



DOH-Miami-Dade  
COVID-19 Wastewater Report  
by Roy Williams MPH  
As of 2024-03-02

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## Time Series of Wastewater

Below depicts the time series of normalized wastewater concentration for Miami-Dade County from March 25th, 2020 until May 3rd, 2023. Three-day rolling averages are used to minimize noise.

*Table 1* contains the mean, average, number of measurements, standard deviation, and standard error for the normalized wastewater concentration. This helps establish a baseline measurement.

*Table 2* contains historical wastewater data from the onset of the epidemic until May 3rd, 2023.

*Plot 1* is a historical normalized time series.

## National Wastewater Monitoring System Methodology

The wastewater data shows SARS-CoV-2 effective virus concentrations measured by Biobot in samples from wastewater treatment facilities across the United States. To preserve the anonymity of our participating utilities and to improve their representativeness, we present aggregated data:

For each sampling location, if there is more than one sample in a week, we aggregate the samples within each week using an unweighted average.

For each geographic unit (county, region, or nation) and week, we aggregate across sampling locations within the geographic unit using a weighted average. The weight for a sampling location is the relevant sewershed population, or 300,000, whichever is smaller. When a sampling location serves multiple counties, the location is associated with the single county that the wastewater operator has provided as being the plant's primary service area.

For each geographic unit, we smooth the weekly values using a 3-value rolling average that gives higher weight to that week's measurement. If the geographic unit does not have a sample every week, then this 3-value window can include samples outside of a 3-week window.

We use the weighted average scheme for aggregating values across sampling locations as a compromise to achieve multiple goals:

Population-weighted averaging means that each person contributes approximately equally to the resulting value.

Because smaller catchments have more intrinsic variability, population-weighted averaging improves the statistical properties of the average.

Capping the weights increases the relative contribution of small and medium catchments, which aids both geographic representativeness and statistical properties of the average.

We include data from all Biobot's sampling locations in the nationwide and regional aggregate results. We highlight a subset of counties in our dataset, representing either counties sampling for longer continuous periods or those participating in The Biobot Network.

Source- **Nationwide Wastewater Monitoring Network:** <https://github.com/biobotanalytics/covid19-wastewater-data>

Table 1: Descriptive Statistics Measured in Genomic Copies per mL

Average Conc	Median Conc	Samples	Sd	Se
462	333	163	488	38

Table 2: Weighted 3-Day Rolling Wastewater Concentration by Report Date

Date	Effective Concentration Rolling Average	Change
2020-03-25	62	0
2020-04-01	141	79
2020-04-08	107	-34
2020-04-15	69	-38
2020-04-22	86	17
2020-04-29	92	6
2020-05-06	254	162
2020-05-13	118	-136
2020-05-20	45	-73
2020-05-27	57	12
2020-06-03	173	116
2020-06-10	293	121
2020-06-17	283	-11
2020-06-24	342	60
2020-07-01	691	349
2020-07-08	763	72
2020-07-15	903	140
2020-07-22	611	-292
2020-07-29	430	-181
2020-08-05	329	-101
2020-08-12	210	-119
2020-08-19	128	-82
2020-08-26	112	-17
2020-09-02	98	-14
2020-09-09	68	-29
2020-09-16	63	-5
2020-09-23	63	0
2020-09-30	47	-16
2020-10-07	63	16
2020-10-14	69	6
2020-10-21	104	34
2020-10-28	128	24
2020-11-04	199	71

Table 2: Weighted 3-Day Rolling Wastewater Concentration by Report Date (*continued*)

Date	Effective Concentration Rolling Average	Change
2020-11-11	243	43
2020-11-18	420	177
2020-11-25	750	330
2020-12-02	504	-246
2020-12-09	567	63
2020-12-16	553	-14
2020-12-23	485	-68
2020-12-30	462	-23
2021-01-06	664	202
2021-01-13	528	-136
2021-01-20	447	-81
2021-01-27	333	-114
2021-02-03	221	-112
2021-02-10	168	-53
2021-02-17	140	-28
2021-02-24	143	3
2021-03-03	188	45
2021-03-10	238	50
2021-03-17	146	-92
2021-03-24	172	26
2021-03-31	231	59
2021-04-07	224	-8
2021-04-14	168	-55
2021-04-21	130	-39
2021-04-28	128	-1
2021-05-05	82	-47
2021-05-12	81	0
2021-05-19	67	-15
2021-05-26	48	-18
2021-06-02	52	4
2021-06-09	104	51
2021-06-16	119	15
2021-06-23	120	1
2021-06-30	110	-9
2021-07-07	147	37
2021-07-14	231	84
2021-07-21	420	189
2021-07-28	674	254
2021-08-04	851	177
2021-08-11	863	12
2021-08-18	641	-222
2021-08-25	657	16
2021-09-01	515	-142
2021-09-08	352	-163
2021-09-15	314	-38
2021-09-22	206	-107

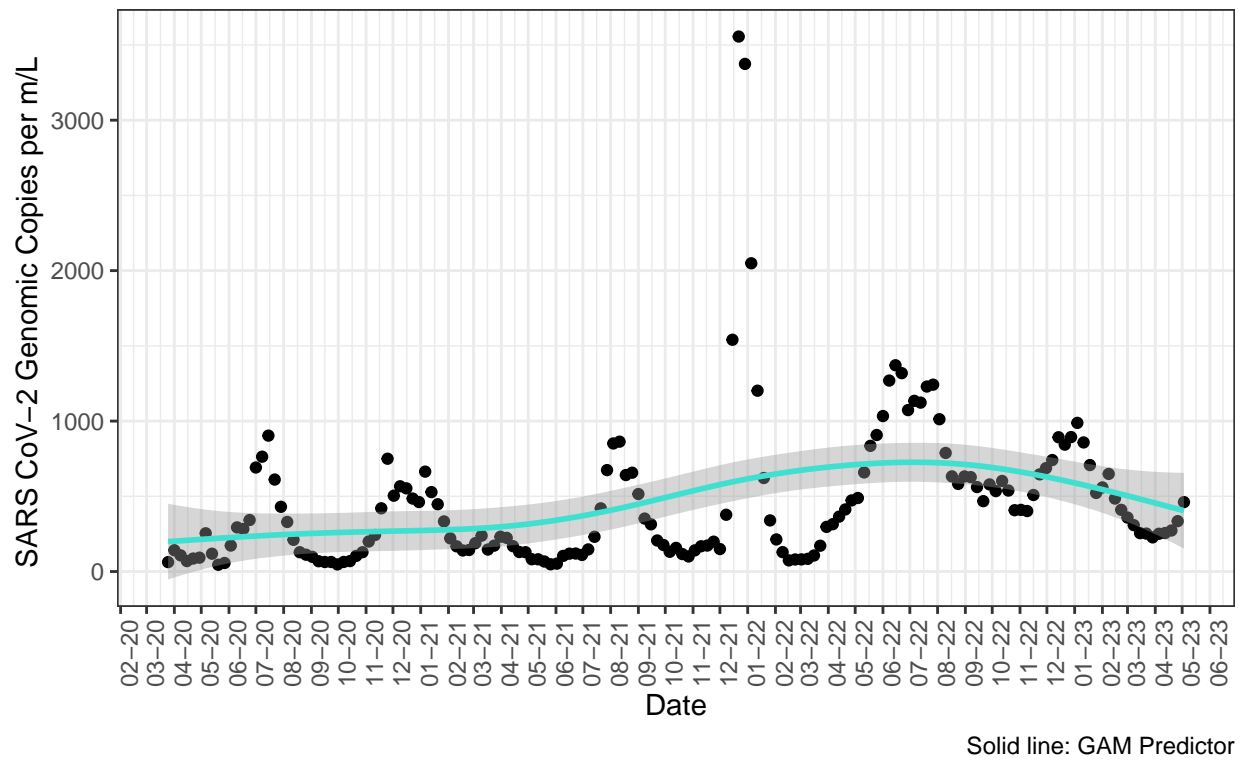
Table 2: Weighted 3-Day Rolling Wastewater Concentration by Report Date (*continued*)

Date	Effective Concentration Rolling Average	Change
2021-09-29	176	-30
2021-10-06	131	-45
2021-10-13	157	26
2021-10-20	116	-41
2021-10-27	100	-16
2021-11-03	141	40
2021-11-10	168	27
2021-11-17	173	5
2021-11-24	198	26
2021-12-01	149	-49
2021-12-08	377	228
2021-12-15	1,541	1,163
2021-12-22	3,556	2,015
2021-12-29	3,374	-182
2022-01-05	2,049	-1,325
2022-01-12	1,202	-847
2022-01-19	622	-580
2022-01-26	340	-282
2022-02-02	213	-127
2022-02-09	129	-84
2022-02-16	74	-55
2022-02-23	80	6
2022-03-02	81	0
2022-03-09	84	3
2022-03-16	106	22
2022-03-23	171	65
2022-03-30	297	125
2022-04-06	315	18
2022-04-13	365	50
2022-04-20	413	48
2022-04-27	472	60
2022-05-04	489	16
2022-05-11	659	170
2022-05-18	835	177
2022-05-25	907	72
2022-06-01	1,033	126
2022-06-08	1,269	236
2022-06-15	1,371	102
2022-06-22	1,318	-53
2022-06-29	1,073	-245
2022-07-06	1,134	61
2022-07-13	1,123	-12
2022-07-20	1,230	107
2022-07-27	1,242	13
2022-08-03	1,012	-230
2022-08-10	788	-224

Table 2: Weighted 3-Day Rolling Wastewater Concentration by Report Date (*continued*)

Date	Effective Concentration Rolling Average	Change
2022-08-17	632	-156
2022-08-24	582	-50
2022-08-31	632	50
2022-09-07	627	-4
2022-09-14	561	-66
2022-09-21	468	-94
2022-09-28	579	111
2022-10-05	535	-44
2022-10-12	602	67
2022-10-19	538	-63
2022-10-26	407	-131
2022-11-02	410	2
2022-11-09	402	-8
2022-11-16	509	107
2022-11-23	646	137
2022-11-30	687	41
2022-12-07	741	54
2022-12-14	892	152
2022-12-21	843	-49
2022-12-28	894	50
2023-01-04	988	94
2023-01-11	858	-130
2023-01-18	708	-151
2023-01-25	522	-185
2023-02-01	559	36
2023-02-08	649	90
2023-02-15	485	-164
2023-02-22	410	-75
2023-03-01	359	-51
2023-03-08	308	-50
2023-03-15	255	-53
2023-03-22	252	-3
2023-03-29	227	-25
2023-04-05	251	24
2023-04-12	256	5
2023-04-19	273	17
2023-04-26	335	62
2023-05-03	461	126

Timeseries of 3-Day Rolling Average Wastewater Concentration  
in Miami-Dade County



## Summary of Wastewater

The baseline number of genomic copies from March 2020 to May 3rd, 2023. defined as the median number of genomic copies throughout this period was **333**.

The most recent 3-day rolling average normalized concentration was **461.17** obtained on **2023-05-03**. This was **an increase** of **126** genomic copies per m/L from the previous measurement.

## Data Source

- **Nationwide Wastewater Monitoring Network:** <https://github.com/biobotanalytics/covid19-wastewater-data>