C-HEAT Chelsea & East Boston Heat Project

[1] BOSTON UNIVERSITY [2] GreenRoots

C-HEAT

@c_heatproject
c-heatproject.org

Jazmin Castellon[2], Jonathan Lee[1], Angela Magardino[1], Alina McIntyre[1], Leila Heidari[1], Pilar Botana Martinez[1], Flannery Black-Ingersoll[1], Bianca Bowman[2], Barbara Espinosa[2], Roseann Bongiovanni[2], M. Patricia Fabian[1], Madeleine K. Scammell[1]

Goals

Bolster community capacity for responding to extreme heat on the Chelsea Creek. Study heat exposure and related health concerns among heat vulnerable populations.

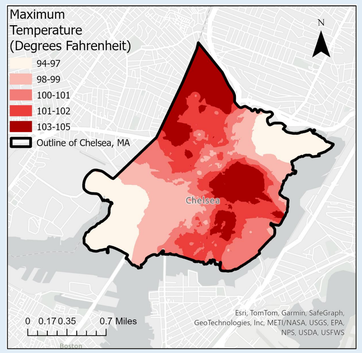
Approach

Community-Engaged Research

Collaborate with GreenRoots - a community organization focused on environmental justice and quality of life - to engage and build connections with residents and decision-makers, and impact local environmental health efforts

Sensors and Surveys

Ambient temperatures in Chelsea



Maximum ambient temperatures in Chelsea, interpolated from 2020-2023 summer data

Read Our Temperature Measurements And Adaption Findings

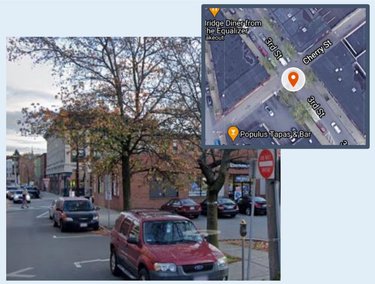
Indoor temperatures, Fitbits, and surveys

Results from 22 households in Chelsea and East Boston in summer 2021 showed:

- Participants slept less when indoor nighttime temperatures were higher than 80 °F
- Step counts on days where outdoor temperatures were higher than 80°F appeared to be different than step count on days below 80°F
- More than half stayed home in hot weather
- About 38% reported making choices about which bills to pay and how to prioritize expenses
- All participants had some form of AC, but some reported never using it

In 2020, we measured a 7°F difference between hot and cool spots in Chelsea.

COOLEST



HOTTEST

Watch The Chelsea Cool Block Film Here

Photovoice Project

12 residents participated in summer 2021, meeting weekly to discuss photos and converging on these themes:

Where are the trees? / *Here are the trees!*

Trees are unequally distributed across cities although they provide shade for homes, streets, and parks and are important for cooling.

Water: the *good*, the *bad*, the *ugly*

Clean drinking water is important for cooling, although some residents do not trust the quality of water. Climate change and development also increases urban flooding in their neighborhoods.

Keeping it cool *creatively*

Multiple solutions are required including electricity bill assistance and programs to support building updates to improve insulation and HVAC systems.

Populations *vulnerable* to heat

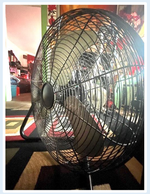
Outdoor workers (e.g., roofers), house-cleaners, kitchen workers, older adults, children, and low-income folks with less access to affordable cooling.

Resident Voices From Summer 2021:

"On my walk there are no trees that protect me from the intense rays of sun. The only shadow you see is that of a building. The breeze passes through the shade of trees, and it feels cool. However, under the shade of a building you still feel the humidity and intense heat."
- Mayra

"Children need to get out, and sometimes they feel like getting out in the sun. How he plays and runs! I like to watch him have fun, but I am worried that extreme heat and direct exposure to the sun can hurt him. With so few trees and no guarantee that the fountains will work, we must carry enough bottles of water, and we must minimize the time spent in the park."
- Nohemi

"Trying to stay cool with this huge fan. We use this fan all the time during the summer to save on the electricity bill due to the cost of having an AC."
- Luis



Access The Photovoice Report Here

Summer 2025 Occupational Heat Monitoring Pilot

We will recruit 10 workers in jobs with potential extreme heat exposures, as identified by Photovoice participants (e.g., kitchen workers, roofers, housecleaners, etc.)

❖ Methods

- 1 on 1 interviews
- Focus group discussions
- Temperature sensors (i.e., SlateSafety® and Kestrel)

SlateSafety® Temperature Sensor

Kestrel Drop D3FW

❖ Goals

- Characterize temperature exposures
- Identify potential cooling strategies
- Test the applicability of SlateSafety® sensors for large-scale heat monitoring studies
- Inform future workplace cooling intervention studies
- Use findings to advocate for necessary regulations and protective measures related to heat exposure among small business workers

Partnering with MassCOSH:

Massachusetts Coalition For Occupational Safety And Health

Scan To Read Our Residential Cooling Policy Report

Acknowledgements

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