SoCal
SETAC News

Society of Environmental Toxicology and Chemistry
Southern California Chapter

Volume 27 Number 4 Fall 2020

FEATURE ARTICLE

Impacts to Water Quality from Wildfires

By Chris Stransky[1.] With contributions from James Guilinger[2.] and John Rudolph[1.]
1. Wood Environment & Infrastructure
2. UC Riverside Department of Environmental Science

Periodic wildfires are a natural component of southern California's forest and scrubland and are essential to maintaining overall ecological health of these systems. Recently however these fires have become much more severe and destructive in the western parts of the U.S. As of November 4th this year more than 9,000 fires have burned over 4.3 million acres (6,700 square miles) in California making 2020 the largest wildfire season recorded in California's modern history according to the California Department of Forestry and Fire Protection (https://www.fire.ca.gov). Five of the 20 largest fires in State history have occurred in 2020 providing stark evidence of the effects from climate change and related concerns on what these impacts will have on our communities and the environment in the future. Wildfires destroy vegetation, wildlife, and infrastructure and have taken a major toll on human life directly and indirectly in the aftermath.

Just as wildfires directly impact air quality, they can also affect water quality and availability. Water quality and supplies can be adversely affected during the active burning of a wildfire and for years afterwards. During active burning, airborne ash and contaminants associated with ash settle on streams, lakes, and water reservoirs. Vegetation that holds soil in place and retains water is burned away. In the aftermath of a large wildfire, rainstorms can flush vast quantities of ash, sediment, nutrients and contaminants into streams, rivers, and downstream reservoirs. The absence of vegetation in the watershed can create conditions conducive to erosion and even flooding, and naturally occurring and anthropogenic substances can impact drinking water quality, discolor recreational waters, and may potentially contribute to harmful algal blooms. Additionally, intense burns can also cause the formation of a water repellent soil layer that can block water infiltration and contribute to runoff and erosion, and this has been an important concern in western shrublands. Elevated dissolved organic carbon in reservoirs after fires have been found to have a significant effect on treated water quality due to the enhanced production of carcinogenic disinfection byproducts (trihalomethanes and haloacetic acids) through the treatment process . Fires, particularly in urbanized areas, have the potential to release a wide variety of contaminants that may then be transported by runoff to our waterbodies[1].

Despite the recognition of these many impacts, few studies have thoroughly documented effects and recovery with no coordinated regional monitoring of water quality following fires. In 2009 a technical report[1] by Dr.

The Holy Fire above Lake Elsinore. Aug 9, 2018 nbcsandiego.com

President's Corner

Nick Hayman

Happy Fall everyone! I am honored to be acting as the 2020-2021 President for SoCal SETAC and I am excited for the upcoming year, despite some serious challenges we are all experiencing this year. I have been a part of SoCal SETAC since my first meeting in 2014 during my Master's degree at San Diego State University. That meeting was such a critical part of my graduate program as my research on the effect of pesticides on predator-prey relationships was somewhat out of scope for many of the meetings that my graduate school colleagues attended. It was awesome to be at a meeting with people interested in the same questions as me! SoCal SETAC has been instrumental in building my

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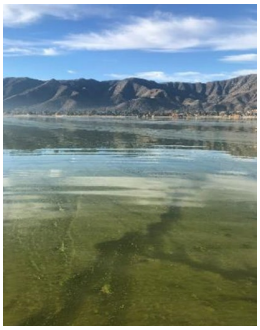
Eric Stein and Jeff Brown of the Southern California Coastal Water Research Project (SCCWRP) was prepared that highlighted the challenges of post-fire monitoring along with a proposed regional monitoring framework to address key management questions including:

1) How does post-fire runoff affect contaminant flux?
2) What is the effect of post-fire runoff on downstream receiving waters?
3) What are the factors that influence how long post-fire runoff effects persist?

Many current programs, though not coordinated to focus specifically on water quality due to fires, can still provide valuable insight on impacts and recovery with proper attention and follow up. A few examples in southern California include the regional Stormwater Monitoring Coalition (SMC) watershed monitoring program, the State of California Surface Water Ambient Monitoring Program (SWAMP), municipal stormwater (MS4) monitoring programs, regulatory TMDL programs, and the regional Bight monitoring program. Although not a coordinated regional program, the USGS California Water Science Center does have a research program dedicated to assessing impacts from wildfires providing a great resource of information at https://ca.water.usgs.gov/wildfires/. The U.S. EPA is also embarking on various studies to assess impacts from wildfires with a research framework published in 2019. https://www.epa.gov/sites/production/files/2019-04/documents/wildland_fire_research_framework_final-tagged.pdf

Local Post-Fire Watershed Monitoring – Lake Elsinore

One recent example of an opportunistic assessment of fire impacts was conducted in 2018-2019 at Lake Elsinore in southern California in response to the Holy Fire which burned approximately 23,000 acres of mostly natural forest in the watersheds above the lake . Significant erosion of sediments occurred following large storm events during the winter following the fire. A study by Dr. Andrew Gray's Watershed Hydrology Lab and collaborator Dr. Nicolas Barth of the University of California, Riverside set out to understand how various erosional processes acted to contribute sediment to post-fire debris flows and floods over this wetter-than-average water year following the fire . To do this, they used ground-based laser scanners and unmanned aerial vehicles to create detailed maps of erosion and deposition using data captured before and after major storm cycles in a steep headwater catchment. They found that initial post-fire debris flows were primarily fueled by channel erosion, and that as the supply of channel sediment became limited during later runoff events, so did total sediment export. However, sediment transport events later in the season were still laden with sediments from shallow hillslope erosion that likely occurred during brief spikes in rainfall intensity. This study, along with a few other local examples, highlights the importance of the evolution of post-fire sediment supplies over storm sequences, which may be incorporated into future erosional risk models. Much of the eroded material from the burned areas was fortunately captured in debris basins managed by the Riverside County Flood Control and Water Conservation District (RCFC&WCD), though sediments below the basins ended up making their way into Lake Elsinore creating a new delta at the north end of the lake below the watershed. Post fire monitoring efforts by the RCFC&WCD found high concentrations of suspended sediments, elevated trace metals, and nutrients in runoff from the watersheds draining to Lake Elsinore. Concentrations of metals and nutrients however were primarily associated with the particulate fractions. Longer term effects related to these discharges are uncertain at this time, however these constituents will likely have a long residence time in the lake given its geography in a shallow terminal basin with rare outflows during only extremely wet years. One very interesting and unexpected impact to the lake was a rapid shift in the phytoplankton populations after the first rains, followed by a large-scale fish die off that was attributed to a toxic algae species, the Golden algae *Prymnesium parvum*. Since this one large bloom, the Golden algae has yet to return to levels that might cause fish mortality. Another documented impact from the fire appeared to be enhanced loading of phosphorus in the sediments of Lake Elsinore near the watershed drainage point, likely in part due to the Phosphorus-containing flame retardants (Phos-Chek) dropped by aircraft around the lake to suppress the fire. The impacts from fires can be quite complex indeed.



Cyanobacteria algae bloom at Lake Elsinore, 2019. Photo by John Rudolph, Wood.

Drinking Water Supplies

In the western U.S., an estimated 65% of fresh water supplies originate from forested watersheds, which, depending on their conditions, can be highly susceptible to forest fires. Due to the unpredictable nature of wildfires, drinking-water utilities face a considerable challenge to develop plans and strategies for managing floods and treating polluted water. Information and tools are needed to help water storage and treatment managers better prepare for wildfire impacts. How do wildfires change the amount of water and sediment flowing into a stream and ultimately lakes and reservoirs that may

Feature Article (continued)

not have been built to accommodate them? What are the impacts on water treatment and ultimate water quality? What can treatment plants and reservoir managers do in advance to be prepared for potential impacts with the increased threat of wildfires?

A plane drops fire retardant behind homes along McVicker Canyon Park Road in Lake Elsinore as the Holy fire burned near homes on Wednesday afternoon, August 8, 2018. (Photo by Mark Rightmire, Orange County Register/SCNG)

Need for more Research

The recent fires in 2020 have burned areas with an untold number of sensitive waterways, reservoirs, and lakes in CA and elsewhere in the western U.S. The direct immediate impacts from fires (e.g. ash fallout) have been occurring all summer and fall, but the most significant impacts will likely not be realized until the rains come with the resulting inflows of sediment, debris, nutrients, and chemical contaminants. Now is a critical time to identify sensitive waterbodies to develop a monitoring program. Understanding impacts and developing mitigation strategies for water treatment will be critical, as well as understanding and managing short and long term effects that may impact ecological communities and other beneficial uses including potable use and recreation. What kinds of pollutants are impacting water quality and are they more or less bioavailable? Will they have the potential to induce harmful algal blooms and subsequent negative impacts? Answers to these questions of course will vary significantly depending on the type of waterbody and uses, as well as specific areas burned (vegetation, geography, soil types, structures, historic activities, etc.) lending the need for site-specific studies. Also, how resilient are waterbodies impacted from wildfires – can they recovery quickly? If you are a graduate student looking for a project there is quite a host of ideas with a significant immediate need on the topic.

And a little primer plug for our next annual **SoCal SETAC meeting in April 2021** during which we are planning to have a special session dedicated the topic of wildfire impacts on water quality. Please keep an eye out on an announcement soon and we look forward to hearing any lessons learned from you all as well. Let's also hope that 2021 and years ahead will be less disastrous than 2020. Sincere thoughts to all of those that have been affected this past year.

Endnotes

1. https://www.epa.gov/sciencematters/wildfires-how-do-they-affect-our-water-supplies

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5. Wood Environment & Infrastructure (2019). Lake Elsinore In-Lake Holy Fire Runoff Sediment & Water Monitoring Technical Report. Prepared for the Lake Elsinore & San Jacinto Watershed Project Authority and Santa Ana Regional Water Board. August, 2019.G. G. Stokes, "On the Effect of Internal Friction of Fluids on the Motion of Pendulums," Transaction of the Cambridge Philosophical Society, Vol. 9, Part 2, 1851, pp. 8-106.

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8. Tang, H., McGuire, L. A., Rengers, F. K., Kean, J. W., Staley, D. M., & Smith, J. B. (2019). Evolution of Debris-Flow Initiation Mechanisms and Sediment Sources During a Sequence of Postwildfire Rainstorms. Journal of Geophysical Research: Earth Surface, 124(6), 1572-1595.http://dx.doi.org/10.15585/mmwr.mm6928e2

9. Beyene, M. 2019. Wildfires: How Do They Affect Our Water Supplies? United States Environmental Protection agency (U.S. EPA) online article. Published August 13, 2019. https://www.epa.gov/sciencematters/wildfires-how-do-they-affect-our-water-supplies.

PRESIDENT'S CORNER (continued)

professional network and it is where I have met many of my favorite scientists doing this critical work. I appreciate how active and welcoming our chapter is; it is truly a privilege to help lead this organization.

Of course, one of the major reasons that SoCal SETAC has been one of the most successful chapters in North America is due to our incredible officers. I am pleased to have both Chris Stransky and Erika Holland as our Past Presidents this year as we navigate the challenges of planning our annual meeting given the pandemic and both have provided valuable mentorship with leading this organization. Further, our incredible Co-Secretaries, Misty Mercier and Alvina Mehinto make sure that our chapter stays on track and help keep everything organized. Our webmaster Violet Renick keeps our website up to date, which has been very important during this particular moment, and our Treasurer Joe Freas keeps us on track with our finances. Finally, I am excited to have Karin Wisenbaker joining our team as vice-president this year. She was an invaluable board member the last two years and I am thrilled to see her taking on our student awards and newsletter duties. With such a great team, I know we will have a successful year!

In addition to our officers, we have always had excellent members of our Board, who are tireless advocates of this organization and provide critical help in planning our events. I am grateful for those Board members who are continuing this year; Varenka Lorenzi, Ashley Parks, Kate Buckley, and Amanda Russell and to those who are rotating off this year; Mary Woo, Jun Zhu, and Nicol Parker. Thanks to their efforts and creativity, we still had a successful past year, despite everything that 2020 has been throwing at us. Finally, I am thrilled to have Andrea Bonisoli-Alquati, Leslie Nanninga, Barbara Orelo, and Kara Wiggin joining this year. All four of them have already contributed to the success of our organization this fall.

It is odd to be taking leadership of this organization this year as we are rapidly adjusting our events to the virtual world to make sure everyone is safe and healthy during this global pandemic. Luckily our officers and Board members are rising to the occasion. We planned an excellent virtual event this October, where we had 8 students present their research over Zoom. Of course, these virtual events are only as successful with excellent participation from our students and members, which we greatly appreciate. We were blown away by the quality of student presentation in the 5-minute lightning format and are grateful to them for taking the time to make such high-quality presentations. As many of us prepare for the upcoming NA SETAC SciCon2 virtual meeting, please take a look at the list of presentations from SoCal SETAC members in this newsletter. I would also like to extend congratulations to this year's graduate student research grant winner and this year's diversity attendance award for the North America SETAC SciCon2 virtual meeting Aaron Angel, from Cal Poly Pomona. In addition, I would like to congratulate Aaron Sugimoto from CSU Long Beach who won our graduate student attendance award for the North America SETAC SciCon2 virtual meeting. These awards are made possible through generous donations from our platinum sponsors: Enthalpy Analytical, Aquatic Bioassay & Consulting Laboratories, Inc., Weck Laboratories, Inc., and Wood.

It is going to be a great year for SoCal SETAC and we look forward to working with all of you and "seeing" you at our virtual events, including our 2021 Annual Meeting in April 2021. If you have questions or want to be more involved, please do not hesitate to reach out to me, our officers, or our Board.

WELCOME NEW SETAC BOARD MEMBERS

Andrea Bonisoli-Alquati, California State Polytechnic University, Pomona

Leslie Nanninga, City of San Diego, Public Utilities Department

Kara Wiggin, Scripps Institution of Oceanography

Barbara Orelo, Enthalpy Analytical

MEET THE BOARD

Andrea Bonisoli-Alquati

California State Polytechnic University, Pomona

Andrea and his wife, Alessandra Gerevini

I was honored to be elected to SoCal SETAC's Board this year, and it is my pleasure to introduce myself. I am an environmental toxicologist and evolutionary ecologist, working as Assistant Professor at Cal Poly Pomona. I am originally from a city in Italy called Cremona, famous for violinmaking and a few obligatory Renaissance painters. I received my PhD from the University of Milan – where I also did my undergraduate and Master's.

I moved to the US as a postdoc at University of South Carolina, to research the effects of radioactive contamination in Chernobyl on the physiology of birds. Radionuclides can be a persistent contaminant. Their mutagenic effects over long time frames create a window on the process of evolutionary adaptation. With this in mind I went to the Chernobyl Exclusion Zone to sample forest birds a number of times. I found that birds in contaminated sites had higher oxidative stress, higher DNA damage, and higher rates of morphological abnormalities. Some of these consequences, however, depended on the ecology of the different species. Ecological variation was driving differences in exposure, while also affecting the sensitivity of different species. Later I expanded this research by investigating contamination effects from the 2011 Fukushima nuclear accident. During field expeditions to Japan, I used micro-dosimeters to quantify radiation exposure in barn swallows (*Hirundo rustica*), and demonstrated a decline in their local abundance in contaminated areas. The effects of radiation on wild populations of animals continues to be a research interest of mine. Having assembled a high-quality genome for the barn swallow, I am now investigating the mutational effects of radiation exposure.

During a second postdoc, I was at Louisiana State University doing research on the effects of the Deepwater Horizon oil spill on salt marshes. Another industrial accident, another disrupted ecosystem. I have been fortunate to be part of an interdisciplinary Consortium funded by the Gulf of Mexico Research Initiative. The Consortium allowed for an ecosystem-wide research scope. I would study seaside sparrows (*Ammospiza maritima*) – their stress physiology, their reproductive success. Meanwhile, other people in the Consortium were researching the transport of oil, and its effects on fish, invertebrates, the microbial community. Ultimately, we hope to disentangle the direct, toxicological effects of oil from the indirect pathways acting through habitat change and the disruption of the food web. We are trying! Research on the Gulf Coast was my first extensive fieldwork in the United States. It was muddy, it was stormy – it was fun.

Four years ago I moved to Southern California, having accepted my current position. Mentoring students in my lab is my favorite part of the job. They make me very proud. I am striving to shape the lab as a diverse and equitable place of creativity, exchange and growth. It's not an easy task these days, due to our physical distance. But I am confident the experience of missing working together will reinforce the realization that our collective efforts improve knowledge, and move us and society forward. The diversity in my lab is also reflected in the variety of our research interests and approaches. They range from empirical field and lab research, to bioinformatics and to evidence synthesis, including meta-analysis. In addition to research on radioactive contamination and oil spills, we study lead contamination and its effects on raptors; urbanization-related contaminants and sensory pollution effects on urban birds; and persistent organic pollutants in seabirds.

At Cal Poly Pomona I teach at all levels – from an introductory biology course (for biology majors, and non-majors), to upper-division and graduate courses. In addition to Environmental Toxicology, I teach Ornithology and Methods of Meta-analysis. In essence, I try to integrate my research interests and my teaching, hopefully benefitting both.

I used to say I was interested in birds. Now I find it more accurate to say that I love birds. In general, I like to spend time in nature, underwater or on land. Southern California is an amazing place, with so many ecosystems! I like to take pictures, mostly of animals and landscapes. Animals in landscapes would be best. My family is typically along with me. That is: me, my wife – who is an amazing ceramic artist –, and our two dogs, Dakota and Tiki.

A barn swallow (Hirundo rustica) from Japan and the building of Reactor Four of the Chernobyl Nuclear Power Plant, damaged by the 1986 accident, seen before the installation of the New Safe Confinement.

STUDENT CORNER

Student Grant Award Recipients and Member Spotlight: Aaron Angel

Kara Wiggen

Student Grant Award Recipients

Aaron Sugimoto, Student Travel Award

This year, we are pleased to recognize two excellent students who have received awards through our chapter. The first is Aaron Sugimoto, a master's student in the Holland Lab at California State University Long Beach who received our Student Attendance Award to attend this year's SETAC North America 41st Annual Meeting (SETAC SciCon2) with his abstract entitled "Comparing Contaminant-Induced Gene Expression in Native and Non-Native Oysters in Southern California Estuaries". The second is Aaron Angel, a master's student in the Bonisoli-Alquati Lab at California State Polytechnic University Pomona who received two awards this year from SoCal SETAC. The first was the Student Diversity Attendance Award to attend SETAC SciCon2 with her abstract titled "Oxidative Stress in the Seaside Sparrow (*Ammospiza maritima*) following the Deepwater Horizon Oil Spill" and the second was the Graduate Student Research Grant Award recognizing her excellent research into the effects of the Deepwater Horizon oil spill on the seaside sparrow.

Student Spotlight: Aaron Angel

I sat down to speak with Aaron Angel on her life, work, and plans for the future. Aaron is from Ontario, California and received her undergraduate degree in Biology from Cal Poly Pomona. During undergrad, she volunteered regularly at an environment-oriented non-profit organization called Planet Rehab based in San Dimas.

Aaron Angel, Graduate Student Research Grant Award and Diversity Student Diversity Attendance Award

Here, she organized many community outreach events and school presentations focused on subjects including plastic pollution and oil spills, among many other environment-related projects. Through her 7 years of volunteering at Planet Rehab and her ecotoxicology coursework at Cal Poly, she became increasingly concerned about the anthropogenic destruction of our environment and ecosystems. Her passion for toxicology and concern for the widespread use of chemicals in modern society led her to her master's degree working with Andrea Bonisoli-Alquati.

Aaron's current research is focused on the toxicity of the Deepwater Horizon oil spill in the Seaside Sparrow (*Ammospiza maritima*), a terrestrial, saltmarsh species. She is using molecular techniques and physiological assays to measure oxidative stress biomarkers in their serum and heart issues, since exposure to PAHs in crude oil are known to cause oxidative stress. Prior to joining Dr. Bonisoli-Alquati's lab, she worked with Dr. Robert Talmadge on his project investigating Huntington's disease, honing her western blot technique which she now uses in her current research investigating protein damage in the heart tissue of seaside sparrows.

Aaron loves being actively involved in toxicology research and being able to explain the effects of contaminants in vulnerable ecosystems. She appreciates that there are always more questions to ask and results are not always what you expect! She enjoys exploring the possibilities that uncertainty brings in her current research, and the fact that every question gets her a little closer to understanding the consequences and effects contaminants have on the environment. When she's not in the lab, Aaron loves to visit a nice birding spot and bird watch. She recently invested in a nice

STUDENT CORNER (continued)

camera and has been getting some great shots of local and migrant birds!

Yellow-rumped Warbler (Setophaga coronata), picture by Aaron Angel

Aaron stresses the importance that mentorship has had on her development as a scientist. She aims to mentor future scientists herself with the same tenacity she has witnessed from her current mentor, Dr. Bonisoli-Alquati. Her ultimate goals for the future are to be able to apply her knowledge and research in ecotoxicology towards the betterment of vulnerable species and ecosystems. Aaron would like to thank SoCal SETAC and Cal Poly Pomona for the continued support during her studies, particularly during these trying times, the support has allowed her to finish her data collection and finalize her project for her graduation this spring! She also wants to express her gratitude to her parents who have always supported, inspired, and encouraged her to succeed!

Have you checked out the Student Resources Page on the SoCal SETAC Website?

During these unprecedented times, we have built this page to help students find resource to continue to learn and engage with community and prepare for the next step. Check it out and please email vrenick@ocsd.com if you have any additional resources or tips to share!

https://www.socal-setac.org/student-resources

Join us for the SoCal SETAC Virtual Meeting: Lessons Learned from SCICON$_2$ SETAC North America Annual Meeting

When: Friday, November 20th; 4 – 5 PM PST

Where: Anywhere (on Zoom)

Cost: Free

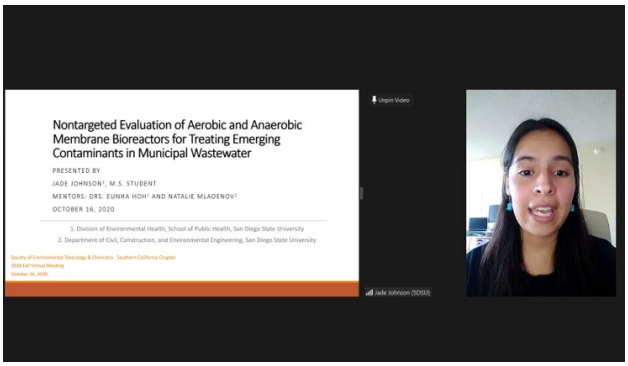
Come join us for a virtual happy hour to discuss all the amazing things we learned at the NA SETAC SciCon2 meeting this year. This will be done via Zoom and will involve free-form discussions in small groups about what we learned. Did not attend SciCon2? No problem, join us to learn about what some of the great presentations were all about. This is a great way to connect with others in this region. Look forward to enjoying a drink with everyone!

Please register on the SoCal SETAC website.

Website link: https://www.socal-setac.org/virtual-networking

Fall 2020 Virtual Meeting: ECs, Aquatic Pollutants, Birds, and More!

Barbara Orelo

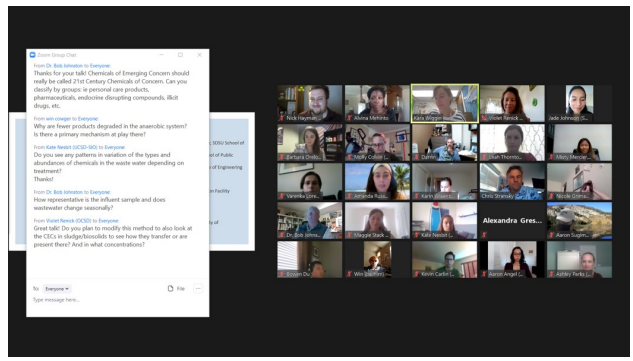


Jade Johnson's Virtual Meeting Keynote presentation

This was a fall event unlike any other. Due to Covid-19, a virtual event was held in lieu of the fall dinner that is hosted every year by SoCal SETAC. This year's event focused on students, recent graduates, and their research. The event started with Jade Johnson, SDSU, the recipient of the SoCal SETAC 2019 Graduate Student Grant. Jade taught us about her approach to evaluate the treatment of emerging contaminants (ECs) in wastewater. She explained that ECs are chemicals that are known to be toxic but are not routinely monitored or regulated in the environment. Her research uses a non-targeted analytical approach, which can detect a wide range of chemicals, and allows her to evaluate the occurrence and removal of ECs in both aerobic and anaerobic wastewater systems.

The event continued with two sessions of Lightning Talks. The first focused on pollutants in aquatic environments. We learned about cross- species ecotoxicology (Sara Vilet, UC Riverside), the impact of chemicals on sea urchin immune systems (Kate Nesbit, UCSD-SIO), organic and trace metal contaminants in Olympia oysters (Amanda Russell, CSULB), and Open Specy: a source for spectra classification in plastic pollution research (Win Cowger, UC Riverside). The second Lightning Talk session focused on the relationship between toxicants and birds. We learned about lead toxicity and oxidative stress in turkey vultures (Alexandra Gresham, Cal Poly), oxidative stress in the seaside sparrow following the Deepwater Horizon oil spill (Aaron Angel, Cal Poly), and marine endocrine-disrupting compounds in the California condors (Margaret Stack, SDSU).

Once the Lightning Talks were over, we split up into smaller groups for more private and zoom-friendly networking sessions (have you ever tried to zoom with more than 10 people?). The groups discussed how the pandemic has affected their work, career options outside of academia, and more. Thanks so much for the informative talks everyone, and we look forward to hearing more about your science in the future!



Virtual meeting questions and answers

SETAC North America SciCon2 41st Annual Meeting List of SoCal SETAC Presentations

On Demand Presentations with Live Discussions

November 16th

Session: Whole Effluent Toxicity (WET): Applications of and Developments in WET and Ambient Testing

Live Discussion Time: 2:00 PM CST

Session ID: 2.08.01
Title: Aquatic Toxicity Methods Collaboration: Historical Perspective & the Future Role of the Aquatic Toxicity Testing Interest Group
Presenter: Stephen Clark

Session ID: 2.08.14
Title: Progress Towards the Development and Validation of a Proposed Modified WET Test Procedure to Assess Episodic Exposures and Gaining Regulatory Acceptance
Presenter: Chris Stransky

Session ID: 2.08.15
Title: Validation of Pulsed Exposure Toxicity Methods at San Diego Regional Naval Bases
Presenter: Molly Colvin

Session ID: 2.08.16
Title: Pulse Exposure Monitoring Method for Assessing Toxicity of Stormwater Contaminants: Case Studies With Copper and Zinc Exposures to *Ceriodaphnia dubia* and *Hyalella Azteca*
Presenter: Hanna Karic

Session ID: 2.08.17
Title: Evaluation of Sodium Bisulfite for Contribution to Chronic Toxicity of the Water Flea, Ceriodaphnia dubia
Presenter: Peter Arth

November 17th

Session: Exposure: Processes and Approaches for Estimating Environmental Exposures

Live Discussion Time: 1:00 PM CST

Session ID: 4.03.18
Title: The Status of Pesticide Risk in California's Surface Waters
Presenter: Nicol Parker

SICON2 SoCal SETAC PRESINTATIONS (continued)

November 18th

Session: Deriving and Implementing Ecologically Relevant Water Quality Criteria and Guidelines

Live Discussion Time: 2:00 PM CST

Session ID: 5.07.11
Title: Data and Taxonomy in the Development of Marine Water Quality Criteria
Presenter: Alice Coleman

November 19th

Session: Per- and Polyfluoroalkyl Substances (PFAS): Analytical and Site Assessment Tools to Understand the Fate and Transport of PFAS at Contaminated Sites

Session Time: 1:00 PM CST

Session ID: 1.12.24
Title: Evaluation of Several Adsorbents for Possible In Situ Remediation of PFAS -Contaminated Groundwater
Presenter: Nicholas Hayman

Session ID: 1.13.09
Title: Systematic Mapping and Meta-Analysis of Perfluorooctane Sulfonate (PFOS) Concentrations in Birds Around the World
Presenter: Raul Flamenco

Session: **Remediation and Restoration: Connecting them- Integrating Cleanup and Ecosystem Recovery**

Live Discussion Time: 1:00 PM CST

Session ID: 6.04.04
Title: What Comes First Sediment Cleanup or Ecosystem Recovery? (Hint: They Should Go Hand in Hand)
Presenter: Robert Johnston (Katie Payne)

Session: Multiple Stressors: Assessing Contaminant Effects in Ecosystems with Multiple Stressors

Live Discussion Time: 1:00 PM CST

Session ID: 5.09.17
Title: Comparing Contaminant-Induced Gene Expression in Native and Non-Native Oysters in Southern California Estuaries
Presenter: Aaron Sugimoto

Session: Deepwater Horizon Oil Spill - Ten Years Later: What Have We Learned About Wildlife Impacts and How Do We Proceed?

Live Discussion Time: 2:00 PM CST

Session ID: 1.02.04
Title: A Marine Oil Spill on Land: Exposure to Deepwater Horizon Oil and Its Effects on Louisiana Seaside Sparrows
Presenter: Andrea Bonisoli Alquati

SICON2 SoCal SETAC PRESINTATIONS (continued)

Session ID: 1.02.05
Title: Oxidative Stress in the Seaside Sparrow (Ammospiza maritima) Following the Deepwater Horizon Oil Spill
Presenter: Aaron Angel

Session ID: 1.02.10
Title: Investigating Patterns in Transcriptome Data: Lipid and Cholesterol Dysregulation in Phenanthrene Exposed Zebrafish Embryos
Presenter: Victoria McGruer

On Demand Presentations (No Live Discussions)

Session: Harmful Algal Blooms: Across the Freshwater to Marine Continuum - Toxins, Detection, Effects, Monitoring and Management

Session ID: 2.04.26
Title: Southern California Wildfire, Harmful Algal Bloom, and Fish Kill in Lake Elsinore, California
Presenter: John Rudolph

Session: Sediment: Confounding Factors and Best Testing Practices in Sediment Toxicity Testing

Session ID: 1.16.02
Title: An Investigation of the Viability and Comparability of the Manila Clam (Venerupis philippinarum) to the Bent-Nosed Clam (Macoma nasuta) for 28-Day Bioaccumulation Exposures
Presenter: Peter Arth

Session: Harmful Algal Blooms: Across the Freshwater to Marine Continuum - Toxins, Detection, Effects, Monitoring and Management

Session ID: 2.04.12
Title: An Assessment of "Red-Tide" Harmful Algal Bloom (HAB) Effects on Marine Organisms Used for Permit Compliance in San Diego, CA
Presenter: Kate Buckley

Session: General Aquatic Toxicology, Ecology and Stress Response

Session ID: 2.09.59
Title: Sediment Quality Changes in the Southern California Bight: 1998-2018
Presenter: Ashley Parks

Session: Passive Sampling: Innovations in Passive Sampling Across Environmental Compartments

Session ID: 4.10.02
Title: Evaluation of a Rapid Biosensor Tool for Measuring PAH Availability in Sediment
Presenter: Jason Conder

Session: Stakeholder Collaboration: Collaborative Efforts Between Research and Indigenous Peoples and Citizen Scientists

Session ID: 7.01.01
Title: Two Canoes in Parallel: Tribal/EPA Collaboration to Advance the Cooperation of Western and Indigenous Science Approaches in the U.S
Presenter: Jose Zambrana

CALENDAR OF EVENTS

November 2020

November 15 - 19

SETAC North America 41st Annual Meeting- SETAC SciCon2
https://scicon2.setac.org/ | (*virtual)*

January 2021

January 14

CASQA Quarterly Meeting
https://www.casqa.org/events/quarterly-meetings-webcasts | (*virtual)*

February 2021

February 22 - 26

10th Young Environmental Scientists (YES) Meeting
https://www.setac.org/events/EventDetails.aspx?id=1391275 | (*virtual)*

March 2021

March TBD

Society of Toxicology (SOT) Annual Meeting.
https://www.toxicology.org/events/am/AM2021/index.asp | (*virtual)*

March 15 - 25

36th Annual WateReuse Symposium
https://watereuse.org/news-events/conferences/ | (*virtual)*

April 2021

April 19 - 23

National Monitoring Conference
https://www.nalms.org/2021nmc/ | (*virtual)*

April 25 - 27

SoCal SETAC Annual 2012 Meeting
https://www.socal-setac.org/2021-annual-meeting | (*virtual)*

CALENDAR OF EVENTS (continued)

May 2021

May 2 - 6

SETAC Europe 31st Annual Meeting
https://europe2021.setac.org/ | (*virtual)*

May 23 - 26

Nontarget Analysis for Environmental Assessment- SETAC Focused Topic Meeting
https://www.setac.org/events/EventDetails.aspx?id=1238564 | *Durham, North Carolina*

May 23 - 26

Society of Freshwater Science Meeting
https://freshwater-science.org/annual-meeting-info | (*virtual)*

June 2021

June 13 - 16

American Water Works Association (AWWA) Annual Meeting San Diego, CA.
https://www.awwa.org/ace

June 27 - 30

SETAC Africa 10th Biennial Conference
https://www.setac.org/events/EventDetails.aspx?id=1393015&group= | (*Kampala*)

August 2021

August 16 - 19

XVI Brazilian Ecotoxicology Meeting- ECOTOX 2020
https://www.setac.org/events/EventDetails.aspx?id=1342519 | (*Gramado*)

September 2021

September 26 - 29

SETAC Latin America 14th Biennial Meeting
Valdivia
https://www.setac.org/events/EventDetails.aspx?id=1393019&group=

SOCAL SETAC OFFICERS AND BOARD MEMBERS

SoCal SETAC 2019–2020 Officers

Past President	**Chris Stransky,** Wood Environment & Infrastructure chris.stransky@woodplc.com **Erika Holland,** California State University, Long Beach erika.holland@csulb.edu
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