



Project Title: “Water” You Drinking? Be a Hydro Hero!

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Our team, The Hydro Heroes, are concerned about the environmental impact, including the energy involved in production and recycling, associated with the use of disposable plastic water bottles. To target this issue, we completed a two-phase project. During phase one we encouraged our school community and the greater Lexington community to regularly use reusable water bottles rather than disposable plastic ones. As part of our initiative, we partnered with the Love Bottle Company and sold reusable water bottles, with 100% of the nearly \$1000 they raised directly benefiting victims of this fall’s hurricanes. Additionally, we spread the word about our initiative through social media and presenting our project at Julius Marks Elementary School’s Science Night.

During phase two our team decided to expand our mission by also encouraging people to be more concerned about and invested in the water that is used to fill their reusable water bottles- in other words, their local water supply. We accomplished this by sharing their message at the FCPS District Science Fair and Dixie Science Night, organizing a clean-up of a stream in our community, and sharing our message with legislators at our State Capitol.

Phase One

Our mission during the first phase of our project, which took place during the fall of 2017, was to encourage those in our community to switch from plastic disposable water bottles to reusable water bottles, thereby saving water and energy. We fulfilled our mission by selling reusable glass bottles, collecting pledges, and presenting to students and parents in our community about our mission. By selling the 48 reusable glass bottles that the Love Bottle Company generously donated, we were able to raise nearly \$1,000, which we then gave to victims of Hurricanes Harvey and Irma. In the first phase we chose to focus on “the outside” of the water bottle- how the resources that are used to manufacture non-reusable (plastic) ones are depleting our limited supply of water and oil, how energy is wasted during the production and recycling processes, and how the improper disposal of the bottles leads to excessive landfill waste. During the second phase of our project we chose to focus on “the inside” of the bottle- where our water comes from and how to keep it uncontaminated.



Our Enhanced Mission

During the second phase of our project, which took place from December-March, 2018, our team has decided to continue our original mission by encouraging people to either recycle disposable plastic water bottles, or eliminate their use altogether. After recently speaking to parents at Julius Marks and Dixie Elementary Schools and conducting a digital poll on our Instagram page, our team discovered that many parents purchase disposable plastic water bottles because the water they contain isn't "contaminated" like tap water. Parents do not want to use their tap water because of this perceived issue. Some freshwater resources are clean, but others have been polluted. This is why we need to ensure that we keep our local water sources clean, so that people can fill their reusable bottles from faucets or refrigerators without having to worry about the cleanliness of their water. Many people in our community neglect their local freshwater resources, and that inspired us to educate them about why we should keep them clean, and why we should be using them to fill reusable water bottles.



“Water” We Drinking?

One-sixth of Kentucky’s population, or 733,333 people, get their water from the Kentucky River. If we are not aware of what we are putting into our local water sources, our fresh water will become polluted. In many American cities, like Lexington, KY, we are fortunate enough to have clean water sources. But in other locations, such as Martin County in Eastern Kentucky, residents are not as lucky. According to the Lexington Herald Leader, the people of Martin County “never know what they will get when they turn on their faucets.” In September 2016, officials cancelled school due to contaminated water.

What is causing this? Leaky pipes, and paint that was dumped into a local stream. Sometimes the water comes out chunky and yellow, while other times it is clear and clean. The unreliability of their water supply forces citizens to have disposable water on hand at all times, just to ensure that what they are drinking is safe. Thus, during the second phase of our project the Hydro Heroes have expanded our mission to educate others about how take care of our local water sources, to ensure that the water we all use to fill our reusable bottles is reliable and safe.



Cheves, J. “You Can’t Drink This Crap.’ County’s Water Can Be Gray, Brown or Yellow - If There Is Any. Kentucky, Lexington Herald Leader.
www.kentucky.com/news/politics-government/article106649457.html.

What Did We Do?

In order to take action and fulfill our mission, we decided to assign responsibilities to each member of our team. Luke and Karsten designed our powerpoint presentation and edited our promotional video. Riley researched the cleanliness of local water in Kentucky and communicated with the Love Bottle Company and a water conservation program called Change the Course. Lola and Hannah organized needed supplies and presented at all of our events. Ally created posters and organized digital polls, and Jackson made the informational brochure. As a team, we tagged water bottles for the District Science Fair, hung posters, and organized a stream clean-up. We also gave a presentation at our school's "ATP Parent Night" and sent a letter to multiple state legislators about our mission. In that letter we proposed the idea of establishing a bottle deposit program that could potentially reduce improper disposal of plastic water bottles.



Dixie Elementary Science Night

Several of our team members presented at Dixie Elementary School's Science Night and spoke to parents and students about the excessive amounts of water, oil, and energy used to produce a plastic water bottle. We created a model so the over 300 students and parents who attended the event could visualize exactly how much oil and water is needed to manufacture one plastic bottle (filling a water bottle 25% of the way full with colored water to represent the amount of oil used, and filling three additional bottles to represent the amount of water used). This model opened the students' and parents' eyes to how much oil and water are needed to create just one disposable plastic water bottle.



SCAPA and District Science Fairs

Our team received a donation of 85 reusable water bottles from the Kentucky American Water Company. We tagged the bottles with information about our mission and directions to nearby water fountains. We then distributed the bottles to the judges at our school's science fair and the Fayette County District Science Fair.

Additionally, we were given an opportunity to host an exhibit at the District Science Fair, which took place at a local high school. We shared our knowledge about water and energy conservation and distributed 300 brochures to many of the 1,000 students and parents who attended the event.



Stream Clean-up

On February 27, our team organized a clean-up of a local water source in our community, Wolf Run Creek, and invited students, staff members, parents, and community members to join us. Our team, along with 20 others, collected nine full bags of non-recyclable waste and nearly 23 pounds of recyclable cans and bottles from a half-mile stretch of the creek. By organizing this event, we encouraged others to avoid polluting our local water sources by allowing them to see first-hand where pollution that washes into our storm drains ends up. Our success from this trip will hopefully lead to similar events in the future, as our team would like to “adopt” this location by scheduling regular clean-ups and water quality monitoring. Doing this would lead to cleaner water sources and safer drinking water.



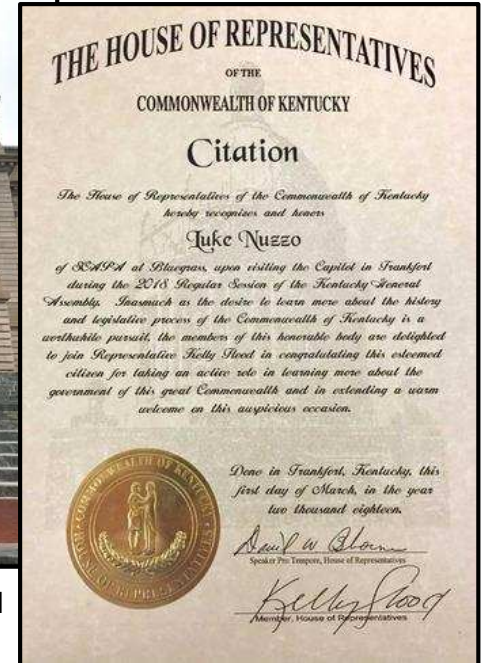
Campaigning at The Capitol

On March 1, our team took a trip to Kentucky's State Capitol in Frankfort and spoke our legislators about our interest in establishing a bottle deposit program in Kentucky. A program such as this would likely increase the amount of plastic water bottles recycled, thereby decreasing landfill waste and saving energy and resources that are involved when making new bottles. We composed a letter (see [Letter to Legislators](#)) and sent it out via email to 32 legislators prior to our visit. Along with sharing our message, we toured the Governor's mansion and the Capitol, sat in on a Senate Judiciary Committee meeting, and were recognized by Senator Jared Carpenter during the Senate Chambers meeting.



Our Team at the State Capitol

Citation from Kentucky's
House of Representatives



Our Work With Corporations

We worked with three corporations during the second phase of our project: Change The Course (<http://changethecourse.us>), Kentucky American Water (<https://amwater.com/kyaw/>), and the Love Bottle Company (<https://www.lovebottle.com/>). As we mentioned on an earlier slide, Kentucky American Water made a generous donation of 85 reusable water bottles for us to distribute at our school and district science fairs. One of our team members then contacted Change the Course, a freshwater restoration program, with the hopes of bringing their program to our hometown of Lexington, KY. Our work with Change The Course is ongoing, as they responded by saying they would keep us updated on their progress for their plans with Lexington. Also, due to our successful partnership with Love Bottle during the first round of the competition, we contacted them once more and partnered with them to film an informational video about promoting the movement towards clean water and energy conservation. Love Bottle agreed to feature the video on their social media. Here is the link to that video: [Stream Clean-up Video](#)

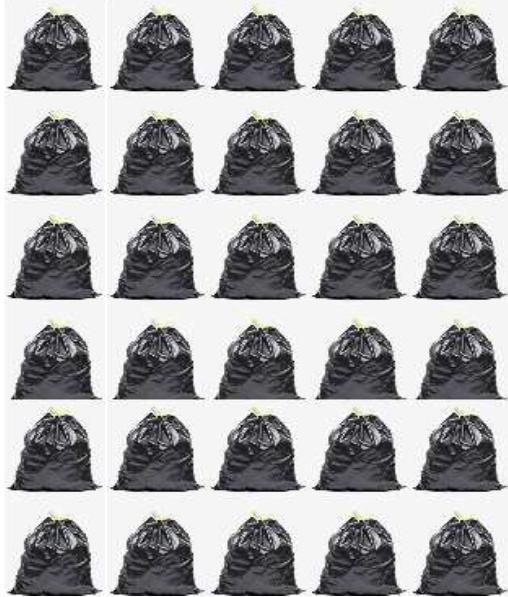


Our Impact

Over the past few months, our team has presented at four school events, hosted a stream clean-up, contacted multiple state officials in Kentucky, filmed a video for Love Bottle, and collected 152 digital pledges. Our team's overall goal this round was to continue to encourage people to make the switch to reusable bottles, while also motivating them to refrain from polluting their freshwater resources from which we receive our drinking water. As our local water sources become cleaner, more people will trust the cleanliness of tap water, purchase less disposable bottles, and, therefore, become more likely to go reusable. Although it is impossible to know exactly how many people we reached, for every person that goes reusable, they will save **1,095 liters of water**, over **11 barrels of oil**, and **1,460,000,000 Joules of energy** per year (assuming they use one plastic water bottle per day). Also, if everyone who signed our digital pledge switched to using a reusable water bottle for one year, the group as a whole would save **166,440 liters of water**, over **1,742 barrels of oil**, and **221,920,000,000 Joules of energy!**

Our Impact, cont.

How Many Full Trash Bags on Non-Recyclable Waste We Save Over Five Years



Key: Each trash bag represents
6 actual trash bags.

If our school holds a stream clean-up every grading period and consistently collects 23 pounds of recyclable waste each time, we will clear 92 pounds of recyclable debris from the creek each school year, or **460 pounds** over the course of five years, as well as **180 bags** of non-recyclable waste!

Our team conducted digital polls on our Instagram story that included questions such as; “Which Is cleaner? Tap water or bottled water?” Initially, 70% of voters thought that bottled water was cleaner than tap water. But after we educated our community that local water is typically as clean as bottled water and then conducted a follow-up survey, only 33% thought that bottled water was cleaner. We also asked “What fraction of our population in Kentucky gets their water from the Kentucky River?” Initially, 65% of voters answered 1/10, but after educating our followers that actually 1/6 of Kentucky’s population gets their water from the Kentucky River, in our follow-up story, only 27% of responders chose 1/10. Thus, we educated our audience about the cleanliness of tap water. Additionally, we educated them about where their water comes from, in hopes that they will take more interest in keeping their local water sources clean.

Photo Gallery

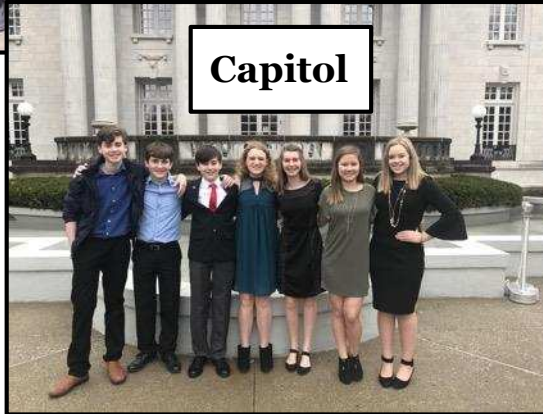
**Stream
Clean-up**



District Science Fair



Capitol



Dixie Elementary



Bibliography

- Zyga, L. “How much energy goes into making a bottle of water?” <https://phys.org/news/2009-03-energy-bottle.html>.
- “10 Startling Facts About Bottled Water.” Ban the Bottle, www.banthebottle.net/articles/10-startling-facts-about-bottled-water/.
- The Sip. “Why Glass Water Bottles Are Good for the Environment.” <http://sip.gocontigo.com/why-glass-water-bottles-are-good-for-the-environment/>.
- Cheves, J. “You Can't Drink This Crap.' County's Water Can Be Gray, Brown or Yellow - If There Is Any.” Kentucky, Lexington Herald Leader. www.kentucky.com/news/politics-government/article106649457.html.

Video

[Stream Clean-up
Video](#)

Our Website

[The Hydro Heroes](#)

Corporations

