



2019 SEEDS Leadership Meeting
Virginia Coastal Reserve LTER – Cape Charles, VA
*Islands at Risk: Chesapeake Barrier Islands Ecology
and Community Outreach.*

Introduction:

From September 25-29, 2019 the Strategies for Ecology, Education, Diversity and Sustainability (SEEDS) Program of the Ecological Society of America (ESA) hosted the 2019 SEEDS Leadership Meeting at the Virginia Coastal Reserve Long Term Ecological Research site in Cape Charles, Virginia. The SEEDS program sponsored 20 undergraduate students from all over the US to learn about the amazing science of the eastern shore of the Chesapeake Bay. The meeting themed, *Islands at Risk: Chesapeake Barrier Island Ecology and Community Outreach*, focused on coastal restoration and conservation projects and the important role that our science plays in these critical coastal systems. Students had the opportunity to explore these delicate ecosystems and participate in a community outreach activity as well as conduct small research projects while at the station. At this event they learned firsthand from amazing scientists and professionals about barrier islands, climate change, outreach, policy, science communication, and ecology.



Wednesday, September 25th

Group 1: Jane Pettit, Shalom, Andrés Perez, Jeremy Collins, and Maria Stahl

Day zero of the 2019 SEEDS Leadership Meeting. We all embarked on our journeys via planes, trains, and automobiles and converged upon the rental car facility at BWI Airport. We were all tired and travel-weary and were not sure exactly who we were looking for or what to expect. Slowly, the group of us in the rental car facility started to amass, with people trickling in and timidly asking “are you guys with SEEDS?” We tried to find each other by looking at their clothes and belongings. Chances are, if there was a 20-something wearing field clothes and carrying a reusable water bottle they were looking for us. As we waited for everyone to arrive, we enjoyed lots of much-needed snacks and chatted amongst ourselves to try to get to know one another.

Eventually we piled into the vans and embarked on the Great Mid-Atlantic Road Trip of 2019 down the Delmarva Peninsula. We were all quiet on the ride, mostly because we were exhausted from traveling but also in part because we still didn’t know each other very well. An hour or so into the drive we made a stop at Chipotle for dinner, and this was a great opportunity for us to get more comfortable with one another. Nothing brings people together more than aggressively spicy burrito bowls after a couple hours on the road.

The last leg of our journey was mostly uneventful, with most people taking the chance to sleep. We arrived at the Anheuser-Busch Research Center in Oyster, Virginia at about 11:30 and quickly got settled in our rooms and passed out almost immediately, trying to get as much sleep as possible before our early morning the next day.

Thursday, September 26th

Group 2: Elijah Catalan, Jenna Rosales, Sarah Leon, Catherine Staley, Nadia Bowles

Thursday of the SEEDS Leadership Meeting was a day full of field activities. We began with introductions from Fred and Jessica along with Dr. Osvaldo Sala. We all introduced ourselves and learned a lot more about our peers’ motivations and interests in life. Fred discussed the expectations and goals for the week and explained the SEEDS program in more detail. Jessica discussed her role in our program by explaining ESA and NPS Future Parks Leaders program where she is the education program coordinator while completing a master’s in Insect Ecology.

After this, we met the Virginia Coastal Reserve-Long Term Ecological Research director, Cora Johnston. She familiarized us with the LTER-site giving some history and information of on-going research. She talked about the importance of the Virginia and having the largest estuary which is the Chesapeake Bay and its ability to impact up to ten states. The emphasis of what Anheuser Busch Research Facility does and its incorporation in Virginia Coastal Research was the main component of her introduction. Cora



also discussed the major impacts that this area is currently facing such as it being three times the global sea rise level and storm surges are reaching up to 3-8 ft. We then took a trip to the Nature Conservancy site where we learned that the Virginia Coast Reserve is one of the Virginia's Last Great Places protected by the Nature Conservancy. There is a diversity of wildlife in the Nature Conservancy which provide tourists with the ability to go birding. There is 1,000 acres of land in the nature conservancy for wildlife and long-term ecological research. We did a short hike through TNC's protected salt marsh and forest area. We saw various wildlife such as fiddler crabs, egrets, and orb weaver spiders. We saw "ghost forests", protected marshes, and learned about how forests on the eastern shore transition to salt marshes over time. You can see an obvious difference when walking along the trail between the vegetation in the ghost forest and the other side of the path.

After this trip, we spoke to ESA President Dr. Osvaldo Sala. We were able to ask him how to excel in a graduate application. There were multiple questions from the group about the graduate program and what it entails. For example, we discussed that a connection with your advisor is very important to maintain or have because of the close communication and connection for the whole duration of your graduate program. We also discussed the process of how you reach your career goal and that it may not always be straightforward but may be an interaction with various positions before attaining your career.

The best part of the day was the boat trip to Cobb Island. It is uninhabited barrier island on the eastern shore of Virginia. It is a great example of how islands move by "rolling over" from sand washing over marshland. We passed a few local aquaculture facilities along the way to the island which raise oysters. When we reached Cobb Island, we walked around from the bay side of Cobb Island and then to the seaside to see the difference in the ocean waves. The waves on the seaside are much stronger than the bay side because there are barriers on the bay side which mitigate wave energy.



To end the night, we met with the Executive Director of ESA, Catherine O'Riordan. This was the first time the executive director of the ESA has been to an ESA SEEDS conference. We talked about how she was not an ecology major in her undergraduate or graduate studies but appreciates interdisciplinary research. She left us with 7 tips for success. These tips were to be persistent, be nice, be curious, don't chew gum while talking, take risks, remain educated, and develop soft skills. Overall, this was a great day and we gained a great amount of knowledge on the Virginia coast and professional development. We also thoroughly enjoyed the food prepared by chef Nick.

Friday, September 27th

Group 3: Elizabeth Liu, Sabrina Denton, Aalim Ackey, Karina Cortijo-Robles, Sherliemarie Nieves

We started our day with a very nice and filling potato sausage scramble with some soft-boiled eggs. After breakfast we got the chance to sit down and speak/listen to a few successful people that had some sort of expertise in the ecology or the science field of their choice in general. Kayla Martinez who is a VIMS Graduate Student, Bo Lusk who is a The Nature Conservancy Biologist, Malina Loeher who is a SEEDS Alumni and a current Graduate Student at VIMS, Jeremy Tarwater, a former Park Ranger who now works with Virginia State Game and Fish, Shannon Alexander, who is a coastal resources program manager, as well as a member of the planning district commission, and last but certainly not least, Ashley Montgomery- a resilience architecture student. Listening to them speak about how they naturally found their way into the field of their dreams or at least a field that they're passionate about was really inspiring to hear. coming to an understanding that things will happen in life but as long as you stay true to your passion and still continue in the field of your choice regardless of whether you go to graduate school or not made it all the more satisfying to hear.

After the career panel, we traveled to the Barrier Islands Center, a cultural museum of Virginia's eastern shore and barrier islands. It was a very cute, picturesque white building in the middle of a field. Most of us did not come from the eastern part of the US, so it was interesting for us to see the different kinds of buildings in this different region of the country, even as we passed through neighborhoods to get to the museum. When we got to the museum, the director met us and gave us a very brief history of the barrier islands and the people that used to live there.



One thing that really stood out to us was how the people of Hog Island, who moved to the eastern shore to escape the big hurricane of 1933, faced so much judgement and discrimination when they arrived to the mainland solely because their way of life was different than others'. It was fascinating to hear about how they lived based on the tides and how they grew or hunted everything they ate, and sad to think that the mainland people couldn't appreciate or respect this connection with nature. We then had the chance to explore the museum's exhibits.

There were lots of artifacts that were recovered from the barrier islands after they became uninhabitable, anything ranging from clothes to decoys used for hunting. It was very cool reading about and piecing together the culture and daily life of everyone from the barrier islands and eastern shore currently. On the second floor, there was a special exhibit put on by the museum, the ABCRC-LTER, and other scientists from across the country that combined sound and science. It took scientific data and turned them into sounds and music. For example, one turned data about patterns of low and high tides into music with low- and high-pitched notes. This unique combination was amazing to experience. At the end, there was a sandbox outside the museum with shark teeth, and we could sift through and



search for them. As a group of scientists, we all got super excited about this and spent way too much time looking for shark teeth. We found some really cool ones, and it made us feel like kids again!

After the museum we had a large lunch of pesto pasta and resisted the urge to nap. After lunch, we had the assistant director of Virginia Coastal Policy Center Law School, Angela M. King, the conversation dynamic was very casual, she explained the work that her and the group has done with the community. Informing them on the decisions that are being made concerning them and their communities. They work on teaching the three p's of resilience: plan, partnership, and pay for it. Their goal is to help work on the relationships between science and decision making. How they work on this is by first getting to know and participate in the community meetings and then they try to coordinate workshops with the community according to their needs. When trying to form relationships between scientists and decision making, you must be aware that you are talking to

people that are in positions that have the power to make powerful decisions. In that conversation you also must be able to communicate with all the research and solutions, that is the importance of the problem we are working with. It's also important to be able to correlate that environmental issue that we want to address with human experiences to be able to come up with solutions.

We took a brief break and then convened for a scientific communication workshop led by Fred, because as you may know, scientists are not always fantastic at explaining concepts concisely, I am sure most of us have bored a few family members with ideas we've been very passionate about and talked way too long about. We talked about the importance of being able to communicate our research effectively, both for gathering funding and because research is a lot more effective when it can be applied, not just stuck in the scientific community. To practice this, we all took a scientific paper we were very familiar or passionate about and tried to summarize it without scientific terms and within 30 seconds, as a so called "elevator pitch". It sounded simple enough but after paring and paring we split into partner groups and found that 30 seconds is a lot less time than any of us had thought... Eventually we practiced presenting in front of the group, pretending to be on broadcast television, which required our names and sort of dream job title. Our first broadcaster got to the podium and said "Hello, I'm Jane, and I'm a farmer" which lost a few seconds of the thirty as everyone laughed. Some people talked about things related to their research over the summer, others just subjects they were passionate about. But after a few more funny titles and presentations we all learned the elevator pitch, and avoiding scientific terms, was a lot harder than we expected, but something we could all do by the end. It just took some workshopping.

Later, we also discussed the variety of opportunities to learn about ecology or do research that the ESA SEEDS program offers. Six of the students present in this meeting were SPUR fellows. This fellowship allows undergraduate students to conduct their own research in different places across the US. One of the students, whose name is Tanya, did her research in Junction, Texas about invasive species. Shawna did her research in Harvard Forest about making a tree to use twitter! Yeah, I know that sounds weird,

but through technology and data analysis, the tree can write about how he is feeling or if it was a rainy day and put it on twitter. It was a great experience to get to hear about all this research and how this opportunity helps every one of the students to be better scientists.

After the presentation, we had a delicious dinner cooked by the awesome chef Nick. The menu was pork, rice, veggies, sushi and some other good options for vegetarians and vegans. For dessert, we had delicious chocolate chip cookies and brownies.

Saturday, September 28th

Group 4: Orlando Rios, Tanya Jagdish, Daphney Bonner, Shawna Greyeyes, Gabriela Marquez

On a VERY early Saturday morning (VERY early), we dragged ourselves out of bed to start our day with the most important meal of the day. As we talked and ate, the thing on everyone's mind was if our experiments would go the way that we had planned. A bit of uncertainty swirled around as we struggled with refining our ideas, but as the scientists we all are, we loaded up the vans and went for it anyway.



After a short ride down the peninsula, we arrived at Kiptopeke State Park. Some of our uncertainty still swirled, but we set off down the beach to begin collecting our data. As we were walking, a guy in a pickup truck asked us if we wanted a ride because he was going down himself and so like the lazy college students we are at heart, we hitch a ride onto the back of his truck and rode VIP style down to the beach. Once we arrived at the beach, we realized that we hadn't exactly refined how we were going to collect our data for the day, so we filled up a parking

spot and sat down to chat about what we were going to do. We decided to focus on the difference in DBH of in-land and shoreline trees. Furthermore, we decided to relate it to tree canopy coverage as increased coverage allows for more pollutants to be filtered out the air, potentially increasing health along the coast. We selected four quadrants, two on the shore and two in-land to collect DBH measurements of trees and set off yet again to begin data collection. But we soon realized that in order to get to the trees, we had to get through A LOT of tall grass, bugs, and spider webs. Yet, we trekked through this newly discovered land and collected our data (but not without many thorn scratches and pricks, itchy bites, and a mild panic because of deer ticks).

After we collected our data, we had a chance to enjoy the beach, so we changed and hopped in. The beautiful sand and clear water made all the THOUSANDS of mosquito bites worth it as we got to have a mini vacation while still working and learning new hard and soft scientific skills. We also got to shoot archery, hold butterflies, hold snakes, and enjoy the amazing weather!



1:30 pm rolled around and we now had to head back up to the picnic area to help Cora with the UVA ABCRC LTER table. At this table, we wore nametags and participated in an “Ask me anything” table where we got to interact with the community and talk about the things we love to do! It was so rewarding to see the kids’ faces light up once you talked about what you do and to know that we could communicate our hard science to others who have no science background! After the event was over, we packed things up and headed off to have the most AMAZING ice cream ever thanks to Fred (Shout out to Fred and Jessica for being such fun, laid back, down to earth, amazing people)! We then headed back to the site for some much-needed rest before we had an AMAZING dinner (Shout out to Nick our chef for making us some amazing dishes and for being so flexible for those of us with restrictions and allergies)!

After dinner, we headed in (away from the mosquitos!) to crunch our data and to get our presentations ready for the next day. During this process, we ran into a few hiccups and realized that there were so many things we forgot to consider! Yet, we worked together to analyze our data and improve our statistical skills as well as our communication skills, all which will help us in the future to becoming thorough, challenging scientist.

Once we completed our analysis, we went outside around the fire to enjoy each other and one of our last times all together. Our mini celebration allowed us to relax and enjoy each other’s company after a VERY long day. After hours of dancing, talking, and even sharing each other’s culture and learning new things from around the world, we crawled into our beds for some much-needed rest before our presentations, wrap ups, and a LONG travel day tomorrow.

Sunday, September 29th

Group 1: Jane Pettit, Shalom, Andrés Perez, Jeremy Collins, and Maria Stahl



There are mixed feelings about this being our last day together. On one hand, we’re all sad to be leaving this beautiful place and saying goodbye to each other (and three delicious meals a day!). But at the same time, we are looking forward to being back in our own beds tonight and to bring what we learned at this conference back to our respective colleges. Though we are all sleepy this morning, we’re excited to present our mini research projects from yesterday and see what everyone else has prepared. We’ll have to move with casual efficiency this morning so we’re able to get on the road on

time, so people get to the airport in time for their flights this evening.

It has been a whirlwind of a weekend and we’re all feeling pretty wiped out. We expect that the ride back to Baltimore will be a mix of people sleeping, chatting, and anxiously checking all the emails we’ve been neglecting over the last four days. *Overall, this has been an enlightening experience, galvanizing us for our future careers as ecologists.*