Ohio Water Environment Association Volume 92:4 | Issue 4 2020

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The ideas, opinions, concepts, and procedures expressed in this publication are those of the individual authors and not necessarily those of the Ohio Water Environment Association, its officers, general membership, or staff.

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OWEA training is submitted for contact hour approval Free Webinars are not submitted for contact hour approval at this time.

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1st day of January, April, July, and October

Publication Dates:

Spring, Summer, Fall, and Winter

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President's Message

s my first official president message since getting the gavel in the mail and becoming OWEA's President over zoom, there has continued to be a lot of firsts for OWEA. I have never imagined this was how my presidency would have started. I would like to give special thanks to everyone at the city of Warren that threw me a little ceremony for the occasion.



Michael Welke OWEA Incoming President

out to those sponsors. These companies never wavered during the pandemic and their support made everything we are doing and continue to do possible. Due to not having an in person conference and WEFTEC being virtual, many of our sponsors did not receive the recognition they were originally planning on. They were all flexible and understanding. They worked with our OWEA staff to come up with solutions and never once discussed pulling their support. It is partnerships and understanding like this

Everyone is still trying to find their footing as we continue to navigate this global

pandemic that none of us has ever experienced. Even in the midst of all of the challenges the pandemic makes us face, there are many bright sides to look forward to, especially at OWEA.

A first for OWEA was having the state conference virtually in September and it was a great success! We had more than 350 attendees registered and participate in the virtual conference. The most common thing mentioned in the post event survey was about how flexible the on demand format was for them. This is exactly how we hoped virtual conference would go. This great virtual event was only made possible due to the generous support of our sponsors. I would also like to thank our staff and the conference committee for putting this virtual conference together and making it such a success.

When we talk about bright sides, we have to give a shout

that will help see this association through all challenges we will continue to face in 2021. Please take a look at the list of sponsors in this issue and remember to support these companies that support OWEA.

Another bright side has been our sections. Never before has our section leadership been challenged like this. They have gone from doing mostly in person events to mostly virtual events and to quickly adapt to online learning. Every section executive committee has been open to these changes, they have partnered with both our state office and each other to offer relevant and affordable education opportunities. They are all working hard to change how they do their events to serve their members in what is becoming our new normal.

We really do want to serve our members where they are. For some of you, that means you won't be able to travel to workshops the rest of 2020 and at least part of 2021

Upcoming Executive Committee Meeting Dates

January 12 th , 2021	May 11 th , 2021
March 9 th , 2021	July 25 th , 2021

Mike is the Superintendent of City of Warren's Wastewater Treatment Plant where he has worked for the past 32 years. He lives in Warren with his wife Kelly and they have two children and one grandchild. He has served in various capacities for OWEA from volunteer, to section committee chair, working his way through the section chairs, and now serves as the state Safety Co-Chair as well as OWEA's 2020-2021 President.

President's Message

or maybe even our in person One Water conference. For many of you, you are able and ready to move back to the world of in person learning. Just like in 2020, in 2021 we will be serving all our members and their needs through both virtual options and safe, socially distant in person events. Our workshops and upcoming One Water conference are something we can all look forward to, even if you will just be attending virtually.

As we look forward to 2021, know things will still be different than what we have known, at least for a while. We will continue to evaluate, change, and grow. We will do whatever it takes to keep OWEA strong and serve our members. One of my goals I set for my presidency is to have OWEA be looked at as one of the strongest MA's of WEF, and from what I see we are well on our way.

You, our members, are definitely the brightest spot in what has been a very challenging time. You continue to show that wastewater professionals will rise to the occasion and persevere, as will OWEA. I am grateful for each and every one of you. As we approach Thanksgiving, I will give thanks for the opportunity to serve as your president. Please stay safe and well.

Mike Welke

President, OWEA

Welcome New Members

July 2020 - September 2020

Laalitya Acharya Michael Arcidiacono William Bauerle Russell Bowerman Bailey Cadena Greg Fedner David Gamstetter Bob Green Cara Hall Jeff Henderson Justin Huang Trina Ingole Soham Joshi Jacqueline Kelley Paul Krell Zanna Leciejewski Jonathon Leonard Matthew Mayher Ron McDonald George Meyers Jacob Rintamaki Ibrahim Sanusi Nicholas Steyer Rachel Tomasko Stephen Tricamo David Vazquez Michael Vinay Chandler Wu

Thank you for joining the Ohio Water Environment Association and the Water Environment Federation. We welcome your contribution to preserving and enhancing Ohio's water quality environment.

Correction: Issue 3 2020 incorrectly credited the Scioto Greenways project. Correct credit is listed below.

ENGINEERING EXCELLENCE AWARD

The focus of this award is on a project and not a person. The selected project must have been in operation for a period of one (1) year and not more than five (5) years.



Scioto Greenways project consisted of three primary components: the removal of

Scioto Greenways Stantec

the low-head Main Street Dam, the restoration of the Scioto River channel, and the creation of 33 acres of new urban greenspace. The Scioto Greenways was completed in November 2015. The project was a public private partnership lead by the City of Columbus and the Columbus Downtown Development Corporation. The project was designed by Stantec and the project lead was Bryon Ringley.

As a result of the project, the river's natural ecosystem is healthier today than ever before. It has become an accessible urban amenity for Downtown's residents, professionals and visitors. Today, visitors to the Scioto Mile can stroll, ride or run along multi-use pathways; lounge on the lush lawns; hit the water on a kayak, canoe or paddle board at one of four launches; or simply claim a space to rest on one of the many benches.

AECOM



Perkins Park Parallel Sewer, **City of Warren, Ohio**

City of Upper Sandusky, Ohio

building, and influent piping rehabilitation.

AECOM designed a 2200 foot long, 36" sewer to help alleviate downtown flooding and lead to the removal of a sanitary sewer overflow. The sewer alignment had to be routed under a major intersection in downtown Warren and along the Mahoning River through a heavily used public park and great effort was made to mitigate public interruption.

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Program, City of Akron/Burgess & Niple The project is to complete a sewer separation in two of the City's Rack areas. AECOM is investigating 1800 private properties and 1000 manholes to assist design teams with the new connection information

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Long Term Control Plan Program (LTCP), **City of Tiffin**

AECOM updated the LTCP and negotiated the approval of a new 23 year implementation schedule with Ohio EPA. AECOM designed and is providing CM services to upgrade the WWTP from a wet weather capacity of 6 MGD to 13 MGD under the first phase of the LTCP Update. Construction is underway and AECOM assisted the City in securing \$13 Million in 0% WPCLF loans for these upgrades

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LET'S BUILD SOMETHING DIFFERENT



2020 Annual Business Meeting

Minutes of the 2020 OWEA Annual Business Meeting

The 94th Annual Meeting | Zoom | September 2, 2020

President Riddell-Furry called the meeting to order at 2:01 PM. A quorum was established.

President Riddell-Furry welcomed the group.

Items for approval were the 2019 annual business meeting minutes. Dawn Larsen, Executive Administrator, shared the minutes that were published in the Fall 2019 issue of the Buckeye Bulletin. The minutes and Treasurer's report were shared with those on the call. Ted Baker made a motion to approve the minutes and the Treasurer's report, with a second by Dale Kocarek. Motion passed.

Section reports were given. Mike Cook and Doug Harris gave the Northeast section report, Todd Saums reported for the Northwest section, Melodi Clark represented the Southeast section and Erik Torgerson presented the Southwest section report.

The WEF Delegate report was given by Ted Baker, Kathy Richards, and Fred Smith. This was Ted's last year as Delegate. The new WEF delegate will be appointed at the next Executive Committee Meeting.

Standing/Ad hoc committee reports- Committee chairs were permitted to give brief updates on their committee's activities.

Items for Voting-

Nominations and elections- Ted Baker presented the 2020-2021 slate of nominations as President– Mike Welke, President Elect – Jason Tincu, Vice President- Brandon Fox and Secretary-Treasurer Dale Kocarek. The motion was made by Ted Baker to accept the slate as presented. Second by. Motion passed. Kim Riddell-Furry will serve as Past President. Melodi Clark will serve as the new SE delegate.

There were no other announcements from those present. A motion to adjourn was made by Ted Baker, second by Jeff Lamson. Motion carried.

President Riddell-Furry adjourned the meeting at 3:04 pm. *www.ohiowea.org*

Coronavirus Monitoring in Wastewater A Conversation with Olivia Hershey, Researcher & PhD Candidate at the University of Akron

by Tom Zocolo

Laboratory professionals in the region have been working together to test for viral RNA of SARS-CoV-2 in wastewater during the pandemic. Participants from the Ohio Department of Health, state and federal EPA, the Ohio Water Resources Center, The Ohio State University, The University of Toledo, Kent State University, and The University of Akron have been analyzing samples collected from numerous treatment facilities across the state.

These efforts are aimed at tracking the relative abundance of the virus in our communities. Hopefully, the data generated will serve as an early indicator of increased volume of hospitalizations or the need for other critical healthcare services, as well as to inform policy such as it relates to the implementation of preventative measures.

I had the good fortune to interview one researcher from The University of Akron, Olivia Hershey. We spoke in detail about her experience in the monitoring effort:

TOM: OK, so you are currently a PhD candidate at The University of Akron. Just briefly, describe to me what your interest area is, where your research is focused.

OLVIA: Right so I am doing my PhD in environmental microbiology, specifically caves as the environment. More specifically, looking at subterranean water sources within caves. So [my study site is] Wind Cave National Park out in South Dakota. It intersects with the regional aquifer out there that's used for drinking water, and at the intersection a series of lakes have formed. There are a series of lakes that form, and those lakes are one of the only places in the world that you can access an aquifer without going through a well or spring.

That gives us a really unique view of the microbiology of 14

the aquifer. Because coming in through surface sources can give you different types of contamination, both from the surface and from your actual sampling method. You can see some potentially really cool genes for metabolic processes that are important in maintaining water quality.

TOM: Absolutely, that is fascinating. You perform 16S sequencing on samples that you collect from those sites?

OLVIA: It started out as 16S sequencing. That was our initial work because it takes a lot less DNA to run the test. So looking at bacteria over time, you know, we wanted to get more information. You can only tell so much from 16S data. So, we started doing shotgun metagenomic sequencing, which actually requires a lot more DNA. We had to develop methods to get enough biomass from the lakes, which are a very starved environment. You need to pull up a lot of water to get enough bacteria to get enough DNA to do metagenomic sequencing.

TOM: For my own personal curiosity, when you're doing the metagenomic sequencing, specifically looking at the metabolic processes of the microbial community, are you looking broadly at, for instance, sulfur reducing bacteria, different nitrogen related processes?

OLVIA: Yeah, nitrogen cycling, carbon cycling, sulfur. All those types of things. You can sometimes connect them with which bacteria are doing what parts, depending on how deep your sequencing is and whether you can reconstruct genomes from that metagenomic data. But for the most part, it's kind of chopped up into little bits and pieces. You can't tell who does what, but you can tell what the community is doing as a whole.

TOM: Now you came across the opportunity to conduct Buckeye Bulletin - Issue 4 | 2020 this coronavirus RNA testing. How exactly did that come about and when did that begin for you?

OLVIA: I started working on the project at the beginning of August. I'm working for Dr. Senko. He is a committee member for my PhD research, and I was coming up towards the end of my funding because I'm finishing my dissertation. This was offered as an opportunity to get paid more for some lab work. I'm working as a research associate rather than a graduate assistant.

TOM: Now when you're looking at the RNA gene fragments within the wastewater samples, what methods are you utilizing?

OLVIA: We are using qPCR. There are two methods that are being used by the different groups in this project. qPCR is the older method and similar to regular PCR where you're targeting a certain sequence. In our case, the sequence is the N1 and N2 genes, which are the nucleocapsid genes of the virus.

Basically, you've got your primers for your application and a probe that fluoresces. As the gene fragments increase during amplification, the amount of probe that is attached to the amplicon increases, which increases the fluorescence, which tells you how much of the amplicon is in your sample when compared to a standard.

TOM: From that data you are able to compare it to a standardized curve and you can estimate approximately the number of gene copies that are in a given sample?

OLVIA: Yes, and we can detect as few as one gene copy in a reaction.

TOM: Yeah, that is genuinely astounding to me. When you think about how infinitesimally small one gene copy is...

OLIVIA: Yeah, yeah. Well, it's in what we put into reaction. We can detect one copy in two microliters of extracted RNA, and if you do the math that scales up to 125 copies per liter with our detection limit. *www.ohiowea.org* **TOM:** The N1 and N2 primers that you're utilizing in this process, they are indeed specific to the novel coronavirus?

OLVIA: Yes, the N1 and N2 Primers were specifically designed. They're the CDC primers that they used for the diagnostic testing, and they were tested against different viruses that might have similar sequences and were shown to be specific to SARS-CoV-2. There used to be a N3 region that was used as a target, but that did have some cross reactivity with other coronaviruses. It's not used anymore.

We're still playing with what things are best used for detection. Our research group has been talking about using the envelope protein gene sequence as another target, but there's a lot of... It's a very rapidly moving area because everybody is working on it.

TOM: Just briefly, what would be the benefit of using the protein envelope gene? Would it be more sensitive, possibly?

OLVIA: Possibly more sensitive, possibly more specific even though N1 and N2 are very, very specific.

TOM: So, I understand that results are being published ahead of the peer review process. Can you talk a little bit about what that means?

OLNIA: Yeah, so peer review is still really, really important, but it does take time. Basically every research lab that's capable of doing this kind of work is taking their chances researching this pandemic virus. So all of these journals are getting all of these submissions, and they're starting to review papers faster than they normally would.

For those papers that haven't made it through the peer review process yet, there are often preprints that are put out. It's been submitted to the journal, but it hasn't finished the peer review process. They're being made available as preprints. Sometimes those preprints are good and it's good to get the data as soon as possible. Sometimes they're bad, so you end up with paper retraction. Retractions aren't covered nearly as much as the papers are when they are put

Laboratory

out so you can end up with some misleading or incorrect information that ends up covered in the news.

TOM: With an issue like the coronavirus that has become so politically contentious, how can we ensure that we're absorbing and consuming information with a maximum of data literacy?

OLVIA: I think the big thing is to look at where it's coming from. I don't want to get super political, but there's a lot of information about mask effectiveness. You'll see a paper that says masks are effective and another one that says they aren't. Depending on who you're listening to, you might end up in a kind of feedback loop. You're looking for certain information and then you start only listening to information from certain sources.

Knowing what organization the information is coming from is pretty important, or the background of that organization. The one I'm thinking of specifically is... these papers that [include] mask research done and promoted by the Association of American Physicians and Surgeons, which sounds very official, but it's a very partisan group. There's some research that's had some funding that is also very partisan. If you go look at it, it's actually funded by Steve Bannon. Specifically, I'm talking about the one that says that [the virus] was made in a Chinese lab. It gets thrown around all the time, but nobody looks at where that information came from.

TOM: Regarding the collaborative effort that's occurring with this coronavirus monitoring. UA has come online fairly recently. There are several other [participant] universities in the area. I know OEPA has skin in the game, ODH. How do you think this collaborative effort has strengthened the network that exists between universities and the public sector?

OLVIA: We definitely work with a very diverse group. I'm working with more people than I have ever worked with before collaboratively. My PhD research was very specific, so there weren't many people to talk with about methods or problems. I'm in Akron. We have a meeting every Thursday

where we, the researchers from I think Cincinnati, OSU, Toledo, EPA research labs, we all get together and we discuss the problems that we've been having, solutions, how to publish this data if we wanted to publish it, gather our methods together...

Looking at the different ways each lab is handling the work. Not everybody is doing the same thing. We all have the same goal, but we're not all getting there the same way. [So we're] conversing and sharing our views and work.

TOM: When your operation was getting off the ground, did you experience a lot of assistance from outside laboratories to help you get up and running and to optimize your own process?

OLVIA: Yes, there are only two other labs that are using the qPCR method. The other ones are doing digital PCR, which I'm not very familiar with, but one of the labs that's doing qPCR, they started in March or April early on: probably more in April. There's a lot of optimization that has to go into it. You have to think about how much of the sample you're going to put into the reaction. Because if there's too much of something, then it won't work. If there's too little of something, then your signal isn't strong. So they had a lot of experience. They had spent months optimizing their process and were able to help us off the ground a bit quicker. We just have a conversation with them, know what things to not try because it's already been done and it didn't work.

TOM: I bypassed this, but you're doing QC checks in between the labs, right? With known samples.

OLVIA: Yes, so every month there is a validation that we do. All of the labs get the same sample. This month we did Mansfield because their numbers were pretty high.

They collect 7 liters or so and send a liter out to each participating lab. We do our analysis and compare our results to make sure we're all on the same page. Usually, if we're in the same order of magnitude, that's a pretty good validation result because we're looking for how a given site Buckeye Bulletin - Issue 4 | 2020 changes over time.

The exact numbers aren't very important [for our objective]. The exact numbers aren't as meaningful as looking at the trend over time. We can do a validation to make sure everything is working. But, we're not sending every sample to several labs to make sure we're all getting the same numbers all the time, just the validation.

TOM: When you collect on a given sample date, for a given plant, you are running four replicates?

OLIVIA: It's 2 sample replicates with two PCR replicates each. I process 200 milliliters, and then another 200 milliliters and that gives the two sample replicates. And then I do duplicate PCR reactions for each of them.

TOM: Gotcha. Are you seeing more agreement between samples or between qPCR rounds?

OLVIA: I do see more agreement between the PCR replicates, but the sample replicates usually aren't too far off, and sometimes if they are there's a known error... something happened as I was processing it. For instance, my pellet started coming apart or something when I was concentrating it. Usually there's something that I can kind of point at. Usually they agree pretty well.

TOM: I think we've pretty much covered everything again. Was there anything else that you wanted to add or that came to mind?

OLVIA: Just from our previous discussion, I know we talked a little bit about normalization.

TOM: The normalization of the data.

OLVIA: Yeah. Our numbers from Mansfield might be really high for reaction... but you also have to consider the flow rate at the facility and the population that is there.

I send the numbers off to Zuzana [Bohrerova], who's the lead, and she normalizes for that. But we're also doing *www.ohiowea.org*

some analysis alongside the N1 N2. There's something is called CrAssphage, which is a bacterial virus. CrAssphage is something that is ubiquitous among intestinal flora.

TOM: In wastewater it's very common, correct?

OLVIA: Yeah. Look at that alongside the actual coronavirus numbers that we're getting. There's not another means of normalizing aside from flow. You kind of combine all that stuff together and somebody does the math, not me. But you know, you get a better idea of how the population is affected.

TOM: So yeah, based on concentration and say organic strength of the waste.

OLVIA: I'd say something like that.

TOM: How much poop is there?

OLIVIA: Yes! And how much covid per poop!

TOM: Covid per poop units. That's a great metric. That's what we really need to be paying attention to people!

OLIVIA: Yeah!

TOM: I'm really grateful that you're out there doing this: that you took advantage of the opportunity. I'm very pleased that these types of collaborative efforts exist to safeguard public health at a time of unprecedented crisis.

OLVIA: Yeah. It is definitely something to be proud of as far as science goes, absolutely.

A tremendous thank you goes out to Olivia for her willingness to share her experience and insight. For further information regarding the statewide monitoring program, refer to the coronavirus dashboard via coronavirus.ohio. gov/wps/portal/gov/covid-19/dashboards/wastewater/ wastewater



MICROSCOPIC EXAMINATION OF ACTIVATED SLUDGE



Microscopic examination is an essential part of process control to facilitate the stable operation of activated sludge treatment. The micro-organisms present in the activated sludge have a profound impact on the overall treatment process. Whether used for preventative maintenance or diagnosing problems, microscopic examinations can provide operators with valuable insight into the health of their sludge.

Preventative Maintenance

Monitoring the biomass of your activated sludge system is just as important as other routine chemical analyses. The micro-organisms in the biomass are powerful indicators of operational conditions and will often show symptoms of stress or toxicity days before the actual performance of BOD, Ammonia, or TSS removal deteriorates. Routine microscopic examinations can assist operators in foreseeing treatment issues before symptoms of underlying issues ever appear.

Don't wait for your biomass composition to become problematic, maintain permit compliance through routine microscopic examination!

Diagnosing Treatment Problems

Incorrect biomass composition directly corresponds with operational problems. One objective of activated sludge microscopy is to interpret process control issues so the operator is better able to generate solutions.

Simply identifying the symptoms of a problem does not necessarily point to the culprit. Take for example poor settleability; underlying issues could include a massive growth of filamentous micro-organisms, floc particles are too small, absence of protozoa, or dispersed bacterial growth. Each of these issues could potentially have a different method of treatment, illustrating why identifying the real culprit is invaluable to getting your biomass back on the right track.

Determine the Floc Shape, Structure, Strength, Size, Diversity; Presence of Filamentous Micro-organisms, Foreign Matter, Protozoa and Metazoa



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Pataskala becomes smallest Ohio community to do COVID-19 wastewater testing

by Craig McDonald

Republished with permission from The Newark Advocate

Pataskala is becoming the smallest community in Ohio to participate in an effort that will monitor the city's wastewater output for evidence of COVID-19 infection.

City Utility Director Chris Sharrock reported at the Oct. 5 regular city council meeting Pataskala has been selected for the COVID-19 wastewater sampling effort.

"There's a program through the state with the EPA and the Department of Health and they are going through Ohio State University and they are looking for RNA—the genetic material in the wastewater stream," Sharrock explained.

"Some of the benefits of this kind of testing are you can find out about asymptomatic people who are not going to the doctor. You don't have to wait for somebody to get sick and then go to the doctor. You get your results back about four to seven days quicker than relying on the clinical cycle."

Sharrock said, "What it doesn't do is tell you that you've got 15 people infected in the city. That's not how it works. But you'll get a baseline number and you'll see the (infection rate) trending either going up or going down."

He said under the program, two samples are taken a week. "We collect the samples, and mail it off to a lab. We get the numbers turned around in about two to three days, and they will post those numbers on the State of Ohio Coronavirus website at *https:// coronavirus.ohio.gov/wps/portal/gov/covid-19/home*

Sharrock said if the data reflects "a spike in those trends of significant value, they will not wait for the website to post the numbers, they will call the health department, the administration and myself to have a meeting and let us know what they are finding in the samples."

He told council, "It's a pretty cool project to be a part of. We are the smallest community that is involved with this. They were excited we have no industrial waste in our wastewater stream... It's a really clean household representation of what's going on in the system."

Testing [was] scheduled to start the week of Oct. 12 he said.

Throughout the COVID-19 pandemic to date, the Pataskala area has tended to have some of the higher infection rates within Licking County, according to data supplied by the Licking County Health Department.

Accord to the LCHD website, as of Oct. 2, Pataskala reflected 33 active cases within the 43062 zip code and 4 cases within the 43068 zip code footprints.

Ohio EPA Update



Ohio's Coronavirus Wastewater Monitoring Network

Adapted from Coronavirus.ohio.gov

n an effort to help mitigate the spread of COVID-19, a network across Ohio is studying samples of wastewater to look for the presence of gene copies/ fragments of the virus that causes the disease. The initiative is a collaboration between the Ohio Department of Health (ODH), the Ohio Environmental Protection Agency (Ohio EPA), the U.S. Environmental Protection Agency (U.S. EPA), the Ohio Water Resources Center (Ohio WRC) at The Ohio State University, and other participating universities, including The University of Toledo, Kent State University, and The University of Akron.

Prior to the wastewater monitoring network being established, increases of COVID-19 cases in communities had been tracked by testing people with symptoms, an indicator that lags behind the actual spread of the disease. Because of this, there is a need to use early monitoring methods that estimate the disease's impact on the broader community. Research in the U.S. and elsewhere has shown that non-infectious RNA (ribonucleic acid) from the virus that causes COVID-19 (called SARS-CoV-2) can be excreted in the feces of both symptomatic and asymptomatic infected people and can be detected in wastewater as many as three to seven days before those infections lead to increases in case counts or hospitalizations. As such, monitoring raw wastewater in sewage collection systems can provide an early warning of disease increase in a community. Community and public health leaders can use this early warning information to make decisions about protective actions to help limit further spread of the disease before cases begin to occur.

Where Is This Being Done?

The Ohio COVID sewage monitoring network will analyze wastewater samples for coronavirus RNA gene



Last updated: 10-03-20

Click a site to zoom in and view data for that site. To return to the state view, click the site again. When viewing on a mobile device, such as a phone or tablet, pinch with both fingers to move the map or zoom in on a specific area

copies or fragments at key locations around the state. Sampling sites have been selected to include the monitoring of large, medium, and smaller cities, with a smaller set of sites targeted at census tracts with vulnerable populations. (Sample collection sites are shown on the map on the previous page.) The network is being expanded over the next few months to include additional wastewater collection sites.

How will the Ohio wastewater monitoring network improve public health?

The network will:

- Serve as an early warning of infection in communities or congregate settings.
- Provide information that can help local communities more quickly intervene with protective measures to slow disease spread.
- Help communities measure the effectiveness of such interventions (quarantine/face coverings/ business limitations).
- Develop methodologies/ predictive models to translate viral loads detected for comparison with other data, such as rates or percentage of infection in communities.
- Where possible, compare results to previously collected data on prevalence in specific communities to better understand factors affecting disease spread.

 Determine impacts on disproportionately affected communities or communities where risk of infection is greater.

How does it work?

Wastewater entering treatment plants is sampled for fragments of the virus RNA. A mixed wastewater sample (24-hour composite) is collected in an area where all the sewage from a service area enters the plant. This sample is analyzed by a laboratory to determine the number of virus gene copies present, related to the wastewater flow that occurred on the sample day and the population that contributed to the flow. Based on current research, these virus fragments are not infectious at this sample collection point.

Where can I find results?

The results can be found on an interactive map at *https://coronavirus.ohio.gov/wps/portal/gov/covid-19/ dashboards/wastewater.* Click on a dot on the map to see the location of a collection site and obtain information on the viral gene copies detected in that location. When available from the utility, the area displayed in light blue on



Diok e site to zoom in end very zece for their site. To resum to the state very, block the site agent. When viewing and mobile device, such as a grane or tablet, photowith both fingers to move the map or zoom in an a specific area

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the map shows the geographic boundaries of the service area collected by the sewer system that was sampled. The data will be updated at 2 p.m. on days when the Ohio Department of Health receives information from sampling sites. Currently that information is reported to the Ohio Department of Health two to three times per week, but as the network and sampling capacity expands the data will be updated daily.

What do the results mean?

There are several factors to consider when interpreting viral data in wastewater. Because scientists are still learning about the timing and rate of shedding of the virus RNA in feces of infected people, it is only appropriate to monitor and observe the trends of viral gene copies detected in a community over time. The data presented in the graphs shows the total number of RNA copies detected in the area from which the wastewater was collected. A significant increase in viral gene copies over time is an indicator that cases may be increasing in the community. Because infected individuals can continue to shed the virus RNA in feces for 20 to 30 days after they are no longer infectious, decreases in the number of viral gene copies in wastewater might lag behind decreases in cases in a community. Trends in viral gene copies should be considered along with community case numbers and other COVID-19related data to inform decisions about taking actions to help limit disease spread.

Infected individuals shed the virus RNA in their feces

at different rates based on the severity and timing of their infections and wastewater flowing from homes with infected individuals can change during the course of a day. In addition, the amount of flow received at a wastewater treatment plant on any given day can change based on water use in a community, the age of the system, and other factors. Because of these factors, the number of gene copies detected at each sampling location is multiplied by the average flow on the sampling day. This is referred to as "normalizing" the viral gene copy results. Four samples are analyzed from each sampling site, and the data is presented as the geometric mean of those samples.

When reviewing the sampling results, it is most important to evaluate the trend in viral gene copies. A 10-times, 100-times, or higher increase is more significant than an actual increase in the number value. For example, an increase from 600 to 5,000 gene copies (a nearly 10-times increase) is more significant than an increase from 1,200 to 3000 viral gene copies. Because each community has different populations and different wastewater flow volumes, it is not appropriate to compare actual viral gene copy numbers between communities, but reviewing the trend in a specific community can be used to help understand whether cases or hospitalizations are likely to increase.

The Ohio Water Resources Center and participating university researchers are closely collaborating with the U.S. EPA, CDC, and ODH to develop standard methods for wastewater sample collection, processing the waste



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to prepare it for laboratory analysis, analysis of the waste, verification of results, and reporting of the data. More information on these standard protocols and methods can be found at https://wrc.osu.edu/.

What are the objectives of the Ohio Coronavirus Wastewater Monitoring Network?

The Ohio Water Resources Center at The Ohio State University will:

- Coordinate a network of state university labs, in addition to the U.S. EPA, to analyze wastewater for virus gene copies at locations across the state.
- In coordination with the U.S. EPA and the Centers for Disease Control and Prevention (CDC), develop a set of standardized methods and procedures for sampling and analyzing at wastewater treatment plants and specific locations in the plant service areas to ensure consistent and accurate comparison of results obtained from the laboratory network.



Department of Health

- Help with coordination and data sharing with other organizations collecting similar wastewater data (i.e., Biobot, Battelle, Stanford University) to ensure all data collected in Ohio is available to inform decisions.
- Establish management and collection of the data from the university networks and U.S. EPA into one database for upload to the Innovate Ohio Platform.
- Display viral gene copy trends (at all sampling locations via graphs/charts on the coronavirus.ohio. gov website) that can help state agencies and local communities implement appropriate intervention actions (such as closing certain facilities) to help prevent spread of the virus.
- Evaluate current models that can use the raw viral load data to make predictions on the likely percentage of people infected in the area the sewage came from. (Project researchers are collaborating with the CDC and U.S. EPA on model development with projected model results by fall 2020.)





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Water Industry Career Panel Discussion

by Todd Saums

On September 14, 2020 a panel of Young Professionals from both the OWEA and AWWA held a virtual water industry career discussion for college and university students from across the state of Ohio. In all, there were 66 students registered from 11 different institutions.

The need for student outreach at the college level was being discussed around the YP committees. While it was not the first time the two young professional organizations have collaborated for student outreach, it had never been done virtually, or at a state wide level. The young professional chairs worked with The Ohio State University and decided that due to Covid-19, the inability to host large gatherings, and The Ohio State University career fair in the coming weeks, this would be a great time to try and reach students from across the state. The YP chairs and other volunteers did a great job of getting the word out and finding contacts to various colleges and universities. The discussion panel had a great diversity of careers that showcased all different opportunities the industry can offer. The panel gave a brief summary about themselves, how they became involved in water or wastewater, and some of the highlights about their specific jobs. Following the introductions was a question and answer session. The group has had tremendous feedback following the discussion with students intrigued about getting involved with not only the industry, but the OWEA and AWWA themselves.

The panel is planning another virtual career discussion in the spring of 2021. If you are interested in joining the panel or have any insight, please contact any of the OWEA or AWWA YP committee chairs.

ROLL CALL

ADAM DOWNEY

ms consultants is excited to announce that Adam Downey has joined the team as a Wastewater Process Specialist and Practice Area Leader based out of our Columbus office. Adam's primary focus is to develop our wastewater treatment team through his

direct experience as an operator and expertise in process modeling and design. In addition to a Master's Degree in Civil Engineering, Adam holds Class IV & D Wastewater Operator licenses in Indiana and a Class II in Ohio. NOMINATE YOURSELF OR A FELLOW OWEA MEMBER FOR ROLL CALL ON OHIOWEA.ORG.

Adam is a recent transplant from Indiana where he has over 22 years in the industry in both municipal and consulting services. His most recent position was as Utility Superintendent for the City of Monticello, Indiana. Adam has also been heavily involved in the Indiana Water Environment Association and currently serves as Vice-President, but is looking forward being involved in OWEA as well.

Adam has one son at Purdue University and one finishing his senior year at Jefferson High School in Lafayette, Indiana. He and his fiancé, Marejka, have been living in Westerville, OH, since July with their golden retriever, Hana, and three cats: Sniquers, Leo, and Apollo.

1982-1983 OWEA President Robert Cottrill passed away

by Jim Greener, Stu Bruny, and Dale Kocarek

Robert W. (Bob) Cottrill was born 86 years ago on this date (Oct.18) in Akron, Ohio. He graduated from Akron University with a Bachelors Degree in Civil Engineering and a Masters from University of Florida. Bob initially accepted a position with the Ohio Department of Health Northeast District Office (ODH NEDO) in Cuyahoga Falls as a District Sanitary Engineer, and in 1964, he obtained a Masters in Environmental Engineering. He returned to Cuyahoga Falls and was assigned responsibility for semi-public Water and Wastewater (W&WW) in Summit County, a rapidly growing urban County, that contained the City of Akron and the ODH NEDO.

Bob was always an advocate for clean waters in Ohio. In October, 1972, the Ohio EPA was formed in response to the Clean Water Act. Bob was placed in charge of the Waste Management and Engineering component of the OEPA in the SEDO. This provided him an opportunity to again use his capability as a great recruiter of outstanding young engineers. In 1975 under Gov. Jim Rhodes, Bob was placed in charge of SEDO OEPA and served in that capacity until he retired in 1990. The office's staff under Bob grew from about 20 to 100 employees. Stu Bruny noted he provided consistent strong leadership on environmental issues in SE Ohio. His expertise was in water and wastewater programs. He always pushed for best available economically achievable treatment from businesses, industries and governments.

Bob was also active in the Ohio Water Environment Association. In the mid 1970's he served various chairs and became President of the SE Section. He later became President of OWEA in 1982-1983, and was a 3 year delegate to WEF. Bob received the national Bedell Award, and the Larry Moon Award from OWEA for outstanding service to the organization. Bob was an early recipient of the 5S honorary shovel. He encouraged his staff to be active in professional organizations.

Bob was an avid boater and fisherman and fished in several walleye tournaments on Lake Erie. He was a member of the Lancaster Boat Club. He and his wife, Janet, of 56 years, spent nearly 75% of the year on Lake Erie.

Bob was a beloved friend of many and will be missed. When Stu Bruny and I were leaving Former Ohio EPA Deputy Director Paul Flanigan's Wake, Stu said, "his family has no idea how important Paul was to the initial Ohio EPA or what a brilliant person Paul was." Bob falls in that category. Ohio just lost a fearless warrior for clean water. May he rest in peace.



Photo of Jim Greener, Bob Cottrill, and Stuart Bruny

Fireside Chats

A Chat with Student Design Chair Krishna Chelupati

Interview by Megan Borror

STAFF: How did you decide on the water industry?

CHELUPATI: I came to the United States in 2004 on a scholarship to pursue a graduate program in Civil Engineering at University of Kentucky (UK). I have an undergraduate degree in Civil Engineering from India and initially wanted to pursue a career in Transportation Engineering. However, early

in my graduate program, I met Anil Tangirala, an alumnus of UK, and water resources engineer and an OWEA member. I learned about what Anil was doing in the water industry and he really sold me on the idea of water as a great career. After my conversation with Anil, I switched my graduate program to Water Resources Engineering and the rest is history. That was one of the best decisions of my life. Once I learned the kind of opportunities the water industry has to offer, I was like, "Yeah, this is something that I should do!".

STAFF: What do you do for Stantec now?

CHELUPATI: I am an Associate in Stantec's Urban Water Resources group. I lead various collection system modeling, planning, and design projects throughout the US. My responsibilities include supervising staff, leading projects related to wet weather master planning, CSO/SSO mitigation and inflow/infiltration quantification, coaching, mentoring, and providing technical guidance. My design



philosophy is to understand the big picture and begin with the end in mind. I am passionate about the work we do in helping our clients meet their water quality goals.

STAFF: What is your proudest moment so far in your career?

CHELUPATI: I have two moments to date that really stand out in my career. One is a recently completed project where our team developed a Countywide hydraulic model with over 80,000 pipes for a utility in the Southeastern United States. This is one of the largest hydraulic models that I have worked on in my career thus far. The other moment is starting and leading the Student Design Competition in Ohio. This opportunity would not have come to me had I not been a water professional. I know it's not directly related to my technical expertise, but it is related to our industry because we need young, energetic, and passionate water professionals and the best of the brightest innovators. The Student Design Competition is a great program to attract students into our industry. My proudest moment is when I see the students who participated in the competition choosing a career in the water industry.

In the coming years, I would like to see more and more students pursuing water related courses and water related careers so our industry can thrive on the talent and all the

Fireside Chats

The Fireside Chats is a series for the Buckeye Bulletin focusing on leaders in the industry. The Question and Answer Feature will dig into their leadership role and how it has had an impact on the industry. We will be focusing on leaders from OWEA to Plant Superintendents and every leader in betwaaeen. Please nominate your boss, coworker, or someone you admire for a future article by emailing Megan Borror at: megan@ohiowea.org.



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passion they have to offer.

STAFF: What exactly is student design for somebody that's never heard of it before?

CHELUPATI: The student design competition is a competition where a team of students from various universities work on a common challenge or common problem that our industry is currently facing. Students who are taking courses in water related programs will bring their theoretical skills and apply it from an outsider's perspective to come up with an innovative solution. We as engineers are knee deep into these problems and often have preconceived notions of the solutions, whereas students bring a unique perspective that often times leads to an out of the box solution. If that idea is sustainable and cost effective, that is the kind of thing we are looking for with this program. Additionally, the students will gain

experience with real world projects and network with industry professionals, especially young professionals, which allows them to recognize early on if a career in water is what they want to or listening to a presentation. The competition helps them to really know what the problem is, how the problem can be resolved, and how they can

then apply the theoretical knowledge they gain in school. The entire process is rewarding for not only the students but the professionals who work with them. For students, it not only improves their communication skills, but it also provides an opportunity to work collaboratively with one another and improve their presentation skills. In our careers, that is what we do, we have to present an idea and then we have to sell the solution to the client. They do all of that in this competition from start to finish in the threemonth program. The feedback I receive from students is that they really enjoy the whole process and most of them have ended up in the water industry. For anybody who is not sure whether a career in water is for them, I'd say we have plenty of resources on our Northeast Section website and they can reach out to me to learn more. The whole takeaway from this is that it will give them a great www.ohiowea.org

"We as engineers are knee deep into these problems and often have pursue. This competition gives them preconceived notions of the much more than attending a career solutions, whereas students fair, looking at a company's website bring a unique perspective CHELUPATI: My absolute favorite that often times leads to an out of the box solution."

experience to understand what the water industry is all about and how can they be a part of it.

STAFF: What do you want the membership to know about the competition?

CHELUPATI: Reach out to me if you have a unique problem, unique issue that you want the new generation to investigate without having to pay for it. What we are looking for is utilities who are willing to participate in the competition by providing problems, challenges, etc. that the students will then evaluate to develop solutions. It's a synergistic opportunity where everyone benefits. The students get experience working on a project and the utilities walk away with potential solutions that they can further explore in the future. I strongly encourage the utilities of our member communities to look into any ideas they have and reach out to me if they want to partner with

> us for the upcoming student design competition and the following year.

> **STAFF:** What would you say is your absolute favorite thing about student design?

> thing is knowing that these students have no idea what they're getting in to initially, but the final product of their

work is so amazing that if somebody is looking at their work without any background, they'll feel that it was done by professionals. That's the kind of output we saw in the past and I'm simply amazed how they were able to pull it off with their busy class schedule and workload. They were able to put so much of their own time into learning which proves these are the kinds of students that will make our industry better because they will bring their passion, energy, and all their out of the box ideas.

Before I took on the student design competition, I was the Science Fair Committee Chair for five years with the Northeast Section. Each year I managed the science fairs in Northeast Ohio, where our section handed out cash prizes to students who did a science fair project study that was water related. That's where Paul Solanics and I used to have these conversations, "Hey, why can't we do something at

Fireside Chats

a higher level?" Science fairs are good for middle school and high school students. We hope, naturally, that these students will come into our industry in the future. The next thing is, "What can we do to do an outreach at the university level and how can we bring students to our local section meetings or annual state conference?" That is how the progression happened. Science fairs were the stepping stones to the student design competition.

One specific year, a parent approached me at one of the science fairs and told me, "Hey, I see you every year coming to the science fair. At one of the science fairs you and one of your colleagues spoke to my son, and he really got interested in engineering and now he's enrolled in the Civil Engineering program at University of Buffalo." It was great to hear from a parent that we were able to motivate a student to pick a career in civil engineering just by our participation. That is something that was very fulfilling for me.

STAFF: How can a member get involved or help to grow the competition?

CHELUPATI: The easiest thing that you can do is if you have connection with your school alma mater, reach out to them and spread the word because that's one of the biggest things that we are looking for is to expand this to all universities in Ohio. Right now, we are only doing this with a handful of universities in Northeast Ohio and slowly adding more schools from the rest of the state. But as a member, if you can help us spread the word with your alma mater, or any university that your friend or family is already attending, that's a huge benefit for us because the more students who participate, the more we can improve this competition. Those are the next generation of engineers so hopefully participating in the student design competition will help them fulfill their potential in becoming great engineers.

The second thing is we are looking for mentors for this competition. Each team is assigned one or two mentors. The mentors are our members who are working in the industry that can provide guidance to the students to ensure they are on the right path and the solutions they are coming up with are in line with underlying expectations. The expectation is that mentors provide high level guidance or support to the students and are not involved in the day to day. Mentors are a great asset to this program, and we are looking for members who are interested in serving as mentors for these students.

The third thing is judges. The judges of this competition are our members because who else can better judge the solutions or the alternatives that the students are deciding? Our members know what we are looking for. Each year I seek out judges from our section and we are happy to include interested members in the judging panel. If you're interested, please don't hesitate to contact me.

These are some of the things that our members can do if they are interested or excited to be a part of the design competition. Again, the commitment is not extensive. For instance, even as a mentor you typically only dedicate an hour or two every few weeks to helping your team. We will take any help we can because this is not a one-person job. We all need to collectively come together to make this competition better and grow it.

STAFF: What are your goals for the student design competition in the next five years?

CHELUPATI: I have the same goal as OWEA President, Mike Welke i.e. we want to grow this competition in Ohio. In the coming years, our hope is that each section will host their own competition locally with nearby universities. The first place winner from each section will compete at the state level. We will have four teams, one team per section, that will compete at our State Conference or sometime before the State Conference, and the winner of that state competition will go to WEFTEC. Basically, we will filter out at the section level and the state level, and the best team will be sent to represent Ohio at WEFTEC. The goal is that all sections will participate so there will be more students participating. We don't want to limit it to just one competition at one level but that needs some work on our end to spread this information, so it's going to take some time. We are taking it slowly. In our section it took us two years to really create a process where it's a well-oiled machine where everything is going smoothly. There's so much work that myself, Paul Solanics and Meredith Cariglio put in to making it at this level. I expect other sections may not go through all this effort because they can learn a little

Fireside Chats

bit from us, but there is definitely some effort needed. Hopefully three to five years from now we will have section and state level competitions and the state level winner will go to WEFTEC. That is my main goal for the next three

to five years to grow this competition in that direction.

STAFF: What advice do you have for young people looking to get into this industry?

CHELUPATI: I am not saying this just because I'm in this industry, but this industry has so many opportunities to grow from a technical perspective, managerial perspective, and administrative perspective. If you are a student in civil engineering or environmental sciences, OWEA is the organization to be a part of because all our members are working in this industry. If you want to make a career in water, OWEA is the place to be. The resources that are available and the support you receive are phenomenal. I mean, my journey with OWEA started a few years into my career and now, I feel I should have started sooner i.e. during graduate school. I have benefited so much from my involvement with OWEA such as improving my communication skills, leadership skills, and team building skills. Organizing this competition is not a small act and the kind of support that I receive from OWEA/NESOWEA and my colleagues, is so phenomenal. The experience that I've gotten from managing this competition has helped me indirectly in many areas of my day to day work where I feel like I became a better manager. I carried those experiences over into my work and it was a great experience overall for me. If you are on the fence, or a student who is not sure whether water is right for them, I would say don't think too much. Water is the best career to have.

The kind of projects that I get involved in at Stantec are across the country. I exclusively work on projects that are related to wastewater. For me, it's a natural connection to be part of OWEA, because that's where all our industry professionals are and that's where most things occur in the industry. It should be natural for everybody who starts their career in the water industry to join OWEA because the benefits are numerous. Not only education wise, like learning new things, but in meeting new people and getting involved and giving it back to our profession. Overall, this *www.ohiowea.org*

"If you want to make a career in water, OWEA is the place to be." whole experience is so rewarding that everybody in the water industry must experience that, in my opinion.

STAFF: How exactly did you first get involved with OWEA? What was your

first event or first position?

CHELUPATI: I still remember it because I wasn't sure about OWEA at that time. I was a member of American Society of Civil Engineers where we get to network with engineers from all specialties of Civil Engineering. At the time, I was not sure who else in the industry was working on the kind of projects that I was working on. Talking to one of my coworkers, he said, "Hey, we are having this young professional event. It's a small group, but would you like to come?" I still remember it was Paul Solanics, Ashley Williston, Nick Bucurel and Rick Soltis. It was such a rewarding conversation with them because we were all doing similar work and I learned about various outreach activities organized by the YP group. I really enjoyed the conversation we had that day at the young professional's event and then decided I should be a part of it. I became a member and then slowly my involvement started growing each year with volunteering for science fairs and STEM Day events and here I am. I'm now an Executive Committee member for Northeast Section and I'm also Chair of Student Design competition at the state. It all started with that young professional event that I had eight years ago. When I look back, at how I ended up in the water industry, attending the young professional's event was a good decision. It was time well spent and now I have a very fulfilling experience as a member and volunteer on many levels.

It is so rewarding that OWEA and NESOWEA recognized my efforts early on. OWEA awarded me the Young Professional Award in 2016, and NESOWEA with the Outstanding Volunteer Award in 2019. I didn't do this for the awards, but those awards mean so much to me. They value my involvement and my commitment, and I can't thank them enough. It's just phenomenal. Additionally, I would like to take this opportunity to thank my employer Stantec for always encouraging and supporting my involvement in OWEA.

Restoring a river, renewing a river: An insiders view

by Bill Zawiski

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It is hard to imagine what someone would have said in 1969 if they were questioned whether the Cuyahoga River could be restored to support fish. uma Likely it would have revolved around the general concept of no way, or are you kidding. Yet here we are in 2020 and most of the river now meets Ohio's biological standards while

of the Canal Diversion Dam on the Cuyahoga River (see Picture 1). Located just over 20 miles upstream from Lake Erie this project had it all. Riveting science, historical importance, suspense, and plot twists all folded into a single story.

some parts actually exceed expectations. How did this happen and what did it take?

To begin with this has been a team effort. Many people and much funding has been directed at this recovery, some willingly and some with a little coaxing. Initially, and of primary importance, this river renewal is a direct result of the 1972 Clean Water Act (CWA). Federal laws had existed prior to this one yet the 1972 version put some teeth into the compliance program, and a whole bunch of funding. The current NPDES permit program also emerged allowing for better control, monitoring, and regulation of discharges. Describing this process alone could fill pages upon pages of the Buckeye Bulletin. But we are drifting off topic, time to focus. Focus on a single project that embodies what the Cuyahoga Recovery is all about.

This summer a great milestone was achieved, removal

 $P_{icture 1} - M_{ap}$ and aerial of the Canal Diversion Dam At this point in time dam removal science and project implementation is fairly solid. This was definitely evidenced at the Canal Diversion where ecological communities within the dam pool failed to meet Ohio EPA biological standards while samples downstream actually met those of exceptional warmwater habitat streams. So the edited version of this story is: dam bad, take out dam, good. If only it was this simple.

> Our story begins many years ago in the late 1980's well before the actual process of removing dams for water quality had become the fairly common practice it is today. With the listing of the Cuyahoga River as an Area of Concern and growing knowledge of water quality in the watershed it was becoming apparent that dam pools created several ecological problems. Lower ecological integrity in these pools and diminished habitat were noticed and pointed out as issues impacting water quality. While taking a dam out was an idea, it was just that. Issues such as funding and local Buckeye Bulletin - Issue 4 | 2020

support had not even been thought about or imagined as possible. That began to change in the mid-1990's. Removal of the Canal Diversion Dam (funding of the project) was placed on a list of Supplemental Environmental Projects (SEP) by Ohio EPA, if an enforcement settlement led to providing funds for a restoration project this was a priority. Yes, it was still a dream, but hope loomed around the corner.

The Total Maximum Daily Load (TMDL) program required EPA (state and federal) to look at watersheds in a greater holistic way than just regulating discharges. The 1972 CWA contained a section describing a total maximum daily load process. If a water body was found to not be meeting applicable water quality standards EPA was to evaluate the watershed, explain why it had problems, then propose a solution. This was visionary and advanced for its time and in 2000 the TMDL process visited the Cuyahoga River. While development of the middle Cuyahoga River TMDL had it origins in late 1997, a final report (the first TMDL in Ohio) was issued in March of 2000. This report recommended removal or modification of dams in Kent and Munroe Falls. These projects were ultimately successful and taught all involved the importance of adequate funding (thank you Ohio EPA's WRRSP program) and most critical, that of strong working partnerships. Again, this part of the Cuyahoga River story could also take up many pages, but again we stray. On to the lower Cuyahoga River.

The TMDL for the lower river was approved in September 2003. A specific project mentioned in it was modification or elimination of the Canal Diversion Dam, it's really there just check out page 87! And now the story starts to take shape. It should be noted that initial stakeholder outreach actually began in 2002. This project has now been recognized as an important step in the recovery of the Cuyahoga River. This project is also gaining attention as an important action towards addressing issues related to the Cuyahoga River Area of Concern and associated beneficial use impairments (a whole other story). The table has been set, and things were starting to focus in on this as an actual project. *www.ohiowea.org*

No one accomplishes a project of this size alone. Partnerships are the key to a successful strategy. And we have a great bunch of folks here. To begin with, this section of the Cuyahoga River flows through a national park, how cool is that. The park however did not own the dam, the state of Ohio (ODNR) actually owned the structure. Other land in the immediate area was also owned by Ohio (ODOT) and Cleveland Metroparks, as well as the Cuyahoga Valley National Park. Things just got a bit more complicated, or, we have just gained a great group of new partners! The associated Ohio and Erie Canal is also part of a National Heritage Area, more partners! Additional friends will be picked up along the way but we must mention now some of the glue that helped hold this together. Friends of the Crooked River is a citizen-based group dedicated to stewardship of the Cuyahoga River. Their part in this story is critical, can not be overstated, and is totally awesome. As a citizen based group they became the project manager leading this incredible group on an amazing journey. More on that in a bit.

As part of an important historical area. this project also needed to evaluate impacts the project might have to the area and its features. The good news was that the dam, built in 1951, did not merit placement on the National Register of Historic Places. The canal and numerous associated structures were. We (the partners) also agreed to keep the canal in a watered state as a project goal. As this resource was important to the Cuyahoga Valley National Park, it was determined that an Environmental Impact Statement (EIS) be prepared to evaluate this in a much broader context. The official notice to conduct an EIS was published in the Federal Register in July 2009. At this time work on historic, hydrologic, and initial wetland evaluations had been done. And we are off. Continued evaluations and preparation of a draft EIS led to a December 2015 public notice to terminate the EIS. What, how could this be. Well it turns out that this evaluation led to information indicating that impacts associated with the project would be less than anticipated and be more suitable to an Environmental Assessment, well that was a bit of a relief. Still much to do,

Watershed

finish up our historic consultation with the State Historic Preservation Office and gain approval of the EA which was done in February 2019. All this and we haven't even begun to mobilize.

A good question is how something like this gets funded. Other dam removals have used the WRRSP program administered by Ohio EPA's Division of Environmental and Financial Assistance; a very successful way to fund bigger restorations. That wasn't used here. Remember we mentioned Friends of the Crooked River. This is where really neat and unique things begin to happen. Dam removals require money to prepare studies like historical assessments, hydrologic models, and wetland studies. These things often need to be at the front end of a project before funding is available. This can be a real obstacle to the project. Earlier we mentioned a SEP as a possible way of providing funds for restoration often in lieu of a penalty in enforcement cases. Well as luck would have it such an opportunity had arisen. US EPA had contacted Ohio EPA with the need to find a project for over \$100,000. They needed an answer that afternoon. Not a lot of time for planning. By chance Friends of the Crooked River had been working with Ohio EPA on a grant for conducting some of this initial work. The grant application was not successful but a partnership had been forged. Without hesitation I volunteered the Friends to receive the SEP (a unique occurrence) and begin this journey. Later on the Friends also received additional funding for removal of the dam by way of another SEP. We also were able to procure operation

Picture 2 - Initial removal activities on May 21, 2020. Photo by Ashley Kouri



and maintenance services by way of yet another SEP. It is now 2019 and we are a long way from 2002, project costs have increased, our funds will not be adequate to cover all costs. Remember the Cuyahoga AOC mentioned earlier? Funding for activities and projects is also provided by the US EPA's Great Lakes National Program Office, another partner interested in restoration of the Cuyahoga River. Funding has been secured. Is this complicated? You bet! Funds from US EPA are locally managed by the Northeast Ohio Four County Planning Organization (NEFCO) before being passed on to the Friends for project implementation. All of this is held together by Friends of the Crooked River, a citizen based group of volunteers now involved in project review, contract negotiation, and project management. My appreciation for the efforts of the Friends and what they have done, lest I say endured, is immeasurable.

We have a project, we now have a design build contractor, we have funding so let's go. Wait one second, how about inserting a global health pandemic at the beginning of actual field mobilization. Just another challenge capably worked through by a now larger group of partners. And then on May 21, 2020 the demolition began (see picture 2). Almost 20 years of planning, over 30 years of hoping and the Cuyahoga River is free-flowing once again. Along our journey we also removed remnants of the original Pinery Narrows Dam (yet another cool story unto itself).

Many would step back and enjoy the moment but not these partners. Work on a screw pump which will provide



Watershed

water to the canal, now that the dam is gone and gravity feed is no longer an option is ongoing. The pump will be fabricated over the winter and installed in 2021. While this project may come to a close, recovery for the river flows on. It is anticipated that biological communities will match those found downstream demonstrating exceptional quality. Recreation is now occurring with canoes and kayaks able to safely pass through what used to be a hazard. Connection to the river (see picture 3) is now restored for this section, folks will now be able to experience a free flowing river. In addition to this project the National Park and Army Corps of Engineers will work to stabilize and restore habitat upstream in the former dam pool.

While data and information drove the process, its success was ultimately based on partnerships and relationships. Working together through sometimes challenging situations has ended in a project all can be proud of. When completed in 2021 we can all sit down and now enjoy the moment as well as share lessons learned. This wonderful ending and new beginning started way before this aging writer was able to get involved, a thanks to Bob, Steve, Kelvin, and Meg for guidance and inspiration among many other now retired colleagues. This project team has worked to achieve something greater than all of us, thank you all. And to Elaine, Harold, and members of Friends of the Crooked River I give my respect and gratitude. One more dam to go and I can finally retire!

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Franklin County Sanitary Engineering Department Darbydale Wastewater Treatment Plant

by Ryan Stowe, Franklin County Sanitary Engineering Department and Cody Allison, Arcadis

The Darbydale Wastewater Treatment plant is located in the southwest corner of Franklin County along London Groveport Road east of Darbydale. WWTP The The the the second seco was originally constructed in 2005 to serve the Community of Darbydale and outlying several mobile home parks. It is owned and operated by the Franklin County Sanitary Engineering

Department. The original design provided for an average daily flow (ADF) capacity of 0.30 million gallons per day (MGD) and a peak hourly flow (PHF) capacity of 1.2 MGD.

Since construction of the original plant, flows from the Timberlake subdivision and the Village of Harrisburg have been added, which increased the base flow and loadings beyond the original design intent. In addition, the Pleasant Acres and Oak Hills mobile home parks as well as the Oakhurst Knolls subdivision, which were not originally connected to the system, were planned for tie-in to resolve existing operation and maintenance issues at their respective packaged treatment plants. These conditions necessitated an increase in capacity to an ADF of 0.45 MGD and a PHF of 1.44 MGD to ensure that the NPDES

Permit effluent requirements were consistently and reliably met. Construction of improvements to increase capacity were completed and placed into service in 2018.

The plant includes preliminary treatment, secondary treatment, disinfection. and solids storage facilities. Preliminary treatment is provided

by two center flow band type screens. A flow diversion structure was included to limit peak flows to secondary treatment to 1.44 MGD. Flows in excess of 1.44 MGD are diverted to a 115,000 gallon equalization tank. Secondary treatment is provided utilizing two vertical loop type reactors (VLR) and three 30 ft diameter final clarifiers. Phosphorous removal is achieved through chemical addition. Final disinfection is provided by ultraviolet light disinfection equipment and post aeration is provided by way of several cascade aeration steps. Effluent from the treatment plant is discharged into an unnamed tributary of the Big Darby Creek, which is a scenic waterway and important habitat for biodiversity in Ohio. Solids from the activated sludge process are stored on site in liquid form and are hauled to off site facilities for dewatering and ultimate disposal.
Preliminary Treatment

The Darbydale WWTP provides preliminary treatment for all wastewater received from the collection system. The preliminary treatment building houses two 12-inch wide center flow band type screens. Each screen is provided with 3 mm perforations to filter out debris from the raw influent. All captured materials are then sent to an integral screw type washing compactor that discharges to a hand cart for transport to a screenings container. Grit removal is not provided. However, provisions were included to add grit removal in the future.

Following the influent screening process, flow is conveyed to the Aeration Splitter Box. The Aeration Spitter Box includes several functions including the diversion of peak flows to equalization, flow monitoring to secondary treatment and flow splitting to the vertical loop reactors. As flow enters the splitter box, it passes over a downward opening weir gate. Flows in excess of 1.44 MGD back up and overflow a fixed weir and are conveyed to equalization. Flows less than 1.44 MGD overflow the downward opening weir gate and are conveyed through a 9-inch Parshall flume for measuring of flow to secondary treatment. From the Parshall flume, flow is conveyed to an aeration influent flow splitting chamber with three 12x36-inch downward opening weir gates. Two of these gates are used to split flow to the vertical loop reactors. The third gate directs flow to a sludge storage/flow equalization tank. This gate is normally closed and is intended for future conversion of the tank to a third vertical loop reactor. After flow passes over the two downward opening weir gates, it is conveyed directly to the vertical loop reactors. Return Activated Sludge (RAS) is discharged and mixed with flow conveyed to the Vertical Loop Reactors downstream of the weir gates. RAS flow split between the two vertical loop reactors is controlled by a 6-inch motorized plug valve.

Flow Equalization

The Equalization Basin provides for storage of approximately 115,000 gallons of influent flow. The basin is mixed with coarse bubble diffuser equipment consisting of stainless steel diffuser elements. Air for mixing is supplied by a 30 Hp rotary lobe type blower. Discharge piping is *www.ohiowea.org*



Hydro-Dyne center flow band type screens with integral screw type washer compactors.



Aeration Splitter Box

valved to allow the blower to serve a standby duty for the vertical loop reactors or sludge holding tank. A venturitype air flow meter and a motorized flow control valve are provided to control the air flow rate to the Equalization Basin.

Flow from the Equalization Basin is returned to the Aeration Splitter Box through the Equalization Lift Station. The Equalization Lift Station includes two wet-pit submersible pumps (1 duty and 1 standby). Each pump is rated for 450 gpm and is driven by a 20 Hp motor and variable frequency drive (VFD). The VFD's are used to control the rate of flow returned to the Aeration Splitter Box and to avoid overloading secondary treatment.

Aeration

Screened Influent flow and RAS flow is conveyed to the vertical loop reactors (VLRs), which utilize an extended aeration, activated sludge process to treat the influent wastewater. VLRs are similar to oxidation ditches that have been flipped on their sides. The reactors include upper and lower treatment zones separated by a horizontal baffle. BOD and NH3-N removal is accomplished in the VLRs by the bacteria present in the mixed liquor retained within the reactors.

There are two VLRs. Each tank has a volume of approximately 115,000 gallons. At the design flow rate of 0.45 MGD, the reactors provide a hydraulic retention time of approximately 12 hours. Typical operation maintains a mixed liquor suspended solids concentration (MLSS) of 4,200 mg/l and a sludge age of 16 days with an organic loading rate of 17.4 lbs/d/1000 ft3, which is sufficient to achieve full nitrification during the coldest winter months. The plant typically operates the VLRs in parallel. However, flexibility was provided to run the reactors in series. In a series configuration, the first reactor can be operated as an anoxic zone in order to prevent the growth of filamentous bacteria and improve MLSS settleability as well as to provide some simultaneous nitrification-denitrification.

In order to sustain biological activity in the tanks, oxygen must be provided to the microorganisms for respiration. Therefore, each VLR is equipped with a surface disc aerator that sits along the top of the reactors. The rotating discs create turbulence and entrain air at the air-liquid interface. The disc aerators also provide mixing energy in order to retain the mixed liquor solids in suspension. Each mixer is provided with a 10 Hp variable speed motor to control the oxygen transfer rate. In addition, coarse bubble diffusers are provided in the lower treatment zone to provide additional aeration and mixing to mitigate solids deposition. Air for the coarse bubble diffusers is supplied by rotary lobe blowers. There are two blowers. Each blower has a capacity of 323 scfm at 7.3 psig and is provided with a 20 Hp variable speed motor.



Evoqua vertical loop reactors with surface disc aerators for aeration and mixing.



Kaeser rotary lobe blowers used for aeration and mixing at the vertical loop reactors, equalization basin and sludge holding tanks.

A dissolved oxygen (DO) control system was provided to control the oxygen delivered to each VLR. A DO probe and oxygen reduction potential (ORP) probe are provided in each reactor and report back to the DO control panel. Based on setpoints input into the control panel, the disc aerator and rotary lobe blower speeds are controlled to maintain the DO and ORP levels in the reactors as required to maintain the setpoints input into the control panel.

Phosphorus Removal

Phosphorus removal is achieved through the addition of aluminum sulfate (Alum) to the MLSS. Alum binds to orthophosphate ions and precipitates them out of solution so that they can be settled out in the final clarifiers. Alum is fed upstream of the Final Clarifier Splitter Box as it exits the VLRs. Alum storage and feed facilities are located in the Preliminary Treatment Building. Alum storage consists of several 250 gallon totes. Alum feed is provided by way of two (1 duty and 1 standby) peristaltic type metering pumps. Each pump is rated for a maximum feed rate of 1.25 gallons per hour. The Alum feed rate is controlled by the plant wide monitoring and control system as required to maintain a dose setpoint in proportion to the influent



250 gallon Alum storage totes and chemical containment pallets.

flow rate. A typical dosage of approximately 15 to 20 mg/l alum is required to consistently meet the 1.0 mg/l TP effluent permit limit.

Secondary Clarification

MLSS from the VLRs is conveyed by gravity to the Secondary Clarifier Splitter Box. The splitter box includes three 36x26-inch downward opening weir gates to evenly divide MLSS to each of three secondary clarifiers. These gates may also be used to isolate a secondary clarifier for maintenance and cleaning. *www.ohiowea.org*



Two of three 30 ft diameter secondary clarifiers and the Secondary Clarifier Splitter Box

The secondary clarifiers provide quiescent flow conditions, which allow the solids or biomass, present in the MLSS flow to settle to the bottom of the clarifier. Each secondary clarifier is 30 ft in diameter with a sidewater depth of approximately 12 ft. The secondary clarifiers are a center feed type with spiral scraper sludge collector mechanisms.

The spiral sludge collectors convey settled solids to the center of the clarifier where the return activated sludge (RAS) pumps remove them from the clarifier. The sludge collector mechanisms also have a scum skimming arm located at the water surface, which conveys scum to a scum box. The scum box drains by gravity to the Plant Drain Lift Station. Each clarifier includes a density current baffle located around the perimeter of the clarifier to mitigate the loss of pin floc over the effluent weirs. Clarified effluent overflows a series of V-notch weirs and is conveyed through an effluent launder prior to final disinfection. Effluent launders are covered with fiberglass reinforced plastic covers to mitigate the accumulation of algae during summer months.

Return Activated Sludge (RAS) and Waste Activated Sludge (WAS)

 RAS is conveyed by gravity from the secondary clarifiers

to the RAS/WAS Lift Station. The RAS withdrawal rate from each clarifier is controlled by an 8-inch diameter telescoping valve, one for each secondary clarifier. There are two submersible type RAS pumps that operate in a lead/lag mode as required to maintain a level setpoint in the RAS well. RAS pumps are rated for approximately 318 gpm at 31 ft total discharge head. Pumps are provided with 5 Hp motors and are driven by variable frequency drives. The RAS pumps convey RAS to the Aeration Splitter Box.

Waste Activated Sludge is withdrawn directly off of the RAS force main piping. WAS may be directed to either the 115,000 gallon Sludge Holding Tank No. 1 (ST1) located adjacent to the vertical loop reactors and the equalization basin or to the 150,000 gallon Sludge Holding Tank No. 2 (ST2) located adjacent to the Maintenance Garage.

The amount of sludge wasted daily is calculated by plant staff as required to maintain the desired MLSS concentration in the VLRs. The WAS amount conveyed to the sludge holding tanks is controlled by a motorized plug valve and flow meter located on the WAS line to each sludge holding tank.

Disinfection and Post Aeration

Disinfection is provided by way of an ultraviolet light (UV) disinfection system. Ultraviolet light disinfects treated effluent by altering the DNA in the cells of bacteria so that they can no longer reproduce. Cells that can no longer reproduce are considered dead or inactive because they can no longer multiply to infectious levels. The UV system at Darbydale is based on the use of 100 watt low pressure low output lamps. There are 40 horizontal lamps provided to achieve the required effluent disinfection limits of 126 counts/100 ml of E. Coli on a monthly basis. Disinfection is only required during the summer months between May 1 and October 31.

From the UV disinfection system, flow is conveyed through a 9-inch Parshall flume for effluent flow measurement. Downstream of the Parshall flume several 40



Sludge Holding Tank 2 with floating decanter.

cascade aeration steps were provided to increase dissolved oxygen (DO) levels in the effluent prior to discharge. Five post aeration steps with a drop of approximately 16-inches each provide sufficient aeration to ensure compliance with the effluent permit limit of 6.0 mg/l DO.

Solids Handling

The sludge holding tanks are used for storing WAS prior to hauling to an off-site facility for dewatering and ultimate disposal. The total volume of on-site storage volume is approximately 265,000 gallons. Each sludge holding tank is provided with decanting equipment that allows sludge to be thickened to approximately 2.0 to 2.5% solids concentration. Sludge Storage Tank 1 includes a manual telescoping valve for decanting purposes. Sludge Storage Tank 2 includes a floating type decanter and a motorized decant drain valve for decanting. Based on a solids concentration of 2.0 percent, approximately 80 days of on site storage is available to plant staff.

Each sludge holding tank includes coarse bubble diffusers and rotary lobe blowers to keep solids from settling and to prevent the WAS from becoming septic and odorous. The blower for Sludge Holding Tank 1 is rated for 460 scfm at 7.5 psig. The blower for Sludge Holding Tank 2 is rated for 600 scfm at 8.0 psig. Each blower is provided with a variable speed drive to control the aeration and mixing rate within the tanks.

A sludge unloading station was also provided at sludge holding tank 2 to facilitate sludge hauling operations. The unloading station includes a 300 gpm submersible sludge pump to convey decanted sludge to the County's Sludge Hauling Truck.

Support Facilities

Support facilities at the Darbydale Wastewater Treatment Plant include an Operations Building and a Maintenance Garage. The Operations Building includes office space for plant staff, a Control Room for monitoring and controlling plant operations, and a Laboratory for performance of process control laboratory tests. The Maintenance Garage is used to house the County's sludge hauling truck and other County vehicles as well as spare parts and maintenance related tools.



Process control laboratory facilities located within the Operations Building



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Taking Care During Tough Times

by Jason Tincu, OWEA President-Elect, Director at GCSED

Heart-racing, insomnia, exhaustion, depression, sweats, inability to focus, irritability, laziness, disconnected, highly anxious, not oneself...I'm not sure if you have felt any of these over the past six months. But I will admit that these tendencies have popped into my life more than ever during this time. What is happening to me? Why do I feel this way? Am I losing it? Are others feeling the same? Help, someone? Anyone?

Come to find out that modern-day pandemics in a highly charged society with mass media and political influence, and economic and social fallout can be very stressful. Curve flattening, telework, social distancing, mask wearing, quarantine, school cancelling, contact tracing, life altering, CDC, WHO, Dr. Fauci, and Wine with DeWine were all foreign terms to most just six months ago. But now, our lives have been turned upside down. Regardless of where you fall on the side of validity for what 2020 has presented us, I'm sure that your life has been altered at some capacity.

So as we try to navigate the challenges of today...while

we also try to maintain professional progress... and oh yeah, also try to raise and care for our families...while also trying to live a joyful and satisfying existence...what can we do to stay grounded and sane through these challenging times?

Please review and consider the following recommendations from the World Health Organization (WHO) and also feel free to remind me of these if you ever hear or see me stressing!

- **Keep informed.** Listen to advice and recommendations from your national and local authorities. Follow trusted news channels, such as local and national TV and radio, and keep up-to-date with the latest news from @WHO on social media.
- **Have a routine.** Keep up with daily routines as far as possible, or make new ones.

The People Place

This Buckeye Bulletin series focuses on the people side of our industry, hence the title: The People Place. Traditionally, the Buckeye Bulletin comes loaded with mountains of technical pieces: plant profiles, industry trends, regulatory insight, project overviews, etc., which, without proper 'people-care' would not be possible! After all, your organization can only be as successful as the health, wellness, and productivity of your people



and culture. Focus areas of this series are topics such as leadership, management, health and wellness, succession planning, work/life balance, recruiting/retaining, change management, knowledge transfer, career laddering/branding, etc. We hope you enjoy this series as much as we are excited to bring it to you! If you are interested in submitting an article or specific focus area, please contact Jason Tincu. (jtincu20@gmail.com) Thank you!

The People Place

- Get up and go to bed at similar times every day.
- Keep up with personal hygiene.
- Eat healthy meals at regular times.
- Exercise regularly.
- Allocate time for working and time for resting.
- Make time for doing things you enjoy.
- Minimize newsfeeds. Try to reduce how much you watch, read or listen to news that makes you feel anxious or distressed. Seek the latest information at specific times of the day, once or twice a day if needed.
- **Social contact is important.** If your movements are restricted, keep in regular contact with people close to you by telephone and online channels.
- Alcohol and drug use. Limit the amount of alcohol you drink or don't drink alcohol at all. Don't start drinking alcohol if you have not drunk alcohol before. Avoid using alcohol and drugs as a way of dealing with fear, anxiety, boredom and social isolation.
 - There is no evidence of any protective effect of drinking alcohol for viral or other infections. In fact, the opposite is true as the harmful use of alcohol is associated with increased risk of infections and worse treatment outcomes.
 - And be aware that alcohol and drug use may prevent you from taking sufficient precautions to protect yourself against infection, such as compliance with hand hygiene.
- **Screen time.** Be aware of how much time you spend in front of a screen every day. Make sure that you take regular breaks from on-screen activities.

- Video games. While video games can be a way to relax, it can be tempting to spend much more time on them than usual when at home for long periods. Be sure to keep the right balance with off-line activities in your daily routine.
- **Social media.** Use your social media accounts to promote positive and hopeful stories. Correct misinformation wherever you see it.
- **Help others.** If you are able to, offer support to people in your community who may need it, such as helping them with food shopping.
- Support health workers. Take opportunities online or through your community to thank your country's health-care workers and all those working to respond to COVID-19.

Source: https://www.who.int/campaigns/connectingthe-world-to-combat-coronavirus/healthyathome/ healthyathome---mental-health



2020 Biosolids Workshop

This exciting in-person workshop will feature 6 hours of continuing education while remaining safe & socially distant.

Register by November 27, 2020 at *ohiowea.org.* Walk-in registrations will also be available.

December 2, 2020 Marriott Dublin

COVID-19 Workshop Precautions

We have heard from many of you who are excited to meet again in person and we are also looking forward to seeing you, safely. Our workshops will look different. While it is impossible to eliminate all risk associated with COVID-19, we are working hard to ensure as safe an experience as possible. Here is some of what we do in conjunction with our hotel partners:

- OWEA staff and hotel staff will be wearing masks and in some cases face shields during the event.
- Due to the executive order signed by Governor Mike DeWine, all attendees who are physically able to will be required to wear a mask when not eating, drinking or speaking to the audience. While we encourage you to bring a mask you are comfortable with. OWEA will also provide masks during events. Masks are the best way to keep everyone safe when we are around each other.
- Hand sanitizer will be provided by both the venue and OWEA.
- OWEA staff practices social distancing in the office and takes their temperatures daily including before workshops.
- We ask that you take your temperature before heading out to the workshop and that you stay at home if they don't feel well or have a temperature.
- We will have signage and explanations of correct social distancing measures.
- We will have seats at least 6 ft apart. Speakers will remain at least 6 ft from attendees.
- Communal meals will look different, with seating more spread out and fewer seats at tables. Social distance will be maintained.
- Food service will look different. Buffets will be served, and with very limited contact with service staff. Most items will be individually packaged.
- There will be markings on the floor to help maintain safe distances between attendees.
- We will be dismissing attendees by row to eliminate a large group during breaks.
- Podiums, microphones and laptops will all be sanitized between speakers.
- We will maintain recommended distances between all attendees, between staff and attendees, and between speakers and attendees.
- We will be communicating with registered attendees multiple times prior to the event to ensure everyone is comfortable and aware of these changes.

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WEF Utility Partnership Program

The WEF Utility Partnership Program (UPP) is designed to allow Ohio utilities to join WEF and OWEA while creating a comprehensive membership package for designated employees. Utilities can consolidate all members within their organization on to one account and have the flexibility to tailor the appropriate value packages based on the designated employees' needs. Key benefits include:

- UPP is fully customizable, based on the needs of each utility, and a WEF team member will be on-hand to walk each utility through the enrollment process.
- ALL members at the utility will be enrolled, with synchronized begin and end dates, on ONE invoice, for an easy one-time per year payment.
- All members, who were already WEF members, retain original membership number, credit for all years of membership, and remain a full-voting WEF member.
- ALL employees at the UPP utility will be eligible for membership registration rates at WEFTEC, as well as the early-bird rate for Premium and Standard WEFTEC registration at anytime throughout the registration period.
- ALL employees at the UPP utility will also be eligible for member rates for the OWEA Technical Conference and Exposition, OWEA Workshops, and events.
- All employees at the utility will be eligible to register for a WEFTEC Exhibitiononly pass at NO-Charge.
- WEFTEC registrations can be included in the UPP Membership transaction at the time of enrollment or can be grouped and submitted closer to WEFTEC.
- UPP also includes a special, NO-Charge membership for Public Officials designated by the Utility, at their discretion.
- Up to five new WEF/OWEA members can be added by the utility each year, at no charge for the first year of membership.
- UPP utility will be eligible for distributor pricing on all WEF products and services that's 40% off list pricing. In addition to traditional items this discount also extends to online learning in the new WEF Knowledge Center.
- UPP members will be eligible for special discounted registration for other WEF Conferences and events.

OWEA currently has 33 municipalities signed up for the Utility Partnership Program. To learn about the benefits for your utility visit http://www.wef.org/ UtilityPartnership/



Ohio UPP Members

Allen County Sanitary Department Avon Lake Regional Water City of Bellevue City of Canton City of Celina City of Dayton City of Fairfield City of Harrison City of London City of Marietta City of Mason City of Newark City of Oberlin City of Painesville City of Solon City of Steubenville City of Toledo City of Troy Ohio City of Twinsburg City of Urbana

Clermont County Sewer

Delaware County Regional Sewer District

Fairfield County

City of Warren

Fremont Water Reclamation Center

> Greene County Sanitary Engineering Dept

Lake County Dept. of Utilities

Metropolitan Sewer District of Greater Cincinnati

> Montgomery County Environmental Services

Northeast Ohio Regional Sewer District

Safety

Winter: Hot Chocolate and Shenanigans

by Travis Cooper, City of Dayton, SW Section Safety Chair

You may be asking yourself, "Wow, does this Buckeye Bulletin safety article writer have psychic abilities? I was just complaining to *insert a person or animals name here* about how worthy of an adversary winter is and the article writer somehow knew that winter is almost upon us!"

Although I've misplaced my Doctorate Degree in Clairvoyance and Psychics, it doesn't require years of intensive meditative training while holding various crystals and maintaining a dream journal to know that winter happens for the majority of people.

You may be one of the few individuals that enjoys winter, and for that I applaud you. I will admit that there's a unique beauty in untouched snow. Especially If I don't need to do anything other than stare out of the window of a warm home while sipping the best "homemade" hot chocolate that's ever been tasted. (Seriously, it's the best. I'll have to find my Food Network award for Most Amazing Hot Chocolate and share it with you all!) Hot chocolate isn't everyone's drink of choice to warm up though. The two individuals I asked said they preferred coffee which didn't surprise me. I am psychic, remember?

Did you know that coffee tastes best at around 175 degrees?! Did you also know, that hot coffee can cause a third-degree skin burn in approximately 1 second at 156 degrees, 2 seconds at 149 degrees, 5 seconds at 140 degrees, and 15 seconds at 133 degrees.

First aid for scalding burns:

1. Remove saturated clothing immediately or drench in cool water

- Hold burned area under cool water for at least 20 minutes.
- 3. Air dry no ointment or ice.
- 4. Assess burned area, if large seek medical attention. If small:
 - First degree burn looks like sunburn, can be home treated. Use 100% aloe.
 - Second degree burn redness, blistering, weeping, seek medical attention
 - Third degree burn no blistering, skin black, grey or leathery, may not be painful. Seek immediate hospital treatment.
- 5. Take Ibuprofen for pain.

That covers some of the indoor winter items that you may not have thought about. What about all of the horrible, villainous, powdery outdoor hazards? Somehow, I knew you'd want to know more about them...(I'm psychic, remember!)

Snowball Fights: I'm still recovering from the Great Cooper Snowball fight of 2019, but luckily I was wearing a heavy winter coat with gloves and a hat. I still have nightmares of my 4 and 8 year old daughters pelting me with snow. The rules of snowball fights are to play fair, no "ice balls" and stop the fight when I start crying.

Yellow Snow: Really? Don't play in it. I feel I shouldn't have to explain this. When you see yellow snow, it's best to avoid it.

Safety

but important outdoor tasks to complete. Make sure you stretch prior to cleaning off a driveway or sidewalk. Take plenty of breaks if needed. I'd also recommend a hearty soup to fully warm you up afterwards.

Sno-cones: Ok, sno-cones aren't a high priority in winter, but if you have to have one, blue raspberry is the best flavor. Hands down, no need for debating.

Driving in the Snow: I would really enjoy not having to venture outdoors during winter, but it's one of those unavoidable things. Make sure you slow down, and give yourself ample time to get where you're going safely. Hopefully this article has given you a small smile or even a chuckle while perusing this fine magazine. I realize I talked a lot about food, and in hindsight I should've eaten prior to typing this out, but how was I to know I'd be this hungry?

Stay safe out in the oncoming winter wonderland!

Last minute addition: COVID-19 = No fun. Wear your mask, wash your hands and keep your distance.

Questions? Comments? Hilarity? Contact me! Travis.Cooper@daytonohio.gov





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"How are you?" We are asked this or ask someone else this multiple times a day. The standard answer is "okay." Recently, a very wise woman I know spoke about how none of us are really "okay." She said, "if you are okay right now, you might be in a coma, because most of us are barely surviving." She is right. Regardless of if you have not been personally impacted by the virus or lost your job or home, you still aren't okay.

Your life has been turned upside down. All our lives have. We are living through endless video chats and zoom. We have missed holidays, graduations, proms and weddings. In many cases we can't even grieve as we normally do for those we have lost in the past six months. We can't travel like we are used to. We can't see smiles from

people in a store because we are keeping them safe by wearing a mask. We can't hug or shake hands. It's even recommended that we don't touch pets that aren't our own.

It isn't just the pandemic. It is an election cycle like none we have seen. It is racial tension and injustice. It is civil unrest. It is hurricanes and wildfires. It's social media. It's EVERYTHING. We are living in times none of us could have even imagined just nine months ago.

So why do we keep saying we are okay? We say it because it's habit, because it's what we know, because we don't want to seem ungrateful and because acknowledging we aren't okay makes the loss real. It is real. We have all experienced loss to some degree in 2020 and the sooner we start accepting and acknowledging this, the better we will all be.

Being sad or frustrated, or just not okay in general doesn't mean you aren't grateful or strong. It doesn't mean you don't have faith if you are a person who believes in a higher power. It doesn't mean you don't know that millions of people have it worse than you do. It means you are human.

So what do you do now? You know you aren't okay and everything around you is still so far from normal you aren't even sure normal will ever exist again. You take a breath. You control what you can. You reach out to friends and family. You are real with both those around you and yourself. You still get up every morning and you take pleasure where you can. That might be in simple things like a cup of coffee or an evening fire. It might be a good workout or a great song.

When we acknowledge that we aren't okay, we release a burden. The facade of "okayness" (totally my made up word), is lifted and we get a little more energy to tackle another challenge that we will face. Everything we are doing right now is taking more energy, so wasting energy by trying to act "okay," isn't a great use of your resources.

This article normally focuses on what's going on at OWEA. It should, since that is what the Buckeye Bulletin is all about, but this time I wanted to take this opportunity to really share and make sure you all know it's okay to not be okay right now.

I firmly believe life will return to what we knew as normal, but it isn't right now. We can't change what we don't acknowledge, so let's start acknowledging how hard all this is. Let's feel the feelings. So next time you are asked "How are you?" – Be real. Say "not great" if it's a down day. If it's better than yesterday, then say "well better than I was."

When we are real, we give others the permission to also be real. That's something I think we could all use. Right now, I am better than yesterday and hopeful for tomorrow and that is all I can ask for.

EXECUTIVE ADMINISTRATOR

DAWN LARSEN, CAE,



wef membership

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www.wef.org/JoinWEF

Transcendent Friendship

by Dale E. Kocarek PE, BCEE, Past President 2010-2011

Dear Friends and Colleagues,

The question has been asked on occasion if I would ever run out of things to say. Admittedly I am now very close. I have written over 50 articles for my column over the last 13 years, and I have recently contemplated when to end the series, which has now run longer than most TV shows. Unfortunately with the pandemic still raging, life as we know it from the past has not resumed. Like the woodland creatures in northern climates in the world, we remain in partial hibernation yet to fully emerge. We are not able to live life as we want. Some have suffered physically and emotionally. Others have suffered financially. Yet, we persevere.

This article is devoted to transcendent friendship. With the passing of former SE Section Robert (Bob) Cotterill last week at 86, I was able to witness the bond of friends formed decades ago through a common mission, purpose and significant lifetime involvement to protecting and preserving the water environment and as officers with the Ohio Water Environment Association



Photo of Jim Greener, Bob Cottrill, and Stuart Bruny

(OWEA). The outpouring of loss and remembrance from Bob's friends Jim Greener, Stuart Bruny and others including Keith Riley and myself bore witness to the importance of the role that our organization plays to impact each other's lives in a positive way. While we speak about training and contact hours, the true value of our organization lies in the intangibles: the work we do for the water environment, the good example we set, and the legacies of transcendent friendship that last forever.

Through the years I have come to understand the importance of OWEA. It outlasts many things including jobs, homes, and marriages and creates a source of comfort and continuity. Like a cozy inn on a winter's evening, section meetings provide a respite where we meet old friends and form new ones that give us an emotional lift.

An article on Bob's passing is published in this issue of the BB. I will not repeat the details here. The thing to note is that many of those who wrote Bob's obituary were former Presidents and WEF Delegates themselves and frequent attendees of section events and annual conferences. Their roles were significant and lasted decades. Each were actively engaged in their professions and had illustrious careers starting, and in some cases, ending with the Ohio EPA. Each was old enough to be in the formative years of the movement after the signing of PL 92-500, and each created a legacy of excellence and

continuing good will. Much of the progress you see today in the water environment is thanks to them.

Looking fondly to our illustrious past and a better 2021.







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WEF Delegate Report







This year's WEFTEC was like no

10 to 20 best practice and lessons learned from virtual conferences.

other, going virtual for the first time with WEFTEC Connect. I hope many of you were able to take part in this event. It truly went more smoothly than I think anyone dared hope. If you were registered but unable to attend specific sessions of interest to you, most recorded sessions are available On Demand, including the Opening General Session and the Brave Blue World screening. These recordings will be online for one year.

While things remain uncertain as to when we will be able to meet in person again, your WEF Delegates will still do everything in our power to keep you informed as to what is new with our parent organization as well as the workgroups in which we have chosen to participate.

Elizabeth Wick will be part of the Conference Resources workgroup: This workgroup will determine and prioritize the resources that WEF can consider providing to help assist Member Associations with their Annual Conferences. The workgroup focus will be collecting conference challenges and innovative solutions from Member Associations to facilitate learning and sharing in the MA community. In addition to assisting with conference resources, this workgroup will collect the top 58

Fred Smith will be assisting with the Diversity, Equity & Inclusion workgroup: This workgroup will be working directly with the WEF DE&I Subcommittee and WEF DE&I consultant to provide guidance on WEF's DE&I programs, communications. and Member Associations to establish WEF as a fully diverse, equitable, and inclusive water organization. The focus of this workgroup will be to work with Member Associations on their various DE&I programs including Inflow. The workgroup will develop resources, guidance documentation, and toolkits to help Member Associations develop or enhance their DE&I programs.

Kathy Richards will be participating in the Federal Advocacy workgroup: This workgroup will assist with amplifying WEF's advocacy messages and priorities. WEF has been able to, in collaboration with other organizations in Washington, DC, advocate for more resources for our communities and utilities. In the legislative side, advocacy efforts have been able to maintain appropriations by Congress to the Clean Water Revolving Fund (CW SRF) even without authorization,



that is, legislation that required that it be funded. In the regulatory side, WEF has been instrumental in providing technical comments and science-based evidence on matters related to permits, methods development and more recently recommendations on worker safety. However, a sustainable federal advocacy effort that generates results needs to have a strong grassroot base. Our successes recently have been because of our members writing Members of Congress, visiting their representatives, and being engaged on the issues.

We will strive to keep you informed about these specific areas as well as all things WEF that are so very important to our Member Association. Should you have any questions or personal interest in these or other committees and workgroups, more information can be found here: https://wefcom. wef.org/home

Also, keep in mind Abstracts are currently being accepted for WEFTEC 2021 until 11:59 p.m. EST December 1, 2020

As always, stay safe and take care of yourselves and one another.

Kathy Richards, Senior Delegate Buckeye Bulletin - Issue 4 | 2020

Brave Blue World

Brave Blue World Documentary Film Available on Netflix

press release from Travis Loop, WEF

Alexandria, VA – The new Brave Blue World documentary, which paints an optimistic picture of how humanity is adopting new technologies and innovations for a sustainable water future, is coming to Netflix on October 21.

The Water Environment Federation (WEF) is a production partner for the film, which will now be available to an audience of 193 million worldwide Netflix subscribers and subtitled in 29 languages.

"It is important to convey a sense of hope for water and that is why WEF originally welcomed the opportunity to be a production partner for Brave Blue World," said WEF President Lynn Broaddus. "We are absolutely thrilled that this inspiring story of water can be seen by Netflix's global audience and believe that by showing there is a path to a sustainable water future Brave Blue World can help us to influence leaders, increase resources, change policies, and improve stewardship."

Narrated by Liam Neeson, the documentary includes interviews with a variety of water experts, as well as activists Matt Damon and Jaden Smith. It features compelling stories, beautiful scenery, and examples of novel ways of tackling water problems from across five continents. The film explores developments in areas such as water reuse, nutrient recovery, energy generation, decentralized treatment, and the digitalization of water. Brave Blue World also includes a segment and interview with Tom Kunetz, a WEF Past President, at the world's largest nutrient recovery facility, the Stickney Water Reclamation Plant in Illinois.

"It is thanks to the support of the global water community, including those who have already hosted grassroots screenings, that we have reached this extraordinary milestone and are able to finally give water the profile it deserves," said Executive Producer Paul O'Callaghan.

"It's a great film and we all need to see it – every school and every college needs to see it," said Liam Neeson. "Every kid has heard of climate change; the film deeply connects with this. It makes water local – something so many of us take for-granted."

Brave Blue World was produced by the Brave Blue World Foundation, in association with its production partners that in addition to WEF include SUEZ Water Technologies & Solutions, DuPont Water Solutions, Xylem, L'Oreal, Aqualia, and the Dutch Water Alliance.

More information and the film trailer can be at *https://www.braveblue.world/*



Section Reports





Kelly Kuhbander, President

I want to continue to express gratitude for the large number of volunteers that invest their time and energy into planning events and keeping the southwest section of OWEA moving forward. The following is a list of current members of the SWOWEA executive committee:

- Erik Torgersen Past-President, TDE Engineering
- Kelly Kuhbander, President, Strand Associates
- Dave Reinker, Vice-President, City of Miamisburg
- Justin Bahar, Treasurer, MSDGC
- Kevin Stillwell, Secretary, Clear Consulting
- Bryan McNutt, 1st Year Director, City of Middletown
- Ed Smith, 2nd Year Director, City of Mason
- Chris Zdinak, 3rd Year Director, MSDGC

And the following is a list of other individuals who are actively involved as committee chairs:

- Roger Rardain Awards Committee
- Dan Martin Collection System Committee
- Jason Tincu Government Affairs Committee
- Jeff Frechtling and Barb Swafford Industrial Waste Committee
- Jim Davis and Lori Kyle Laboratory Analyst Committee
- Alyssa Mayer and Bryan McNutt Plant Operations
 Committee
- Nakita Lancaster Public Education Committee
- Travis Cooper and Ted Simmons Safety Committee
- Joseph Kamalesh Watershed Committee
- Pooja Chari Young Professionals Committee
- Barb Wagner and Will Martin Web page Committee

Many other volunteers also serve on committees to assist in planning events and making decisions about programs and offerings. As a volunteer organization, we all continue 60 to work together to plan events and run the organization for our members. THANK YOU to all who are involved and have donated their time and energy. If you would like to get more involved in a committee feel free to contact any of the above volunteers to learn more about how you can get involved.

I would like to congratulate the 2020 state OWEA award winners from SWOWEA! Congratulations to all our winners - these awards are well deserved!

Lab Analyst Award Winner Gregg Mitchell - Sidney

Collections Award Winner Ed Smith - Mason

Lifetime Engineering Award Winner Gary Haubner - Hazen and Sawyer

Facility Image Award Winner Fairfield WWTP

As we continue to navigate through challenging circumstances surrounding COVID-19, we continue to keep the health and safety of our members as our highest priority. As many events across the state are being held virtually or with virtual options available, SWOWEA members are encouraged to attend virtual events hosted by other sections across the state.

We also recognize the desire of many of our members to get back to in person events. We are working on options including the possibility of hosting "hybrid" in person and online events that would best accommodate the needs and requests of all members. Please continue to exercise patience as we work through these options and try to continue to serve you, our membership.

The wastewater industry is essential - you should all be very proud of the important work that you do.

Feel free to contact me with any questions or concerns related to SWOWEA: *Kelly.Kuhbander@Strand.com* Buckeye Bulletin - Issue 4 | 2020





Melodi Clark, President

Hello from the Southeast Section. I can't believe we are almost through the year. I hate to admit it but I am not sad to see 2020 be done and move on to 2021. The fourth quarter has not been a normal quarter for our section or any other section for that matter. We have focused on Webinar's in place of in person meetings for both our Executive meetings and our section meetings. We held a Webinar on October 28. I would like to thank Megan Miranda and Seth Grimes from Arcadis for presenting on Directly Comparing 3D Models & Reality via Augmented Reality.

We normally hold our awards lunch in May at our section meeting. This year that was not possible. We decided we still wanted to honor our award recipients so Amy Eberhardt our Secretary came up with a great idea of the EC board hand delivering the awards and videoing the delivery. Cody Allison from Arcadis put together the video compilation and it was emailed out to our section members. It was wonderful to see the people receive their awards and have them speak on camera. It made it very personal to have us go out and deliver the awards. We also have two new awards this year. The YP award and the SE Member of the year Award. I want to recognize the winners here as well.

- Dean Stewart Award: Darin Wise -City of Columbus
- JW Elms Award: Brandon Fox- City of Columbus
- FH Waring Award: Ryan Bolle City of Marietta
- WD Sheets Award: Dr. Natalie Hull- The Ohio State University
- PWO Award: Tim Bennett Delaware County
- Lifetime Engineering Award: Chad Dunn- Arcadis
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- Tom Hagerty Award: Alauddin Alauddin EPA
- Engineering Excellence Award: Darbydale Franklin County
- Elected Officials Award: Larry Kretzmann Southwest Licking Community Water & Sewer District
- Lab Analyst Award: Jennifer Macre City of Columbus
- Collections Award: Julie McGill Delaware County
- Facility Image Award: Alum Creek WRF Delaware County
- YP Award: Cody Allison Arcadis
- SE Member of the Year Award: Fred Smith -CDM Smith

Congratulations to all the award winners!!

I would also like to welcome Cory Smith from Delaware County as 1st year director to our EC board. We are very excited and happy you accepted the position.

We are planning on holding in person section meetings starting in the New Year. The first place we are hoping to have a section meeting will be Canal Winchester. Please watch your emails for updates on these meetings and webinars that we will be hosting.

We are always looking for volunteers for our different committees that we have. If you have any interest in getting more involved, joining one of our many committees is a great way to start. Please reach out to me and we can talk and see where the best fit will be.

I want to wish everyone a safe and happy holiday season and hope to see you all really soon at one of our section meetings.

Melodi Clark *mlclark@columbus.gov* 614-645-1239

Section Reports





Todd Saums, President

Happy Fall from the Northwest Section! In August, we traveled to the City of Defiance for an in-person section meeting. Being the first in-person meeting since the Covid-19 outbreak, it was a great success. Mark Lehnert and his staff did a great job of meeting all safety protocols not only at the venue but the Water Reclamation Facility as well. We enjoyed a tour of the plant and some interesting technical sessions.

Typically, we would be preparing for our bi-annual operator education day, but due to Covid-19, the EPA will not be holding the traditional pencil and paper exams in Columbus. However, operators are eligible to begin taking exams at all ABC certified exams sites. I encourage those interested in taking an ABC exam to look into the newly reconstructed WEF skills builder for study material, it is a great resource.

Our Young Professional committee has been very active. Two executive committee members participated in a water and wastewater career discussion panel. This was a joint



August in-person section meeting in Defiance

effort with AWWA. The goal was to reach college students across the state and the Zoom meeting was a great success. The YP committee is also in the beginning stages of a Northwest Section, Student Design Competition, please stay tuned for more details.

The executive committee met on September 25. The committee is planning events for late fall and early spring. The section is hoping to hold an early November, in person meeting. Watch your email for further details regarding the meeting.

Best Regards, Todd Saums tsaums@nwwsd.org



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Section Reports





As we head toward the end of the year, we continue to be busy as water professionals working both remotely, at home, and in the office. We have many challenges and are continuing to adjust as an industry and as the Northeast Section. We are not seeing each other as often, but maintaining communication primarily over video conference calls. Of note, Vice President Bill Zawiski hosted our Executive Committee on his spacious patio (a patio which I've of course dubbed, "The Thirsty Salamander") for a meeting in August with beautiful weather and sunny skies ... this was much needed for our team. As a whole, I think that COVID has made me feel "accomplished" at home over the spring and summer; as I've certainly completed more home projects than I would during normal times, which is a good thing!

I would like to extend congratulations to Kristi Babcock, who was recently voted in as the newest member of our Executive Committee. Kristi has done a wonderful job planning our annual January Operations Seminar for the past couple years, and we are very happy and excited to have her officially as part of the executive team!

Recent Northeast Section Happenings

Our 2020-2021 Program Year as the Northeast Section has and will continue to look slightly different as we gauge how we plan and operate both online and in-person events. Due to the continued issues with COVID-19, we have cancelled several of our annual fall events, including some key events: our Annual Fall Section Meeting (typically held in September), our Annual Clambake (typically held in October), our Annual Supervisors and Ethics Seminar (typically held in November), and our Annual Past Presidents Luncheon.

We've hosted several online section webinars in July, August, and September and will continue to do so into 2021. At the time of this writing, we are unsure whether we will hold additional online webinars in 2020 primarily due to webinar fatigue, as several industry conferences (including our own OWEA state conference) were completed online in the late summer and early fall months.

We were happy to have our OWEA Executive Administrator, Dawn Larsen, in town in October as she hosted the OWEA "Close to Home" Ethics and Management in Independence, OH. This event was an "in person" event with social distancing rules – and held successfully!

Upcoming Events

Our largest events of the year, the Operations Seminar (January) and the Industrial Waste Seminar (February), are moving forward in the planning stages and we hope to have them held as both an in-person (at a smaller capacity) event and an online option for attendance and contact hours. As we round the corner into spring, we anticipate having combination in-person/online events moving forward.

I'd like to wish everyone a safe and happy Holiday Season!

Michael J. Cook – NESOWEA President michael.cook@ads-pipe.com

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- Encourage students to apply for a free year-long OWEA/WEF membership at: https://www.ohiowea.org/membership.php

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Young Professionals Committee

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Young Professionals Update

by Kevin Connor, City of Defiance Water Pollution Control



I would like to introduce myself as the new State YP Chair. I am excited to start this new opportunity and want to thank President Mike Welke and the rest of the EC for allowing me to get involved at the state level. I have been involved with the OWEA's Northwest Section over the past 3 years as the YP Chair and Contact

Hour Coordinator. I have worked for the City of Defiance for the past 8 years in both water and wastewater and am currently the Assistant Superintendent at the Water Pollution Control Facility.

We are clearly experiencing unique times with the COVID-19 situation, and none of our sections currently have any events scheduled. If you would like to get involved and stay up to date on our future events I encourage you to reach out to your section YP chair at their email listed below. We are also looking for a new NW YP Chair. Please email me at *kconnor@cityofdefiance.com* if you would like more information.



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