NEWSLETTER

Endpoint

SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY AUSTRALASIA

(SETAC AU)

Volume 24 Number 2

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CONTENTS

SETAC AUSTRALASIA

SETAC

Message from the Editor

Welcome to the latest edition of Endpoint! We've got another packed edition for you with Regional Reports from New South Wales, Victoria, South Australia and the Northern Territory. Minna Saaristo and Timothy Remaili are featured this edition in the General Member Profile and Student Profile, respectively. Please get in touch if you would like to be featured in future editions.

2016 SETAC AU Early Career Medal winner Anne Taylor has provided a fascinating overview of her career to date, which included 10 years as an environmental lobbyist before going into research. Science meets Parliament was held earlier in the year and Tarah Hagen and Bryant Gagliardi attended as representatives of SETAC AU and have written a great summary of their visit. SETAC AU regularly supports members to attend Science and Technology Australia (STA) events and you can find prospective application dates on the SETAC AU website, as well as likely application opening and closing dates for SETAC AU awards.

It's now less than a month until the SETAC AU 2017 conference on the Gold Coast and you can find links to the conference program and keynote speakers on the 'What's Happening' page. I look forward to seeing many of you at the conference. The SETAC New Zealand Regional Meeting was held in July and Sally Gaw has provided an overview of the event, which also included a science communication workshop.

Finally, thank you to everyone who has contributed to this edition and happy reading!

Best wishes

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

From El Presidente

As you are all aware, the conference is fast approaching, and by the time you read this you will most likely be finishing your presentations and polishing your dancing shoes in preparation. I would like to thank Will Bennett, Di Jolley and the rest of the committee for doing an exceptional job in organising what is shaping up to be a fantastic event. In addition to the exciting program, we are fortunate to a have number of exceptional keynote speakers, who will cover a wide breadth of interesting topics. Dr Stephen Lofts has also kindly offered his time to run a workshop on WHAM 7, so be sure to secure your place soon.

The social component of the conference is packed solid. I believe this is the first time we have packaged the conference dinner into the registration fee, which will no doubt result in a fantastic evening of dining and dancing, while taking in stunning views of the Gold Coast from the 77th floor of the Q1 building. There are also a number of other key social events, including the Buddy System Breakfast and Student Function. More detail on the conference can be found at http://www.setacgoldcoast2017.com.au/

A number of other events are also coming up, most notably Science and Technology Australia's Science Meets Business (9th November, location TBA). This premier event brings together leaders in the business world and the science, technology, engineering and mathematics sectors. SETAC AU will sponsor two members to attend this event, and we are especially interested in extending this opportunity to current members from the business and commercial sectors. A call for nominations will be announced shortly, and like all our calls, the process for applying will be not be arduous; so there are no excuses.

Our AGM will be held during the Gold Coast conference. Being the second year in the cycle, all council positions will be up for nomination. I encourage you all to put your hat in the ring for a position and truly get involved in SETAC AU! Even if you don't wish to be part of the Council please contribute your ideas on how the society operates by attending the AGM.

Finally, this is my last President's report. It has been a great privilege to serve the Society both as President and on the AP Council. The highlight throughout this experience has been the AU Council; I am forever in their debt, and continually astounded by their dedication, passion and efficiency. Whilst I don't wish to exclude the important contribution of all the Council members, I believe it would be unjust

to not personally thank Munro Mortimer, Peta Neale, Di Jolley, Kath Hassell, Tom Cresswell and Andrew Harford.

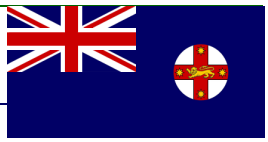
I look forward to seeing you all at the Gold Coast.

Warmest regards

Anthony Chariton, President

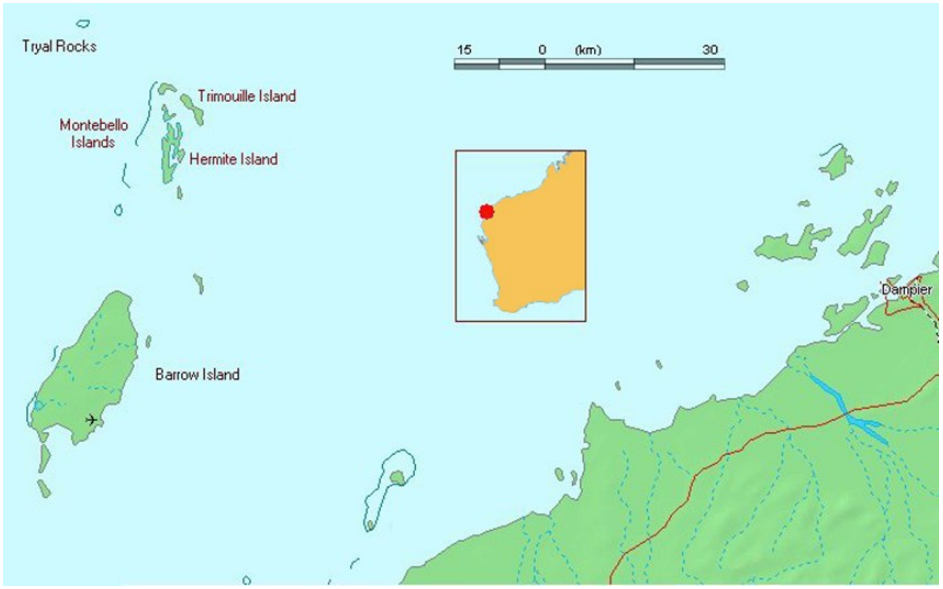
Regional Reports

New South Wales



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

Some exciting work is being undertaken within the group on a range of different projects. University of Queensland Honours student Madison Hoffman is working with Mat Johansen on characterising sediment particles collected from the Montebello Islands in 2015. The islands were the site of three nuclear weapons tests by the British Military in the 1950s, which included detonating a device in a ship moored within a lagoon. Madison will be using a range of tools from phosphor-plate autoradiography, acid digestion and ICP-MS analysis and SEM-EDX to characterise the plutonium and other constituents of particles to gain a better understanding of radioactive particle mobility in the marine environment.



Map of the Montebello Islands and Barrow Island

AINSE Postgraduate Research Award (PGRA) scholar Kaitlyn O'Mara from Griffith University has spent the last two months in ANSTO's Aquatic Tracing labs using radiotracers of Cd, Mn and Zn to understand trophic transfer of the metals from algae and sediment to clams, prawns and fish. The complex study had some issues but has managed to provide some very interesting data on the importance of algae and sediment at the base of the marine food chain in metal accumulation and contrasted with a relatively minor uptake of dissolved metals by prawns and fish.

Divya Vinod from UTS has been able to successfully source seeds of the selenium hyperaccumulator, *Neptunia amplexicaulis* from Northern Queensland. This has allowed her to continue work in the lab at ANSTO, conducting 75Se radiotracer experiments on the hyperaccumulator. Once this is complete she will head back to UTS to commence proteomics work to compare selenium uptake impacts on the proteome of the various species of plants and write her thesis with an aim to submit by the end of the year.

ANSTO are currently advertising a PhD project 'NORM scale in the ocean: Assessing radiological and ecotoxicological effects on aquatic organisms'. The project will investigate the potential impacts of naturally occurring radioactive material (NORM) scale to aquatic ecosystems. The NORM scale builds up in sub-sea oil and gas pipes and can potentially provide a radiological dose to benthic organisms inhabiting the area surrounding the pipes. In cases of pipe corrosion, this NORM scale could also provide a direct chemical and radiological source to organisms. ANSTO is currently offering a PhD top-up scholarship for the project (more details here) and are involved in an application for a CRC on Decommissioning of Offshore Infrastructure, led by the University of Western Australia.

Subsea pipelines can contain significant build-up of naturally occurring radioactive material (NORM) scale

Regional Reports

New South Wales

The collaboration between Chantal Lanctôt and Steven Melvin from Griffith University and Tom Cresswell at ANSTO looking into metal bioaccumulation and biodistribution by Australian native amphibians has resulted in the publication of three excellent papers recently. The collaboration is ongoing using the XFM beamline at the Australian Synchrotron to investigate metal and metalloid biodistribution in developing amphibians and is producing some excellent results (and very cool images!). The papers can be found below:

Lanctôt et al. 2017. Uptake and tissue distributions of cadmium, selenium and zinc in striped marsh frog tadpoles exposed during early post-embryonic development. Ecotoxicol. Environ. Saf. 144. 291 -299.
Lanctôt et al. 2017. Bioaccumulation and biodistribution of selenium in metamorphosing tadpoles. Environ. Sci. Technol. 51. 5764-5773.
Lanctôt et al. 2017. Selenium speciation influences bioaccumulation in *Limnodynastes peronii* tadpoles. Aquat. Toxicol. 187. 1-8.

CSIRO Land and Water, Lucas Heights, Aquatic Contaminants Group - Jenny Stauber (Jenny.Stauber@csiro.au)

Jenny Stauber continues to spend much of her time on government committees advising on water quality and ecotox issues for the GBR, Gladstone Healthy Harbour Partnership, VicEPA, chairing the Management Committee for the recently launched new Queensland Alliance for Environmental Health Science, and tweaking methodologies for the revised National Water Quality Guidelines. Jenny has just been extended for a further three year term on the Commonwealth's Independent Expert Committee on Coal Seam Gas and Large Coal Mining Development (IESC). This committee enjoyed their first field trip to several Queensland coal and gas fields in May (see pictures below).

Francesca Gissi, Megan Gillmore, Lisa Golding, Marc Long, Di Jolley, Mandy Reichelt-Bruschett and Jenny are about to head off to the AIMS SeaSIM facility in Townsville to measure the effects of dissolved and particulate nickel on corals and their microbiome. This is part of a three year CSIRO NiPERA funded project on tropical nickel risk assessment, in collaboration with UOW, Southern Cross University, Ross Smith (Hydrobiology) and Graham Merrington (wca in UK).

Jenny, Merrin Adams, Monique Binet and Simon Apte have been developing an environmental report card framework for use by the mining industry. This research was presented at a Minesite Closure (Life of Mine) and Legacy Workshop in Brisbane in July, as well as at SETAC Australasia on the Gold Coast in September.

Regional Reports

New South Wales

Applied Marine and Estuarine Ecology Lab, University of New South Wales - Dr Katie Dafforn (k.dafforn@unsw.edu.au)

We've had an active start to 2017 at the Applied Marine and Estuarine Ecology lab with our researchers jetting about to communicate science. Our Director, Professor Emma Johnston, has moved from Pro Vice-Chancellor (Research) at UNSW to take on the role of Dean of Science. Emma has also been busy in her appointment as President-elect for Science and Technology Australia and recently launched the Superstars of STEM program. Drs Graeme Clark and Ana Bugnot together with Emma completed on an exhaustive review of "Coasts" for the State of the Environment Report 2017. The chapter was launched online in February and identified land use and climate change as important coastal pressures.

We welcomed Dr Franziska Wemheuer from Germany to our lab in a postdoctoral bioinformatics position. Franzi received her PhD from the University of Gottingen where she completed a thesis on bacterial communities in the endosphere and rhizosphere of different plant species under agricultural management regimes. She brings a wealth of microbial and bioinformatics experience to AMEE where she will be investigating microbial functional responses to pollution.

We also said farewell to our favourite baker, Masters Student Viv Sim who submitted her thesis entitled "Microdebris in Sydney Harbour: distribution, spatial and temporal variation in sediments" in April and has since taken a job in science education and communication with 1Scope. Like all AMEE graduates Viv stays firmly connected to the lab through her love of science and good food!

(Left) Vivian Sim hands in her Masters thesis following the AMEE tradition of a group excursion to the Graduate School. (Right) Dr Franziska Wemheuer is a microbial bioinformatician joining AMEE from Germany.

(Left) Dr Mark Browne joins a prestigious panel at the World Oceans Week at the UN and (Right) with Team Fibre running for the oceans.

Following the marine debris theme, Dr Mark Browne was recently invited to the World Oceans Week at the United Nations in New York where he met with representatives from NGOs, Industry and Government to discuss robust scientific methods for reducing the sources, pathways and impacts of debris to the ecosystem. As part of the proceedings, he took part in the celebrity Run for The Oceans (https://www.youtube.com/watch?v=gHFd0MJM764).

Together with Vicky Cole (NSW Fisheries), Emma Johnston (UNSW), Liz Carter and Peter Lay (University of Sydney), Mark continues to investigate the sources, fate and ecological impacts of microplastics in Sydney Harbour.

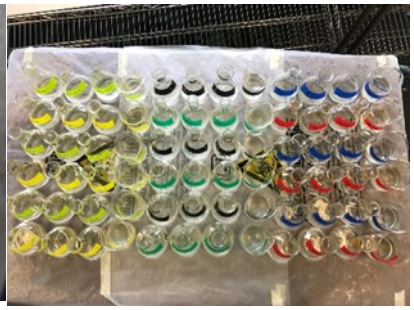
Regional Reports

New South Wales

PhD Candidate Jess Merrett has also been engaged in several events to raise awareness of the types and abundance of items commonly washed up on Sydney beaches. She was recently interviewed by "Footnotes" about her career so far in marine science and gave an invited talk for the Sydney Society of Conservation Biology followed by some handy tips on debris art! Her work received attention from the ABC NT at the recent AMSA Conference in Darwin and she was interviewed about management strategies related to reducing the litter on beaches.

(Left) An artist's impression of Jess' sampling tools made from collected beach litter and (Right) Jess sampling beach litter during the April 2015 storms in Sydney.

Our lab members continue a strong focus on manipulative investigations of contaminant stress. A recent publication from Dr Mariana Mayer-Pinto explores direct and indirect effects of bleach and PhD candidate Sebastian Vadillo Gonzalez was recently awarded a fellowship from the Sydney Institute of Marine Science to investigate sediment bioremediation. Dr Simone Birrer managed to fit graduation ceremonies around a busy ecotox schedule and a trip with Dr Katie Dafforn to the Theo Murphy Australian Frontiers of Science Symposium in Adelaide. The symposium explored the role of microorganisms in ecosystem processes and health and Katie gave a talk about "Sediment, soil and sea: microbes as proxies for ecosystem health". Katie also recently finished sediment microbial sampling in a project led by Professor Torsten Thomas for Bioplatforms Australia. The project aims to determine how microbial communities change over time and space with sites all around the coast of Australia and samples collected from a range of microbiomes.



(Left) Seb explores field sites in Lake Conjola and (Middle) collections of the Sydney cockle Anadara trapezia for experimental manipulations. (Right) Simone brings colour into the world of ecotoxicology!

University of Technology Sydney, Freshwater Applied Ecology Group, Anne Colville (anne.colville@uts.edu.au)

The UTS crew are busy preparing for the Australian Society for Limnology (ASL) conference to be hosted at the Aerial UTS Function Centre from 24 - 28 September 2017. The theme of this year's conference is New Science for a Changing World. We will discuss how development, population growth, intensification of agriculture and climate change are affecting our waterways and wetlands as never before. At the same time, our science is giving us more understanding of these impacts. This conference will showcase the latest aquatic science, to help us identify and mitigate impacts.

Featured speakers at ASL 2017 will include:

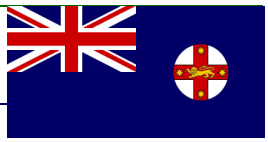
International:

•Prof Michael Pace, University of Virginia

•Prof Bobbi Peckarsky, Cornell University/University of Wisconsin

Regional Reports

New South Wales



National:

•Dr Samantha Capon, Griffith University

•A/Prof Dianne Gleeson, University of Canberra

•Prof Richard Kingsford, University of New South Wales

•David Papps, Commonwealth Environmental Water Office

•Prof Paul Sunnucks, Monash University

James Hitchcock and **Simon Mitrovic** are continuing their work on the water quality and ecology of the Hunter River estuary. The work is part of a broader collaborative project with UNSW and Hunter Water.

Jordan Facey (Research Masters student supervised by Simon Mitrovic and Simon Apte) is starting his first metal-cyanobacterial interaction experiments to see how trace metals change toxin production and are stored within cyanobacterial cells.

Anne Colville is writing up work from our cyanobacterial cell free extract experiments done with previous honours students **Sarah Meoli** and **Carla Thomas** on aquatic plants and will be presenting this at ASL.

Matt Balzer is continuing his research on how flood events effect higher trophic levels in riverine food webs and is currently designing a mesocosm experiment which will measure how allochthonous carbon influx effects larval fish growth.

Our intern from Germany, **Lena Schulz,** is running some experiments looking at allelopathic effects from some native Australian macrophytes on cyanobacteria. Some very interesting results already!

Rebecca Wood supervised by **Simon**, **Ben Kefford** and **Richard Lim** looking at diatoms as indicators of herbicide pollution has submitted her PhD thesis (woo hoo!!). She has also just published a paper in Aquatic Toxicology on the chronic effects of herbicides on diatoms.

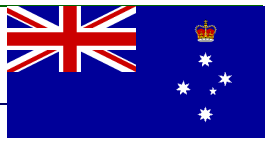
Joe Pera (working with WaterNSW) has just completed some mesocosm experiments examining the potential impact of fish kills on water quality in reservoirs, simulating potential impacts after carp die off with the release of the carp virus. Some very interesting (and potentially concerning) results that he will be publishing soon.

Jake Violi is halfway through his Honours with **Simon**, **Ken Rodgers** and **Anne**, collecting and isolating cyanobacteria from blooms around NSW, and investigating whether they produce the toxin BMAA (beta-methylamino-L-alanine), a non-protein amino acid which has been tentatively linked with neurological disease.

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 been busy over the past few months.

Experiments: In June, PhD student Jake Martin ran a 28-day flow-through exposure and investigated how exposure to two environmentally relevant concentrations of fluoxetine (30 ng/L and 300 ng/L) affects foraging and social behaviours in guppies. In addition to the short-term exposure, Jake has been busy looking after a long-term mesocosm exposure involving fluoxetine, which started in April.

Research outputs: Honours student Jack Fursdon received 1st class Honours on his thesis "Impacts of the antidepressant fluoxetine on reproductive behaviour under predation risk in the guppy, *Poecilia reticulata*'; and PhD student Patrick Tomkins is currently revising his paper 'The agricultural contaminant 17b-trenbolone disrupts male-male competition in the guppy (*Poecilia reticulata*)' for resubmission to Chemosphere.

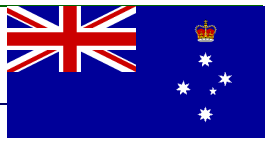
Conferences: Research Associate Minna Saaristo travelled to Brussels and gave a platform presentation on "Pharmaceutical alters mate choice and gene expression of a fish" at the SETAC Europe 27th Annual meeting. The session "Behavioural ecotoxicology: Unravelling behavioural responses to aid environmental and regulatory toxicology", which Minna also co-chaired, was well attended and brought together experts from around the world.

Jake Martin and Michael Bertram presenting their exciting research findings at the 45th meeting of the Australian Society for the Study of Animal Behaviour.

Jake Martin and Michael Bertram attended the 45th meeting of the Australian Society for the Study of Animal Behaviour (ASSAB) at Foothills Conference Centre in Mooroolbark in Yarra Valley (see photos below). Jake gave a fantastic platform presentation on 'The psychiatric pollutant fluoxetine compromises antipredator behaviour in fish', and Michael gave a talk on 'Widespread agricultural pollutant alters exploration, sociability and foraging behaviour in fish'. Jake and Michael really enjoyed the friendly conference and the beautiful Yarra Valley.

Regional Reports

Victoria



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

Various staff at CAPIM were recently involved in an extensive project to survey 99 urban wetlands around Melbourne to determine the most prevalent pollutants and which ones were having the most environmental impact. This research was supported by partners at Melbourne Water, the Victorian Environmental Protection Authority and the Department of Environment, Land, Water and Planning (DELWP). The focus was not on the pollutants in the water itself, but on those that had accumulated in the sediment at the bottom of the wetlands. Chemical screening and ecotox tests using chironomids and amphipods identified a range of pollutants, but the most prominent one was the synthetic pyrethroid, bifenthrin, which was observed to be causing more ecological damage than the rest.

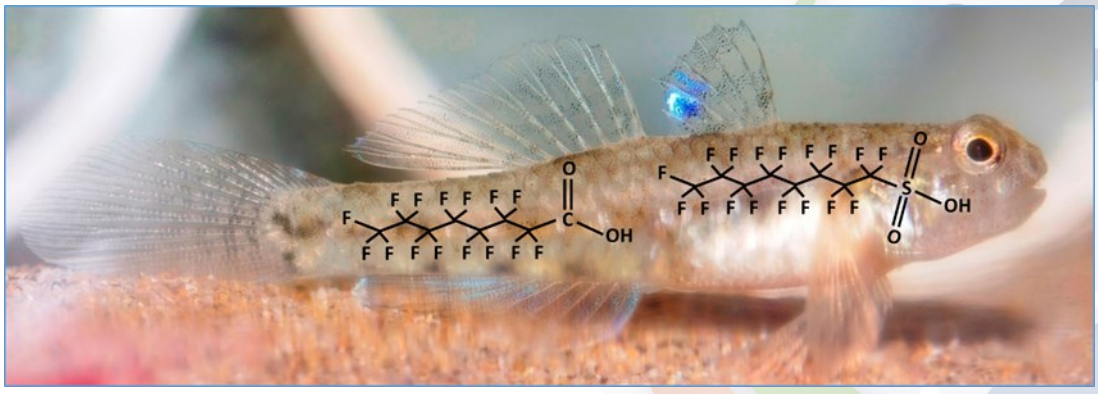
An urban wetland in the Melbourne suburb of North Croydon

In 2012, bifenthrin was found in about 20 per cent of Melbourne's wetlands, but in a more recent survey, that had risen to 75 per cent of wetlands with potentially toxic concentrations. When the toxicity of these sediments was tested using freshwater amphipods, 40 of the 99 wetlands surveyed had sediments that caused mortality in this species. To address this emerging ecological threat, CAPIM, EPA Victoria, DELWP and Melbourne Water will be working with residential urban developers to identify sources of bifenthrin and further assess its environmental impact.

More details about this work can be found in this publication:

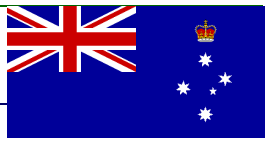
Jeppe KJ, Kellar RC, Marshall S, Colombo V, Sinclair GM, and Pettigrove VJ. (2017). Bifenthrin causes toxicity in urban stormwater wetlands: Field and laboratory assessment using *Austrochiltonia* (Amphipoda). Environmental Science & Technology. 51 (12), pp 7254–7262. DOI: 10.1021/acs.est.7b01472.

Kathryn Hassell has recently completed a PFAS dietary accumulation study using blue spot gobies. Fish were fed a diet of PFAS-contaminated food over a 3-week period, then depurated and periodically removed for chemical analysis. This is a collaborative project with Brad Clarke and Tim Coggan at RMIT University. To find out more, make sure you check out Kath's talk at the SETAC AU Gold Coast conference.



Regional Reports

Victoria



PhD student Tyler Mehler continues his research investigating whole-sediment toxicity identification evaluation (TIE) techniques for freshwater invertebrates and more recently, estuarine fish (goby) embryos. He is interested in developing fish embryo testing (FET) alternatives to toxicity tests using juvenile and adult fish. The work is going well and he will be presenting some of his findings in Minneapolis in November at the SETAC North America conference.

Other fish-based projects that are currently underway at CAPIM include Jon Habito's MSc research into the effects of bifenthrin on the native, freshwater flathead gudgeon, Jackie Myers' work to assess algal toxin uptake and depuration in marine fishes and Sarah McDonald's recently completed Honours project which looked at dietary metal accumulation in flathead gudgeons. Jackie and Sarah will both be presenting their work at the Gold Coast conference, so make sure you check those out!

Finally, a big congratulations to Bryant Gagliardi who recently submitted his PhD thesis, in which he looked at the development of new model species for ecotoxicological research, and to Dr Hung Vu who has just graduated with her PhD, which examined the impacts of fungicides on aquatic organisms using a variety of novel tools.

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

Regional Reports

South Australia

Contaminant Biogeochemistry and Environmental Toxicology Group, CSIRO Land and Water – Peter Bain (peter.bain@csiro.au)

Dr Mike McLaughlin is retiring from CSIRO after what can only be described as a stellar 25+ year stint as a joint appointee with the University of Adelaide. Mike joined CSIRO in 1991 and has since made major contributions to environmental chemistry and toxicology research that have received accolades in the scientific community as well as informing environmental regulatory policy internationally. Mike has supervised a long list of highly successful PhD candidates and post-docs, and has also led translational research in numerous areas including fertiliser technology and environmental monitoring and remediation, which has resulted in the commercialisation of innovative products and instruments. Mike's work has been recognised in the form of many awards, including (but not limited to) SETAC Fellow status in 2016, the Barry Inglis Medal in 2016, the International Fertilizer Industry Association Norman Borlaug Laureate in 2015, Fellow of the Australian Academy of Sciences in 2015, and Member of the Order of Australia in 2014. Mike will be greatly missed by his CSIRO colleagues, but will continue to be active in research through his role as a Professorial Fellow at the University of Adelaide so he can still be seen around the Waite campus and hopefully at future SETAC meetings.

David Blyth, a CSIRO Land and Water sponsored PhD student from the Department of Civil and Environmental Engineering, Imperial College London is visiting CSIRO for three months. David will be working on a joint project on the environmental fate of contaminants associated with hydraulic fracturing, with Dr Mike Williams and Dr Rai Kookana.

Mike Williams will be visiting India for six months from September as part of an Australia–India Strategic Research Fund (AISRF) Early- and Mid-Career Researcher Fellowship administered by the Australian Academy of Science. Mike will be working with Dr Mohana Mudiam at the Indian Institute of Chemical Technology (IICT) in Hyderabad on sources and fate of antibiotics in riverine environments in India.

Peter Bain (peter.bain@csiro.au), **South Australian Regional Representative**

Regional Reports

Northern Territory

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

For the last 6 months, eriss has been in the midst of a restructure and as a result, the Ecotoxicology team has now merged with staff which have more of an ecology background to form a Water and Sediment Quality team. Through this change, Tom Mooney, who was previously focused on Ecotox, will now be involved more with the biomonitoring side of things, leaving Ceiwen Pease, Mel Trenfield and our new staff member Sam Walker to cover the Ecotox projects.

New staff member Sam Walker

Tom is busy finalising his journal papers on ammonia toxicity to our suite of freshwater critters.

Ceiwen has finalised our 7-day chronic fish test protocol with the freshwater species *Mogurnda mogurnda*. This will now be used primarily instead of our 96 h survival protocol. The method will be published either later this year or early next.

We recently had Dr Aleicia Holland (LaTrobe University) visit Kakadu to collect some billabong water and take some dissolved organic carbon (DOC) samples which will provide data for 2 tropical sites as part of her DECRA research project. This is her second water and DOC collection (one was taken at the end of the dry season and one at the end of the wet) as she is gathering data to see if/how the DOC changes seasonally.

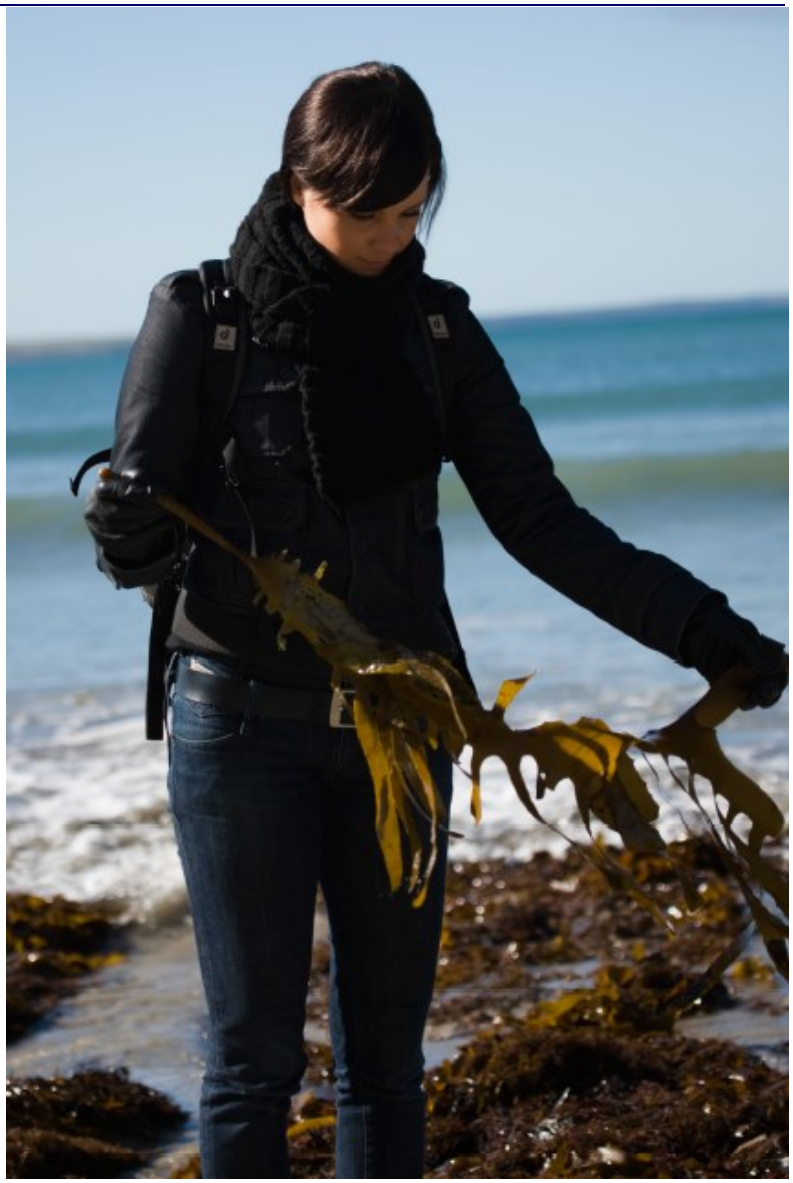
Mel Trenfield has been coordinating a project assessing the toxicity of mixtures of uranium mining contaminants. The project involves assessing the toxicity of the 4 main contaminants of potential concern for Ranger Mine (U, Mg, Mn and TAN) to 6 freshwater species. This is being carried out through Direct Toxicity assessments using 4 water types collected from the Ranger mine site. The challenge will be to work out how to best analyse such a complex data set with multiple contaminants, water conditions, sites and species. Mel will be presenting this work (and hopefully getting some good advice) at the SETAC focused topic meeting on Risk Assessment of Chemical Mixtures in Denver, Colorado in September.

Our PhD student from RMIT, Linda Kleinhenz, recently completed RMIT's requirements for her PhD Milestone 2 which included written components and a 30 minute seminar. Acute and chronic mussel toxicity test protocols using *Velesunio* spp. have now been developed and used to test the sensitivity of early life stages of mussels to ammonia. Laboratory testing will continue when the next wet season begins, when the creeks start flowing and mussel reproduction increases again. For now Linda is concentrating on a backlog of writing!

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

General Member Profile

Dr Minna Saaristo



Current Employer:

I'm a behavioural ecotoxicologist based at Monash University, Melbourne, Australia. I am working as a research associate in A/Prof Bob Wong's lab on an ARC Discovery funded project titled 'Pharmaceuticals in the environment: an evolutionary perspective'.

Research Background:

I received my PhD from the University of Helsinki (Finland) for research carried out in the Department of Environmental Sciences investigating the impact of anthropogenic contamination on animal mating systems, using a marine fish species, the sand goby (*Pomatoschistus minutus*), as my model. Typically, research on chemical pollutants has focused on physiological or morphological changes that can arise from exposure. My novel approach was characterised by the integration of different disciplines to gain new insights into the evolutionary consequences of human-induced environmental change. As an example, I was able to demonstrate that behaviour is a more sensitive indicator of exposure to chemical pollutants than widely used molecular assays. My work was one of the first to provide evidence that chemical pollutants were clearly reducing the chances of individuals to reproduce successfully, and importantly, at levels far lower than typically used to explore physiological or morphological trait changes.

I was awarded my first Academy of Finland Fellowship only two months after completing my PhD. I moved to Melbourne and my research project at Monash University explored the impacts of endocrine disrupting chemicals (EDCs) from the perspective of behavioural ecotoxicology, and focused on understanding the ecological and evolutionary consequences of EDCs. In 2012, I was awarded two prestigious Fellowships (Marie Curie, and Academy of Finland Postdoctoral Researcher), to study the impacts of a chemical pollutant (17α-ethinyl estradiol; EE2), which is a synthetic estrogen used in the contraceptive pill, on the reproductive behavioural and gene expression in a freshwater fish. This multidisciplinary project combined behavioural ecology, genetics, bioinformatics, and environmental chemistry, and was conducted in three different countries and two continents.

At Monash University, I have built an active research program in A/Prof Wong's Research Group, which investigates the impacts of chemical pollutants on traits with direct ecological and evolutionary significance. Specifically, I designed and built a state-of-the-art ecotoxicological flow-through system that is used to examine the effects of a wide range of chemical pollutants on behaviour of freshwater fish. We now have four identical flow-through set-ups that can be used to simultaneously test different pollutants. During the last five years, I have successfully trained 5 Honours students, three PhD-students and published six high impact papers from this work (Saaristo et al. Aquat. Toxicol. 2014, 2017a,b; Bertram et al. 2015. Horm. Behav.; Tomkins et al. 2016. Aquat. Toxicol.; Martin et al. 2017. Environ. Pollut.), with more in the pipeline.

General Member Profile

Dr Minna Saaristo

Current Research Interests:

During the last seven years, I have been involved in projects investigating the impacts of environmentally realistic exposures to widespread pharmaceutical pollutants (e.g. EE2, E2, trenbolone, fluoxetine) on traits with direct ecological and evolutionary significance, including processes of sexual selection, anti-predator behaviour, sociability, foraging, boldness and activity. Currently, I am supervising a long-term fluoxetine exposure (30 ng/L, 3 00ng/L) in mesocosms using wild guppies as a model species. The aim of the project is to uncover how fluoxetine affects sexual traits and behaviours, and how this in turn can impact offspring viability and the evolutionary process. I am passionate advocate of behavioural ecotoxicology and particularly interested in studying the impact of pharmaceuticals on chemical communication and chemical cues, using fish as a model system.

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

SETAC AU Early Career Medal 2016

Dr Anne Taylor

Receiving this award has been the highlight of my research journey. I feel extremely lucky in the opportunities I have had in my career to this point. It is in no small part due to the support I have received from supervisors, mentors, collaborators, students, family and the multitude of great people who make up the SETAC family. It has been a privilege to be a member of the society and grow my career alongside so many others who are equally deserving of this award.

It must seem odd to many that someone as old as me should be eligible for an early career award but what can I say….. I was a slow starter and late to the ecotoxicology table. Better late than never I guess, and I wish I had started 35 years ago, not 10.

In year 12 geography in the late 70's I had my environmental epiphany when studying one of the emerging issues of the day. The salinity contamination of our inland river systems, exacerbated by rising water tables and loss of tree cover in irrigated agricultural areas. I was amazed and shocked to learn that this had been known about for some time but practices were not changing and the problem was getting worse. I had a lot to learn!

Armed with a desire to help save our inland rivers I set off to the Canberra College of Advanced Education (CCAE) where I studied a Bachelor's of Applied Science in Ecology. Along with truly fascinating subjects covering plant, animal and landscape ecology I got my first taste of freshwater ecology with the late Richard Norris, who'd just strode into town. Those were the early days of using bug assemblages to assess river health, before desktop computers with multivariate statistical packages and AUSRIVAS, but still we could measure differences between vegetated and cleared catchment rivers.

After graduating I spent the next 10 years learning about our political system as an environmental lobbyist. Where, among other things, I got to work with Peter Garrett, before he joined the dark side, on the successful campaign to have Jervis Bay declared a National Park. During this time I also spent 6 years on the ACT Environment consultative committee under the excellent chair of the late Peter Cullen. This furthered my environmental education from the perspective of land managers. Too often the response to an issue would be 'we don't have enough research data'. In the face of this refrain I felt it was time for me to go back to school and see what I could contribute to providing answers.

The early 90's was an exciting time, with the CCAE now a University (UC) and the age of the Cooperative Research Centres (CRC) upon us. The CRC for Freshwater Ecology was in full swing and I saw this as an opportunity to return to freshwater ecology and saving those rivers. I started with a graduate diploma as a preparation for research, as the CCAE was an Honours free zone when I was an undergraduate. It was then that I discovered the academics were all busy with the CRC, and there was no freshwater ecology on offer. This led to my career taking what turned out to be a fortunate turn, as it brought me to Bill Maher's door and the world of metal contamination and biomonitoring.

I completed my Masters with Bill assessing intertidal gastropods as metal contamination biomonitors. There was a lot of interest in biomonitoring then, with large international programs such as Mussel Watch in the Northern Hemisphere, but little was known about Australian organisms. What was known was that many factors can influence metal bioaccumulation and before using a particular organism as a biomonitor you need to know about them. In light of this, I looked at metal bioaccumulation in relation to season, gastropod size, gender, and spawning and metal handling strategies metallothionein induction and metal granule formation.

This involved many sampling trips to Lake Macquarie to collect gastropods and the requisite hours in the lab preparing and analysing samples. By now the age of the desktop computer had arrived so we could use SAS for statistical analysis, excel for data handling and word to write our theses, but

we only had 2 computers shared between 8 students. So I wrote my thesis by hand, and typed it up when I could get a turn. Biomonitors are now considered an important line of evidence in metal contamination assessment.

Around this time, I joined RACI which had an Environmental Chemistry division that sometimes held joint meetings with ASE. I eventually saw the light and joined ASE where all the science of interest to me was going on. Fellow travellers in these early UC adventures were SETAC luminaries such as Di Jolley, Jason Kirby and Anthony Chariton.

Seven years on, the late Tony Roach had some Environmental Trust research funds he wanted to use for biomarker research. Bill Maher had a PhD student lined up, but then they pulled out. So what to do? Maybe Anne would be interested since it's a natural extension of her Masters research and surely she hasn't got anything better to do? With an offer like that what could I do but say yes. So with a small grant from Tony and Bill's supervision, I began my ecotoxicology research career. Later I secured scholarships from APA and UC, which helped pay school fees and music tuition for my daughters, so I was set.

My PhD was a blast. I started with the question what are biomarkers and how can they be used in sediment contamination assessment. Ultimately I decided to focus on metal contamination, and biomarkers of oxidative stress, cellular and genotoxic damage in sediment-dwelling marine bivalves. By now the stats package of choice was SPSS with drop down menus (no more writing code) and we all had our own computers! Fellow UC students who aided and inspired me as we travelled the PhD road together include Simon Foster, Alessandra Iero and Rajani Jagtap.

My foray into biomarkers was in the early days of the techniques in Australia, and as with many new things there was some scepticism about their place in ecotoxicology. At times I felt like something of lone voice in the wilderness. During this time the ASE transitioned into SETAC AU and this is when my membership of the society really came into its own. Not only did it continue to provide a supportive and positive local network of a like-minded but diverse group of research, industry and government agency people, it also increased my contact with international researchers pursuing similar lines of enquiry to me. Biomarkers are now a suggested line of evidence in the second edition of Stuart Simpson and Graeme Batley's Sediment Quality Assessment book.

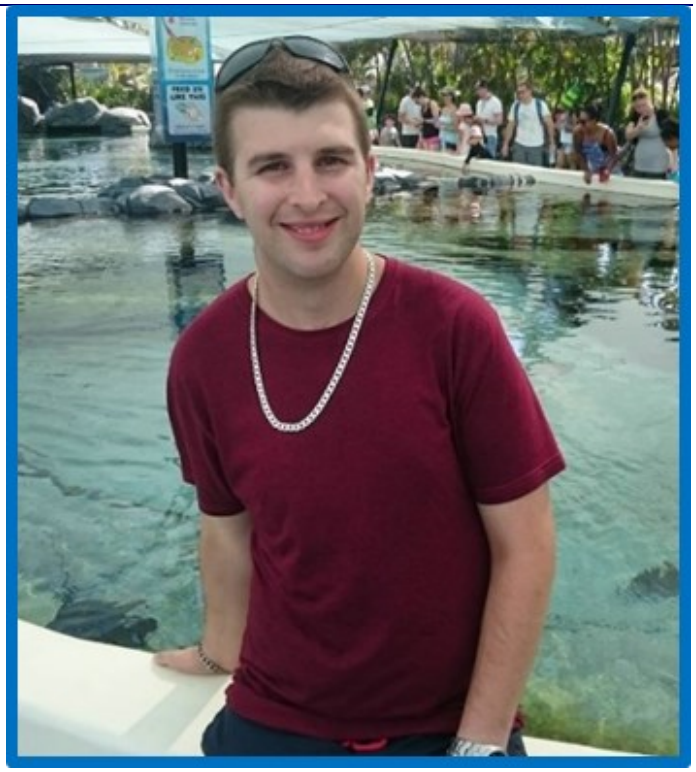
I have enjoyed immensely and learnt a huge amount from going to SETAC meetings. SETAC World 2008 in Sydney stands out as a great national and international sharing opportunity. Not only did I get some excellent feedback and advice in the final stages of my PhD write-up, it also fostered some collaborations on further biomarker development in the post-doc research I undertook between 2009 and 2016. There are many people (too many to name here) who have been part of this story. I have been lucky to also have the opportunity to help guide other's learning and research through project supervision and a variety of undergraduate teaching roles. I have met, worked with and been inspired by a huge number of people through SETAC and I take my hat off to all the selfless and hardworking folk who give their time to keep it the fun, vibrant and successful society it is today.

Although I'm not currently active in research, I am involved in environmental assessment of chemicals, where I am putting my knowledge of metal sediment contamination assessment to good use.

Thank you to all who have shared their knowledge supported and mentored me and shared my journey, including my wonderful husband and daughters who participated in many of the field and lab activities and supported me in a myriad of other ways. It has taken a whole team to win this medal and I feel fortunate to represent them on this occasion.

Student Profile

Timothy Remaili



Name: Timothy Remaili

Degree: Doctor of Philosophy (PhD) in Environmental Chemistry and Toxicology

Institutions: Environmental Futures Research Institute, School of Environment, Griffith University (Gold Coast, QLD)
Centre for Environmental Contaminants Research, CSIRO Land and Water (Lucas Heights, NSW)

Supervisors: Dr. William Bennett (GU)
Dr. Stuart Simpson (CSIRO)
A. Prof. David Welsh (GU)
Prof. Dianne Jolley (UOW)

Est. Compl. Early 2018

Thesis Topic: The influence of sediment bioturbation on contaminant and exposure to benthic fauna, metal bioavailability, multiple stressors, and organism-organism interactions.

Email: timothyremaili@gmail.com

About me

Science and the world around us (our environment) have always fascinated me. How things work, biogeochemical interactions and cycling, how humans have and continue to impact environmental systems and how can we protect and conserve environments and their plethora of organisms for future generations.

Since the age of three, I have been lucky enough to spend many holidays at our family holiday house in Jervis Bay, NSW. It was here, my home away from home, where my fascination and passion for the big blue (the ocean) started.

Plantation Point (left) and St Georges Basin (right), Jervis Bay NSW.

Talks by oceanographer Dr. Sylvia Earle and David Attenborough and the book Silent Spring by Rachel Carsen were crucial in shaping my career decisions and my drive and passion to make a difference.

I completed my Bachelor of Science with majors in chemistry and geochemistry in 2010 at the Western Sydney University (formerly UWS), followed by my B.Sc. Honours degree in 2011 investigating the behaviour of antimony (Sb) in the presence of iron (oxy)hydroxides.

After graduating, I was faced with the same big decision as many university graduates – where to from here? As there were not many postgraduate options at the time, my parents insisted that I get a taste of the 'real world' first and earn the experience. This advice was important in aiding my professional development as a scientist.

I undertook almost three years of professional experience in the consulting field, first as an Occupational Hygiene Hazardous Materials Consultant within a multinational engineering and design firm in Sydney (2012) and then as a Geochemical/Environmental Hazardous Materials Consultant within a smaller, fast paced consultancy in Homebush in Sydney's inner west (2013 & 2014). As a consultant, every day and every project was different, with my portfolio spanning several sectors including chemical refining (e.g. BP and Shell refineries (WA & NSW)), construction and mining (NSW, VIC & QLD), auditing (toxicological & systems (ACT, NSW, WA)), government, utilities and the Department of

Student Profile

Timothy Remaili

Defence (NSW, ACT, VIC). The bonus as well was the travel, allowing me to see many localities and sites around Australia.

My adventures as a consultant only made me more interested in environmental chemistry and toxicology, and how we can use these two disciplines as tools for better management/remediation strategies, and mechanisms for protecting ecosystems at risk.

Consulting days: in the asbestos analysis laboratory (left) and out in the field (right).

I was funded by my consultancy to attend the SETAC AU conference in Melbourne (2013). In Melbourne, I met Dr. Andrew Harford (ERISS) and Dr. Kim Fernie (Environment and Climate Change Canada) who both provided me with some constructive ideas, and encouragement to follow my dreams. I knew that something was missing, and had really wanted to be more involved within the field.

After some research into prospective postgraduate projects and supervisors, I got in contact with Professor Dianne Jolley from the University of Wollongong and the rest is history. After contacting Dianne, I knew that her research group was the place to be, and that she would be taking someone on that could contribute and make a difference too. To this date, I know that I haven't disappointed, as I am still a part of the Jolley group family.

Despite not having scholarship funding, and against initial hesitancy (and advice from Di) I resigned from my full-time position within the consultancy and plunged into a full time PhD under the trusted supervision of Dianne and Dr. Stuart Simpson (CSIRO Land and Water) in August of 2014. My work would be and still is predominantly based at the CSIRO laboratories at ANSTO, Lucas Heights NSW.

For the first two years of my candidature, my project was self-funded through working two jobs including teaching first and second year chemistry at UOW, meanwhile Di was persevering to find me a scholarship, with two unsuccessful attempts through the university.

In early, 2016 I applied for a scholarship through Griffith University and was offered a mid-year Griffith University Postgraduate Research Scholarship. In July 2016, I transferred my project candidature to Griffith University (Gold Coast Campus) gaining two new primary supervisors Dr William Bennett and Associate Professor David Welsh, whilst still maintaining Stuart and Dianne as industry and external supervisors. As I have been up on the Gold Coast with family and friends for holidays (and at the theme parks), this transition was very smooth. I am now currently in the third year of my PhD research.

PhD Research

The health of our oceans is rapidly declining, with evidence showing that aquatic environments are fast approaching ecosystem collapse. Humans are the beneficiaries, with pollution from years of urbanisation and industrialisation poisoning global aquatic ecosystems. Although sediments are the 'universal sponges' of contaminants within the aquatic environment, they also serve as critical habitats for several keystone species integral for sustaining the lifecycles of many species of environmental and economic importance. Furthermore, the rapid encroachment of global populations toward the coasts, exacerbates the risk of exposure to toxic, legacy-contaminated sediments. The fate and behaviour of sedimentary contaminants are altered by the disturbances of sediment-dwelling organisms, which can also impact the toxicity of these entities to neighbouring ecosystems (e.g. the pelagic zone and neighbouring reefs). Based on these factors, my research aims to enhance our understanding of sediment toxicity in the presence of active sediment dwelling organisms through a novel multidisciplinary approach. This will lead to assessment and management practices with greater environmental

Constructing hybrid sediment sensors at Griffith University (left), counting embryos during a toxicity bioassay at CSIRO Land and Water (right).

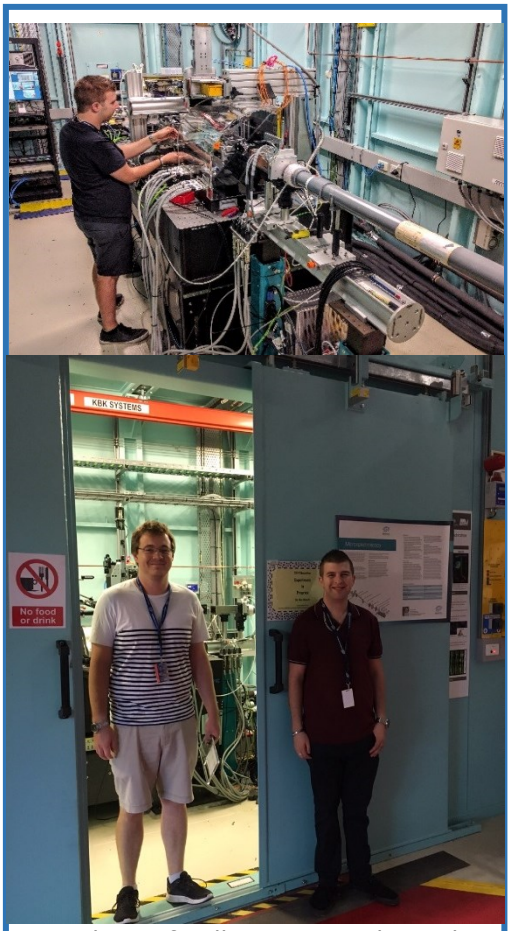
Student Profile

Timothy Remaili

relevance that are sustainable and economically viable. This will improve our chances to re-establish healthy flourishing ecosystems, leading to a healthier aquatic environment for future generations to come.

My project aims are to characterise the influences of organism bioturbation on contaminant and multiple stressor exposure and toxicity, organism-sediment, and organism-organism interactions. This includes consideration on how other contaminants such as elevated sulfides and salinity affect ecosystem health. The results of my research will not only be of benefit to aiding in the development of more accurate methods of sediment toxicity assessment, but also for the design and implementation of management strategies, such as natural recovery for the rehabilitation and protection of healthy aquatic ecosystems.

Since starting my PhD, I have investigated the effect of bioturbation by an amphipod (*Victoriopisa australiensis*) on metal exposure and toxic effects exhibited by a secondary organism (bivalve, *Tellina deltoidalis*). This work has been published within two papers (one first authored, and the second co-authored), and I presented these findings at the SETAC Australasia conference in Nelson, New Zealand in 2015. I won a travel award to attend the conference and the Highly-Commended Student Oral Presentation Award for my presentation. I took the initial study a step further by examining bioturbation effects to chronic toxicity (survival and reproductive success of the amphipod *Melita plumulosa*) when exposed to sediments contaminated with a) predominantly metals and b) metals and hydrocarbons. This work has been accepted for publication by Environmental Pollution and is currently in press. I presented the findings of this work at the SETAC Australasia conference in Hobart, Tasmania last year (2016).



Snapshots of Will Bennett and I at the XFM Beamline at the Australian Synchrotron in Melbourne.

I recently completed a study investigating organism-organism interactions in relation to multiple stressors within environments impacted by combinations of elevated salinity, nutrients, and sulfides. I have defined salinity tolerance limits for a multitude of benthic fauna in combination with stressors, below which the biogeochemistry of the sediments can facilitate the establishment and maintenance of diverse benthic ecosystems. This work is currently being prepared for publication. My recent work has involved a mesocosm study to investigate organism-induced changes to contaminant biogeochemistry using novel high-resolution hybrid sensors. I was recently granted beamtime on the X-Ray Fluorescence Microscopy (XFM) beamline at the Australian Synchrotron in Melbourne, where Will Bennett, Di Jolley and I had recently undertaken some analysis of DGT gels for this latest study.

Where to from here

First I am aiming to complete a high quality PhD which will hopefully make a difference in the field of sediment quality assessment and management. At this stage I am looking at pursuing more research down this line once I finish, either as a postdoctoral researcher within a University or other institute to continue to fight to make a difference for the conservation of the aquatic world.

Publications

Remaili, T. M., Simpson, S. L., Amato, E. D., Spadaro, D. A., Jarolimek, C. V., & Jolley, D. F. (2016). The impact of sediment bioturbation by secondary organisms on metal bioavailability, bioaccumulation, and toxicity to target organisms in benthic bioassays: Implications for sediment

quality assessment. Environmental Pollution, 208, 590-599. http://dx.doi.org/10.1016/j.envpol.2015.10.033

Amato, E. D., Simpson, S. L., Remaili, T. M., Spadaro, D. A., Jarolimek, C. V., & Jolley, D. F. (2016). Assessing the effects of bioturbation on metal bioavailability in contaminated sediments by diffusive gradients in thin films (DGT). Environmental Science & Technology, 50(6), 3055-3064.

Remaili, T.M., Simpson, S.L., Jolley, D.F., 2017. Effects of enhanced bioturbation intensities on the toxicity assessment of legacy-contaminated sediments. Environmental Pollution, 226, 335-345. http://dx.doi.org/10.1016/j.envpol.2016.11.038.

Conference Presentations

Remaili, T.M., Simpson, S.L., Amato, E.D., Spadaro, D.A., Jarolimek, C.V., Jolley, D.F., 2015. The Impacts of Bioturbation on Metal Bioavailability, Bioaccumulation and Toxicity (Oral Presentation), 2015 SETAC Australasia Conference, Nelson New Zealand.

Remaili, T.M., Simpson, S.L., Bennett, W.W. Welsh, D.T., Jolley, D.F., 2016. Bioturbation Intensity: A Potential Game Changer for Sediment Toxicity Testing and Sediment Remediation. (oral presentation), 2016 SETAC Australasia Conference, Hobart, Tasmania Australia.

I will be presenting my latest research at the coming SETAC AU conference and International DGT conference on the Gold Coast.

Please contact Francesca Gissi (Francesca.Gissi@csiro.au) or Nicole McRae (nicole.k.mcrae@gmail.com) if you would like to be featured in an upcoming edition

Student Corner

Francesca Gissi (Francesca.Gissi@csiro.au) and Nicole McRae (nicole.k.mcrae@gmail.com)

Asia Pacific Student Advisory Council (APSAC)

Earlier this year we held elections and voting for the newly formed APSAC. Thanks to all those who applied, and congratulations to those who were elected, in particular our Australian rep, Steph Chaousis and NZ rep, Maria Charry. Below is the list of contacts for the council. Please don't hesitate to reach out to your local representative if you have any questions, comments or concerns. Also, a massive thanks to the APSAC Chairperson, Rhys Cartlidge for organising the election.

We had our first APSAC meeting in April. We discussed the purpose and goals of APSAC, primarily which we believe to be around supporting and encouraging student involvement in SETAC and engaging with other student bodies around the globe.

A big thank you to our NZ rep Maria Charry who has already been proactive and started advertising SETAC and APSAC at the NZ Marine Sciences conference held in Christchurch in July.

Position	Name
Chair	Rhys Cartlidge
Vice Chair	Francesca Gissi
Secretary	Nicole McRae
Australian Rep	Steph Chaousis
NZ Rep	Maria Charry
PNG Rep	Kundo Hundang
Vietnam rep	Ben Pham
Sri Lanka Rep	Sam Lekamge
India Rep	Sanjeeb Mohapatra
China Rep	Qian Li
Hong Kong Rep	Racliffe Weng Seng Lai

SETAC AU Gold Coast 2017

We looked forward to catching up with all of our fellow students at this year's student function on the Gold Coast. Don't forget this is a free event with some food and drinks provided. We will also have two guest speakers to shed some light on their career pathways in science.

Student Publications

Remaili, T.M., Simpson, S.L., Jolley, D.F., 2017. Effects of enhanced bioturbation intensities on the toxicity assessment of legacy-contaminated sediments. Environmental Pollution, 226, 335-345. https://doi.org/10.1016/j.envpol.2016.11.038

Koppel, D. J., Gissi, F., Adams, S., King,C. K., Jolley, D. F., 2017. Chronic toxicity of five metals to the polar marine microalga *Cryothecomonas armigera* – Application of a new bioassay. Environmental Pollution, 228, 211-221. https://doi.org/10.1016/j.envpol.2017.05.034

Laroche O., Wood S. A., Tremblay L. A., Lear G., Ellis J. I., Pochon X., 2017. Metabarcoding monitoring analysis: the pros and cons of using co-extracted environmental DNA and RNA data to assess offshore oil production impacts on benthic communities. PeerJ 5:e3347. DOI: 10.7717/peerj.3347

Ubrihien, R. P., Taylor, A. M., Krikowa, F., and Maher, W. A., 2017. Stable isotope analysis to detect copper (Cu) accumulation in species with high endogenous Cu concentrations: linking Cu accumulation with toxic effects in the gastropod *Bembicium nanum*. Marine and Freshwater Research, https://doi.org/10.1071/MF16405

If you are a SETAC AU student and have recently published a paper please send the reference to the Student Reps Francesca Gissi or Nicole McRae to have it included in the next edition of Endpoint

Science Meets Parliament 2017

Delegates' Report

Bryant Gagliardi and Tarah Hagen

Each year, Science Meets Parliament is held in Canberra. This conference is an initiative of the representative body Science and Technology Australia (STA). As the name suggests, the conference provides a forum for Australian scientists and federal politicians to meet and exchange ideas. This year, Bryant Gagliardi and Tarah Hagen were very fortunate to be the two recipients of the 2017 Society of Environmental Toxicology and Chemistry Australasia Student and Staff Ambassador Awards. These awards saw them acting as student (Bryant) and staff (Tarah) delegate representatives for SETAC AU at the two-day conference in March.

SETAC AU representatives Bryant Gagliardi and Tarah Hagen at Parliament House

Day one of the conference saw stormy skies clearing for a day of policy workshops and presentations by a variety of highly-esteemed experts in their respective fields relating to science, the media and federal politics. It was quite unlike the academic conferences Bryant and Tarah had previously experiences, and it was nice to think about their own science in the broader context of the national policy agenda. It was also a wonderful opportunity to meet and talk with fellow scientists with varying interests and backgrounds. This day was hosted by STA CEO Kylie Walker, who also directed several important workshops – those that gave information on how to best engage with allocated parliamentarians, whom conference attendees were to meet on Day 2! The day was rounded out by the gala dinner, at which Federal Minister for Industry, Innovation and Science Arthur Sinodinos, and Federal Opposition Leader Bill Shorten outlined their respective parties' policies for Australian science going forward. Bryant and Tarah enjoyed the company of all kinds of scientists from around Australia at their respective tables – physicists, mathematicians

and ecologists. On Bryant's table also sat Federal MPs Mr Craig Kelly and Mr Luke Howarth. Unfortunately the parliamentarian intended to sit at Tarah's table couldn't make it. Nevertheless, it was an excuse to get dressed up, overall a fun night with great conversations had amongst the scientists and politicians.

Day 2 was "D-Day" as far as most scientists were concerned, as this was the day on which allocated office meetings with pre-selected politicians were to take place. Although scientists had been warned frequently that politicians can have extremely busy and changeable timetables, Bryant and Tarah were lucky enough that their respective allocated politicians – Bryant met with MP for Parkes Mr Mark Coulton and Tarah with Queensland Senator Chris Ketter – were able to meet at the allocated times. Bryant went in with two other scientists, Tarah with four; overall it was a great 20 minute or so conversation with the parliamentarians about the scientists' respective areas of research, and how they relate to the specific issues faced in the parliamentarian's respective electorates.

With regards to Bryant's own area of interest, water pollution, Mr Coulton was particularly interested in issues such as black water events, coal seam gas pollution and herbicide impacts, and also shared insights on the broader environmental, social and economic issues that an MP has to contend with. Mr Coulton was very gracious with his time and thoughts, although unfortunately the meeting ended abruptly with a knock at his door by the House Speaker The Hon Tony Smith… and with that Mr Coulton had to dash off for a House vote!

Senator Ketter also showed considerable interest in Tarah's line of work, specifically in relation to recently heavily politicised issues on PFAS chemicals. Alas their time was also cut short when the Senate bell rang, and Mr. Ketter had to make a quick exit.

There was therefore no time for the customary 'selfie with a pollie' but it was nonetheless a great experience, that Bryant and Tarah are grateful to SETAC-AU for affording them. The day still held a few uniquely 'Canberran' experiences left, including lunch at the National Press Club and attendance at a raucous lower House question time, all of which contributed to a memorable two-day experience!

Bryant Gagliardi is a PhD candidate at CAPIM, and Tarah Hagen is a Director and Environmental Toxicology & Risk Assessor at ToxConsult Pty Ltd.

Conferences and Workshops

SETAC New Zealand Regional Meeting

A SETAC New Zealand Regional Meeting was held in conjunction with the New Zealand Marine Sciences Conference in Christchurch on the 6th of July. Professor Kevin Thomas gave a well-received keynote address titled 'Contaminants of emerging concern in the marine environment' followed by presentations from 14 speakers. Presentation topics included emerging organic contaminants, deep sea mining, microplastics, multiple stressors and the impacts of trace elements in marine organisms. The special session of the conference was followed by a half day science communication workshop on the 7th of July focusing on communicating with the community. The workshop was very popular and numbers had to be capped at 60 at the end of the early bird registration. Participants selected two of the sessions offered to attend. The workshop topics were Twitter presented by Victoria Metcalf, Ask an expert (Simon Pollard) and Barriers to Communicating Science (Matt Walters). Many thanks to the SETAC AU Council for sponsoring this event.

Sally Gaw

Nuwan da Silva presenting results from his PhD studies on mudsnails

Victoria Metcalf presenting Twitter workshop

Samantha Webb presenting results from her MSc thesis investigating impacts of microplastics and triclosan on green lipped mussels

Professor Kevin Thomas giving the keynote presentation

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

SETAC AU Gold Coast
"The role of environmental toxicology and chemistry in a changing environment "
Gold Coast, 3rd-6th September 2017
http://www.setacgoldcoast2017.com.au/

On behalf of the organising committee, it gives us great pleasure to invite you to participate in the next Society for Environmental Toxicology and Chemistry (SETAC) Australasia Conference on the beautiful Gold Coast, in Queensland, Australia from the 3rd – 6th September 2017.

This meeting will provide an opportunity for delegates from academia, industry, and government to discuss the latest research in the field of environmental toxicology and chemistry. Set amongst the amazing beaches, World Heritage-listed rainforest, and vibrant city nightlife of the Gold Coast, this Conference is not to be missed!

The Conference will be held at the Sofitel Hotel in Broadbeach, a luxury hotel less than five minutes walking distance from the beach, and situated amongst a wide variety of excellent restaurants and shops. A comprehensive Scientific Program will be complemented by a variety of exciting social activities, which will take advantage of the outstanding food and wine on offer in Broadbeach, the Gold Coast's premier dining district.

We look forward to welcoming you to the sunny Gold Coast!

Dr William Bennett and Professor Dianne Jolley

The conference program is now available on the conference website

Keynote Speakers


Dr Stephen Lofts


Dr Charlotte Nys


Prof John Sumpter


A/Prof Susan Bengtson Nash


Prof Scott Smith

Visit the SETAC 2017 conference website for more information about the keynote speakers

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.

If you are interested in joining Twitter but don't know where to start, check out the very helpful SETAC AU Guide to Twitter in Volume 24 Issue 1 of Endpoint.

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

Search for @SETACAu

 # People who like this page: 136

Twitter Handle - @SETAC_AU

 # Following: 830
 # Followers: 491

Profile visits (April– July): 503
Mentions (April– July): 16

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?

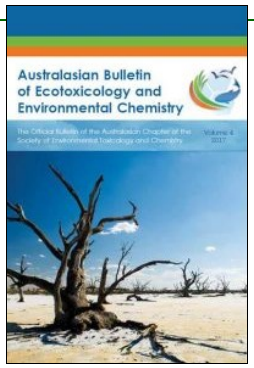
- Exposure to students as potential employees
- Give back to your professional community by sharing your insights and experience
- Stay on top of emerging science through engaging in research-based discussions with your mentee

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 Environmental Chemistry (ABEEC)



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.

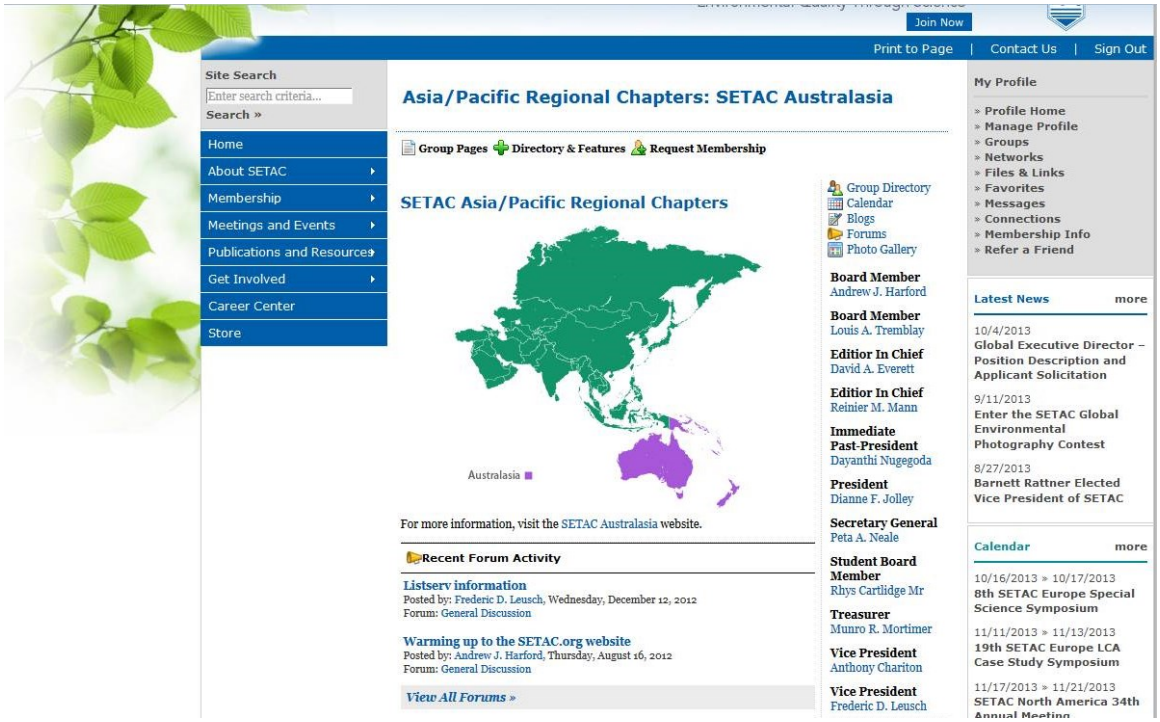
We look forward to receiving you manuscripts.

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

Membership Details

How to join SETAC Australasia

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

Also a reminder that all membership renewal payments in Australasia should be made to SETAC Asia-Pacific, not to the SETAC North America office in USA. A step-by-step guide to renewing SETAC AU membership online can be found in Volume 24 Issue 1 of Endpoint.

Kathryn Hassell (khassell@unimelb.edu.au)
SETAC AU Secretary

Advertise in Endpoint

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 **Kathryn Hassell** (khassell@unimelb.edu.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 –

     Two complimentary full registrations at two SETAC meetings or conferences, OR

     A free booth at one SETAC meeting or conference.

   - Free listing as a Global Partner on SETAC meeting/conference signage and programs.
   - Free attendance at reception functions for SETAC meetings/conferences.
   - Free access to the SETAC Membership Directory.
   - Free hard and online versions of the SETAC Journals – *Environmental Toxicology and Chemistry (ET&C)* and *Integrated Environmental Assessment and Management (IEAM).*
   - Annual acknowledgement as a SETAC Global Partner in journals.
   - Listing as a SETAC Global Partner on SETAC website.
   - Free advertising (1/8 page annually in one journal).
   - Discount (25%) on-line job advertisements.
   - Access to online newsletters.
   - Members discount on publications.
   - SETAC Global Member Wall plaque.
   - Can help organise special sessions on global issues at annual meetings.
   - Acknowledgement for other assistance such as student grants, etc.

2. SETAC Asia-Pacific Sustaining Member

Annual fee AU$2000

- Annually –
- Two complimentary full registrations at one SETAC Asia-Pacific meeting or conference,

OR

Four complimentary student registrations at one SETAC Asia-Pacific meeting or conference,

OR

One complementary full registration and two student registrations at one SETAC Asia-Pacific meeting or conference.

- Free listing as a SETAC Asia-Pacific Sustaining Member on SETAC Asia-Pacific meeting/conference signage and programs.
- Free attendance at reception functions for SETAC Asia-Pacific meetings/ conferences.
- Free hard and online versions of the SETAC Journals – *Environmental Toxicology and Chemistry (ET&C)* and *Integrated Environmental Assessment and Management (IEAM).*
- Annual acknowledgement as a SETAC Asia-Pacific Sustaining Member in journals (subject to SETAC World Council approval).
- Listing as a SETAC Asia-Pacific Sustaining Member on the SETAC Asia-Pacific web pages.
- Free advertising (1/8 page annually in one journal, subject to SETAC World Council approval).
- SETAC Asia-Pacific Sustaining Member Wall plaque.
- Can help organise special sessions on regional/global issues at annual meetings.

Affiliate and Sustaining Memberships

3. SETAC Australasia Sustaining Member (only available to companies operating in Australasia)

Annual fee AU$1500

- Annually –
- Two complimentary full registrations at one SETAC Australasia meeting or conference,

OR

Four complimentary student registrations at one SETAC Australasia meeting or conference,

OR

One complementary full registration and two student registrations at one SETAC Australasia meeting or conference.

- Free listing as a SETAC Australasia Sustaining Member on SETAC Australasia meeting/conference signage and programs.
- Free attendance at reception functions for SETAC Australasia meetings/conferences.
- Free access to the SETAC Australasia Membership Directory.
- Free hard and online versions of the SETAC Australasia publications.
- Annual acknowledgement as a SETAC Australasia Sustaining Member in SETAC Australasia publications.
- Listing as a SETAC Australasia Sustaining Member on the SETAC Australasia web pages.
- Free advertising in SETAC Australasia publications (subject to SETAC Australasia Council approval).
- SETAC Australasia Sustaining Member Certificate.
- Acknowledgment for other assistance such as student grants etc.

To follow up with these membership options please email me at khassell@unimelb.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.

Kathryn Hassell (khassell@unimelb.edu.au)
SETAC AU Secretary

SETAC AU

Council Members

Position	Elected Member
President	Anthony Chariton (anthony.chariton@mq.edu.au)
Vice Presidents	Andrew Harford (andrew.harford@environment.gov.au) Tom Creswell (tom.cresswell@ansto.gov.au)
Secretary	Kathryn Hassell (khassell@unimelb.edu.au)
Treasurer	Munro Mortimer (ase@hydrobiology.biz)
Membership Officer	Chantal Lanctôt (chantal.lanctot@gmail.com)
Bulletin Editor	Reinier Mann (reinier.mann@dsiti.qld.gov.au)
Communications Officer	Peta Neale (p.neale@griffith.edu.au)
Strategic Directions Officer	Katelyn Edge (katelyn.edge@environment.nsw.gov.au)
Associate Newsletter Editor	Erik Prochazka (e.prochazka@griffith.edu.au)
Student Representative	Aus: Francesca Gissi (Francesca.Gissi@csiro.au) NZ: Nicole McRae (nicole.mcrae@pg.canterbury.ac.nz)

Regional Representatives

Region	Elected Member
Australian Capital Territory	Ben Kefford (ben.kefford@canberra.edu.au)
New South Wales	Lisa Golding (lisa.golding@csiro.au)
Northern Territory	Melanie Trenfield (melanie.trenfield@environment.gov.au)
Queensland	Steven Melvin (s.melvin@griffith.edu.au)
South Australia	Peter Bain (peter.bain@csiro.au)
Tasmania	Cath King (cath.king@aad.gov.au)
Victoria	Minna Saaristo (minna.saaristo@monash.edu)
Western Australia	Tristan Stringer (tristan.stringer@intertek.com)
Papua New Guinea	Kundo Hundang (guba.hundang@gmail.com)
New Zealand (North Island)	Trudy Geoghegan (trudy.geoghegan@epa.govt.nz)
New Zealand (South Island)	Sally Gaw (sally.gaw@canterbury.ac.nz)