

Water Center Internship Reflection  
By Lillian Michaud

As a Water: Resources, Policy and Management major, I believe water is the significant nexus to our survival; water is the foundation for all other societal sectors, like agriculture, industry and production, recreation, water treatment systems, scientific research and discovery, etc. What fascinates me the most about water resources is the idea that, like people, water tells a story. A river will show the scars of past eutrophic episodes, an eroded stream channel will recount years of wear and tear from high flow, and places like the Colorado River levels relay the amount of snowpack received that year. In addition to paying attention to the stories of natural systems, my interviews with the faculty at the Virginia Water Resources Center taught me that it's important to ask questions not only in the context of research, but also to mentors and professionals in your field. My semester at the Virginia Water Resources Research Center gave me the opportunity to explore my curiosity of "why" and "how" by conducting interviews, assisting a graduate student in her field research, attending congressional meetings in Washington D.C., working on a Virginia Water Radio episode, and conducting my own research about the history of Texas water policy. This internship was a whirlwind of fun, so in honor of sticking to a water theme and the idea of a water telling a story, I am going to take you on a 'whitewater rafting trip' with a few special stops in Southwest Virginia and Washington D.C.

The first stop on the trip is home base, or the Virginia Water Resources Research Center in Blacksburg, Virginia. The Water Center is composed of eight faculty members who deal with different realms in the world of water resources. I interviewed all eight and discussed their career challenges, rewards, and how they got to where they are. It became apparent that just as they all have different expertise in the field of water resources, they have unique backgrounds and took a diverse range of pathways to get to where they are today. One professor found his niche in water resources after doing a masters in India and witnessing the aftermaths of a disaster. One professor traversed all over the country because he knew where he wanted to end up, and one professor traversed all over the country because he didn't know where he wanted to end up. After hearing many career choices and decisions, I realized that life is unpredictable, and



like a river, there are many ebbs and flows, twists and turns. These ebbs and flows may slow down the travel time and make the path less linear, but in the end the flow will adapt and evolve and you'll end up where you need to be.

The next stop on our journey is Dismal Creek in Bland County, Virginia. Here, we are joined by a graduate student named Gracie Erwin, who is conducting two research projects; one is studying the effects of prescribed forest burns on water quality and leaf litter and the other is assessing the accuracy of different PVC pipe designs with the sensitivity of detecting changes in the stream. This field work experience was filled with laughs, wise words, and exposure to many types of tools and mechanisms for obtaining stream data. When reflecting on my experience in the field, I concluded that conducting scientific research is essentially asking about the unique background of that environment and asking the “how” and “why” it is in its current state. Each stream has a story to tell and data monitoring tools are one way to deduce what that story is and what the applications of that story mean. Each monitoring/data collection device adds one more piece to the puzzle, that when put together, should paint the colorful history of the stream.

Our next destination is the tumultuous waters of Capitol Hill in Washington, D.C. On any given day, Capitol Hill is bustling with a wide spectrum of people with different initiatives and expertise. The congressional buildings are adorned with vibrant colors to represent each group and their cause. Here, people use their personal stories, experiences, and passions to try to effectuate change; they are trying to create a new story, one that will be widespread and influential.

During this visit, I was able to experience the interface between science and policy. Science is fact driven, while policy is people-driven; policy can be opinionated, political, and contentious. While the two seem fundamentally different, they are codependent. Scientific research has no tangible influence on societal behavior until it can pervade policy, and policy has little to no standing without facts and reason from data. For the Water Center, we were advocating on behalf of the National Institutes of Water Resources for a reauthorization bill that would increase funding for Water Centers all over the





country. Currently, there are 54 water centers located around the country and are housed at the land grant universities in each of the 50 states, including the District of Columbia, Virgin Islands, Puerto Rico, and Guam. [These institutes](#) serve as “a primary link between water experts in our Nation’s universities and those who manage and use water”. In one day, we arranged meetings with four congressional staffers, each ranging with a different level of knowledge about our program and questions about our cause. It was so cool to see two professors speak so passionately about water resources and how much they believe in the mission of the Water Center and in the success of the water degree program at Virginia Tech. Throughout this experience, I saw how science can enact policy, and further, how the story of policy is written.

After the rapidly paced waters of Washington D.C, we come full circle, ending back at the Virginia Water Resources Research Center in Blacksburg. Here, I was able to explore two topics that are particularly interesting to me. In the first week of my internship, I chose to research Texas water policy and management because I knew it would be vastly different from Virginia’s and I was curious to see how the different political atmosphere interacted with water policy. My research turned into “A Look at Water Management Policies in Texas” and took a life of its own. After delving into the history of Texas, I soon realized that you can’t separate current policies and current policy development from the engraved historical precedence. The rich history and cultural development in Texas largely shaped the current standing of their water management policies and how they approach solving issues. In order to solve water management issues, we cannot look at them in isolation; we must look at the story of how they got to their current state. The historical precedence and its development can shine a light on how to solve current issues in water resources. Policy encompasses the people and historical components of water management while science provides the exigence.

Another project I worked on throughout the semester was “[Adding a Splash to Stormwater Management](#)” in conjunction with Alan Raflo, the Virginia Water Radio producer. The topic of storm drain murals was dispersed around the office and we decided to write an episode about it. Our very first thought on the subject was that storm drain murals tell the story of storm water. Through research and an interview with Kafi Howard, the Blacksburg Town Engineer, we discovered the importance of raising awareness about the story of stormwater and how human activity can negatively impact it. The journey of storm water neither begins or ends with storm drains; stormwater begins



on any impervious surface picking up many things in its path and stormwater ends at the local waterbody in a watershed. Storm drain stencils and murals are more than just paintings on the sidewalk; they serve as a narrative to tell the story of stormwater.

This internship experience was so valuable because of the many different opportunities I was afforded throughout the semester. This internship allowed me to gain experience in networking skills, working on project deadlines, and careers in water resources. Further, with the help of the Water Center faculty, I was able to explore my own curiosities and interests within the framework of the internship. Among many other life lessons, I learned that stories are important in many different contexts. Stories are the important puzzle pieces in investigating changes in a stream, determining how life decisions were made, kickstarting the journey for policy, developing policy and management strategies, and serving as a tool to raise awareness about environmental issues. I am so thankful for the opportunity to have had a small role in the journey of the Water Center and furthering research in water resources.

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#### Water Center Faculty

Stephen Schoenholtz  
Kevin McGuire  
Elizabeth Sharp  
Daniel McLaughlin  
Jane Walker  
Luke Juran  
Alan Raflo  
Inga Solberg

#### Blacksburg Town Engineer

Kafi Howard