

# Wastewater Surveillance Challenges and Opportunities for Utilities

Go with the Flow:

Public Health Wastewater Monitoring in Michigan

*May 17, 2023*

**Anna Mehrotra, PhD PE**

Wastewater Surveillance Program Director

Water Environment Federation

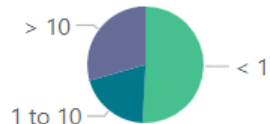
# NWSS Utilities Community of Practice

## Who we are

Total members

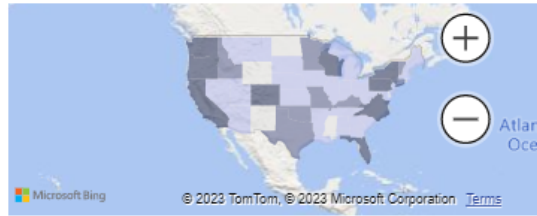
330

Members by flow (MGD)



\*Flow data not available for all members

Members by state



## What's on our minds

### Ethics!

Based on our February 2023 meeting poll, our top three wastewater surveillance ethical concerns are: (1) lack of transparency in how data are collected and used, (2) ineffective or inappropriate use of wastewater data, and (3) inequitable selection of sampling locations.

## Our mission

We are a collaborative for promoting review, synthesis, and sharing of lessons learned among utilities to accelerate implementation of wastewater-based surveillance (WBS) and participation in the National Wastewater Surveillance System (NWSS) to support public health decision making

## Our meetings

### Topics

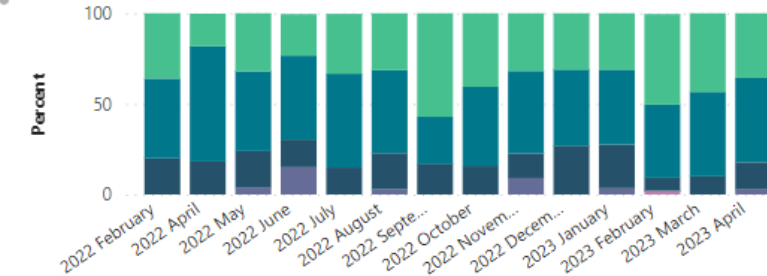
Year	Month	Topic
2022	February	Wastewater Based Surveillance
2022	March	HD & Utility Coordination
2022	April	Wastewater Worker Safety
2022	May	Utility Needs
2022	June	COVID Data Tracker NWSS c
2022	July	Sample Collection
2022	August	Lab Methods

Click here for the meeting recordings and notes

### Meeting feedback

Responses to meeting survey on "How helpful did you find this meeting?"

Legend: Not helpful at all (purple), Slightly helpful (blue), Somewhat helpful (teal), Very helpful (dark teal), Extremely helpful (green)



\*No survey data available for March 2022 meeting

## How to engage

Post or answer a question on the discussion board

Make an anonymous suggestion to improve the CoP

Browse the available CoP resource documents

Listen to our podcast

Or [email us](#) or explore the other dashboard topics using the **navigation buttons** below!

## Dashboard navigation

Summary

Sampling

Safety

Public Health


Lab Methods

Future of WBS

Data

Ethics

# “Typical” WWTP participating in wastewater surveillance



Is located  
in any state  
but probably in  
1 of 11 states

Takes samples  
at the  
treatment  
plant influent  
rather than  
upstream

Serves a larger  
population than  
the median  
population  
served by all  
treatment  
plants

# NWSS data

**1,246** Sites with current data on COVID Data Tracker

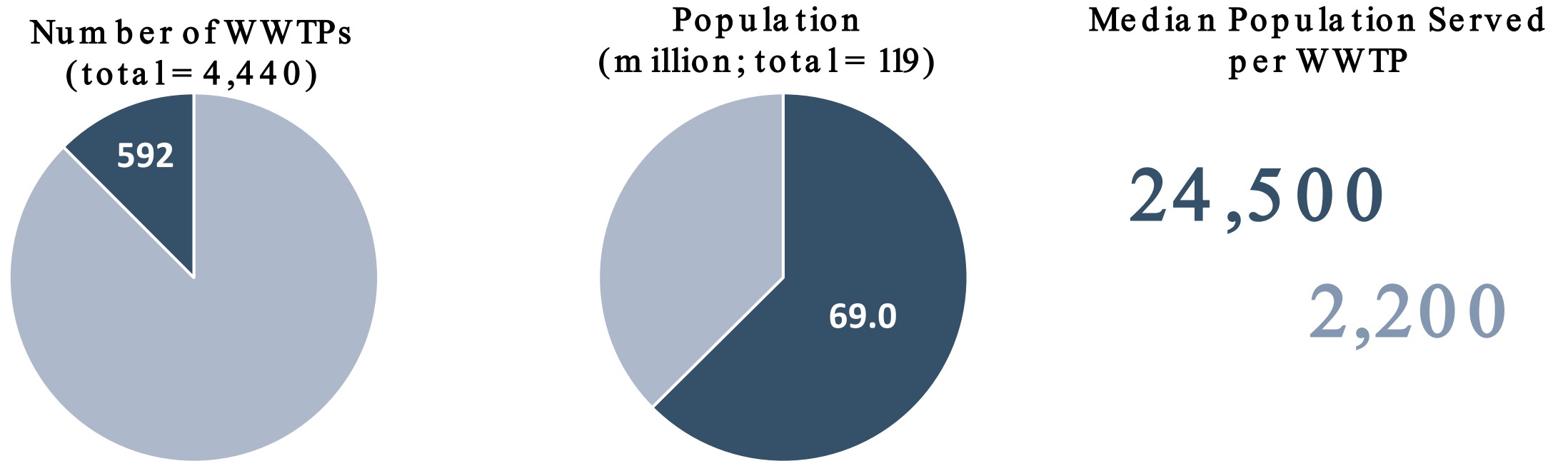
**1,222 (98%)** Sites at wastewater treatment plants vs. upstream (% of total)

**34,100 (vs. 1,990)** Median population served by NWSS sites (vs. all US WWTPs)

NWSS data based on 1/8/23 download for SARS-CoV-2 from [bit.ly/wwmetrics](https://bit.ly/wwmetrics); doesn't include all NWSS sites or sites not submitting data to CDC

Population data for all US WWTPs based on 2021 WEF data based on NPDES data from EPA's ECHO database and other sources

# Data from 11 state programs\*



\*California, Colorado, Michigan, Missouri, Nebraska, New York, North Carolina, Ohio, Oregon, Utah, Wisconsin

Information for individual state programs taken from public facing dashboards

Michigan data are only for the SWEEP Sentinel Dashboard

Count of, and population data for, all WWTPs in each state based on 2021 WEF data from EPA's ECHO database and other sources

# Challenges



Utilities not  
participating

Utilities  
participating

# Challenges for utilities not participating

- **Not knowing where to start or who to contact**

“ I spoke with our local environmental health department, but they did not have any knowledge of the program.”

*Laboratory Director at Maryland utility*

# Challenges for utilities not participating

- Not knowing where to start or who to contact
- **Not having enough time/staff/resources**

“I..have quarterly sampling that needs to be done and out that day and I'm the only licensed operator that's able to collect samples. I appreciate the invite.”

*Chief Operator at Virginia utility*



# Challenges for utilities not participating

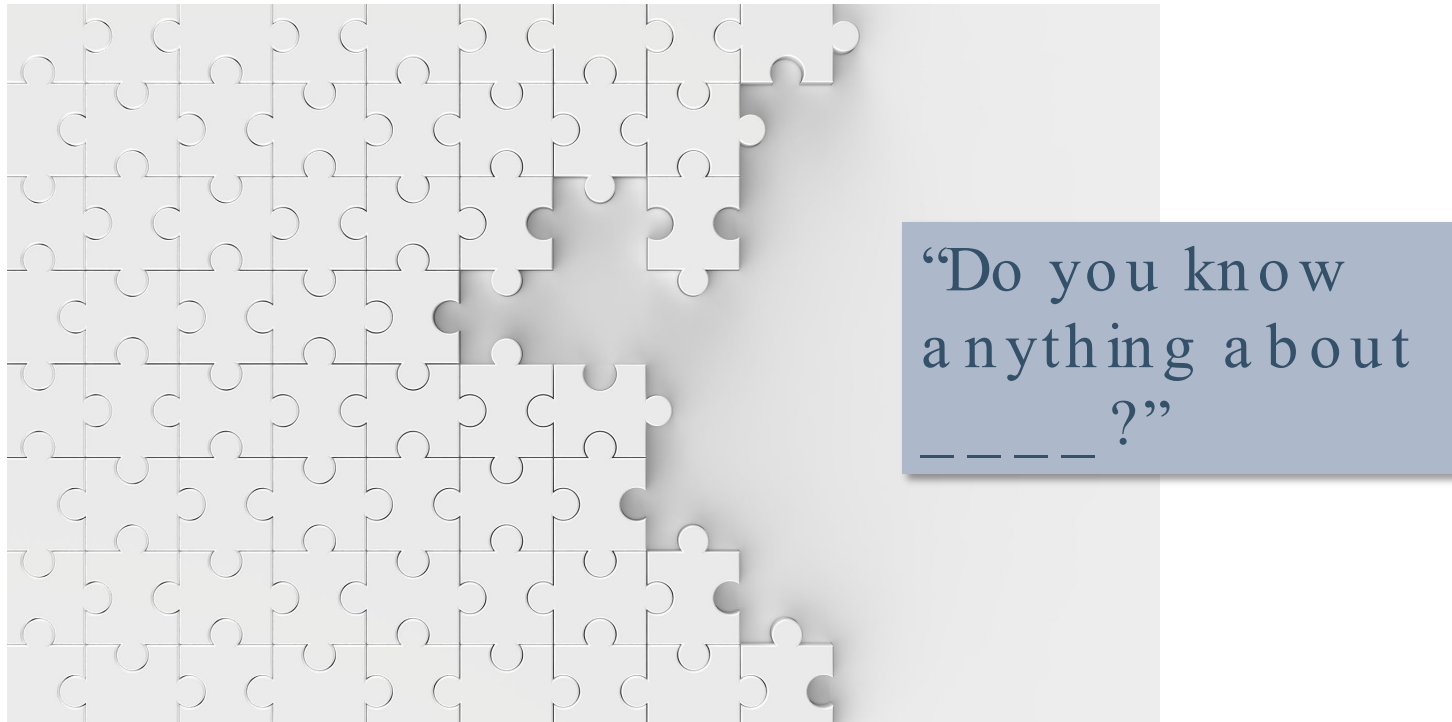
- Not knowing where to start or who to contact
- Not having enough time/staff/resources
- **Not being able to convince leadership of the value in participating**

“There is a belief that COVID is over and so it doesn't make sense to use our resources for this.”

*Superintendent at South Dakota utility*

# Challenges for utilities already participating

- Understanding how all the programs fit together



# Challenges for utilities already participating

- Understanding how all the programs fit together
- Consistently interpreting data for, and communicating data to, the public



“If we’ve had some hang up ..and the [dashboard] is not updated ..we will hear about it.”

*Kyle Curtis from nwbe.org podcast episode #2*

# Challenges for utilities already participating

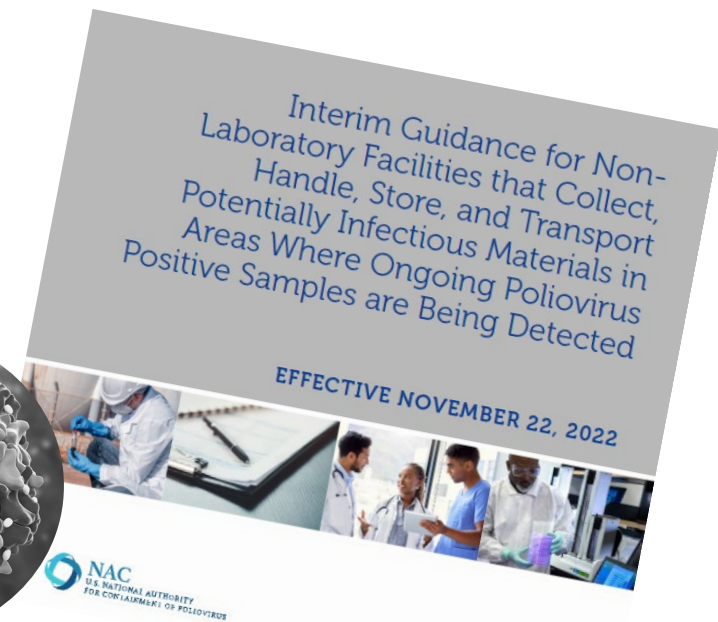
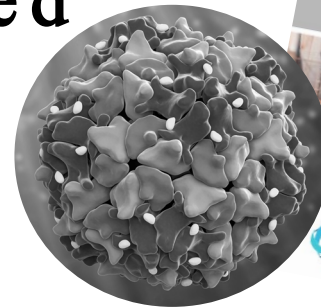
- Understanding how all the programs fit together
- Consistently interpreting data for, and communicating data to, the public
- **Addressing questions about long-term funding and the value beyond COVID**

“There’s a huge desire to ..be involved. It’s always about resources.”

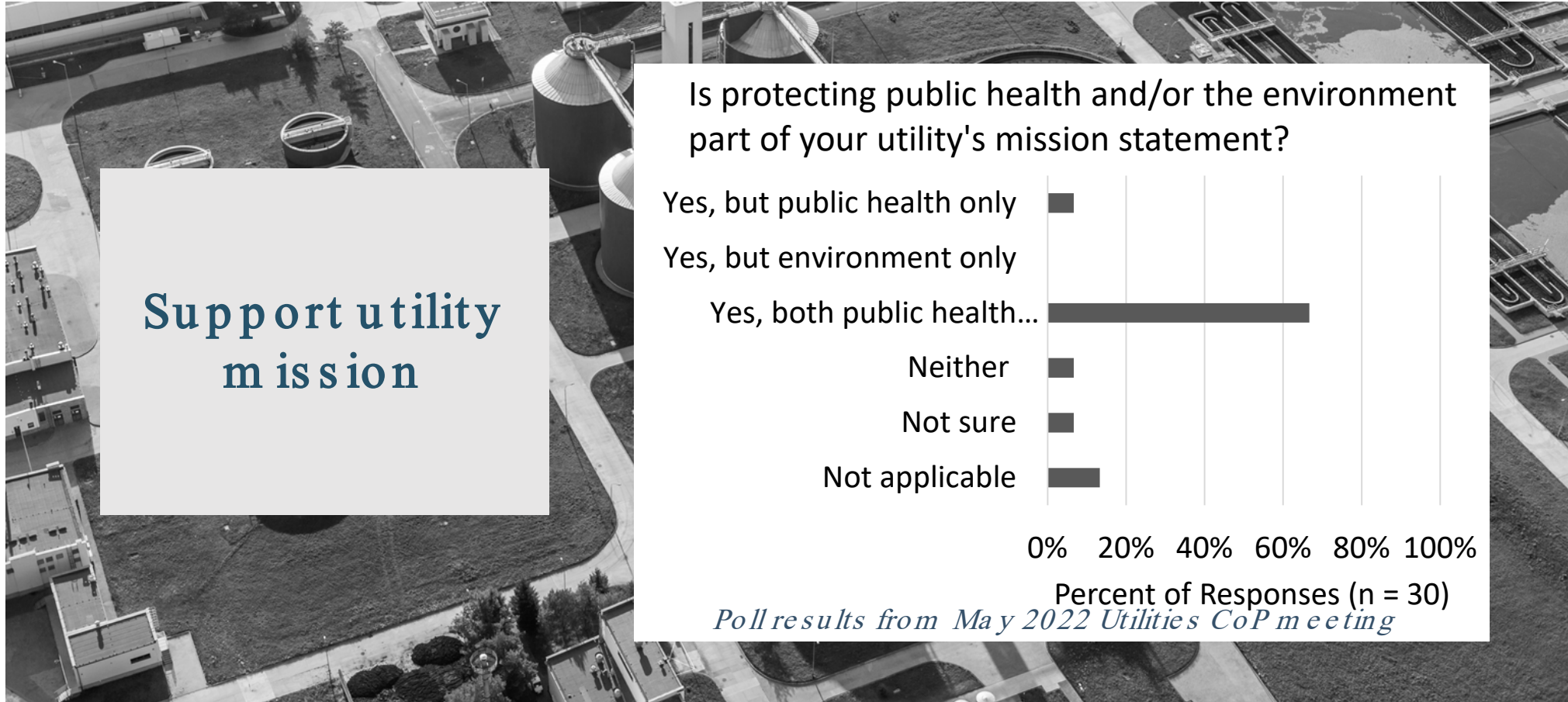
*Norma Ruecker from nwbe.org podcast episode # 10*

# Challenges for utilities already participating

- Understanding how all the programs fit together
- Consistently interpreting data for, and communicating data to, the public
- Addressing questions about long-term funding and the value beyond COVID
- **Managing concerns about archived samples being tested without the utility's knowledge**



# Opportunities



# Opportunities

Engage with  
public

“It brings great awareness to the importance of our wastewater collection and treatment systems.”

*Operations Administrative Manager of  
Okla hom a utility*

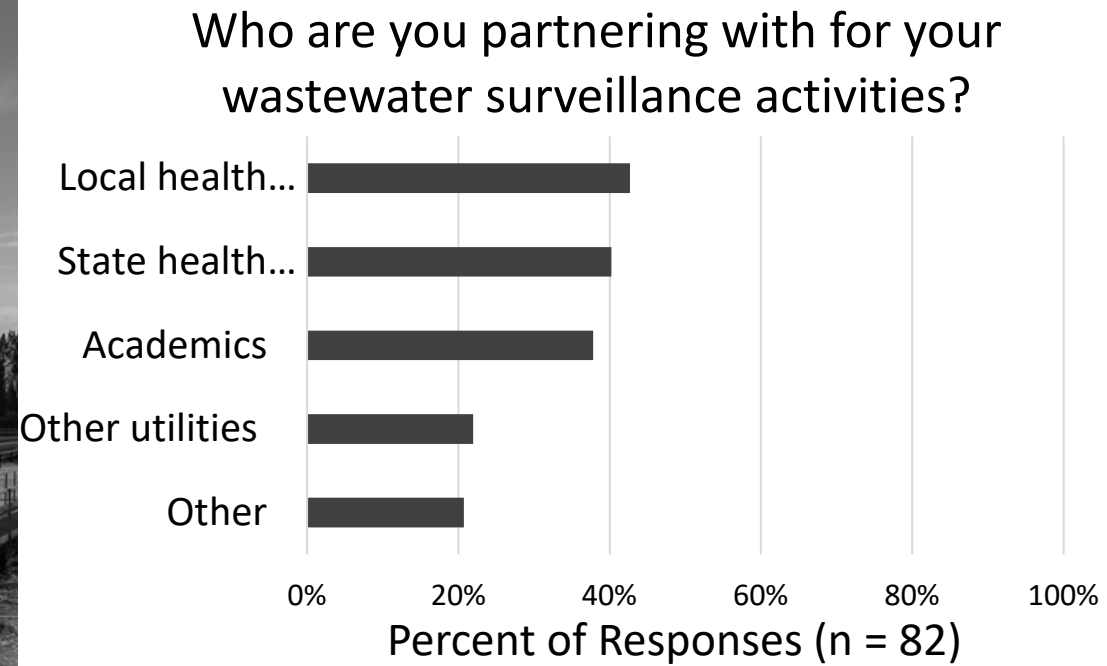
---

“I love looking at the wastewater data,’ said no one prior to the Covid pandemic ...but here we are.”

*Dr. Vincent Chiang, Chief Medical Officer at  
Boston Children’s Hospital*

# Opportunities

Expand  
collaborations



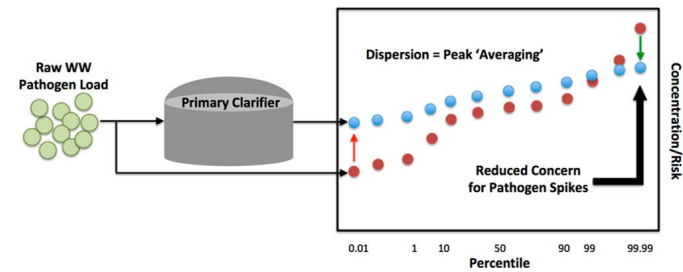
*Responses on Utilities CoP enrollment form (as of 1/8/23)*



# Opportunities

In form potable  
reuse

Pathogen Peak “Averaging” in Potable Reuse Systems: Lessons Learned from Wastewater Surveillance of SARS-CoV-2



Gerrity, Papp & Pecson  
ACS EST Water January 2022

# 2023

## WASTEWATER DISEASE SURVEILLANCE SUMMIT

OCTOBER 1

HILTON CHICAGO  
CHICAGO, IL

#WEFPublicHealth

Save the date - registration coming soon!



- Chicago (and online)
- One day (Sunday, 10/1)
- Free
- In person + virtual
- Wastewater surveillance
- 100% relevant to HDs
- [wef.org/WDSS](https://wef.org/WDSS)



## 96TH ANNUAL TECHNICAL EXHIBITION & CONFERENCE

Conference: September 30 - October 4, 2023

Exhibition: October 2 - 4, 2023

McCormick Place | Chicago, IL

- Chicago
- Three days (exhibition & technical sessions)
- As low as ~\$150
- In person only
- Everything (waste)water
- HD "package" (Monday, 10/2)
- [weftec.org](https://weftec.org)

# Join the Utilities CoP

“Join” at [nwbe.org](http://nwbe.org)



# Get in touch

Anna Mehrotra, PhD PE  
[amehrotra@wef.org](mailto:amehrotra@wef.org)