

# CO-IMMUNITY PROJECT'S SEWER MONITORING 2021 OUTREACH INITIATIVES AND RESULTS



**UofL** CHRISTINA LEE BROWN  
ENVIROME INSTITUTE

**UofL** CENTER FOR HEALTHY  
AIR, WATER AND SOIL

## Online & Virtual Events

### Surface Water Webinar

In the fall of 2020, a team from Kentucky Waterways Alliance and UofL's School of Urban and Public Affairs conducted a study of sections of Beargrass Creek looking for evidence of the SARS-CoV-2 virus in creek water. One location was near a popular recreation site between Seneca and Cherokee Parks. The other was near Joe Creason Park. The Webinar which was hosted in January 2021 shared the results with the public. The results were that for the majority of samples the amount of virus present was below the limit of detection. There was one sample which showed a detectable amount of the virus, but at a very low level.



### Green Heart Community Conversation


In February, Dr. Ted Smith participated in a Community Conversation hosted by the Green Heart Project's Community Engagement Team. In this virtual conversation, Dr. Smith shared about how the origins of Envirome's sewer monitoring work and the initial partnership with MSD was developed through Green Heart in 2019. When the COVID-19 pandemic hit, the Green Heart research team quickly pivoted from monitoring sewers in the 4-square mile Green Heart project area to all of Jefferson County. The Envirome team hopes that the Green Heart neighborhoods feel proud to have played such an important role in Louisville's pandemic response.



COMMUNITY CONVERSATION:  
WHAT SEWERS TELL US  
ABOUT COMMUNITY HEALTH

## Virtual Open Office Hour

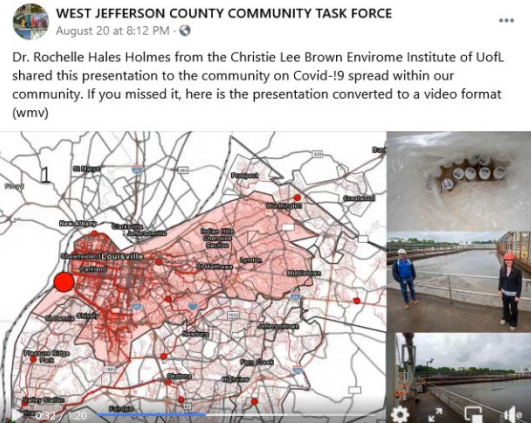
On June 10, 2021, several members of the Envirome team, including Dr. Ted Smith, Lauren Anderson, and Student Assistant Alexis Ecarma hosted a virtual office hour on ZOOM and Facebook Live, offering the public an opportunity to ask any questions they had regarding wastewater studies and research. We had the opportunity to share lots of resources, explore our website, and share our various insights and expertise on WBE and its significance for the community. We had several questions arise from our viewers which we were able to address, such as “What inspired you to work in this area of expertise?,” “Can people request that their nearby sewage be tested?,” and “Is the data collected in Louisville shared with other states’ programs?” Those who turned in demonstrated ample engagement and interest!



The poster for the Wastewater Research Office Hour features the Co-Immunity Project logo at the top right. The main text reads: "Wastewater Research Office Hour", "What do you want to know?", and "Thursday, June 10 - 6:30 to 7:30pm". It provides links to join on Zoom (<https://zoom.us/j/99938333765>) or Facebook Live ([www.facebook.com/CLBEnviromeInstitute](https://www.facebook.com/CLBEnviromeInstitute)). A map of Louisville shows COVID-19 virus levels for the week of May 17, with a legend indicating low, medium, and high levels. The University of Louisville logo and the name of the Christina Lee Brown Envirome Institute are at the bottom right.

## Community Meetings

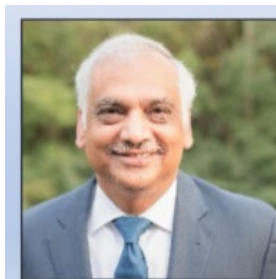
Throughout 2020 and 2021 the entire Co-Immunity Team presented to community groups across Louisville about study findings and results. At every community meeting, researchers explained the different phases of the Co-Immunity Project (individual testing for healthcare workers and community members and sewer monitoring), how each phase informed the others, how the research is designed, what researchers are looking for in the samples they collect, and how this important research was being utilized at the city level to inform policies and decisions.



The image shows a presentation slide from the West Jefferson County Community Task Force, dated August 20 at 8:12 PM. The slide features a map of Louisville with red dots indicating COVID-19 spread. Text on the slide reads: "Dr. Rochelle Hales Holmes from the Christina Lee Brown Envirome Institute of UofL shared this presentation to the community on Covid-19 spread within our community. If you missed it, here is the presentation converted to a video format (wmv)". There are also small inset images showing people at a community meeting.

## Standards to Support an Enduring Capability in Wastewater Surveillance for Public Health Workshop

In June 2021, the Department of Homeland Security (DHS) and the National Institute of Standards and Technology (NIST) hosted the Standards to Support an Enduring Capability in Wastewater Surveillance for Public Health Workshop. The University of Louisville Sewer Monitoring team was active in the coordination and planning of this workshop. Participants identified and prioritized



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Talk Title: Case Study-Wastewater Monitoring for COVID-19 in Louisville

Dr. Aruni Bhatnagar is Professor of Medicine and Distinguished University Scholar. He is the Director of the Christina Lee Brown Envirome Institute and Co-Director of the Association Tobacco Regulation Center. He is a leading expert on the mechanisms by which air pollution affects cardiovascular disease risk. Dr. Bhatnagar has studied the purification and characterization of aldose reductase and its role in diabetic complications in several tissues and investigated its structural, kinetic, and inhibitory properties. He has also studied aldose reductase activation and sorbitol accumulation in diabetic tissues. Additionally, he has studied protein kinases and that the activation of these kinases is required for the insulin

standards needs and technology and measurement gaps and proposed strategies to develop standards. Participants presented posters on lessons learned during the COVID-19 pandemic response, developments in the measurement science and technology for wastewater surveillance workflow, and challenges in achieving comparable wastewater surveillance results across locations. See posters, recordings, and the workshop program here: <https://www.nist.gov/news-events/events/dhsnist-workshop-standards-support-enduring-capability-wastewater-surveillance>

## In-Person Outreach Events

### Waterfront Park

On July 1, 2021, our team hosted a community outreach “pop-up” event by the entrance to the bridge at Waterfront Park. During this event, Ted Smith, Lauren Anderson, and Alexis Ecarma had the opportunity to interact with several individuals. Many people paused to view the pop-up banner we had placed on display and asked questions about sample collection. Most individuals responded positively and conveyed interest.



### Logan Street Market

On July 24, 2021, during which Lauren Anderson and Alexis Ecarma attended the Logan Street Market's Makers and Growers fair to share information with marketgoers. Many people stopped to chat, ask questions, and take-home informational handouts. The team brought a sample bottle, so people could see what the samples looked like. Most people were unaware of sewer monitoring for public health. When we showed them the sample bottle, many expressed surprise about how such a small sample would represent thousands of individual people for our research. Seeing the sample itself seemed to reassure individuals that their privacy was not being violated by this activity. When we shared that we could identify COVID in wastewater, one person demonstrated concerns about the presence of the virus in drinking water. Another individual expressed a concern for the potential to further stigmatize minority and underrepresented groups.

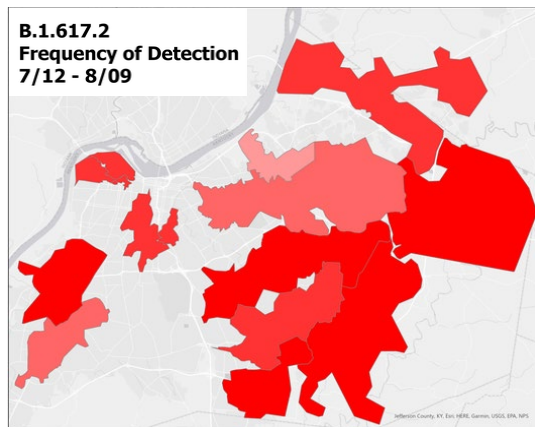




## Websites & Online Information

### Wastewater Dashboard

Since June 2020 Louisville's Metropolitan Sewer District (MSD) and Louisville Metro Public Health and Wellness (LMPHW) have partnered with researchers from the University of Louisville's Envirome Institute to learn how sewage may indicate community health risk. We have collected over 1,000 samples from sewers at 17 sites across Louisville looking for SARS-CoV-2, the virus that causes COVID-19. Together with county level clinical data, our sewers are helping us get a better picture to understand infection rate changes in large population centers of Louisville.



<https://louisville.edu/envirome/thecoimmunityproject/dashboard>

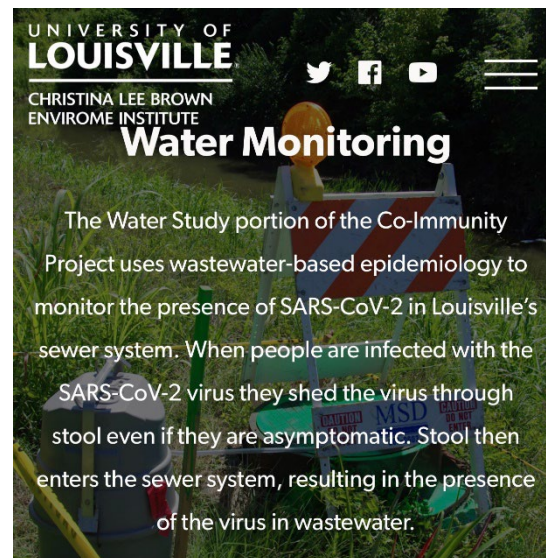
### Sewer Monitoring Website

The Sewer Monitoring Team has spent the past year developing many webpages to share about each step in the sewer monitoring process, how samples are collected, how they are analyzed, what we are looking for, and why we have chosen the 17 sampling sites. Our goal is for our research to be transparent, for the Louisville community to understand what we are doing and why. For more information on Envirome's wastewater studies, sewer monitoring research, and ethical guidelines, please visit:

<https://enviromeinstitute.com/co-immunity-project/>

Or read frequently asked questions about sewer monitoring:

<https://enviromeinstitute.com/wastewater-ethics/>

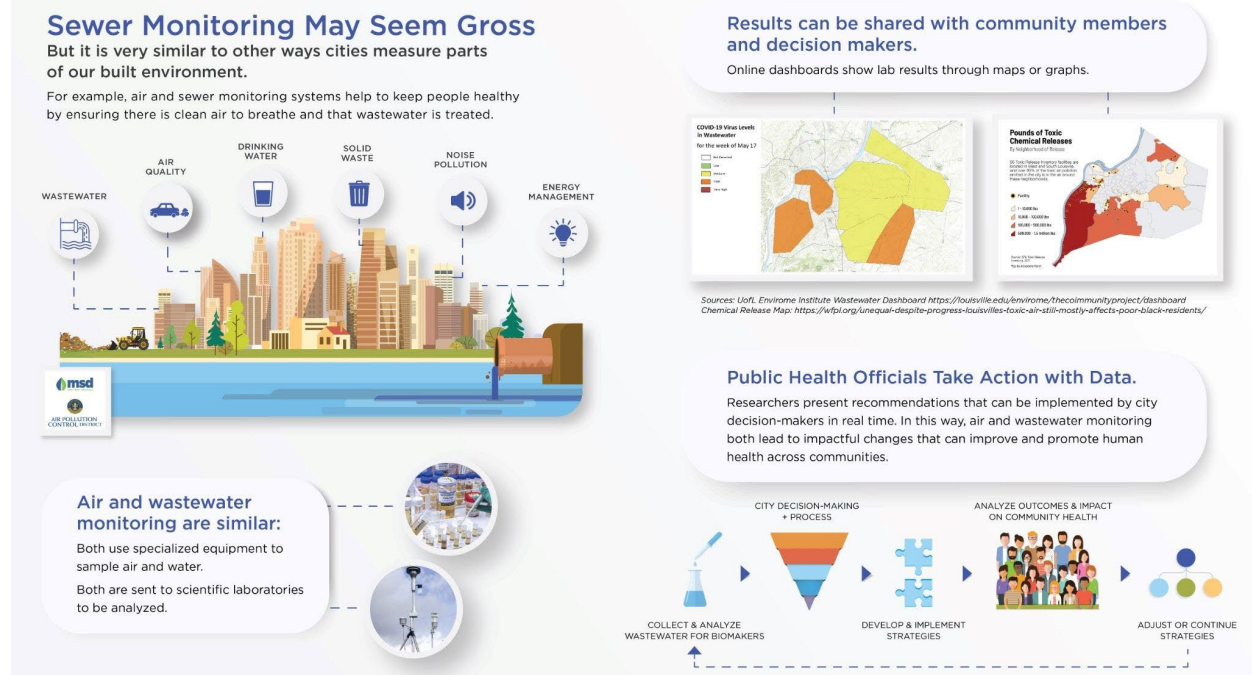


### Sewer Monitoring Infographics

Sewer Monitoring, or as it is officially known – wastewater-based epidemiology, has been around since the mid 1800's. It was at that time when one of the first public health researchers, Jon Snow, discovered that a single water pump in London was the cause of a cholera outbreak. However, not very many people outside of the field of public health are aware of it. To make the concept easier to understand, we

created a series of infographics that compare sewer monitoring to other kinds of measurements and tracking that happen in cities; EPA-mandated air quality monitoring and traffic tracking through apps like Google Maps or WAZE.

### *Similarities between sewer monitoring and air quality monitoring in cities*



### *Similarities between sewer monitoring and traffic tracking in cities*



## Media Coverage

During 2021, sewer monitoring for COVID-19 has garnered much attention in the news and media, locally, nationally, and even internationally. It has been covered extensively in the Louisville Metropolitan Area by news outlets such as WHAS, WAVE3, WLOU, NPR, as well as by University of Louisville Research Bases focused on biology, medicine, and public health, as well as legal databases like LexisNexis. It has been featured on several business and finance magazines, engineering and eco-industry platforms, political and social activism sources, and Latino news sites, reaching a vastly diverse audience. It has been covered on a national scale in Kentucky, Indiana, Montana, San Antonio, Seattle, Pittsburgh, Oklahoma, Manhattan, Arizona, and San Francisco. It has also been covered internationally in both Russia and Hong Kong. We are excited that the results of our work have been so far-reaching.



**UofL receives \$8.6 million for COVID-19 wastewater research**

### Findings in Louisville wastewater suggest possible new COVID surge



By [David Mattingly](#)

Published: Mar. 30, 2021 at 6:38 PM EDT

### VICE News

## Poop Could Be Our New Secret Weapon Against Mutant COVID Strains

There's a golden opportunity to track deadly new variants of the virus in the sewers.

**GW** By [Greg Walters](#)



## UofL researchers identify new COVID-19 strain using wastewater before traditional testing

The detection of the P1 strain in wastewater alerted officials and gave time to work to contain the strain.

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