

AEES QUARTERLY

The Official Newsletter of the American Ecological Engineering Society

Sharing our stories, building networks, and growing together.

www.ecoeng.org



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Greetings from your AEES President!

We had a productive fall here at AEES. Building off the successful Baltimore conference, the planning for the Tampa conference is well underway. If you have not checked out the Tampa conference website, please do so. The dates are set (June 6-9, 2023), abstract submission is already open (due January 31, 2023), and many of the inspirational plenary speakers are confirmed and featured on the website. If you are interested in being a conference sponsor, please visit

our sponsorship website. I would like to thank this year's first Signature Sponsor, Jacobs, for their generous support.

During our webinar series this fall, we heard from Rafael Vázquez-Burney on 'Maximizing Ecosystem Services with Infiltration Treatment Marshes' based on his work at Jacobs. The amazing photos from his work are featured in this newsletter, and his insights on working in ecological engineering industry to enhance infiltration and treatment using natural processes can be viewed in his recorded webinar. Mark your calendars for our next webinar on the circular economy, Jan 18th at 1pm EST, by Dr. Alexandros Stefanakis of the Technical University of Crete and the International Ecological Engineering Society.

Our 2022 Odum Award winner, Dr. Marty Matlock, is featured this in issue. We appreciate his vision for our society as we move forward to tackle the grand challenges of our time using natural processes to restore balance in ecological systems at local and global scales. His appreciation and experience in understanding the interconnectedness of dynamic systems, life cycle assessments, ecosystem-based sustainability, and food system resiliency are important pillars of our work in AEES. Nominations for the 2023 Odum Award are forthcoming.

The hard-working AEES committee work is featured in this issue. The DEIJ committee is working on climate survey, a plenary session at the Tampa conference, and as assessment of our AEES Core values. The Body of Knowledge committee is working hard on ABET certification for ecological engineering, our Awards committee is gearing up new awards and the Fellows Program for 2023, and our active Student committee is full of opportunities to engage with students from across the US and internationally. Being on an AEES committee is a great way to interact with other AEES members and be a part of our community's work. If you would like to join a committee, contact information for our committee chairs are on the website.

Memberships for 2023 are open. Don't delay in getting your AEES membership dues paid. We are stronger when we all work together to build AEES and develop sustainable ecosystems that integrate human society with its natural environment for the benefit of both. Thank you to everyone for your great contributions to AEES. I am looking forward to seeing you in sunny Tampa in June 2023.

Sincerely,
 Stephanie Lansing
 AEES President
 University of Maryland Professor, Environmental Science & Technology
slansing@umd.edu

AEES 2023 Annual Meeting



We are pleased to invite you to submit abstracts for the [23rd American Ecological Engineering Society \(AEES\) conference](#) in Tampa, FL, USA, hosted by the University of South Florida from June 6 to June 9, 2023. [Abstract submissions](#) for oral or poster presentations will now be accepted through January 31, 2023. This year's meeting theme is "Nature-based Solutions for Resilient Communities." This will be an in-person conference.

We are looking for Sponsors for the 2023 AEES meeting! Your sponsorship will support sessions to engage dialogue with industry leaders, students, and university, federal, state, and NGO partners. Please find the [sponsorship levels](#) on the website.

Please invite your colleagues, students, and friends to submit abstracts and become meeting sponsors. If you have specific questions regarding abstract submissions, COVID protocols, or sponsorships, please contact the [Meeting Planning Committee](#).

Committee Updates

Joining a AEES committee at any time of the year is strongly encouraged. Please contact the Committee Chair if you are interested.

Conference Planning Committee

Chair of Committee – Mauricio Arias mearias@usf.edu

The conference planning is well underway and we are making everything we can to ensure everyone will have a blast in Tampa. We will be at a great venue at the University of South Florida, close to on-campus and off-campus accommodations (already blocked for us). We will have two of Florida's most important environmental leaders confirmed as plenary speakers (Tampa Bay Estuary Program's Director and Florida's Chief Science Officer), we will commemorate the 50th anniversary of HT Odum's Center for Wetlands, and we will close the conference with a plenary panel and discussion on Diversity, Equity, Inclusion, and Justice. Also important, we are planning two great evening events and 6+ field trips. Please make sure to visit the conference website for detailed information on everything that will be happening next June: <https://www.ecoeng.org/2023-annual-meeting>. The call for abstracts is already open, so make sure you submit yours early! Conference registration will open in January. We can't wait to see you all in Tampa in June!

Diversity, Inclusion, Equity, and Justice (DIEJ) Committee

Chair of Committee – Ani Jayakaran anand.jayakaran@wsu.edu

The DEIJ Committee continued its conversations on how best to incorporate DEIJ in the work of Ecological Engineers. A climate survey and the structure of a plenary session on DEIJ at AEES 2023 were central topics of recent discussions.

Membership and Awards Committee

Chair of Committee – Michael Burchell mike_burchell@ncsu.edu

Meetings are on the 2nd Monday of the month at 3:30 pm ET

The committee continued its work on establishing the guidelines and nomination protocols for the Odum award and the AEES Fellows program. There has also been discussion on formalizing more student and early professional award programs.

Body of Knowledge Committee

Chair of Committee – Tricia Moore tlcmoore@ksu.edu

The BOK committee continues its work on two fronts: developing a Body of Knowledge document for ecological engineering education and accreditation. On the first, we have been working to finalize sets of knowledge and skills needed at the undergraduate level for ecological engineering application areas and will begin synthesizing as a written document in the coming months. On accreditation, we continue to work with colleagues in ASABE and AAES to move forward a proposal to accredit ecological engineering programs with ABET.

Student Chapter Committee

Chair of Committee – Ana Gabriela Itokazu gabi@auburn.edu

The Student Committee had plans to meet monthly, but due to untimely physical and mental conditions, I couldn't call in a good part of our first half of meetings for this year. Considering that our Society is a community made of people with a lot on their hands and minds at all times and that all committees are made of voluntary work, I think this should be mentioned openly. I could not stand the thought of conducting a meeting - not because I did not care, but because I did not have the mental structure to do so. This topic and how to bypass the cancellation of the Committee meeting due to the health condition of the Chair (physical, mental, psychological) will be discussed during our following meetings - we might have to update our committee bylaws. I apologize for the consequences my actions (or lack thereof) have on this committee and on AEEs at large, but I will come back at it, and we will figure it out together. I hope to maintain our calendar from now on, so our first calendar year meeting will be on January 13, 2023!

2022 AEES Odum Award for Ecological Engineering Excellence

Dr. Marty Matlock is the 2022 recipient of the AEES Odum Award for Ecological Engineering Excellence

During the June AEES meeting in Baltimore, Dr. Marty Matlock was awarded the 2022 AEES Odum Award. The Odum Award is the highest honor bestowed by AEES, named in recognition for two of the most influential figures in defining and pioneering the concepts and practices of Ecological Engineering, Howard T. and Eugene Odum. This award recognizes a lifetime of achievement and contributions during their career to research, education, and practice in the field of Ecological Engineering, which led to the development and growth of AEES.

Dr. Matlock is a Professor in the Biological and Agricultural Engineering Department at the University of Arkansas. He received his Ph.D. in Biosystems Engineering from Oklahoma State University, is a registered professional engineer, a Board-Certified Environmental Engineer, and a Certified Ecosystem Designer. He has authored over 50 peer reviewed manuscripts many of which are in the field of Ecological Engineering. He has also co-authored four books including *Ecological Engineering Design: Restoring and Conserving Ecosystem Services*.

He served as AEES president in 2007-2008 and has continued to be active in the society, most recently spear-heading the concept and development of the our new AEES Journal of Ecological Engineering Design.

He has served numerous roles in the profession. Most recently, Dr. Matlock served as Senior Advisor to Secretary of Agriculture Tom Vilsack at USDA from 2021-2022. Prior to that he was Executive Director of the University of Arkansas Resiliency Center. In 2021, Dr. Matlock was elected to the National Academies of Science, Engineering and Medicine's Board of Agricultural and Natural Resources. Dr. Matlock is the recipient of the 2018 CAST-Borlaug Agriculture Communications Award, and more than 30 national and international design awards. He served as Chairman of the Cherokee Nation Environmental Protection Commission for 16 years and as sustainability science advisor for three environmental conservation organizations and more than a dozen food and agricultural product companies.

When asked about the award and the Odum legacy, Dr. Matlock had this to say: "My career was influenced very early by E.P. Odum and his brother, H.T. Odum. We used *Fundamentals of Ecology* by E.P. as our textbook in General Ecology at Oklahoma State University in 1983. The Odums presented ecology as an intimately interconnected dynamic system rather than a collection of components. This framework aligned with my Cherokee cultural understanding of communities of organisms in a common struggle to survive. The transformational heuristics of eco-holism that the Odums developed formed the basis of modern systems ecology and the essence of ecosystem design as practiced by ecological engineers. They demonstrated that the practice of Ecology could do more than document the decline, but rather was essential for protecting, conserving, and restoring ecosystem functions and resiliency. My research in ecosystem-based sustainability measures using life cycle assessment is directly derived from the concepts developed by the Odum brothers. My work as senior advisor for food systems resiliency at USDA was informed by their work on complexity theory. I am honored to be recognized as an Odum scholar."

Dr. Matlock joins previous winners of the award who include Dr. Bill Mitsch, Dr. Mark Brown, and Dr. Alex Horne.



Fall 2022 Webinar Series Recap:

Rafael Vázquez-Burney, PE



On September 21st, Rafael Vázquez-Burney, PE with Jacobs presented on “Maximizing Ecosystem Services with Infiltration Treatment Marshes” in AEES’s fourth quarterly webinar. A summary of his presentation topic is below. To view the recording of the webinar presentation, visit <https://www.ecoeng.org/aees-webinar-series>

Infiltration treatment marshes are constructed surface flow wetlands that have no outlet, where inflow is balanced with infiltration, precipitation, and evapotranspiration. The purpose of these systems is to maximize infiltration and gain additional benefits associated with augmenting groundwater resources, protecting water quality, and avoiding nutrient loads to receiving water bodies. Because nitrate reduction within wetland subsoils is intensified due to the high organic content and anaerobic conditions of the wetland subsurface, size requirements are often less onerous than surface flow wetlands. In locations where hydrogeologic conditions are adequate, infiltration treatment marshes provide an effective way to return clean water to the environment. These systems are becoming popular as an effective means for managing wastewater and stormwater, not only for the benefits associated with groundwater recharge and water quality, but also for the myriad of ecosystem services that wetlands provide. Ecological design principles are used to maximize ecosystem services including habitat creation to support biodiversity, carbon sequestration to curve climate change, and aesthetic services for recreational opportunities. This presentation will provide a background on infiltration treatment marshes, design principles used to maximize benefits and success, and two recent case studies.



The 4G Ranch Wetlands located in Pasco County, FL is the world’s largest constructed infiltration treatment marsh system. Fifteen uniquely designed cells total 176 acres and receive up to 5 million gallons daily of treated municipal wastewater effluent for groundwater recharge in an area impacted by groundwater drawdowns from public water supply.

The Ocala Wetland Recharge Park located in Marion County, FL is a 60-acre engineered ecological system that receives approximately three million gallons of treated wastewater and stormwater daily. The park is able to reduce nutrients and other pollutants in the groundwater can recharge the aquifer underneath the park.



2023 Membership Dues are Due!

The membership structure and dues have changed for the 2023 membership year, remaining affordable and especially accommodating for students and young professionals! The Society has included a Young Professionals Membership category for members 30-years-old or younger or currently employed as a Post-Doc. There's never been a better time to renew your membership for 2023! Take note of the Lifetime option, as many of our members are truly invested in our unique field for life! Please visit our webpage <https://www.ecoeng.org/membership> where you can renew and pay online.

Being a member of the American Ecological Engineering Society is a worthwhile opportunity to be a part of a community of scientists, engineers, students, and others passionate about the design of systems for the benefit of nature and society. Additional benefits include:

- Discounts on registration fees for the [annual AEES meeting](#)
- Discount on annual subscription to the [Ecological Engineering Journal](#)
- Ability to list job postings on the AEES website
- Subscription to the AEES listserv, keeping you abreast of all organization information
- Ability to join a AEES Committee to directly impact the Society, members, and outreach

Membership dues are for one year (January 1st - December 31st).

Membership Shout Outs

During our membership renewal season, the Society would like to highlight our Lifetime Members. These individuals are not only dedicated to the improvement of the Ecological Engineering profession but also to the betterment of the Society. Consider joining this cohort of Lifetime Members when you renew your membership. We celebrate these individuals and thank you for your continued support!

Mauricio Arias

Charles Baker

Eban Bean

Karina Bynum

Russel Daniels

Alex Horne

Jose-Luis Izursa

Anand Jayakaran

Gregory Jennings

Stephanie Lansing

Andrea Ludwig

Jay Martin

Marty Matlock

Robert Nairn

David Powers

Megan Rippy

Richard Scholtz

William Strosnider

We've Gone Social!

AEES is now on social media! Please follow the American Ecological Engineering Society on the social media platforms below for another opportunity to stay updated on the great work the Society is doing.

Twitter: [@AmericanEcoEng](https://twitter.com/AmericanEcoEng)

Instagram: [@ecologicalengineeringsociety](https://www.instagram.com/ecologicalengineeringsociety)

Get Featured in the Next Edition

We are always looking for new stories to tell, highlighting ecological engineering in academic, industries, locally and abroad. If you have a project you would like highlighted, know someone we should interview, or have pictures of groundbreaking research, please send them to our website manager, Brittany Santore (brittany_santore@ncsu.edu) to be featured in our next edition of the AEES Quarterly.

Career Opportunities

Post-Doctoral Associate: Modeling & Life Cycle Assessment of Food Waste

University of Maryland - Posted 12-01-2022

Project Manager / Water Resources Engineer

Wildlands Engineering - Posted 10-20-2022

Habitat Restoration Designer

The Westervelt Company

Posted 09-15-2022

Post-Doctoral Scholar: Nature-based Solutions for Mitigating Flood Impacts

University of Vermont - Posted 08-31-2022

Research Analyst: Hydroinformatics

University of Vermont

Posted 08-31-2022

Post-Doctoral Scholar: Hydrologic and Geomorphic Data Scientist

University of Vermont - Posted 08-31-2022

To see full descriptions, contact information, or to post an opportunity, please visit

<https://www.ecoeng.org/job-postings>