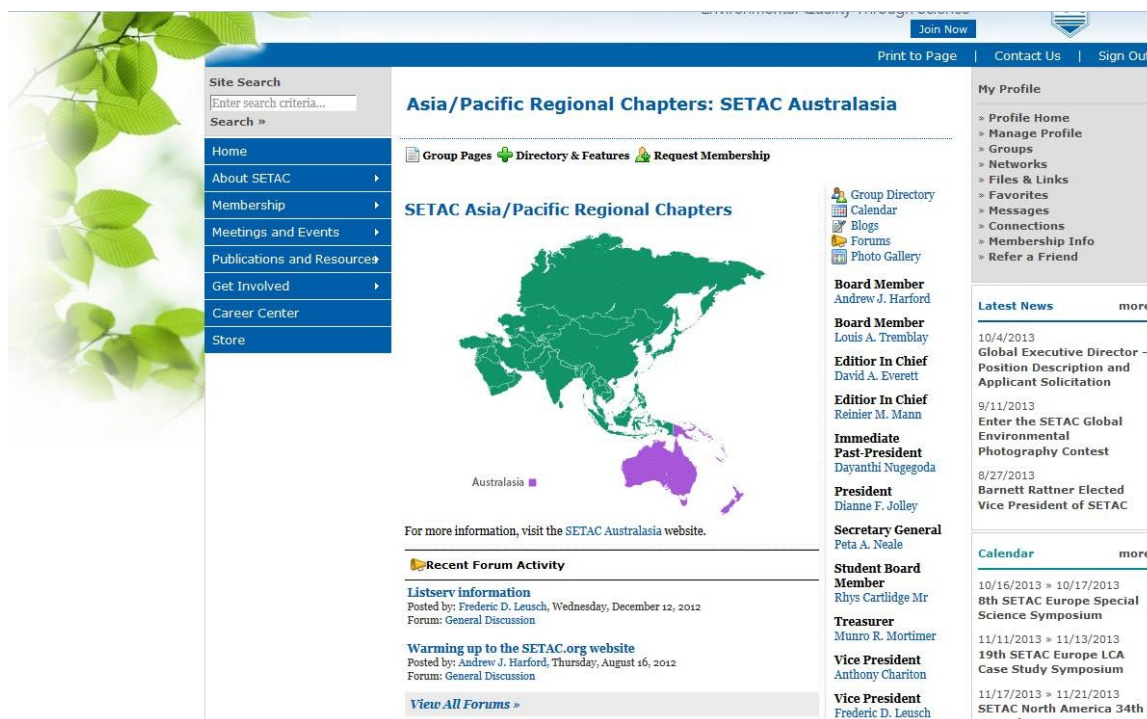
ABEEC

The logo for ABEEC is displayed in a large, black, outlined font. The background features a light blue wavy line representing water, with two white fish swimming. To the right, there are stylized green leaves and a light orange shape at the bottom right corner.

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 Pacific Chapters'. There are no additional fees attached to the SETAC Australasia chapter.



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

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 assistance such as student grants etc.
- Certificate

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@griffith.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@griffith.edu.au)
SETAC AU Secretary



Position/Region	Elected Member
<u>President</u>	Dianne Jolley (djolley@uow.edu.au)
<u>Immediate Past President</u>	Dayanthi Nugegoda (dayanthi.nugegoda@rmit.edu.au)
<u>Vice Presidents</u>	Fred Leusch (f.leusch@griffith.edu.au) Anthony Chariton (anthony.chariton@csiro.au)
<u>Secretary</u>	Peta Neale (p.neale@griffith.edu.au)
<u>Treasurer</u>	Munro Mortimer (ase@hydrobiology.biz)
<u>Membership Officer</u>	William Bennett (w.bennett@griffith.edu.au)
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<u>Strategic Directions Officer</u>	Andrew Harford (andrew.harford@environment.gov.au)
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