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Title

Sandy Knocked, We Answered: Understanding the Geography of Hurricane Storm Surge Across Disciplines and Generations

Abstract

"They just said, 'If you're near the coast, evacuate!', and I'm like, does that mean me? We had no idea! So when we opened the door in the morning the marsh was gone and the Sound was at our doorstep." The uncertainty, immediacy, and affect in those words still linger as I look back on the project that shaped me as a geographer: mapping the storm surge of Hurricane Sandy in coastal Connecticut. We combined methodologies and crossed disciplines; intertwined skill sets, talents, and generations - all for the common goal of understanding the world we live in.

Essay

It's 2012 and I'm walking down the hall when I overhear two faculty members talking: an oceanographer and a geographer. Sandy had just come through and it was the hot topic on campus. In response to uncertainty around the disaster, they're hovering over a laptop, preparing to conduct a site visit on the Connecticut shoreline in hopes of making the most accurate floodplain map of Sandy. Since her peak storm surge occurred at night, nobody understood exactly where and how she overtook the local landscapes. It was a puzzle that held both research potential and a promise to help community residents and planners.

By now, they're aware of me sitting nearby, clearly loitering on their conversation. As they start packing up their things, a tangible excitement in the air, I take a shot in the dark.

"That sounds really interesting. Mind if I tag along?"

To my surprise, they welcome me with open arms and we head for the shoreline.

When we arrive, the excitement turns to silence as we survey the damage: downed signs and guard rails, sand strewn across roadways, tousled marshlands, misplaced siding. A few people are out trying to straighten up the mess around their homes. When they see us taking photos of the debris lines they feel compelled to share their experiences and give the innocuous piles of leaf matter a life that nobody else was able to see or speak for.

Clearly not abandoning the project after our first foray on the coast, the professors support me in taking the lead on this portion of what quickly becomes a more comprehensive and interdisciplinary project. A few days after our initial visit we head back to the spots where we had photographed debris lines to take GPS measurements. We mark the spots with spray paint,

pretending we have the authority to mark up public spaces with our little blue dots, and then feel foolish seeing it in comparison with the marks of Sandy herself.

A few weeks later, I transition from volunteer to research assistant and head back to the coast with a friend I've recruited to take elevation information for all the coastal-most roads in town. Having just taken a hands-on course in oceanography and coastal processes I am able to apply my newly acquired skills to the project. Our bright orange equipment causes us to stand out in the landscape.

"Alright, I give up. What the heck are you doing?"

Residents approach my friend and I as we survey with a total station. Some giggle as we dodge cars while surveying outside of a local restaurant, some thank us as they pass by walking their dogs, and a friendly neighborhood cat even follows us around for a day. It's more than enough to keep us going in the beautiful but scorching summer sun.

When we're finally able to input the information into a GIS we see spot elevations of debris lines are a near perfect match with the local storm gauge. We construct a floodplain map based on these data, and finally, Sandy speaks. We see how a small sea wall saves an apartment complex abuting Long Island Sound, and how they only narrowly escaped by the increased wind speeds that brought her to the shore before high tide. We see how she tumbled around a raised softball field, instead invading marshlands and streams serving like gloves for her fingers to slip into and bleed out from. We watch for sale signs pop up, we watch residents work together to clear garbage from the marshes edge, and we watch piling get constructed down into bedrock to support raised homes like stilts on the water.

Once this portion of the project is complete, we meet with the town engineers and share our maps of Sandy's story, including a chilling depiction of what would have happened if Sandy arrived at high tide rather than low tide or if the average sea level were to rise. From here, the project only grows.

Now, the group is measuring beach profiles as part of a longitudinal study. They're showing how current beach nourishment projects aren't economically or environmentally sustainable and are posing new solutions. They're showing how coastal processes like wave asymmetry and erosion patterns strengthen coastal resiliency or contribute to its vulnerability based on geography. They're taking sediment cores to look at how the frequency of storms has changed over time. They're working with town engineers, the Army Corps, and perhaps most importantly, each other. The youngest woman on the project is a freshman, yet she has responsibility for a significant part of the project. I hear myself in her story and I wonder if it will have as much of an impact on her as it did on me.

In the midst of my reflection, I call my former research advisor and professor. He answers, as he always does, and we get to reminiscing about the trajectory I'm on and how the arrow points

back to this project. He's as supportive as ever and while we're talking, something he says stays with me:

> "I had a recent conversation about luck and what it is, and its things appearing as opportunities from unexpected angles. But, it's also people being able to reach out and grab those unexpected opportunities without understanding where its coming from and where its going. Sometimes opportunities that come out of the blue are the most important" (Phone conversation with Dr. James Tait, March 28, 2018).

I find his definition of luck is spot on, and my thoughts continually gravitate back to these defining moments that we often don't plan for, but rather, grab out of the blue. The best part? Aside from him, we're all women working on this collective project: all with different backgrounds and interests and departments, all from different generations, all working together to create positive impacts on the Connecticut shoreline. Sandy may have come knocking on doors under the cover of night, but we see her now, we hear her now - and we're answering.