

# Update on OC San's COVID-19 Sewage Surveillance Efforts

*Samuel Choi, Lab and  
Ocean Monitoring  
Manager,  
Environmental  
Services Department*

*Prepared for  
Operations  
Committee*

*2/2/2022*



1

## Presentation

- Introduction to sewage surveillance
- OC San, SWRCB/CDPH, and CDC efforts
- Next steps
- Acknowledgement

2

2

# Sewage Surveillance

## What is sewage surveillance (WBE)?

- Measure microbiological markers in wastewater
  - Community-level infection
  - Augment clinical surveillance
  - Inform on public health interventions

## How is it used during COVID-19?

- SARS-CoV-2 markers shed in feces (symptomatic/asymptomatic)
- Early and unbiased indicator of changes in community infection
- Variant detection

3

3

# Early Days – A lot of Unknowns

## Scientists are unsure of coronavirus effects at the beach

By ROSANNA XIA  
APR 2, 2020 | 07:00 AM  
UPDATED 07:18 AM

██████████ a leading atmospheric chemist at the Scripps Institution of Oceanography, wants to yell out her window at every surfer, runner, and biker she spots along the San Diego coast.

"I wouldn't go in the water if you paid me \$1 million right now," she said.

The beach, in her estimation, is one of the most dangerous places to be these days, as

9 days later, in a follow-up article

In a Los Angeles Times [interview](#) early last week, ██████████ was quoted as saying, "I wouldn't go in the water if you paid me \$1 million right now." She posited that SARS-CoV-2, the virus that causes COVID-19, could enter the ocean — through raw or poorly treated sewage — and then get kicked back into the air along the surf zone.

But new research published after the interview has changed her thinking. The research includes an [accelerated publication of a study](#) in the journal Nature, which found that the virus did not appear to remain infectious in fecal matter.

"The main exposure risk to the water recreation community remains sewage pollution and urban runoff into the ocean, which can increase after major storms such

4

4

## Wait or Innovate?

- Lessons from prior wastewater surveillance efforts
- Obtain expert advice
- Establish current and future use cases
- Sustainable field and laboratory resources
- Criteria for collaboration

5

5

## OC San Efforts

- Started with 4 partners and narrowed down to lab that met our needs
- Current partnership with CDPH and SWRCB to support CDC NWSS

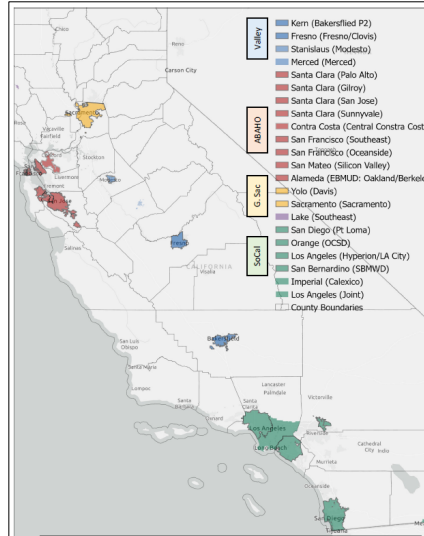
Activity	2019		2020												2021												2022														
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
SWRCB: DPR-2			Monitoring for viruses in raw wastewater																																						
University of Arizona (WEST Center)				Added SARS-CoV-2																																					
Stanford / Univ. of Michigan / SCCWRP																																									
Lab Assessment																																									
CDPH / SWRCB / CDC																																									

6

6

# California and National Efforts

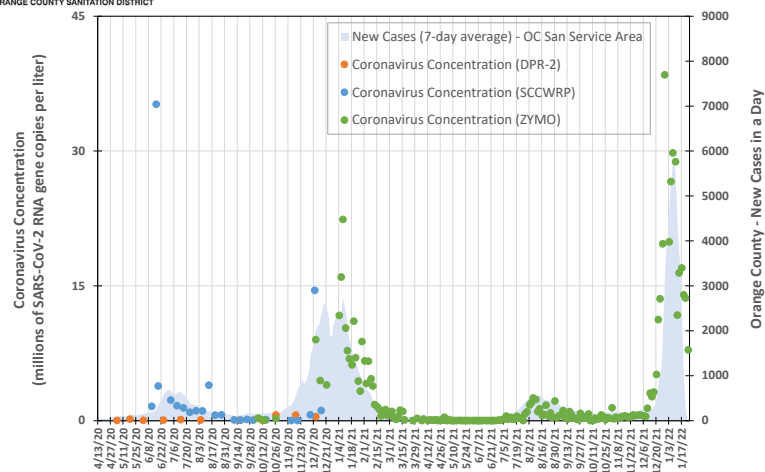
- California NWSS
  - Part of CDC's NWSS
  - Began 12/2020 with 5 largest wastewater agencies
  - Currently includes 22 agencies
- Monitor sewage for SARS-CoV-2 marker and variants
- Data transmitted to CDC NWSS portal



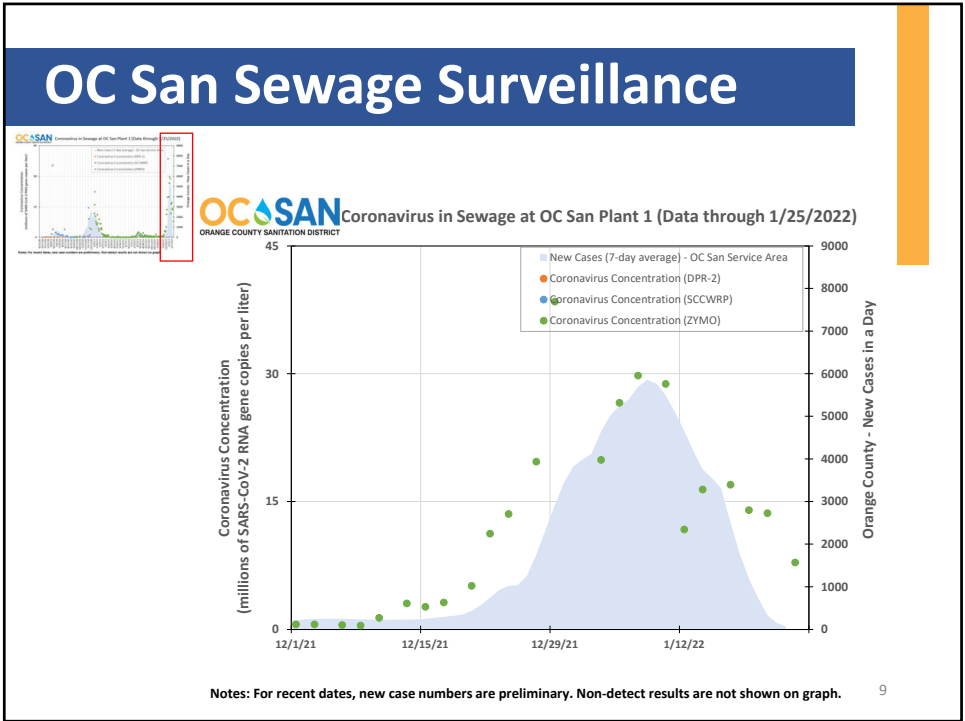
7

# OC San Sewage Surveillance

**OC SAN** Coronavirus in Sewage at OC San Plant 1 (Data through 1/25/2022)



8



9

## Looking Ahead

- Continue to partner with CDPH and SWRCB to support CDC NWSS
  - Test sewage 3x/week through December 2022
  - Continue surveillance and add variant monitoring

```

graph LR
    A[OC San] --> B[CDPH / SWRCB]
    B --> C[ CDC NWSS ]
            
```

10

10

# Statewide Recognition for OC San



**STATE WATER RESOURCES CONTROL BOARD  
RESOLUTION NO. 2021-0049**

RECOGNIZING WASTEWATER TREATMENT UTILITIES' VOLUNTARY  
CONTRIBUTIONS TO MONITORING FOR COVID-19 IN WASTEWATER



**CALIFORNIA WATER QUALITY MONITORING COUNCIL  
RESOLUTION NO. 2021-0001**

WASTEWATER-BASED SURVEILLANCE OF COVID-19

11

11

# Acknowledgements

- Margil Jimenez –Scientist
- Jennifer Cabral – Administration Manager
- Management
- Partners



U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention



RESEARCH, INNOVATION & IMPACT  
Water & Energy Sustainable  
Technology Center



12

12

# Questions



Samuel Choi  
schoi@ocsan.gov

