

# Coronavirus Sewershed Surveillance Project

## Background

The Missouri Departments of Health and Senior Services (DHSS) and Natural Resources (DNR) are partnering with researchers at the University of Missouri–Columbia (MU) on a statewide project to test domestic wastewater for genetic markers of SARS-CoV-2, the virus that causes COVID-19. This project is a proactive effort to inform public health decisions and help mitigate disease impacts.

SARS-CoV-2 virus is shed in human feces and can be detected in wastewater by testing for specific genetic markers. Recent studies from across the country and around the world have found a direct correlation between the amount of viral genetic material in sewage and the number of reported cases in a sewershed, which is the area that drains into a community's wastewater collection system. Wastewater is not a significant transmission pathway for SARS-CoV-2.

Wastewater testing is a cost-effective way to gather population-level information that is not captured in clinical data. In the past, wastewater testing has been used to track norovirus, hepatitis A, and polio. It could be a valuable tool for COVID-19 surveillance, because people can be infected for up to 14 days before showing any symptoms, and individuals with mild symptoms may not get tested. Wastewater testing could provide early awareness of virus emergence (or reemergence) in a community.

## Description

DNR is working with municipalities and sewer districts throughout Missouri (Fig. 1) to coordinate the weekly collection of influent (untreated wastewater) samples. Laboratories at MU then test samples for genetic markers of SARS-CoV-2 and provide results to DHSS to share with municipalities and local public health agencies. The project is funded by \$850,000 in federal grants to DHSS, providing capacity to test up to 80 samples per week for one year beginning July 2020. As of September 2020, project participants include 60 wastewater treatment plants, ten congregate living facilities (e.g. correctional centers and care facilities), and five universities from across the state.

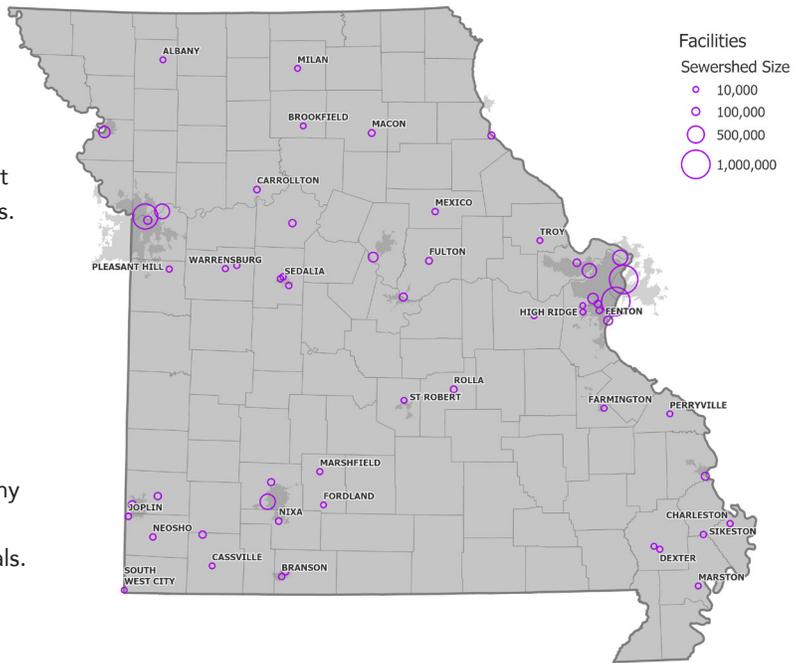
## Objectives

This project aims to mitigate COVID-19 impacts by utilizing wastewater data to identify the geographic distribution of SARS-CoV-2 in Missouri and monitor for indicators of SARS-CoV-2 emergence or reemergence within a community.

**Figure 1.** Map displaying the location and relative sewershed size (population served) of wastewater facilities participating in the Coronavirus Sewershed Surveillance Project. Additional sampling locations (not displayed) include congregate facilities and universities.

**Note:** Some municipalities are labeled for reference.

**Disclaimer:** Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.



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## FAQ

### Can SARS-CoV-2 be transmitted through wastewater?

There is no evidence that wastewater is a transmission pathway for the virus. For additional information, CDC has created this webpage for wastewater workers: [www.cdc.gov/coronavirus/2019-ncov/community/sanitation-wastewater-workers.html](http://www.cdc.gov/coronavirus/2019-ncov/community/sanitation-wastewater-workers.html)

### When did sample collection begin?

Sample collection began the week of July 6, 2020. Prior to this, nine facilities participated in a six week pilot study that began in May 2020.

### How were sampling locations selected?

DHSS considered a combination of factors based on data needs: hotspots of infection, areas with no or low infection, critical industry areas, congregate institutions, and geographic coverage.

### Who will receive test results and how?

Participating facilities and public health agencies will have access to test results through a DHSS online portal. Data will also be available to the public through a DHSS hosted website.

### How will the data be used?

Data will be monitored for early indicators of new outbreaks and upward or downward trends in the amount of viral genetic material. This information will help alert public health officials about infection, or lack of infection, and could be helpful to direct resources, such as community testing events, to areas that might need it most.

### Who can we contact at DNR for additional information about participation?

Please contact [Jessica.Klutts@dnr.mo.gov](mailto:Jessica.Klutts@dnr.mo.gov) or [Sally.Zemmer@dnr.mo.gov](mailto:Sally.Zemmer@dnr.mo.gov).