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Newsletter

Federal Water Quality Association

An Affiliate of the Water Environment Federation; www.fwqa-dc.org

Established 1928

2019-20 Theme - Providing Access to Safe, Clean Water: A Global Challenge

FWQA President Janet Goodwin, in lieu of our traditional luncheon awards ceremony, virtually congratulates all winners. (See coverage on pages 1 & 3)

In This Issue:

Recognizing 2020 FWQA Scholars *by Sharon Nye*

Congratulations to the FWQA 26th Annual Capital Environmental Scholarship Program winners! The 2020 scholarship awardees are Anna Clare Sparling, Oakton High School; Akshay Shah, Severna Park High School; Kana Furukawa, James Madison High School; and Abby Cannon, James Madison High School.

We honor the four outstanding students for their academic accomplishments and service in the environment. These talented young men and women were awarded $2,000 each and will go on to pursue their environmental studies at various universities in the U.S. Applicants from Washington, DC and surrounding Maryland and Virginia counties are rated on academic achievement, environment-related essays, references, extra-curricular activities related to the environment, and overall presentation. The selection process is not an easy one especially since FWQA receives many high caliber applicants whose environmental awareness relating to water quality is versatile and covers a broad spectrum.

Thank you to this year's judging committee: Christian Davies-Venn (FWQA & PEER Consultants, retired), Jan Goodwin (FWQA & EPA, retired), Jim Wheeler (FWQA & EPA, retired) and Sharon Nye (FWQA), for their hard work and dedication to this program and especially to our sponsors – this program wouldn't be possible without you!

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Science Fairs	Janet Goodwin
Scholarships	Sharon Nye

Newsletter Editor

Mary B. Klein
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President's Corner

As we wrap up our 2019-20 year and look forward to hopefully a brighter fall season, I hope everyone is doing well. We have missed seeing you at luncheons which, at least for now, remain impossible to hold. The FWQA board has met the challenge of the stay at home orders and continued to meet (via phone) regularly. We were also able to receive scholarship applications and have selected four very deserving students to receive scholarships for their first year at college. We were able to judge at four regional science fairs one of which was held before schools were closed and the other three were done virtually. And finally, FWQA is sending a promising high school student from the District of Columbia to the National Competition for the Stockholm Junior Water Prize. All things considered not a bad spring.

I hope you are doing well in these uncertain times; I know at least for me they have made me think about what the important things are, family, friends, and especially health. I hope everyone is staying safe. I am looking forward to reconnecting in the near future.

Janet Goodwin

Vote Today!

FWQA Election Ballot for 2020 is on Page 9

Thank you to our Sponsors

National Association of Clean Water Agencies, McCallum Scholarship Sponsor
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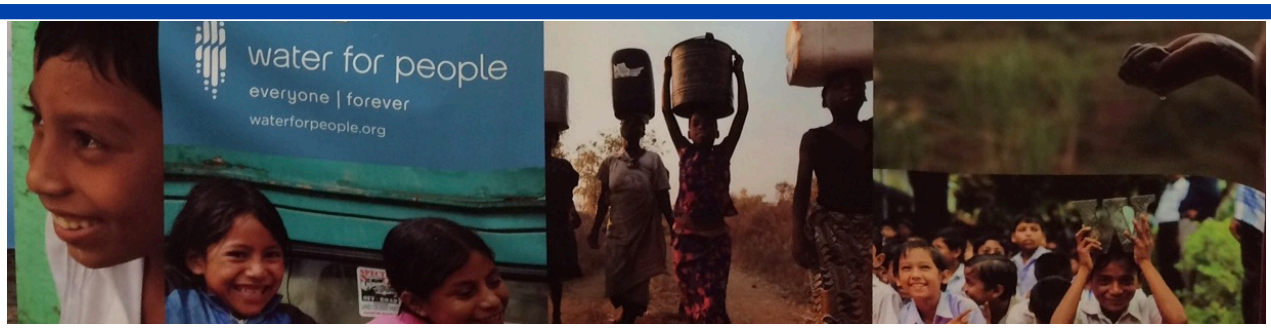
HONORING THE 2020 SCHOLARSHIP AWARDEES:

OLEM SCHOLARSHIP WINNER - ANNA CLARE SPARLING

PRESIDENT'S SCHOLARSHIP WINNER - AKSHAY SHAH

McCALLUM SCHOLARSHIP WINNER - ABBY CANNON

BARBER SCHOLARSHIP WINNER - KANA FURUKAWA



WATER FOR PEOPLE NEWS

Watch for Updates!

DC Student Selected for Stockholm Junior Water Prize Competition

by Janet Goodwin

Join us in congratulating Mia Reynolds on her participating in the Water Environment Federation's (WEF) National competition for the Stockholm Junior Water Prize (SJWP). FWQA is supporting Ms. Reynolds for the SJWP. Mia is 17 years old, and a rising Senior at Georgetown Visitation Preparatory school. In her free time, she enjoys coding, volleyball, participating in her school's tech crew, and working towards her gold award in Girl Scouts. She is a member of the science fair club, Kaleidoscope, and The Black Women's Society.

Mia's science project is a power generator that generates electricity with Peltier tiles. Peltier tiles use a difference between temperature to create electricity. Her experiment uses this condition as the basis of the generator. The device is surrounded by a 3-D printed float, which allows it to float on water. The device is designed to use the heat sink at the bottom to use the low temperature of the water while the top uses the high temperature of the sun. The energy generated by this device can either directly connect to a device or it can connect to a battery for the power to be stored. The device continuously generates around 12V of power. This generator offers an alternative to non-clean energy.

The next steps for Mia are to participate in the National SWJP Competition against others representing their states. This year's competition will be held virtually in June and the winner from the National Competition will participate in the international competition against participants from 35 other countries.

2020 Regional Science Fair Winners

By Janet Goodwin

Quite an interesting year for science fairs. Out of the seven regional science fairs that we hoped to judge at, three were cancelled outright, another three were held virtually and only one was a typical in person science fair. Science fairs are mostly clustered around the middle of March which this year coincided with the COVID pandemic and closure of all of the regional school districts.

The science fairs that we were able to judge included Prince William County and Manassas Schools, Northern Virginia which comprises Arlington, Alexandria, and Falls Church City Schools, Fairfax County, and Prince George's County. I want to thank the judges who did such a great job under unique circumstances to review the students' projects and identify the winners. As of this writing the winners from Prince William County and Manassas, Fairfax County, and Northern Virginia have been recognized. The winners from Prince George's are being notified by the fair organizers and should be made known to us in the near future. Our judges and the known first place winners were:

Prince William County and Manassas Schools

Judges:	**Winners**:
Jack Kooyoomjian	Desmen Boykin, Forest Park High School
Clancy McQuigg	Diego Luque, Gabriel Estrella and Swakshar Shuvo, Osborne Park High School
	Marakie Yilekal, Rippon Middle School

Northern Virginia

Judges:	**Winners**:
Janet Goodwin	James Licato, Washington-Liberty High School
Anthony Tripp	Will Bernhardt and Haylee Feist, Yorktown High School
Emilio Arquitola	Elaine Chu, Thomas Jefferson Middle School

Fairfax County

Judges:	**Winners**:
George Weiber	Connor Arnold, Lake Braddock Secondary School
Joe Ford	Isabella Dressel and Kapil Krishna, Centreville High School
Russell Thomson	
Melinda Miller	
Katherine Schmotzer	

Prince George's County

Judges:
Christian Davies-Venn
Sharon Nye
Janet Goodwin

Thank you to all of our judges and congratulations to all of our winners. Here's hoping next year will be back to more normal.

Commentary: Our Unusual Challenges In 2020

by K. Jack Kooyoomjian, Ph.D.

April 22nd was the 50th Anniversary of Earth Day. However, in the span of just a few months, the Elephant in the room for 2020 was and still is the COVID-19 Pandemic health crisis we are facing world-wide. A nasty virus robbed us of our meeting place and the ability to get together in our time-honored traditions in our 93rd year of existence (FWQA was founded in 1928) to hold professional society luncheons with great speakers. The pandemic also impaired us to complete fully our participation in the Regional Science Fairs, and to honor our scholarship recipients and regional science fair winners in our year-end luncheon.

The Elephant & Castle restaurant so conveniently located to all in Washington, DC is closed for the present. Metro is available to emergency and essential workers for the present time as a result of our lock-down and health advisories. As a result, Metro which is constantly seeking ways to be proactive on maintaining its infrastructure, has suffered major decreases in rider participation and is in further financial distress. We do not know exactly when this health crisis might end, but we have become very familiar with the terms, “PPE” (for face masks, gloves & protective suits, face shields, etc), “surge capacity in the hospitals,” "bending the curve," “social distancing,” “working at home,” N-95 face masks, the urgent need for respirators, and other situations and challenges to deal with this unprecedented health crisis.

With our inter-connected global world economy, the corona virus has spread globally. This has particularly harsh results and challenges in developing countries with crowded cities and slums and where “social distancing” is not possible for many. Having poor infrastructure, as well as less resources, including less access to clean water and sanitary conditions, is especially taxing and frightful for these people. Suffice to say that many countries with less resources have huge challenges and are very disadvantaged.

We have not seen such devastation since the great flu epidemic of 1918-1920, although there have been other global health challenges over this past Century. Our response to reduce the severity of this health crisis has resulted in wholesale closures in the service industries, such as restaurants and hotels, fitness centers, barber shops, a variety of retail outlets and shopping centers. Small businesses have been hit hard. Senior centers, cruise ships, and even United States and other naval vessels, as well as prisons have been hotspots for the corona virus because of confined spaces and the inability to exercise social distancing. We have quickly become acquainted with “essential services,” such as grocery stores, health care workers, emergency responders, sanitation workers and gasoline stations. Hand sanitizers, toilet paper, Clorox and Lysol wipes, and various disinfecting sprays have become coveted items and difficult to acquire. Our supply chains are stressed and are working to adjust to these shortages and hoarding by some.

We didn’t realize how important the stores with drive-thru features, such as restaurants, banks and other retail facilities would become. Many walk-in services have been forced to close or have carry-out or delivery from their brick and mortar stores. We have seen severely reduced air travel and grounded airlines, closed businesses and schools and millions being forced to apply for unemployment, which hasn't been seen since the Great Depression of 1929 (its effects lingered well into the late 1930’s). The U.S. Congress has passed massive stimulation legislation to help those affected by this health crisis.

For us in the FWQA, it has modified or knocked out some of our regional science fair judging this year. The world-wide health crisis has made working at home the most preferred option for many, placed millions of our workforce in the ranks of the temporarily furloughed or unemployed, imposed home isolation especially for senior citizens, and created massive lines at overloaded food banks that we see on social media and in the evening news.

We are witness to frequent health briefings, and have learned of Phase I and Phase II plans in the District, Maryland and Virginia (the DMV).These weekly briefings by our government officials, as well as from the White House have created the situation where health-care workers and emergency responders have become our heroes and infectious disease experts such as Dr. Anthony Fauci, and Dr. Elizabeth Birx have become household names. Zoom, Go-To-Meeting, Microsoft Teams and other on-line tools for conference calls and virtual reality meetings have become the tools for work, home learning for school children, and preferred means for business, civic and community meetings.

The Washington Post article by Brady Dennis entitled "An early warning system for coronavirus infections could be in your toilet" has become part of our reading material and is printed in this issue of our FWQA newsletter. Please stay safe. Virginia Governor Ralph Northam in his 2:00 pm health briefing on Wednesday. May 20th likened this health crisis to a novel where we don’t know what the last chapter will look like until we get there. We don’t know when that will be right now, so please stay safe, and we will see you when we see you, whenever that will be.

Article from the Washington Post, May 1, 2020:
https://www.washingtonpost.com/climate-environment/2020/05/01/coronavirus-sewage-wastewater/

Climate and Environment

An early warning system for coronavirus infections could be found in your toilet

From the U.S. to Europe to Australia, scientists have detected the virus in wastewater ahead of spikes in local cases

By
Brady Dennis
Brady Dennis is a Pulitzer Prize-winning national reporter for The Washington Post, focusing on the environment and public health. He previously spent years covering the nation's economy.

David Hirschberg has a simple explanation for why a growing number of scientists are looking to sewage to help track the spread of the novel coronavirus in communities around the world.
"S--- is a great source of information," said Hirschberg, founder of a nonprofit biotech firm and professor at the University of Washington at Tacoma. "This is the kind of early warning system you want to have. When people start showing up at hospitals and start dying, that's not the indicator you want to have. That's too late."

Researchers say the virus can be detected in untreated wastewater within days of infection and as much as two weeks before a person grows ill enough to seek medical care — that is, if symptoms ever materialize at all.

Hirschberg and his colleagues, who have been monitoring raw wastewater coming into treatment plants in Tacoma and surrounding Pierce County for evidence of the virus over the past month, are among researchers in the United States, Europe, Australia and elsewhere who say the approach allows a glimpse at the curve of probable infections before confirmed cases begin to rise.

As the lack of adequate testing in many places has made it difficult to keep pace with the highly infectious coronavirus, scientists say that monitoring sewage for the presence of the virus can provide public health officials with a relatively cheap and reliable tool that could remove some of the guesswork about when to impose local lockdowns — or when to ease them.

"We're hopeful this info can really be a valuable addition to all the other information they are looking at to help them decide in the safest, most responsible — but also the fastest way possible — when to open up our economy and our cities," said Newsha Ghaeli, president of Biobot, a Massachusetts-based start-up that analyzes wastewater.

Her firm — working alongside researchers from the Massachusetts Institute of Technology, Harvard University and Boston's Brigham and Women's Hospital — has undertaken one of the most ambitious efforts to ramp up sewage surveillance as the pandemic persists. More than 170 wastewater facilities across 37 states, representing about 13 percent of the U.S. population, have been sending regular samples for analysis.

So far, the samples have consistently shown a higher concentration of virus in places with more intense outbreaks. And the firm's modeling, which estimates the likely number of cases in an area based on the amount of virus in wastewater, corroborates what other researchers are also finding: Many more people have covid-19 than official counts suggest.
"Our estimates are about 10 times higher than the cumulative [confirmed] cases up to that date," said Mariana Matus, a Biobot co-founder.

Case in point: New Castle County, Del.
Based on sampling Biobot conducted there in mid-April, researchers estimated there were roughly 15,000 cases of covid-19 in the county — more than 15 times the 974 cases that had been confirmed. More recently, as the number of confirmed cases has continued to climb by several hundred, the firm estimated there were actually thousands of more cases across the county.

New Castle County Executive Matt Meyer said the findings offered valuable evidence that the

(Contd. on Page 8)

Warning System for Coronavirus

(Contd. from Page 7)

local outbreak was still intensifying, that many infected residents were asymptomatic and that people should continue social distancing, wearing masks and staying home.

"When you're dealing with imperfect facts, it's really important to get as much data as you can," Meyer said, adding that the wastewater data can be helpful to policymakers who are wrestling with uncertainties as they try to figure out when and how to ease current restrictions.
"You have this virus, which really is not understood that well. There's a lot of data, there's a lot of misinformation, and there's a lot of things we just don't know," he said. "The worst enemy is an invisible enemy."

The ongoing pandemic is not the first time that epidemiologists have looked in wastewater for clues about the spread of an infectious disease.

In 2013, for example, Israel used a sewage surveillance system, which had been put in place decades earlier, to detect the circulation of the polio virus — a situation that threatened to set back global efforts to eradicate the crippling disease.

Because of the early detection in sewage, officials were able to pinpoint the most likely areas for infection and work quickly to ramp up a vaccination campaign to head off a more serious outbreak.

Monitoring wastewater for the novel coronavirus is hardly a panacea. The approach faces a number of challenges, including the logistics of deploying it on a massive scale and winning buy-in from government officials. Effective surveillance would need to be ongoing, and the results would probably need to be available more rapidly than they sometimes are now. The turnaround for Biobot's results, officials there said, is roughly five days because samples are mailed to the firm from around the country.

Laurent Moulin, a microbiologist with Eau de Paris, the French capital's publicly owned water utility, believes wastewater surveillance could prove especially useful in helping detect the second wave of covid-19 infections that many public health officials have warned is likely.

"When we stop the lockdowns, a lot of people could have interactions, and the virus could start to spread again," said Moulin, who recently published findings, which have yet to be peer-reviewed, in which he and colleagues detailed how the rise and fall of confirmed infections in Paris correlated with the amount of virus detected in sewage. "If we monitor the wastewater, we can have an early warning system," he added.

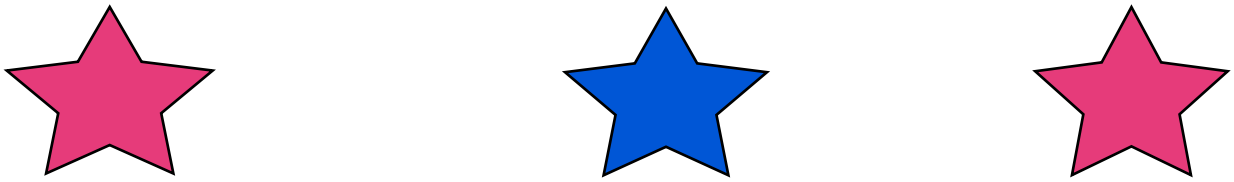
Zhugen Yang, a professor at Cranfield University in the United Kingdom, who is working to develop a rapid, paper-based test for the coronavirus in wastewater, said such technology ultimately could act as more than just a way of alerting authorities to the need for more restrictions as infections rise.

It also could be deployed on a hyperlocal level to give officials some measure of comfort in reopening schools and businesses. If cases are falling and the virus begins to disappear from wastewater, he said, sewage could help decide when it's okay to inch back toward normality.

"If we can do proper detection, we could know in some communities there is lower risk," Yang said. "It could be a signal to say that certain communities are not affected, and give them more freedom."

FWQA Archive photo showing sewage from DC Blue Plains Water Treatment Plant.

2020 FWQA Election!



Official FWQA 2020 Ballot

Ballots must be received by FWQA
P.O. Box 14303, Washington, DC, 20044
By email to: fwqaevents@gmail.com
By June 30, 2020.

President
- ☐ **Christian Davies-Venn**
- ☐ Write in _____

President Elect
- ☐ **Claudio Ternieden**
- ☐ Write in _____

Vice President
- ☐ **Tessa Rosco**
- ☐ Write in_____

Secretary
- ☐ **Sharon Nye**
- ☐ Write in_____

Biographical Information

Christian Davies-Venn recently retired as Vice President and Chief Engineer of PEER Consultants. He has a Bachelor of Civil Engineering degree from the University of Sierra Leone, and his M.S. and Ph.D. degrees in Environmental Engineering from the University of Cincinnati and the University of Arkansas, respectively. He is an Adjunct Professor at the Johns Hopkins University Whiting School of Engineering and a past president of the American Academy of Environmental Engineers and Scientists. He is also an active member of the Water Environment Federation (WEF) and the Federal Water Quality Association (FWQA) and is a member of the FWQA's Scholarship Committee.

Claudio Ternieden is the Senior Director for Government Affairs at Water Environment Federation (WEF) and directs WEF's legislative and regulatory efforts in Washington, DC. Claudio oversees policy development and implementation in the water sector on issues such as reuse, resource recovery, workforce, infrastructure funding, green infrastructure, technology transfer and innovation. Claudio has led research efforts at the Water Environment Research Foundation (now the Water Research Foundation); contributed to the development of federal regulations at the U.S. Environmental Protection Agency and the development and implementation of water quality standards in the State of Indiana. Claudio has a law degree from Pace University School of Law (White Plains, NY), a Master's Degree in Public Policy from George Mason University (Arlington, VA), and a BA in History from Concordia College (Bronxville, NY).

Tessa Roscoe has a BS from the University of Maine in her home state and an MS from Carnegie Mellon University, both in Civil and Environmental Engineering. She has an additional MS from CMU in Engineering and Technology Innovation Management. She moved to the DC area to start work for Eastern Research Group (ERG) in their Chantilly office at the start of 2016 and specializes in wastewater treatment. She currently serves as the Vice President of Engineers Without Borders-Northern Virginia Professional Chapter (EWB-NOVA) in addition to being the Young Member Liaison for FWQA.

Sharon Nye recently retired from her position as a research analyst with the Water & Wastewater Equipment Manufacturers Association (WWEMA) where she worked for 24 years, assisting the president in a variety of legislative and regulatory issues. She remains active in the water industry in many capacities, and is an active volunteer and science fair judge in Loudoun and Prince William Counties. Sharon has served as Secretary for the Federal Water Quality Association for several terms and also serves as head of the Scholarship Committee. She is a recipient of the 5S award and the Hatfield Award.