



Letter from the Director

Greetings and first I want to extend warm hearty congratulations to all of our 2018 graduates! It is hard to believe that our Environmental Science and Policy program has been around since 1992. The nature of the economy and the trajectory of environmental studies and awareness has dramatically changed since the days of William Jefferson Clinton. Back in those days we were based solely on the University Campus in Baltimore and had not yet embraced the vibrancy and political discourse of our Nation's Capital. However, throughout the program's history we have recognized the critical importance of training our students to address the major challenges facing humans and their fragile environment. We have worked tirelessly to foster a community of scholars who can turn their knowledge into practice in the real world. But make no mistake, we are living in historic times. Increasing exploitation and commodification of the world's species and natural systems threaten biological diversity as well as human cultural diversity.

Approximately 1000 known species and an estimated half of the world's languages have gone extinct over the last 500 years. These are the types of issues that we must be prepared for and are compelled to address.

Gone are the days when political actors from across the spectrum worked to forge solutions to environmental problems creating legislative triumphs such as the CAA, CWA, EPA, and Superfund.

As science in general and environmental policies specifically come under increased assault, we see climate change threatening ecosystems and disparities in environmental justice are widening.

We have entered into a discourse of mastery and yet we yearn for a discourse of humility. It is times like these that call for us to change the conversation to one that connects conservation, biodiversity, history, sustainability, public health, civil rights and social justice.



It is time to change the conversation from a homo-centric to a zoe-centric approach.

True discourse is absolutely vital to address the many needs of the planet. We should be asking questions such as: How do we avoid exceeding planetary boundaries? How can we change agriculture? How can we reconnect to the biosphere? How can we use science to inform policy to enact radical change? So, feel free to come by the office to chat or just share your thoughts. We always look forward to hearing from all of our past, present, and future ESP students and our doors are always open!

Alumni Spotlight: James Meadowcroft



The Common Market is a non-profit food hub based Philadelphia and we act as a conduit between small-to-medium size farms in the Mid-Atlantic region looking to become wholesale ready and to increase food access and nutrition throughout the region by working with anchor institutions such as public schools and hospitals to provide fresh, wholesome, and nutritious food to areas in need.

My work is focused on produce procurement, food safety, and sustainable practices. Through working directly with our partner farms, as well as through bringing on new partner farms, I work to not only aid in increasing farm viability, but also to assist farmers in the region in understanding and implementing necessary food safety practices as well as sustainable farming practices to ensure the continued health of the region's farm ecosystems.

My education in the Environmental Sciences and Policy Master's program has afforded me a deeper understanding of the science of sustainability and climate resilience as well as ways to better influence policies to support both our nation's farmers and the populations that rely on the food they grow.



Alumni & Current Student Conference

By Jenn da Rosa

At most institutions the term *alumni* refers to a program graduate and former student. However, the Energy and Environmental Programs at Johns Hopkins University (JHU) have been striving to give alumni a more active role in our learning community, whether through student-alumni-faculty networking, lifelong learning, or alumni advising. As part of this initiative, the Energy and Environmental Programs at JHU launched the Alumni Ambassador program in the summer of 2017, hosted our first ever Alumni Conference on April 21, 2018, and announced newly reduced tuition for alumni auditing courses starting summer semester 2018.

Alumni Ambassadors

Last summer the Energy and Environmental Programs at JHU began the Alumni Ambassador program, and this summer marks the program's first year anniversary. Since summer 2017, all incoming Environmental Science and Policy (ESP) and Energy Policy and

Climate (EPC) students have been paired with a volunteer Alumni Ambassador to assist them with the new student onboarding process. Most alumni-student pairs chat via email or phone about what courses to take, what certain professors are like in the classroom, general tips for success, and even career advice. A few mentor-mentee pairs have even arranged to meet in person – no small feat given the wide geographic distribution of ESP and EPC students and alumni!

To date, the program has mentored approximately 103 new ESP and 43 new EPC students. In addition, we would like to thank the 32 ESP and 20 EPC Alumni Ambassadors that have made this program a success. If you are interested in becoming an alumni ambassador, please contact Jenn da Rosa (jdarosa@jhu.edu).

Alumni Conference

The first ever Energy and Environmental Programs Alumni Conference took place this spring

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Alumni Spotlight: Erica Harriman



Erica Harriman, a 2017 Alumni of the Johns Hopkins Environmental Science and Policy Program, currently serves as the EPA Safer Choice Program Manager at ToxServices LLC, a scientific consulting firm in Washington, DC. In this role, she solely manages the third-party profiler toxicological assessments, project timelines and budgets, and the execution of various consumer product company's partnerships with the U.S. EPA Safer Choice program and GreenBlue's CleanGredients®. The U.S. EPA Safer Choice program is a voluntary, hazard based approach to green chemistry which recognizes consumer and industrial / institutional products that meet the program's criteria which includes the use of chemicals considered to be safer for human health and the environment. She directs and manages client and supply chain interactions, while working closely with toxicologists. Additionally, she oversees a staff dedicated to obtaining necessary proprietary disclosure and synthesizes the findings and recommendations to clients and chemical manufacturers.

Outside of work Erica enjoys to stay active by running, hiking, and yoga. She grew up in the DC area but still appreciates exploring the museums, breweries, and sites that the city has to offer. She plans to continue her work promoting the use of chemicals that are safer for the environment and more broadly she hopes to use her skills and knowledge to progress her career toward the conservation of the marine environment in the future.



Editorial: Tipping Point for the U.S. Nuclear Industry

By Lacey Dean, Alumna

The U.S. nuclear energy industry is at a tipping point, thanks in part to a perfect storm of external conditions making economics more challenging coupled with the birth of new technology that promises “walk away” safety.

External conditions like low electricity demand growth, an influx of natural gas, historically low energy prices, the lack of a federal carbon policy and an aging transmission system have created the perfect storm for traditional nuclear operators. Together, these conditions have made it difficult to compete in competitive markets. Furthermore, the competitive market provides a less than level playing field—as in, it's less than competitive. Due to well-intentioned policies meant to incentivize increased renewable energy installation, some generators can now operate even when energy prices fall below zero because they receive government subsidies that ensure they still turn a profit. It's impossible for nuclear plants to compete with negative prices, no matter how efficient an operation

you run. Together, these conditions are putting nuclear plants out of business at an alarming rate.

Luckily, there is hope on the horizon for the American nuclear industry. States, such as New York, Illinois and New Jersey, have taken to leveling the playing field by recognizing nuclear energy's unique attributes, like providing carbon-free energy. And other efforts are underway to compensate nuclear for serving as a baseload power source with secure, onsite fuel for up to two years (which contributes to electrical grid resiliency). These environmental and national security benefits appeal to policymakers of both parties. And the current Administration is also exploring federal policy reforms that would allow nuclear generators to compete and continue employing hundreds of thousands of middle-class Americans.

These economic, policy and regulatory challenges have disrupted the industry, which is looking ahead and putting investment behind small

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Sustainability Leadership in Costa Rica

By Emily Morrow

This January, while many at Johns Hopkins were battling a bitter cold front in the Mid-Atlantic, eleven AAP students (myself included) traveled south to study Sustainability Leadership in Costa Rica. The focus of the course was to develop leadership skills in the context of addressing environmental problems. Professor Kazyak broke down the components of leadership and challenged us to explore each component as it relates to the environmental issues we care about. Each of us researched and presented on a different leadership component and, at the end of the course, developed and presented our own leadership projects with feedback from the group. Although leadership is often thought of as an individualistic pursuit, the course emphasized the importance of different roles that leaders play within a group and included a lot of team-building games that challenged us to embrace different leadership styles and learn to work together towards a common goal.

The entire course took place in two beautiful settings: the first was a hostel in the cloud forest, the second a nature reserve that included parts of the jungle and the beach. At both sites we learned from the hostel owners and local people how they practice sustainability everyday by living simply and not letting anything go to waste. We heard from guest speakers who introduced us to their own stories of exercising environmental leadership in Costa Rica—including local farmers who transitioned to environmentally-friendly practices and started a movement inspiring those around



them to do the same, and people who fought to restore and protect the natural treasures in the jungles and coastlines of Costa Rica.

Overall, the sustainability leadership course was unlike any of the other courses I've taken at JHU because of its emphasis on self-reflection and teamwork, which resulted in a lot of soul-searching and bonding within the group. The eleven of us—along with Professor Kazyak, our T.A. Eric, and our hosts and helpers—formed friendships over long hikes that included sloths, monkeys, fishing, and

jumping into waterfalls; we shared deep discussions about our personal visions and how we see the world and the future; we laughed and struggled through team challenges that involved thinking outside-the-box and, at times, being willing to look ridiculous; and we shared many breathtaking sunsets. The course left us with some incredible memories and new friendships, as well as a more developed confidence in our individual and collective abilities to tackle complex problems.

Photo courtesy of Eric Kazyak

Ecuador and the Galapagos

By Scott Atkinson, Devon Van Demark (Class of '18) and Whitney Beer-Kerr (Class of '18)



When you hear that the Ecology & Evolution of the Galapagos students had the best Spring Break ever this year, you might picture tropical beaches, dancing, and late night parties. In fact, you'd be right, but with a few twists. We spent hours on tropical islands (hiking and exploring); we danced all day (with rays, puffers, and lava lizards); and we stayed up late each night (discussing evolution, conservation, and sustainable tourism). Our week-long field course, led by program director Dr. Jerry Burgess, began with students from the ESP and EPC programs converging in Quito, Ecuador on the vernal equinox. This is cosmically significant because on an equinox, the sun shines directly onto the equator, which just happens to pass through Ecuador just north of Quito (and how Ecuador got its name). The vernal equinox also signals the beginning of spring in the Northern Hemisphere and the start of autumn in the Southern hemisphere, so we were technically experiencing both seasons simultaneously. The heavenly bodies

were aligning for us, but we were all too excited to realize it at the time.

The next morning we were up before the sun and on a bus to Mindo, a tiny town nestled high in the Andes. This is when time started to slow down. The next six days were filled with more adventure, wildlife, in situ education, and heart-stopping scenery than most people experience in an entire lifetime. In Mindo we trekked through a cloud forest to waterfalls, gazed upon rare orchids, fed plantains to giant butterflies, tasted local chocolate, and were hypnotized by hundreds of gem-toned hummingbirds – all in one day.

The following morning we hopped a short flight to the Galapagos Islands and boarded our floating, live-aboard classroom. The beds were comfy and the food delicious, but sleeping and eating were just activities to pass the time while eagerly awaiting the captain's voice on the intercom: "Calling all Boobies!" If you just giggled like a 3rd grader, then you're in the right program. We certainly did every time we heard it, which was about

20x per day, because of the 6 bird-named groups on our Galapagos cruise boat *The Legend*, we were of course, the blue-footed boobies. The twice-daily excursions to different islands were truly magical. Our local naturalist, Jose, led us on hikes, taught us about native flora and fauna, trained us on bird calls, and kept us laughing with his corny jokes.

It was *The Land Before Time* come to life. Christianne Bharath sank her toes into a red sand beach, Brooke Apperson scrambled across black lava fields with marine iguanas, and Katy Patrick tiptoed around Giant Galapagos Tortoises. Jack Lema paddled after petite penguins, Whitney Beer-Kerr played with sea lion pups, and Lisa Robbins swam with serene sea turtles. A Galapagos flycatcher found a nice perch on Devon Van Demark's head, Alexis Bahl discovered a new love for photographing cacti, and Melissa Edwards made friends with one seriously cranky cormorant. Alaina O'Connell and her husband Bill were the

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New Courses for Global Challenges

One of the quintessential challenges of the 21st Century is to achieve an environmentally safe and socially just eco-space in a world with increasing population pressures. We feel that there is an urgent need for a holistic, interdisciplinary educational approach that integrates human society in an effort to stabilize and enhance earth systems functioning. To that end, we are working with a wide array of faculty to develop new courses designed to help find solutions to the challenges our planet faces. Below is a list of some of these courses:

- Agroecology
- Managing Responsible Organizations for the Ecosystem
- Spatial Statistics
- Science Communication and Policy Engagement
- International Water: Issues and Policies
- Community Development and Sustainability in developing countries
- Environmental Ethics
- Nature Conservation and Sustainability in Cuba
- Practical Engineering Approaches to Climate Adaptation



Environmental News:

By Susan Mackenzie, Alumna

The new World Atlas of Desertification, published in June 2018, reveals that over 75% of the Earth's land area is already degraded, and predicts that this level could rise to over 90% by 2050. Meanwhile, global crop yields could fall by around 10% by 2050 as a result of both land degradation and climate change, with Africa and Asia being the most affected. Tibor Navracscics, Commissioner for Education, Culture, Youth and Sport, responsible for the Joint Research Centre, said, "Over the past twenty years, since the publication of the last edition of the World Atlas of Desertification, pressures on land and soil have increased dramatically. To preserve our planet for future generations, we urgently need to change the way we treat these precious resources. This new and much more advanced edition of the Atlas gives policy makers worldwide comprehensive and easily accessible insights into land degradation, its causes and potential remedies to tackle desertification and restoring degraded land."

The Atlas is an evidence-based assessment of land degradation at a global level, offering examples of how human activity drives species to extinction, threatens food security and intensifies climate change. Importantly, the Atlas recognizes that land degradation happens at a local level and aims to be a tool for local decision-makers to effectively address soil loss and other land degradation. For example, the Atlas says that one of the main drivers of land degradation, agricultural expansion, could be mitigated by increasing yields on existing farmland, shifting to plant-based diets, and reducing food waste.

The Atlas is accompanied by a [web-based platform](#) of global data sets and analytical tools that aims to foster broader collaboration and analysis of global land degradation. The Atlas was published on June 21, 2018 by the European Commission Joint Research Centre. The first two editions were published in 1992 and 1998.

Alumni & Current Student Conference

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on April 21, Earth Day weekend, and focused on cracking into energy and environmental careers. The conference, which took place at the JHU Washington DC Center, was attended by 93 alumni and current students from the Environmental Sciences and Policy (ESP) and Energy Policy and Climate (EPC) programs. The opening keynote, *Navigating Your Career in Energy & Environment: What to Pack for Your Journey*, by The Aspen Institute's Greg Gershuny provided a candid and motivating look at the career field today. Morning panelists, Doria Gordon (Environmental Defense Fund), Thomas Jenkins (former National Renewable Energy Lab), Al Manville (retired U.S. Fish and Wildlife Service), Michael Shelby (EPA), and Tom Peterson (The Center for Climate Strategies), dug deeper into the topic of energy and environmental careers by sharing their own experiences and insights. One participant remarked that "hearing from the folks who have had long, successful careers and learning about their trials and tribulations was extremely helpful to me. It was very encouraging to hear how difficulties were handled and worked through, and that those stumbling blocks didn't stop them."

One of the highlights of the conference was the optional career advising that took place at lunchtime. This was a one-on-one career advising session in which ESP and EPC alumni offered career and resume advice to other alumni and current students in each program. Continuing with this theme of alumni experiential knowledge, afternoon panelists, Jeremy Bedine (GridLion), Kenley Farmer (Department of Energy and Environment), Patricia Keane (American Public Power Association), Maria Laverdiere (Sustainable Energy and Environment Coalition), and Paul Ryberg (World Resources Institute), all alumni of the ESP and EPC programs, spoke to how they leveraged their JHU degree in their current career. One conference participant reflected, "I loved getting first-hand perspectives from recent and not-so-recent alumni, it was a good mix." The day concluded with an inspirational closing keynote by the World Wildlife Fund's Jay Sherman who reflected on his career of conservation advocacy and highlighted his valuable lessons learned for event participants. Given the success and popularity of this event, the ESP and EPC programs plan to offer additional alumni-focused conferences and offsite meetings in the years to come.



Auditing Courses

In addition to organizing alumni events, the Energy and Environmental Programs at JHU are pleased to announce a new pilot program for alumni interested in auditing courses. Starting in the summer of 2018, all ESP, EPC, and GIS alumni can audit any program course for a discounted rate of \$500. Prior to this initiative, alumni had to pay 50% of tuition in order to audit a course. This new program recognizes that, given the dynamic nature of energy and environmental disciplines, alumni need to remain lifelong learners in order to stay current in their fields. Importantly, alumni bring rich applied knowledge to the ESP, EPC, and GIS learning community and having their voice and experience in JHU classrooms is beneficial to current students and faculty. If you are considering auditing a ESP, EPC, or GIS course in the coming year, please check out the Multi-Year Schedule of each program for an up-to-date course listing ([ESP Multi-Year Schedule](#), [EPC Multi-Year Schedule](#), [GIS Multi-Year Schedule](#)).

Buoyed by our initial successes engaging alumni, the Energy and Environmental Programs will continue to provide ways for alumni to stay involved and active in their programs. If you would like to stay current on all future alumni events and activities whether they are conferences, program seminars, or informal get togethers like happy hours and field trips, please join the [ESP Alumni LinkedIn Group](#) or the [EPC Alumni LinkedIn Group](#).

Editorial: Tipping Point for the U.S. Nuclear Industry

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modular reactors and other innovations that will make the future of nuclear energy “walk away” safe. The designs of these new reactors require no operator actions—no human intervention—to safely shut down the power plant. They will also be smaller in size, scope and cost, which makes siting, investment and construction much more likely than that of a traditional reactor.

Part of my position as a nuclear communicator is to educate the public on nuclear power—to fight misperceptions and quell unfounded fears about this complex technology. I’m hopeful that during my lifetime, I’ll see a small modular reactor built and nuclear communications will be less about quelling fears and more about showcasing a brighter, cleaner and more sustainable future.

Although I serve as a spokesperson for a nuclear operator, all thoughts expressed in this piece are my own.



Ecuador and the Galapagos

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champions of cold water snorkeling, Isabel Mendoza floated over sleeping reef sharks, and Dr. Burgess found his new favorite fish, which was soon displaced by a new favorite fish, and so on. Charles Darwin may be the grandfather of evolution, but Jerry Burgess is the king in our book. His enthusiasm was contagious, both in the field and in his strategically crafted lectures. He planted seeds of knowledge for us all along the way, encouraged us to think outside the box, and then stood back as the light bulbs went on and we connected the dots he had drawn for us.

For Jimmy Meadowcroft, Susan Mackenzie, and others, the trip was an epic final chapter to their academic experience at JHU. For others, like Scott Atkinson, it was just the beginning, but for everyone it was a once-in-a-lifetime trip, filled with unbelievable wildlife interactions, thought-provoking debates, and friendships that will last a lifetime. Whether we study online or in person as JHU AAP students, field courses like this one bring us together like nothing else can. It was a shame it had to end, but we each went our separate ways grateful for the experience, humbled by the magnificence of our natural world, and optimistic for the future knowing that this group of bright and passionate environmentalists is out there, somewhere, making a difference.

Yours truly,

The Ecology & Evolution of the Galapagos Class of 2018

(aka: The Boobies)

FACULTY SPOTLIGHT

Christiane Runyan

Ever since I was a young child, I have been fascinated by nature and interested in understanding how the natural world functions, develops, and changes. This, combined with a love of travel, led to my interest in global deforestation. After graduating from undergrad at the University of Wyoming, I lived in the Dallas area and enrolled in the ESP program at JHU. The coursework at JHU helped me to hone in on my interests in addition to facilitating my understanding of the connection between different disciplines within the environmental sciences. At that time, I also worked in a range of different areas from studying urban hydrology issues to working at a sustainable consulting firm (which I am still involved with). Collectively these experiences led me to pursue a PhD at the University of Virginia (UVa), in their Environmental Science department. At UVa, I studied how deforestation affects the dynamics of hydrological and biogeochemical processes using both models and field-based methods. Following the completion of my PhD, I developed a broader interest in deforestation and wrote my book, *Global Deforestation*, which was recently published by Cambridge University Press. Recently I authored a journal article with a former student, Jeff Stehm on the effects of competition for land due to food production on deforestation. Currently, I am co-editing a book related to Dryland Ecohydrology that will be published by Springer early next year. Ultimately, I hope that my work and courses that I teach inspire those (as well as my children) to love learning and leave the Earth in a better shape than we inherited it.



Chrissy was awarded Outstanding Faculty Member for 2018



Congratulations to Outstanding ESP Graduate
Whitney Beer-Kerr



Environmental Sciences and Policy
MASTER OF SCIENCE

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