NEWSLETTER

Endpoint

SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY AUSTRALASIA

(SETAC AU)

Volume 25 Number 2

August 2018

CONTENTS

SETAC AUSTRALASIA

Message from the Editor

Welcome to the August 2018 edition of Endpoint. One of my favourite things about editing Endpoint is getting to read about the exciting work that SETAC AU members have been doing and this edition does not disappoint. We have Regional Reports from New South Wales, Northern Territory, Queensland, Victoria and Western Australia. If you would like your research featured in Endpoint, please contact your regional rep.

Another special treat in this edition is an article from our 2017 SETAC AU Mid Career Medalist Kimberly Hageman. Kim has very kindly given us a summary of her career to date, which has included fieldwork in some amazing locations in North America and New Zealand (some photos included). The SETAC AU Secretary Suzanne Vardy is featured in the General Member Profile, while Michael Bertram, who won the ECETOC Young Scientist Award at SETAC Rome, is featured in the Student Profile. SETAC AU students may want to try their hand at designing a logo for the Asia Pacific Student Advisory Council (APSAC), with the winner receiving free SETAC student membership for a year.

While the next SETAC AU conference will be held in July 2019 (see below for more information), there are plenty of events coming up in the next few months. These include the one day anthropogenic debris conference in Sydney (21st August), SETAC-AP in Daegu, South Korea (16-19th September) and the What's in our Water Symposium in Canberra (29th October - 1st November). Further information about these events can be found in the What's Happening section.

If you need to renew your SETAC membership soon, please have a look at the Membership Details section, which includes a reminder from the SETAC AU Treasure Munro Mortimer to renew your membership through SETAC Asia-Pacific.

Thank you to everyone who has contributed material to this edition of Endpoint and happy reading!

Best wishes

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

From the President

G'day from balmy Darwin, where we are enjoying another perfect dry-season, full of pleasant ~30°C days and spectacular sunsets. I only tease our colleagues trapped in the south because the society's big news is that the 2019 SETAC AU conference will be held in Darwin this time next year! So, save the dates of 7-10th July 2019 and start making your plans for an extended get-away from a dreary winter. We have started planning how we will make the event a unique territory experience and a conference that you will not want to miss. The SETAC AU council and members have also been very busy organising other regional events for our members.

The 6th What's In Our Water Symposium (Canberra, 29th October - 1st November 2018) is on track to be another unmissable event for those interested in emerging contaminants and micropollutants. The event will also include a workshop to revisit the 2007 "Black Mountain Declaration", which will update the research priorities for the field. A big thanks to the conference chairs, Anu Kumar and Rai Kookana, and the rest of the dedicated organising committee for their continued efforts to deliver great meetings.

SETAC AU is also sponsoring a one day meeting on anthropogenic debris at the Sydney Institute of Marine Science on 21st August. The event will feature the world-renowned Prof Richard Thompson (Plymouth Uni) and a host of local presenters. It's a hot topic and seats are very limited, so don't miss out and register early. See the What's Happening? section in this issue of Endpoint for further details. Thanks to Mark Browne for taking the lead to organise the event.

SETAC AU will also sponsor a special session on the revised Australian and New Zealand Water Quality Guidelines at the New Zealand Freshwater Science Society conference (Nelson, 10-14th December 2018). Rick van Dam, technical co-ordinator for the project to derive default guideline values for toxicants, will be a key presenter at the special session and there will be a list of eminent local presenters as well. I hope that the event will attract many New Zealand members and potential new members, and I'm tempted to make the trip across the Tasman myself as I have extremely fond memories of the SETAC AU 2015 conference in Nelson. Thanks to Jenni Gadd for her leadership and negotiating skills to make this session happen.

From the President

Aside from event organising, there have been a myriad of other activities that I'll briefly mention.

The SETAC-Asia Pacific conference in Daegu, South Korea, is fast approaching (16 – 19th September) and is promising to be a fantastic event. There is still time to register and we are encouraging all SETAC AU members to attend the meeting. We are also helping student and non-student members get to the event by providing travel awards. We have awarded 1 non-student (Jenny Stauber) and 5 student (Timothy Ong, Tim Coggan, Bingxu (Bruce) Nan, Drew Szabo, and Maita Subbo) travel awards to attend the conference. Congrats to these well-deserving award recipients! I hope they have a great time connecting with our AP colleagues and I'll be seeing them there.

We have also been actively engaging in STA events and initiatives. Kathryn Hassel (VP) attended the President and CEO forum in May, which started our involvement with the STA's election strategy for science. Keep an eye out for our call for travel awards to attend this year's Science meets Business event in October.

The chapter's Global Horizon Scanning paper is progressing and we hope that there will be a draft circulated to workshop participants in the near future. Of note was the recent publication of the European Geographic Unit's paper in ET&C (see here).

Stay safe and happy,

Andrew Harford, President

Regional Reports

New South Wales

SETAC AU NSW held a regional meeting on 8th May 2018 with a great mix of members and non-members to socialize and enjoy three presentations:

- Katrina Van De Ven: The Social Network: Effectively employing social media for career progression
- Tim Remaili: Bioturbation in contaminated sediments: Impact on biogeochemistry and toxicity
- Megan Gillmore: The effects of dissolved nickel and nickel-contaminated suspended sediment on the branching coral, *Acropora muricata*

Katrina is the Government and International Affairs Advisor at the Australian Nuclear Science and Technology Organisation (ANSTO), and is responsible for guiding the CEO's interactions with the Australian and foreign governments. Her presentation provided advice for students and professionals on how to use social media tools such as LinkedIn, Twitter and blogging to build networks that are useful for career progression. Some attendees were even inspired to tweet about the event (@SETAC-AU)!

Megan and Tim presented components of their PhD work as a lead up to attending and presenting at SETAC-EU in Rome (see CSIRO group report below for more details on this!).

The presentations were well received by attendees and made for a good blend of professional development and science in a relaxed pub environment!

Left to right: Tim Remaili, Katrina Van De Ven and Megan Gillmore after presenting at the SETAC AU NSW Regional meeting

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

RMIT Honours student **Sigrid Wilkens** completed a visit to ANSTO during March and April 2018 to undertake studies into the bioavailability of nano Zn particles by the amphipod *Allorchestes compressa*. Nano ZnO and $ZnCl_2$ were neutron activated in the OPAL research reactor to produce the beta- gamma-isotope ^{65}Zn, which was exposed to amphipods over a period of 2 weeks, followed by a 2 week depuration period. The study confirmed the very soluble nature of ZnO nanoparticles at environmentally-relevant concentrations and suggested that the current ANZECC water quality guidelines for soluble Zn are sufficient to manage ZnO nanoparticles at the <50 µg/L concentration in seawater. Sigrid also completed a pilot study into the use of *A. compressa* for sub-lethal toxicity testing (reproduction) with Zn and the results look very promising.

Sigrid Wilkens preparing for Zn radiotracer exposures with amphipods

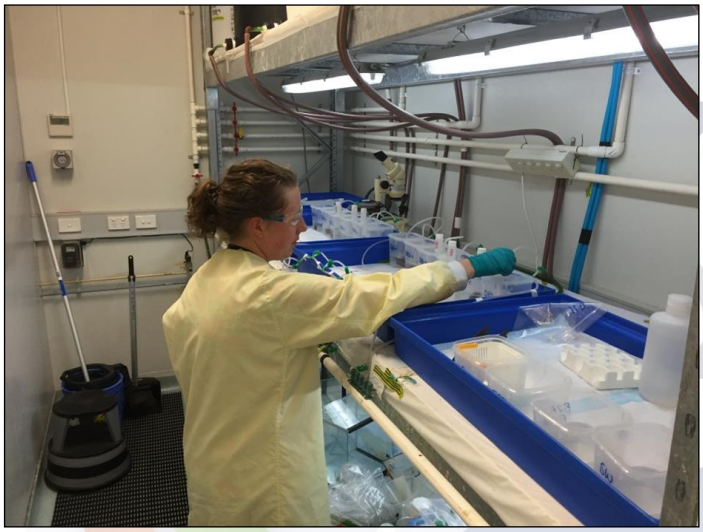
University of South Australia researchers **Thea Lund Read**, **Casey Doolette** and **Enzo Lombi** have been using the same neutron activated ^{65}Zn products to increase crop quality

(through Zn biofortification) and crop yield by improving current agricultural practices. Active nano, micro and soluble Zn (as either Zn-EDTA or $ZnCl_2$) have been applied to leaves of wheat and the foliar dispersion kinetics of Zn to the rest of the plant will be determined by gamma spectrometry and imaging techniques. We have extended the study to full plant maturity so we can determine the concentration of added Zn that made its way to the grain. This will give us a full picture of the uptake, translocation and ultimately biofortification of the grain with Zn from the four treatments.

Thea Lund Read and Casey Doolette preparing nano and micro ^{65}Zn suspensions ready for foliar application to wheat within the ANSTO greenhouse

Australian Catholic University Honours student **Danielle Hill** is conducting research at ANSTO to better understand the effects of moulting on contaminant bioaccumulation by decapod crustaceans. Several studies have determined that moulting (shedding the exoskeleton or shell) for decapods causes significant differences in the uptake or efflux kinetics of common inorganic contaminants and these differences can last for > 1 month. Danielle will be feeding the spotted shore crab, *Paragrapsus laevis*, with a diet supplemented by moult hormones (e.g. ecdysone) to synchronise moulting and will then be using radioisotope tracers to understand how moulting affects bioaccumulation kinetics in the crabs. Danielle is currently battling with the crabs to get them to eat numerous different food types in preparation for the study but the crabs are not cooperating!

University of Melbourne PhD student **Rebecca Hull** conducted research at ANSTO (January - February 2016) to better understand sea squirts' handling (uptake, loss, and internal distribution) of a non-essential (Cd) and an essential (Zn) trace metal when associated with food or dissolved in seawater. The sea squirt *Styela clava* was exposed to ^{65}Zn and ^{109}Cd singly or as a mixture for the dissolved exposure, and singly when associated with food – the microalga *Tetraselmis* sp. When exposed to trace metals via water, sea squirts accumulated and retained more Cd in the presence of Zn, whereas Zn was handled similarly when exposed singly and with



Rebecca Hull setting up ascidian exposures to ^{109}Cd and ^{65}Zn in the ANSTO Aquatic Monitoring lab

Cd. When exposed to trace metals via diet, more Cd (cf. Zn) was lost and little remained internally after three days. Sea squirts accumulated Cd in the test – a body casing, unique to sea squirts – but only with dissolved exposure, and Zn in the branchial basket (analogous to gills) when exposed via water and food. Rebecca is currently writing her thesis and preparing this work for publication.

Griffith University PhD student **Kaitlyn O'Mara** conducted an estuarine food chain radiotracer experiment at ANSTO in April – June 2017. To better understand mechanisms for metal accumulation in estuarine food webs, organisms from three trophic levels (sand clams *Katelysia scalarina*, school prawns *Metapenaeus macleayi* and sand whiting *Sillago ciliata*) were exposed to seawater, suspended sediment and food labelled with ^{109}Cd, ^{54}Mn and ^{65}Zn radiotracers. While sand clams accumulated these metals from labelled seawater, suspended sediment and food (green and brown microalgae), school prawns and sand whiting only exhibited metal uptake from food (labelled pellets and prawns were fed to school prawns and sand whiting, respectively). This experiment demonstrated that filter feeders are sensitive to metal uptake from a variety of sources and may be an important link between environmental contamination and contamination in higher trophic level species such as prawns and fish. Low metal assimilation efficiencies in sand whiting (9-23%) compared to school prawns (53-65%) indicate that these fish have exclusion mechanisms that are favourable to allow them to survive in contaminated environments. Kaitlyn is currently writing up the results of this experiment in a research paper, while also analyzing field samples from Moreton Bay and the Gulf of Carpentaria for stable isotopes and trace metals to study catchment influences on estuarine food webs in natural and disturbed systems.

PhD student **Francesca Gissi** has been working with CSIRO, UOW, SCU and ANSTO to look at the uptake and distribution of metals in corals. Francesca has conducted experiments on coral sections using the ITRAX XRF core scanner, Laser Ablation ICP-MS and accelerator-based particle-induced X-ray emission (MicroPIXE) to determine the biodistribution of nickel in fragments. Experimental work is completed and Francesca is currently writing up results for her thesis and a publication.

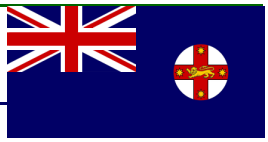
Plans are still underway to create microplastic radiotracers at ANSTO in collaboration with the International Atomic Energy Agency (IAEA). We are working through the synthesis of metal-doped microplastics at ANSTO and we will then conduct pre- and post-neutron activation characterisation of particles before bioaccumulation studies with marine organisms are conducted.

A PhD top up scholarship ($7,500 cash per annum) is available at ANSTO in Sydney for a potential PhD student affiliated with a partner university to better understand the ecotoxicological and radiological effects of NORM scale on aquatic organisms. Naturally occurring radioactive materials (NORM) scale residues frequently accumulate on the interior surfaces of subsea oil and gas pipes and other structures, and may persist long after extraction operations have ceased. Within such scale materials are a range of metal contaminants, as well as NORM dominated by the U-238 and Th-232 decay series. The project will provide for a more valid assessment of the risk posed by sub sea oil and gas scale to aquatic organisms as compared with current methods which rely on default/ reference parameters which may greatly misinterpret the risk. Please see the project outline for more details of the research. For further information, please contact Dr. **Tom Cresswell** (tom.cresswell@ansto.gov.au), (02) 9717 9412.

Two scenarios of pipeline assessment (routine operation left and degraded pipeline right) that will be undertaken in the research and an example of the build-up of (predominantly) barium sulphate NORM scale in pipelines

Regional Reports

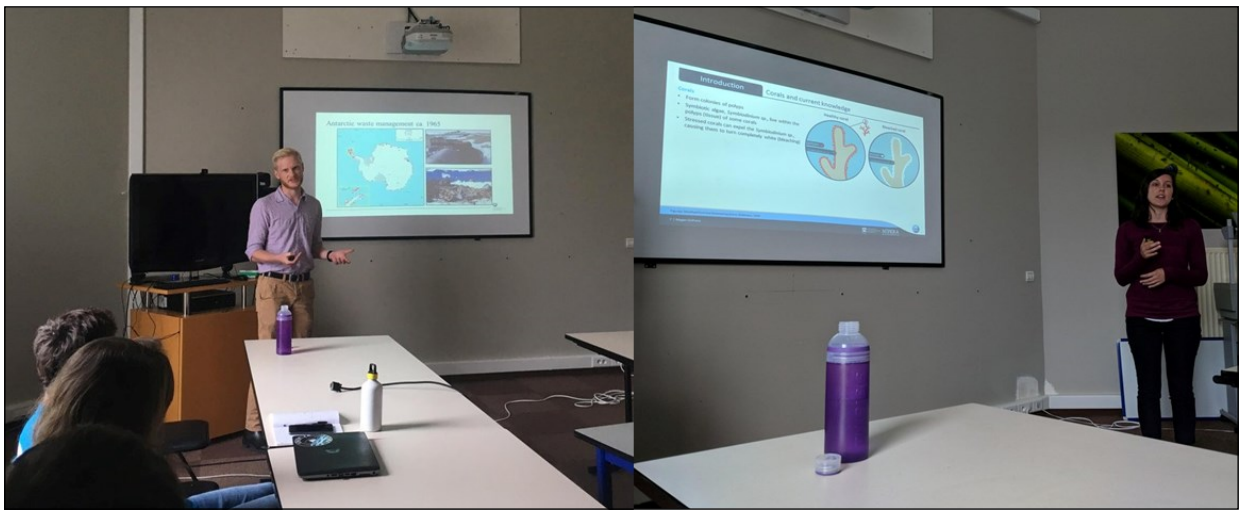
New South Wales



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

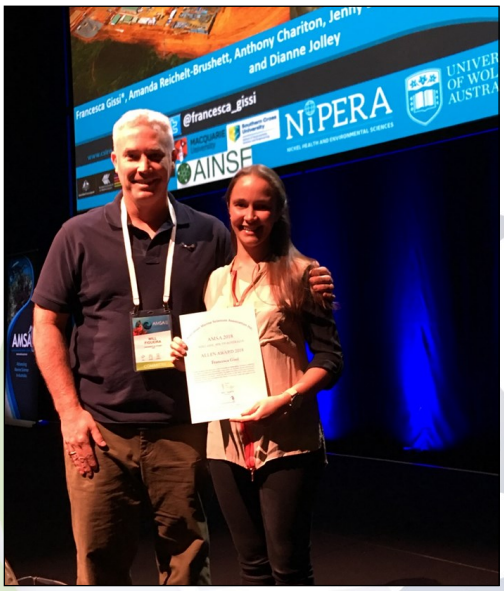
We've had lots of exciting research being conducted by our students! Timothy Remaili has recently submitted his PhD thesis on the impact of sediment bioturbation on contaminant exposure and toxicity to benthic fauna and has taken up a position with the Office of Environment and Heritage (OEH). Congratulations Tim! Shortly after starting with OEH, he took a quick trip to Rome to present his PhD work at SETAC-EU. Timothy was supervised by Stuart Simpson (CSIRO) as well as Dianne Jolley (University of Wollongong) and William Bennett (Griffith University).

PhD students Megan Gillmore (co-supervised by Lisa Golding, Jenny Stauber and Dianne Jolley) and Darren Koppel (co-supervised by Merrin Adams, Catherine King and Dianne Jolley), both presented at SETAC-EU in Rome. Megan presented on the use of diffusive gradients in thin-films (DGT) to predict toxicity of nickel in sediment to a benthic marine amphipod while Darren presented on the use of DGT to assess the risk of metal mixtures in polar environments. After the conference they both presented research at the LEMAR Lab, University of Brest, France.



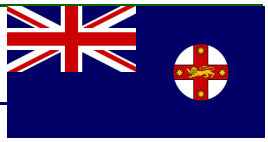
PhD students Darren Koppel and Megan Gillmore present their research at LEMAR, University of Brest, France

Sarah Stone has commenced her PhD at the University of Wollongong working on improving the assessment of potential impacts from intermittent, short-term, stormwater and effluent discharges to aquatic environments. Sarah is supervised by Stuart Simpson and Monique Binet (CSIRO Land and Water) and Dianne Jolley. Since February, Sarah has been developing a pulse toxicity test using the calanoid copepod, *Arcatia sinjiensis*, using larval development as an endpoint. This pulse method has been applied to dissolved Ni to investigate sensitivities of different life stages, and the applicability of time averaged concentrations to predict toxicity. She has worked closely with a French intern student, Laura Legendre from the French Engineering School ENSAIA, who has also been working on optimising culturing and pulse methods, and establishing toxicity thresholds to a number of metals with a newly isolated benthic copepod species (*Nitocra*-like sp.). This has been successful with *Nitocra*-like sp. currently reproducing in the lab better than our traditional benthic copepod *Nitrocra spinipes*.



Francesca Gissi receiving the AMSA Allen award at the annual AMSA conference in Adelaide, July 2018. Presented by AMSA president William Figueira.

Francesca Gissi (CSIRO, University of Wollongong) was this year's recipient of the Australian Marine Science Association (AMSA) Allen Award. The award supports an outstanding postgraduate student to attend the AMSA Annual conference



with the aim of providing the student with the opportunity to gain experience and contacts and to present their research in a plenary session. By attending the conference, the student will serve an important role as an ambassador for Australian marine science (https://www.amsa.asn.au/allen-award). This year's AMSA conference was in Adelaide, 1st – 5th of July and the title for the conference was "Canyons to Coasts" with the aim to progress our scientific understanding of the interconnectedness between the coast and deep sea.

Francesca presented research from her PhD project, a collaborative project with (NIPERA) and co-supervised by Jenny Stauber (CSIRO Land and Water), Dianne Jolley (University of Wollongong), Amanda Reichelt-Brushett (Southern Cross University) and Anthony Chariton (Macquarie University). This research was conducted at the National Sea Simulator, AIMS, Townsville and investigated changes in the structure of coral microbiomes following exposure to dissolved nickel and copper (separately). This research is contributing to the understanding of how corals and their associated microbiota are impacted by metal contaminants, with the ultimate aim to provide high quality data which will contribute to the development of ecologically relevant water quality guidelines in tropical marine waters.

Office of Environment and Heritage (OEH), Environment Protection Science Branch, Amanda McDonald (amanda.mcdonald@environment.nsw.gov.au)

We recently bid farewell to Katelyn Edge who has moved across to the EPA's incident management team. Katelyn was a Senior Scientist with OEH for 4 years but has been at our Lidcombe facility for almost a decade while undertaking her PhD and various other projects. It was sad to see her go but we wish her all the best in her new position.

On the flip side, we had the pleasure of recently welcoming Jessica Holan and Timothy Remaili to the branch. Jess has been busy helping out the Environmental Forensics team, while Tim has joined our specialist PFAS aficionados. Both have made their impact felt in the short time they've been with us.

Emily Woodward from Western Sydney University (WSU) has also joined us to undertake research into the degradation and toxicity of class A firefighting foam in soils in conjunction with Fleur Pablo. Emily is undertaking her Master's degree at WSU under the supervision of Val Spikmans.

Andrew Symons is also working with Val Spikmans and PhD student Rylee Lam on rapid identification of hazardous organics at fire scenes. Yarong Li and Chris Doyle are also set to begin a collaborative project with Val and the NSW EPA examining the utility of field portable analytical equipment for responding to pollution incidents. Both of these projects are funded by Environmental Trust grants.

More broadly across the branch we have been busily increasing our capabilities to respond to pollution incidents and investigate contamination issues across NSW. Mano Veeragathipillai, Vicki Fermor and Anand Chandra are developing XRF (X-ray fluorescence) techniques for rapidly assessing heavy metal levels at contaminated sites, while Amanda McDonald and Anneke Coomans have been establishing new cultures of local invertebrate species to expand our ecotoxicity testing repertoire. Andrew Symons and Jessica Booth have also been busy developing a NATA accredited method for analysing PFAS concentrations in a range of matrices.

Also on the PFAS front, Karl Bowles and Janina Beyer-Robson continue to support the NSW EPA with their PFAS contaminated site assessments across NSW. Karl was also instrumental in the recent revision of the PFAS national environmental management plan (PFAS NEMP).

If you want to know more about our programs, please get in touch.

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

Regional Reports

Northern Territory

Environmental Research Institute of the Supervising Scientist, Ceiwen Pease (Ceiwen.Pease@environment.gov.au)

The Water and Sediment (WASQ) team at ERISS has continued to be productive in the second quarter of 2018. We are now in the process of completing our 5th and final direct toxicity assessment of waters from different locations on the Ranger Uranium mine site. The next stage of the process, combining the data to inform mine closure, is an interesting and challenging task.

Linda Kleinhenz has completed both ammonia and magnesium testing using the chronic mussel test protocol she has developed. She is in the last stages of writing this method up for publication and the acute method was accepted for publication in ET&C (found here). Linda has almost completed her last season of mussel collecting prior to completing her PhD.

The WASQ team has been really busy with a large amount of fieldwork being done. PhD student Lisa Chandler is out collecting groundwater samples in the hopes of spotting some elusive stygofauna to contribute to her PhD on assessing the ecological risks of mine water contaminants in the dry season subsurface waters of the Magela creek sand channel. Annual recessional flow sampling of invertebrates in the creeks surrounding the mine and fieldwork using the newly developed videography-based methods for monitoring fish communities in the billabongs surrounding Ranger Uranium mine have also been completed.

(L) Andrew Jansen deploying underwater cameras. Each float is one camera. (R) Linda Kleinhenz collecting mussels with a sophisticated collection 'tool'

The research from our collaboration on the validation of the Nickel Biotic Ligand Model (NiBLM) for local species in Australia has also been published (find it here). It was a privilege to be part of such an interesting project working with people all over the world.

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

Regional Reports

Queensland

New UQ-DES Ecotoxicology Collaboration

Michael Warne has returned after two and a bit years at the Centre of Agroecology, Water and Resilience at Coventry University, United Kingdom. He has taken up an Associate Professor position at the School of Earth and Environmental Sciences, University of Queensland (UQ). This position is jointly funded by the Qld Department of Environment and Science (DES) and UQ. His new role is to facilitate greater collaboration between UQ and the Queensland Government particularly on any aspect of ecotoxicology and potential impacts on rivers that discharge to the Great Barrier Reef and the reef itself and to conduct research that adds value to the work Queensland Departments are doing.

Currently he is working with Olivia, Rachael and Reinier from DES in finalising new water quality guideline values for 28 pesticides and acting as a reviewer of guidelines that have been derived by others along with Graeme Batley, Rick van Dam and Alicia Hogan. He's looking forward to catching up with you all at the next SETAC conferences. You better have your dancing shoes on!!

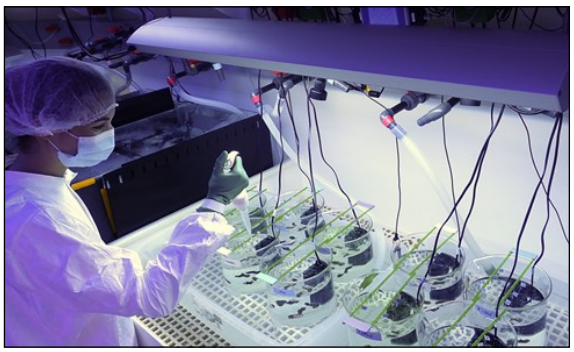
Australian Rivers Institute (ARI) - Griffith University

Chantal Lanctôt recently returned from Monaco where she worked for six month at the International Atomic Energy Agency (IAEA). Her research at the IAEA involved using radiotracer technologies to study the effects of microplastics and associated chemical contaminants on marine organisms. Chantal is now commencing an ARC DECRA Fellowship at the Australian Rivers Institute during which she will explore how metamorphosis influences metal burdens and toxicity in amphibians.

Congratulation to Shima Ziajahromi, who was recently awarded her Doctorate in environmental toxicology!! Shima's research explores the fate and effects of microplastics in domestic wastewater on aquatic wildlife. Shima was also a Fresh Science QLD finalist and had to present an overview of her PhD research in the time it takes for a sparkler to burn without mentioning the words "microplastic", "microfibre" or "microbead"!

Steven Melvin has been awarded a one-year extension of his Griffith University Postdoctoral Fellowship (GUPDF) in recognition of his contributions to ecotoxicology, and for establishing what is now a very active metabolomics research group at Griffith. Following his extended GUPDF, Steve will continue at Griffith and transition to a more balanced research/teaching position.

Fred Leusch has been appointed as Deputy Head of School (Research) in the new School of Environment and Science, and he is busy working on his carbon footprint by driving up and down the highway between Brisbane and the Gold Coast – ah, the pleasures of having two main campuses! He is currently working on several projects with water industry partners, including a project to look at enhancing direct toxicity assessment of wastewater using *in vitro* assays and looking at the fate and removal of microplastics in sludge.



Chantal undertaking experiments at the IAEA to study effects of microplastics on coral (Photo credit: Hugo Jacob).

Shima presenting at Fresh Science in Brisbane (Photo credit: Kate Webber).

Steven D Melvin (s.melvin@griffith.edu.au)**, Queensland Representative**

Regional Reports

Victoria

An exciting new research collaboration has just been initiated between Melbourne Water and RMIT University. The yet to be named group will see most of Vin Pettigrove's group from CAPIM pull up stumps at the University of Melbourne and move to RMIT's School of Science to commence work as part of a 5 year research agreement with Melbourne Water. The new research centre will be based on the RMIT Bundoora West Campus and will utilise and expand the Ecotoxicology Research labs and Aquatic Centre in the School of Science.

Stay tuned for an announcement of an official name for the new group and details of upcoming aquatic pollution and ecotoxicology projects.

Taken at an informal afternoon tea to welcome the researchers to RMIT. L to R: Dr Judy Blackbeard, Manager Applied Research, Melbourne Water; Prof. Peter Coloe, Pro- Vice Chancellor Science Engineering and Health, RMIT University; Dayanthi Nugegoda, Professor of Ecotoxicology, RMIT University (former SETAC AU President); Vincent Pettigrove (A/Prof Director) and Prof. Trevor Stevenson, Deputy Dean, Research and Innovation, School of Science, RMIT University.

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

PhD students Michael Bertram and Jake Martin have just travelled to Europe for two international conferences. Michael and Jake both attended SETAC Europe's 28th Annual Meeting in Rome, where Jake presented a poster, and Michael a platform presentation. For his talk, Michael was awarded the ECETOC Young Scientist Award for the best Early Career platform presentation — congratulations, Michael! Michael and Jake then attended the European Congress of Conservation Biology meeting in Jyväskylä, Finland, where both students gave platform presentations.

Michael receiving his award at SETAC Europe's 28th Annual Meeting in Rome.

Jake presenting his poster at the European Congress of Conservation Biology meeting in Jyväskylä, Finland.

Regional Reports

Victoria

Environmental Chemistry and Contaminants Laboratory La Trobe University, Ewen Silvester and Aleicia Holland

The biogeochemistry and ecotoxicology laboratory at La Trobe University has a number of projects underway at the moment. Aleicia has been busy characterising dissolved organic carbon from a number of different freshwaters around Australia using optical and analytical methods as part of her ARC DECRA project (see Holland et al 2018 below). Gabriella Macoustra (PhD student: University of Wollongong; Supervisors: Aleicia Holland, Dianne Jolley and Jenny Stauber) has been exploring the effect of the same DOCs on copper toxicity to the tropical freshwater alga *Chlorella sp.* and has recently submitted her first manuscript out of her PhD on this topic. Congratulations Gaby! Ewen has been busy analysing storm response samples from alpine peatlands for free and combined amino acids to better understand the contribution of this potentially important bioavailable N source to the dissolved organic nitrogen (DON) pool. Aleicia and Ewen will also analyse samples collected along an acid mine drainage (AMD) gradient in the Dee River, Central Queensland to investigate effect of AMD on amino acid composition of different macroinvertebrate taxa. PhD students Manisha Shakya and Francesco Columbi have also been busy in the field and laboratory. Manisha (Supervisors: Ewen Silvester, Gavin Rees and Aleicia Holland) has been busy exploring the effect of Cu on amino acid composition of a variety of freshwater organisms including *Chlorella sp.* and southern purple spotted gudgeons. Francesco Colombi (Supervisors: Ewen Silvester and Darren Baldwin) is currently working on the ARC Rivers of Gold project looking at how gold mining in the 19th and early 20th centuries altered the floodplain sediments of the affected river valleys. Honours student Teresa Calipari (Supervisor: Aleicia Holland) has been busy determining concentrations of microplastics in the Murray River and in carp.

Aleicia collecting macroinvertebrates from the Dee River contaminated by acid mine drainage, Ewen sampling alpine peatlands.

Recent Publications

Holland, A., Stauber, J., Wood, C., Trenfield, M., Jolley, D. (2018) Dissolved organic matter signatures vary between naturally acidic, circumneutral and groundwater-fed freshwaters in Australia, Water Research, 137, 184-192: https://doi.org/10.1016/j.watres.2018.02.043.

Harris, C.W., Rees, G.N., Stoffels, R.J., Pengelly, J., Barlow, K., Silvester, E. (2018) Longitudinal trends in concentration and composition of dissolved organic nitrogen (DON) in a largely unregulated river system. Biogeochemistry 2018, 139 (2), 139-153. https://doi.org/10.1007/s10533-018-0462-x

Dwyer, G.K., Stoffels, R., Shackleton, M., Silvester, E., Rees, G. (2018) A predicted change in the amino acid landscape available to freshwater carnivores. Freshwater Science 2018, 37, 108 – 120. https://doi.org/10.1086/696128

Davies, P., Lawrence, S., Turnbull, J., Rutherfurd, I., Grove, J., Silvester, E., Baldwin, D., Macklin, M. (2018) Reconstruction of historical riverine sediment production on the goldfields of Victoria, Australia. Anthropocene 2018, 21, 1 – 15. https://doi.org/10.1016/j.ancene.2017.11.005

Student Completions

Georgia Dywer (PhD) The significance of amino acids to the nutritional ecology of aquatic carnivores (thesis passed July 2018 – congratulations Georgia!)

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

Regional Reports

Western Australia

Since October 2017, Jarrad Baker has been busy growing barramundi and undertaking oil exposures using Montara crude oil. The aim of this project is to validate a range of biomarker responses in fish exposed to a medium-light crude oil that lacks the majority of the higher molecular weight PAHs responsible for inducing many of the biomarkers traditionally used in oil spill monitoring. Jarrad has also recently been on a week-long diving holiday in the Solomon Islands for a well-deserved break from the stresses of raising baby fish.

Christopher Rawson and Monique Gagnon are heavily involved in teaching at Curtin University, but are still involved in ecotoxicology. Monique has a new PhD student, Damian Lettoof, who will use traditional biomarkers to evaluate the health status of tiger snakes in urban wetland – should be interesting field work!

Also at Curtin University, Monique Gagnon has commenced working on an ARC Linkage grant she recently obtained with PTTEP Australasia titled "Fish Fingerprints: signatures of oil contamination". The research will explore the transformation and geochemical signature of light and heavy crude oils while it is weathering in the environment or transformed by living organisms. Associated with this grant is a 3 year PhD scholarship, so interested candidates are welcome to contact Monique (m.gagnon@curtin.edu.au) to discuss the project, which has marine biology as well as chemistry components (chemical aspects are managed by a post-doc fellow in geochemistry).

In Fremantle, 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 Stringer 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 Suzanne Vardy

Susi Vardy leads the scientific investigation team in the Queensland Department of Environment and Science (DES). The team investigates alleged environmental harm. Susi has a PhD in chemistry and did her honours thesis on the bioaccumulation of metals in the mangrove crabs *Uca coarctata* and *Australoplax tridentata*, a project thought up by Munro Mortimer, whose job she now does.

On completion of her PhD, Susi worked in the wastewater treatment industry – in both the galvanising industry and the working with pig effluent. She was lucky enough to travel between farms in Warwick, QLD and Louisiana and Mississippi in the USA, which made up for the many litres of fresh pig urine she had to collect for experiments.

She then took up a post-doctorate at the University of St Andrews, Scotland. The project involved ground truthing data for use in the improvement in classification of remotely sensed data for intertidal areas and looking at the role algae plays in stabilising the sediment of tidal inlets. Work was undertaken in the Eden Estuary, Scotland and in the Venice Lagoon, Italy.

On her return, Susi was lucky enough to start working at Hydrobiology under Ross Smith, where she spent five years working on mainly mining projects in countries including Australia, PNG, Indonesia, the Philippines and Sierra Leone. She was principal scientist on the Great Barrier Reef Catchment Loads Monitoring Program (QLD Government) for a couple of years before moving to her current role, which she loves.

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

SETAC AU Mid-Career Medal 2017

Associate Professor Kimberly Hageman

I am greatly honoured to be the awardee of the SETAC Australasia 2017 Mid-Career Medal. Having been asked to describe my career path to date, I will a share a few stories with you here.

My life as an environmental chemist began on a fortuitous day during my early undergraduate education in Ohio when I first heard the words 'environment' and 'chemistry' used together. Seriously? Environmental chemistry is an actual topic! Yay! 'Yay!' because I knew that day what I would be doing for the rest of my life. And 'yay!' because until then, I had envisioned chemistry and environment studies as mutually exclusive fields of study – I was pleased to learn I was wrong.

Since I knew what I was going to do for the rest of my life, it seemed like a good time to get started. Soon thereafter, I came across an advertisement from a PhD student looking for a summer field assistant to help collect soil and lichen in the boreal forests of northwestern Ontario…via extended backcountry canoe trips! That summer inspired my continuing obsession to do field work in as many of the most beautiful places in the world as possible. Following this line of thought (and the northern trajectory I found myself on), my next fieldwork assignment was at Toolik Lake Field Station in Arctic Alaska, where I served as an assistant to the research assistant on a big Arctic nutrient addition study.

Temple Basin, Arthur's Pass National Park: Kim with passive air samplers

After jumping on a few other opportunities to travel the world and oh right, seriously advance my analytical chemistry skills by working in Steven Hawthorne's lab at the University of North Dakota, I decided it was high time to start my PhD. Steve said I should work for Jennifer Field, and since he always had good advice, I headed off to Oregon State University to study trichloroethene biodegradation in groundwater. Heaps of fieldwork, yes – but all of it sitting among scary decommissioned smokestacks at an abandoned chemical manufacturing plant. I could not have asked for a better PhD mentor than Jennifer Field (who I should note sent me to my first SETAC conference: SETAC Baltimore 2001!). My next lucky break was the arrival of Staci Simonich at Oregon State University. I couldn't believe it when I found she needed a post-doc to study contaminants in… remote alpine lakes in national parks – yay! Out of the groundwater and back to the mountains for me!

Otira Stream, Arthur's Pass National Park: Kim setting up passive water samplers

Nearing the end of my post-doc position, I came across an advertisement for an environmental chemist at the University of Otago in Dunedin, New Zealand. I had never heard of 'Otago' or 'Dunedin' and certainly didn't know how to pronounce these words correctly, but decided I couldn't go wrong in applying. More than a decade has quickly passed since then and I must now thank my partner, students, colleagues, friends…and the 'land of the long white cloud' for all the amazing times and amazing research opportunities in New Zealand. In these years, my research group analysed everything from pesticides to PCBs to flame retardants in air, soil, sediments,

SETAC AU Mid-Career Medal 2017

Associate Professor Kimberly Hageman

pine needles, stream water, glacier melt water, fish, stream macroinvertebrates, and bees. The best part of my job has always been learning new things from collaborators and students, fascinating things like: why do honey bees waggle dance? and how can we determine the life history of a fish? and can organic compounds tell us the sea surface temperature a million years ago?

After eleven years in New Zealand, my husband and I decided it was time to jump ship and move closer to family in the States. In January 2018, I started a new position in the Department of Chemistry and Biochemistry at Utah State University. Hey, come visit me in Utah! It is another one of the world's most beautiful places.

Brewster Glacier: Former students (Xiaolin Wu, Cleo Davie-Martin, and Christine Steinlin) with passive samplers

Applications for the SETAC AU Early-Career and Mid-Career Medals will open in early 2019. Please check our website for more information.

Student Profile

Michael Bertram

Name: Michael Bertram

Degree: Doctor of Philosophy (Biological Sciences)

Institution: Monash University
Supervisors: Assoc. Prof. Bob Wong
Dr. Minna Saaristo

Est. Compl. November 2018

Thesis Title: *Impacts of pharmaceutical pollution on fitness-related traits and behaviours in fish*

Email: michael.g.bertram@monash.edu
Lab website: http://www.bobwonglab.org/
Google Scholar: https://scholar.google.com/citations?user=dnbO4DgAAAAJ&hl=en

About me

In 1997, at age 8, my parents pulled my sister and I out of school for a term to spend 9 weeks in a 70s-era caravan exploring outback Australia. Our teachers argued that our learning would suffer but this couldn't have been further from the truth. We set out on the (very) long drive from Melbourne, through Adelaide and Port Augusta, heading north to Kati Thanda–Lake Eyre, where a young me decided to excavate a bearded dragon entombed in the salt flat—for scientific purposes, of course. Continuing north to Alice Springs, we kept ourselves entertained in the car by spotting wedge-tailed eagles perched along the roadside, and by listening to the Violent Femmes on repeat. My sister and I saw our first dingoes at Uluru, and ~five hundred-strong flocks of red-tailed black cockatoos at Kings Canyon. Heading north to Darwin and then Kakadu National Park, we chanced upon a brumby foal being dragged into a billabong and eaten by saltwater crocodiles! We then travelled east, through Mount Isa to Townsville, and north up the coast, where we snorkelled spectacularly beautiful reefs at Beaver Cay off Mission Beach, and zip-lined through the lush canopy of the Daintree Rainforest. Last, we hugged the east coast for the long drive home, making various pit stops, including for a whale watching cruise in Hervey Bay and to see the Tin Can Bay dolphins.

Now obvious in hindsight, this family adventure, and others like it, were hugely significant in developing my appreciation for nature. After having experienced Australia's diverse landscapes, and the weird and wonderful flora and fauna adapted to live in them, it's no wonder that my studies from there forward leaned towards the life sciences. I completed my secondary schooling at Balwyn High School, before taking up a BA/BSc at

My collaborators and I use mosquitofish (pictured here), and various other model species, to investigate potential impacts of contaminants of emerging environmental concern on ecological and evolutionary processes in wildlife. Photo credit: Steve Morton, Monash University.

Student Profile

Michael Bertram

Monash University, majoring in Psychology and Zoology, respectively. Then, while studying at Monash, I had another major formative experience: attending Assoc. Prof. Bob Wong's lectures in his third-year 'Animal Behaviour' unit. Bob's lectures are always captivating and colourful, and jam-packed with interesting examples from the literature. In particular, I was drawn to research studying animal behaviour to determine the fate of species under human-induced rapid environmental change. This was a perfect fit as Dr. Minna Saaristo had joined Bob's lab and was researching, among other things, the potential of chemical pollutants—particularly endocrine-disrupting chemicals, and pharmaceuticals—to alter animal behaviour and, in doing so, influence fitness in wildlife. Under the inspiring co-supervision of Bob and Minna, I completed an Honours year investigating impacts of exposure of guppies (*Poecilia reticulata*) to the veterinary pharmaceutical 17β-trenbolone, an anabolic steroid used as a growth promoter in livestock and a known androgenic endocrine disruptor that has repeatedly been detected in aquatic habitats. This work revealed that field-realistic concentrations of 17β-trenbolone can alter sexual selection processes in guppies, with exposed males switching to a coercive 'sneak' mating strategy instead of performing their stereotypical elaborate courtship displays. I then continued with this research and am currently in the final year of my PhD.

Fishing for pike and European perch to be tested in experiments investigating impacts of the pharmaceutical pollutant oxazepam on anxiety-related behaviours and anti-predator responses in fish. This work was part of an ongoing collaboration between our research group and Dr. Tomas Brodin's team at Umeå University, Sweden. Photo credit: Annelie Lagesson, Umeå University

PhD Research

Pharmaceuticals are used across the globe in human and veterinary healthcare, as well as for growth promotion in livestock. Over the past 10–15 years, however, it has been recognised that pollution resulting from the production and consumption of pharmaceuticals poses a major threat to wildlife, ecosystem function and human health. To give some idea of the scale of the issue, the number of pharmaceutical doses dispensed per annum is predicted to reach 4.5 trillion by 2020, an increase of 24% from 2015 levels, with this trend being driven by a growing and ageing human population, as well as rapid growth in access to healthcare in emerging markets. This increased demand for pharmaceuticals has, consequently, resulted in an escalation of the quantity and diversity of pharmaceutical pollutants being discharged into the environment. Despite this, we still have only a rudimentary appreciation and understanding of how exposure to pharmaceutical pollution might affect complex behavioural processes in wildlife, which is surprising given the fundamental role of behaviour in the ecology of individuals, the evolution of populations and species, and the ability of animals to respond to environmental change.

We use flow-through exposure systems (pictured here), as well as long-term mesocosm systems, to expose fish to environmentally realistic levels of contaminants of emerging concern.

My PhD research is focussed on investigating effects of exposure to pharmaceutical pollution on behaviours

influencing survival and reproductive fitness in wildlife. This work is concentrated on two contaminants of major environmental concern, the anabolic veterinary pharmaceutical 17β-trenbolone, and fluoxetine, an antidepressant medication that is frequently detected in the environment, including in Australia. I use fish as a model to test impacts of these contaminants on behavioural traits with direct ecological and evolutionary significance, including processes of sexual selection (e.g. mate choice), antipredator behaviour, sociability, foraging, boldness, and activity. I strongly favour a multidisciplinary approach and so also collaboratively investigate impacts of chemical pollutant exposure on a number of other endpoints, including morphology and physiology, sperm performance, metabolic rate, gene expression, and histopathology.

Where to from here

I am currently in Europe after attending SETAC Europe's 28th Annual Meeting in Rome, and the 5th European Congress of Conservation Biology in Jyväskylä, Finland. I plan to submit my thesis in November 2018 so, when I get back to Melbourne, I will be busy writing up my final chapters and will be on the hunt for a post-doc position!

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

Student Corner

APSAC: Calling for Designs of Their Logo

The Asia Pacific Student Advisory Council (APSAC) is calling for submissions of designs for our very own logo. The eligibility of participants has now been extended to **all postgraduate students within SETAC Asia-Pacific**.

If your logo is the winning design, you will **WIN 1 YEAR FREE student membership of SETAC**, and your winning logo will serve as the public logo of APSAC and will be used in all activities organized by APSAC.

The submission deadline has been extended to **31 August 2018**. You can follow our Twitter and Weibo for the most up-to-date information. You can also directly send your enquiries to us through email. We are looking forward to seeing your designs soon!

Racliffe Weng Seng Lai, APSAC Vice-Chair
Francesca Gissi, APSAC Chair
Ronia Sham, APSAC Secretary

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

One day anthropogenic debris conference

Understanding and managing the sources, fate and ecotoxicological impacts of anthropogenic debris

Time: 8.30 am to 7 pm
Date: Tuesday 21 August 2018
Location: Sydney Institute of Marine Science, 19 Chowder Bay Road, Mosman NSW 2088

This conference will explore our current scientific understanding and management of the sources, fate and impacts of different sizes (nm, um, mm, cm, m) and types (polymers, metals, minerals) of anthropogenic debris to the ecosystem (marine, freshwater and terrestrial habitats). The speakers will explore these issues by discussing (i) the latest robust scientific methods, analyses and syntheses (based on systematic and critical evaluations of the scientific literature); (ii) policy and management of contamination and pollution by government and industry. This conference is organised by the University of New South Wales, University of Sydney and Sydney Institute of Marine Science with support from SETAC Australasia and the Australian Research Council.

Speakers confirmed so far are:

- Prof. Richard Thompson – University of Plymouth
- Prof. Tony Underwood – University of Sydney
- Prof. Gee Chapman – University of Sydney
- Dr Mark Anthony Browne – University of New South Wales

Cost will be $100 for non-members and $50 for SETAC members. The cost will include morning tea, lunch and dinner with drinks. The event will be capped at 60 participants, so if you are interested you need to get in fast.

To register, head to the following website. Using this link, you will be offered registration at $100. This page invites you to log in to your SETAC membership page or join SETAC.

If you use the link above while logged in to your SETAC membership page you will be offered registration at $50 (unless you are an unpaid membership type - i.e. "guest member" in which case it is still offered at $100).

For further information on the conference or if you are having issues registering, please contact Tom Cresswell or Mark Browne.

What's Happening?

Conferences and Workshops

WiOW2018 /SETAC Australasia
29th October-1st November, CSIRO Discovery Centre (Canberra, Australia)
www.wiow.com.au

The 2018 What's in Our Water (WiOW) Symposium is the 6th in a series that has been running since 2004 in conjunction with CSIRO and SETAC Australasia. It is a single-track symposium offering excellent exposure and networking opportunities for researchers, managers, policy makers and all others interested in the identification and management of micropollutants in the environment.

This year the event will take place at the CSIRO Discovery Centre in Australia's capital city, Canberra, and the conference dinner, a highlight of previous WiOW meetings, will be held at the beautiful The Boat House, taking in the ambience of Lake Burley Griffin.

Global leaders on micropollutants have consistently presented as plenary speakers at this event and this year is no exception with David Sedlak (UC Berkeley, USA), Annegaaike Leopold (Calidris environment BV, The Netherlands), Ed Topp (Agriculture and Agri-Food Canada) and Virginia Baker (Institute for Environmental Science & Research, New Zealand) presenting.

- This year, WiOW 2018 will have a strong focus on per and poly-fluorinated substances (PFASs), among other emerging contaminants, as PFASs have recently become a high profile issue. WiOW 2018 sessions will cover exposure, fate, effects and remediation of PFASs in the environment. A strong field of contributions have been received by the organisers allowing several sessions devoted to PFASs in the environment. The opening plenary lecture by Prof Sedlak will also cover management of emerging contaminants including PFAS.
- Early bird registrations close on **10 September 2018** and we hope to see you there!

SETAC SETAC AUSTRALASIA #WiOW2018

Participants from the 2016 WIOW/EmCon conference in Sydney

What's Happening?

Conferences and Workshops

SETAC-AP 2018

Daegu, KOREA 16th - 19th September 2018

HOPE TO SEE YOU ALL TOGETHER AT SETAC ATTRACTIVE PROGRAM IN A MONTH!

This year SETAC-AP is excited to provide attractive and informative programs for everyone to attend.
The programs we have prepared for you during the SETAC-AP are listed below.
As a member of SETAC, you can get a discounted rate when you register for the conference.
You can read more information on the website. Conference registration is also available on site.
Now that SETAC-AP is a month away, we are looking forward to meeting you in Daegu, Korea.

∴ **KEY DATES** ∴

Early – Bird Registration ‖ 2nd March - 31st July
Standard Registration ‖ 31st July - 31st August
SETAC-AP Conference ‖ 16th - 19th September

Plenary Speakers


Prof. Kurunthachalam KANNAN


Prof. Ming Hung WONG


Prof. Eddy Y. ZENG


Prof. Duk-hee LEE


Dr. Bin-Le LIN


Prof. Patrick GUINEY


Dr. Veronique POULSEN

BEST Attractive Program

Mentoring Program and Student Program	Short Courses
We strongly encourage students (mentees) to register for the mentoring program to expand their network and to better navigate through the conference. We also highly recommend that experienced members participate as a mentor.	At the SETAC-AP Conference, you can expand your academic expertise by taking short courses. **Short Course 1.** How to use the risk-based corrective action (RBCA) approach for effective contaminated site remediation **Sort Course 2.** Fundamentals of Environmental Risk Assessment
Special Symposium	**Tours**
The SETAC International Program Committee (IPC) and the SETAC Asia Pacific (SAP) Geographic Unit are hosting a Symposium entitled "Application of Weight of Evidence Approaches for Chemical Management" as part of the 2018 SETAC-AP Conference.	Daegu has four out of 10 World Heritage Sites officially designated by UNESCO in Korea. There are various opportunities and attractions for domestic and foreign tourists. We are also providing excursions to Gyeongju, a well-known historical city of Korea.

Useful Information for Participants

Accommodation information ‖ We have provided hotel information nearest from the venue here.

Conference Venue information ‖ . Click here for more information about the venue. EXCO.

Prof. Yoon-Seok CHANG
POSTECH (Pohang University of Science and Technology)
Co-Chair, Organizing Committee
SETAC Asia-Pacific Conference 2018

Prof. Sang-Don KIM
GIST (Gwangju Institute of Science and Technology)
Co-Chair, Organizing Committee
SETAC Asia-Pacific Conference 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.

If you are interested in using Twitter but don't know where to start, a SETAC AU guide to Twitter is available on the SETAC AU website.

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

Search for @SETACAu

 # People who like this page: 179

Twitter Handle - @SETAC_AU

 # Following: 903
 # Followers: 619

Profile visits (April – July): 680
Mentions (April – July): 34

#SETAC_AU ***#pollution***

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?

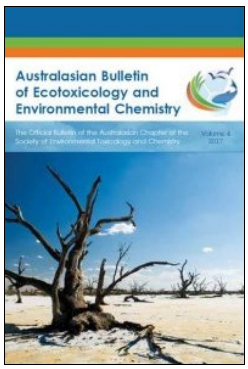
- Exposure to students as potential employees
- Give back to your professional community by sharing your insights and experience
- Stay on top of emerging science through engaging in research-based discussions with your mentee

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 you manuscripts.

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

SETAC Journal Highlights

Selected abstracts from the June 2018 issue of Environmental Toxicology and Chemistry

DeForest DK, Gensemer RW, Gorsuch JW, Meyer JS, Santore RC, Shepard BK, Zodrow JM. 2018. Effects of copper on olfactory, behavioral, and other sublethal responses of saltwater organisms: Are estimated chronic limits using the biotic ligand model protective?, 37 (6): 1515–1522 *DOI: 10.1002/etc.4112*

Abstract: There is concern over whether regulatory criteria for copper (Cu) are protective against chemosensory and behavioral impairment in aquatic organisms. We compiled Cu toxicity data for these and other sublethal endpoints in 35 tests with saltwater organisms and compared the Cu toxicity thresholds with biotic ligand model (BLM)–based estimated chronic limits (ECL values, which are 20% effect concentrations [EC20s] for the embryo-larval life stage of the blue mussel [*Mytilus edulis*], a saltwater species sensitive to Cu that has historically been used to derive saltwater Cu criteria). Only 8 of the 35 tests had sufficient toxicity and chemistry data to support unequivocal conclusions (i.e., a Cu EC20 or no-observed-effect concentration could be derived, and Cu and dissolved organic carbon [DOC] concentrations were measured [or DOC concentrations could be inferred from the test-water source]). The BLM-based ECL values would have been protective (i.e., the ECL was lower than the toxicity threshold) in 7 of those 8 tests. In the remaining 27 tests, this meta-analysis was limited by several factors, including 1) the Cu toxicity threshold was a "less than" value in 19 tests because only a lowest-observed-effect concentration could be calculated and 2) Cu and/or DOC concentrations often were not measured. In 2 of those 27 tests, the ECL would not have been protective if based only on a conservatively high upper-bound DOC estimate. To facilitate future evaluations of the protectiveness of aquatic life criteria for metals, we urge researchers to measure and report exposure-water chemistry and test-metal concentrations that bracket regulatory criteria.

Rogowska J, Olkowska E, Ratajczyk W, Wolska L. 2018. Gadolinium as a new emerging contaminant of aquatic environments, 37(6): 1523–1534 *DOI: 10.1002/etc.4116*

Abstract: Since the 1980s, gadolinium (Gd)–based contrast agents (GBCAs) have been routinely used in magnetic resonance imaging as stable chelates of the Gd^{3+} ion, without toxic effects. Generally, GBCAs are considered some of the safest contrast agents. However, it has been observed that they can accumulate in patient tissue, bone, and probably brain (causing nephrogenic systemic fibrosis in patients with kidney failure or insufficiency and disturbance of calcium homeostasis in the organism). The GBCAs are predominantly removed renally without metabolization. Subsequently, they do not undergo degradation processes in wastewater-treatment plants and are emitted into the aquatic ecosystem. Their occurrence was confirmed in surface waters (up to 1100 ng/L), sediments (up to 90.5 µg/g), and living organisms. Based on a literature review, there is a need to investigate the contamination of different ecosystems and to ascertain the environmental fate of Gd. Long-term ecotoxicological data, degradation, metabolism, bioaccumulation processes, and biochemical effects of the Gd complexes should be explored. These data can be used to assess detailed environmental risks because currently only hotspots with high levels of Gd can be marked as dangerous for aquatic environments according to environmental risk assessments.

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 www.setac.org. After logging in, go to the SETAC Australasia page and click 'Request Membership'. 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 www.setac.org and selecting 'Manage Profile', then 'Edit Bio'.

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

SETAC AU Membership Renewal

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. The link to renew your membership, which is provided in the reminder email as your renewal date approaches, is https://setacap.site-ym.com.

Around 25% of members are still paying through SETAC North America and this causes several administrative problems including:

- Charges by the USA office for their staff time handling these wrongly made payments
- Currency exchange fee losses for AUD (or NZD) to USD then back to AUD
- Foreign transaction charges on the member's credit card (charged to the member by their credit card provider)
- It can take up to a year for wrongly paid renewal payments to reach SETAC AU via SETAC North America
- Members' expiry dates for their next membership renewal date may be set wrongly when they pay North America instead of Asia-Pacific
- Members may not get automatic reminders next time (the North America office does not send automatic reminders)
- The AU Treasurer has to waste his time untangling the administrative mess involving all of the above.

If a member does log in at setac.org they can navigate to the Asia-Pacific payment page, but it is easier to use https://setacap.site-ym.com.

Also, a BIG NO NO is for a SETAC AU member to purchase a "combi-registration" at a SETAC Europe or SETAC North America conference (a "combi-registration" is a combined conference registration and membership payment). This causes total chaos in the membership system (all of the above plus others) and the membership fee may never reach AU, but instead is swallowed up in the conference.

A detailed guide to renewing your SETAC membership online can be found here.

Munro Mortimer (ase@hydrobiology.biz)**, Treasurer**

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.

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

SETAC AU

Council Members

Position	Elected Member
President	Andrew Harford (andrew.harford@environment.gov.au)
Immediate Past President	Anthony Chariton (anthony.chariton@mq.edu.au)
Vice Presidents	Kathryn Hassell (khassell@unimelb.edu.au) Tom Creswell (tom.cresswell@ansto.gov.au)
Secretary	Suzanne Vardy (suzanne.vardy@des.qld.gov.au)
Treasurer	Munro Mortimer (ase@hydrobiology.biz)
Membership Officer	Chantal Lanctôt (chantal.lanctot@gmail.com)
Bulletin Editor	Reinier Mann (reinier.mann@des.qld.gov.au)
Communications Officer	Peta Neale (p.neale@griffith.edu.au)
Strategic Directions Officer	Katelyn Edge (Katelyn.Edge@epa.nsw.gov.au)
Student Representative	Divya Vinod (divya.g.vinod@gmail.com)

Regional Representatives

Region	Elected Member
Australian Capital Territory	Julia Jasonsmith (Julia.jasonsmith@murrang.com.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.0@gmail.com)
Tasmania	Cath King (cath.king@aad.gov.au)
Victoria	Minna Saaristo (minna.saaristo@monash.edu)
Western Australia	Monique Gagnon (m.gagnon@curtin.edu.au)
Papua New Guinea	Kundo Hundang (guba.hundang@gmail.com)
New Zealand (North Island)	Jennifer Gadd (jennifer.gadd@niwa.co.nz)
New Zealand (South Island)	Sally Gaw (sally.gaw@canterbury.ac.nz)