



Environmental Science

Dr. Erica Bruce Shares on Baylor reaching R1 Status

[Baylor Press, January 2022](#)



When Baylor earned R1 research recognition after a long pursuit of that designation, faculty across campus celebrated. For many of them, like Erica Bruce, Ph.D., it was a full circle type of moment. Bruce, now an associate professor of environmental science and graduate program director within her department, came to Baylor in 2008 with that vision in mind. Many faculty across campus can claim a similar story. “I was at a tier one institution at Texas A&M University, and part of my recruitment to Baylor was that idea of pursuing this very goal,” Bruce recalls. “Baylor told us that ‘we are recruiting people who have been at R1 institutions, who know what high research productivity is, and we want you to help us grow this.’ So, from the time I set foot on campus, this was the goal. Baylor’s goal to find solutions to world’s biggest challenges came with the recognition that pursuit of

R1 was commensurate to the goal of addressing multi-faceted problems. That’s a lofty ambition requiring significant investment and focus filled by the top research institutions, like Baylor. “R1 universities are the ones coming together to address the most complex issues in medicine, global health, the environment and anything that is critical to survival and flourishing—critical to mankind. That’s what this means to me, that we are bridging resources across disciplines to address intricate problems and make strides towards solutions at top tier level.” Bruce, who has studied and worked at a tier one institution, and collaborated with faculty from many others, believes Baylor’s continued investment and pursuit of these solutions will be further enhanced by the Christian mission foundational to the work faculty conduct. Of the 146 R1 institutions, Baylor stands out—only 37 are private universities, and Baylor’s stands distinct among that group. “We’ve stuck to our Christian mission throughout this pursuit and it remains at the center of our desire to be R1,” Bruce says. “Our mission says something about the way we do our work and our commitment to impact humanity.” That mission permeates relationships inside the university as well, Bruce says, in a culture of collaboration that fosters the type of cross-disciplinary cooperation that major challenges demand. In the years ahead, the university will advance standing plans to hire additional faculty—100 over the next five years—with R1 recognition elevating that pursuit. Faculty growth is just one way of many that Baylor will treat R1 status not as a finish line, but as a benchmark along the way. Bruce says it didn’t take long to make sure others were aware. “The day the news broke, we immediately started using it interviews. It’s something people recognize and want to be a part of. It’s validation not only for us, but for them, that they’re going to be able to conduct research or get an education that is top notch. We are incredibly excited to recruit students, faculty and staff that will run with that and elevate it further.”



Inside this issue

Sayes Lab Presentation	4
Grad School Award.....	5
Sic’em PhD Candidates.....	5
Teaching Fellowship	6
Spotlight on Undergrads	7
Baby Bears	9
Seminar Schedule.....	10
Graduation	11
Publications.....	13
Grants	15

Special points of interest

- Water, Health , and Urbanization.....2
- Biodiversity Study.....3
- PhD Candidate Named Chair of NASAC

Water, Health and Urbanization

[Baylor Press, September 2021](#)



Dr. Bryan Brooks

According to the United Nations, more than half of the world's population now lives in urban areas, with virtually all countries across the globe becoming increasingly urbanized. From access to food and clean water, to sanitization and pollution abatement, the environmental strains placed on these rapidly changing trends in human settlement call for intentional and creative solutions. At the forefront of efforts to investigate and address these challenges is Bryan W. Brooks, PhD, Distinguished Professor of Environmental Science and Biomedical Studies at Baylor.

As urbanization increases, the challenge becomes a lagging effort to effectively, efficiently and equitably protect the health of the local communities and protect people, the environment and food supplies. This directs Brooks' focus to the identification of potential problems and a prioritization of efforts.

"We work on things like harmful algal blooms, we identify key research needs across disciplines, we're involved with wastewater-based epidemiology. We study cities and identify changes in the health of the population from testing and tracking sewage systems, which often can provide early warnings of problems ahead."

Some of that is influenced by development, and urbanization can actually promote organisms that can make really nasty toxins. Some of the more potent neurotoxins and hepatotoxins contaminate our drinking water supply, which can then contaminate our food supply as we look to feed the world. By 2050, we need a 200 percent increase in food production, just for low and middle income countries around the world."

A recognized leader in environmental health, Brooks has led conversations on every continent except Antarctica to address region-specific challenges through the [Global Horizon Scanning Project](#). In a world where cyclical survival challenges have faced humans for centuries, the outlook for changing them can feel bleak. Brooks is sometimes asked what motivates him and his team to constantly push forward.

"As urbanization increases, the challenge becomes a lagging effort to effectively, efficiently and equitably protect the health of the local communities and protect people, the environment and food supplies." Dr. Bryan Brooks

"I think you start with a specific issue," Brooks said. "You look at the problem, the circumstance, and you focus on that particular topic or issue. That's where you actually see where a difference can be made. I've been fortunate in my career where some of our research has been used by different governments around the world to make changes in the way we do things."

It's a heavy weight that carries with it a sense of responsibility for Brooks – not just to those millions of individuals who will benefit from his work that he may never meet, but to his own children.

"I have two young daughters. No offense, but I'm probably most interested in the long-term wellbeing and health implications for kids in their age group and younger around the world," Brooks said. "If we're supposed to 'occupy until He comes' as it reads in Luke, then we have a responsibility to enrich and to be more sustainable so that what our children are inheriting has actually benefited from our efforts. When I say our children, I mean all the children of the world. I've looked in the eyes of children in a lot of other places who did not have the same circumstances we enjoy."

In the end, Brooks' work is motivated by the opportunity to make incremental changes to systems. Partnerships with individuals, public organizations, nonprofit organizations and businesses create opportunities to build towards making those differences together.

"Faculty, staff and students at an institution like Baylor, with such a rich and unique Christian mission, help build towards that change," Brooks said. "I don't see how things like clean water, safe food, healthy homes – basically the connections between an environment and health or national resources – could be any more closely aligned with our unique mission at this University. My hope is to train students to do more and accomplish more than I ever will."



Dr. Brooks taking samples from a Texas river for further analysis.

Dr. Ryan McManamay's study evaluates biodiversity impacts of alternative energy strategies

[Baylor Press, July 2021](#)



The study, published in *Biological Conservation*, evaluates potential tradeoffs between climate benefits and energy costs, especially any negative impacts on biodiversity. While the environmental consequences of some renewable energy sources, like hydropower, have been widely studied, the large-scale impacts of other renewables, like solar, aren't well known.

"The study points to a need for the global community to understand the opposing endpoints of sustainability, which are scale-dependent," McManamay said. "At one endpoint, efforts to mitigate climate change at global scales via large-scale energy transitions may be completely incognizant of the consequences on local biodiversity. Likewise, local conservationists may not appreciate the magnitude of energy transitions required to shift global carbon emissions. Finally, I think there is a broad misconception among much of the community that if renewable energies are good for climate, they must also be good for the local ecosystem. Energies like solar have the potential to be deployed haphazardly with that mindset."

The challenges of climate mitigation in relation to different climate policy scenarios are projected in five Shared Socio-economic Pathways (SSPs) -- qualitative descriptions of plausible alternative socio-economic development in the next century. The SSPs include alternative projections in deployment of electricity generations by technology. Considering scenarios under the SSPs, ecological footprinting was used to evaluate the potential land and biodiversity tradeoffs of 10 different energy sources: solar photovoltaic, concentrated solar power, wind, hydropower, coal, conventional oil, conventional gas, unconventional oil, unconventional gas, and biomass.

"Ecological footprinting took into account land-use efficiencies of each technology as well as estimates of the degree of habitat alteration arising from technology deployment," McManamay said. "This provides a standardized way to compare the biodiversity consequences of large-scale deployment of alternative energy technologies."

Researchers estimated a biodiversity footprint for each of the 10 energy sources by overlaying energy densities and habitat alteration probabilities with biodiversity patterns. They then used spatial modeling to examine regional variations in future energy deployment and potential biodiversity impacts at a high-resolution. Different biodiversity footprints were scored based on their impact and a cumulative biodiversity score was determined for each of the 10 energy sources.

The cumulative impact scores among the SSPs showed significant and consistent differences -- the fossil-fueled development pathway (SSP 5) had the highest impacts while the regional rivalry scenario (SSP3) had the lowest. The sustainability-focused scenario (SSP1) represented a moderate impact score by comparison. Unexpectedly, the variation among SSPs didn't show a clear tradeoff between global climate mitigation and cumulative biodiversity impact.

"It was surprising to see the lack of a clear tradeoffs among sustainability endpoints," McManamay said. "This elicited us to take a deeper look into differences among the SSPs. Although SSP5 is termed 'fossil-fueled' development, the pathway includes significant technological advances in both advanced fossil and renewable technologies to meet highly consumptive, energy-luxurious lifestyles."

Biodiversity (cont.)

In other words, the biodiversity impacts are more related to total energy deployment than fossil versus renewable technologies. Although SSP1 is also characterized by significant renewable energy deployment, overall energy demand decreases due to increases in energy efficiencies. So, our work suggests that climate mitigation may not necessarily have to be at odds with biodiversity conservation."

Additionally, land constraints accounted for the most variation in biodiversity impact, particularly with regard to protected land use. Downscaled electricity generation scenarios were constrained by alternative land conservation and energy development policies.

The results offer an approximation of land and biodiversity impacts of future energy strategies outlined in the SSPs. While there were differences in the SSPs, the impact scores suggest that land protection measures and energy diversification could have greater implications for biodiversity challenges than the national-level global energy pathways outlined in the SSPs. Future planning and objectives for climate mitigation will require both broad and local consideration of biodiversity challenges.

Sayes Lab Presented at the Texas Society for Microscopy Annual Meeting



Dr. Christie Sayes and her talented graduate student Yanira Baldovinos attended and presented at the 56th Meeting of the Texas Society for Microscopy held at Baylor University - Baylor Research and Innovation Collaborative (BRIC) on March 24-25, 2022.

Christie presented the keynote address discussing "Current perspectives in characterization methods of advanced materials along product life cycles".

Yanira presented a poster entitled "An analysis of d-limonene and triethyl citrate effects on human lung cell models using fluorescence and electron microscopy". And she was awarded the "Best Poster Presentation Award" which came with a certificate and cash prize.

Both Yanira and Christie were able to begin a few new collaborations with other researchers from the state of Texas. Other Universities in attendance included Texas A&M University, West Texas A&M University, and Texas Women's University. Sponsorships were provided by Protochips Inc., IXRF Inc., Bruker AXS Inc. Rigaku Americas Corp.. The next annual meeting will be hosted by West Texas A&M University in Canyon, TX.



Outstanding Graduate Student Research Award 2021

In Fall 2021, recent doctoral graduate, Marco Franco was recognized and awarded the Baylor University Graduate School's Outstanding Student Research Award.



Marco demonstrated the initiative, thought, care, and quality that makes for excellence in research and in the classroom.

The Graduate School was glad to honor those among all their hard-working graduate students. As one judge said, "It was so hard to judge between these...so many great applications....I love reading about all the good stuff that is happening in these departments."

After Marco's graduation in December, he and his wife Jennifer, moved to Switzerland where he works as a Postdoctoral Research Fellow with Eawag, Swiss Federal Institute of Aquatic Science and Technology. Sic'em Marco!

Sic'em PhD Candidates

PhD Candidate Claire Moffett Selected as USAPECS board Member

Environmental Science Department's PhD Candidate Claire Moffett, was selected to be a board member of the United States Association of Polar Early Career Scientists (USAPECS). USAPECS is the national committee representing United States members of the Association of Polar Early Career Scientists (APECS). Our aims as USAPECS are to stimulate inclusive collaborations and connections between early career researchers and polar organizations. Claire is expanding the Baylor network to include more Polar Research!



PhD Candidate Kayla Garrett has paper mentioned in national magazine



PhD Candidate, Kayla Garrett, had her paper hyperlinked in the November 16, 2021 issue of Wired magazine, a monthly American magazine, published in print and online that focuses on how emerging technologies affect culture, the economy, and politics. The interview was with Dr. Ryan McManamay, Kayla's Professional Investigator but the study he speaks about is from a paper Kayla is first author on entitled "Global Hydropower Expansion Without Building New Dams" published November 2021 in IOPScience. To read the WIRED article, go to: <https://www.wired.com/story/retrofitting-dams-green-energy/>.

PhD Candidate Megan Solan named Chair for North America Student Advisory Committee (NASAC)

Megan Solan is a Doctoral Student at Baylor University. She has been an active SETAC member since she was an undergraduate student and she found her current advisor through the SETAC Career Center. She is the Vice-Chair for North America Student Advisory Committee (NASAC). She hopes to bring more opportunities to more undergraduate students by focusing on their involvement within the regional chapters. She believes that communication among the various SETAC entities is essential for understanding their needs and ensuring those needs can be met in a timely manner for the implementation of activities involving our organization. Megan is currently the Vice-Chair and will be the Chair starting in November of this year.



As Chair, Megan will provide leadership to NASAC members and disseminate information between NASAC members and the SETAC North America (SNA) Board of Directors (BoD) with support from the SNA BoD liaison. The NASAC Chair is also required to serve as a voting member and the sole voting student representative on the SNA BoD.

As a PhD candidate at Baylor University, Megan uses in vitro systems to investigate molecular mechanisms of action of per- and polyfluoroalkyl substances (PFAS) substances in various human cell types. She has been an active SETAC member since she was an undergraduate student at Penn State University and found her current advisor (Dr. Ramon Lavado) through the SETAC Career Center. She hopes to bring more opportunities to undergraduate students by focusing on their involvement within the regional chapters. She looks forwards to advocating for student members within SETAC and working with the board to find ways to increase opportunities for student networking, career development, and collaboration. In her free time, Megan enjoys going on outdoor excursions to collect insects and teaching her local community about invertebrate conservation.

Outstanding job, Megan!

Postdoctoral Teaching Fellowship



The Graduate School launched the Postdoctoral Teaching Fellowship in 2020-2021 with the support of the Provost's Office and in collaboration with the College of Arts & Sciences and the Honors College. These 10-month positions include a salary of \$40,000, continued access to Graduate School travel funds, the same health benefits as Baylor faculty, and mentoring and professional development activities. Congratulations are in order for Grace Aquino for her selection of this highly competitive position. All of her hard work, determination, and perseverance have paid off in more ways than one.

Congratulations, Grace!

SPOTLIGHT ON OUR UNDERGRADS

Congratulations are in order for Baylor sophomore Hope Tucker and recent Baylor graduate Jonathan Norton for their respective articles, “The Morphological and Behavioral Effects of Rotenone and Paraquat on the Zebrafish (*Danio rerio*) Model” and “Harmful Algal Bloom Mitigation Strategies in the Face of Environmental Alterations due to Climate Change and Anthropogenic Nutrient Loading” being accepted for publication in *Scientia* 2022! *Scientia* is very excited to showcase Hope’s and Jonathan’s research in their journal and cannot wait to begin the editorial process. *Scientia* is the Baylor Undergraduate Research Journal of Science and Technology. First published in the spring of 2014, *Scientia* is a yearly publication produced by the student organization BURST and supported by the Baylor College of Arts and Sciences.

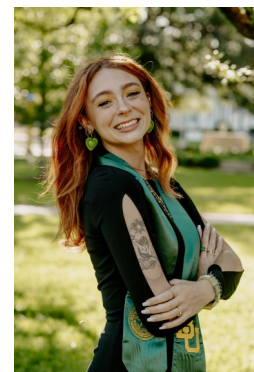


The mission of *Scientia* is to provide a professional platform upon which undergraduates of Baylor University are able to publish personally conducted and outstanding research in the biological science, physical sciences, social sciences, mathematics, and technology. As advocates of maximizing our education, we believe that the promotion of research here at Baylor provides students with quintessential and formative experiences that develop valuable characteristics such as intellectual curiosity, resilience, and a strong interest in the pursuit of knowledge. To us, research is a hallmark of education, because it involves applying the information learned in classes to unanswered questions in hopes of advancing our knowledge of the world around us. For these reasons, we commit ourselves to reviewing, editing, and publishing the work initiated and collaborated on by Baylor undergraduates.



Additionally, Jonathan Norton is joining a doctoral graduate program in the Environmental Science Department at Iowa State University in the Fall of 2022. Dr. Bill Crumpton, his graduate mentor, specializes in Wetland ecology and water quality at a watershed-scale framework, including nutrient dynamics and the fate and transport of agricultural contaminants. Dr. Crumpton's work provided the preliminary research to establish a 10-year, \$89 million wetland restoration program called the Iowa Conservation Reserve Enhancement Program (ICREP), a project that Jon will be supporting throughout his graduate program. He hopes to expand his individual research into topics related to environmental toxicology and explore potential connections between wetland contaminant removal efficiency and external anthropogenic stress to improve the effectiveness of constructed wetlands.

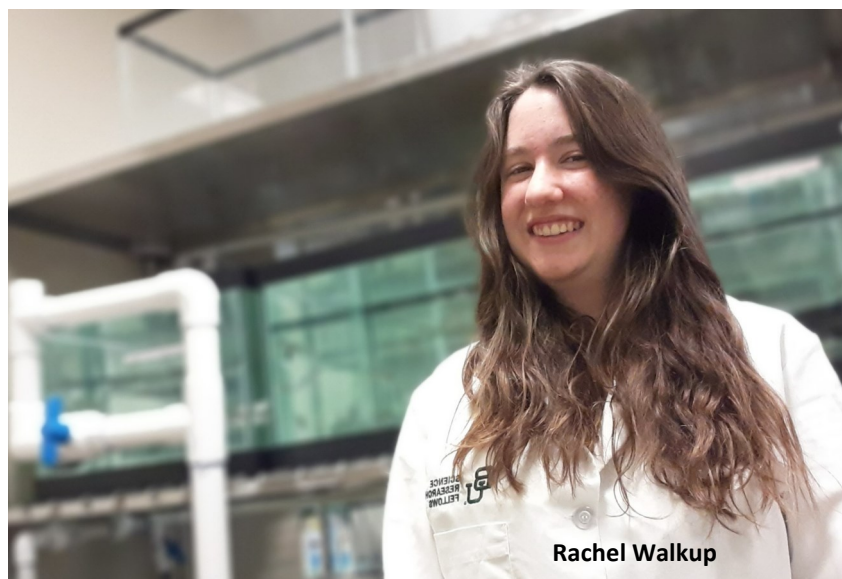
For further news regarding ENV Department success stories, Kelbie Pogoncheff, the graduating President of Students for Environmental and Wildlife Protection (SEWP) has accepted an offer from NYU’s School of Global Public Health Master of Public Health program with a concentration in Sustainable Development Goals. The Sustainability Development concentration prepares public health professionals with exceptional analytic and strategic decision-making skills critical to a resource-constrained global environment. Congratulations, Kelbie, and thank you for your exceptional leadership skills over the last couple years as the SEWP President!



Kelbie Pogoncheff



SPOTLIGHT ON OUR UNDERGRADS



Rachel Walkup is a junior Science Research Fellow concentrating in environmental science with minors in biology and biochemistry. She has been working for Dr. Cole Matson's research lab for the past two years and hopes to continue in a career in research in graduate school next year and hopes that this award will be a good starting point. She is one of fifteen undergraduates to receive the *URSA Research Grant* that is intended to support and promote undergraduate participation in research. This grant will fund her project that she is using for her honors thesis on rapid adaptation in response to anthropogenic pollution in the Gulf Killifish (*Fundulus grandis*). Her work on this project will involve collecting fish samples from Corpus Christi near Nueces Bay and determine if they adapted to common pollutants in the area such as PCBs and PAHs. This is a continuation of the work the

Matson lab has done with killifish from the Houston Shipping Channel that were found to be resistant to pollutants and this study will be able to help identify if adaptive strategies are unique or shared in different geographic areas with similar environmental stressors.



Undergraduate academic excellence was recognized across the University and Environmental Science celebrated our top three academic honors students at the Thirtieth Annual J. Harry and Anna Jeanes Academic Honors Convocation. From left to right are Senior Lecturer Julie King, JD, Erin Lynes, Miwa Stowers, Via Fitzgerald, Clinical Associate Professor Ben Ryan, PhD, and Dr. George Cobb, Chair of Environmental Science.

CONGRATULATIONS!
HERE ARE BAYLOR'S NEWEST FANS.



Meet Akshay Acharya! Born on September 29, 2021.

Former Environmental Science major Abhilasha Acharya (MS '14) and spouse are the proud parents.



Meet Seth Theodore Watkins! Born on March 5, 2022 in Flower Mound, Texas.

Former students Stephanie Ortiz Watkins (MS '16) and Preston Watkins (MS '16) are the proud parents.

Env Sci Seminar Series—Spring 2022

Department of Environmental Science Seminar Series -
ENV 5102 & 4102
Spring 2022 - Wednesdays BSB A.108 @ 4:00 PM



Date	Speaker	Contact details	Area of Expertise	Affiliation
19-Jan-22	No Seminar	No Seminar		No Seminar
26-Jan-22	Ryan McManamay	Ryan_McManamay@baylor.edu	Air Quality and Ecology	Baylor University
2-Feb-22	Mike Hardin	mike.hardin@wacofamilymedicine.org	Primary healthcare	Waco Family Medicine
9-Feb-22	Laura Langdan	Laura_Langan@baylor.edu	COVID in waste water	Baylor University
16-Feb-22	Dennis Nolan	Dennis_Nolan@baylor.edu	Environmental Health and Safety at Baylor University	Baylor University
23-Feb-22	John White	John.White3@va.gov	Radiation Safety Officer	Veterans Affairs
2-Mar-21	Nahuel Arenas	nahuel.arenasgarcia@un.org	Disaster Risk Reduction	UN Office for Disaster Risk Reduction
9-Mar-22	No seminar - Spring Break			
16-Mar-22	Mark Brickhouse	Mark_Brickhouse@baylor.edu	Food security	Baylor University
23-Mar-22	Richard Franklin	richard.franklin@jcu.edu.au	Injury prevention	James Cook University (Australia)
30-Mar-22	Stevan Walker	MSWalker@mail.ci.lubbock.tx.us	Environmental health	City of Lubbock and Texas Environmental Health Association
6-Apr-22	Matthew Reid	Matthew.Reid@austintexas.gov	Environmental health	Austin Public Health
13-Apr-22	Traci Michelson	traski71@outlook.com	Food Safety	McDonalds and National Environmental Health Association
20-Apr-22	Jeremy Novak	jeremy.novak@gdc.edu.au	Resilience	Global Development College (Australia)
27-Apr-22	LaShonda Malrey-Horne	LaShondaM@wacotx.gov	Public Health	Waco-McLennan Public Health Unit
4-May-22	No seminar (last day of class May 5)			

Congratulations December 2021 Graduates

Environmental Studies (B.A.)

Brandon T. Cook

Alexandra Grace Patino

Austin Sherman

Yunji Xu

Environmental Science (B.S.)

Ian James Burtch

Jonathan Dennis Norton (cum laude)

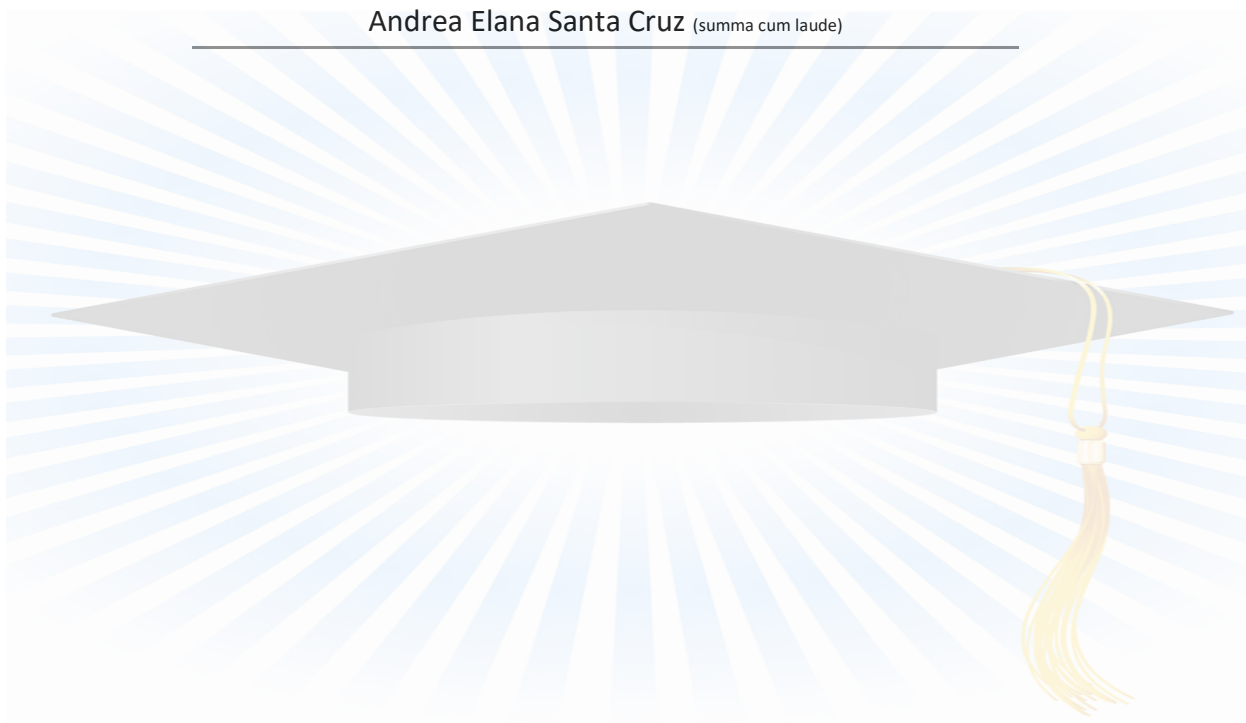
Wenxi Qiu

Ricardo da Silva Ehalt

Lydia Kristina Roush

Environmental Health Science (M.P.H.)

Andrea Elana Santa Cruz (summa cum laude)



Congratulations 2021 Doctoral Graduate - December

Marco Enrique Franco: Dissertation, Environmental Science: Metabolism and Mechanistic Toxicity of Environmental Pollutants in Fish Models: Integrating In Vitro and In Vivo Systems for Ecotoxicological Studies
Mentor: Dr. Ramon Lavado





RECENT PUBLICATIONS

Osburn, FS; Wagner, ND; Taylor, RB; Chambliss, CK; **Brooks, BW**; Scott, JT. **(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, JB; **Brooks, B. (2022)**. The 2022 Outstanding Achievements in Environmental Science & Technology Award-The Americas Region. *Environmental Science & Technology Letters*

Fedorova, G; Grabic, R; Grabicova, K; Turek, J; Van Nguyen, T; Randak, T; **Brooks, BW**; 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 Material*

Brooks, B; Zimmerman, J. **(2021)**. The 2022 James J. Morgan Early Career Award Winners: The Europe, Middle East, and Africa Region. *Environmental Science & Technology Letters*

Bratton, SP. (2021). TOWNS, ECOLOGY, AND THE LAND. *Quarterly Review of Biology*

Franco, ME; Dhungana, B; Patel, K; Krahenbuhl, V; Abel, M; Martin, GD; **Cobb, GP**; Lavado, R. **(2021)**. Seasonal Characterization of Bacterial Communities in Industrial Wastewater and Their Relationship with Flocculation Indices and Extracellular Polymeric Substances. *ACS ES&T Water*

Franco, ME; Johanning, K; Matson, CW; **Lavado, R. (2022)**. Reduced biotransformation of polycyclic aromatic hydrocarbons (PAHs) in pollution-adapted Gulf killifish (*Fundulus grandis*). *Science of the Total Environment*

Solan, ME; **Lavado, R. (2021)**. The use of in vitro methods in assessing human health risks associated with short-chain perfluoroalkyl and polyfluoroalkyl substances (PFAS). *Journal of Applied Toxicology*

Franco, ME; Johanning, K; **Matson, CW**; Lavado, R. **(2022)** . Reduced biotransformation of polycyclic aromatic hydrocarbons (PAHs) in pollution-adapted Gulf killifish (*Fundulus grandis*). *Science of the Total Environment*

Fork, ML; **McManamay, RA**; Heffernan, JB. **(2022)**. Propagation of inflowing urban stormwater pulses through reservoir embayments. *Urban Ecosystems*

Nair, SS; DeRolph, C; Peterson, MJ; **McManamay, RA**; Mathews, T. **(2021)**. Integrated watershed process model for evaluating mercury sources, transport, and future remediation scenarios in an industrially contaminated site. *Journal of Hazardous Materials*



RECENT PUBLICATIONS

Turner, SWD; Rice, JS; Nelson, KD; Vernon, CR; **McManamay, R**; Dickson, K; Marston, L. **(2021)** . Comparison of potential drinking water source contamination across one hundred US cities. *Nature Communications*

Troia, MJ; **McManamay, RA**; Kao, SC; O'Connor, PW. **(2021)** . A heuristic tool to assess regional impacts of renewable energy infrastructure on conservation areas. *Biological Conservation*

Garrett, K; **McManamay, RA**; Wang, JD. **(2021)**. Global hydropower expansion without building new dams. *Environmental Research Letters*

Jager, HI; Efroymsen, RA; **McManamay, RA**. **(2021)** . Renewable energy and biological conservation in a changing world. *Biological Conservation*

Lujan, H; Mulenos, MR; Carrasco, D; Zechmann, B; Hussain, SM; **Sayes, CM**. **(2022)** . Engineered aluminum nanoparticle induces mitochondrial deformation and is predicated on cell phenotype. *Nanotoxicology*

Liu, JQ; Gibb, M; Pradhan, SH; **Sayes, CM**. **(2022)**. Synergistic cytotoxicity of bromoacetic acid and three emerging bromophenolic disinfection byproducts against human intestinal and neuronal cells. *Chemosphere*

Song, SX; Johnson, KS; Lujan, H; Pradhan, SH; **Sayes, CM**; Taube, JH. **(2021)** . Nanoliposomal Delivery of MicroRNA-203 Suppresses Migration of Triple-Negative Breast Cancer through Distinct Target Suppression. *Non-Coding RNA*

Guo, FZ; Bui, AAT; Schulze, BC; Yoon, S; Shrestha, S; Wallace, HW; Sakai, Y; Actkinson, BW; Erickson, MH; Alvarez, S; **Sheesley, R**; Usenko, S; Flynn, J; Griffin, RJ. **(2021)**. Urban core-downwind differences and relationships related to ozone production in a major urban area in Texas. *Atmospheric Environment*

VerPloeg, SLG; Clark, AE; Yoon, S; Ruiz, LH; **Sheesley, RJ**; Usenko, S. **(2021)**. Assessing the atmospheric fate of pesticides used to control mosquito populations in Houston. *Chemosphere*



NEW AWARDS

Bryan Brooks:

- ♦ COVID-19 Wastewater Testing. Health and Human Services Commission (2022), \$1,324,985.
- ♦ Thad Scott (Co-PI), The Interactions of Climate Change on Oceans & Human Health: Assmt of Risks Assoc. w/ Climate Chg on Infectious dis, Harmful Algal Blooms & contamin of Emerging Concern & Dev/App of Predictive Models, Forecasts & Tools. University of South Carolina. National Inst of Health (2018), \$114,211.

Ryan McManamay:

- ♦ LULCC & Infrastructure Modeling To Support ICoM-MSD. Pacific Northwest national Laboratory. US Dept of Energy (2022), \$86,895.
- ♦ Geospatial analysis identifying environmental flow thresholds for fish species and communities in TX. Texas Parks and Wildlife Department. US Dept of the Interior (2021) \$66,273.
- ♦ Compass Great Lakes Modeling Study. Pacific Northwest National Laboratory. US Dept of Energy (2021), \$39,123.
- ♦ PI Greg Hamerly, Near real-time detection and monitoring of invasive mussel species in Texas waterways. Texas Parks and Wildlife Department (2021), \$49,987.



NEW AWARDS (cont.)

Ryan McManamay:

- ♦ Integrated Multisector, Multiscale Modeling (IM3) Scientific Focus Area. Pacific Northwest National Laboratory. US Dept of Energy (2020), \$87,705.
- ♦ Advancing optical imaging and classification to enhance biodiversity monitoring. OceanSpace. Department of Energy (2020), \$165,591.

Ben Ryan:

- ♦ Using a public health scorecard to create a bridge between local communities and public leaders to strent. World Health Organization. (2021), \$61,800.

Christie Sayes:

- ♦ Comprehensive Nanocellulose Physicochemical Characterization of Nanocellulose Materials. Vireo Advisors, LLC (2017), \$135,000.
- ♦ Design Constrained Drop Surfactometer, termed AHEAD, to Assess Effects of Inhaled Particles on Lung Surfactant Fluid Function. Henry M. Jackson Foundation. Air Force Office of Scientific Research (2021), \$199,998.



GLOBAL SCOPE GLOBAL IMPACT

ENVIRONMENTAL SCIENCE

The Environmental Science Department produces a newsletter each semester. If you are an Environmental Science student, 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



One Bear Place #97266 | Waco, TX 76798-7266