Baylor Environmental Science

ENV News

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FIRST ENVIRONMENTAL SCIENCE PHD GRADUATE: LAUREN KRISTOFCO

In August 2017, Lauren A. Kristofco was conferred the first PhD in Environmental Science at Baylor University. After completing undergraduate studies at Allegheny College, Lauren moved to Baylor to pursue graduate studies with Dr. Bryan Brooks. Her research focused on advancing alternative methods to understand the toxicology of chemicals. These efforts have resulted in four 1st authored publications from her dissertation in major international peer-reviewed journals, including The American Association of Pharmaceutical Scientists (AAPS) Journal, Aquatic Toxicology, Science of the Total Environment and Environmental Toxicology and Chemistry.

Dr. Lauren Kristofco with Dr. Bryan Brooks

Lauren's paper in Science of the Total Environment was selected by the Journal's Editor in Chief as a must read article. She published 10 additional refereed articles as a coauthor in major international journals, and received several national awards during her time at Baylor, including the SETAC EA Jeff Black award and a best research presentation award at the SETAC North America Annual Meeting. During her time at Baylor, Lauren presented her research at a numerous regional, national and international meetings, and collaborated closely with other students in Puerto Rico and Brazil. In addition to this stellar scholarship record, Lauren was also involved in many volunteer and service activities during her time on campus. For example, she served as a founding member and then President of Baylor's Student Chapter of the Society of Environmental Toxicology and Chemistry (SETAC). Lauren was also selected to serve as a student member on the Science Committee of SETAC North America. She now works as an Environmental Toxicologist with Chevron in the Houston area. We are very proud of you, Lauren! Sic Em!

Dr. Elias Oziolor with Dr. Cole Matson

ELIAS OZIOLOR, PHD

Elias Oziolor graduated with a PhD in Biomedical Studies in August 2017. Oziolor is now a Postdoctoral Fellow in Dr. Andrew Whitehead's laboratory at UC Davis exploring time series populations genomics of Pacific herring to determine the reasons and impacts of the population collapse the species experienced after the Exxon-Valdez oil spill. Well done, Dr. Oziolor. *(See related topic on page 6)*

CONGRATULATIONS WINTER 2017 GRADUATES

Mariah De Los Santos, B.S.
Anna Hodges, B.A.
Grace Hutchinson, B.A.
Maggie Leinen, B.S. in EHS
David Ma, B.S.
Madie Simms. B.S.
Ashley Torrez, B.S.

INSIDE THIS ISSUE

UNDERGRADUATE THOMAS WATSON ATTENDS UNITED NATIONS CONFERENCE OF PARTIES

By Joy Moton in Media Communications

Baylor University student Thomas Watson was among nine undergraduate observers selected by the American Chemical Society to attend the United Nations Conference of the Parties (COP) related to the United Nations Framework Convention on Climate Change (UNFCCC).

Attending the conference of 25,000 people in Bonn, Germany, last November allowed the junior environmental science major to experience Europe for the first time while observing scientists, policymakers and national leaders as they discussed how the science of climate change may be incorporated into international policy. The students blogged about their observations while at the conference. Although he did not know what to expect, Watson said he was excited to attend the conference because it was an opportunity for him to become a part of fostering change.

"You can be a scientist and you can get all the data and do some of the best reports ever done, but if you can't actually encourage people to listen to your data and encourage policies that implement what your data is saying needs to be done, then you can't have the biggest impact," Watson said. "The United Nations is a huge organization, and I thought that I could actually be a part of causing change for the better by going to this conference and meeting people who are achieving that.

Watson said his biggest focus at the conference was coal divestment. He said coal is significant because it produces the most carbon dioxide.

"...I thought that I could actually be a part of causing change for the better by going to this conference and meeting people who are achieving that."

Watson conducting research in Antarctica

"Carbon dioxide is the main reason for the warming we've seen. So, lowering and ending these emissions would cause us to emit half of the carbon dioxide that's being emitted now," Watson said.

Watson works as a student research assistant for Rebecca Sheesley, Ph.D., associate professor of environmental science in Baylor's College of Arts & Sciences and a fellow of the Institute of Ecological, Earth and Environmental Sciences. Watson and Sheesley conduct research on urban, organic and elemental carbon particulate matter, which is associated with most diseases.

He recently returned from doing research on icebergs in Antarctica over the Christmas break.

"I chose environmental science because I liked how diverse and interdisciplinary it is. I get an education on biology, chemistry and physics, and you kind of get a broader sense of how they all interplay to make what happens on earth," Watson said.

Watson grew up in Chicago in a Christian household and is determined to try to make the world a better place than it was when he entered it.

"I figured that doing anything other than that doesn't make sense," Watson said.

As Watson learned about issues such as habitat destruction, climate change and the rapidly growing human population, he recognized the magnitude of environmental crises and wanted to be a part of making life better for people on earth in an efficient manner. He sees the climate change dilemma as an opportunity for collaboration rather than a fearful response to danger.

"I don't see climate change as a threat or as a death sentence for people," Watson said. "I think climate change is best thought of as an opportunity because it presents an unprecedented opportunity for humanity to work together."

STUDENT ACHIEVEMENTS

Adreanna Burman, a Senior Biology major who is an undergraduate research assistant in Dr. Christie Sayes' Nanotoxicology Lab. Andreanna won the Outstanding Oral Presentation Award in the Material Science and NanoEngineering section of the Gulf Coast Undergraduate Research Symposium at Rice University.

Way to go Adreanna!

Kaitlyn Kelly (far right), BS in Environmental Health Science, and Baylor Steele (far left), doctoral candidate in Biomedical studies, participated in a three student panel discussion with Baylor's Provost to share their experiences about why Environmental Health matters!

ALUMNI UPDATES: WHERE ARE THEY NOW?

Former undergraduate Justin McClain was accepted to Oregon State University's Professional Science Master's in Environmental Sciences degree program. Best wishes to Justin as he starts this program in April!

Dr. Megan Carr was hired by the U.S. Bureau of Ocean Energy Management as a supervisor of the Alaska Region's Resource Evaluation Office. After graduating with her master's in environmental science from Baylor, Dr. Carr earned her PhD in geophysics from the University of Tennessee. Congratulations Dr. Carr!

FACULTY SPOTLIGHT: DR. COLE W. MATSON

Dr. Cole W. Matson who recently promoted to the rank of Associate Professor of Environmental Science at Baylor University. Dr. Matson is an environmental toxicologist specializing in the genetic effects of contaminants on wildlife. His research focus is currently the genetic and developmental impacts of environmental contaminants on fish, and how environmental variables affect the toxicity of anthropogenic contaminants, with a particular focus on nanomaterials, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons. He has published and presented environmental toxicology research for the last 18 years, with projects covering a wide variety of organisms and stressors. Recent work has focused on mechanistic toxicology and embryonic developmental toxicity. In particular, how chronic contaminants exposures, through selection processes, have led to genetic adaptation in fish populations inhabiting heavily contaminated portions of Galveston Bay, Texas, resulting in fish populations exhibiting substantial and heritable resistance to chemical toxicity. This area of research is broadly defined as evolutionary toxicology. In late 2017, Dr. Matson served as a guest editor on a special issue in Evolutionary Applications focused on evolutionary toxicology. Current research efforts also include studies of nanomaterial environmental fate, transport, transformation, and ultimately bioavailability and toxicity in mesocosms.

Dr. Matson recently received a two-year grant from the Gulf of Mexico Research Initiative, in collaboration with researchers from Arizona State and Old Dominion, to coordinate and host a workshop to develop a petrochemical vulnerability index to accompany IUCN Red List analyses for Gulf of Mexico marine and coastal plant and animal species. This index will characterize each species' unique risks associated with oil and gas exploration, extraction, transportation, and processing, based on their physiology, natural history, reproduction, distribution, and other factors. Dr. Matson is also a Co-PI on a recent EPA education grant, led by Dr. Suzanne Nesmith in Baylor's School of Education, which will fund a wetland academy to help primary and secondary environmental science teachers improve their understanding of, and ability to teach about wetland function, water quality, and other water-related topics.

Dr. Matson's first PhD student, Elias Oziolor, completed his degree this past summer, working on Gulf killifish evolutionary toxicology. Elias' research at Baylor has already contributed to eleven publications, including nine that Elias led as first-author, with a few more expected over the next year. Dr. Oziolor has moved on to a postdoc at UC Davis, and continues to work in the field of evolutionary toxicology.

CULTIVATING NUTRITIOUS FOOD, DISTRIBUTING FRESH PRODUCE, AND CHARACTERIZING AQUATIC SYSTEMS

Originally Published in Baylor News
Taylor Buchanan

Pro Ecclesia; Pro Texana: Environmental Science Department

Faculty in Baylor University's Environmental Science Department are not only educating the next generation of environmental scientists, they also are cultivating nutritious food, distributing fresh produce in collaboration with key partners across the greater Waco community and characterizing aquatic systems.

"Our faculty, staff and students have chosen environmental science because we understand the importance of stewardship of the broader environment," said Dr. George Cobb, chair of the Environmental Science Department. "Educating and helping those nearby is a part of this mission here in our department, and the Baylor mission as well, to serve others."

Through this lens of stewardship, students learn how to care for the earth, themselves and others in a sustainable way.

The Baylor Community Garden

The Baylor Community Garden is a hands-on opportunity to feed the hungry. Every week, students harvest fresh produce for the Baylor Campus Kitchen. These meals are then distributed to members of the Waco community who do not have regular access to fresh, healthy food.

The Garden is about half the size of a city block, with 14 beds and green space for hosting classes and events. The Department uses the space to teach a community gardening class, and the Urban Gardening Coalition holds meetings there as well. Elementary-aged students can take junior master gardening classes, where they learn about healthy eating and gardening.

"The garden serves as a demonstration, not only for our students but also for local schools and urban gardeners to come by," said Doug Nesmith, lab coordinator for environmental science. "It bridges the gap between us and the community."

Ground was broken for the Garden in January 2011. Since then, students have contributed through weekly volunteer opportunities and events including MLK Day of Service, Community Garden Days and Line Camp. Baylor students who are involved often develop a sense of community pride and service.

"They're allowed to feel leadership and take control," Nesmith said. "They're actually making decisions on what kinds of things to plant, how much to plant and how it's going to go into the meals that are cooked in the campus kitchen."

Last year 1,500 pounds of organic material was harvested from the Garden.

"It's very rewarding for the students," Nesmith said. "With their work here in the garden, they're actually feeding people who wouldn't have food to eat without the work they're putting in."

Ecology Lab students visit Waco Wetlands with Dr. Doyle

The Lake Waco Wetlands

Environmental Science also works with The Center for Reservoir and Aquatic Systems Research (CRASR), a dynamic partnership between the University and the City. With well over a decade of collaboration, each institution has developed significant water-related expertise and capabilities that are directly improving the lives of Central Texans.

"The students, faculty and staff with environmental science are part of a collaborative group that focuses on aquatic research and education," said Melissa Mullins, environmental education specialist with CRASR. "We work with local schools on environmental education and field trips."

From field trips to large-scale environmental experiments, Lake Waco Wetlands is a living laboratory. Baylor students participate in everything from service events — like pulling overgrown cattails — to science projects — answering questions for a class or research project.

"Many times, we think we're giving back, and the benefit is solely for the community," Mullins said. "What I see is a huge benefit to our Baylor students who engage in this kind of work. It connects them to the community in a way that they might not have otherwise."

The partnership with the city of Waco is mutually beneficial. When a Baylor graduate student works on a research project at the Wetlands, Nora Schell assists them with anything the city can provide and makes sure everything is working properly. Schell is the Lake Waco Wetlands Coordinator, and she has been with the site since its inception in 2004.

The University shares equipment including microscopes, zipnets, aquariums and other items that Schell uses with visiting school groups. She sees over 4,000 children each academic year and a few hundred more during the summer for camps.

"We couldn't have done this on our own," Schell said. "It's very unique for the city because if we cannot get something on our own, we know we have help. It's very helpful that Baylor has our back and can provide so much scientific research."

USDA Grant

In another flourishing partnership between the University and the City, a recent grant from the United States Department of Agriculture furthered Wacoans' access to healthy and locally-grown foods. The grant was a joint proposal, and the mainline recipients of the funds were the City of Waco and the McLennan County Public Health District. They provided resources to the Downtown Waco Farmer's Market, World Hunger Relief, the Urban Gardening Coalition and Baylor University for various aspects of the grant.

The Department of Environmental Science provided 11 student interns to assist vendors at the Downtown Waco Farmer's Market and the World Hunger Relief Farm. From March 2016 to September 2017, the students logged around 1,800 hours. With student labor funded by the grant, vendors were able to lower prices or expand offerings so more local families could afford wholesome choices.

"It was a big success and helped solidify the Downtown Farmer's Market as an essential place for people to access locally grown and healthy food choices," Cobb said.

Through this grant, Baylor interns helped promote farm and garden-raised produce in the Waco area and allowed people to have better access to produce available at the Farmer's Market. For those lacking transportation or access to the Farmer's Market, interns loaded a portion of the unsold produce from the Farmer's Market into the Veggie Van, a mobile unit operated by World Hunger Relief. They then took these fruits and vegetables into areas of the city that are considered food deserts.

"Environmental Science is a growing and dynamic department," Cobb said. "We view all aspects of education as important. We work not only in the classroom, but in the research labs and in the community, trying to improve things in multifaceted ways."

Students volunteer in the community garden on MLK Day

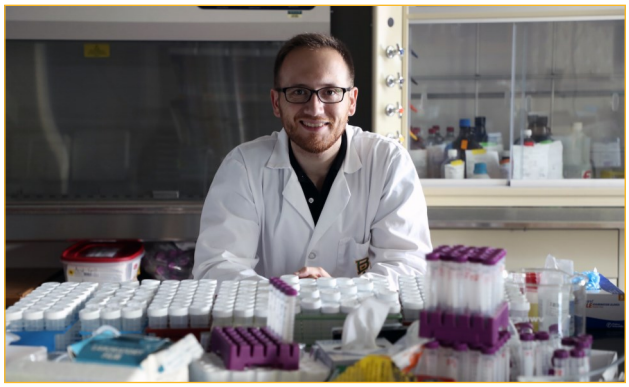
A SUCCESS STORY IN GRADUATE EDUCATION

By Jeff Hampton in Baylor Arts and Sciences Magazine

Elias Oziolor wanted to know how fish overcome the impact of pollutants, and he traveled all the way from Bulgaria to Baylor to find the answers.

"I knew I wanted to do science, and the state of science back home is not up to par," he said.

Oziolor began his academic journey at DePauw University in Indiana because he wanted a small liberal arts college experience at a university with a strong biology department. With only 2,400 undergraduates, DePauw was a good fit and gave Oziolor a BA in biology and biochemistry.


Elias Oziolor, PhD

"My senior year I got an email from the Baylor Department of Environmental Science advertising open positions, and Baylor was the only school I applied to," he said. Oziolor soon paid a visit to Waco and spent time with his potential major advisor at Baylor, discussing what his studies would look like and what expectations would be placed on him in the program.

"I chose Baylor mostly because of my advisor, Dr. Cole Matson (assistant professor of environmental science), and the quality of research that he did. The level of support the university gives to graduate students also helped my choice," he said. That support included, among other things, a graduate stipend.

In changing addresses from Indiana to Texas, Oziolor also changed his academic direction.

"I was oriented towards the medical field beforehand, but I chose to study evolutionary toxicology at Baylor," he said. Evolutionary toxicology is a subset of environmental toxicology, and Oziolor's dissertation looked at how Gulf killifish populations have evolved to resist the negative effects of industrial contaminants in the Houston Ship Channel.

"Baylor is definitely up and coming in environmental toxicology and has incredible promise in building a program that is one of the best in the country," said Oziolor, who received his PhD in environmental science from Baylor in August 2017. "This can only come with investment into the department."

MAKING RESEARCH ACCESSIBLE

By Julie Engbretson in Baylor Magazine

On a Sunday afternoon in August, Dr. Fan Zhang, post-doctoral fellow in environmental science, and Grace Aquino, a third-year doctoral student in environmental science, assembled an exhibit inside the bustling Jeanes Center of the Mayborn Museum Complex.

Zhang began a presentation on silver nanoparticles that enter the human body via the air we breathe.

Meanwhile, Aquino handed out silver dollar-shaped pieces of white clay to a group of attentive museum visitors. She encouraged participants to press the clay into the bottom of an ordinary kitchen colander to obstruct the colander's tiny holes as completely as possible. The clay was meant to represent human endothelial cells of the lung, which provide a barrier between the air we take in and our blood.

Aquino instructed her youngest audience members to toss handfuls of uncooked rice—representing ubiquitous silver nanoparticles—into the clay-plugged colander to see how many of the grains passed through. Most did not; but a fair number made their way through or around the barrier and into the imaginary bloodstream.

"The kids loved the model," Aquino said. "They were throwing the rice. They were loving it. Maybe they didn't understand the research in the most detailed way, but I think they took away the message that we do have some control over what goes into our bodies."

This presentation at the Mayborn Museum and a growing list of others like it are part of Portal to the Public. Facilitated by the Pacific Science Center in Seattle and funded by a grant from the U.S. National Science Foundation, Portal to the Public is a national program that connects researchers and experts in the STEM fields with the surrounding community.

Portal to the Public Network includes more than 50 science centers, museums, zoos, universities and other institutions. As a member, Mayborn Museum is fulfilling significant aspects of its strategic plan formed in 2016.

"Last year, we put together a three-year strategic plan and came up basically with four big ideas," Mayborn Museum Director Charles

> *"All scientists want to show the value of their work. Communicating with the community is a way to demonstrate that I'm making a contribution."*

Walter said. "One of those big ideas is increasing the quality of the visitor experience. Another is pursuing greater connectedness to Baylor's students, faculty and staff. As you walk our galleries right now, you might not know you're in a Baylor museum."

Portal to the Public at Mayborn Museum provides Baylor's faculty and researchers with a place to connect with the general public to communicate and demonstrate the real-life, tangible impacts of their research.

"When you write a grant—say, an NSF [National Science Foundation] grant—there are two criteria," Walter said. "One is intellectual merit. 'How great is this research?' The second one is, 'What are the broader impacts of that work?' You have to answer this question in a national grant. A lot of researchers would say, 'Well, we'll go lecture at schools in classrooms.' That can be really boring and could actually turn kids off if it's done in the wrong way. The NSF and these types of organizations love Portal to the Public because it helps researchers be more effective science communicators."

Grace Aquino providing a demonstration at the Mayborn Museum

Nancy Minter is Mayborn's Portal to the Public coordinator. Among her many responsibilities, Minter conducts a comprehensive, four-hour workshop aimed at helping Baylor scientists devise fresh, engaging ways to present their research clearly and simply for museum guests while incorporating activities and displays that attract visitors of all ages.

"[The workshop] has been held here at the museum, and we've also taken it over to the labs in the Baylor Sciences Building," Minter said. "In inquiry-based informal education, face-to-face interactions, eye contact and effective communication are all important for both the scientist and the visitor."

"All scientists want to show the value of their work. Communicating with the community is a way to demonstrate that I'm making a

contribution," Zhang said. "I'm obviously very proud of my work, but if no one understands what it is or what it means, I can only be happy or proud by myself."

Aquino said that while learning to speak to a target audience is helpful, learning to deliver a clear message is of utmost importance.

"You could have the cure for cancer," Aquino said. "But if you can't communicate it to the public, what good is it?"

Gavin Saari, a doctoral candidate in environmental science, said the training guided him to ask better questions to help connect his work in the field or laboratory to an audience member's everyday life—whether the audience member is 5 or 85.

"You only get a finite amount of time to deliver your 'elevator pitch,' and I'd say the whole point of Portal to the Public is concision, to help people see why they should care about this subject," Saari said.

His research looks at pharmaceuticals and personal care products in bodies of water and the potential hazards as aquatic life are exposed to even trace amounts of these products.

"I am looking at a specific heart medication, and I brought two models of the human heart as part of my exhibit," Saari said. "The kids who were there got to touch this realistic life-size model of a human heart."

He then asks the children to make a fist and tells them that's about the size of their hearts. The questions proceed to 'how many chambers in a reptile or amphibian heart,' among others.

"Once you have them interested and they've made that connection between our research and their lives, then you can keep pressing deeper with additional questions," Saari said.

In addition to providing a richer experience for visitors to the museum and helping researchers connect with the community, Walter sees Portal to the Public as a means of cultivating a better-informed citizenry and elevating Mayborn's offerings for Baylor, Waco and Central Texas.

"Portal to the Public helps Mayborn to be a more effective museum, standing 'toe to toe' with museums like the Pacific Science Center, doing work in the broader, public understanding of science, technology, mathematics and engineering which is so critical to the future of our country," Walter said. "The average U.S. citizen spends only 5 percent of their waking life in a classroom. Portal to the Public gives us a chance to reach individuals at any stage of their life."

PROFESSIONAL SOCIETY LEADERSHIP OF ENVIRONMENTAL SCIENCE FACULTY AND STUDENTS

Environmental Science faculty and students have established a strong tradition of leadership in a wide array of professional societies. For example, Dr. Brooks and Dr. Cobb are past presidents of Regional Society of Environmental Toxicology and Chemistry (SETAC) Chapters and both have served as members of the SETAC Board of Directors. Cobb was also president of SETAC North America in 2011 and now chairs the SETAC Global Chemistry Advisory Group. Dr. Usenko recently chaired SETAC's North America Chemistry Advisory Group. Dr. Bruce is a member of the Society of Toxicology (SOT) Mentoring Committee. Bruce is past chair of Lone Star SOT and Dr. Sayes is incoming chair. Cobb has served on the Executive Committee of the ACS Division of Environmental Chemistry for over a decade and has just concluded a two year term as Chairman of that Division. He is also a member of ACS Committee for Environmental Improvement. Grace Aquino's role as the senior graduate representative in Lone Star SOT completes Baylor's leadership in that organization. Dr. Sayes has recently chaired the North Carolina SOT Chapter. These leadership roles provide essential opportunities for members of the Baylor family to shape science, education, and policy from/on the local to the global level/scale.

On the editorial front nearly half of our faculty are Journal editors. Dr. Sayes serves as an Editor for the Royal Society of Chemistry's *Toxicology Research*. Brooks and Cobb are editors of *Environmental Toxicology and Chemistry*. Brooks is editor in chief of Environmental Management. Dr. Matson is editor for *Ecotoxicology*.

When it comes to professional meeting organization, few departments have faculty who are as influential. Bruce has chaired 2 Regional SOT meetings at Baylor Univ. Matson and Usenko co-chaired the Regional SETAC meeting at Baylor. Usenko was program committee member of SETAC Annual meeting in 2016. Dr Sayes is an Organizing Committee member for International Nanotoxicology Conferences and she has organized SOT Conferences for Gulf Coast States. Prof Cobb is part of the steering committee for the 2019 Crop Protection Chemistry Congress hosted by the International Union of Pure and Applied Chemistry. And in the distant past, Annual SETAC meetings were chaired by Cobb (2003) and Brooks (2009). Leading professional conferences affords us the opportunity to showcase Baylor campus and facilities in some cases, and in others, it allows us to "fling our green and gold afar."

WINTER BREAK IN HONG KONG

Late on the morning of 26 December 2017, ten Baylor students boarded a plane in Dallas that was bound for Hong Kong. The 17 hour flight and a taxi ride took them to Hong Kong Baptist University where, for the second year, Baylor students joined 25 classmates from across Hong Kong for a Global Environmental Leadership Program.

Students heard perspectives from faculty members from 5 different Universities, who addressed different global issues that face humanity. Topics ranged from the technical aspects of water treatment and contaminant dispersion to cultural perceptions of the human-environmental relationship to social factors that influence stewardship behaviors.

Students took many field trips to Country Parks, Butterfly Preserves, Waste Water Treatment Facilities, and Urban Farms. One of the most eventful days was the long hike from Fung Yuen through the indigenous village of Sha Lo Tung on the way to Hok Tau Reservoir. This trek began with an extensive stairway that led to more reasonable slopes until we reached a picnic spot. Later in the hike we traveled along an ancient roadway paved with large stones until we reached the reservoir. Many students spent time after classes in the city and surrounding areas with their Hong Kong classmates. These international interactions are essential aspects of the transformative education students gain from understanding global perspectives.

The evening light shows and New Year's Eve at Victoria Harbor were colorful and exciting experiences. Near the end of the course, everyone enjoyed riding the cable cars (well almost everyone enjoyed the ride) to visit the Tian Tin Buddha. After enjoying one day of relative freedom to explore Hong Kong, everyone took the long return flight and reached Baylor just as the Spring semester began.

BAYLOR JOINS TEHA IN AUSTIN

Environmental Health Science undergraduates attended the Texas Environmental Health Association's Annual Education Conference in Austin along with Dr. Bryan Books and Dr. Trey Brown. While attending they learned about the latest research and technology changes in the environmental and public health fields. The conference also allowed the opportunity to listen to several keynote speakers discussing current events and challenges in environmental health science.

SUMMER INTERNSHIP IN ALASKA

By Dan Dinh

Each summer, the National Environmental Public Health Internship Program (NEPHIP) provides environmental health students with the opportunity explore career opportunities while working with environmental public health departments throughout the US. The program strives to match students' specific interests in public health to potential projects offered at each eligible environmental public health department. Dan Dinh, Senior Environmental Health Science student, was chosen for the program and assigned to the Alaska's Department of Environmental Conservation (ADEC). Dinh worked closely with the ADEC's Food Safety and Sanitation Program and primarily focused on assessing data quality and generating summary reports using the Risk Factor Survey data based on her interest in data and trend analysis. The analysis Dinh performed strives to identify the most common risk factors to foodborne diseases, which will allow ADEC to better determine where their resources and efforts should be allocated. She had the opportunity to shadow environmental health inspectors during regular retail food and body art facility inspections. In addition, Dinh devoted time to researching and comparing regulations of harvesting and distributing wild mushrooms as it is an increasingly popular topic for food facilities in Alaska. Through such preparation, she assisted in the production of guidance and regulatory documents to be distributed throughout retail facilities within the jurisdiction of Anchorage, Alaska.

Dan Dinh in Alaska

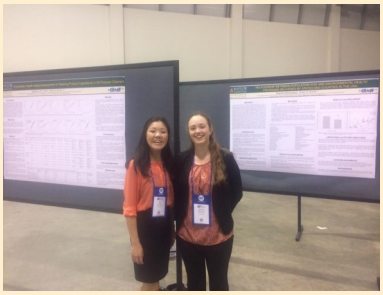
ATTENDING THE INVITATION TO EXCELLENCE DINNER

By Dan Dinh and Kaitlyn Kelly

Dan Dinh, Bruiser, Kaitlyn Kelly and Dr. Rebecca Sheesley at Invitation to Excellence

This school year, students from the Environmental Science Department - Dan Dinh and Kaitlyn Kelly - attended Invitation to Excellence, a recruitment program put on by Undergraduate Admissions to showcase the academic opportunities at Baylor. The recruitment event occurred this past Fall. In November 2017, Dinh and Kelly accompanied Dr. Rebecca Sheesley, talked with prospective students about the programs within the Environmental Science Department including Environmental Health, Environmental Science, and Environmental Studies. On Friday evening the students enjoyed an evening reception of hors d'oeuvres and dessert and met with students and their parents. On Saturday morning, students broke into groups based on their expertise to offer solutions to a Code Red disaster event. Undergraduate Dinh served as a resource for prospective students as they drafted a remediation plan. Professors oversaw the event and observed students' interpersonal and teamwork skills when working in large groups. Those who scored the highest scores became finalists for a full-tuition scholarship to Baylor.

BAYLOR AT THE NATIONAL ENVIRONMENTAL HEALTH ASSOCIATION



By Dan Dinh

This past summer, Environmental Health Science senior Dan Dinh and recent alum Shannon McClenahan accompanied Dr. Bryan Brooks to the National Environmental Health Association (NEHA) 2017 Annual Educational Conference (AEC) in Grand Rapids, Michigan. Dinh and McClenahan both presented their respective research poster at the student poster session that spanned the length of the conference.

McClenahan began her research project during her CDC internship in summer 2016 and continued her work during her senior year. She presented on the correlation between the population density of various cities across the nation and their local public health offices' ability to adequately provide the 10 essential public health services. The focus of Dinh's project was analyzing chemical ingredients of all-purpose surface cleaners through a probabilistic hazard assessment approach. This was done through the development of probability distributions and, in turn, the derivation of uncertainty factors that can be employed to assess ingredients that lack adequate toxicity data.

During their free time, the students attended symposiums on various topics of their choice. They sat in on presentations that vary from disaster management to up and coming food regulations (e.g., foraging wild mushrooms and marijuana edibles) to the development of innovative databases to promote the sharing of data between scientists. Overall, the opportunity to attend the conference was rewarding and informational for both Dinh and McClenahan. Furthermore, McClenahan spoke with various public health individuals regarding employment opportunities while Dinh discussed potential future internships that relate to her research interests.

EARWAX REVEALS INSIGHT INTO WHALES' HISTORY

This past winter, Dr. Sascha Usenko and PhD student Farzaneh Mansouri were featured in an article on their research of whales' movements and diets. Whales are very difficult to study, but examination of whale wax, "ear plugs", provides valuable insight to decades of information. The ear plugs contain isotopes that reveal their diet and where they have traveled over the years. To learn more, check out the article at: blogs.agu.org/geospace/2017/12/14/

Photo by: Dani Crain. "Earwax like ice cores: Unlocking the past hidden in whale earplug" *American Geophysical Union*, 14 December 2017.

PROFESSOR JULIE KING RECEIVES TWO BAYLOR AWARDS FROM STUDENTS

Professor King with Hannah Dye

The Veterans of Baylor (VETS) hosted an annual VETS Coin Recognition Ceremony, recognizing individual members of the Baylor community who were identified by a student veteran as going above and beyond to support them personally. Julie King was awarded a Veterans of Baylor Coin by her former student, Veteran Dolly Anna Elliott-Hames-Hubbard, who identified Dr. King as an individual who has done just that during her Baylor journey.

Mortar Board is an academic honor society that recognizes outstanding juniors and seniors for their scholarship, leadership and service. Mortar Board Seniors select one faculty member to honor based on the impact that faculty member has made on the student. Mortar Board hosts an annual dinner to recognize these professors that have been formative during their time at Baylor. Senior Environmental Science student Hannah Dye invited Julie King to the Circle of Achievement dinner to honor her for her hard work as a professor and a mentor.

ANNUAL SERVICE AWARDS

Baylor recognized Faculty and Staff for their years of service on Wednesday, Feb 28 at the Baylor Annual Service Award ceremony.

We would like to personally recognize and thank members of the Environmental Science Department for their years of service to Baylor.

PROFESSORS WELCOME STUDENTS AND THEIR FAMILIES DURING FAMILY WEEKEND

There are keystone events on the University calendar that reflect the underlying currents of the University. They also model life's major events to a degree. At the University these events lead to student (and faculty) transition from an introduction to higher education to a reflection about their educational and social experiences and eventually a reunion with cohorts, peers, and teachers.

Of the hundreds of calendar items related to planning a Baylor life, three standout: Parent and Family Weekend, Graduation, and Homecoming. These three events mark the progression of student life from matriculation to reunion. The description of Family Weekend on the Baylor webpage provides an overview:

"For over fifty years, Baylor has been welcoming the families of Baylor students to campus. Beginning as a single day in 1960, this special event has provided a unique opportunity to introduce the University to Baylor parents. By 1970, this event had grown into a full weekend known as Parents Weekend and featured a student talent show, a parent and faculty coffee, and a dinner for parents held on the grounds of Baylor University. These events combined to show parents the best of Baylor and all that it has to offer.

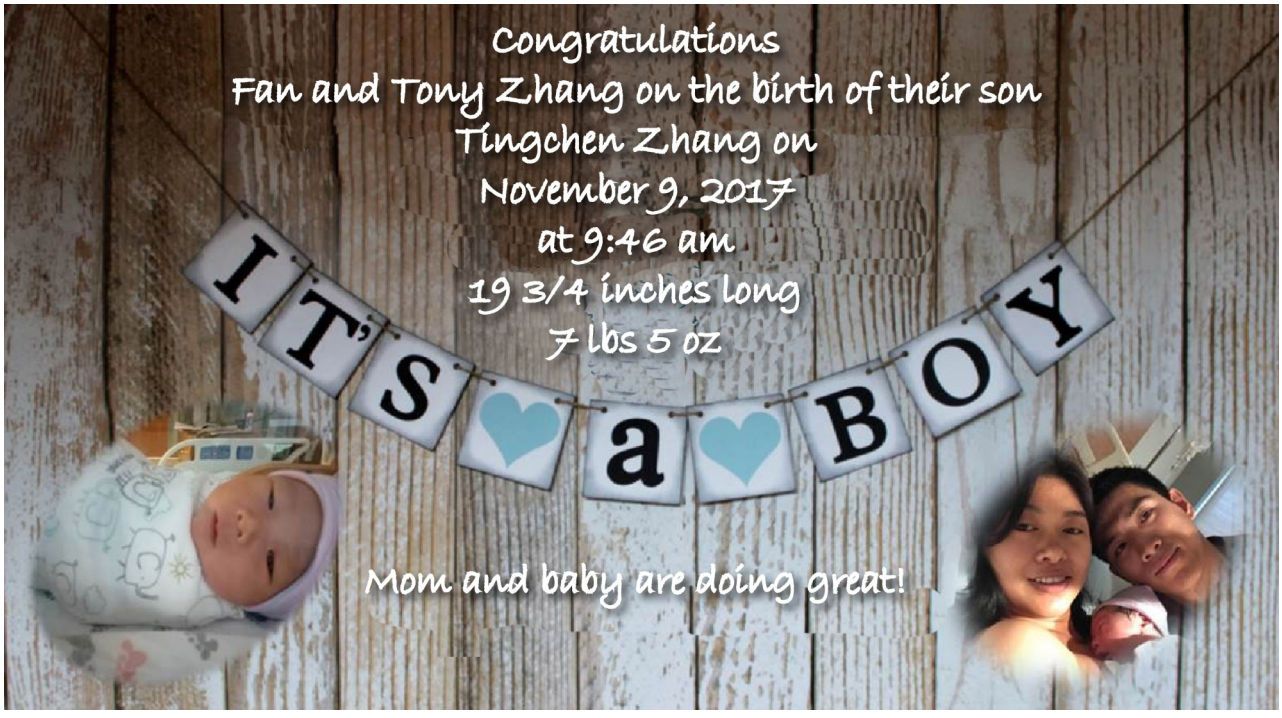
Throughout the years, the event has continued to evolve and expand. However, some traditions have remained a part of this cherished weekend. After Dark, a variety show of student performers has continued to showcase the incredible talents of Baylor students to visiting families. Parent-Faculty Coffee remains an extraordinary opportunity for Baylor parents to meet the faculty that actively educates their students. In addition, events such as The History Walks, which take families on a tour of the rich traditions of Baylor University, and the elegant Dessert Party offers parents the chance to relax with delicious desserts and a beautiful atmosphere, have been added to further enhance the weekend.

Dr. Lehr talks with students and parents

In 2012, the name of the weekend was changed to Parent & Family Weekend to provide as a transitional period for the ultimate goal of calling the weekend Family Weekend. This permanent name reflects the inclusiveness of the event as Baylor has worked to welcome all members of the Baylor family to experience this incredible tradition"

The 2018 Parent and Family Weekend was held at McLane Stadium and, in many cases was the first time our 'blended families' had a chance to meet informally. It is an important ritual, much like meeting the relatives of a significant other; we will after-all be together for the next four years, for better or worse, in good football years and bad. The thing that binds us together is our concern for the environment and our graduates reflect that tradition in their diverse vocations; environmental health, law, policy, research, resource management, and teaching.

Thank you Susan Bratton, Doug Nesmith, and Larry Lehr for 'meeting the peeps' of our new family.



U.S. ARMY VETERINARY CORPS' APPROACH TO GLOBAL HEALTH ENGAGEMENT

By Tonya B. Hudson in Media Communications

Lt. Col. Matthew A. Levine, DVM, MPH, MS, U.S. Army Veterinary Corps, will speak on "Global Health Engagement: How and why the US military leverages its medical capabilities to promote stability and security" Wednesday, Jan. 31, at 4 p.m. in Room A.108 of the Baylor Sciences Building, 101 Bagby Ave.

LTC Levine speaking to seminar attendees

According to Lt. Col. Levine, recent medical crises have demonstrated the connection between health and security issues on a grand scale.

"The U.S. response to the Ebola crisis in West Africa highlighted the link between human health and national security," Lt. Col. Levine said. "Operation United Assistance, as it came to be called, demonstrated the power of global health activities to support America's national defense, diplomatic and developmental objectives. In light of this, global health is increasingly viewed as a strategic U.S. interest, capable of addressing the root causes of terrorism and instability."

Bryan Brooks, Ph.D., Distinguished Professor of Environmental Science and Biomedical Studies in Baylor's College of Arts and Sciences, stressed the timeliness of such discussions.

"Clean water, safe food and healthy communities are often expected in the USA, but are routinely stressed in our backyard and on the global stage," Brooks said. "Engaging global health challenges increasingly requires transdisciplinary partnerships among government, academic and private sectors."

Partnerships are key to improved outcomes.

"The U.S. military contributes to this effort by leveraging its medical capabilities as a means to build partner capacity, improve health outcomes and set the conditions for regional stability and security," Lt. Col. Levine said. "Coined Global Health Engagements (GHEs), these activities occur across the world and include international disaster response, humanitarian assistance and the exchanges of expertise."

This event is presented by the Environmental Health Science Program, the College of Arts and Sciences and the VPR Colloquium Series.

"This will be a timely and informational lecture. Any student studying pre-health majors or interested in global affairs should be interested. We look forward to hearing Lt. Col. Levine's sage perspectives," Brooks said.

SPRING 2018 SEMINAR SCHEDULE

Week	Speaker
01/10/2018	Dr. Alisa Rich, University of North Texas Health Science Center, Ft Worth
01/24/2018	Dr. Bryan Brooks, Distinguished Professor of Environmental Science and Biomedical Studies, and Director of the Environmental Health Science Program, Baylor University
01/31/2018	LTC Matthew Levine, U.S. Army Veterinary Corps
02/07/2018	Dr. Carolyn Harvey, Eastern Kentucky University
02/14/2018	Dr. Anthony Noce, Vice President, EHS Management Systems at Tetra Tech
02/21/2018	Madison Baxter, US Environmental Protection Agency
02/28/2018	Ron Suchecci, Hoot Systems LLC
03/07/2018	Spring Break, No Class
03/28/2018	Dr. Paul Westerhoff, Arizona State University
04/04/2018	Dr. Mark Williams, US Army Public Health Center
04/11/2018	Dr. Meredith Howard, Southern California coastal Water Research Project
04/18/2018	Dr. Kristy Murray, National School of Tropical Medicine, Baylor College of Medicine
04/25/2018	Dr. Schonna Manning, University of Texas.

UPDATE ON BU SETAC

BU SETAC had a great fall semester. We started the semester participating in Waco's Cultural Arts Festival Science Fest teaching kids and their families about life cycles of model organisms and why model organisms are so important. We also participated in Baylor's Steppin' Out program and cleaned Waco Creek outside of the BSB (pictured right). We had about 30 volunteers show up and cleaned up a lot of trash! This semester we plan on participating in the Girl Scout's STEMFest, cleaning the Waco Creek, and hosting a guest speaker. For further information or interest in joining, please email: Claire_Moffett@baylor.edu.

BU SETAC Waco Creek cleaning crew.

SETAC NORTH AMERICA 38TH ANNUAL MEETING
12-16 NOVEMBER 2017 | MINNEAPOLIS, MN, USA

Graduate students and faculty representing a variety of Baylor research labs attended the Society of Environmental Toxicology and Chemistry (SETAC) North America 38th Annual Meeting held in Minneapolis, Minnesota, in November 2017.

Platform abstracts presented by graduate students were Ben Castellon, Sam Haddad, Brittany Perrotta Gavin Saari, Baylor Steele, and recent graduates Dr. Lauren Kristofco and Dr. Elias Oziolor.

Poster presentations were given by Bekah Burket, Bridgett Hill, Jing Liu, Sarah Guberman, Casan Scott, and Chi Yen Tseng.

Faculty present were Drs. George Cobb, Ramon Lavado, Cole Matson and Bryan Brooks who presented two invited platforms.

Graduate student Sam Haddad received a presidential citation from SETAC North America for his service provided to other graduate students.

HOMECOMING TAILGATE

Last fall, Environmental Science hosted a tailgate during homecoming to catch up with former alumni, friends and family! There was also a raffle for a basketball autographed by former Baylor Coaches Scott Drew and Kim Mulkey. Sic 'em!

PRESENT YOUR PHD

Present your PhD (PyPhD) is a student-lead organization where PhD and master's students share their research with local K-12 students and the community. By using audience-appropriate language and promoting inclusivity in STEM, students aim to empower young learners to envision themselves at the cutting edge of scientific research. PyPhD fosters a welcoming and personal connection between science and the next generation of problem-solvers, thus actively promoting scientific literacy, engagement, and inspiration. For more information please contact them at PresentYourPhD@baylor.edu, https://www.baylor.edu/graduate/currentstudents/presentyourphd, or follow them on Facebook https://www.facebook.com/presentyourphd/.

RECENT PUBLICATIONS

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Saari, G. N., Wang, Z., **Brooks, B.** (2017). Revisiting inland hypoxia: diverse exceedances of dissolved oxygen thresholds for freshwater aquatic life. *Environmental Science and Pollution Research, 1—12.*

Gerding, J.A., Landeen, E., **Brooks, B.** (2017). Understanding the needs, challenges, opportunities, vision, and emerging roles in environmental health. *Journal of Environmental Health, 80(1),* 36.

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