SETAC
Metals Interest Group (MIG)
2021 Newsletter

In this issue:

- SETAC Europe 2021, Session 3.09
- 2021 SETAC / ICA Chris Lee Award for Metals Research
- Early career scientist feature
- Some papers of interest
- Career opportunities at SETAC Careers page
- Mark your calendars

MIG Newsletter Editors
- Sanjana Banerjee
- Christopher Cooper
- William Stubblefield
- Kevin Brix
Dear Metals Interest Group Members,

Well, if you can believe it, it has been about a year and a half since the inaugural Metals Interest Group newsletter. Not much has happened in between, right? Given that the world has been experiencing some difficulties during this time, it has been great to see that SETAC has not missed a beat, with a seamless transition into virtual conference mode. I am sure the SETAC staff have had a few sleepless nights over this, so I think we can all give them a virtual round of applause in appreciation.

In this edition of the MIG newsletter, we give you a summary of the discussions had at this year’s SETAC virtual conference (many thanks to Raewyn and Stephen!), the full article will soon be published in the SETAC Globe. Obviously a big congrats to Christopher J. Kotalik, last year’s Chris Lee award winner; feel free to submit nominees for this great award. We then have your usual list of scientific papers that you might (hopefully, better!) find interesting, some job openings and some dates for your diary. However, proceeding that is a new feature – a spotlight on an early career scientist. A chance for someone in academia, consultancy, industry, even governmental positions to say a few words and get some well-deserved recognition and exposure. We thought who better, than our new lead editor Sanjana Banerjee! A brilliant segue for me to be able to thank Sanjana, not only for volunteering to take on the MIG newsletter (she is of sane mind, I promise), but also for really driving this forward – many thanks again!

So, please enjoy the newsletter, of course feedback is always welcome. And can you believe it, no mention of COVID or vaccinations... damn it...

Cheers,

Chris, Kevin, Bill and Sanjana.
SETAC Europe 2021 Session 3.09

Importance of chemical speciation and bioavailability in hazard assessment, risk assessment and regulation of metals in multi-stressor environmental conditions

Co-chairs: Raewyn M. Town, Adam Peters, Stephen Lofts, Christopher Cooper

The online discussion of the session on ‘Metals in the Environment’ focused on overarching issues of interest, and the main points of discussion encompassed:

**Climate change related stressors**

A range of phenomena associated with climate change influence on metal speciation and bioavailability, e.g., wildfires, increased meltwater, increased mineral weathering. The relative importance of the various phenomena will be region-specific, e.g., in the UK excess rainfall may lead to leaching of metals from mining waste, whilst in Southern Europe, droughts and wildfires may be of primary concern.

**Mixture or combination toxicity**

Descriptors for mixture toxicity remain largely empirical and even metal mixture effects cannot be properly described by BLMs. In addition, there is no sound means to predict the potential combined toxicity of metals and organic pollutants. Analysis of mixture effects must consider both the influence of modified chemical speciation in the exposure medium, as well as altered biological responses. Although it was suggested that the available literature for metal plus organics toxicity was relatively low, the ‘toxic unit’ principle may work for metal plus organics toxicity. Given the vast number of possible mixture scenarios, suggested strategies to tackle mixture toxicity include identification of the most important combinations of compounds which occur in the environment, as well as groups of compounds with similar modes of action, e.g., redox effects. Risk assessments may need to include a “safety factor” for mixtures.
Bioavailability models
Regulators are comfortable with BLMs, despite their shortcomings, e.g., a separate BLM is needed for every compound for each biological species and for particular conditions. Whilst there is agreement that a more generic approach is highly desirable, it is challenging to develop a mechanistic strategy that will be practical for regulatory purposes.

Compliance assessment
Many sites have significant background concentrations of metals arising from weathering of rocks and soils; however, surprisingly, there is little information on weathering rates. There are also limited data on the extent to which organisms acclimate and/or adapt to elevated background metal concentrations. There is no agreed means by which background concentrations can be properly taken into account in assessment of compliance with EQS.

Conclusions from the session
There is a need to critically revise current empirical strategies for dealing with metal mixtures, as well as mixtures of metals together with organic pollutants, and in combination with climate change related phenomena. In compliance assessment, robust (site specific) strategies are needed to account for background concentrations of metals.

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2021 SETAC / ICA Chris Lee Award for Metals Research
The award is sponsored by The International Copper Association and initiated by SETAC to recognize the leadership and technical contributions by the late Dr. Chris Lee.

It provides up to US$ 5,000 to a graduate student or recent graduate who has focused on research related to the fate and/or effects of metals in the environment. A key consideration for
this award is that the recipient will continue research on metals-related environmental issues and funding will be provided toward the recipient's ongoing research. If you are aware of a deserving young researcher, please consider sending in a nomination by 11 August 2021.

Recipient of the 2020 SETAC / ICA Chris Lee Award for Metals Research

Christopher J. Kotalik
Colorado State University, United States

Have a look at all SETAC Awards and find more information on awards.setac.org.

Early career scientist feature

Sanjana Banerjee is a PhD student at the University of Louisiana at Lafayette (UL Lafayette), USA working on metal contamination in freshwater environments, with a specific interest in the invasive snail species, *Pomacea maculata*. Sanjana received a 4-year doctoral fellowship from the Institute of Coastal & Water Research, UL Lafayette to investigate the ecotoxicological consequences of their introduction in Louisiana wetlands. Given higher tolerance of the snails to environmental stressors, she is investigating their potential use in metal biomonitoring through toxicity bioassays and mesocosm experiments. Originally from India, Sanjana graduated in 2013 with a M.S. degree in Zoology, University of Calcutta. Prior to her PhD, she also worked for two years on government funded projects focused on functioning and ecology of the Sundarbans estuarine system, West Bengal, India.

Enthusiastic about expanding STEM mentorship and career awareness, she co-developed a research initiative called The Research Option promoting scientific research as a career option to undergraduate and high school students in. Sanjana is also actively involved in SETAC activities, serving on many committees and interest groups.

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Scientific papers to tickle your fancy


Congratulations to all!!
Career opportunities

Post title: Global Regulatory Ecotoxicologist  
Organization name: FMC  
Location: Newark, Delaware, United States  
Harrogate, Other / Non-North America, United Kingdom  
Posting: https://careers.setac.org/job/seniorprincipal-consultant/56739921/

Post title: Postdoctoral Fellow  
Organization name: Dow Chemical  
Location: Midland, Michigan, United States  
Posting: https://careers.setac.org/job/postdoctoral-fellow/57041219/

Post title: Toxicologist/Health Assessor  
Organization name: Idaho Public Health  
Location: Boise, Idaho, United States  
Posting: https://careers.setac.org/job/toxicologisthealth-assessor/57307097/

For more postings, visit the SETAC Careers page at https://jobs.setac.org/.

Mark your calendars

- SETAC Africa 10th Biennial Conference (virtual)- 20-22 September 2021
- SETAC Latin America 14th Biennial Conference (virtual)- 26-29 September 2021  
  - 26 July 2021: Early bird registration closes
- SETAC North America 42nd Annual Meeting (online + Portland, Oregon, USA)- 14-18 November 2021  
  - 15 July 2021: Registration opens
- SETAC Europe 32nd Annual Meeting (Copenhagen, Denmark)- 15-19 May 2022  
  - 15 June 2021: Session proposal submission opens  
  - 6 October 2021: Abstract submission opens  
  - February 2022: Registration opens

Want to join or know more about the Metals Interest Group (MIG)? Check out the page- https://www.setac.org/group/IGMetals.

Well done, you made it to the end of the newsletter! Your reward is a bad joke....

Q: What is the fastest way to determine the sex of a chromosome?  
A: Pull down its genes. Saucy...