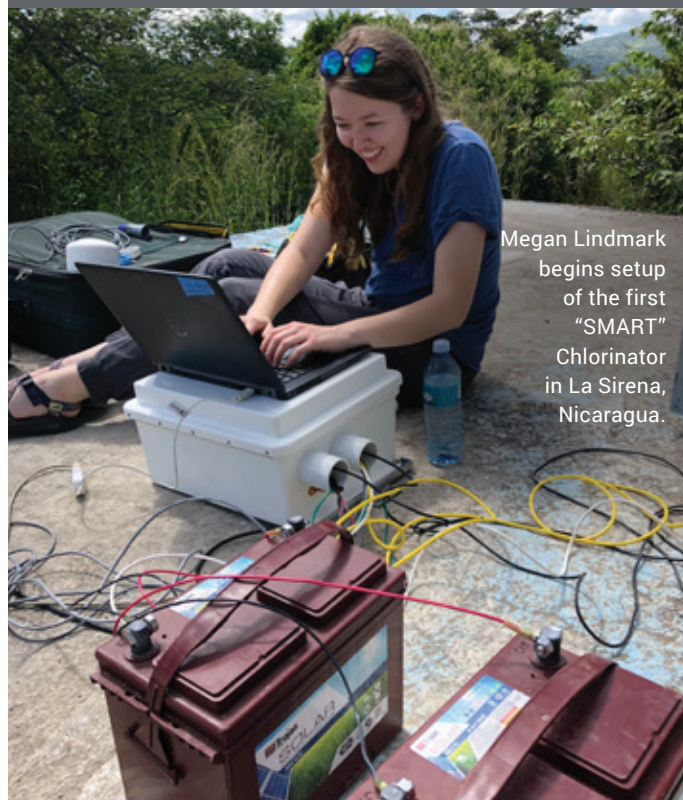


Gregory Ewing, PhD student in Civil and Environmental Engineering

Many times, making a choice requires distributing benefits and harms unevenly. If an algorithm assists in decision-making, how can it account for what people deem good and bad, ethical, and just? This is a question **Gregory Ewing** considers in the context of decision support, novel technologies, and our water environment. Ewing has developed an online voting platform to collect people's preferences on outcomes to ethical dilemmas. He calls his platform the Water Ethics Web Engine (WE2, for short.) Using WE2, he collects data to build decision models using machine learning techniques. In a recent study, Ewing found that user-driven decision models can capture "group wisdom" on outcomes related to flooding. These findings may one day help make real-time decisionmaking more representative to communities and their concepts of right and wrong.



Megan Lindmark begins setup of the first "SMART" Chlorinator in La Sirena, Nicaragua.

Megan Lindmark, PhD student in Civil and Environmental Engineering

Access to safe drinking water continues to be a challenge for billions of people worldwide. Hundreds of rural communities across Nicaragua and Honduras use one drinking water treatment solution: an in-line chlorinator, installed in a partnership with nonprofit EOS International, one of **Megan Lindmark's** projects. These relatively simple devices are constructed out of PVC and use the chlorine tablets used in swimming pools to disinfect community-wide drinking water sources. Her research seeks to outfit these chlorinator systems—in partnership with EOS International and local communities—with water quality sensors and cellular modems powered by solar panels to collect and transmit water quality data in real time. The crux of this research is translating this real-time data into useful, actionable alerts for technicians, indicating system failure or insufficient chlorine levels. This can allow technicians to act more efficiently, like an ambulance, visiting systems when they need assistance and water quality help, rather than simply in a cyclical fashion. She hopes that these smart chlorinators can help elevate community water safety even further and help provide more consistent, safer drinking water across Central America.