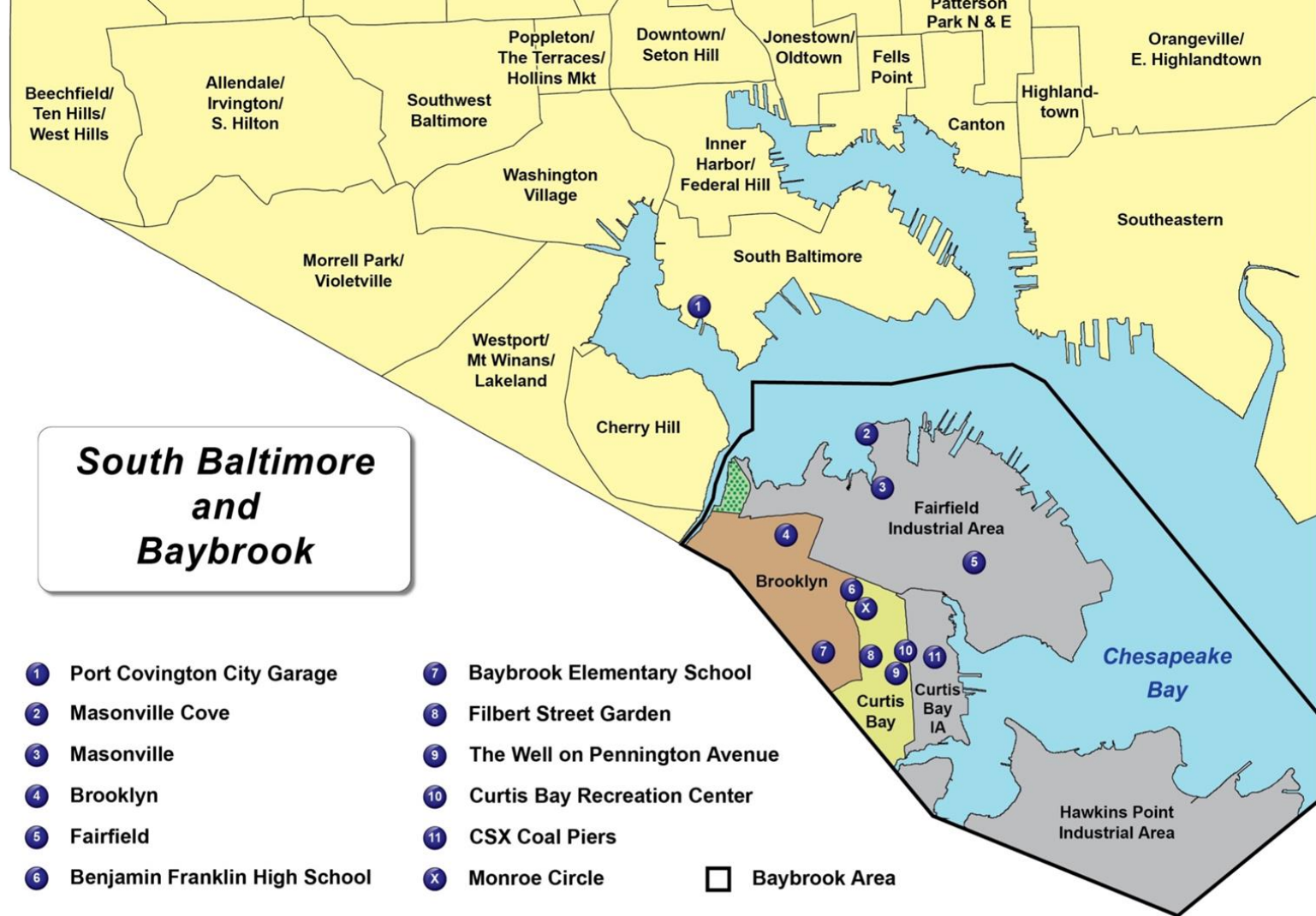


Citizen Science and PAR for Environmental Justice in Curtis Bay, MD

Matty Aubourg (Research Associate, JH Bloomberg School of Public Health)

Nicole Fabricant (Ph.D. Anthropology, Towson University)

Shashawnda Campbell (Environmental Justice Organizer, South Baltimore Community Land Trust)



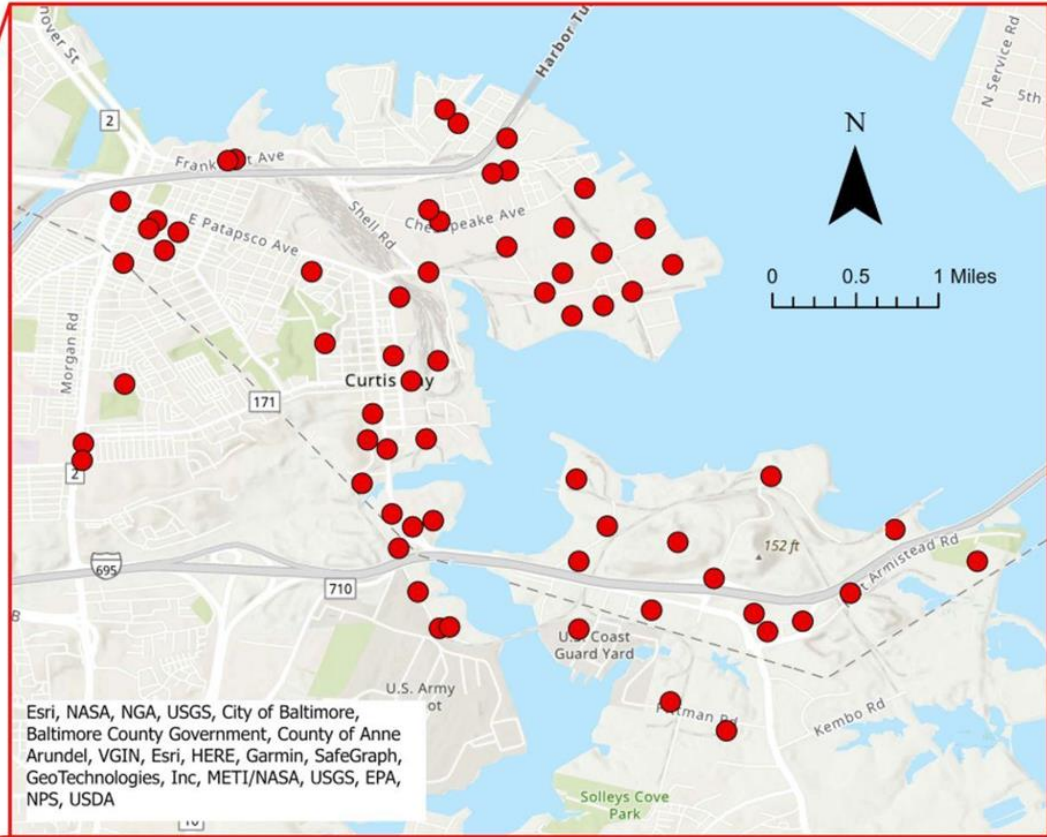
***South Baltimore
and
Baybrook***

- 1 Port Covington City Garage
- 2 Masonville Cove
- 3 Masonville
- 4 Brooklyn
- 5 Fairfield
- 6 Benjamin Franklin High School

- 7 Baybrook Elementary School
- 8 Filbert Street Garden
- 9 The Well on Pennington Avenue
- 10 Curtis Bay Recreation Center
- 11 CSX Coal Piers
- X Monroe Circle

 Baybrook Area





FREE YOUR VOICE

Started as a youth group discussing social, economic, and environmental problems at Benjamin Franklin High School.

Heard about a plan to build the nation's largest trash-to-energy incinerator less than a mile from their school.

Started thinking, studying, and building out a team of experts.

ENERGY ANSWERS CAMPAIGN

Free Your Voice youth built a campaign to get public entities to divest from “cheap” energy economically fueling this project.

Found out the permit had expired to build and occupied Maryland Department of the environment offices.

Youth defeated this proposal and work evolved into Fair Development.

FAIR DEVELOPMENT - BASIC PRINCIPLES

Universality: Everyone is included in development

Equity: Each according to his or her need and ability; special attention to those excluded

Participation: Meaningful neighborhood participation in development decisions

Accountability: Structures to oversee and hold development accountable to community

Transparency: Making sure the public understands decisions being made and why

EVOLUTION OF WORK

From “reactive” organizing to “proactive” thinking about owning and controlling the land so that decisions can be made that benefit the community:

- 20/20 campaign and housing justice
- Zero waste and regenerative economics

PARTICIPATORY ACTION RESEARCH (PAR) AT BEN FRANKLIN

<https://nextcity.org/urbanist-news/stopping-one-incinerator-wasnt-enough-for-baltimore-students>

WHAT IS PAR?

Participatory Action Research (PAR) is a framework for conducting research and generating knowledge centered on the belief that those who are most impacted by research should be the ones taking the lead in framing the questions, the design, methods, and the modes of analysis of such research projects.

PAR AT BENJAMIN FRANKLIN HIGH SCHOOL

- Highschool youth generate their own questions of inquiry based upon interests.
- They are exposed to different mechanisms of collecting data to support their research question.
- They spend a semester collecting qualitative/quantitative data
- They code and analyze the data and disseminate their findings publicly.
- Much of the data they collect advances some of the grassroots organizing for housing justice/zero waste

FROM ORGANIZING TO CLASSROOMS

Coursework to guide the students emerged in 2015-2016 as the brainchild of local advocates and educators. Initial collaboration between Towson University and SBCLT.

Free Your Voice's roots in environmental justice made this a good addition to a traditional science curriculum, according to Albina Joy (Head of Science at Ben Franklin High). "We wanted to bring the soft side of science, and an inquiry and investigation into environmental issues and environmental justice, into the classroom," she says.

Joy and Fabricant tweaked the course to address demands of scheduling and the traditional science curriculum, and "to figure out how to work as a collective," Both educators are quick to point out the course is, first and foremost, student led.

Students ultimately narrowed down a few local issues to focus on: housing, trash, public safety, food access and pollution.

STUDENT PHOTOGRAPHY





WHO OWNS THE VACANTS IN CURTIS BAY?



TOWSON, SBCLT PARTNERSHIP

<https://www.youtube.com/watch?v=minRbBBp7xI>


PARTICIPATORY ACTION RESEARCH & CITIZEN SCIENCE

This past academic year 2022-2023, we expanded our PAR work to include/incorporate physical science and citizen science into the classroom.

Questions we posed to the students:

- What is citizen science? How can you create and participate in citizen science work?
- What is a research question and how do you develop one?
- What methods can we use to answer our questions?
- How can merging qualitative and quantitative data generate power in our communities?

COLLECTING QUALITATIVE DATA AT BFHS





Environmental Justice in South Baltimore

Thank you for taking the time to fill out our anonymous survey!

If you complete this survey, you will receive 2 service hours for your effort!

Please answer these questions to the best of your knowledge. Your responses will be used for a community health analysis project created by Benjamin Franklin HS students in the TU Anthropology 209 class.

 mattyaub27@gmail.com (not shared) [Switch account](#) 

* Required

Are you a student or teacher/staff member? *

☐ Student

☐ Teacher/Staff

How old are you? *

☐ 14 to 16

☐ 17 to 19

☐ 20 to 22

☐ 23 to 30

☐ 31+

- The students created and refined survey questions to understand perspectives and experience with environmental injustice within the student body
- What communities are students from? Are students aware of environmental injustice in their communities? Are students concerned about environmental exposures in their neighborhoods? Do student understand why environmental justice matters?

GROUNDTRUTHING = MERGING QUANTITATIVE DATA WITH VISUAL OBSERVATIONS



QuantAQ MODULAIR

- Particulate matter (PM_1 , $PM_{2.5}$, PM_{10} , TSP [PM_{40}])
- Ground-level gas species (CO , CO_2 , NO , NO_2 , O_3)
- Wind speed + direction
- Temperature + relative humidity

<https://app.quant-aq.com/>



DSTech ObservAir

- Black carbon ★
- Particulate matter (PM_1 , $PM_{2.5}$, PM_4 , PM_{10})
- Ground-level gas species (CO , NO_2)
- Temperature + relative humidity

<https://www.dstech.io>

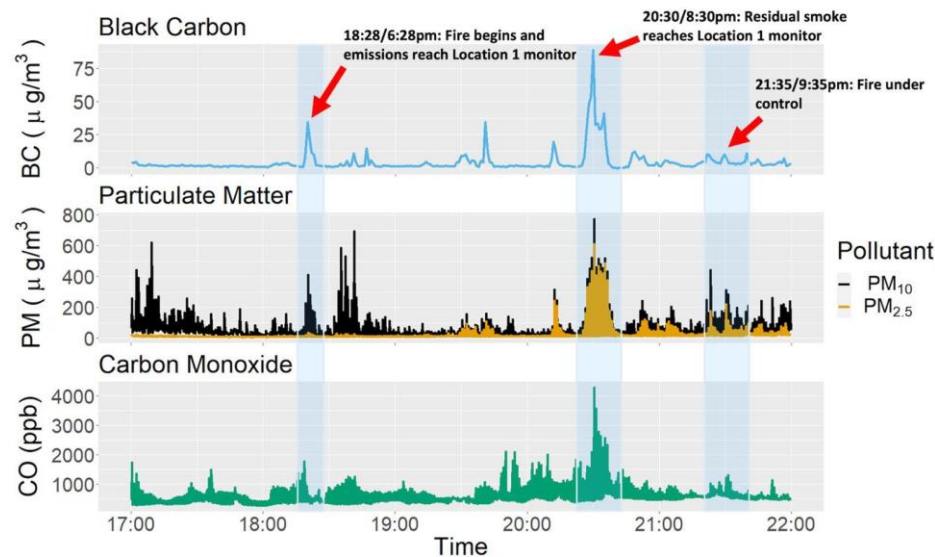
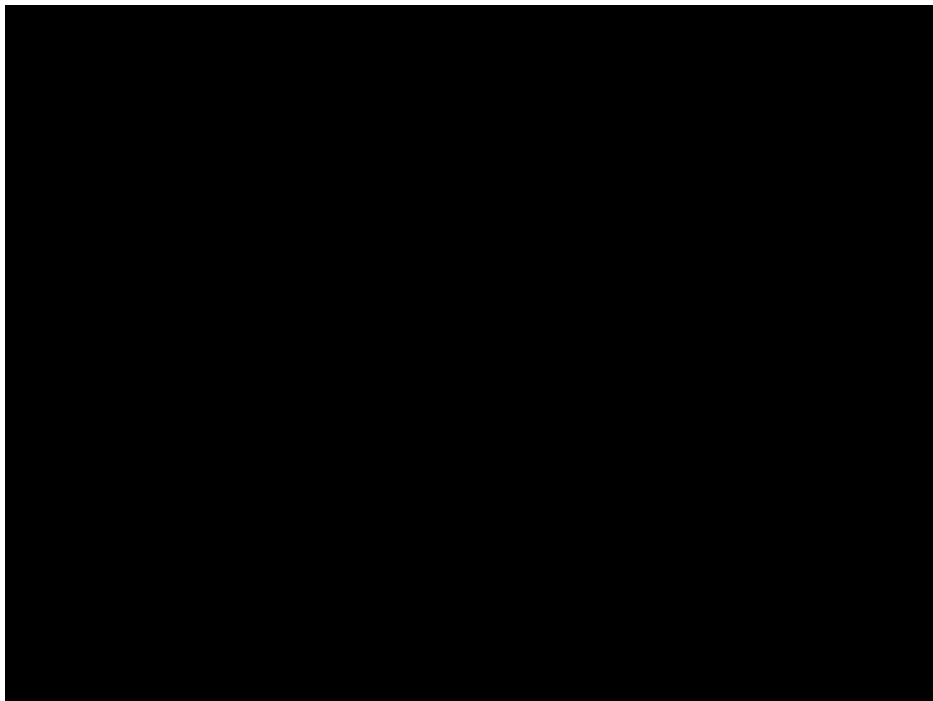


CamPark Trail Camera

Recording visual observations of coal terminal activity patterns

<https://www.campark.net/products/campark-t86-wifi-bluetooth-trail-camera-20mp-1296p-game-hunting-camera>

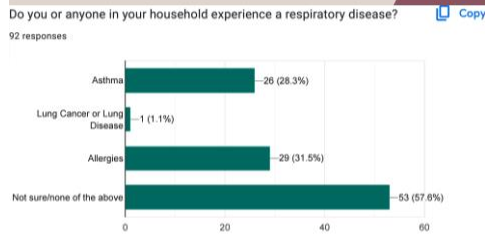
GROUNDTRUTHING CONT.



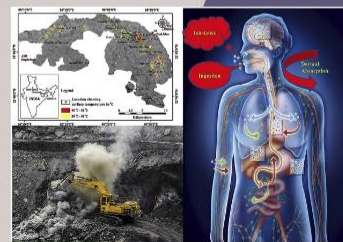
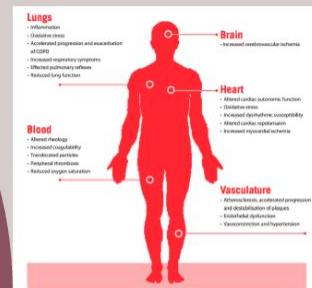
Industrial fire begins at 00:16

CITIZEN SCIENCE & BLOOMBERG SCHOOL OF PUBLIC HEALTH

Health Effects of COAL



- Continued exposure to the coal dust causes scarring in the lungs, impairing your ability to breathe.
- It also causes brain damage, heart problems, cancer, neurological disorders, and premature death.



CITIZEN SCIENCE & BLOOMBERG SCHOOL OF PUBLIC HEALTH



**CSX Coal
terminal**



CSX Coal Pier

Csx has been operating in curtis bay for 140 years CSX Coal Pier explosion was a major incident that happened back in December 31st, 2021. It was catastrophic to the residents of Curtis Bay and the surrounding neighborhoods it may not be immediate danger but it can cause health complication down the line for future generations alot houses and objects was covered in black soot. This incident made it to the news it was not covered in enough alot of south baltimore residents did not even know it happened as shown in our survey.

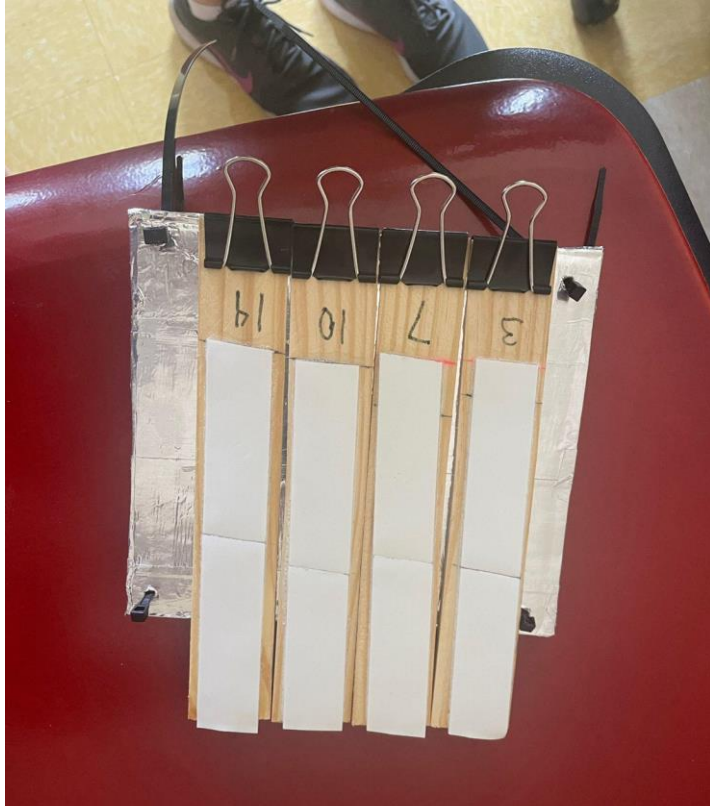
Teacher comment: I think it would be good to include a few sentences about its history in Baltimore (either on this page or subtopic) How long does has CSX been transporting goods through baltimore? Has it always transported coal? How long has the coal pier been here?

**CSX Coal
Train**

Incinerator

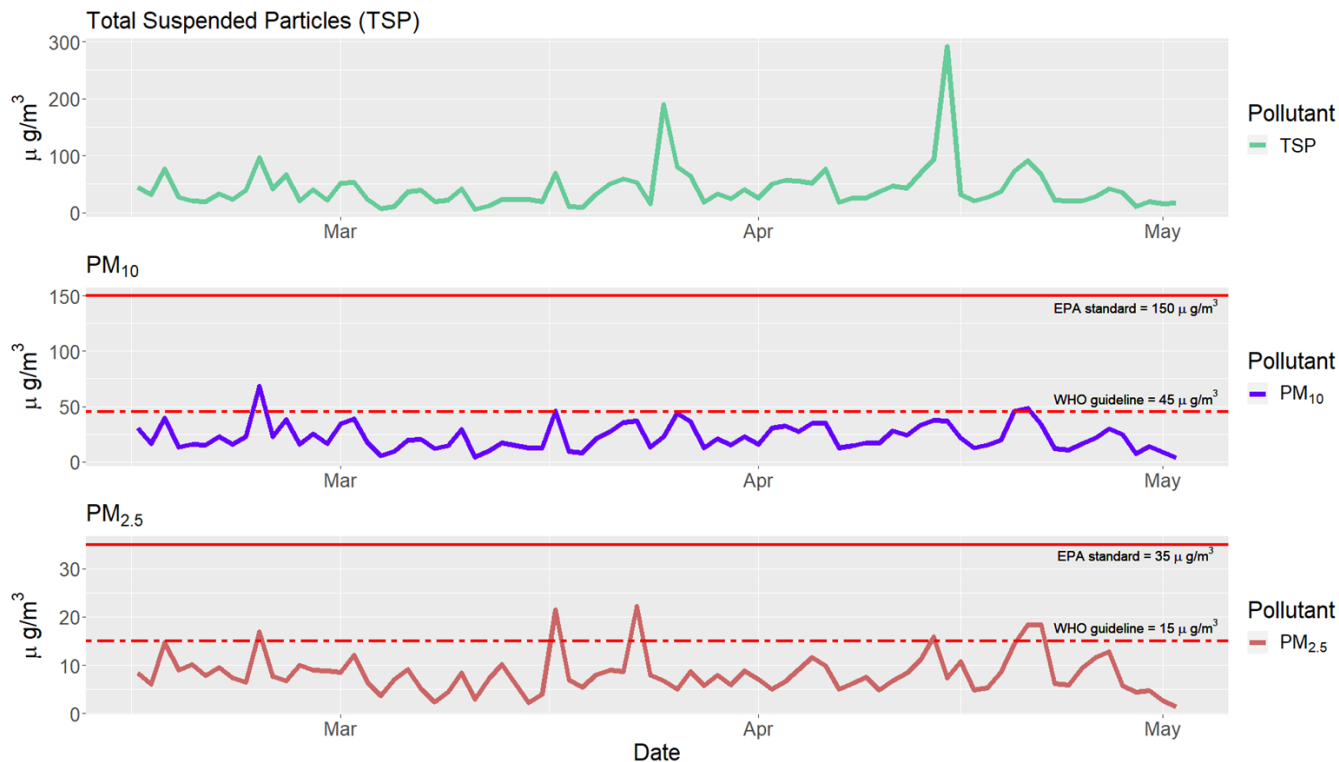


YOUTH SCHOLARS DOING CITIZEN SCIENCE



CITIZEN SCIENCE & BLOOMBERG SCHOOL OF PUBLIC HEALTH

Daily Averaged Particulate Matter (PM) at BFHS with WHO Air Quality Guidelines (AQG) and EPA National Ambient Air Quality Standards (NAAQS), Feb 14-May 2, 2023



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- Every student in the class!

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- Shashawnda Campbell
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- Carlos Sanchez
- Taysia Thompson

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- Lauren Deanes
- Caila Wagar
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