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Endpoint

SOCIETY OF ENVIRONMENTAL TOXICOLOGY
AND CHEMISTRY AUSTRALASIA
(SETAC AU)

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Message from the Editor

Welcome to the final edition of Endpoint for 2017. As per usual, we have another packed edition for you. We have [Regional Reports](#) from New South Wales, Victoria, Northern Territory and Western Australia. This issue our new ACT Regional Representative Julia Jasonsmith is featured in the [General Member Profile](#), while Supriya Lath is featured in the [Student Profile](#). You can also read about the research finding of the 2017 SETAC AU Postgraduate Research Publication Award recipient Shima Ziajahromi in the [Student Corner](#) section.

There have been a number of Science & Technology Australia (STA) events recently, with Trang Huynh representing SETAC AU at [Science meets Business](#) in November and Kathryn Hassell and Anthony Chariton attending [Science meets Policymakers](#). Science meets Parliament is on again in 2018 and SETAC AU can nominate two members based in Australia to attend. Further details can be found in the [Awards and Prizes](#) section, with applications due 15th December.

As you know, SETAC AU 2017 was held on the Gold Coast in September and we have a conference report in the [Conferences and Workshops](#) section. There are also a number of events coming up in 2018, with What's in our Water? in Canberra and SETAC AP 2018 in Daegu, South Korea. Session proposals for SETAC AP 2018 are due 31st January. Further details are provided in the [What's Happening?](#) section.

Thank you to everyone who has contributed material for this edition of Endpoint, I really appreciate the time and effort you put in. Finally, I would like to wish everyone a very merry festive season and all the best for 2018!

Best wishes

Peta Neale (p.neale@griffith.edu.au), Communications Officer



From the President

Firstly, a huge thank-you to the SETAC AU membership and council for giving me the opportunity to represent the society as the president. I'm looking forward to an active and productive term and there is already a busy agenda appearing ahead of us. I'm looking forward to continuing to our efforts to improve our engagement with the Geographical Units (GUs), especially Asia-Pacific and the SETAC World Council (SWC). The council will continue to investigate ways of increasing value for our members and we have identified some great challenges and opportunities for us to embrace. I'd also like to thank the newly-appointed council members for volunteering their precious time to the society. Our small society needs and appreciates the time that members can offer and I'd encourage anyone willing to participate in the society to connect with the council to find out how to get involved.

A final report for the Gold Coast conference and the DGT meetings has been produced. These events generated a small profit for the society, but, more importantly, they were productive and showcased the fantastic science of our community. I also personally had a super-fun time and the dinner venue was especially extraordinary. Both conferences were definitely big successes! One noteworthy achievement was that the organising committee managed an excellent balance between the chemistry and ecotoxicology, which is something we had been aiming to improve for some time. I'd like to thank Will Bennett and Di Jolley and the organising committee for their efforts. Thanks to all the members that participated in the event and helped make it outstanding. We are looking at ideas for the next conference and we will inform the membership as soon as we have booked an event.

SETAC AU members recently participated in three Science and Technology Australia (STA) sponsored events. Science Meets Business (9 November) brought together leaders in the business world and the STEM sectors. Trang Huynh (Hydrobiology) represented SETAC AU. Our new Secretary, Susi Vardy, attended a workshop on Association Governance and Board Roles and Responsibilities on the 8th of November. We hope that the lessons she learned will help the council function better. The STA Annual General Meeting and Cluster meetings were on the 23rd of November. Tom Creswell and Di Jolley represented SETAC AU and we submitted a report to the chemistry cluster committee. STA have also released a policy vision. The document will inform STA's future policy and advocacy work and they are currently seeking feedback from member societies.



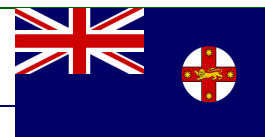
Since the Gold Coast conference and AGM there have been two noteworthy discussions regarding the potential changes to SETAC membership policy. The first meeting involved a video conference with a number of SETAC AU council members and representatives of the SWC. The aim was to gain an understanding of the different cultures of SETAC and various challenges faced in different regions. The second discussion occurred at the SETAC-AP meeting and was led by Kuan-Chun Lee. It was interesting to learn of the diverse cultures within our GU and highlighted that the membership policy changes might present greater challenges for the broader the Asia-Pacific GU. The SETAC AU council and SETAC-AP board will continue to engage with SWC to ensure we get the best policy outcome for our GU and the chapter. Further, details of upcoming SETAC-AP board supported meetings can be found on the [What's Happening?](#) page.

The "Global Horizon Scanning Research Prioritization Project" is making progress in Australasia. This project was kicked-off with a workshop in Nelson before our 2015 conference. The project is led by Bryan Brooks and Alistair Boxall and is a significant initiative of the SWC. The aim of the project is to "collect and prioritize the most important future research questions as recognized by scientists from around the globe working in government, academia and business". The list of questions generated by the Nelson workshop was presented at the Orlando World Congress and is currently being drafted into a paper, which is being led by Vin Pettigrove and Sally Gaw. The council is currently working on the strategy to consult with the SETAC AU membership and a broader group of stakeholders. You can find more information regarding the intent of the project in this [Globe article](#).

Andrew Harford, President

Regional Reports

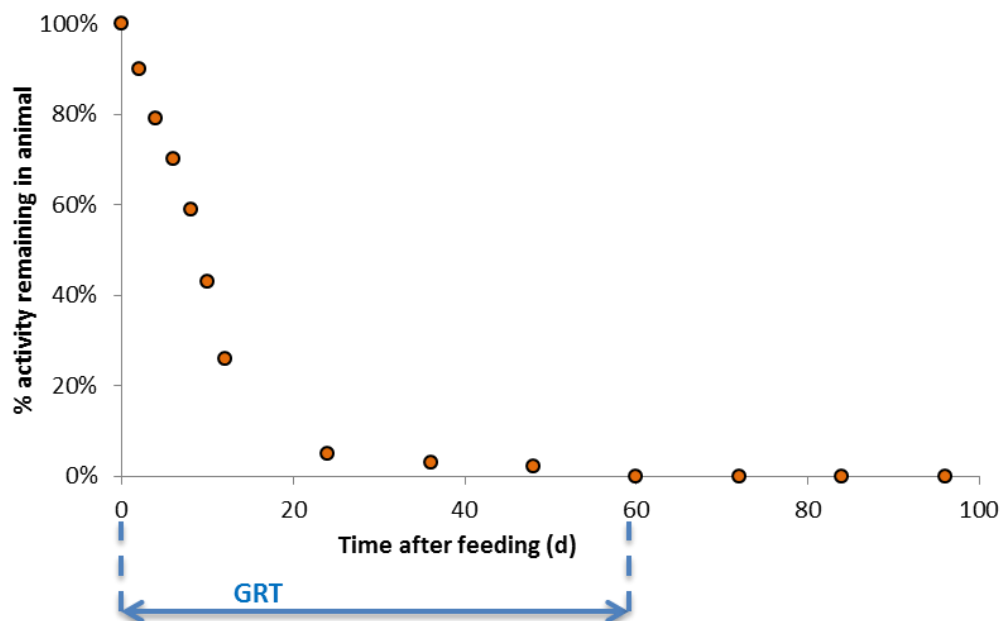
New South Wales



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

ANSTO are involved in collaboration with the International Atomic Energy Agency (IAEA) to investigate how nuclear techniques can be used to better understand marine microplastic pollution and effects to biota. The collaboration includes researchers from Woods Hole Oceanographic Institute in Boston, the Heriot-Watt University and the University of Plymouth in the UK, Patras University in Greece and Université Libre de Bruxelles, Belgium. The project seeks to understand sorption/desorption kinetics of organic contaminants to plastic surfaces as well as generating information on the biokinetics of plastic particles within organisms. ANSTO will be involved in

producing radiolabelled microplastic (polyethylene) beads, which will allow for studies to be conducted at ANSTO and in Europe to determine the gut retention time of microplastics to numerous organisms. The potential for microplastic bioaccumulation (e.g. uptake across epithelial membranes into internal organs) will also be explored for a range of marine organisms using sensitive nuclear imaging techniques. The production and characterisation of a microplastic radiotracer will open opportunities for research in many areas including aquatic ecotoxicology, agricultural ecotoxicology and the human health field.



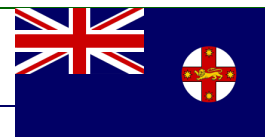
Using microplastic radiotracers, organisms are fed active microplastics once (pulse) then are radioanalysed regularly and the % of activity remaining in each animal after feeding on radioactive plastics is determined at each time point. GRT = Gut retention time.

Tom Cresswell is part of the organising committee and will be presenting at the BRITE (Biomarkers of Radiation In The Environment) advanced research workshop in Yerevan, Armenia from the 28th-30th November. The NATO funded workshop will bring together leading international experts to evaluate currently available and developing radiation biomarker methods for environmental applications. The workshop aims to establish the current state-of-the-art and advance the development of robust field-friendly biomarkers of radiation exposure of humans and the environment. The workshop will also explore the practicalities of operationalising biomarker usage within NATO response strategies.

Debashish Mazumder is leading a research project on the novel application of nuclear techniques in seafood provenance (the place of origin) and quality authentication with an aim to develop quick and authentic analytical tools for food provenance. The first phase of this research project was to assess the efficacy of nuclear techniques in determining food provenance. An honours student was engaged from UNSW to conduct the pilot research, and ANSTO supervised this research in collaboration with UNSW, Macquarie University and Farmers Associations. Barramundi and prawn, two important high-value seafood products collected from 7 different bio-regions were analysed for their isotope values and elemental compositions. The outcome of the research is encouraging; analytical results suggests that both isotopic and elemental analyses were effective to distinguish production methods (farm vs wild caught) and their geographic locations with a 94% accuracy. For further information on ANSTO's work on food provenance please contact Debashish Mazumder (dma@ansto.gov.au).

Regional Reports

New South Wales



Australian National Project Team for the IAEA Regional Cooperative Agreement RAS 7028
(Advancing technologies for monitoring and analysis of the potential impact of radioactive releases from nuclear power plants (NPPs) in Asia-Pacific marine ecosystems following the Fukushima Daiichi accident):

Several members of the Australian National Project Team (IAEA RCA 7028) recently helped organise and conduct a successful IAEA Regional Training Course, 14-25 August, 2017, in Jakarta Indonesia. More than twenty students from eighteen different Austral-Asia-Pacific countries were provided with expert lectures and laboratory exercises on assessing radionuclides in environmental samples. The students learned details of sampling planning, sampling, sample preparation, storage, and analysis. Courses were provided by Mat Johansen and Henk Heijnis (ANSTO), Ross Jeffree (Jeffree Environmental Research & Consulting), Sandra Sdraulig (ARPANSA). Additional project team members are Tom Cresswell (ANSTO), Pere Masque (Edith Cowan University), Steve Tims (ANU), Megan Cook, Julia Carpenter and Marcus Grzechnik (ARPANSA).



Ross Jeffree (Jeffree Environmental Research & Consulting) discussing fish dissection in preparation for radiological analysis.



Sandra Sdraulig (ARPANSA) discussing detection of Cs-137 in seawater.

Studies at the former Montebello Island nuclear test sites

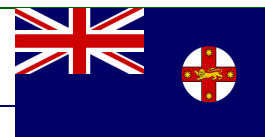
Staff members from the Contaminant Impacts Programme, ANSTO, in collaboration with ARPANSA and the WA Parks and Wildlife Department, have initiated a series of studies at the former Montebello Island nuclear test sites, WA. Three nuclear tests were conducted at the Montebello Islands in the 1950s, including the first British test ("Hurricane," aboard the ship HMS Plymouth) and the largest detonation ("Mosaic G2," from a 30m tower on Alpha Island). Plutonium, uranium and other radionuclides of interest remain at elevated concentrations, and have potential to persist for thousands of years. Numerous "hot fallout particles" were formed during the tests, from which the release rates of bioavailable radionuclides are largely unknown, making it a challenge to predict biological uptake into the future. The degree to which actinides can accumulate in, and impact plants and animals at this marine site has both conservation (e.g. what are potential impacts to protected sea turtles nesting on contaminated Montebello beaches) and workplace safety implications (what PPE should researchers wear?).



Field work at the former Montebello nuclear test sites.

Regional Reports

New South Wales



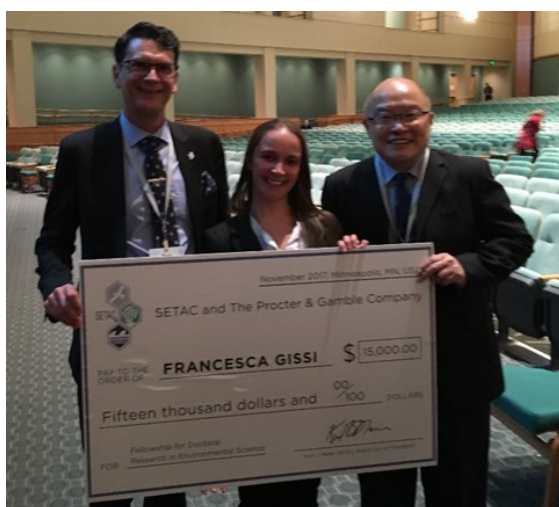
Field work was performed in November 2015 and initial results were presented by Mathew Johansen at the International Conference on Radioecology and Environmental Radiation, September 2017, Berlin. While many samples have yet to be analysed, results so far indicate the activity concentrations from gamma emitters are decreasing, while the elevated levels of alpha emitters (e.g. Pu, Am) are persistent. Much of the activity is contained within hot particles which can provide long-term ongoing sources. Understanding the chemical form of the particles, their sizes and structure, and their weathering rates are important to understanding dose rates at Montebello. The 240/239Pu isotope ratios are different for each of the 3 test sites, raising the potential to use Pu as a tracer for mobile/migrating species. Currently, ANSTO is processing the remaining samples with alpha-spectrometry and Accelerator Mass Spectrometry, as well as better defining hot particle characteristics using a range of tools including the Australian Synchrotron.

CSIRO Land and Water, Lucas Heights, Aquatic Contaminants Group, Lisa Golding
(Lisa.Golding@csiro.au)

CSIRO Land and Water students and staff from Lucas Heights were well represented at the recent SETAC AU conference at the Gold Coast and received the following notable awards:

- PhD student Brett Knowles - Best Poster at SETAC AU Award entitled "Approaches to the synthesis and characterisation of isotopically-enriched three-layered core-shell nanoparticles"
- PhD student Darren Koppel – awarded Best Presentation for Ecotoxicology Sessions at SETAC AU for his platform presentation entitled "On the use of DGT to predict metal mixture toxicity to two Antarctic marine microalgae"
- Honours student Sarah Stone (ex CSIRO) – was awarded Best Honours Thesis 2017 and gave a platform presentation entitled "Toxicity of herbicides in Northern Queensland catchments to tropical microalgae?"
- Staff member David Spadaro received the inaugural SETAC AU Technical Staff Award which seeks to recognise highly skilled and extremely diligent technical staff and the irreplaceable contribution they make.

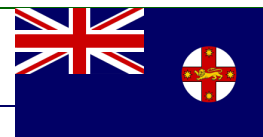
PhD student Francesca Gissi attended the SETAC North America meeting in Minneapolis where she received a second place award for her PhD platform presentation "The response of corals and the coral microbiome to metal exposure". Francesca also received the \$15,000 cheque for the Proctor & Gamble Doctoral Fellowship 2017 for the "Development of New Risk Assessment Tools for Nickel in Tropical Marine Environments".



Francesca receiving her P&G cheque at SETAC-NA, Minneapolis with SETAC-AP Immediate Past President Ross Smith (left) and SETAC-AP President Kuan-Chun Lee (right). The announcement of Francesca receiving an award for platform presentation at the same conference.

Regional Reports

New South Wales



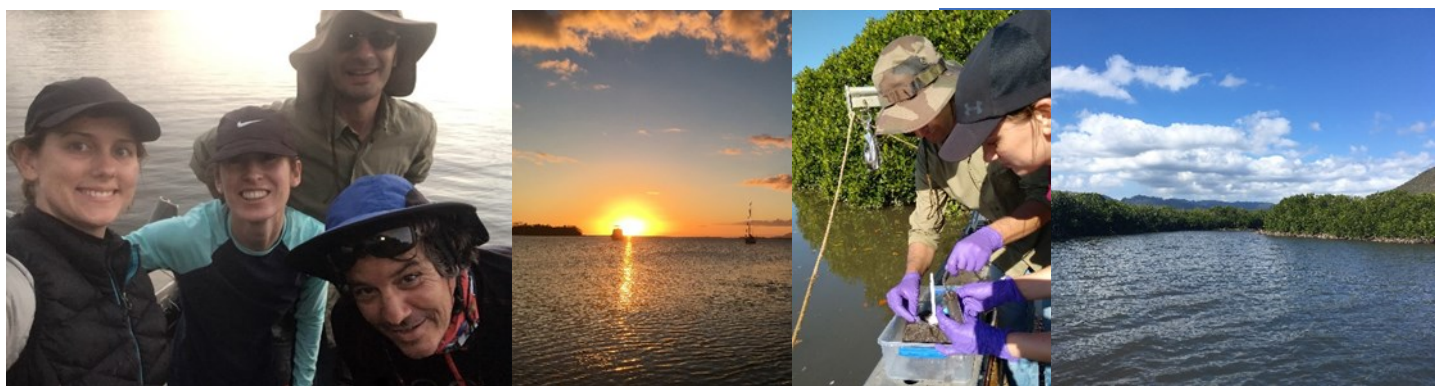
Jenny Stauber was awarded the CSIRO Medal for Lifetime Achievement Award which recognises individuals who have a record of sustained and meritorious achievements in science, technology and innovation and is awarded to only 1 or 2 people within CSIRO each year.



Jenny Stauber with the CSIRO Medal for Lifetime Achievement Award 2017 and celebrating at the award lunch at the National Art Gallery, Canberra.

Congratulations to all award winners!

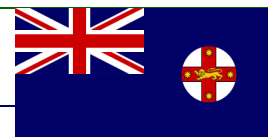
Meanwhile, PhD student, Megan Gillmore, and her supervisor, Lisa Golding, travelled to New Caledonia to undertake a benthic community diversity assessment of Vavouto Bay as part of Megan's project investigating the impact of nickel on tropical marine benthos. Megan and Lisa spent three days sampling sediment for chemistry and DNA meta barcoding of the benthos with field assistance from New Caledonia Scientist Farid Julliot and Captain Philippe Naudin both of Institut de Recherche pour le Developpement (IRD) and in conjunction with Centre National de Recherche Technologique (CNRT). They were treated to excellent conditions as well as a few sighting of sharks, dolphins and turtles. Megan is currently in the lab making her way through DNA extractions, PCRs and sediment chemical analyses with the aim of determining whether changes in benthic community composition along a nickel gradient can provide information about ecosystem health and diversity.



Photos of the field team consisting of Megan Gillmore, Lisa Golding, Farid Julliot of IRD (back), and Philippe Naudin of IRD (front) on location in Vavouto Bay, New Caledonia.

Regional Reports

New South Wales



Environmental Genomics, Ecology and Ecotoxicology Lab (EGEEL), Macquarie University,
Anthony Chariton (anthony.chariton@mq.edu.au)

It has been an exceptionally busy time at EGEEL. Anthony has recently returned from working with Dr Karoline Faust (Leuven, Belgium) on exploring how ecological networks can be applied to ecotoxicological research. Anthony also co-organised a multiple stressor workshop at Paul van de Brink's lab in the Netherlands. The workshop involves a number of SETAC AU people: UNSW's Katie Dafforn (co-organiser), Emma Johnston and Mariana Mayer Pinto; Ally O'Brien (U of Melb); Kath Korbel (Macquarie); as well as a few old friends such as Environment Canada's Donald Baird.

Exciting news on the water quality monitoring front. Anthony, Sandra Mcllenan (University of Wisconsin-Milwaukee) and the World Harbour Project's Annachiara Codello and Peter Steinberg are currently launching an extensive multi-nation program examining faecal derived microbial inputs into harbour systems. The objectives of the project are to: 1) rigorously evaluate, on a global scale, whether the current established laboratory approaches (e.g. coliform, *E. coli*, and *Enterococci* counts) are indeed suitable for determining the risks associated with human pathogens; 2) identify the key sources of faecal inputs into harbours around the world, and increase our understanding of how these sources may change over space and time; and 3) examine the relationship between sewage inputs and genetic elements associated with antibiotic resistance. Already numerous cities across the globe have signed up for this exciting project.

A couple of PhD students are on their final stretch, including Brodie Fuller (MU) and RMIT's Fee Moy Lee Nen That. Brodie has published two recent papers which use a variety of omic approaches to increase our understanding of how uranium shapes bacteria communities. For further details please go to <http://tinyurl.com/y9ywqucp> and <http://tinyurl.com/y8thezuj>.

In conjunction with CSIRO (Sarah Stephenson), EGEEL are currently performing a freshwater survey for South32. This is part of a long term collaboration to incorporate metabarcoding into some of South32's routine monitoring programs. This research was previously the recipient of the BHP/Illawarra Coal: Aquatic Health Program Excellence Award.

Finally, EGEEL is delighted to have Paul Greenfield as an Associate. Paul will providing his wealth of bioinformatic and computational skills to the lab.

Freshwater Ecology & Ecotoxicology Lab

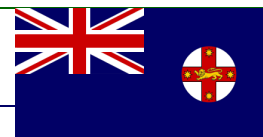
Ingrid Errington has submitted her PhD thesis in which she explored the effect of hydrocarbon contamination on invertebrates on Macquarie Island. Congratulations Ingrid on your thesis submission and recent paper accepted in STOTEN. Ingrid was supervised by Grant Hose, Cath King (AAD) and Simon George (MU).

As Ingrid leaves, we welcome Sajida Saqira who has just started a PhD looking at the effects of multiple stressors on freshwater systems. Sajida will be using copper contaminated mesocosms on the Macquarie Uni campus, and will be supervised by Grant Hose and Anthony Chariton.

Postdoc Kath Korbel joined Anthony C and others at the multiple stressor workshop in the Netherlands and provided a novel perspective to that group with her expertise in groundwater ecology and impacts.

Lorraine Hardwick and Nicole Christiansen are continuing to work on the impacts of urbanisation on the ecology of upland swamps, Lorraine is focussing on how urbanisation affects invertebrate communities and organic matter processing while Nicole is taking a molecular approach to examine changes in microbial community structure and functional genes in sediments.

Grant continues to work on groundwater ecology and ecotoxicology, with recent focus on salinity impacts to groundwater fauna.



The Litter Lab

Scott Wilson and post-doc Krista Verlis recently returned from a research expedition to French Polynesia. The trip documented the extent of microplastic pollution within the region both within sediment and biota matrices. Unfortunately, even these remote islands are trashed, with plastics loads relatively high on windward beaches and ingestion found in local holothurians.

Research is under way with Kerrie Tomkins examining sources of microplastics input into Lake Macquarie. This is funded through a Lake Macquarie Council Environmental Grant. And speaking of funding, the Lab was also successful with two other grants working with the Total Environment Centre and Take 3 for the Sea to develop and pilot citizen science microplastics programs. AUSMAP, the Australian Microplastics Action Project will be a national programme involving schools and community groups in documenting microplastics plastic loads on beaches and in waterways around the country. This will kick off in 2018.

Scott and Sasha Tetu presented papers at the recent Beyond Plastic Pollution conference in Sydney. Scott presented on the potential human health concerns associated with plastics while Sasha discussed her DECRA project on the effects of plastic leachates on marine primary producers. This was the first national conference on this topic in Australia and with the amount of support and interest garnered, it is unlikely to be the last.

Pollution Science Research Group, School of Environmental and Rural Science, University of New England, Susan Wilson (swilso24@une.edu.au); Matt Tighe (mtighe2@une.edu.au)

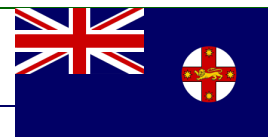
The Pollution Science Research team at UNE has had a busy and varied year!

Updates on the team: Two honours students, four Masters students and three of our PhD students, Maxi Obiakor (Ecotoxicity Assessment for Antimony Pollution in Contaminated Ecosystems), Sahar Al-Shamma (Mycorrhiza and Biochar for Remediation and Plant Production in Soils Polluted with Arsenic) and Calvin Leech (An examination of co-composting aged PAH and contaminated MGP soils) have completed. Steven Doherty has continued on to a PhD to extend his honours work investigating sources, sinks, and drivers of arsenic and antimony speciation in co-contaminated environments, as has also Kirsten Drew who will work on some of our NSW high conservation island soils as well as Macquarie Island soil (yes she is visiting the island in March 2018) to understand the fate and persistence of glyphosate for weed management. Other new group members include Carolyn Sonter studying PFOS effects on the European honey bee, Saeed Baghiferam from Iran who will investigate antimony bioaccessibility and bioavailability and Roozbeh Ravansari from the US who will use pxf analytical technology on contaminated and aged samples.



Regional Reports

New South Wales



Highlights: We were involved with organising the Sb symposium at ICOBTE 2017 in Zurich, enjoying the fabulous Swiss organisation of the event as well as meeting up with friends and colleagues from here and around the world. In 2018 we are also organising the Sb session (Antimony: from mineralogy to remediation) at the August XXII Meeting of the International Mineralogical Association in Melbourne. We have been successful in obtaining a new AFS to improve our speciation work on Sb and As, and with the Universities Australia Australia-Germany Joint Research Co-operation Scheme to collaborate with the Helmholtz Institute, Leipzig, and have been also working with the derelict mines division of NSW Planning and Environment and other stakeholders on a range of historic mine contamination issues.

So... next year is shaping up to be just as busy and exciting as 2017!



Maxi monitoring fish.



Carolyn preparing to monitor bees.



Sue and Matt at ICOBTE 2017.

Lisa Golding (lisa.golding@csiro.au), New South Wales Regional Representative

Regional Reports

Victoria



School of Biological Sciences, Monash University, Minna Saaristo
(minna.saaristo@monash.edu)

The Behavioural Ecology Research Group (headed by A/Prof Bob Wong) at Monash University has had a productive past few months.

Research output: PhD student Patrick Tomkins submitted his thesis, 'Sex and steroids: the impact of an agricultural contaminant on the mechanisms of sexual selection in the guppy', and has recently had a paper published in *Chemosphere* (Tomkins, P., Saaristo, M., Bertram, M.G., Tomkins, R.B., Allinson, M., Wong, B.B.M. 2017. The agricultural contaminant 17 β -trenbolone disrupts male-male competition in the guppy (*Poecilia reticulata*), *Chemosphere* 187: 286--293). Well done, Pat!

PhD student Jake Martin was selected to participate in Fresh Science Victoria 2017. He is one of ten students selected into the programme, with participants required to describe their discoveries at the Royal Society of Victoria on 29th of November, as well as at the Belgian Beer Cafe at Southbank — in the time it takes a party sparkler to burn out.

Awards: Research Associate Minna Saaristo has been awarded a Monash University Faculty of Science Advancing Women's Success Grant. The grant will enable her to attend SETAC's 28th Annual Europe meeting in Rome, as well as spending three weeks in the historic walled city of York (UK). At the University of York, Minna will conduct a pilot experiment with Dr Kathryn Arnold, investigating the impacts of exposure of birds to pharmaceuticals in the environment.

Experiments: In October, PhD student Jake Martin conducted a female mate choice experiment testing the effects of a long-term exposure to fluoxetine (in mesocosm tanks) on mechanisms of sexual selection in the guppy. Over the next few months, using fish from the same mesocosm system, Honours students Stephanie Hannington and James Tanner will be investigating the impacts of fluoxetine on cognition and foraging behaviour under predation risk. The research group is also hosting Dr. Josefin Sundin, a researcher from Sweden, who will be working with Minna on experiments involving impact of fluoxetine on the behaviour and physiology of freshwater snails.

Minna Saaristo (minna.saaristo@monash.edu), Victoria Regional Representative



Regional Reports

Northern Territory



**Environmental Research Institute of the Supervising Scientist (eriss),
Mel Trenfield (Melanie.Trenfield@environment.gov.au)**

Converting our acute 96 h toxicity test method for fry to a chronic one

Ceiwen Pease and our new lab technician Sam Walker are making good progress on developing our chronic fish methodology with a 28 day trial about to start. The next step is to compare the sensitivity of our 7 d methodology to the 28 d chronic method developed by Cheng et al back in 2010. Ultimately we hope to end up with a 7 day exposure that proves as sensitive as the 28 d exposure, so we can justify adopting the shorter test period. Once we have a successful, repeatable method in place we will begin building up a toxicity database for the new method using key contaminants for the Ranger Uranium mine, such as uranium, magnesium and manganese.

Toxicity of ammonia to tropical freshwater species

Tom Mooney is continuing to work towards finalising a site-specific guideline value for ammonia (Total Ammonia Nitrogen) in soft, slightly acidic freshwater. He has an extensive data set but the devil is in the way the dataset is analysed! He plans to have this work submitted for publication by the end of the year.

Toxicity of contaminants to freshwater mussels

PhD student Linda Kleinhenz has completed toxicity assessments with ammonia and is now conducting acute and chronic exposures with uranium and magnesium using both the larvae (glochidia) and the juvenile mussels.

Risk Assessment

Andrew Harford is working on finishing papers concerning a large ecological risk assessment for the Ranger Uranium Mine. These papers include an assessment of ecological processes in the Magela catchment and description of the process used for identifying Key Knowledge Needs for the closure of the mine. He is also in the midst of a project that is assessing the cumulative risks to the successful revegetation of the mine-site.

Toxicity of metal mixtures

The *eriss* Ecotox lab have also been conducting Direct Toxicity Assessments on various process waters from Ranger Mine with the aim of trying to get a better understanding of how the key contaminants influence toxicity when they occur together and under varying environmental conditions. We have an extensive data set produced over the last 15 years for these contaminants tested as individual metals. Through this work we hope to be able to predict toxicity of the metal mixtures in these waters. Mel Trenfield attended a Focussed Topic Meeting on the Risk Assessment of Chemical Mixtures in Denver, Colorado in September to help improve our understanding of how to analyse metal mixture toxicity.



Mel Trenfield moose watching in Colorado and hiking around the Rocky Mountains

Mel Trenfield (Melanie.Trenfield@environment.gov.au), Northern Territory Regional Representative

Regional Reports

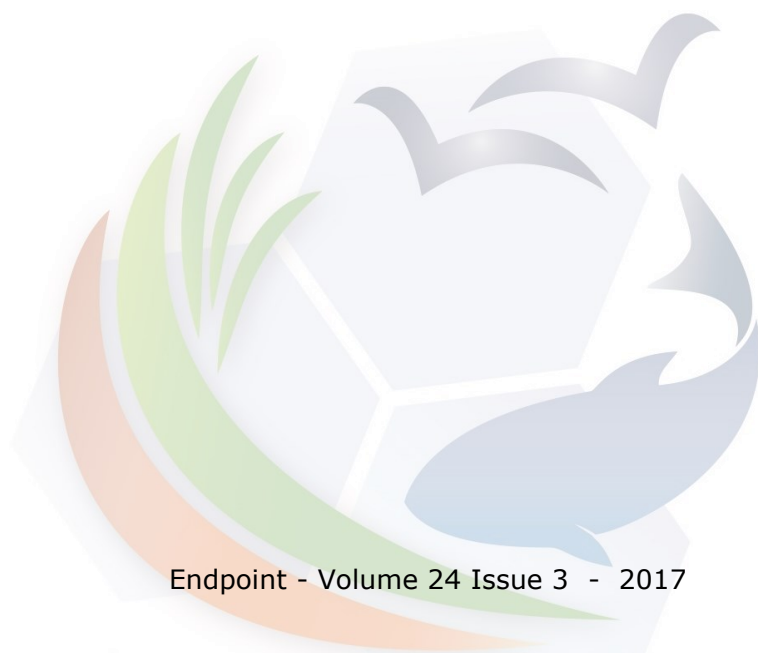
Western Australia



At Curtin University, Chris Rawson has accepted the position of Science Curriculum Lead. This is a leadership position in teaching and learning, a field in which Chris will be working to develop new courses, and improving the student experience across the Sciences. Monique Gagnon continues her research in collaboration with the oil and gas industry – she is currently offering a 3-years PhD stipend so if interested, please contact Monique. Jarrad Baker is busy caring for his juvenile barramundi in the Curtin Aquatic Research Laboratories, and will soon complete a major experiment that will generate knowledge on fish exposed to crude oils.

Intertek ecotoxicology has continued to be busy with a significant increase in work especially in the oil and gas sector. In addition to the regular ecotox assessments, Tristan has been providing expert support to several environmental consultancies on contaminated sediments in the Swan River expanding our consultancy capabilities. Intertek ecotoxicology has also been busy with method development, with a new tropical bioassay likely to become commercially available early next year. If interested, please contact [Tristan](#) for more information

Monique Gagnon (m.gagnon@curtin.edu.au), Western Australia Regional Representative



General Member Profile

Dr Julia Jasonsmith

Like many others, my love of chemistry started at high school with wonderful teachers - in the early days it was Mrs Allot-McPhee, then later Mr Mawson. Both slowed me down when needed and patted me on the back otherwise.

Again, like many others, I went into university with a hope that I could learn to work on something meaningful to me and meaningful for the environment. I thought I would learn to be an ecologist at the University of Otago, but found the environmental destruction and death, which is a focus in the subject in many ways, too much to address full on.

Luckily for me, my ecology degree required me to take a broad range of subjects - chemistry, climate studies, botany, and zoology among others. I found great enjoyment in any subject when chemistry came up and had the opportunity to write my first thesis on metals contamination in a Swedish lake with Anders Broberg during six months studying limnology at the University of Uppsala.

My luck continued when, to my great surprise, I received a response to an email I had sent to Bill Maher at the University of Canberra enquiring as to whether I could do an honours degree with him in ecotoxicology. This I did on selenium biomagnification in Lake Wallace, near Lithgow. I moved next door to the Australian National University to do my PhD where I worked on understanding the origins of salinity in the upper Hunter. My lucky run with supervisors continued and I fell in with Ben Macdonald and Ian White, whom I am still lucky enough to collaborate with today.

I realise now, looking at the four years of research I did for my honours and PhD degrees, how lucky I was to work with the people I have - I didn't have to guess how to do field work, how to calibrate instruments, to interpret results, or how to write things up. My supervisors were there with me in the field, getting wet, muddy, cold, exhausted, and spending time away from their families. While such an education is a critical part of imparting skills to students, I know from the experience of others than my experience was the exception rather than the rule. I am forever grateful to my supervisors and their teams for all they did for me and blame them entirely for any bad habits I may have developed.

Since leaving university seven years ago I have continued to work in the fields of contaminated lands and environmental chemistry within Murrang Earth Sciences, a company I started in 2013 to provide advanced research, expertise, and technical advisory services. I started a second company in 2017 called Yarringan. Yarringan takes technology and innovation developed in universities, research institutions, and companies across the world and brings it to the Australian market.

I am genuinely thrilled to be a member of SETAC, to geek out on all the amazing science that its members do, and to relish in how supportive SETAC members are of each other. As the ACT's new SETAC rep, I hope to bring ACT's SETAC members together to share the wonderful work we do, consider the work of others across Australia and the world, and to figure out solutions to address the environmental problems of tomorrow.



Please contact Peta Neale (p.neale@griffith.edu.au) if you would like to be featured in an upcoming edition

Student Profile

Supriya Lath

Name: Supriya Lath
Degree: PhD student
Institution: The University of Adelaide
Supervisors: Prof. Mike McLaughlin
Dr. Divina Navarro
Dr. Anu Kumar
Prof. Dusan Losic
Est. Compl. July 2017
Thesis Title: *The use of graphene-based materials for mixed remediation of contaminants*
Email: supriya.lath@adelaide.edu.au
supriya.lath@gmail.com



About me

I am a PhD student, currently in my final year, at the University of Adelaide, School of Agriculture, Food and Wine. I have been a SETAC member for over 3 years now.

I grew up in India, and spent most of my formative years in the city of Mumbai. Often surrounded by a concrete jungle, I took every opportunity I could to escape, to experience nature and the environment. In school, I developed an interest in chemistry thanks to a fantastic after-school chemistry tutor, who for some reason had immense confidence in me. I took up undergraduate studies majoring in chemistry, supplemented by topics in microbiology and zoology. I later became interested in wildlife ecology. My parents encouraged me to look overseas, and Australia was a natural choice for all things 'wild', so I ended up in good old Adelaide, studying Biodiversity at Flinders University. It provided me with a quintessential 'Aussie experience', having the opportunity to work on several exciting projects with birds, lizards, snails, and other critters in fantastic remote locations around South Australia, though long-term work was hard to come by.

My foot-in-the-door moment was when I scored a stint as a casual laboratory technician with Dr. Anu Kumar, who heads up the ecotoxicology group at CSIRO Land and Water (Waite Research Precinct). This was a fantastic opportunity that allowed me to bring together knowledge from both my educational backgrounds of chemistry and ecology. Due to the collaborative nature of research occurring on the campus, I was able to work with teams on projects related to winery wastewater management, ecotoxicological testing in water and soil, as well as soil chemistry. I gained experience in soil and water-quality measurements, soil/water/plant sampling, plant growth and germination experiments, toxicity tests using earthworms, maintaining snail cultures, assistance with field work, maintenance of lab records and data analysis.

After a couple of years of assisting with different projects at the Waite Research Precinct, I decided I was ready to delve a bit deeper and take up my own project. Through Anu, I was introduced to Prof. Mike McLaughlin, whose research interests are chiefly in soil and environmental chemistry, with a focus on contaminants and nutrients. Mike is my primary PhD supervisor at the



Conducting biodiversity surveys and DNA sampling in the Eyre Peninsula and the Riverland regions, SA.

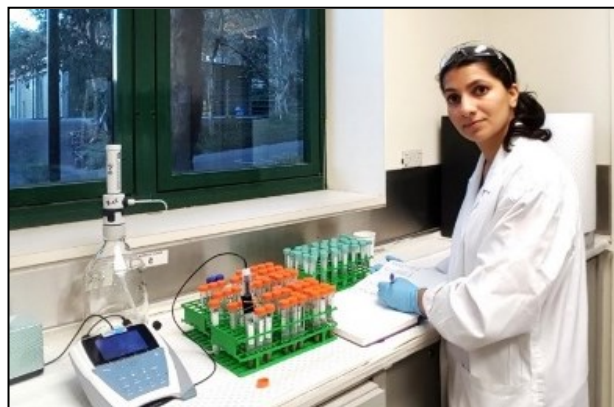
Student Profile

Supriya Lath

University of Adelaide. I am co-supervised by Dr. Divina Navarro, who has a wealth of experience in environmental chemistry and nanotechnology, Dr. Anu Kumar, and Prof. Dusan Losic, who specialises in graphene research for a broad range of applications.

PhD Research

Owing to rapid urbanisation and industrialisation, a wide range of chemicals have contaminated the environment, posing a risk to both human and ecological health. While some contaminants can be broken down, others resist breakdown and persist in the environment while accumulating in the food chain. The primary focus of my research is to look into remediation of such contaminants through adsorptive immobilisation, reducing their mobility and bioavailability in the environment. Conventionally, carbon-based materials have been used for sorption, however their sorptive capabilities are limited by the low density of surface-active sites as well as slow kinetics. Graphene, which is the building block of graphite, is the latest addition to the nanocarbon family; its large surface area and versatile surface chemistry makes it amenable to various chemical modifications, making graphene-based materials great candidates for use as adsorbents, with the ability to attract a variety of contaminants. My project examines the use of different graphene-based materials for remediation. It is funded by the Australian Postgraduate Award (APA) Scholarship, as well as the Ziltek Soil Science top-up scholarship. Ziltek Pty Ltd. is a leading provider of waste remediation products and services in Adelaide.



Recording pH of remediated and contaminated samples.



Working with ^{14}C -radiolabelled-PFOA samples.

I began my project learning about graphene, its synthesis and functionalisation, as well as different techniques used for materials characterisation, including scanning and transmission electron microscopy, EDAX, FTIR as well as XRD spectroscopy. Graphene adsorbents were prepared to enhance adsorption of different contaminant classes – cations, anions, and organic contaminants. Once the adsorbents were optimised, I proceeded to evaluate the efficiency of the materials for contaminant-remediation using batch sorption tests. The model contaminants chosen for the work were two heavy metals, cadmium (cation) and arsenate (anion), and two emerging organic contaminants, PFOA and PFOS. Testing sorption of these contaminants in different environmental conditions, as well as in the presence of competing species has provided some insights into the possibility of using graphene for simultaneous remediation of cationic, anionic and hydrophobic contaminants. Performance of these materials were also benchmarked against a commercial mixed-mode adsorbent used for remediation.

The graphene materials have performed well so far. For example, Cd and As co-occurrence at a contaminated site usually requires opposing treatment strategies owing to their differing physico-chemical properties. A mixture of our two graphene materials, however, was successful in simultaneous sorption of Cd and As from co-contaminated solutions using different mechanisms. The adsorbents also successfully adsorbed PFOA, PFOS and other PFAS chemicals from a contaminated groundwater sample, with evidence indicating the role of non-electrostatic binding mechanisms. Indeed, these graphene materials were extremely versatile, enabling adsorption of different contaminant classes, through different mechanisms. Currently, I am in the late stages of my PhD, testing the performance of these materials in soil, where I'm using restoration of nitrification as a biological measure of remediation effectiveness.

Student Profile

Supriya Lath

I have really enjoyed working in this area. It has been especially exciting to work in the PFAS realm and keep track of developments and priority research areas in the field as they occur. Given the very topical nature of these contaminants, it puts into perspective the relevance of the work we conduct as scientists. During my time as a student, I've enjoyed other experiences such as being a Practical Demonstrator for undergraduate soil and ecotoxicology topics, and serving as the Secretary for the South Australian branch of 'Soil Science Australia' society. I have had the opportunity to present my work at SETAC Hobart 2016, SETAC Gold Coast 2017, as well as the CleanUp Conference 2017. Through these experiences, I have enjoyed sharing my work and learning of new and exciting research conducted in the broader areas of environment, contamination and toxicology.

Where to from here

My immediate short-term plan is to complete my PhD as best as I can, and learn as much as possible while I am here. After I finish my PhD, I am open to pursuing a post-doc, but I am also very keen to experience other opportunities outside of academia, in government, industry or consulting.

In April 2018, I will be attending the Battelle Conference (Eleventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds) in Palm Springs, California, which is expected to be attended by a wide range of environmental professionals, including academics, consultants, regulators, engineers, industry and government. I was fortunate to win the Battelle Conference Travel Award by competing in their Student Paper Competition, and look forward to sharing my research on such a platform. The opportunity will allow me to challenge myself and expand my networks beyond my comfort zones of academic circles. I hope to make myself recognisable to future employers and experts in the field, and meet people who will potentially influence my work and inspire new research ideas.

Please contact Divya Vinod (divya.g.vinod@gmail.com) if you would like to be featured in an upcoming edition



Divya Vinod (divya.g.vinod@gmail.com)

SETAC AU 2017

The students of SETAC AU have been busy this year with a large contingent presenting their work at the conference held on the Gold Coast in September. The conference provided valuable insights into the various fields of science from a range of keynote speakers, Dr Stephen Lofts, Dr Charlotte Nys, Prof John Sumpter, A/Prof Susan Bengtson Nash and Prof Scott Smith. Events such as the buddy system and the student function provided excellent networking opportunities (and fun!) for students and their mentors.

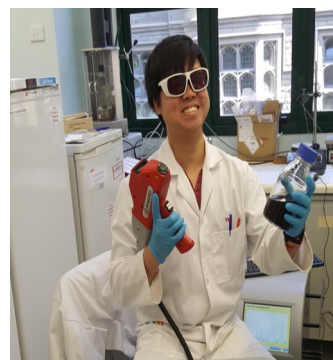
Congratulations to all the students on their presentations and posters with particular mention to the winners below. Thank you to Hydrobiology for sponsoring all the prizes.

Best Student Oral Presentation in
Environmental Chemistry:
Farzana Kastury



"Conservative inhalation metal(loid) bio accessibility (CIMB) method using PM10 and simulated lung fluid (SLF)"

Best Student Oral Presentation in
Environmental Chemistry - Runner Up:
Timothy Ong



"Development of Raman spectroscopy based methods for the detection of environmental pollutants"

Best Student Oral Presentation in
Ecotoxicology:
Darren Koppel



"On the use of DGT to predict metal mixture toxicity to two Antarctic marine microalgae "

Best Student Oral Presentation in
Ecotoxicology – Runner Up:
Abigail Proctor



"Including individual species' variation in SSD derivation"

Student Corner

Best Student Poster Presentation:
Brett Knowles



"Isotopically-enriched silver and gold core-shell nanoparticles for the investigation of nano-specific effects in the aquatic environment"

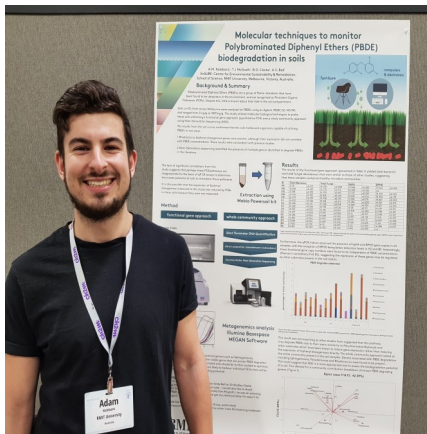
Best Student Poster Presentation –
Runner Up: Shannon Cavanough



"Metabolomics as a method for detecting physiological changes in developing striped marsh frog tadpoles exposed to treated wastewater effluent"

SETAC North America, Minneapolis 2017

Francesca, Adam and I have just returned from science in the snow at SETAC North America! It was another opportunity for networking with people from around the world specialising in diverse areas of research through various events such as the Early Career Social, Buddy Breakfasts, Noontime Seminars and a student night function. Furthermore the value of interest groups were made clear with the opportunities to talk to people who are well experienced in our respective fields. A special mention goes to Francesca for winning the Proctor and Gamble Fellowship for Doctoral Research in Environmental Science and 2nd place for the Best Platform Presentation at this conference.



Early next year in March the 7th Annual Young Environmental Scientists (YES) Meeting will be held in the US. This is a meeting for students by students! There will be more information coming out about this in the within the next few weeks.

If you have any feedback/questions/suggestions please feel contact me at divya.g.vinod@gmail.com.

SETAC AU Postgraduate Research Publication Award – Research Findings Shima Ziajahromi

As a part of my PhD project I published “Wastewater treatment plants as a pathway of microplastics: development of a new approach to sample wastewater-based microplastics” in Water Research. This publication reports new validated methods to sample and process microplastics from wastewater effluent with minimum bias, with the developed methods applied to quantify and identify microplastics in wastewater effluent.

Microplastics are widespread emerging contaminants that have been detected in the aquatic environment worldwide. Recently, wastewater treatment plants have been identified as a potential source of microplastics, such as fibres and beads, to the aquatic environment. Wastewater-based microplastics are mainly derived from washing synthetic clothes and consumption of personal care products containing microplastics. While previous studies have detected microplastics in wastewater effluent, there is a lack of standardized methods to sample and process microplastics, especially in complex samples such as wastewater, which may lead to an inaccurate estimation of the number of microplastics. In response to this significant knowledge gap I developed a novel validated sampling device for in situ sampling of microplastics in wastewater effluent, which was combined with an efficient laboratory sample processing method to minimize the false detection of microplastics. The sampling device was applied to three wastewater treatment plants in the Sydney region utilizing primary, secondary and tertiary treatment processes. We also provided a snapshot of the removal of microplastics during different treatment processes.



The results demonstrated that concentrations of microplastics in the final effluent were between 0.28 to 1.5 microplastics per litre, and the majority of detected microplastics were polyester fibres and polyethylene beads. While this amount of microplastics seems very low, the treatment capacity of wastewater treatment plants (between 13 to 308 ML per day) means that large concentrations of microplastics are expected to enter the aquatic environment on a daily basis. This indicates that wastewater treatment plants can play a significant role in the release of microplastics to the receiving environment. We also found that up to 90% of the suspected microplastics were non-plastic particles, which emphasizes the importance of accurate characterization procedures to detect microplastics.

Ziajahromi, S., Neale, P. A., Rintoul, L., & Leusch, F. D. (2017). Wastewater treatment plants as a pathway for microplastics: Development of a new approach to sample wastewater-based microplastics. Water Research, 112, 93-99 <https://doi.org/10.1016/j.watres.2017.01.042>

Conferences and Workshops

SETAC AU Gold Coast 2017

The Australasian chapter of SETAC recently held its biannual conference from the 4th – 6th September on the picturesque Gold Coast in Queensland, Australia. The event brought together almost 200 Academic, Government, Industry and student delegates from Australia, New Zealand, and worldwide. The Tony Roach Memorial plenary address was given by Professor John Sumpter from Brunel University in the United Kingdom, who delivered an engaging presentation on the current state of ecotoxicology research. A series of excellent keynote presentations were given by Associate Professor Susan Bengtson Nash of Griffith University, Australia; Professor Scott Smith of Wilfrid Laurier University, Canada; Dr Charlotte Nys of Ghent University, Belgium; and Dr Stephen Loftis of the NERC Centre for Ecology and Hydrology, United Kingdom. Coupled with the outstanding scientific program was an exciting social program, culminating in the Conference Dinner that was held on the observation deck of the Q1 building – the tallest building in the Southern Hemisphere.

The 2017 SETAC AU Awards were presented at the conference dinner:

SETAC AU Mid-Career Medal: Associate Professor Kimberley Hageman

SETAC AU Early-Career Medal: Dr William Bennett

SETAC AU National Travel Fellowship: Dr Katelyn Edge

SETAC AU Technical Staff Award: David Spadaro

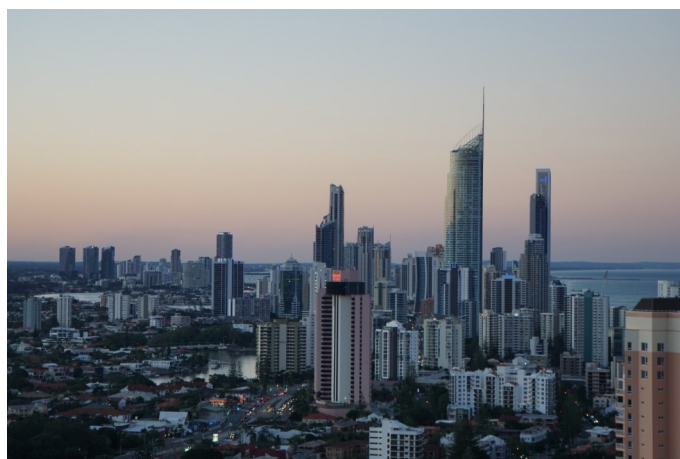
SETAC AU Postgrad Research Publication Award: Shima Ziajahromi

SETAC AU Thesis Prize: Sarah Stone

Congratulations to all winners!



Conference Chairs Di Jolley and Will Bennett with Anthony Chariton.



The Q1 building where the conference dinner was held.



Best Student Oral Presentation in Ecotoxicology recipient Darren Koppel.



Best Student Oral Presentation in Environmental Chemistry recipient Farzana Kastury.

Science Meets Business 2017

Delegate Report

Trang Huynh

Science Meets Business (Smb2017) was held on Thursday 9 November 2017 at Dr Chau Chak building, the stellar building by Frank Gehry that epitomises 'thinking outside the box' for UTS business students. Smb2017 is a Science and Technology Australia annual event where business sectors including national and international corporates, entrepreneurs, and venture capitalists together with Australian pioneers in research and commercialisation and scientists discuss how to translate and apply their knowledge and experiences. Attendees used Twitter and Facebook to present news and views from Smb with the hashtag #Smb2017.

As a researcher who has had significant hands-on experience with research and development at The University of Queensland, I recently moved to a R&D based environmental consultant company, Hydrobiology Pty Ltd. As the focus of Hydrobiology is technical excellence and high level scientific expertise delivered within a commercial framework, this provides an excellent environment for me to be able to continue my research projects and provide technical support to commercial laboratories for product launch of research outcomes. Smb2017 was an outstanding opportunity for me to learn the approaches to engage and collaborate with business sectors and government authorities.



*SETAC AU Representative
Dr Trang Huynh at #Smb2017*

The event was kicked off with a speech on "Crafting a foundation for Australian innovation" by Catherine Livingstone AO, Chancellor of UTS. Ms Livingstone has a vast wealth of knowledge and experience as a business leader at the highest level in Australia and internationally. She expressed her vision of Australia on the global stage and encouraged research scientists and business to remain positive and strengthen collaborations to bring research outcomes into markets. Her speech was followed by The Hon. Craig Laundy, Assistant Minister for Industry, Innovation, and Science. He challenged the Science, Technology, Engineering and Mathematics (STEM) sectors to demonstrate the collaboration with the business section in helping business growth. Senator Kim Carr, the Shadow Minister for Industry, Innovation, Science and Research, also highlighted the value of Science and Technology and in creating jobs for not only cities but also rural areas. He also expressed the importance of collaboration between industry and research and that unlocking the commercial value of Australian research will result in world-first, new-to-market innovations and new internationally competitive businesses.

The CNBP Soapbox session was held at morning tea where three selected Soapbox leaders had a robust discussion with Smb2017 delegates. Robert McLaughlin presented the new product of his team research Miniprobles and the world's smallest corrosion scanner. Rachel Geddes (Australian Mathematical Sciences Institute) shared the news about the improvements to the internship program for PhD candidates where PhD candidates can bring their valued skills to the real world. It could be a great opportunity for SETAC AU PhD candidates to apply for the AMSI-Intern program. Details of the program can be found at <http://amsiintern.org.au/>. Further, Michael Kasumovic shared his free Arludo apps that empower STEM teachers on the Digitised Learning and Gamification in Education.

Other speakers included Professor Mark Hutchinson (Director of the Centre for Nanoscale BioPhotic) and other scientific leaders. Dr Catherine Ball (co-founder of SheFlies) who shared her experience about research development and the application of drones and earth observation. Dr Catherine Ball's discussion about the journey of SheFlies is live on Science & Technology Australia's Facebook page.

Supervising Examiner of Patents from IP Australia, Ken Restrict, expressed the importance of an IP strategy for exploring innovation, commercialisation and entrepreneurship. The Founder of

Science Meets Business 2017

Delegate Report

StormSeal (Matt Lennox) and Managing Director of gemaker (Natalie Chapman) shared their stories of the problem, solution, start up, growth and doing it right. It was an excellence example of how scientists, business and investors should work together in the early stages of development. StormSeal products were developed from the realisation that an essential need existed in the Insurance and Construction industries for a company to provide products and services to quell escalating costs after storm and catastrophe damage.

Austrade CEO, Dr Stephanie Fahey, closed the program with a speech on where to for Australia on the World Stage. She highlighted that the lack of collaboration within research sectors and business sectors has limited the opportunities for scientists and business to commercialise research outcomes to Australian and international markets.

Finally, I would like to thank SETAC AU for the opportunity to attend the meeting. The skills and experiences learnt from the meeting will advance me to achieve better connections and opportunities to transfer the knowledge and outcomes from my research projects to end users.



Science Meets Policymakers 2017

Delegates' Report

Kathryn Hassell and Anthony Chariton

Anthony and Kath attended Science meets Policymakers at the Australian National University in Canberra on Tuesday 8th August, 2017. This is an annual event hosted by Science and Technology Australia (STA) that brings together scientists from a range of science and technology disciplines with government policymakers, in a workshop setting to discuss how scientific evidence and innovation can contribute to policy development.

It was a fantastic event with some well-known and highly influential policymakers present, including Dr Charlie Day from the Office of Innovation and Science Australia, and Matt Cahill from the Department of Environment and Energy. The workshops focused on the 2030 Strategic Plan for the Australian Innovation, Science and Research System as well as environmental information (data and analysis) and how it can be utilised by decision makers and policymakers. Within these broad themes, some of the topics that were discussed included aspects of the policy process and the values of taking a coordinated and collaborative approach, the value and necessity for networks and connections with different levels of government and the role of the peak bodies that influence policy. There was also discussion of the Federal Innovation Plan (National Innovation and Science Agenda Report) and some examples of successful collaboration between scientists and Australian business. A key point that several speakers kept coming back to was the need for scientists to improve the way they communicate, by presenting identifiable outcomes that engage with policymakers and politicians. Is your research interdisciplinary and relevant to any sectors other than your own? Business innovation is driven by science, therefore there is immense value in having scientists involved in making it happen.

The German approach to research funding (federal and state government) was presented as a good example of effective, policy-driven science and there was some discussion of the different strategies and initiatives that have been established by the German government to achieve this. The Research in Germany website contains lots of useful information about the German research landscape, R&D policy framework and other aspects of research and funding. The contrast of the Australian university system was then presented, in regards to the competitive and often isolated approach that is sometimes taken due to limited funding and resources. The discussion really emphasised the need for Australian scientists to be more supportive and inclusive, and to submit collaborative and coordinated responses if wanting to influence policy. Some of the approaches that were identified to enable this to occur included encouraging more PhD internships (in industry), engagement with Austrade, to facilitate connecting overseas business/industry with Australian universities and the development of more innovation incentives, such as the CSIRO ON Accelerator Programmes.

To take all the learnings from the day and summarise it simply, think about your science from a policymaker's point of view. This scientist wants X amount of money to conduct research on environmental issue Y. Why should my electorate care? Will investigating this issue lead to job creation, environmental, economic or other benefits?

Overall Science meets Policymakers was an excellent event and we encourage SETAC AU members to consider attending this (and other STA events) in the future.

For more information about Science meets Policymakers and the Australian government Science agenda, the websites below may be of interest:

<https://scienceandtechnologyaustralia.org.au/tangible-outcomes-follow-science-meets-policymakers/>

<https://scienceandtechnologyaustralia.org.au/role-of-evidence-in-policy-making-redefined-in-canberra-today/>

<http://www.science.gov.au/international/Pages/default.aspx>

What's Happening?

Conferences and Workshops

If you are aware of conferences or workshops that would be of interest to other members of SETAC AU please send the details to the Communication Officer p.neale@griffith.edu.au

WLOW2018

WHAT'S IN OUR WATER?

EMERGING CONTAMINANTS IN THE ENVIRONMENT

CSIRO Discovery Centre | Black Mountain | Canberra

30 October - 1 November 2018



Abstracts open

16th February 2018

Keynote speakers include:



Prof David Sedlak, University of California, Berkeley



Dr Gerald (Gary) Ankley, USEPA

Themes

- Emerging Contaminants and Ecosystems Response
- Per and Polyfluoroalkyl Substances (PFAS) and Replacement Chemicals
- Contaminants and Antimicrobial Resistance Development
- Nanomaterials, Microplastics and other Emerging/ Re-emerging Contaminants on the Horizon
- Sources and Exposure Pathways
- Fate and Effects in Aquatic and Terrestrial Ecosystems
- Treatment Processes and Technologies
- Waste, Wastewater Recycling and Reuse
- Sampling, Analytical and Characterisation Methods and Approaches
- Risk Assessment, Risk Management, Regulations and Policy

More information on: www.wlow.com.au

What's Happening?

Conferences and Workshops

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SETAC AP 2018

Daegu, South Korea, 16-19 September 2018

<http://setac-ap2018.org/>

It is our great pleasure to announce the call for session proposals for the 11th SETAC Asia-Pacific Meeting, which will be held during 16-19 September 2018 in Daegu, South Korea, under the main theme "Data, Science, and Management Promoting Environmental Welfare".

The conference is dedicated to provide a highly scientific and practical platform to communicate and interact among scientists, engineers, and decision makers, by programs in the areas of (eco)toxicology, environmental chemistry, environmental and human exposure, risk assessment and management, environmental engineering, policy and economics, and life cycle assessment, and other relevant fields. We look forward to receiving your exciting and timely session proposals, which will contribute to building an undoubtedly inspiring scientific program in Daegu. To submit a session proposal (template can be found [here](#)) please provide a session title, a brief description of the session in < 200 words, and up to four keywords and send to the SETAC-AP 2018 secretariat by e-mail: info.setacap2018@gmail.com.

Session proposals due: **31st January 2018**

The SETAC Asia-Pacific board will also be supporting two upcoming meetings:

Malaysian Congress of Toxicology

Bangi, Malaysia, 5-6th December 2017

<https://mycot2017.wordpress.com/>

International Symposium on environmental and health risk assessment in support of environmental management

Quy Nhon, Vietnam, 19-21th December 2017

http://rencontresduvietnam.org/conferences/2017/health_symposium2017/

The "International Symposium on environmental and health risk assessment in support of environmental management" in Vietnam is sponsored by the International Center for interdisciplinary Science and Education (ICISE) in Vietnam with support by the Ministry of Health and Trade and Industry.

Awards and Prizes

Science Meets Parliament (SmP) Ambassador Award

As a member society of STA, SETAC AU is able to nominate (up to) two delegates to attend [Science meets Parliament](#). Typically one delegate will be a senior member and one will be early career, within 5 years of graduating the last degree (current PhD students are eligible). The nominated delegates will be awarded with complementary event registration (including the gala dinner), return economy airfares from the nearest capital city and accommodation.

What is SmP?

Science meets Parliament (SmP) is the major event hosted by Science & Technology Australia (STA). This event was first hosted in 1999 and takes place in Canberra in mid-February during non-election years. SmP brings together about 200 of Australia's top scientists and puts them face to face with the decision makers in Canberra. Participants include parliamentarians, staffers, lobbyists and journalists plus scientists from all disciplines.

This setting provides scientists with the opportunity to interact with politicians, policy makers and the media and gives you an opportunity to look at your science from a different perspective. A range of topics are available including science in the media, the influence of science on policy making, the impact of science on Australia's economy and environment and its understanding in the broader community.

Who should apply?

One of the main goals of the event is for the scientists to keep our parliamentarians informed on what we view as the big issues in our field. We encourage nominations from dynamic and motivated members who would like to fly the banner (no, not literally!) on behalf of our society and our disciplines, ecotoxicology and environmental chemistry. Nominees may be from government, industry or academia, and with all levels of experience are welcome to apply. Previously successful applicants will not be considered.

How should you apply?

Nominees should have been a SETAC member for a minimum of 2 years. Please submit a 1 page CV and a cover letter briefly stating:

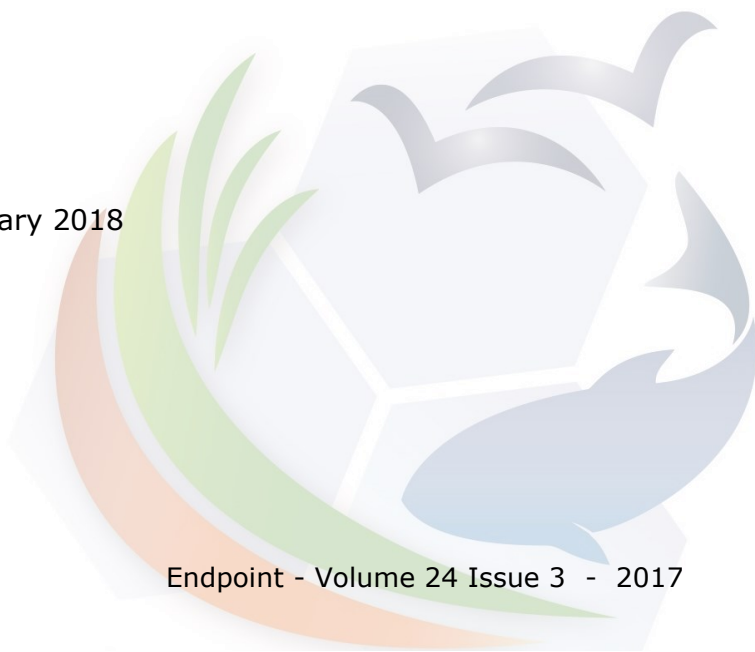
- How attending the event will benefit you
- Why you want to attend SmP as a SETAC AU representative
- Any previous contributions that you may have made to SETAC AU

All applications must be electronic, and sent to australasia@setac.org. Council will establish a selection panel after all entries are submitted and conflicts of interest will be managed appropriately.

Key dates

Applications due: 15th December 2017

Science meets Parliament event: 13-14th February 2018



Social Media

For those of you that are savvy with social media, SETAC AU has both a Facebook page and Twitter handle. We encourage all members to use these media tools for communication and research dissemination through your networks.



**Facebook Page - Society of Environmental Toxicology and Chemistry
Australasia - SETAC AU**

[Search for @SETACAU](#)

[# People who like this page: 160](#)



Twitter Handle - @SETAC_AU

[# Following: 841](#)

[# Followers: 526](#)

[Profile visits \(Aug – Nov\): 1253](#)

[Mentions \(Aug – Nov\): 111](#)

SETAC AU Mentor Programme



Why a SETAC AU Mentor Programme?

The Society of Environmental Toxicology and Chemistry (SETAC) Australasia Mentor Programme aims to foster a collegiate society by improving the technical and career development of members by establishing mentor relationships

Who is eligible to join the programme?

Any financial member of SETAC AU may take part in the Mentor Programme. All members from early-, mid-, late- or even post-career tracks are welcome to register for the programme

What are the benefits for the mentee?

- Assist in the transition from study to work
- Obtain guidance with regards to career direction
- Learn from your mentor's professional and personal experience and knowledge
- Grow your professional network

What are the benefits for the mentor?

- Exposure to students as potential employees
- Give back to your professional community by sharing your insights and experience
- Stay on top of emerging science through engaging in research-based discussions with your mentee

How do I find out more?

For a Mentor Programme outline or a registration form, please contact
Tom.Cresswell@ansto.gov.au

Click [here](#) for more information

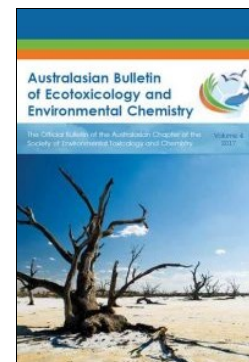
Australasian Bulletin of Ecotoxicology and

Volume 4 of ABEEC has recently been published and is available [here](#).

Comparison of the proposed ecosystem protection guideline values for diuron in fresh and marine ecosystems with existing trigger and protective concentration values

ABEEC Volume 4, 2017, Pages 1-12

Olivia King and Michael St.J. Warne



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@dsiti.qld.gov.au)
Editor – *ABEEC*

Selected abstracts from the December 2017 issue of Environmental Toxicology and Chemistry

Flynn K, et al. 2017 Summary of the development the US Environmental Protection Agency's Medaka Extended One Generation Reproduction Test (MEOGRT) using data from 9 multigenerational medaka tests, 36(12): 3387–3403 DOI: 10.1002/etc.3923

Abstract: In response to various legislative mandates, the US Environmental Protection Agency (USEPA) formed its Endocrine Disruptor Screening Program (EDSP), which in turn, formed the basis of a tiered testing strategy to determine the potential of pesticides, commercial chemicals, and environmental contaminants to disrupt the endocrine system. The first tier of tests is intended to detect the potential for endocrine disruption mediated through estrogen, androgen, or thyroid pathways, whereas the second tier is intended to further characterize the effects on these pathways and to establish a dose–response relationship for adverse effects. One of these tier 2 tests, the Medaka Extended One Generation Reproduction Test (MEOGRT), was developed by the USEPA for the EDSP and, in collaboration with the Japanese Ministry of the Environment, for the Guidelines for the Testing of Chemicals of the Organisation for Economic Co-operation and Development (OECD). The MEOGRT protocol was iteratively modified based on knowledge gained after the successful completion of 9 tests with variations in test protocols. The present study describes both the final MEOGRT protocol that has been published by the USEPA and the OECD, and the iterations that provided valuable insights into nuances of the protocol. The various tests include exposure to 17 β -estradiol, 4-t-octylphenol, o,p'-dichlorodiphenyltrichloroethane, 4-chloro-3-methylphenol, tamoxifen, 17 β -trenbolone, vinclozolin, and prochloraz

<http://onlinelibrary.wiley.com/doi/10.1002/etc.3923/full> © 2017 SETAC

Héritier L, Duval D, Galinier R, Meistertzheim A-L, Verneau O. 2017. Oxidative stress induced by glyphosate-based herbicide on freshwater turtles, 36(12): 3343–3350 DOI: 10.1002/etc.3916

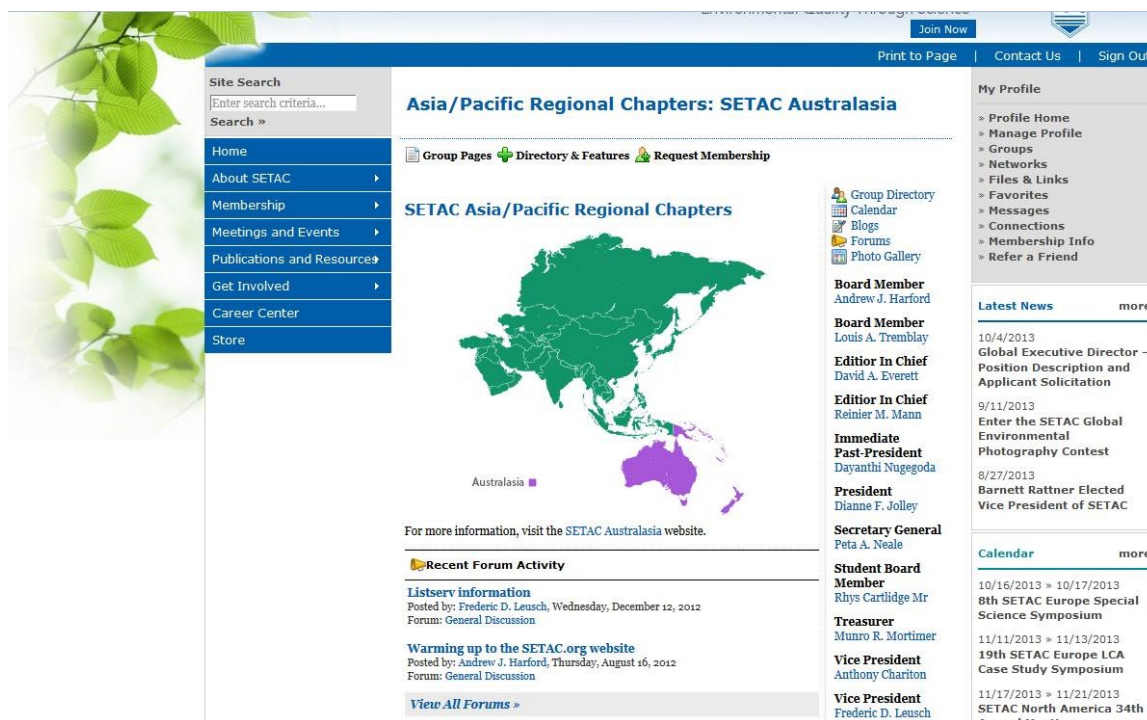
Abstract: Freshwater ecosystems face very strong anthropogenic pressures, among which overexploitation, habitat degradation, flow modification, species invasion, and water pollution lead to growing threats on biodiversity. Urbanization through wastewater treatment, industry through the release of inorganic and organic chemicals, and agriculture through the use of pesticides and herbicides are the main factors involved in water pollution. In France, more precisely in the Pyrénées-Orientales department, the poor quality of the watercourses is attributable overall to the use of glyphosate-based herbicides in agricultural activities. Because these chemicals can impact individuals, populations, and biodiversity, we investigated, under experimental conditions, the physiological response of animals facing abiotic contaminants. We selected as a model, juveniles of the freshwater turtle *Trachemys scripta elegans*. We measured the gene expression and activity of the catalase and superoxide dismutase enzymes as well as the levels of lipid peroxidation, which are all oxidative stress biomarkers, in turtles challenged with high concentrations of glyphosate-based herbicides, on the one hand, and with degraded waters collected from a local watercourse, on the other. We also measured the acetylcholinesterase activity across the same animals. We showed through variations in gene expression and enzyme activity that a glyphosate commercial formulation induced a stress in turtles. A similar outcome was obtained when turtles faced degraded waters. The results indicated that the poor quality of regional waters could be a real threat for animal health. Because turtles are globally less sensitive to contaminants than amphibians, which are lacking in the degraded waters of the Pyrénées-Orientales department, they could constitute an excellent model to follow the evolution of water quality through the study of oxidative stress biomarkers.

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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.



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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'.

Also, a reminder that all membership renewal payments for SETAC members in Australasia should be made to SETAC Asia-Pacific, and not to the SETAC North America office in USA. A guide to renewing your SETAC membership online can be found in [Vol 24 \(2017\), issue 1](#) of Endpoint.

Suzanne Vardy (suzanne.vardy@dsiti.qld.gov.au)
SETAC AU Secretary

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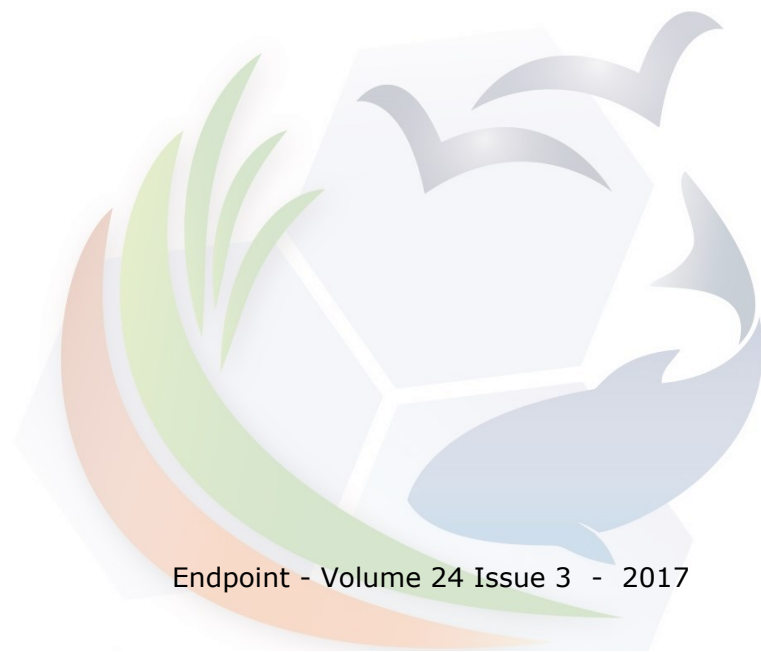
Do you or your organisation have a product, service or upcoming event that might be of interest to SETAC members? For example: technical services, vacant positions, meetings and workshops or student opportunities?

If so, you should consider advertising in Endpoint and on the SETAC AU webpage. The Endpoint newsletter goes out to a readership of >300 SETAC members across academia, industry and government, providing a great way to reach your target audiences.

Details

- Advertising charges for Endpoint AND the webpage are \$100 half page, \$200 per full page.
- A Standing Committee with membership determined by Council will vet (by majority vote) all adverts on the basis of appropriateness of material relative to the aims & objectives of SETAC AU.
- Sustaining Members are entitled to two pages of free advertising per annum.

For further information please contact the SETAC AU Secretary **Suzanne Vardy** (suzanne.vardy@dsiti.qld.gov.au)



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:

1. SETAC Global Partner (see <http://www.setac.org/?page=SETACPartners>)

Annual fee US\$10,000

Benefits:

- Annually –
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OR
A free booth at one SETAC meeting or conference.
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- Can help organise special sessions on global issues at annual meetings.
- Acknowledgement for other assistance such as student grants, etc.



Affiliate and Sustaining Memberships

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- Free advertising (1/8 page annually in one journal, subject to SETAC World Council approval).
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- Can help organise special sessions on regional/global issues at annual meetings.



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To follow up with these membership options please email me at suzanne.vardy@dsiti.qld.gov.au and also pass this information on to anyone or any organisation you think might be interested. Remember we represent ecotoxicology and environmental chemistry.

Suzanne Vardy (suzanne.vardy@dsiti.qld.gov.au)
SETAC AU Secretary

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