

From: Laskey, Fred Fred.Laskey@mwra.com  
Subject: MWRA All Update  
Date: Apr 10, 2020 at 5:01:32 PM  
To: MWRA All MWRAAll@mwra.net

**From:** Convery, Ria <Ria.Convery@mwra.com>  
**Sent:** Friday, April 10, 2020 4:40 PM  
**To:** Laskey, Fred <Fred.Laskey@mwra.com>  
**Subject:** MWRA All Update

Dear Colleagues,

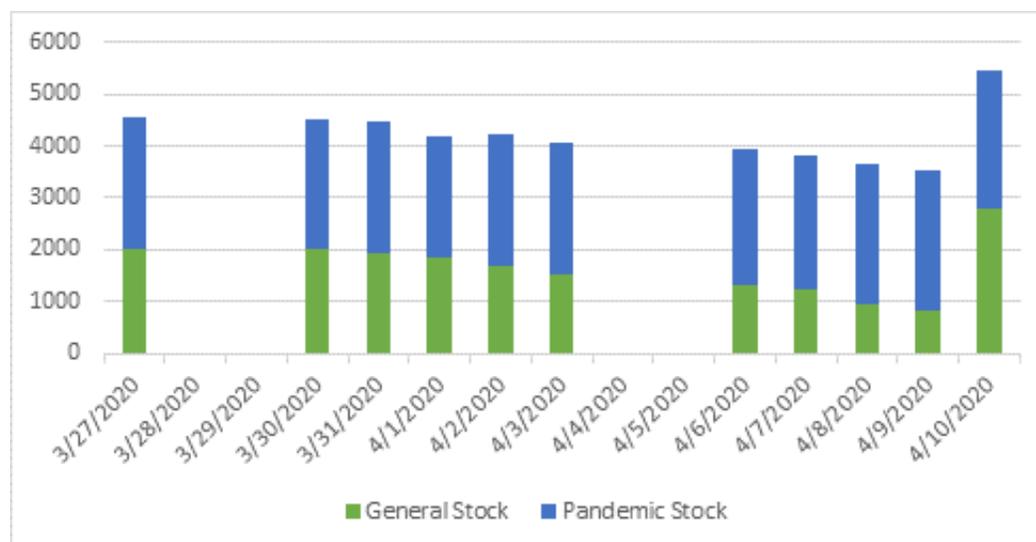
Below is an update on a number of issues that we have been tracking over the last week that I thought you would find interesting.

### Covid-19 Diagnosed Cases

We have had one new diagnosed case of Covid-19 this week, bringing the total count to seven. The individual has not been in an MWRA facility in over three weeks and does not pose any risk to MWRA employee. We continue to have a number of employees quarantined or staying at home because they have come into close contact with someone who was diagnosed.

### Masks

There has been some interest in our supply of N95 masks. The graph below illustrates that we have an adequate supply – with appropriate usage, and we even received an order of 1,800 today.



We continue to closely monitor guidance from the CDC and, consistent with their most recent recommendation, this week we modified our [work safety rules](#) to require the use of dust masks at all times when not at home, except for those times when N95 masks are required. We have also required that there be no more than one person at a time in vehicles. All staff have or will be provided at the start of their next shift, kits that include ample dust masks for the week and nitrile gloves. Additional PPE has been provided to all departments and is available as needed through your supervisor or manager.

### Biobot Study

You may have seen [news reports](#) about an MIT group studying Boston's wastewater to look for signs of the coronavirus. Biobot Analytics is a Somerville start-up company that grew out of an MIT research group that is collaborating with a group of researchers from: Massachusetts Institute of Technology, National University of Singapore, University at Buffalo, NY, Brigham and Women's Hospital, and Nanyang Technological University, Singapore. Their primary focus is on developing products to collect data from wastewater to support public health information on disease incidence and illicit drug use. They had previously approached us with a proposal to study the MWRA collection system for opioid addiction.

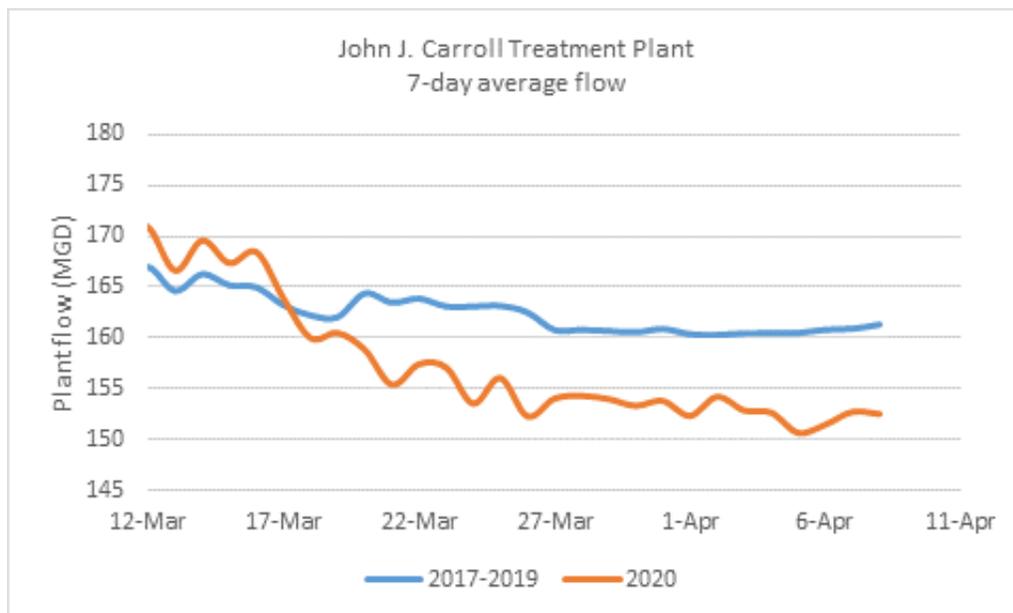
MWRA has provided support to this group in the form of samples of influent wastewater coming into the Deer Island Treatment Plant. They reached out last month and inquired about acquiring samples to test for the virus that causes COVID-19 (SARS-CoV-2 virus). We supplied samples on 6 days between 3/18/2020 and 3/27/2020 as well as archived samples from two dates in January to use as a baseline. Their analyses confirmed the presence of the viral RNA in recent samples, and correctly showed it could not be detected in the older samples from January. In addition to demonstrating that they detected viral RNA, they are using literature values for the concentration of the RNA in the feces to extrapolate from what they detected to estimates of population infected in the area served by the sewer system. There are a variety of unknowns involved in this, and wide levels of uncertainty for the values that are available. The few literature values for the concentration of viral RNA in the feces of infected individuals vary over a wide range, and so any extrapolation based on them has a similarly wide margin of error. Their estimates range from 0.1% of the population (about 2,200 people) to 5% of the population (about 115,000 people) infected as of March 25<sup>th</sup>. While their approach is theoretically sound, it is still subject to a great deal of uncertainty. Few studies have looked at the shedding of the virus into feces to date, and so solid numbers to compare their results against are not yet available.

We were not involved in any of the research, staff just provided the samples and offered some comments on the final report and questioned some of the assumptions.

It is important to note that the Biobot test looks for viral RNA, not intact infectious virus. Also, the amounts they found are still low compared to the amount in a single sneeze. Our current wastewater handling practices are still sufficient to protect our staff if followed properly.

### Community Water Usage

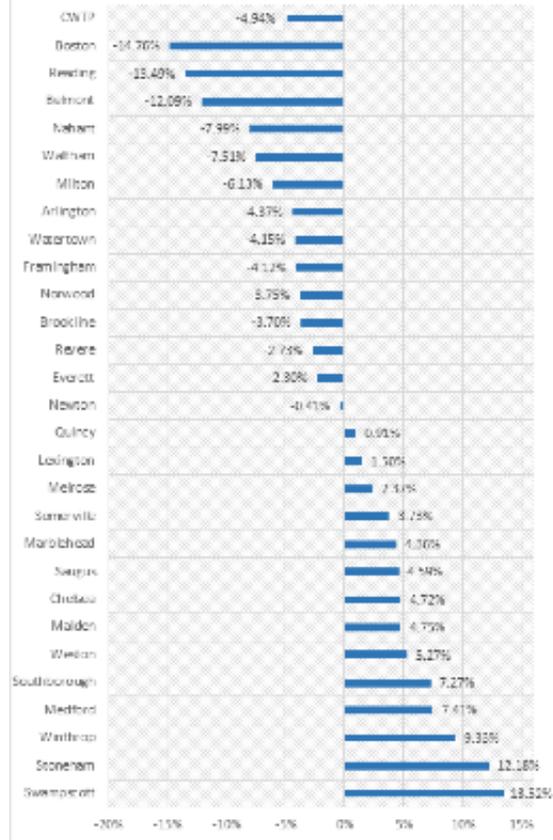
The graph below of the running average flow at the John J. Carroll Treatment Plant for this year compared to the average for the last 3 years shows a pretty significant drop off in system-wide water use since the Governor's declaration, and since people began working from home and sheltering in place. Staff took a look at where in our system the changes in water use took place. The analysis is summarized in the charts attached, which illustrate water use changes for fully served MWRA water communities relative to the same prior three year period. There is no uniform change in water use when examined community by community. Some saw dramatic use reductions, while others saw increases. It is interesting to note that Boston, our largest water user by far, is down significantly (nearly 15%), which accounts for most of the plant flow drop. We are planning to continue this analysis weekly to see how these trends evolve.



This is an extraordinarily difficult time for everyone. I sincerely hope you are all safe and healthy, and I cannot begin to thank you enough for your dedication, thoughtfulness and hard work.

Fred

Percentage Change in Flow  
 March 18 - April 1, 2020  
 based on 3 year average  
 March 18-April 1



Absolute Change in Flow (MGID)  
 March 18 - April 1, 2020  
 based on 3 year average  
 March 18-April 1

