# **Environmental Science**

Spring 2023 Volume 1, Issue 1



### George Cobb joins a truly stellar group of national leaders in science.



Professor George P. Cobb, Chair of the Department of Environmental Science, was appointed as an ad hoc member of the U.S. Environmental Protection Agency, Office of Research and Development (ORD), Board Of Scientific Counselors (BOSC). The BOSC (<u>https://www.epa.gov/bosc</u>) is essential in guiding technical and management issues of the Agency's research programs, as they work to improve the US environment while maintaining a vibrant national economy.

Ad hoc members help the BOSC review ORD's strategic research plan for The New Chemicals Collaborative Research Program (NCCRP). This program has the goal of Modernizing the Process and Bringing Innovative Science to Evaluate New Chemicals Under the Toxic Substances Control Act (TSCA). This work requires significant interaction of two EPA branches ORD and the Office of Chemical Safety and Pollution Prevention (OCSPP). The primary thrust of the NCCRP is to increase the use of new approach methodologies (NAMs) in risk assessments of new chemicals that are submitted for TSCA review. The goal is to streamline assessments and to determine what data gaps must be filled to maximize the likelihood that decisions will protect the environment while also allowing commerce to proceed within reasonable parameters. These are topics that effect our environmental quality and thus are important to us all.

The review process involved several virtual meetings of the BOSC to discuss the plan and to craft a review that included recommendations for strengthening the NCCRP. Two public meetings were also held virtually. The first focused on a series of excellent presentations from ORD and OCSPP as well as hearing several public comments on the initial Program plan. The second sought to gain insights from the BOSC and to hear further comments from the public. Given the Scope and detail of the NCCRP's broad scope and detailed plan, the several BOSC working groups coalesced, each addressing a separate aspect of the program plan. The BOSC report will be issued sometime in the Spring of 2023.



#### Inside this issue

AAAS Fellow2
Yellowstone 4
Spotlight on Alum 6
Pi Epsilon9
NASAC Chairs 11
Knauss Fellowship 12
Environmental Justice13
AMS Award 13
COP27 14
Czechia Collab 15
Distinguished Eagle Scout 16
Successful Defense 17
Seminar Schedule 31

#### Special points of interest

•	December	Grads	1	8

- Grants ..... 20
- Publications ..... 21
- Baby Bears ...... 30

# World's largest general scientific society honors Bryan Brooks for meritorious contribution to the advancement of science



#### Baylor Press, January 2023

Bryan W. Brooks, Ph.D., Distinguished Professor of Environmental Science and Biomedical Studies and director of the Environmental Health Science Program at Baylor University, has been elected to the rank of AAAS Fellow, announced today by the Council of the American Association for the Advancement of Science (AAAS), the world's largest general scientific society and publisher of the Science family of journals. Brooks joins more than 500 scientists, engineers and innovators from around the world and across all disciplines to the 2022 class of AAAS Fellows, one of the most distinguished honors within the scientific community that recognizes Fellows for their scientific and socially notable achievements spanning their careers. The new Fellows class hails from academic institutions, laboratories and observatories, hospitals and medical centers, museums, global corporations, nonprofit organizations, institutes and government agencies, including from the U.S. presidential administration.

"AAAS is proud to elevate these standout individuals and recognize the many ways in which they've advanced scientific excellence, tackled complex societal challenges and pushed boundaries that will reap benefits for years to come," said Sudip S. Parikh, Ph.D., AAAS chief executive officer and executive publisher of the *Science* family of journals. This year's AAAS Fellows class has moved their fields forward, paving the way for scientific advances that benefit society, bringing diverse and novelty thinking, innovative approaches and passion that will help solve the world's most complex problems. for the research he has conducted within the state of Texas.

He has now become a globally recognized scientist working to improve water quality in several developing countries with his ecological and toxicology work," said Lee Nordt, Ph.D., dean of the College of Arts & Sciences at Baylor.

Brooks routinely works internationally on water quality, environmental contaminants and sustainability issues, particularly related to rapidly urbanizing regions. This research, in which he involves undergraduate and graduate students, specifically focuses on water quality; water reuse; developing approaches to define and manage chemical hazards and risks; environmental, aquatic and comparative toxicology and pharmacology; environmental and green chemistry; environmental public health; and the ecology, chemistry and toxicology of harmful algae blooms. This work is ongoing on five continents, and his current research is supported by the National Brooks has been recognized for "his foundational work on the environmental toxicology and chemistry of contaminants of emerging concern, and associated impacts on water quality and human and ecosystem health."

### AAAS CONT.

His wide-ranging global research contributes to developing science-based approaches to identify, diagnose and manage complex environment and health issues.

"I am thankful and honored to receive the AAAS Fellow award. I am particularly grateful to my family, and for the essential contributions of former and current students, postdoctoral fellows and staff, and collaborators here at Baylor and around the world. We must work together, beyond boundaries, borders and barriers, to advance the scientific enterprise and to address environment and health challenges that matter to all of us," Brooks said. "Dr. Bryan Brooks is deserving of this prestigious recognition Institute of Environmental Health Sciences, National Science Foundation, Strategic Environmental Research and Development Program and the Centers for Disease Control and Prevention.

Brooks is the author of more than 275 manuscripts in scholarly journals and book chapters and serves as Editor-in-Chief of *Environmental Science & Technology Letters*, a publication of the American Chemical Society. He has received the Kenaga Award from the Society of Environmental Toxicology and Chemistry, a Leadership Award from the Water Environment Federation, two Scientific and Technological Achievement Awards from the U. S. Environmental Protection Agency, the Past Presidents Award from the National Environmental Health Association and the Recipharm International Environmental Award.

Brooks is a Fellow of the Society of Environmental Toxicology and Chemistry and the Royal Society of Chemistry. He has served as a Fulbright Canada Visiting Research Chair in Water and the Environment in Alberta, Canada, and a Visiting Erskine Fellow at the University of Canterbury in Christchurch, New Zealand. Honoring esteemed innovators is a tradition dating back to 1874. The new class joins the ranks of noted Fellows such as **Alondra Nelson**, deputy assistant to the president and principal deputy director for science and society at the White House Office of Science and Technology Policy; **Mae Jemison**, the first Black woman to go to space; **Steven Chu**, 1997 Nobel Laureate in Physics who served as the 12th U.S. Secretary of Energy; **W. E. B. Dubois**, considered the founding father of American sociology; **Ellen Ochoa**, veteran astronaut and the Johnson Space Center's first Hispanic and second female director in its history; and **Grace Hopper**, pioneer in computer software development and programming language.

The new Fellows will receive a certificate and a gold and blue rosette pin (representing science and engineering, respectively) to commemorate their election and will be celebrated in Washington, D.C., in summer 2023. They also will be featured in the AAAS News & Notes section of *Science* in February 2023.

# THE ROADS TO YELLOWSTONE

Ryan McManamay, Ben Ryan, Jillian Sturtevant, Jordan Jatko and Josh Beard standing at overlook at Teton Pass between Victor, ID, and Jackson Hole, WY.

Baylor Press, Spring 2023

Dr. Ryan McManamay, assistant professor of environmental science at Baylor, is a spatial ecologist whose research focuses on the relationship between humans and environmental systems, with a particular interest in infrastructure. McManamay earned a rapid grant from the National Science Foundation (NSF) to survey the owners of nearly 250 businesses in Gardiner and other surrounding communities. He, environmental science colleague <u>Dr. Ben Ryan</u>, and a team of students spent several days last

summer embedded in those communities impacted by the flooding within the park. While the flooding approached \$1 billion in damages, most infrastructure loss occurred in Yellowstone National Park. However, much of the economic toll was felt by the business owners and families reliant on tourism for their livelihood.

Moved by the resilience and grit of the people he met, McManamay has spent the last year working to better understand community dependence on natural systems, with a focus on seeing those systems as critical infrastructure. "We prize national parks like Yellowstone and hold them dear to us. Beyond mere aesthetics, they're shown to be critical to human health and economic vitality," McManamay said. "When something happens like a 500-year flood, the park service isn't equipped like U.S. DOT programs to rapidly mobilize. I think in terms of how our society responds to losses in critical infrastructure. Natural disasters in natural settings are handled very differently and on different time scales. When we think of America's national treasures, such as national parks, we don't think of natural disasters or how they could pose risk to human livelihoods. Yet they have a really important purpose, including supporting the economic vitality of surrounding communities."

While roads through a park are not currently considered critical infrastructure, the data collected through the project in Gardiner and other gateway communities could help others view natural parks and resources through a new lens. That work is already being put to use by the Economic Development Agency, which is using the survey to determine the level of federal support needed for the region. "We depend on natural assets in so many important ways, and Yellowstone is just one example of how these areas provide for our society," says McManamay. "We need to be ready to fix these issues quickly because so many people depend on them. (A project like this) is a reason why I'm glad to be at Baylor. There are so many examples of faculty motivated by an opportunity to serve. It's an outpouring of our Christian faith and the mission of this university, to help people — it's a drive here to share the love of Christ."

### The Impact On Gateway Communities

Most anyone who has visited a national park has either stayed in, or passed through, the gateway communities that facilitate millions of visitors nationwide. Gardiner, Montana, is one such town. With a population approaching just 900 people, the community still served approximately 1 million visitors in 2021.

"I don't know that people realize how much gateway communities support the parks. It's not that the National Park Service couldn't function without us, but I don't think it would be easy," Terese Petcoff, executive director of the Gardiner Chamber of Commerce said. Petcoff worked closely with McManamay and his team on the ground in Gardiner and has since stayed connected.

"There's no way that all visitors to our national parks could stay within park boundaries. They have to stay in gateway communities. And when you're in a place like Gardiner, we don't have box stores or corporations. It's all family businesses."

After McManamay received the NSF Rapid Grant — emergency grants specifically given to enable the collection of time-sensitive data — Petcoff helped connect him with many local business owners, and McManamay has in turn helped Petcoff and colleagues stay connected to grant opportunities as they rebuild financially.

The data and efforts of McManamay and his team are already being put to multi-faceted use. The Economic Development Agency is using the survey to determine the level of federal sup-

port needed for the region. A second use involves quantifying the extent of infrastructure damage after the winter. McManamay plans to return in the summer to further measure the extent of damages both in the



Gardiner Road, connecting Mammoth to Gardiner, MT, swept away by the flooding of Gardiner River.

park and the cascading effects outside the park and examine the resilience of their infrastructure. Tying into the White House memorandum, information gleaned can expand understanding of the long-term impact of a resilient infrastructure within and around national parks, with hopes for future projects with the NSF. Natural outgrowths of this work include papers, grants and, McManamay someday hopes, a renewed national look at the role of natural assets.

### SPOTLIGHT ON ALUMNI: Lindsay Blodgett

### A Glass Half Full, Not Empty



Lindsey Blodgett is a Baylor alumni from the Environmental Sciences Department, and also a Masters graduate from Texas A&M's Water Management and Hydrological Sciences Program. Through her advocacy work as the former President of the <u>World Youth Parliament for</u> <u>Water</u>, current leadership role of the <u>Water and</u> <u>Climate Coalition</u> (seated among 16 other highlevel leaders), and recent development of her own water consultancy (<u>NextWave Consulting</u>), Blodgett has advocated at the highest level for youth and early career professionals leadership amongst global water decision making processes.

While at Baylor, Blodgett wholeheartedly dedicated herself to the study of global water insecurity, tirelessly working to identify and tackle the complex challenges faced by communities worldwide. "My time at Baylor activated my passion to work in the water sector, engaging me in topics such as water quality science and water policy and law," said Blodgett. "I'm forever indebted to my Baylor professors and specifically to my advisor Dr. Erica Bruce who helped graciously guide me in the earliest stage of my career and empowered me to employ in the social aspects related to water management."

After graduation, Blodgett's unwavering commitment to water advocacy was recognized globally when she was unanimously elected as the President of the <u>World Youth Parliament for</u> <u>Water.</u> Under her visionary leadership, the organization successfully cultivated the beginnings of eight national chapters across the Americas, Africa, and the Middle East, laying the foundation for a powerful movement of young people.

Furthermore, she passionately championed the critical role of youth in shaping international water policy by advocating for their representation. Her commitment to empowering young voices and bridging the gap between key decision-makers and future generations has left a lasting impact on the global water community.



This year, she spoke at the <u>UN 2023 Water Conference</u> at the United Nations Headquarters in New York City. Notable figures such as Mr. Janos Ader, Former President of Hungary, and Mr. Mark Harbers, Minister of Infrastructure and Water Management Kingdom of the Netherlands, joined Blodgett in addressing critical issues in the water sector.

Amidst a culture deeply troubled by the climate crisis, Blodgett is a climate optimist, using her voice to encourage young people to remain hopeful about achieving a water-secure world.



"What continues to impress me about other young professionals in this space is their sheer dedication, ability to activate large groups of people, and their desire to discover new ways of doing things so that history doesn't repeat itself," Blodgett said. "Working with these various youth organizations reminds me that our collective journey to a water-secure world is a glass that is half full, not half empty."

Blodgett's efforts in the water sector have been further amplified through the launch of her new water consultancy, <u>NextWave Consulting</u>, a company that helps water sector leaders build trust with their stakeholders, and public buy-in for their water projects, paving the way towards a more sustainable and equitable future with clean and accessible water for all.

To learn more about Blodgett's philanthropy & water consultancy, Next Wave Consulting, visit her website at https://nextwaveconsult.com/.

### SPOTLIGHT ON ALUMNI: Gabriella Fierro



An alumni who has led projects across the United States and abroad. Gabriela has a passion for tackling development in a way that boosts the local economy while contributing to human health, circular supply chains, and environmental stability. Her work has focused on smart

city development, migration, microgrid design, hunger, sustainability, and policy.

As a student, Gabriela asked herself, "What is the foundation of modern society?" Her answer was the electron - energy as a necessity for education, medical services, transportation, agriculture and countless other sectors. Today, Gabriela works at a firm that specializes in high performance buildings that move us towards a zero carbon future. She has been instrumental in the development of sustainable infrastructure projects and has been recognized for her efforts in the field of sustainable development.

She is also the founder of Absolutely Right, a growing community of innovators that is dedicated to exploring and addressing the challenges humanity faces today. Absolutely Right has interviewed fashion innovators, web3 ideators, policymakers, conservation biologists, startup founders, and international philanthropists. <u>Apply to be featured</u>. When asked what the essence of Absolutely Right is, Gabriela answered, "It's a path of discovery, challenging the status quo and catalyzing positive transformation with a diverse team." She emphasizes that the journey should be fun, and that ideas improve when we take inspiration from unconventional places.

Gabriela's hard work and dedication has been recognized by several organizations and she has been invited as a speaker in several events and conferences. To check out the podcast or connect with this alumni on LinkedIn, click the link below.

*LinkedIn*: <u>https://www.linkedin.com/company/</u> absolutelyright/ https://www.linkedin.com/in/gabrielafierro

Spotify: <u>https://open.spotify.com/</u> <u>show/2TV4ZF40cCzXeZxZaWrRlf?</u> <u>si=QC4nq79hSIaedshHf4vHTA</u>

Apple Podcasts: <u>https://podcasts.apple.com/us/</u> podcast/absolutely-right/id1633412033

> *"Whether you believe you can or can't make a difference, you are absolutely right."*

> > Gabriela Fierro

# Baylor University Establishes Environmental Sciences Honor Society

On September 6, 2022, the National Office of Pi Epsilon, The National Environmental Sciences Honor Society, welcomed Baylor University as its 13th Chapter. Applications began during summer 2022 followed by acceptance and recognition of the six Founding Board members: President Hope Tucker, Vice President Abigail Smason, Secretary Anna Claire Brewer, Treasurer Shelby Dye, Founding Member Claire Teng, and Founding Member Riley Kennedy. During fall semester, 2022 Pi Epsilon applied for and was also recommended for charter as a Baylor Student Organization.

Pi Epsilon's first chapter and National Office was founded by a group of Environmental Sciences Ph.D. students at Wright State University in 2003. Pi Epsilon promotes the study of environmental sciences through recognition of exemplary scholarly and professional activity at both the undergraduate and graduate levels. Membership is open to undergraduate and graduate students in the environmental and natural sciences who have a cumulative GPA of at least 3.30 out of 4.00 and have completed at least 30 semester hours of total coursework for undergraduates and at least 6 semester hours of total coursework for graduate students. Membership recruitment for the Baylor Chapter will occur twice each year, on February 15 for the spring semester and on September 15 for fall semester.

The society seeks to promote interdisciplinary studies and foster interactions between industry and academia to further the study of environmental science. With this in mind, the Baylor Chapter is in the process of planning events and activities that will support Earth Week and the annual Waco Green Communities Conference.



Pictured left to right—Claire Teng, Anna Claire Brewer, Abigail Smason, Hope Tucker, Riley Kennedy, and Shelby Dye

### Baylor Chapter of Pi Epsilon, The National Environmental Sciences Honor Society

Baylor Chapter of Pi Epsilon, National Environmental Sciences Honor Society



Following an extensive application process, Baylor was invited on August 6, 2022, to become the 13<sup>th</sup> Chapter of Pi Epsilon, The National Environmental Sciences Honor Society. The original six Founding Board Members of the Baylor Chapter include President Hope Tucker, Vice President Abby Smason, Treasurer Shelby Dye, Secretary Anna Claire Brewer, as well as Founding Members Claire Teng and Riley Kennedy. On April 25, 2023, during a lunch and induction ceremony at The Cox Reception Hall of the Armstrong Library and Museum, seven graduate students and fourteen undergraduate students from the Department of Environmental Science who met specific academic requirements were invited to join Pi Epsilon. The inductees included graduate students Clancy Collom, Alisha Janiga-MacNelly, Chad Mansfield, Mohammad Sheikh Yamin, London Steele, Sarah VerPloeg, Adam Wronski and undergraduate students Juana Bourgeois, Brock Burford, Zaeli Crocker, Taylor Frost, Benjamin Heleniak, Kacie Kaneshiro, Emily Lessman, Erin Lynes, Ann Marquis, Ben Marsh, Madeline Mcdonald, Kinsey Smeltzer, Gillian Taylor, and Pamela Trevino Contla. Welcome and congratulations!





# NORTH AMERICA STUDENT ADVISORY COUNCIL

### Baylor Env Sci holds Chair and Vice-Chair Positions



At the 43<sup>rd</sup> annual Society of Environmental Toxicology and Chemistry (SETAC) North America meeting (held Nov. 13<sup>th</sup>-17<sup>th</sup> in Pittsburgh, PA), Megan Solan and Adam Wronski began their terms as chair and vice chair, respectively, of NASAC. NASAC is the North American Student Advisory Council, which exists to provide a voice for all student members of the society, in addition to planning several student-oriented events during

each annual SETAC NA meeting. Furthermore, as part of their chair and vice chair roles, both Megan and Adam are now members of the Board of Directors of SETAC NA, which is responsible for governance of the society and its North America operations. In addition to the excellent opportunity this provides to get real-world experience with the inner workings of a scientific society, this role also provides

excellent networking opportunities with highly respected researchers. NASAC is currently in the planning stages for the next annual SETAC NA meeting (Nov. 12<sup>th</sup>-16<sup>th</sup> in Louisville, KY) and would welcome any current or prospective members of SETAC to assist with these efforts; please contact Megan or Adam for more information if you are interested in this opportunity!





### **Baylor Ph.D. Candidate Earns Coveted Knauss Fellowship**

Baylor Press, March 2023



This February, Kendall Scarlett began as a fellow for the 2023 Knauss Fellowship Program. She is one of 84 fellows who were placed in federal government offices in Washington D.C. Scarlett is currently a Ph.D. candidate in the Environmental Sciences program and, as a Knauss Fellow, she has a seat at the table concerning national policy that impacts our environment.

"This fellowship is unique in that it primarily focuses on exploring policies associated and instrumental for the appropriate management of various water resources," Scarlett said. "In other words, this fellowship allows me to take a step away from my research at Baylor and see how something like that can translate into useful policy initiatives on both the local and federal levels."

Scarlett's journey to Baylor was a special one. As she was wrapping up her master's degree, Baylor professor Dr. Bryan Brooks was a keynote speaker at a symposium she attended. After listening to his speech, she became interested in learning more and hoped to work with him at Baylor. Luckily, she got that chance. Aside from Dr. Brooks, Baylor has resources and environment that she knew she needed to be successful as a Ph.D. student.

"My research at Baylor primarily centers around understanding the impact of toxins produced from Harmful Algal Blooms (HABs). HABs can be complicated to study due to varying factors (pH, temperature, species, etc.); however, we do know that nutrient (phosphorus and nitrogen) loads play a large role," Scarlett said. "Luckily, my fellowship allows me to further study and understand the importance of nutrient criteria."

As a scientist, Scarlett spent the majority of her time in the lab performing experiments, but was always curious about how results applied in the real world. In addition to her scientific pursuits, she spent her graduate school career advocating for graduate and professional students both locally and nationally through various organizations. Due to her academic and professional opportunities and accomplishments, she knew this fellowship was the perfect fit.

Growing up on the Florida coastline, Scarlett's love for the environment began at a young age. Her research on HABs surrounds how they have impacts on both environmental and human health. She hopes to continue investigating and improving ways to make overall water quality safe for all humans and wildlife.

"After I finish my Ph.D., I do hope to continue working in the federal sector in Washington, D.C. whether it be directly performing needed research, or by helping to translate important research into policy and regulations that are desperately needed on a national level," Scarlett said. "I was and am still very fortunate to have found a home at Baylor."

### BAYLOR PRESENTS AT THE NATIONAL ENVIRONMENTAL JUSTICE CONFERENCE

During Spring Break, Professor Julie King traveled with Senior University Scholars Isha Thapar and Eliana Stromberg to Washington, DC, to present at the annual **National Environmental Justice Conference**. They presented on *Exposure of Vulnerable Communities to PFAS in Drinking Water*. Their research examined Michigan drinking water quality data and

PFAS contamination and related that exposure to aspects of social vulnerability. Ninety-eight percent (98%) of Americans have been exposed to PFAS chemicals. Drinking water accounts for up to seventy-five percent (75%) of that exposure.

This study sought to answer whether socially vulnerable communities have higher PFAS exposure rates in drinking water, using Michigan as a case study. Michigan was chosen because it is one of the states that is monitoring and regulating PFAS chemicals in drinking water. EPA has just proposed a rule to regulate PFAS at the federal level but is not expected to finalize that rule until 2024.



Their study used a Social Vulnerability Index applying 16 census data categories ranging from socioeconomic status to minority status and language and housing type. Data analysis tools employed were linear regressions (Excel Data Analysis ToolPak) and bivariate chloropleth maps (ArcGIS), with guidance from graduate student Kayla Garrett in Ryan McManamay's lab. Their research found a correlation between minority groups and exposure to higher level of PFAS in drinking water, particularly significant in Wayne County, Michigan (Detroit metropolitan area). In fact, the strongest predictors of high PFAS exposure was in communities with higher percentage of persons who speak English "less than well", higher percentage of Hispanic or Latino population and those in proximity to industrial sites.

Their conference presentation was well received by conference attendees from state-level environmental agencies, EPA, and environmental interest groups. A related presentation on this research is planned for the American Chemical Society conference at the end of March.

# **GRAD STUDENT PLACES AT AMS 2023**

### Lightning Student Competition Award

Grad student Kimberly Sauceda, with the Sheesley lab, recently tied for 2nd place for her poster presentation, "TRACER-MAP: A Preliminary Look at the Changes in the VOC Composition and Aerosol Optical Properties Before and After Precipitation Events in Houston". Kimberly was awarded a cash prize at the 11th Annual Conference on the Meteorological Application of Lightning Data.





## COP27 by Shelby Dye



I had the honor of attending the Conference of the Parties (COP27) in November 2022 in Sharm El-Sheikh, Egypt as a delegate for the

American Chemical Society (ACS). Only 10 delegates (both grad and undergrad) were selected to attend. The trip consisted of meeting with the American Chemical Society beforehand for around 6 months prior to discuss how to interact with politicians, ask questions, and serve an NGO at a conference like this. COP27 is hosted by the United Nations Framework Convention on Climate Change (UNFCCC) and is held yearly in a different host country. Each year, politicians and world leaders from around the world meet at this

conference to discuss climate policy, energy, finance, and every sector pertaining to climate change.

At COP27, I was able to meet and learn from leaders around the globe and went to

many meetings held by American politicians and leaders including Special Climate Envoy John Kerry, Vice President Al Gore, former New York mayor Mike Bloomberg, and many others. It was really special to discuss climate change with people who are there to learn and make a difference in international policy and how to better improve the policies of their home countries. It was an experience I will never forget and



I'm incredibly grateful to the Baylor ENV department and ACS for providing me with the opportunity.

To close off this experience, ACS asked all of the delegates to attend their spring meeting in Indianapolis to present our research from COP. My topic was titled, "Climate Finance: Progress, Effectiveness, and Solutions from COP27." It was a really amazing experi-

ence and I **learned** a lot about myself, climate change, and the world of international policy.





### Graduate Students Visit the University of South Bohemia in Vodnany, Czechia; Participate in Collaborative Experiments with Researchers



Kevin Stroski and Jaylen Sims, from the Brooks lab, participated in collaborative experiments with researchers at the University of South Bohemia in Vodnany, Czechia. Jaylen was able to assist in bioaccumulation experiments of emerging contaminants utilizing crawfish as a model, work which he will be continuing in the upcoming summer semester. Meanwhile Kevin was able to work directly with analytical chemists at the University on multiple experiments including suspect screening of harmful algae for previously unreported toxins as well as development of a method for broad screening of environmental contaminants using new mass spectrometry technologies.

About their time at the University Kevin says, "We had a fantastic time working with experts in our field and it was refreshing to know that many techniques and skills we have learned while at Baylor were directly transferrable, even to other countries" while Jaylen said, "Everyone was very friendly and welcoming! Professionally, it was also a great opportunity to learn about other research topics and gain different perspectives from experts in our field."



### Professor John P. Giesy, Jr., Receives Distinguished Eagle Scout Award



Emeritus Distinguished Professor and Former Canada Research Chair in Environmental Toxicology John P. Giesy, Jr. was honored on February 27, 2023 by national Boy Scout Executives with the Distinguished Eagle Scout Award. The **Distinguished Eagle Scout Award (DESA)** is a distinguished service award of the <u>Boy Scouts of America</u> (BSA). It is awarded to an <u>Eagle Scout</u> for distinguished service in his profession and to his community for a period of at least 25 years after attaining the level of Eagle Scout. Other requirements include significant accomplishment in one's career and a solid record of continued community volunteer involvement. It is one of only two BSA awards given to adults that is dependent upon the recipient's having been awarded Eagle Scout as a youth. This prestigious honor is given to an Eagle Scout who has uncommonly demon-

strated commitment to making our community a better place to live, and who achieves career and life success. It is rarely presented; in fact, out of some 2.7 million Eagle Scouts, less than **2,000** have been recognized in this way.

Dr. Giesy is a long-time visiting scholar to the Environmental Science department on Baylor University and because of that, he chose to have his ceremony on campus at the Bill Daniel Student Center.







Congratulations, Dr. Giesy! Sic'em!



### Graduate Students Successfully Defend Dissertations



On March 13, 2023 Chi-Yen Tseng defended his dissertation on, "The biological effects of complex contaminant mixtures on tree swallow (Tachycineta bicolor) nestlings from the Great Lakes; Using omics techniques to evaluate and predict contaminant mixtures". Chi-Yen will graduate with his PhD in Ecological Earth and Environmental Science in May 2023.

Mentor: Dr. Cole Matson



On May 1, 2023 Kayla Garrett defended her dissertation on, "Overcoming social, technological, and environmental obstacles in regional-to-global renewable energy transitions". Not only will Kayla graduate in August with her PhD but she will also begin her 10month long Postdoctoral Teaching Fellowship and remain in the Environmental Science department until the Spring of 2024. From there, Kayla will have other professional development opportunities with Baylor.

Mentor: Dr. Ryan McManamay



On May 3, 2023 Lea Lovin defended her dissertation on, "Developing an Understanding of Behavioral and Transcriptional Implications for the Chiral Cyanotoxin Anatoxin-a and Caffeine in Common Larval Fish Models". Lea will graduate in August and start a post-doc later this year at SLU in Umea, Sweden with Dr Erin McCallum working on behavioral ecotoxicology. Of this new chapter in her life, Lea stated, "It should be really interesting research. "

Mentor: Dr. Bryan Brooks

### **Congratulations December 2022 Graduates**

### ENVIRONMENTAL HEALTH SCIENCE - (B.S.)

Ian Simmons

### **ENVIRONMENTAL SCIENCE - (B.S.)**

Stephen Peter Van Hoorn

### **ENVIRONMENTAL STUDIES - (B.A.)**

Emily J. Evans Haley Q. Mustafa Lindsay T. Ross<sup>®</sup>\* Lindsay G. Graf Dorothy Nguyen Caton C. Smith Ethan Leutholtz Nishant Parbhoo Miwa R.K. Stowers\*\*\*

### **ENVIRONMENTAL HEALTH SCIENCE - (M.S.)**

Connor R. Crowe

Megan E. O'Brien

Victoria A. Telford

• Completed Baylor Interdisciplinary Core requirements

\* cum laude

\*\*\*summa cum laude

### **Congratulations Doctoral Graduates—December 2022**





Farzaneh Mansouri

Dissertation, Environmental Science: Reconstruction of Carbon and Nitrogen Stable Isotope from Baleen Whale Earplugs

Mentor: Dr. Sascha Usenko



#### **Claire Elizabeth Moffett**

Dissertation, Environmental Science: Sources and Composition of Organic Aerosol on the North Slope of Alaska and the Effects of a Changing Arctic

Mentor: Dr. Rebecca Sheesley







- 1. Ryan McManamay: Pacific Northwest National Laboratory | ICom \$157,767.00
- 2. Ryan McManamay: NSF | Yellowstone Flood \$30,100.00
- 3. Christie Sayes: US Department of Agriculture | ZAP \$263,314.00
- 4. Christie Sayes: US Department of Agriculture | Citrus \$234,854.00
- 5. Rebecca Sheesley: Univ of Houston | Texas Commission on Environmental Quality
- | TRACER AQ Data Analysis \$89,300.00
- 6. Rebecca Sheesley: Univ of Houston | Texas Commission on Environmental Quality
- | SA Field Study \$73,045.00
- 7. Rebecca Sheesley: Univ of Houston | Texas Commission on Environmental Quality
- | Corpus Christi \$61,265.00
- 8. Rebecca Sheesley: UT Austin | Texas Commission on Environmental Quality | Air Quality \$57,225.00
- 9. Hyeong-Moo Shin: NIH | Prenatal Exposure \$427,836.00
- 10. Hyeong-Moo Shin: Syngenta | Pesticide Exposure \$198,739.00
- 11. Sascha Usenko: Univ of Houston l Texas Commission on Environmental Quality | BC2 Monitoring \$699,588.32



### Book Chapters:

**Bratton**, S., Cook-Lindsay, A. (2022). Stewardship. *Berkshire Encyclopedia of Sustainability, 2nd edition* (pp. 372-375). Great Barrington, MA: Berkshire Publishing Group. One Bear Place

Stovall, J. K., **Bratton, S.** (2022). Microplastic pollution in surface waters of urban watersheds in central Texas, USA: A comparison of sites with and without treated wastewater effluents. In J. Hernandez-Borges & A. M. Booth (Eds.), *Special Topic: Microplastics and Nanoplastics in the Environment* (Front. Anal. Sci., 17 February 2022 | https://doi.org/10.3389/frans.2022.857694 ed., vol. Front. Anal. Sci., 17 February 2022 | https://doi.org/10.3389/frans.2022.857694, pp. 15). Frontiers in Analytic Science: Environmental Analysis.

### **Refereed Journal Articles:**

**Ryan, B. J.**, Telford, V.\*, Brickhouse, M., Allen, C., Campbell, J., Crowe, C.\*, Everett, J., Fink, R., Hatch, T., K., Jones, R., Kanitz, L., Santa Cruz, A.\*, **Brooks, B.** (2022). Mobilizing and delivering essential meals to children and families affected by school closures during COVID-19 and beyond. *Journal Of School Health*, *92*(7), 646-655. https://api.elsevier.com/content/abstract/scopus\_id/85127496033

Grabicová, K., Randák, T., Cerveny, D., Turek, J., Kolářová, J., **Brooks, B.**, Grabic, R. (2022). Influence of timedependent sampling on fish plasma levels of select pharmaceuticals and per- and polyfluoroalkyl substances (PFASs). *Environmental Pollution*, *315*. https://api.elsevier.com/content/abstract/scopus\_id/85139736767

Saha, P., Bose, D., Stebliankin, V., Cickovski, T., Seth, R. K., Porter, D. E., **Brooks, B.**, Mathee, K., Narasimhan, G., Colwell, R., Scott, G. I., Chatterjee, S. (2022). Prior exposure to microcystin alters host gut resistome and is associated with dysregulated immune homeostasis in translatable mouse models. *Scientific Reports, 12*(1). https://api.elsevier.com/content/abstract/scopus\_id/85133618130

**Langan, L. M.**, O'brien, M., Rundell, Z. C., Back, J. A., **Ryan, B. J.**, Chambliss, K., Norman, R. S., **Brooks, B.** (2022). Comparative Analysis of RNA-Extraction Approaches and Associated Influences on RT-qPCR of the SARS-CoV-2 RNA in a University Residence Hall and Quarantine Location. *ACS ES and T Water*, *2*(11), 1929-1943. https://api.elsevier.com/content/abstract/scopus\_id/85130044656

**Langan, L. M.**, O'Brien, M., Lovin, L. M.\*, Scarlett, K. R.\*, Davis, H., Henke, A. N.\*, Seidel, S. E., Archer, N., Lawrence, E., Norman, R. S., Bojes, H. K., **Brooks, B.** (2022). Quantitative Reverse Transcription PCR Surveillance of SARS-CoV-2 Variants of Concern in Wastewater of Two Counties in Texas, United States. *ACS ES and T Water, 2*(11), 2211-2224. https://api.elsevier.com/content/abstract/scopus\_id/85141943924

**Ryan, B. J.**, Muehlenbein, M. P., Allen, J., Been, J. D., Boyd, K., Brickhouse, M., **Brooks, B.**, Burchett, M., Chambliss, K., Cook, J., Ecklund, A., Fogleman, L., Granick, P., Hynes, S., Hudson, T., Huse, M., Lamb, M., Lowe, T., Marsh, J., Nixon, N., Nolan, D., Nuñez, G., Matthews, W. S., Stern, S., Wheelis, M., Brickhouse, N. (2022). Sustaining University Operations during the COVID-19 Pandemic. *Disaster Medicine And Public Health Preparedness*, *16*(5), 1901-1909. https://api.elsevier.com/content/abstract/scopus\_id/85130024070

Grabicová, K., Vojs Staňová, A., Švecová, H., Nováková, P., Kodeš, V., Leontovyčová, D., **Brooks, B.**, Grabic, R. (2022). Invertebrates differentially bioaccumulate pharmaceuticals: Implications for routine biomonitoring. *Environmental Pollution, 309*. https://api.elsevier.com/content/abstract/scopus\_id/85134494000



Ma, X., Xiong, J., Li, H., **Brooks, B.**, You, J. (2022). Long-Term Exposure to Neonicotinoid Insecticide Acetamiprid at Environmentally Relevant Concentrations Impairs Endocrine Functions in Zebrafish: Bioaccumulation, Feminiza tion, and Transgenerational Effects. *Environmental Science and Technology*, *56*(17), 12494-12505. https://api.elsevier.com/content/abstract/scopus\_id/85137170162

Zhang, L., **Brooks, B.**, Liu, F., Zhou, Z., Li, H., You, J. (2022). Human Apparent Volume of Distribution Predicts Bio accumulation of Ionizable Organic Chemicals in Zebrafish Embryos. *Environmental Science and Technology*, *56*(16), 11547-11558. https://api.elsevier.com/content/abstract/scopus\_id/85136151922

Bertram, M. G., Martin, J. M., McCallum, E. S., Alton, L. A., Brand, J. A., **Brooks, B.**, Cerveny, D., Fick, J., Ford, A. T., Hellström, G., Michelangeli, M., Nakagawa, S., Polverino, G., Saaristo, M., Sih, A., Tan, H., Tyler, C. R., Wong, B. B.M., Brodin, T. (2022). Frontiers in quantifying wildlife behavioural responses to chemical pollution. *Biological Re views*, *97*(4), 1346-1364. https://api.elsevier.com/content/abstract/scopus\_id/85125488706

Scarlett, K. R.\*, Lovin, L. M.\*, Steele, W. B., Kim, S., **Brooks, B.** (2022). Identifying Behavioral Response Profiles of Two Common Larval Fish Models to a Salinity Gradient. *Archives of Environmental Contamination and Toxicology,* 83(2), 180-192. https://api.elsevier.com/content/abstract/scopus\_id/85136204979

Grover, J. P., Scott, J. T., Roelke, D. L., **Brooks, B.** (2022). Competitive superiority of N-fixing cyanobacteria when fixed N is scarce: Reconsiderations based on a model with heterocyst differentiation. *Ecological Modelling*, *466*. https://api.elsevier.com/content/abstract/scopus\_id/85124456160

Kamanmalek, S., **Brooks, B.**, Rice-Boayue, J. (2022). Spatial Hazards of Antibiotic Resistance in Wastewater-Impacted Streams during Low Instream Flow Conditions. *ACS Environmental Science and Technology Water*, *2*(3), 457-464. https://api.elsevier.com/content/abstract/scopus\_id/85126347241

Lari, E., Burket, S. R.\*, Steinkey, D., **Brooks, B.**, Pyle, G. G. (2022). Interaction of the Olfactory System of Rainbow Trout (Oncorhynchus mykiss) with Diltiazem. *Environmental Toxicology and Chemistry*, *41*(3), 544-550. https://api.elsevier.com/content/abstract/scopus\_id/85094642899

Fedorova, G., Grabic, R., Grabicová, K., Turek, J., Van Nguyen, T., Randak, T., **Brooks, B.**, Zlabek, V. (2022). Water reuse for aquaculture: Comparative removal efficacy and aquatic hazard reduction of pharmaceuticals by a pond treatment system during a one year study. *Journal of Hazardous Materials, 421*. https://api.elsevier.com/content/ abstract/scopus\_id/85112487712

Wagner, N. D., Osburn, F. S., Taylor, R. B., Back, J. A., Chambliss, K., **Brooks, B.**, Scott, J. T. (2022). Diazotrophy modulates cyanobacteria stoichiometry through functional traits that determine bloom magnitude and toxin product ion. *Limnology and Oceanography*. https://api.elsevier.com/content/abstract/scopus\_id/85142627240

**Langan**, L. M., **Brooks**, B. (2022). Exploratory analysis of the application of animal reduction approaches in proteomics: How much is enough? *ALTEX*, *39*(2). https://api.elsevier.com/content/abstract/scopus\_id/85128487919

Carter, L. J., Armitage, J. M., **Brooks, B.**, Nichols, J. W., Trapp, S. (2022). Predicting the Accumulation of Ionizable Pharmaceuticals and Personal Care Products in Aquatic and Terrestrial Organisms. *Environmental Toxicology and Chemistry*. https://api.elsevier.com/content/abstract/scopus\_id/85138703024



Osburn, F. S., Wagner, N. D., Taylor, R. B., Chambliss, K., **Brooks**, **B.**, Scott, J. T. (2022). The effects of salinity and N: P on N-rich toxins by both an N-fixing and non-N-fixing cyanobacteria. *Limnology and Oceanography Letters*.

Zimmerman, J. B., **Brooks, B.**, Mills, M. (2022). Winners of the James J. Morgan Award Early Career Award 2023. *Environmental science & amp; technology, 56*(23), 16541-16543. https://api.elsevier.com/content/abstract/scopus\_id/85143471131

Kostal, J., **Brooks, B.**, Smith, C. A., Devineni, G. (2022). O data, where art thou? Revolutionizing data sharing to advance our sustainability goals through smart chemical innovation. *iScience*, *25*(11). https://api.elsevier.com/content/abstract/scopus\_id/85140060100

Xu, Z., Wang, Y., Wu, F., Feng, C., Cheng, Y., Dong, Z., Kidd, K. A., **Brooks, B.**, Leung, K. M.Y. (2022). Sturgeons Are Biodiversity Priorities Needing Special Protection from Chemicals and Waste. *Environmental Science and Technology*, *56*(14), 9847-9850. https://api.elsevier.com/content/abstract/scopus\_id/85134720643

Sims, J. L.\*, Stroski, K. M.\*, Kim, S., Killeen, G., Ehalt, R., Simcik, M. F., **Brooks, B.** (2022). Global occur rence and probabilistic environmental health hazard assessment of per- and polyfluoroalkyl substances (PFASs) in groundwater and surface waters. *Science of the Total Environment, 816*. https://api.elsevier.com/content/abstract/scopus\_id/85119271307

Osburn, F. S., Wagner, N. D., Taylor, R. B., Chambliss, K., **Brooks, B.**, Scott, J. T. (2022). The effects of salinity and N : P on N-rich toxins by both an N-fixing and non-N-fixing cyanobacteria. *Limnology And Oceanography Letters*. https://api.elsevier.com/content/abstract/scopus\_id/85122989777

Solan, M. E.\*, Senthilkumar, S.\*, Aquino, G. V.\*, **Bruce, E., Lavado, R.** (2022). Comparative cytotoxicity of seven per-and polyfluoroalkyl substances (PFAS) in six human cell lines. *Toxicology*, *477*, 153281.

Sánchez, C. A., Penrose, M. T.\*, Kessler, M. K., Becker, D. J., McKeown, A., Hannappel, M., Boyd, V., Camus, M. S., Padgett-Stewart, T., Hunt, B. E., Graves, A. F., Peel, A. J., Westcott, D. A., Rainwater, T. R., Chumchal, M. M., **Cobb, G. P.**, Altizer, S., Plowright, R. K., Boardman, W. S.J. (2022). Land use, sea son, and parasitism predict metal concentrations in Australian flying fox fur. *Science of the Total Environ ment, 841*. https://api.elsevier.com/content/abstract/scopus\_id/85132703122

Shrestha, S.\*, Yoon, S., Erickson, M. H., Guo, F., **Mehra, M.**, Bui, A. A.T., Schulze, B. C., Kotsakis, A., Daube, C., Herndon, S. C., Yacovitch, T. I., Alvarez, S., Flynn, J. H., Griffin, R. J., **Cobb, G. P., Usenko, S., Sheesley, R.** (2022). Traffic, transport, and vegetation drive VOC concentrations in a major urban area in Texas. *Science of the Total Environment, 838*. https://api.elsevier.com/content/abstract/scopus\_id/85130536330



Penrose, M. T.\*, **Cobb, G. P.** (2022). Identifying potential paraben transformation products and evaluating changes in toxicity as a result of transformation. *Water Environment Research*, *94*(4). https://api.elsevier.com/content/abstract/scopus\_id/85128127939

Norton, J. D.\*, **Sheesley, R. J.**, **Coogan, M. A.** (2022). Harmful algal bloom mitigation strategies in the face of environmental alterations due to climate change and anthropogenic nutrient loading. *Scientia, Spring 2022*(Spring 2022), 27 - 35. https://www.baylor.edu/burst/index.php?id=863108

Tucker, H.\*, **Coogan, M. A.** (2022). The morphological and behavioral effects of rotenone and paraquat on a zebrafish (Danio rerio) model. *Scientia, Spring 2022*(Spring 2022), 12 - 16. https://www.baylor.edu burst/index.php?id=863108

Franco, M. E.\*, Johanning, K., **Matson, C.**, **Lavado, R.** (2022). Reduced biotransformation of polycyclic aromatic hydrocarbons (PAHs) in pollution-adapted Gulf killifish (Fundulus grandis). *Science of the Total Environment, 806*, 150854.

Franco, M. E.\*, Ramirez, A. J., Johanning, K. M., **Matson, C., Lavado, R.** (2022). In vitro-in vivo biotransformation and phase I metabolite profiling of benzo[a]pyrene in Gulf killifish (Fundulus grandis) populations with different exposure histories. *Aquatic Toxicology*, *243*, 106057.

Lu, T., Liu, Y., Garcia, A., Wang, M., **Li**, **Y**. (2022). Leveraging Citizen Science and Low-Cost Sensors to Characterize Air Pollution Exposure of Disadvantaged Communities in Southern California. *International Journal of Environmental Research and Public Health*.

Tseng, C. Y.\*, Custer, C., Custer, T., Dummer, P., Karouna-Renier, N., **Matson, C.** (2022). Multi-omics re sponses in tree swallow (Tachycineta bicolor) nestlings from the Maumee Area of Concern, Maumee River, Ohio. *Science of the Total Environment, DOI: 10.1016/j.scitotenv.2022.159130*.

Woodyard, M.\*, Polidoro, B., **Matson, C. W., McManamay, R.**, Saul, S., Carpenter, K., Collier, T., Di Giulio, R., Grubbs, R. D., Linardich, C., Moore, J., Romero, I., Schlenk, D., Strongin, K. (2022). A comprehensive petr chemical vulnerability index for marine fishes in the Gulf of Mexico. *Science of the Total Environment, 820*, 152892.

Pilla, R. M., Griffiths, N. A., Gu, L., Kao, S.-C., **McManamay, R. A.**, Ricciuto, D. M., Shi, X. (2022). Anthropogenically driven climate and landscape change effects on inland water carbon dynamics: What have we learned and where are we going? *Global Change Biology*, *28*(19), 5601-5629.

Nair, S. S., DeRolph, C., Peterson, M. J., **McManamay, R. A.**, Mathews, T. (2022). Integrated watershed process model for evaluating mercury sources, transport, and future remediation scenarios in an industrially contaminated site. *Journal of Hazardous Materials*, *423*.

Fork, M. L., **McManamay, R. A.**, Heffernan, J. B. (2022). Propagation of inflowing urban stormwater pulses through reservoir embayments. *Urban Ecosystems*, *25*(4), 1043-1055.



Khan, Z., Abraham, E., Aggarwal, S., Khan, M. A., Arguello, R., Babbar-Sebens, M., Bereslawski, J. L., Biel icki, J. M., Campana, P. E., Carrazzone, Maria Eugenia Silva, Castanier, H., Chang, F.-J., Collins, P., Concha do, A., Dagani, K. R., Daher, B., Dekker, S. C., Delgado, R., Diuana, F. A., Doelman, J., Elshorbagy, A. A., Fan, C., Gaudioso, R., Gebrechorkos, S. H., Geli, Hatim M. E., Grubert, E., Huang, D., Huang, T., Ilyas, A., Ivakhnenko, A., Jewitt, Graham P. W., Ferreira dos Santos, Maria Joao, Jones, J. L., Kellner, E., Krueger, E. H., Kumar, I., Lamontagne, J., Lansu, A., Lee, S., Li, R., Linares, P., Marazza, D., Mascari, M. P., **McMana may, R. A.**, Meng, M., Mereu, S., Miralles-Wilhelm, F., Mohtar, R., Muhammad, A., Opejin, A. K., Pande, S., Parkinson, S., Payet-Burin, R., Ramdas, M., Ramos, E. P., Ray, S., Roberts, P., Sampedro, J., Sanders, K. T., Saray, M. H., Schmidt, J., Shanafield, M., Siddiqui, S., Suriano, M., Taniguchi, M., Trabucco, A., Tuninetti, M., Vinca, A., Weeser, B., White, D. D., Wild, T. B., Yadav, K., Yogeswaran, N., Yokohata, T., Yue, Q. (2022). Emerging Themes and Future Directions of Multi-Sector Nexus Research and Implementation. *FRONTIERS IN ENVIRONMENTAL SCIENCE, 10*.

**McManamay**, **R. A.**, George, R., Morrison, R. R., Ruddell, B. L. (2022). Mapping hydrologic alteration and eco logical consequences in stream reaches of the conterminous United States. *SCIENTIFIC DATA*, *9*(1).

**McManamay**, **R. A.**, Brinkley, C., Vernon, C. R., Raj, S., Rice, J. S. (2022). Urban land teleconnections in the United States: A graphical network approach. *COMPUTERS ENVIRONMENT AND URBAN SYSTEMS*, *95*.

Sturtevant, J.\*, **McManamay**, **R. A.**, DeRolph, C. R. (2022). US national water and energy land dataset for integrated multisector dynamics research. *SCIENTIFIC DATA*, *9*(1).

Hall, K., **Ryan, B. J.** (2022). Building the environmental health workforce through scientific knowledge and intentional collaboration. *Journal Of Environmental Health*, *85*(2), 34-36. https://www.neha.org/Images/resources/JEH9.22-Column-Direct-From-AEHAP.pdf.

Kako, M., Arbon, P., **Ryan, B. J.**, Harada, N. (2022). Establishing best practice for the implementation of evacuation centres for vulnerable populations: A comparative analysis of the Australian and Japanese experience. *International Journal of Disaster Risk Reduction*, *7*9.

Gibb, M.\*, **Sayes**, **C.** (2022). An in vitro alveolar model allows for the rapid assessment of chemical respiratory sensitization with modifiable biomarker endpoints. *Chemico-biological interactions*, *368*, 110232. http://dx.doi.org/10.1016/j.cbi.2022.110232

Baldovinos, Y.\*, Archer, A., Salamanca, J., Strongin, R. M., **Sayes, C.** (2022). Chemical Interactions and Cytotoxicity of Terpene and Diluent Vaping Ingredients. *Chemical Research in Toxicology*. http:// dx.doi.org/10.1021/acs.chemrestox.2c00218

Lujan, H.\*, Mulenos, M.\*, Zechmann, B., **Sayes, C.** (2022). Engineered Aluminum Nanoparticle Induces Mitochondrial Deformation and is Predicated on Cell Phenotype. *Nanotoxicology*.



Liu, J.\*, Gibb, M.\*, Pradhan, S. H.\*, **Sayes, C.** (2022). Synergistic cytotoxicity of bromoacetic acid and three emerging bromophenolic disinfection byproducts against human intestinal and neuronal cells. *Chemosphere*, *287*, 131794. http://dx.doi.org/10.1016/j.chemosphere.2021.131794

Liu, J. Y.\*, **Sayes**, C. (2022). A toxicological profile of silica nanoparticles. *Toxicology Research*, *11*(4), 565-582. http://dx.doi.org/10.1093/toxres/tfac038

Rothen-Rutishauser, B., Gibb, M.\*, He, R., **Sayes, C.** (2022). Human lung cell models to study aerosol delivery – Considerations for model design and development. *180*, 106336. https://www.sciencedirect.com/science/article/pii/S0928098722002226

**Sayes, C.**, Liu, J.\* (2022). Lung surfactant as a biophysical assay for inhalation toxicology. *4*, 100100. https://reader.elsevier.com/reader/sd/pii/S2666027X2200038X?token=38E5EF96EC435 AC57D5975AB8F85741235D8EA9DE1542C0D1DD0B0EE9EF2B86181ADCE26525 4F2086D6E184F14058A35&originRegion=us-east-1&originCreation=20230109215914

Liu, J. Y.\*, Pradhan, S. H.\*, Hussain, S., **Sayes, C.** (2022). Platform for Exposing Aerosolized Substances to Lung Surfactant and Alveolar Cells at the Air-Liquid Interface. *ACS Chemical Health & amp; Safety, 29*(5), 448-454. http://dx.doi.org/10.1021/acs.chas.2c00033

Ameh, T.\*, Gibb, M.\*, Stevens, D.\*, Pradhan, S. H.\*, Braswell, E., **Sayes, C.** (2022). Silver and Copper Nanoparticles Induce Oxidative Stress in Bacteria and Mammalian Cells. *Nanomaterials*, *12*(14), 2402. http://dx.doi.org/10.3390/nano12142402

Moffett, C. E.\*, **Mehra**, **M.**, Barrett, T. E., Gunsch, M. J., Pratt, K. A., **Sheesley**, **R.** (2022). Contemporary sources dominate carbonaceous aerosol on the North Slope of Alaska. *Science of the Total Environment*, *831*. https://api.elsevier.com/content/abstract/scopus\_id/85127473350

Kirpes, R. M., Lei, Z., Fraund, M., Gunsch, M. J., May, N. W., Barrett, T. E., Moffett, C. E.\*, Schauer, A. J., Alexander, B., Upchurch, L. M., China, S., Quinn, P. K., Moffet, R. C., Laskin, A., **Sheesley, R.**, Pratt, K. A., Ault, A. P. (2022). Solid organic-coated ammonium sulfate particles at high relative humidity in the summer time Arctic atmosphere. *Proceedings of the National Academy of Sciences of the United States of America*, *119*(14). https://api.elsevier.com/content/abstract/scopus\_id/85127229269

Moschos, V., Schmale, J., Aas, W., Becagli, S., Calzolai, G., Eleftheriadis, K., Moffett, C. E.\*, Schnelle-Kreis, J., Severi, M., Sharma, S., Skov, H., Vestenius, M., Zhang, W., Hakola, H., Hellén, H., Huang, L., Jaffrezo, J. L., Massling, A., Nøjgaard, J. K., Petäjä, T., Popovicheva, O., **Sheesley, R.**, Traversi, R., Yttri, K. E., Prévôt, A. S.H., Baltensperger, U., El Haddad, I. (2022). Elucidating the present-day chemical composition, season ality and source regions of climate-relevant aerosols across the Arctic land surface. *Environmental Research Letters*, *17*(3). https://api.elsevier.com/content/abstract/scopus\_id/85125302972



Moschos, V., Dzepina, K., Bhattu, D., Lamkaddam, H., Casotto, R., Daellenbach, K. R., Canonaco, F., Rai, P., Aas, W., Becagli, S., Calzolai, G., Eleftheriadis, K., Moffett, C. E.\*, Schnelle-Kreis, J., Severi, M., Sharma, S., Skov, H., Vestenius, M., Zhang, W., Hakola, H., Hellén, H., Huang, L., Jaffrezo, J. L., Massling, A., Nøjgaard, J. K., Petäjä, T., Popovicheva, O., **Sheesley, R.**, Traversi, R., Yttri, K. E., Schmale, J., Prévôt, A. S.H., Baltensperger, U., El Haddad, I. (2022). Equal abundance of summertime natural and wintertime an thropogenic Arctic organic aerosols. *Nature Geoscience*, *15*(3), 196-202. https://api.elsevier.com/content/abstract/scopus\_id/85125322731

### Non-Refereed Journal Articles:

Wang, M., Lu, T., **Li**, **Y**. (2022). Optimizing air purification for household particulate matters using sensorbased and time-based intervention strategies.

#### Other Intellectual Contributions:

#### Book Review (Published)

**Bratton, S.** (2022). Book Review: GP Wagenfurhr, Plundering Eden: A Subversive Christian Theology of Creation and Ecology (No. 2 ed., vol. Vol. 16, NO. 2 (2022) n, pp. 300-302). Sheffield: Journal for the Study of Religion, Nature, and Culture.

#### Editorial, Academic Journal (Published)

Ren, Z. J., Lowry, G. V., Arnold, W. A., **Brooks, B.**, Gago-Ferrero, P., Garcia, J. M., Leonard, K. C., Mills, M., Serrano, J. F., Wang, S., Zimmerman, J. B. (2022). *Data Science for the Transformation of Environ mental and Chemical Research and Development* (11th ed., vol. 9, pp. 877-878). Environmental Science and Technology Letters. https://api.elsevier.com/content/abstract/scopus\_id/85141841711

#### Editorial, Academic Journal (Published)

Ren, Z. J., Lowry, G. V., Arnold, W. A., **Brooks, B.**, Gago-Ferrero, P., Garcia, J. M., Leonard, K. C., Mills, M., Serrano, J. F., Wang, S., Zimmerman, J. B. (2022). *Data Science for the Transformation of Environ mental and Chemical Research and Development* (44th ed., vol. 10, pp. 14392-14393). ACS Sustainable Chemistry and Engineering. https://api.elsevier.com/content/abstract/scopus\_id/85141865865

#### Editorial, Academic Journal (Published)

**Brooks, B.**, Arnold, W. A., Boehm, A. B., Hamilton, J. F., Martin, J. W., Mihelcic, J. R., Mitrano, D. M., Ren, Z. J., Schlenk, D., Wang, S. (2022). *Our Selections for the Best ES&T Letters Papers in 2021* (8th ed., vol. 9, pp. 658-659). Environmental Science and Technology Letters. https://api.elsevier.com/content/abstract/scopus\_id/85136578212

#### Editorial, Journal (Published)

Lowry, G. V., Boehm, A. B., **Brooks, B.**, Gago-Ferrero, P., Jiang, G., Jones, G. D., Liu, Q., Ren, Z. J., Wang, S., Zimmerman, J. (2022). *Data Science for Advancing Environmental Science, Engineering, and Technology: Upcoming Special and Virtual Issues in ES & T and ES & T Letters* (14th ed., vol. 56, pp. 9827-9828). Environmental Science and Technology. https://api.elsevier.com/content/abstract/ scopus\_id/85134720350



### Editorial, Academic Journal (Published)

Lowry, G. V., Boehm, A. B., **Brooks, B.**, Gago-Ferrero, P., Jiang, G., Jones, G. D., Liu, Q., Ren, Z. J., Wang, S., Zimmerman, J. (2022). *Data Science for Advancing Environmental Science, Engineering, and Technology: Upcoming Special and Virtual Issues in ES & T and ES & T Letters* (7th ed., vol. 9, pp. 581-582). Environmental Science and Technology Letters. https://api.elsevier.com/content/abstract/scopus\_id/85133365418

#### Editorial, Academic Journal (Published)

**Brooks, B.** (2022). *Precision Ecotoxicology and the Biodiversity Crisis* (4th ed., vol. 9, pp. 245-246). Environmental Science and Technology Letters. https://api.elsevier.com/content/abstract/scopus\_id/85128685428

#### Editorial, Academic Journal (Published)

**Brooks, B.** (2022). *Environmental Science & Technology Letters Presents the 2021 Excellence in Re view Awards* (3rd ed., vol. 9, pp. 198). Environmental Science and Technology Letters. https://api.elsevier.com/content/abstract/scopus\_id/85126557025

#### Editorial, Academic Journal (Published)

Zimmerman, J. B., **Brooks, B.** (2022). *The 2022 Outstanding Achievements in Environmental Science & Technology Award The Americas Region* (1st ed., vol. 9, pp. 1-2). Environmental Science and Tech nology Letters. https://api.elsevier.com/content/abstract/scopus\_id/85123896404

#### Editorial, Academic Journal (Published)

Zimmerman, J., **Brooks, B.** (2022). *The 2022 Outstanding Achievements in Environmental Science & Technology Award: The Americas Region* (1st ed., vol. 56, pp. 1-2). Environmental Science and Technology. https://api.elsevier.com/content/abstract/scopus\_id/85122951727

### Editorial, Academic Journal (Published)

Ren, Z. J., Lowry, G. V., Arnold, W. A., **Brooks, B.**, Gago-Ferrero, P., Garcia, J. M., Leonard, K. C., Mills, M., Serrano, J. F., Wang, S., Zimmerman, J. B. (2022). *Data Science for the Transformation of Environmental and Chemical Research and Development*. Environmental Science and Technology. https://api.elsevier.com/content/abstract/scopus\_id/85141023096

### Book Chapter, Book Series (Published)

Ismaeel, A., **Lavado, R.**, Koutakis, P. (2022). Metabolomics of peripheral artery disease. *Advances in Clinical Chemistry* (vol. 106, pp. 67-89). https://api.elsevier.com/content/abstract/scopus\_id/85118240262

### Book Chapter (Published)

**McManamay**, **R. A.** (2022). Hydrology and classification of rivers for management. *Encyclopedia of Inland Waters, Reference Module in Earth Systems and Environmental Sciences*. Elsevier. https:// doi.org/10.1016/B978-0-12-819166-8.00080-3



#### Broadcast Media (Published)

**Ryan, B. J.** (2022). *Out of the Lab, Into the Field, Baylor University Research News*. Baylor University. https://www.baylor.edu/research/news.php?action=story&story=230339

#### Broadcast Media (Published)

**Ryan, B. J.** (2022). *Defense Research – Rapidly Assessing Medical Mission Readiness*. Baylor University. https://www.youtube.com/watch?v=TkX98PAANpE





### **CONGRATULATIONS!**

### HERE ARE BAYLOR'S NEWEST FANS



Dr. Manisha Mehra and husband Sujan Shrestha, ENV PhD Candidate welcomed:

Mayara Shrestha on May 08, 2022, weighing 7 lbs and 12 oz and was 12 inches long. Mayara is their first child.

PhD student Micah Bowman and his wife welcomed:

Shiloh Grace Bowman on August 10, 2022, weighing 6lbs and 20 inches long. Shiloh is their fourth child.





Dr. Md Ibrahim and his wife welcomed:

Lubaba Binte Ibrahim on Dec 4th, 2022 weighing 8 lbs 2 oz and was 19 inches long. Lubaba is their second child.

# Spring 2023 Seminar Schedule



Week	Topic
01/18/2023	Prof. Bryan Brooks, Department of Environmental Science, Baylor University
01/25/2023	Cameron Balch, Climate Ready Initiative, Griffith University, Australia (Online)
02/01/2023	Dr. J Michael Berg, Toxicology, Occupational Health and Safety Consultant, Boerne
02/08/2023	Prof. John P. Giesy, University of Saskatchewan, Canada
02/15/2023	Dr. Jacelyn Rice-Boayue, University of North Carolina Charlotte, Charlotte NC
02/22/2023	Susan James, United States Air Force Civil Engineer Center, San Antonio
03/01/2023	Dr. E. Spencer Williams, National Aeronautics and Space Administration, Houston (Online)
03/08/2023	NO SEMINAR
03/15/2023	NO SEMINAR
03/22/2023	Prof. Gary Brown, Eastern Kentucky University, Richmond KY, and President of the National Environmental Health Association.
03/29/2023	Dr. Bonnie Oh, Texas Department of State Health Services, Austin
04/05/2023	Dr. Jeffrey S. Gallagher, U.S. Environmental Protection Agency, Washington DC (Online)
04/12/2023	Prof. Paul Arbon, Flinders University, Australia (Online)
04/19/2023	Kacey Roman, Director of Building and Code, Freeport TX, and President of the Texas Envi- ronmental Health Association.
04/26/2023	Dr. Bryan Brooks, Department of Environmental Science, Baylor University

The Environmental Science Department produces a newsletter each semester. If you are an Environmental Science student or alumni, working on a project, serving an internship, studying abroad, graduating, or have some exciting news and want to share an article or picture, send an email to: erica \_c\_johnson@baylor.edu.



