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NorCal SETAC

Northern California Regional Chapter • Society of Environmental Toxicology and Chemistry

101 Second Street, Suite 700, San Francisco, CA 94105 • (866) 251-5169 x1108 • norcalsetac@onebox.com

Spring 2018 – In this Issue:

Note from the President

Lisa Hunt

In 2018 we are excited to welcome four new board members to the NorCal SETAC Regional Chapter - check out their bios in this newsletter! We also want to recognize the service of several outgoing board members whose terms ended in 2017: Allen Tsao, Rachel Zajac-Fay, and Ben Brown. They have contributed greatly to SETAC in recent years, and we are immensely thankful for their efforts. We will miss them!

2018 is a very special year because the SETAC North America Annual Meeting will be held in Sacramento in November, and the Program Committee is being chaired by two NorCal SETAC BoD members, Michelle Hornberger and Eric Van Genderen. This will be a great opportunity to showcase work done by NorCal SETAC members, and we hope to see many of you presenting your research there. Don't forget to submit your abstract by June 6!

Because we are hosting the North America Annual Meeting this year, there will be no NorCal SETAC Annual Meeting this spring. However, we do have a Delta Boat Tour and a Spring Social coming up very soon on April 17 and 18, so don't forget to put them on your calendar! There are only a few spots left for the Delta Boat Tour, so make sure to register ASAP, but

there is no need to register in advance for the Social – just show up at the door! The price of the Spring Social includes your 2018 Annual NorCal SETAC membership, which we are offering at a special discounted rate this year.

Upcoming Events

Sarah Stinson

Join NorCal SETAC for a Spring Social Event with delicious food, tasty drinks, stimulating conversation with fellow scientists, students, and professionals and a keynote address. Student scholarship awardees will also be presenting their work. This event is in lieu of the NorCal annual meeting, because SETAC North America will be in Sacramento this November!

When: April 18, 2018 from 6:00 to 8:30 PM.

Where: Dunloe Brewing Company
1606 Olive Drive, Davis CA
(http://www.dunloebrewing.com/)
Spare the air! Bike or carpool to the event.

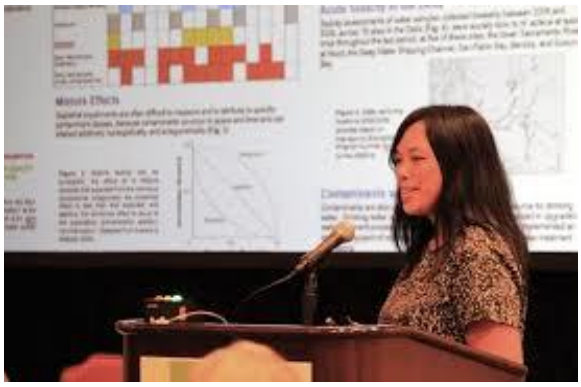

photo credit: Maven's Notebook

Keynote speaker: Stephanie Fong

NorCal SETAC is happy to announce that **Stephanie Fong** will be our Spring Social keynote speaker. Stephanie is an Environmental Scientist with 20 years of experience working in the academic, government, and public authorities. Her presentation is entitled "Contaminants are part of fish habitat: Highs and lows of integrating contaminants studies with biological surveys."

Food: Chickpeas Mediterranean Food (vegan and gluten free options)

Drink: Craft beer* from Dunloe Brewery.

*Each entry will come with one beer ticket, and attendees have the option to purchase additional beer. Non-alcoholic beverages will also be served.

Cost: Event fee of $10 for professionals, $5 for students – includes NorCal SETAC annual membership. If you have already paid, the event is free

Questions? Contact Aniela.Burant@cdpr.ca.gov

Delta Boat Tour

Tuesday April 17, 8:30 AM – 3:30 PM

Join us for a tour through the North Delta, guided by four acclaimed Delta Scientists who will be giving talks on historical and ongoing research in the North Delta, as is relates to Environmental Toxicology and Chemistry.

Free to NorCal SETAC members! Space is limited, so sign up soon!

Contact krista.hoffmann@water.ca.gov

39th SETAC North America Annual Meeting
Nov 4-8 Sacramento, CA

"Bridging Divides Between Environmental Stewardship and Economic Development"

We are excited to welcome the SETAC North America Annual Meeting to Sacramento. Join us to explore the link between sustainable economic development and environmental stewardship, with particular focus on ecological and societal considerations. This meeting offers plenty of opportunities for students and professionals to explore the connections between desired ecosystem goods and services, stable flourishing societies and sustainable economies.

Important deadlines:

6 June: Abstract submission
15 August: Early bird registration
15 October: Last day to register online

Full meeting and registration info at: https://sacramento.setac.org

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Student Corner: Opportunities and Awards

Sarah Stinson

NorCal SETAC Student Scholarships

As of April 6th, NorCal SETAC has received all applications for graduate and undergraduate student scholarships for 2018. Our Board of Directors is currently reviewing these proposals and will announce the award recipients at our Spring Social in Davis, CA on April 18th. The top 3 proposals will also receive a 1 year membership to NorCal SETAC.

NASAC info

Attention all environmental sciences, toxicology and ecology students! Are you ready to get involved in working to solve real environmental challenges, but don't know where to start? The Society for Environmental Toxicology and Chemistry (SETAC) has a unique opportunity for both graduate and undergraduate students to have their voices heard.

SETAC's mission is to support the development of principles and practices for protection, enhancement and management of sustainable environmental quality and ecosystem integrity. The Society provides a forum where scientists, managers, and other professionals exchange information and ideas for the development and use of multidisciplinary scientific principles and practices leading to sustainable environmental quality.

NASAC provides a voice for SETAC student members and represents student interests within SETAC North America. We provide advice, recommendations, and new initiatives related to student activities. If you are looking for the perfect opportunity to make a difference in environmental issues facing professionals across multidisciplinary fields of study today, then join us! Details on how to get involved can be found on the website.

2018 Student Scholarships

Zeka Glucs

As of March 6th NorCal SETAC has received all applications for graduate and undergraduate student scholarships for 2018. We are currently reviewing these proposals and will announce the award recipients at our Spring Social in Davis, CA on April 18th. The top 3 proposals will also receive a 1 year membership to NorCal SETAC.

2017 Student Award Recipients

Sarah Stinson and Zeka Glucs

Congratulations to the recipients of our 2017 undergraduate and graduate student scholarships, Elizabeth Berry and Zane Mortenson!

Zane Mortenson, CSU Monterey Bay, Graduate Student Scholar

Over the past two years I have investigated the potential of woodchip bioreactors in successfully reducing nitrate concentrations commonly observed in agricultural effluent. Through these efforts specific variables that influence the metabolic process of cultivated bacterial communities were identified and controlled to enhance microbial digestive capabilities. Preliminary research into the mitigative properties of wood chip bioreactors has resulted in a system design that accounts for the mesophilic characteristics of cultivated bacterial communities, as well as the determination of a specific substrate capable of suppling a sufficient source of carbon and prompting hydraulic efficiency.

By evaluating the different variables that influence the bacterial digestive process, I was able to produce a system capable of treating high contaminate levels while limiting the cost and land usage associated with the implementation of infrastructure or the development of an artificial wetland. Initial results have demonstrated the ability of wood chip bioreactor to successfully reduce nitrate levels in contaminated water by an average of 21% after being retained in experimental channels over a period of 1 hour. Although the past finding showed promise, additional researcher was required to ensure the reproducibility of these results.

Thanks to the funding provided by the Northern California Regional Chapter of the Society of Environmental Toxicology and Chemistry (NorCal SETAC) I was able to continue my research to validate the preliminary results. Similar to initial observations, the follow up study confirmed that nitrate concentrations in larger water bodies were reduced by an average of 30% each day the contaminated water was recirculated through the bioreactor. Going forward, I will continue to focus on the remediation potential of wood chip bioreactors by investigating the application of this technology to treat a variety of pesticides commonly used in agricultural practices.

Elizabeth Berry, **UC Davis, Undergraduate Student Scholar**

My research was to determine whether pesticides commonly found in California surface water affect fish susceptibility to opportunistic bacteria using Japanese Medaka (*Oryzias latipes*) as an animal model. The pesticide used for the study was bifenthrin, with two different concentration levels. After exposure for four days to the pesticide, ten fish were euthanized to look at oxidative stress while the remaining ten were exposed to the bacteria (*Edwardsiella piscicida*). The endpoints of the experiment were the activity of enzymatic antioxidants, concentration of non-enzymatic antioxidants, and oxidative damage in liver, as well as mortality. The experiment is still ongoing and the different endpoints are being measured. The NorCal SETAC funds were necessary in allowing me to obtain all the materials necessary to run the assays measuring the activity of enzymatic antioxidants, as well as the materials to perform the experiment such as buckets, nets, and beakers.

We also congratulate our award winning students presenters from the 2017 NorCal SETAC Annual Meeting in Sacramento, CA.

Gabriele Pecora, UC Davis	1st place presentation
Marie Stillway, UC Davis	2nd place presentation
Megan McWayne, USGS	3rd place presentation
Giselle Rizzi, UC Santa Cruz	1st place poster
Zeka Kuspa, UC Santa Cruz	2nd place poster
Melissa Bolotaolo, UC Davis	3rd place poster

From left to right: Dr. David Ostrach and Melissa Bolotaolo (UC Davis), Megan McWayne (USGS).

From left to right: Zeka Kuspa (UC Santa Cruz), Giselle Rizzi (UC Santa Cruz), Marie Stillway (UC Davis), Dr. David Ostrach and Gabrielle Pecora (UC Davis)

Upcoming Events and Deadlines

- SETAC Europe Annual Meeting –
- ASLO Summer Meeting –
- SETAC North America

Get your Research published in the NorCal SETAC Newsletter or on our Website!!

We are also looking for research contributions to our website and future NorCal SETAC Newsletters. If you have any publications, reports or research findings you would like to share with the NorCal SETAC community please contact Sarah Stinson, our webmaster and the Chair of our Newsletter Committee, with a brief summary of your research or a contribution (sastinson@ucdavis.edu).

New NorCal SETAC Board Members

Dr. Aniela Burant is an Environmental Scientist in the Surface Water Protection Program (SWPP) at the California Department of Pesticide Regulation. Aniela is involved in monitoring and outreach efforts concerning best management practices for the removal of pesticides in agricultural runoff; monitoring and outreach efforts surrounding copper anti-fouling paints in marinas, and determining the potential of pesticides from seed treatments to enter surface waters. Aniela is the SWPP outreach coordinator and is working with urban, agricultural, and marina stakeholders to inform them of changes to pesticide laws and regulations, best management practices, and other SWPP updates. Aniela has been with CDPR since May 2017; prior to which she was a post-doctoral researcher at Colorado School of Mines studying trace organic contaminants in urban stormwater. Aniela received her BS in environmental engineering from the University of Florida and her MS and PhD in environmental engineering from Carnegie Mellon University. Aniela is an avid runner and hiker, likes to listen to podcasts, and cooking.

Dr. Richard E. Connon is an environmental toxicologist with over 17 years of research experience. His research focus is on utilizing systems biology to evaluate ecological stress. As such his laboratory conducts assessments of molecular responses to chemical challenges, and evaluates how these are associated with responses measured at higher levels of organization. This approach is geared towards the development of biomarkers, and how they can be best applied as tools for monitoring aquatic systems.

His interest in water quality is both in terms of human consumption and environmental health, and currently utilizes fish models towards understanding the mechanism(s) of action of agricultural and urban contaminants; with a particular interest in pesticides and pharmaceuticals in the aquatic environment. Research in his laboratory encompasses endocrine disruption and sexual differentiation, as well as neurodevelopment and behavioral alterations following exposures to different chemical classes. His interest in systems biology and stress ecology stems from past research conducted on Daphnia magna during his PhD and post-doctoral research, which contributed to Daphnia becoming a model NIH species. Having a mechanistic understanding of how the ever-changing contaminants affect biological systems is crucial to the development of toxicological tools and approaches.

Dr. Connon completed a BSc in Environmental Sciences at the Middlesex University, London (1998) which included an honors research program at the University of Valencia, Spain as an ERASMUS student. He then received a PhD in Toxicology at the University of Reading (/redding/), Berkshire, UK where he continued as a post-doctoral fellow, conducting transcriptomic research on pesticide impacts on Daphnia magna growth, development and reproduction. In 2007 as post-doctoral fellow, he came to UC Davis to sequence the transcriptome of the endangered delta smelt, and conduct toxicological studies on various fish species as well as continue research with aquatic invertebrates. Dr. Connon is now an Associate Adjunct Professor in the School of Veterinary Medicine, expanding on his interest in toxicology to encompass climate change and multi-stressor assessments.

He has been a member of SETAC since 1999, is involved in the organization of the Sacramento 2018 NA SETAC meeting, and is keen on serving on the NorCal SETAC Board of Directors. SETAC provides a great opportunity for networking, and sharing ideas and opportunities with like-minded colleagues, towards developing stronger tools and approaches in environmental toxicology.

Dr. Bryand Duke is a Senior Environmental Scientist with the California Department of Fish and Wildlife's Office of Spill Prevention and Response (OSPR). Within OSPR Bryand serves as a member of the Natural Resources Damage Assessment team.
After graduating from the University of Mississippi with a Bachelor's degree in Biological Science (emphasis in Environmental Toxicology) and a minor in English, he worked as a Research Scientist at the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi. While working at ERDC, Bryand received his Master of Science degree in Biological Science with an emphasis in Environmental Toxicology from Alcorn State University.

During this time, Bryand also worked with the U.S. EPA and other scientists to develop new bioassay procedures, and he conducted bioaccumulation experiments using radiolabeled (14C) compounds. His research also involved conducting bioassays using mixtures of metals, PCBs, petroleum hydrocarbons, and military unique compounds (e.g. TNT, HMX) in marine and freshwater environments. After conducting research for several years as a Research Scientist for the Environmental Toxicology and Risk Assessment team, Bryand returned to graduate school to work on his doctorate at Clemson University, and subsequently completed his doctorate in Ecotoxicology/Natural Resources.

As a prior member of the Department of Fish and Wildlife's California Environmental Quality Act program, Bryand frequently worked with environmental laws, NEPA, adaptive habitat management plans, mitigation plans and restoration plans. He also served as an expert in ecotoxicology for the State Wildlife Action Plan. Furthermore, Bryand also has a certificate in biotechnology, and has worked with algal and cyanobacterial control techniques for part of his career. In his current role, Bryand works on natural resource damage assessments (and projects) related to petroleum. Additionally, he also serves as the OSPR Habitat Restoration Coordinator.

Bryand, who has been the recipient of SETAC student travel awards in the past and who has participated in SETAC North America since 1991, has a strong desire to give back to NorCal SETAC using his time and experience.

Ben Young Landis is a science writer and creative consultant, and currently serves as Communications Advisor to the California Council on Science and Technology in Sacramento, California.

Ben received his B.A. in Evolution and Ecology and Minor in Education from UC Davis, and his Master of Environmental Management degree from the Duke University Nicholas School of the Environment, where he concentrated in environmental economics and policy. He was awarded a AAAS Mass Media Science & Engineering Fellowship in 2009, working at the Orange County Register as a science journalist. Ben also received the NOAA Walter B. Jones Sr. Memorial Award for Excellence in Coastal and Marine Graduate Studies in 2010.

Ben's roots in environmental science spanned aquatic ecology, macroinvertebrate bioassessment, fish biology, and water resources management. However, his career since has specialized in the communication of science, environment, and society. He worked as a writer and editor for North Carolina Sea Grant, and has led science communication trainings for UC Davis, Duke University, the National Association of Science Writers, the Delta Science Fellows Program, and NorCal SETAC. Notably, he served as Science Communicator for the USGS Western Ecological Research Center from 2010 to 2015, where he covered endangered species, methylmercury, wildfire ecology, habitat restoration, and other research. Ben also founded the Capital Science Communicators (CapSciComm) professional network in 2013 and serves as its executive chair.

"I love identifying perspectives and contexts across issues, disciplines, and audiences — and what more important a field to do so than environmental toxicology and chemistry?" Ben says. "The protection, enhancement, and management of environmental quality and ecosystem integrity depends on the clear communication of science to stakeholders and managers. I'm excited to join the NorCal SETAC Board, and I hope my experience in scicomm can contribute to our mission and service to the public and to our professional community."

Membership Information

2017-18 Sustaining Members

Thank you to our new and renewing members. Our sustaining members provide the majority of our operating budget for the annual meeting and we greatly appreciate their continued support of NorCal SETAC. Thank you!

Please consider supporting our Regional Chapter by becoming a sustaining member. These funds are used to help fund student awards and scholarships, and offset costs associated with the annual meeting, short courses, and career development events for students and young professionals. Three levels of support are available:

- GOLD Level supporters contribute $1000 per calendar year
- SILVER Level supporters contribute $750 per calendar year
- BRONZE Level supporters contribute $350 per calendar year

The benefits in becoming a sustaining member include having your company name and logo advertised in newsletters and the website; recognition at the Annual NorCal SETAC meeting, and other sponsored events; Free advertising for newsletter ads; Invitation to Sustaining Member Lunch during our Annual Meeting.

Individual Memberships are available for an annual cost of $20 (professional) and $10 (student). Please visit the NorCal SETAC website to join.