

University Football Tailgates Offer More Than BBQ

Most folks think of food and drinks when planning to attend tailgates. Environmental Science faculty and students also see research opportunities amid the festivities. This fall, a group of Environmental Science undergraduates working under Dr. Rebecca Sheesley are



Some members of the undergraduate team. L to R: Emma Villarreal, Megan O'Brien, Natalie Hernandez, Tara Gilbert, Tommy Watson. Natalie and Tara are wearing the portable filters

studying air quality at Baylor University Football Tailgates. These students include Emma Villarreal, Erica Barron, Tara Gilbert, Dane Rinehart, Megan O'Brien, Natalie Hernandez, and Tommy Watson. This study especially sparked the interest of one student, Emma Villarreal, and she has now decided to perform further air quality research through graduate school.

Utilizing both a real-time black carbon monitor, known as an aethalometer, as well as two portable air filters, these students measured black carbon concentrations around the Baylor tailgating area. Black carbon, which leads to increased climate warming, is emitted into the atmosphere through the grilling of barbeque, running of cars, smoking of tobacco, and any type of combustion. Students



Above: Sujan Shreshtha uses filter to test air quality

with portable filter samplers walked around the tailgate to note possible black carbon sources and collect the average black carbon emissions, while the aethalometer collects real-time data to determine how black carbon emissions change over the course of the tailgate at a set location in the Environmental Science tailgating site. These students will continue to collect data over the course of the 2018 football season to observe how black carbon emission levels may change as the weather cools. Ultimately, these findings will be compared to a similar study occurring in India that monitors black carbon emissions during Diwali, or the "Festival of Lights". The research will be presented at the end of the semester.



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FACULTY SPOTLIGHT: JULIE KING, J.D.

Ms. Julie A. King recently joined the Environmental Science Department as a lecturer in Environmental Law and Policy. Ms. King is an attorney with a large professional background of practicing in litigation and corporate law for a large law firm, as well as environmental experience, which she has implemented into the classroom setting. As a truly dedicated professional, Professor King values her current role teaching and mentoring Baylor students. In 2007, she developed an Environmental Law course that was first offered in Spring 2008 and is now offered in multiple sections each semester. In 2015, she developed and began teaching a course in Environmental and Political Processes which has been offered every semester since spring 2016. Ms. King's passion for teaching Environmental Law and Policy has led to several teaching awards during her years at Baylor including Mortar Board's Circle of Achievement Award and the Veterans of Baylor Coin Award.

Ms. King engages in collaboration across disciplines and has worked to incorporate this collaboration model into her Environmental Policy courses. She lectured in Baylor's Healthy Rivers course and is currently collaborating with Baylor faculty to develop a course in Climate Change and Social Justice. She plans to continue this collaboration through the development of an Environmental Justice course.

Ms. King has been actively engaged in fostering undergraduate research. She offers an Advanced Environmental Law research course and has taught Environmental Capstone. Many of her students have presented their research during Scholars Week. She also serves as Honors Thesis advisor. She mentored Susan Stradley, B.A. 2016, through years of research and writing on her thesis addressing Clean Water Act's federal litigation and EPA's resulting Waters of the United States Rule. Susan is currently working with Senior Augusta Tostrud on her Thesis addressing Clean Air Act litigation, The Clean Power Plan, and current proposed regulation addressing greenhouse gas emissions.

TWO STUDENTS WIN SOCIETY OF TOXICOLOGY AWARDS

By Tonya B. Hudson in Baylor Media Communications

Two recent undergraduate students from Baylor University, Yoomin Jo and Dan Dinh, received awards from the Society of Toxicology (SOT), the leading scholarly scientific society in the field of toxicology.

“I couldn’t be more excited for Dan and Yoomin,” said Bryan Brooks, Ph.D. “Their dedication to research in environmental health science, facilitated by Baylor’s support of experiential learning and STEM education, research and service, is exemplary. To be awarded by the Society of Toxicology for their research represents gold-standard recognition of Yoomin and Dan’s accomplishments as outstanding undergraduate researchers at Baylor.”

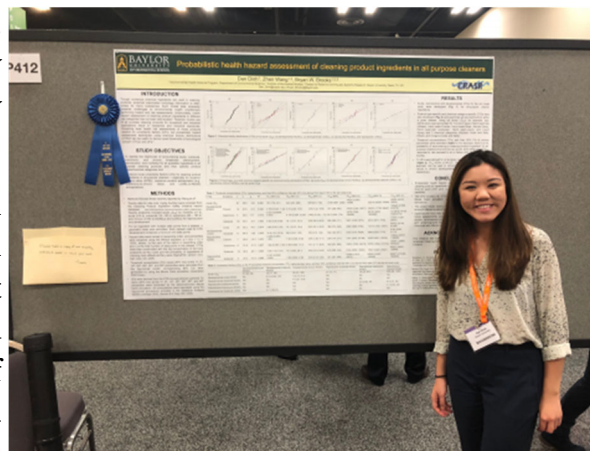
Jo, B.A. Class of ‘18, received the Pfizer SOT undergraduate research travel award on March 11. Jo was one of only 14 recipients of the award recognized at the annual awards ceremony. In addition, Jo was honored with a plaque, cash prize and travel support to attend the 57th annual SOT meeting in San Antonio.

Dinh, B.S. in EHS, ‘18, received an award from the risk assessment specialty section. Dinh’s abstract was selected as one of the top 10 best submissions in human health risk assessment at the SOT international conference, the only undergraduate to receive this award.

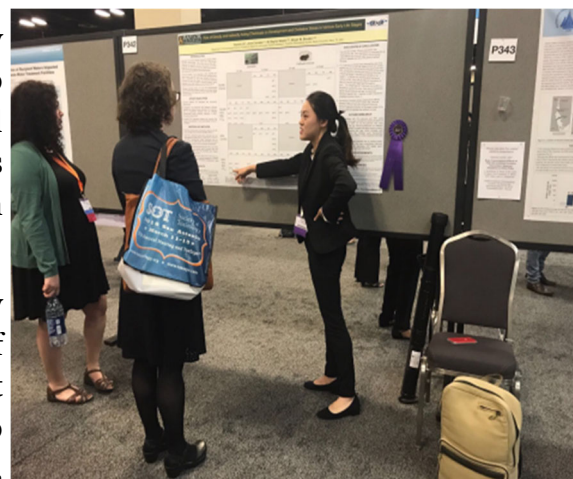
“Yoomin and Dan are talented scientists,” Brooks said. “They are very bright, energetic and hard-working students who work well with others. More importantly, they are wonderful people, who are a credit to Baylor and exemplars of Baylor’s commitment to undergraduate education and research integration.

The SOT mission is to create a safer and healthier world by advancing the science and increasing the impact of toxicology. Baylor faculty and students routinely present their research at the SOT annual meetings. In addition to Brooks, other Baylor faculty members such as Erica Bruce, Ph.D. and Christie Sayes, Ph.D., associate professors of environmental science, often serve on various committees for SOT. In October, Bruce and Sayes coordinated the 2017 Lone Star SOT regional chapter meeting hosted by Baylor University.

“The mission of the Society of Toxicology has never been more relevant and important than it is today,” Brooks said. “Chemical products are indispensable facets of our daily lives, but we need to be sure that chemicals are designed to be useful and not result in adverse health outcomes when used appropriately. The science of toxicology and its applications through exposure, hazard and risk assessments are critical foundations by which protection of human health and the environment is achieved.”



Dan Dinh, B.S. in EHS, '18, received an award from the risk assessment specialty section



Yoomin Jo, B.A. in '18, received the Pfizer SOT undergraduate research travel award

Baylor Undergraduates and Faculty Mentors Honored for Outstanding Research Projects Presented During URSA Scholars Week

By Lori Fogleman in Baylor Media Communications

More than 100 Baylor University students were recently honored for their outstanding research presented in March during the 10th annual Undergraduate Research and Scholarly Achievement (URSA) program's Scholars Week. The undergraduate researchers, along with their faculty mentors and program leaders, received awards for outstanding platform and poster presentations and for significant contributions to URSA and Scholars Week at a reception in April at Baylor.

"The quality and quantity of undergrad research has grown steadily in the decade since we initiated the URSA program in 2008," said Susan Bratton, Ph.D., professor of Environmental Science and Director of URSA. "During the first undergraduate Scholars Week, students submitted 31 poster abstracts. This year there were 143 submissions. We have nearly a fivefold increase in poster presentations."

A panel of faculty and staff judged the student poster presentations, as well as 64 platform presentations. In addition, URSA Leadership Awards were presented to:

- Sinda Vanderpool, Ph.D., associate vice provost for academic enrollment management in the Office of the Provost and the Paul Foster Success Center

- Rizalia Klausmeyer, Ph.D., senior lecturer, program director of the Science Living and Learning Center, director of the Science Research Fellows program in Baylor's College of Arts & Sciences

- Baylor Undergraduate Research in Science and Technology (BURST) URSA officers and events committee members Courtney Smith, William Chan, Jianna Lin, Paul Early, Zachary Pranske, Grace Kohn, Kiersten Scott and Emily Ziperman and URSA advisors Tamarah Adair, Ph.D., Susan Bratton and Brian Raines, Ph.D.

- Baylor Undergraduates at The Veterans Administration Center of Excellence for Research on Returning War Veterans, including Baylor faculty members Sara Dolan, Ph.D., Paul Fillmore, Ph.D., and Richard Sanker, Ph.D., and from the Veterans Administration VISN 17 Center of Excellence: Dr. Richard Seim, Dr. Laura Zambrano-Vazquez, Dr. Justin Benzer, Dr. Bryann DeBeer, Dr. Sheila Frankfurt, Dr. Evan Gordon, Dr. Rakeshwar Guleria, Dr. Geoffrey May, Dr. Eric Meyer, Dr. Joseph Mignogna, Dr. Steven Nelson and Dr. Yvette Szabo.

Three faculty members were recognized as 2018 Mentors of the Year for their roles mentoring students and their research.



Student researchers Michael Valencia, Victoria Mancillas and Annie Luksch with faculty mentor, Dr. Myeongwoo Lee.



Leadership award recipient Dr. Sinda Vanderpool with URSA director, Dr. Susan Bratton.

- Mikeal Parsons, Ph.D., professor and Macon Chair in Religion

- Melanie Sekeres, Ph.D., assistant professor of psychology and neuroscience

- Karen Melton, Ph.D., assistant professor of family and consumer sciences

"Research supervisors include permanent faculty of all ranks," Bratton said. "Many early career faculty are cultivating mentoring skills. One of our mentors of the year for 2018 is a very seasoned religion professor, Dr. Parsons, and the other two are upcoming researchers, Dr. Sekeres from psychology and neurobiology and Dr. Melton from family and consumer sciences."

Environmental Scientists Identify Most Pressing Issues Posed by Chemicals in the Environment in Europe

By Tonya B. Hudson in Baylor Media Communications

Environmental scientists have identified 22 key research questions surrounding the risks associated with chemicals in the environment in Europe.

Chemicals released into the environment by human activity are resulting in biodiversity loss; increased natural hazards; threats to food, water and energy security; negative impacts on human health and degradation of environmental quality.

Now an international study, coordinated by scientists from the University of York, Wageningen University and Baylor University, has identified the most important research questions that need to be answered to fill the most pressing knowledge gaps over the next decade.

They include questions about which chemicals we should be most concerned about and where the hotspots of key contaminants are around the globe, as well as how we can develop methods to protect biodiversity and ecosystems.

The research, which resulted from a recent "big questions" exercise involving researchers from across Europe, aims to serve as a roadmap for policymakers, regulators, industry and funders and result in a more coordinated approach from the European environmental science community to chemicals in the environment.

"Our research has highlighted international scientists' research priorities and our key knowledge gaps when it comes to the risks and impacts of chemicals," said One of the lead authors of the study Alistair Boxall, Ph.D., with the University of York's environment department. "The study aims to help focus scientific effort on the questions that really matter and inform decisions about the type of research needed to update policies and regulations."

Bryan W. Brooks, Ph.D., Distinguished Professor of Environmental Science and Biomedical Studies at Baylor University, who also coordinates a much larger global horizon scanning exercise, said the project is "intentionally transparent, inclusive of multiple sectors and multidisciplinary."

"Though this paper focuses on critical research needs for Europe, we partnered with the Society for Environmental Toxicology and Chemistry to perform similar studies in North America, Africa, Asia, Australia and Latin America," Brooks said. "In fact, output from the Latin American Study was recently



Bryan W. Brooks, Ph.D., Distinguished Professor of Environmental Science and Biomedical Studies and director of the Environmental Health Science program at Baylor University.

published. This unprecedented exercise, which also includes a key partnership with the American Chemical Society in North America, is for the first time identifying global research priorities from academic, government and industry scientists and engineers to understand, avoid and manage adverse outcomes of chemicals in the environment."

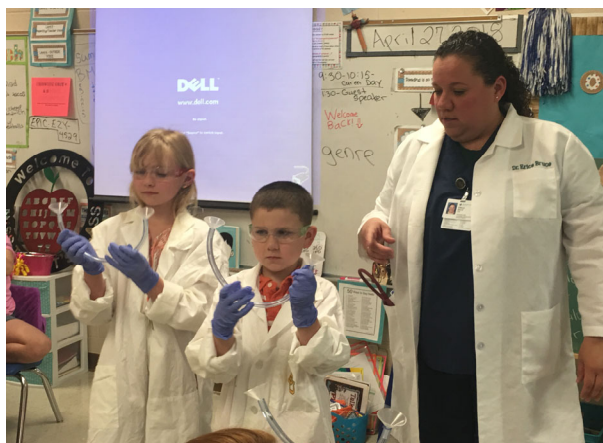
A key suggestion in the report is that the basic and translational research is needed to advance robust assessments of chemical risks to the environment and human health.

"These big research questions aim to reduce uncertainty during scientific evaluations of environmental contaminants and to advance innovation and sustainability through development of less hazardous chemicals to public health and the environment. Such research recommendations from our European colleagues are thus timely, necessary and internationally important if we are to achieve the United Nation's Sustainable Development Goals," Brooks said.

Towards Sustainable Environmental Quality: Priority Research Questions for Europe is published in the journal *Environmental Toxicology and Chemistry*. It is one of six papers in a global horizon scanning study.

Bruce Lab Participates in Career Day Events at Local Elementary Schools

In April, Dr. Erica Bruce's lab participated in Career Day at Spring Valley Elementary School and at Robinson Elementary School. Dr. Bruce is the current President for the Lone Star Chapter of the Society of Toxicology. Dr. Bruce, graduate student, Grace Aquino (graduate student representative, Lone Star Chapter) and Dr. Fan Zhang (Dr. Bruce's Post-Doctoral Associate and LSSOT post-doc rep) spent the day with multiple kindergarten, 2nd grade and 3rd grade classes teaching them about toxicology. Dr. Bruce and her students discussed what classes are important for a career in science and the things that scientists do every day. They also discussed the importance of completing high school and then continuing to earn a college degree. Dr. Bruce and her students ran a toxicology experiment with each class demonstrating the central tenant of toxicology, "The Dose Makes the Poison." In the experiment students were able to help with illustrating dose for an "adult" versus a "child" as well as the importance of exposures. "Translating robust science into the K-12 classroom is important to motivate students to consider STEM careers in the future. These students are the next generation of toxicologists," said Bruce. "Our lab is passionate about encouraging these young scientists and teaching them about toxicology at a young age so they are aware of this discipline as they progress in school and one day make career decisions."



Dr. Bruce instructs engaged students as they undertake an experiment at Robinson Elementary School.



Dr. Bruce and graduate student Grace Aquino discussing science with students at Spring Valley Elementary School

Congratulations Spring and Summer 2018 Graduates!

Spring

Marie Stephensen, M.S.

Delany Baum, B.A.

Dakota Bellow, B.A.

Morgan Cody, B.S.

Liana DeNino, B.S.

Dan Dinh, B.S. in EHS

Hannah Dye, B.S.

Julia Frandsen-DeLoach, B.A.

Graham Iorger, B.S.

Kaitlyn Kelly, B.S. in EHS

John Mason, B.A.

James McGill, B.A.

Lacy Miller, B.A.

Reid Pinkerton, B.A.

Jonah Salazar, B.A.

Norah Simpson, B.A.

Madison Stewart, B.S.

Monique Williams, B.A.

Summer

Undergraduates

Connor Yowell, B.A.

Lauren Medlin, B.A.

Graduates

Bridgett Hill, M.S.

Colleen Peters, Ph.D.

Big Water Quality Study

In July, Dr. Ramon Lavado, Dr. Bryan Brooks and members of their research labs traveled west to start Phase I of a field study as part of Dr. Lavado's new project on *in vitro* to *in vivo* relationships, a big issue in water resources and technology, in Park City, Utah. In the Fall, Dr. Ramon Lavado and Dr. Bryan Brooks' labs returned to Park City, to initiate phase II of the study. Sic 'Em!



IUPAC 2019



- Join us for the 14th IUPAC IAH Congress of Crop Protection Chemistry, Hosted by Ghent University in Ghent, Belgium!
- For more information, contact Professor George Cobb, who is on the steering committee.

Alumni Updates: Where Are They Now?

- Former undergraduate Andreanna Burman, B.S. 2018, recently was hired as a postgraduate research assistant at Yale University. Best wishes to Andreanna in this future endeavor!
- Baylor Alumnus Kristin Connors, Ph.D. 2014, has accepted a job as a Sustainability Scientist and Toxicologist with Proctor and Gamble! Sic Em, Kristin!
- Recent graduate Yueqian (David) Ma, B.S. 2018, is pursuing his Master's degree at McMaster University in Canada. Way to go David!
- Barry Hartweg, B.S. 2015, is attending Arizona State University for his Ph.D. in Materials Science and Engineering. Best of luck to Barry!
- Tyler Taba, B.B.A. 2018, is currently enrolled in the Masters of Science in Sustainability Management program at Columbia University.

Student Achievements

- Kaitlyn Kelly, B.S. 2018, recently completed a National Environmental Public Health Internship Program (NEPHIP) funded by the Centers for Disease control and prevention in Ellensburg, Virginia. Congratulations Kaitlyn!
- Matt Garbarino, M.S. 2017, received a Platform Presentation Award at Carolina's SETAC regional meeting in January.
- Lea Lovin received "Best Platform Presentation" at STEAC SC Meeting in April 2018, in Junction, TX.

Climate Change in Belize

"What factors influence whether those Belizeans who have weather-dependent livelihoods accept climate change and are adjusting their behavior in the areas of food, nutritional and health securities?" This is the question Dr. Sara Alexander and her ENV student assistant, Hope Schroeder, are working to answer after completing fieldwork in Cayo District this summer. Hope learned important ethnographic field methods including participant observation as these photos indicate!



FALL 2018 SEMINAR SCHEDULE

Date	Speaker	Affiliation	Topic
29-Aug	Sascha Usenko	Environmental Science, Baylor University	Tracking the transport and fate of contaminants in aquatic ecosystems
5-Sep	David Lary	Physics, UT Dallas	Remote sensing & computation: Using physics for society
12-Sep	Vicky Liu	Toxicology, Texas A&M University	Drinking water chlorination in the water distribution system
19-Sep	Paul Westerhoff	Sustainable Engineering, Arizona State University	Innovative treatment processes using nanotechnology
26-Sep	Joaquin Lugo	Psychology & Neuroscience, Baylor University	The relationship between epilepsy and autism
12-Oct	Yuxuan Wang	Atmospheric Chemistry, University of Houston	Atmospheric chemistry, air quality, and climate change
17-Oct	Tzahi Y. Cath	Earth, Energy, Environment, Colorado School of Mines	Membrane processes for water purification, wastewater reclamation, and desalination
24-Oct	Baylor Steele	Environmental Science, Baylor University	Comparative behavioral toxicology with two common larval fish models
31-Oct	Bekah Burket & Ben Castellon	Environmental Science, Baylor University	Graduate Research Projects
7-Nov	Dustin Henderson & Clay Patterson	White Rock Consulting	Remediation and Regulation in Texas and Gulf Coast States
14-Nov	Cynthia Bishop	Bishop Law Firm	Assisting clients with resolving environmental problems as an attorney
28-Nov	Karina Miglioranza	Universidad Nacional de Mar del Plata	Persistent organic pollutants in fish from Argentina

Educators learn environmental lessons at Waco Wetlands

By Lauren Dodd in Baylor Media Communications

In 100-degree heat, Waco High School biology teacher Kathryn Hopkins was on her hands and knees at the Lake Waco Wetlands, wrist deep in murky waters.

Her task for the day: collect water quality samples alongside Baylor University professors in an effort to bring water quality issues to life for local students.

“It’s their future,” Hopkins said. “If they aren’t interested in it they may not have one.”

Hopkins was one of 20 educators that took part in a four-day professional development program, called “Immersed in the Wetlands: An Environmental Academy for Educators.” The training was part of a larger environmental education initiative funded by a \$91,000 federal grant from the U.S. Environmental Protection Agency and \$30,000 from Baylor University.

Teachers were grouped into color-coded teams that collected water samples from various sites at Lake Waco Wetlands. Later, they took the samples to an environmental science lab room at Baylor University to measure the level of dissolved oxygen, acidity, turbidity, phosphates and nitrogen.

The Lake Waco Wetlands on Eichelberger Crossing Road was created in 2000 to offset habitat losses at Lake Waco and to filter impurities from the North Bosque River before they hit the lake.

The goal of the program is to outfit area educators with field-based environmental education methods they can bring back to the classroom, said Suzanne Nesmith, Associate Dean of Baylor’s School of Education.

“It’s crucial for them to understand the environment and how to teach about the environment because they are teaching our future,” she said. “If they don’t understand it well enough or aren’t comfortable with teaching about the environment, then we’re going to have a generation of students who are not knowledgeable or who are not comfortable with approaching environmental problems and doing something about them.”



Dr. Suzanne Nesmith, left, and graduate student Erin Coleman, right, watch as water samples are taken from one of three locations at the Lake Waco Wetlands.



Lea Lovin, a Baylor University environmental science graduate student, educates teachers on proper water sample collection techniques at the Lake Waco Wetlands.

Environmental awareness and action are more important now than ever, she said.

“There are things going on in the environment that have been going on for a long time, but we are at a critical point,” she said. “We can’t just keep putting off doing something about it.”

Bryan Brooks, Baylor Professor of Environmental Science, said in a statement that he was excited to partner on the project with Nesmith and the School of Education.

“We can have the best science in the world, but if we can’t equip the next generation of children and citizens to benefit from the discoveries that we make, how are we really going to improve the quality of life, especially in areas like water and health that are so profoundly important to local communities?”

Nesmith, the principal investigator of the EPA grant, said teachers who participate in the four-day program will also have the opportunity to apply for a subgrant to conduct their own water quality-themed community service projects, using the same EPA and Baylor funding source.

Kendra Miller, a seventh grade teacher at Isbill Junior High School in the La Vega Independent School District, said she plans to apply for subgrant funds to allow her students to test the water quality in their own backyards.

Christy Goffinet, an eighth-grade science teacher at Cesar Chavez Middle School, proposed that the two teachers collaborate and allow their students, from neighboring school districts, to compare how the water quality varies from one area to the other.

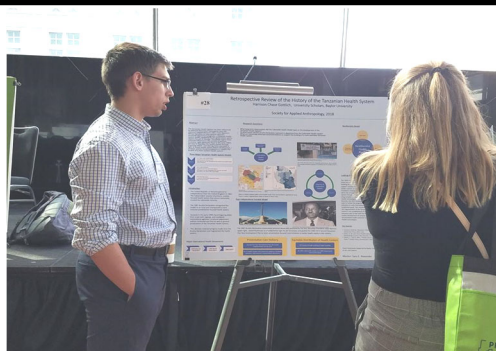
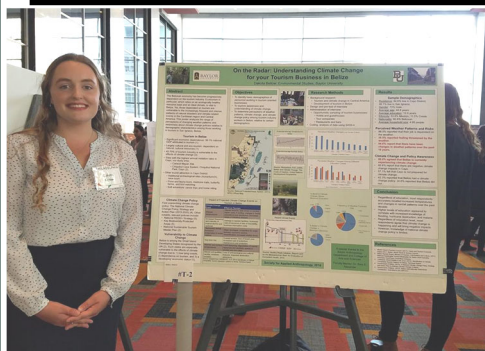
Goffinet said students who learn about water quality can then educate their parents and others around them.

“I had one student tell me, ‘I stopped my daddy last night, he was going to pour oil on the ground and I stopped him,’” Goffinet said. “So they get educated and they can educate their parents that they are poisoning their drinking water.”

The group also took a tour of an “urban water cycle tour” of an area water and wastewater treatment plant. They also ran soil tests and finished up with subgrant applications for the upcoming year.

Applied Anthropology Meeting Presentations

Congratulations to Dakota Bellow, Chase Gottlich, and Anna Hodges who stepped out of their comfort zone and presented posters on April 5th at the Society for Applied Anthropology meetings in Philadelphia. Their respective posters on perceptions of risk of climate change in Belize, building a resilient health care system in Tanzania, and providing an oasis in the food desert of north Waco, were all well received. Job well done!



Cobb Provides USDA Program Review

George Cobb joined several program directors of USDA W-3045 research programs and members of the USDA ARS to serve as a reviewer of their research projects and progress. The review was held at the University of California Riverside. During this meeting, Dr. Cobb also shared the ways that his research efforts and those within the Department of Environmental Science could mesh with future USDA projects. Emerging research collaborations may include pest control in rice, microbiome evaluation, and pesticide metabolism. An early success of the interaction has been the successful session proposal for inclusion in PACIFICHEM 2020.



BU-SETAC Updates

BU-SETAC is having a great semester so far & are looking forward to the upcoming events! The most recent event was volunteering for Boo at the Zoo, where we passed out candy to kids at the Cameron Park Zoo for Halloween. We are also collaborating with Steppin' Out again this year to clean up the Baylor creek outside of the BSB. We wish all of our members & fellow Baylor students good luck at the 39th annual SETAC meeting in Sacramento!

For more information about our events or if you are interesting in joining please email: Henry_Lujan@baylor.edu.



Presenting at Reginal and International Conferences



Our members are active in the Scientific and Waco communities!



Teaching the local youth about fish embryos



Teaching Girl Scouts the Ecology of Pokémon



Cleaning-up the Environment!



RECENT PUBLICATIONS

Bratton, S.P. (2017). How Many is Too Many? The Progressive Argument for Reducing Immigration into the United States. *Environmental Ethics* 39 (3) 349-352

Bratton, S.P. (2018). Eco-Dimensionality as a Religious Foundation for Sustainability. *Sustainability*. 10 (4) 1021

Chung, S. S., Zheng, J. S., Burket, S.R., **Brooks, B.W.** (2018). Select antibiotics in leachate from closed and active landfills exceed thresholds for antibiotic resistance development. *Environment International*. 115: 89-96

McRae, N.K., Glover, C., Burket, S.B., **Brooks, B.W.**, Gaw, S. (2018). Acute Exposure to an Environmentally Relevant Concentration of Diclofenac Elicits Oxidative Stress in the Culturally Important Galaxiid Fish *Galaxias maculatus*. *Ecotoxicology and Environmental Safety*. 37 (1) 224-235

Coish, P, **Brooks, B.W.**, Gallagher, Evan P., et al. (2018). The Molecular Design Research Network. *Toxicological Sciences*. 161 (2) 241-248

Brooks, B.W. (2018). Urbanization, environment and pharmaceuticals: advancing comparative physiology, pharmacology and toxicology. *Conservation Physiology* 6 (1): 79

Wang Z., Scott, W.C., Williams, E.S., Ciarlo, M., DeLeo, P.C., **Brooks, B.W.**, (2018). Identification of novel uncertainty factors and thresholds of toxicological concern for health hazard and risk assessment: Application to cleaning product ingredients. *Environment International*. 113: 357-376

Mellor, K.E., Coish, P, **Brooks, B.W.**, et al. (2018). The safer chemical design game. Gamification of green chemistry and safer chemical design concepts for high school and undergraduate students. *Green Chemistry Letters and Reviews Volume*. 11 (2) 103-110

Furley, T.H., Brodeur, J, Silva de Assis, H.C., Carriquiriborde, P, Chagas, K.R., Corrales, J, Denadai, M, Fuchs, J, Mascarenhas, R, Miglioranza, K.S.B., Carames, D.M.M., Navas, J.M., Nugegoda, D., Planes, E, Rodriguez-Jorquera, I.A., Orozco-Medina, M, Boxall, A.B.A., Rudd, M.A., **Brooks, B.W.** (2018). Toward sustainable environmental quality: Identifying priority research questions for Latin America. *Integrated Environmental Assessment and Management*. 14 (3) 344-357

Colón-Cruz, L., Kristofco, L., Crooke-Rosado, J., Acevedo, A., Torrado, A., **Brooks, B.W.**, et al. (2018). Alterations of larval photo-dependent swimming responses (PDR): New endpoints for rapid and diagnostic screening of aquatic contamination. *Ecotoxicology and Environmental Safety*. 147: 67-680

Bean, T.G., Rattner, B.A., Lazarus, R.S., Day, D.D., Burket, S.R., **Brooks, B.W.**, Haddad, S.P., Bowerman, W.W (2018). Pharmaceuticals in water, fish and osprey nestlings in Delaware River and Bay. *Environmental Pollution*. 232: 533-545

Saaristo, M., Brodin, T., Balshine, S. Bertram, M.G., **Brooks, B.W.**, Ehlman, S.M., McCallum, E.S., Sih, A., Sundin, J., Wong, B.B.M., Arnold, K.E. (2018). Direct and indirect effects of chemical contaminants on the behavior, ecology and evolution of wildlife. *Proceedings Of The Royal Society B-Biological Sciences*. 285: 1885

Steele, W.B., Mole, R.A., **Brooks, B.W.** (2018). Experimental Protocol for Examining Behavioral Response Profiles in Larval Fish: Application to the Neuro-stimulant Caffeine. *Jove-Journal of Visualized Experiments*. (137). Video Article, URL: www.jove.com/video/57938

Steele, W.B., Kristofco, L.A., Corrales, J., Saari, G.N., Haddad, S.P., Gallagher, E.P., Kavanagh, T.J., Kostal, J., Zimmerman, J.B., Voutchkova-Kostal, A., Anastas, P., **Brooks, B.W.** (2018). Comparative behavioral toxicology with two common larval fish models: Exploring relationships among modes of action and locomotor responses. *Science of the Total Environment*. 640: 1587-1600

Saari, Gavin N., Corrales, Jone, Haddad, Samuel P., Chambliss, C. Kevin, **Brooks, B.W.** (2018). Influence of diltiazem on fathead minnows across dissolved oxygen gradients. *Environmental Toxicology and Chemistry*. 37 (11) P2835-2850

Recent Publications (Continued)

Scott, W. Casan, Breed, Christopher S., Haddad, Samuel P., Burket, S. Rebekah, Saari, Gavin N., Pearce, Paul J., Chambliss, C. Kevin, **Brooks, B.W.** (2018). Spatial and temporal influence of onsite wastewater treatment systems, centralized effluent discharge, and tides on aquatic hazards of nutrients, indicator bacteria, and pharmaceuticals in a coastal bayou. *The Science of the Total Environment*. 650: 354-364

Haddad, Samuel P., Luek, Andreas, Scott, W. Casan, Saari, Gavin N., Burket, S. Rebekah, Kristofco, Lauren A., Corrales, Jone, Rasmussen, Joseph B., Chambliss, C. Kevin, Luers, Michael, Rogers, Clint, **Brooks, B.W.** (2018). Spatio-temporal bioaccumulation and trophic transfer of ionizable pharmaceuticals in a semi-arid urban river influenced by snowmelt. *Journal of hazardous materials*. 359: 231-240

Taylor, J.M., Back, J.A., **Brooks, B.W.**, King, R.S. (2018). Spatial, temporal and experimental: Three study design cornerstones for establishing defensible numeric criteria in freshwater ecosystems. *Journal of Applied Ecology*. 55:5 2114-2123

Van den Brink, P.J., Boxall, A.B.A., Maltby, L., **Brooks, B.W.**, Rudd, M.A., et. al. (2018). Toward sustainable environmental quality: Priority research questions for Europe. *Environmental Toxicology and Chemistry*. 37:9 2281-2295

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HIGHLIGHTS FOR NEXT ISSUE:

- Faculty Spotlight
- Catching Up With BU SETAC!
- Homecoming Highlights
- Project Awards
- Spring 2019 Honor's Convocation!
- Wetland Sampling Project

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