



Use of Wastewater Surveillance in the Coordinated Response to COVID-19 in Utah, USA

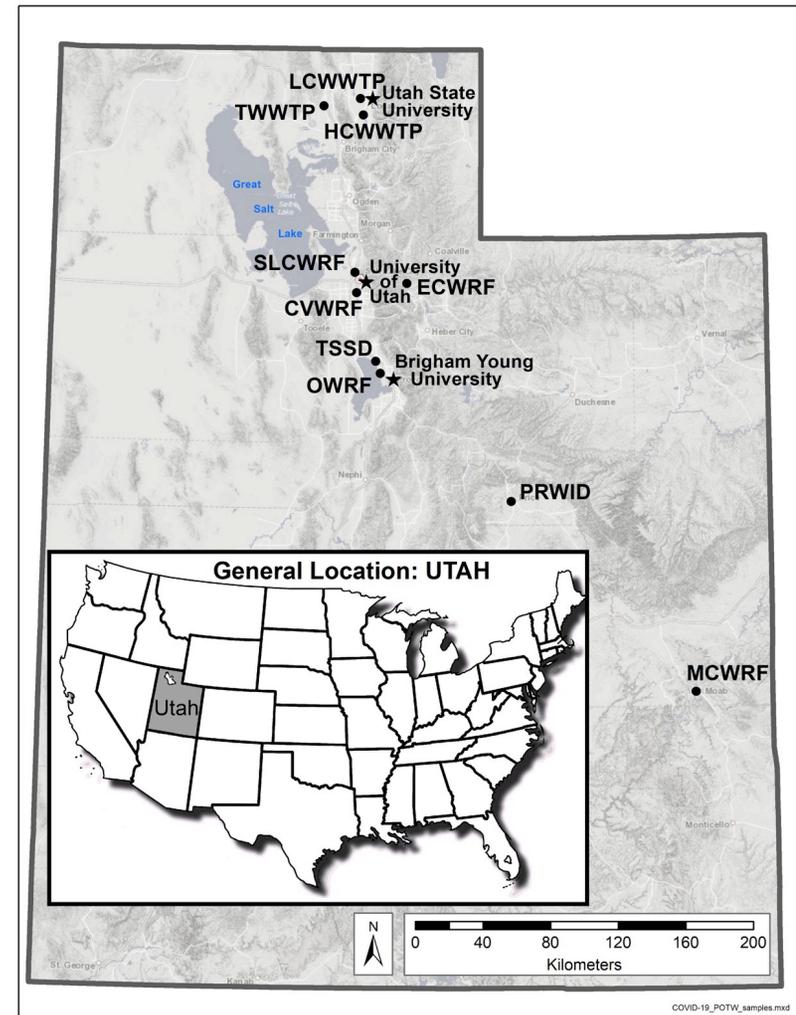
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August 2020

Wastewater Monitoring of Virus



Utah's Pilot Study

- 10 wastewater treatment plants
- ~40% of Utah population
- Mid-April through May
- Uniform laboratory methods at 3 universities



Key Findings

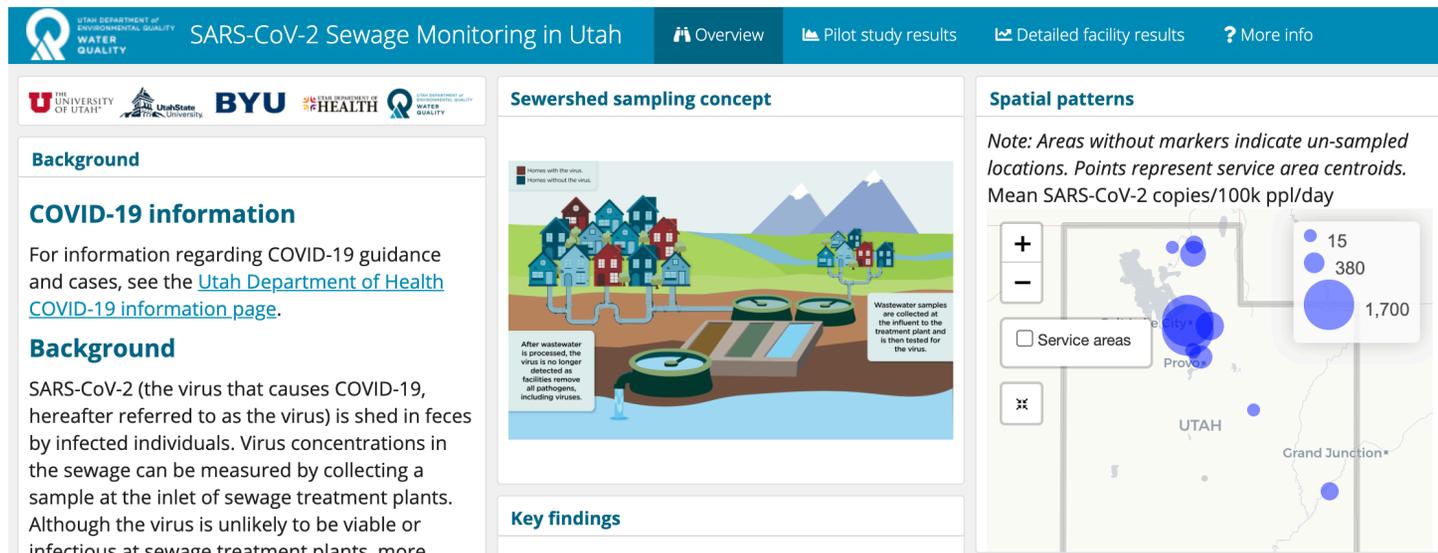
Virus was found in the influent of all ten facilities (64% of all samples).

- Virus was not detected in the effluent leaving the sewage treatment plants.

Large increases of virus were measured to the Logan and Hyrum facilities in late May.

Highest concentrations of virus were found in urban areas.

Tourist communities showed higher concentrations than others of similar size.



Ongoing Wastewater Monitoring in Utah

Sample locations

- 30 large treatment plants (>10,000 people)
- 12 rural treatment plants
- ~80% of Utah's population

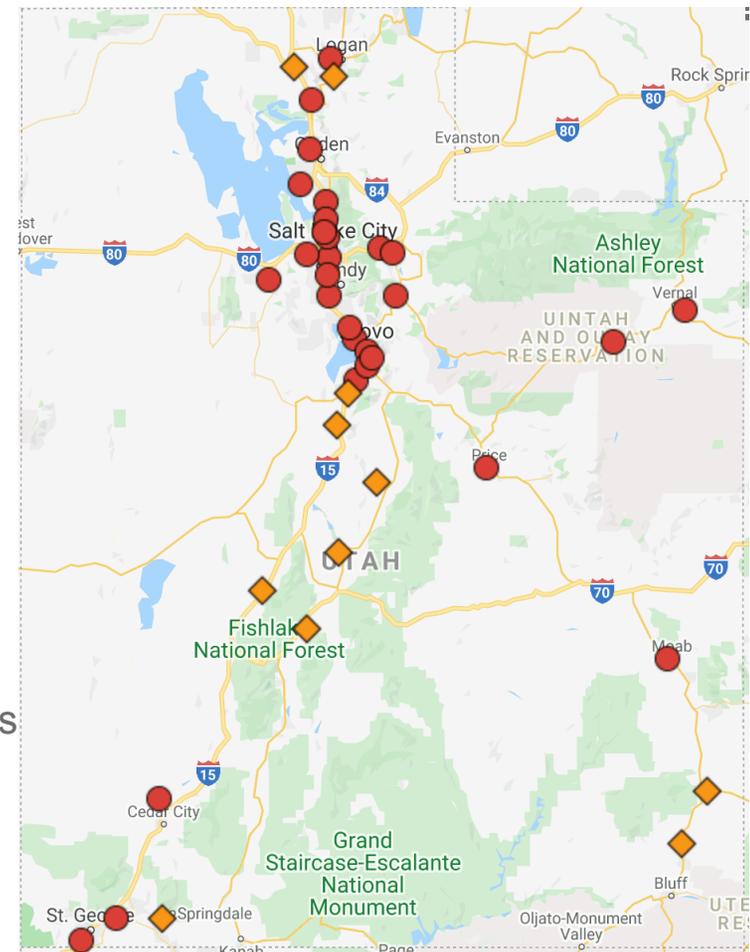
Frequency

- Weekly samples July – September at 40 sites
- Additional capacity as needed by public health

Budget: \$275,000

Future work

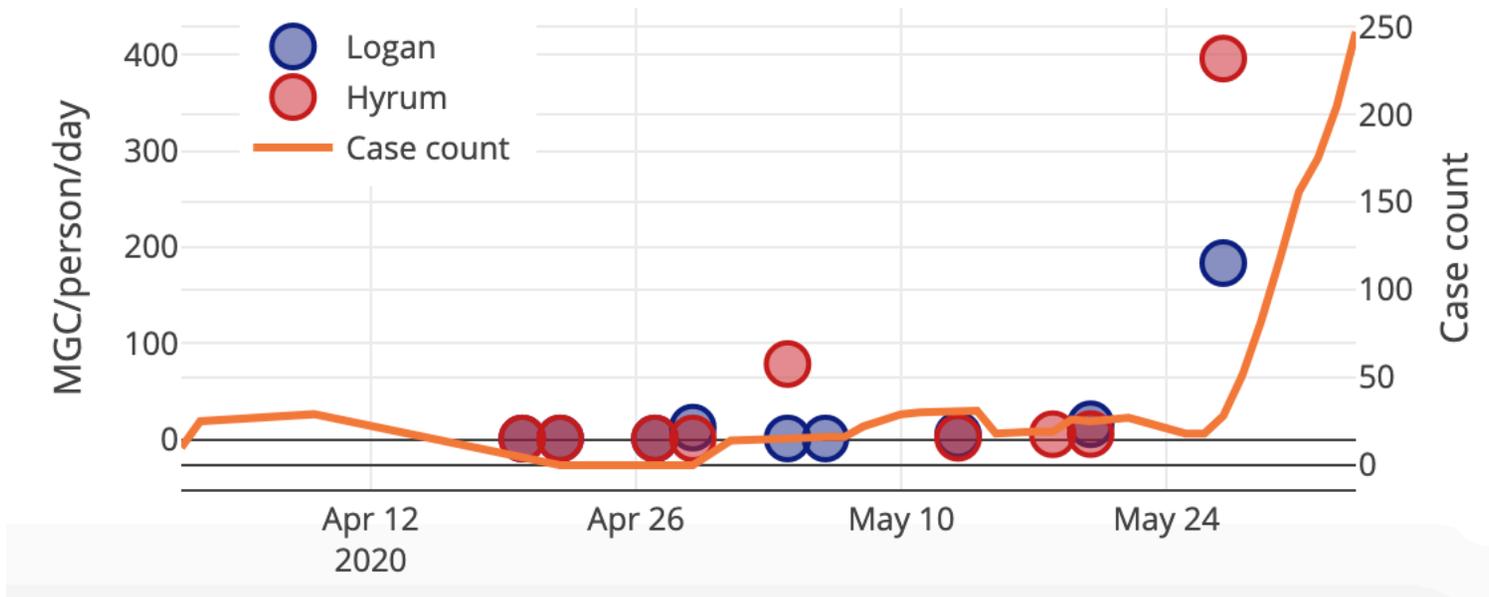
- Targeted increase sample frequency at sentinel sites
- University campuses



Early detection of rising infections

Virus concentrations in Logan City and Hyrum City WWTPs and Cache County COVID-19 active case counts.

Note: non-detections plotted at 1. MGC = million gene copies.
Cache County



Confirmation of low infection rates

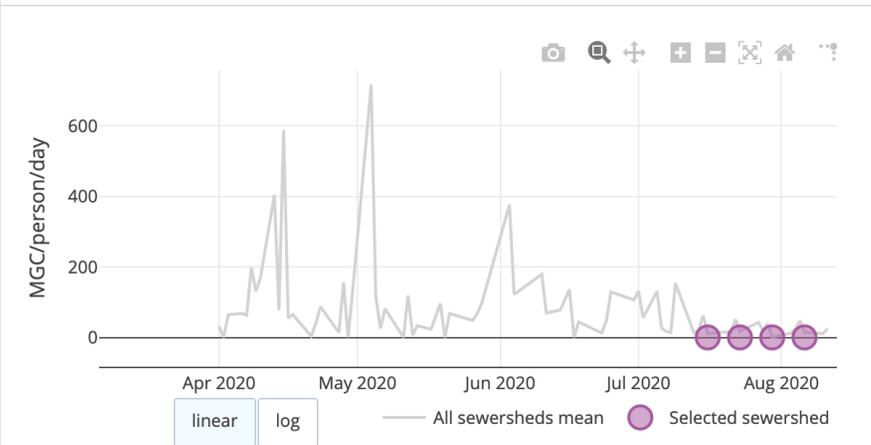
Daggett County WRF

Estimated population served: 220

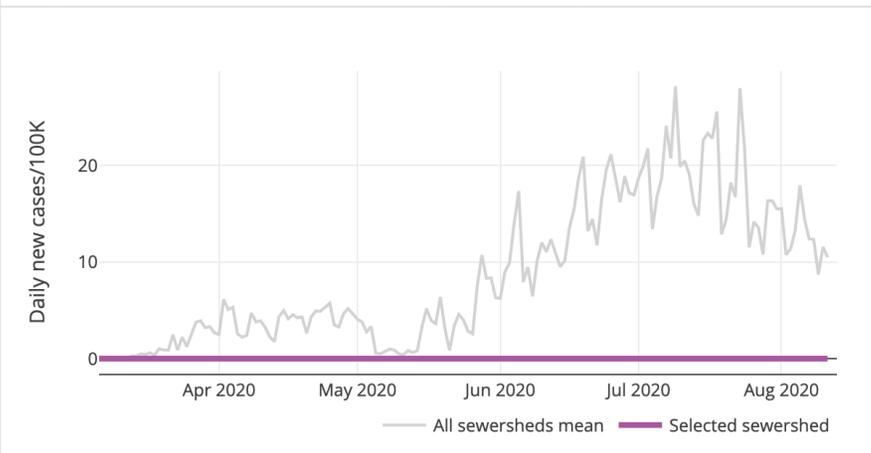
Select a location



Sewage monitoring Non-detections plotted at 1. MGC = million gene copies.



Daily new case rate Sewersheds with 1-5 cases plotted at rate of 2.



Confirming declining case counts

Salt Lake City WRF

Estimated population served: 209,645

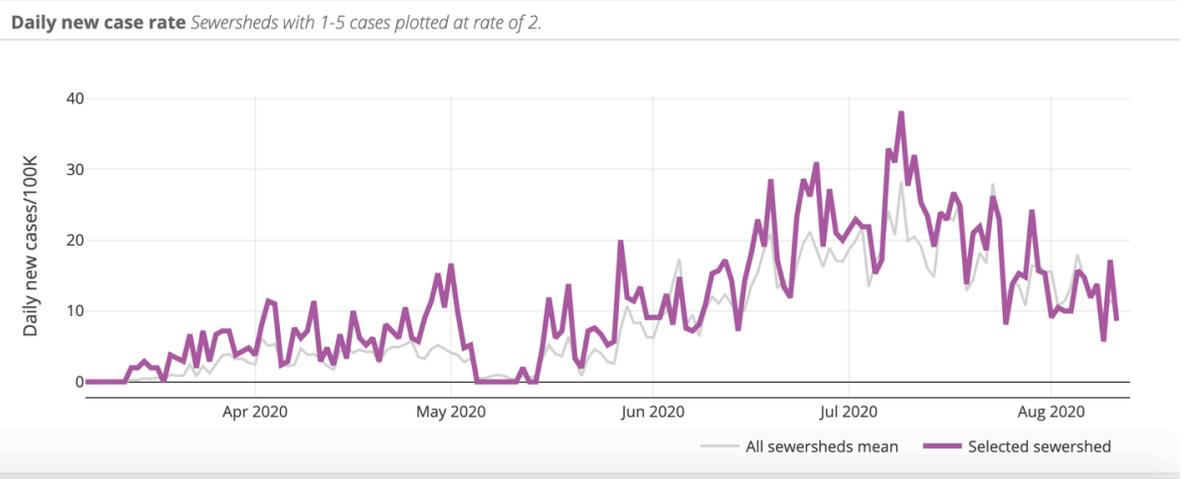
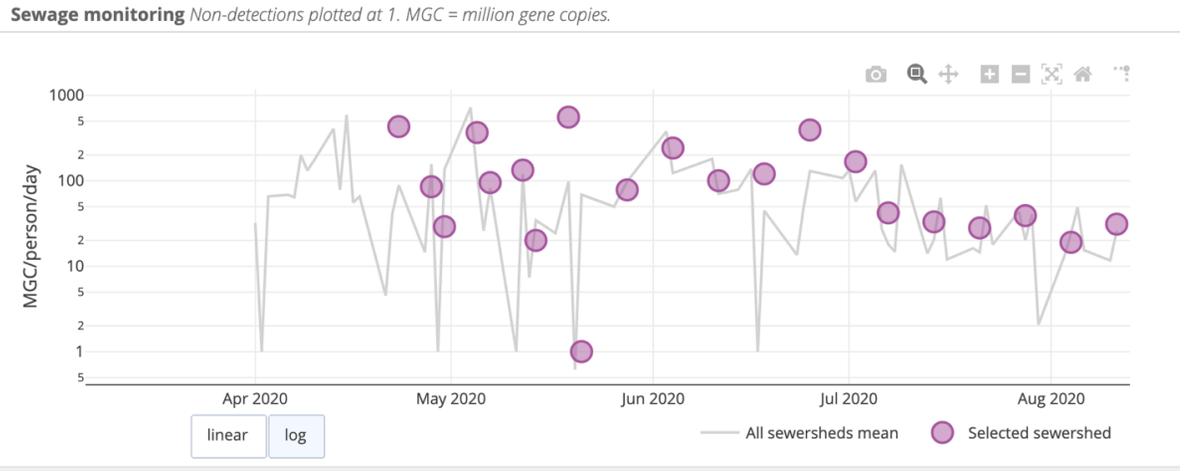
Select a location

Recent trend

- Increasing
- Decreasing
- Present, no trend
- Not detected
- No recent data
- Service area

Map labels: Layton, Kaysville, Farmington, Centerville, Bountiful, Magna, West Valley City, Millcreek, West Jordan, South Jordan, SANDY, Herriman.

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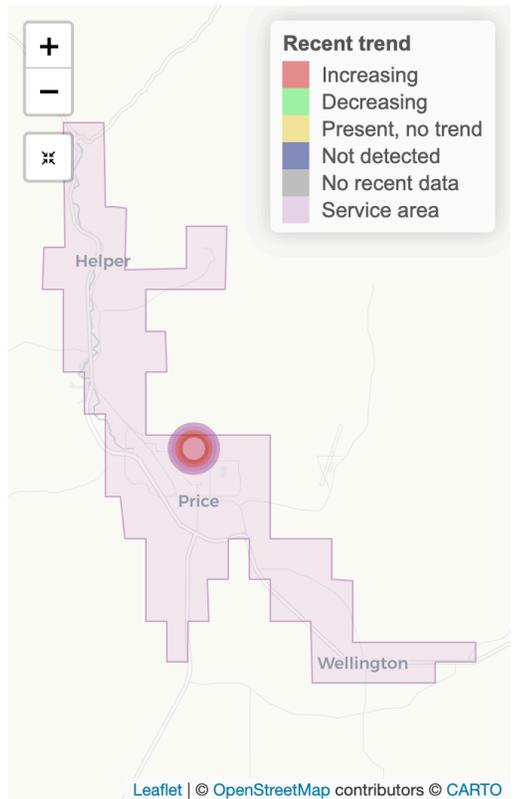


Influence of tourism and travel

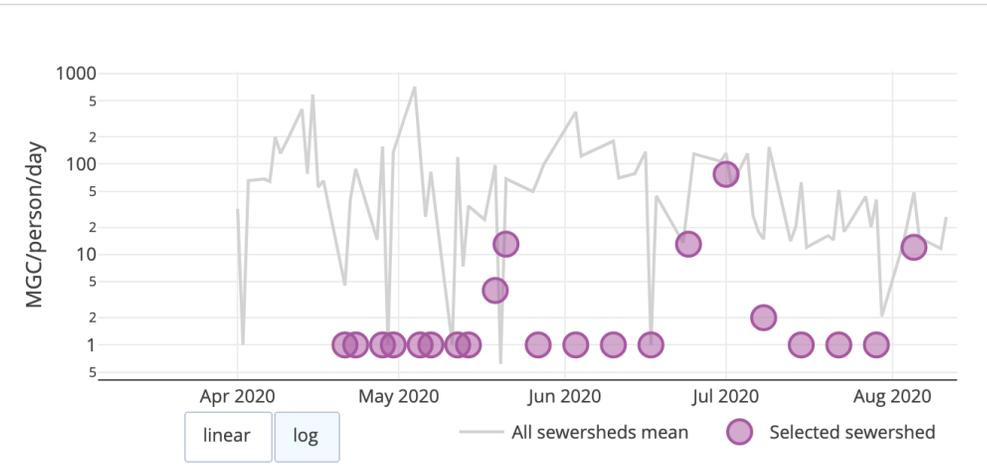
Price River WID

Estimated population served: 17,312

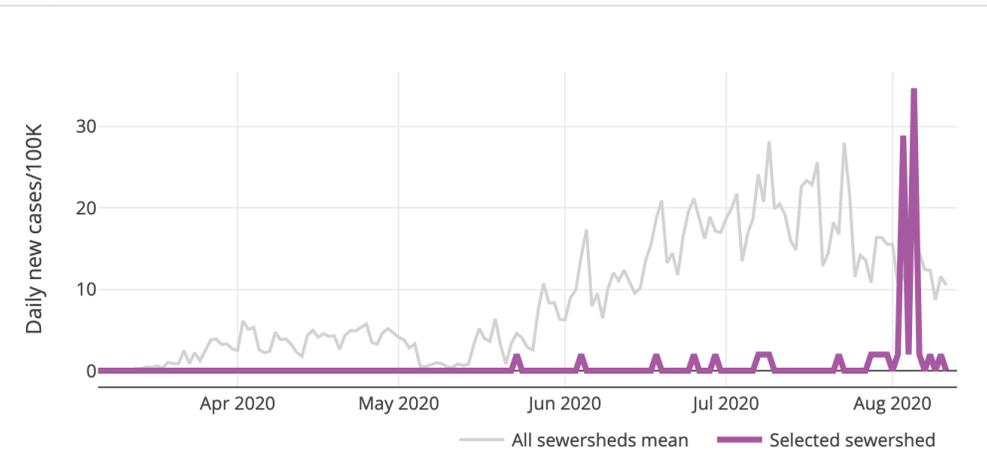
Select a location



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University Campus Sampling



National and International Interest

- Centers for Disease Control (CDC) National Community of Practice
- Water Resources Foundation – Project Advisory Committee
- European Commission and World Water Quality Alliance Town hall
- Consultation with other states: Missouri, Ohio, Colorado, Maryland, New Jersey, North Dakota, California, Arkansas

