

Air, Earth, and Water: Elements of Health and the Urban Environment

A Research on Tap Event

Megan Sandel

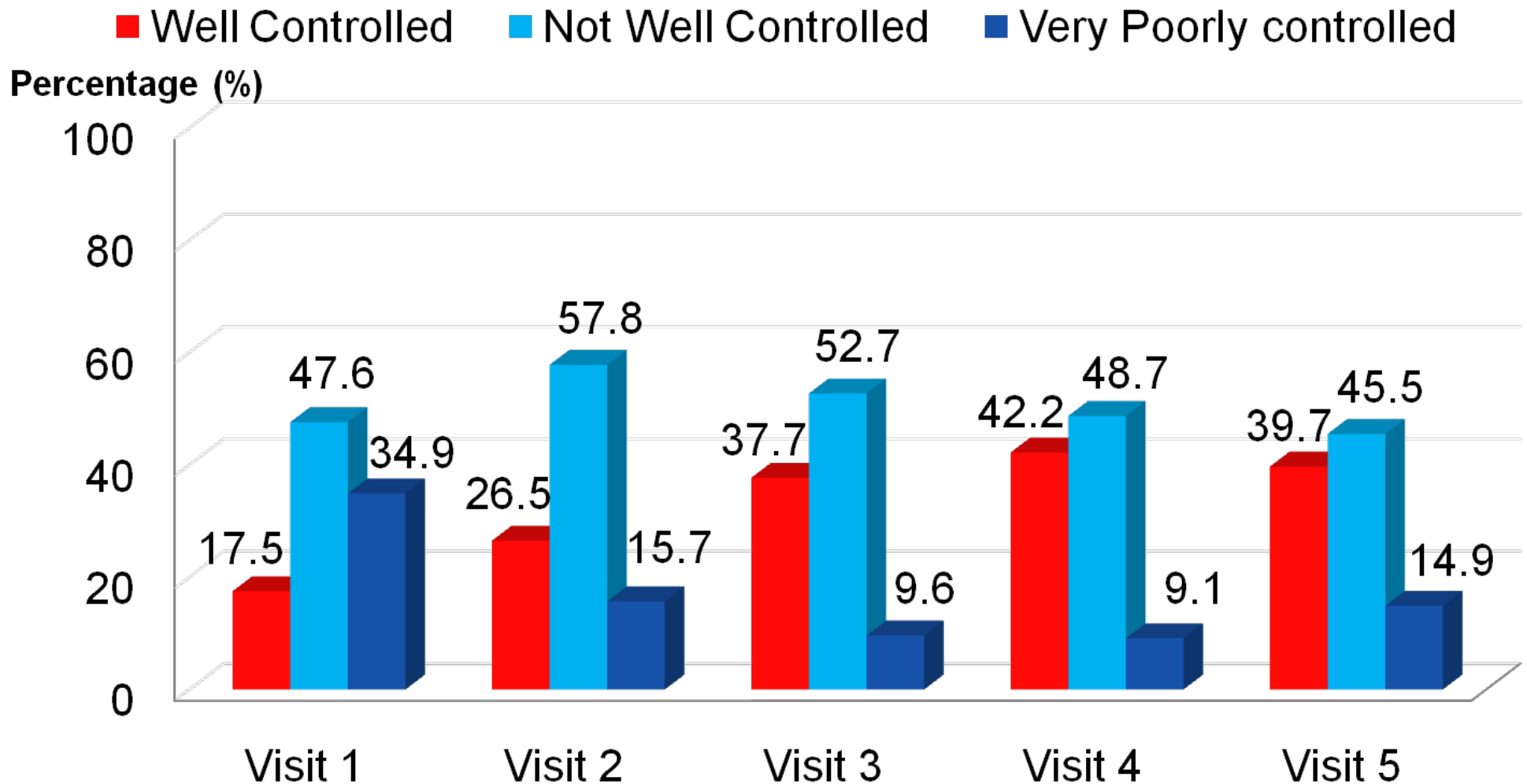
Associate Professor

Department of Environmental Health

School of Public Health

Community Health Worker Home visits for Asthma

— Asthma Control Trend



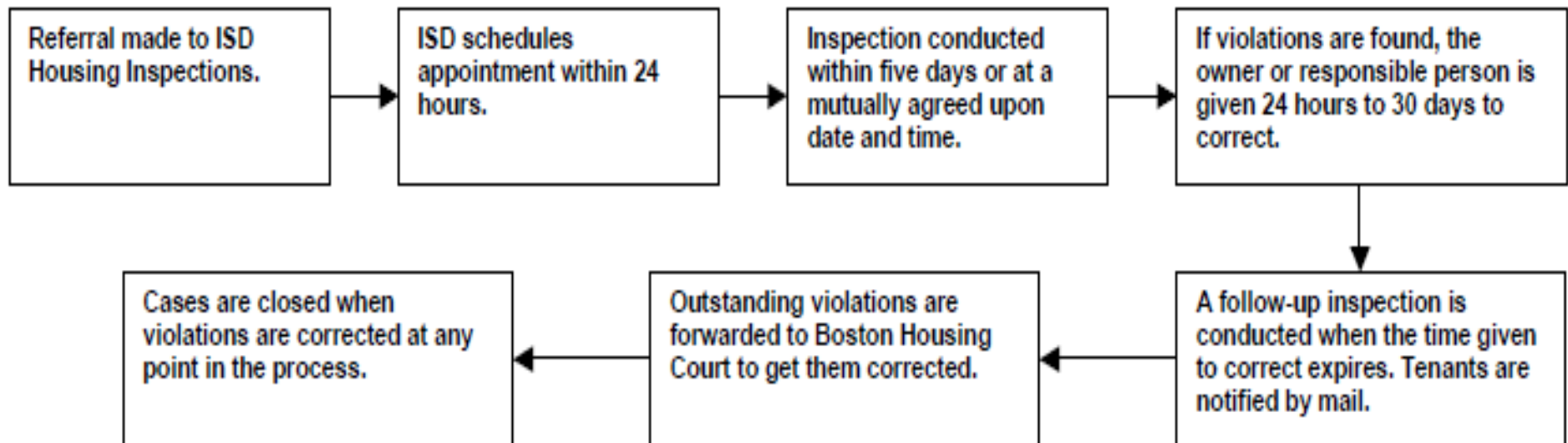
Breathe Easy at Home Partnership

Boston Inspectional Services Department

Boston Public Health Commission

Healthcare sites (i.e. Boston Medical Center)

Housing agencies (i.e. Boston Housing Authority)



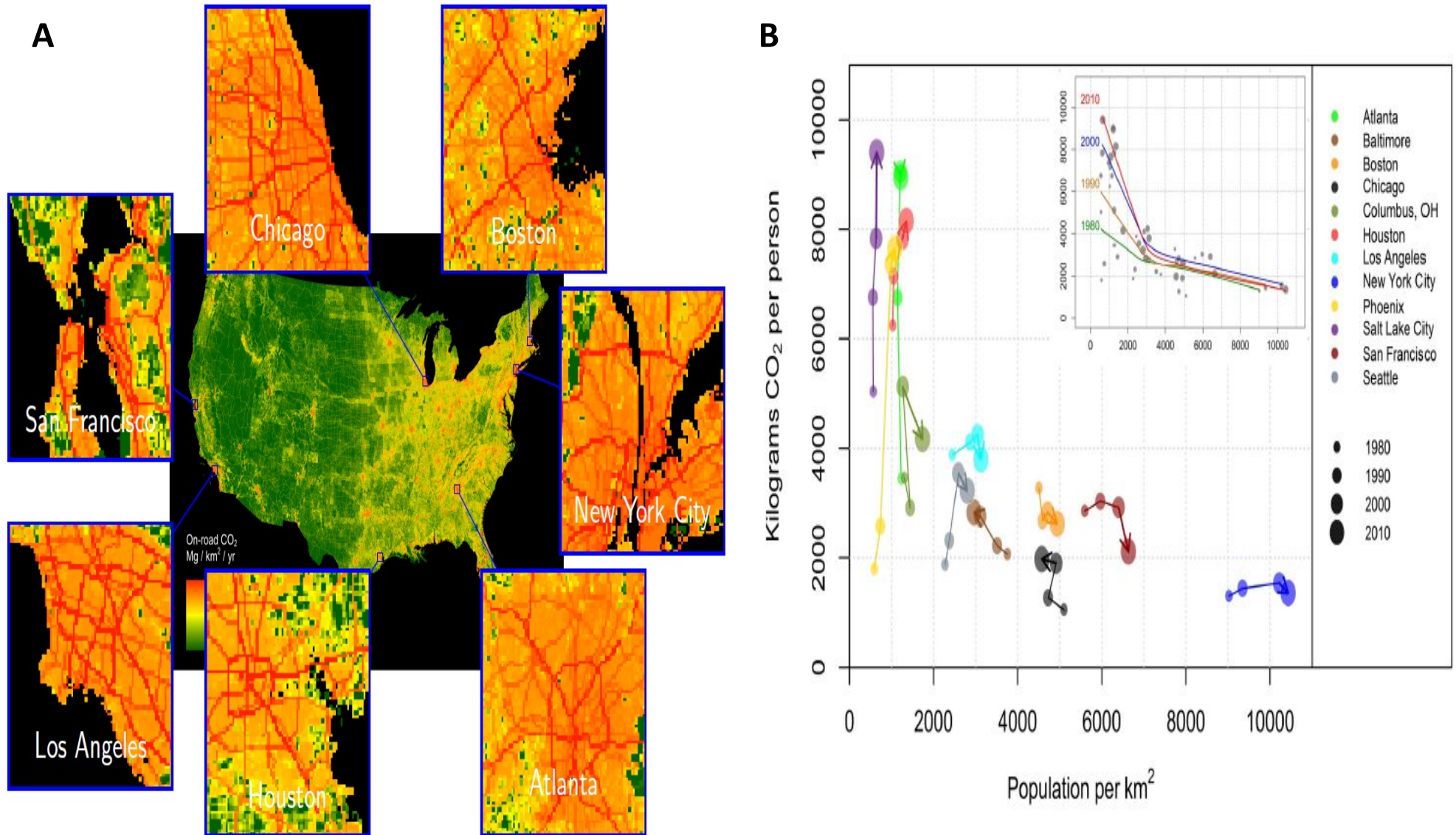
Ian Sue Wing

Associate Professor

Department of Earth & Environment

College of Arts & Sciences

Cities, traffic, and CO₂



Gately, C.K, L.R. Hutyra and I. Sue Wing (2015). Cities, traffic, and CO₂: A multidecadal assessment of trends, drivers, and scaling relationships, PNAS 112(16):4999-5004.

Jonathan Levy

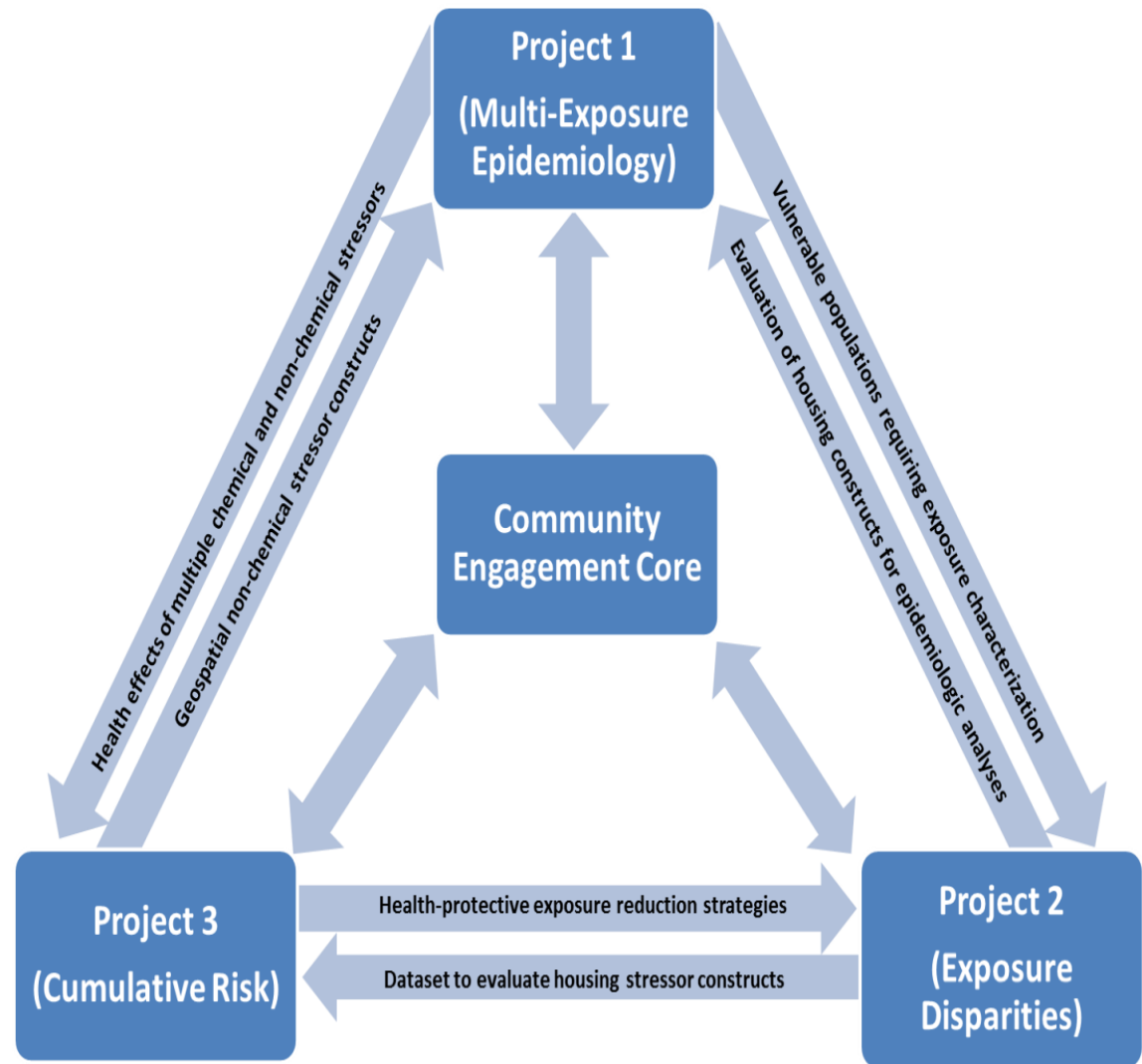
Professor

Department of Environmental Health

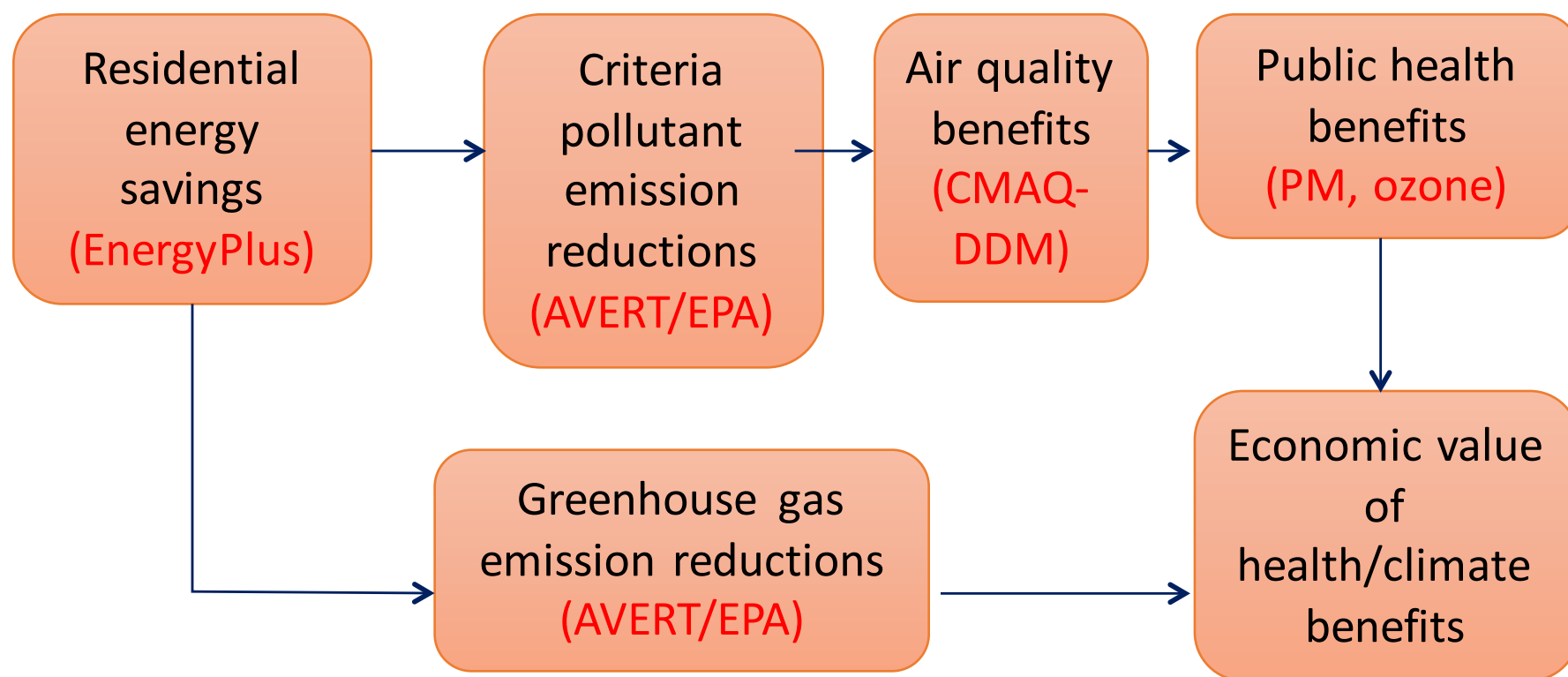
School of Public Health

Center for Research on Environmental & Social Stressors in Housing across the Life Course (CRESSH)

- Focus on MA and Chelsea/Dorchester
- Birth outcomes, growth trajectories age 0-4, CVD deaths, DNA methylation
- Air pollution exposures (PM_{2.5}, BC, NO₂), temperature, land use, walkability, sociodemographics
- Housing as an exposure modifier/stressor



Modeling the air quality and public health benefits of increased residential insulation



- State-by-state insight valuable for Clean Power Plan implementation
- How do health and climate benefits change the cost-benefit calculus for energy efficiency/renewable energy?

George T. O'Connor

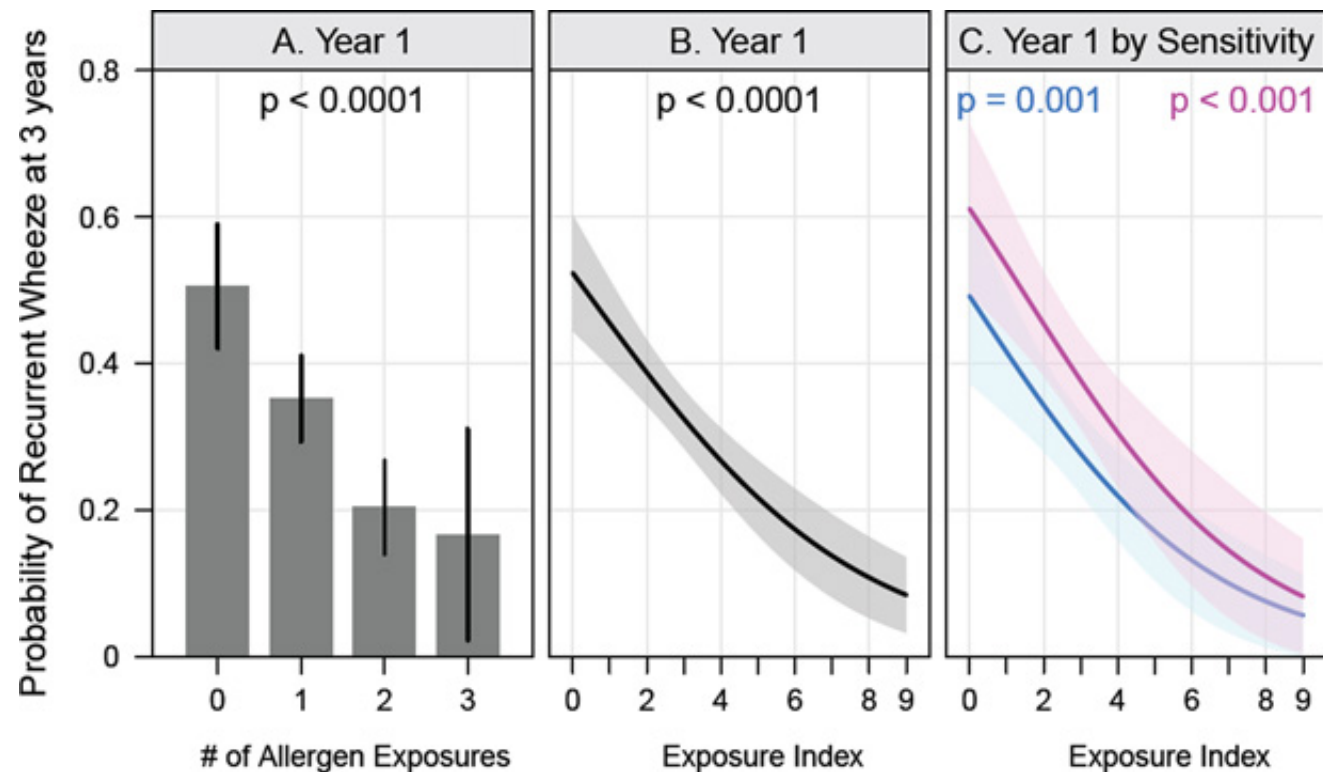
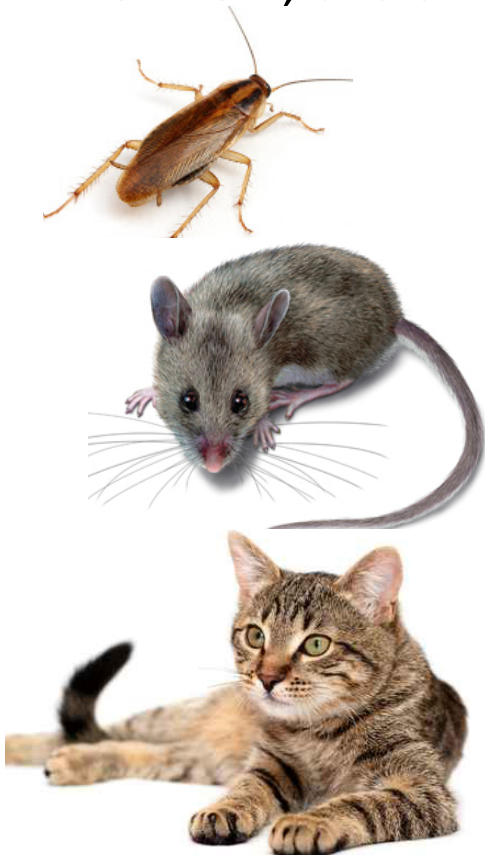
Professor

Department of Medicine

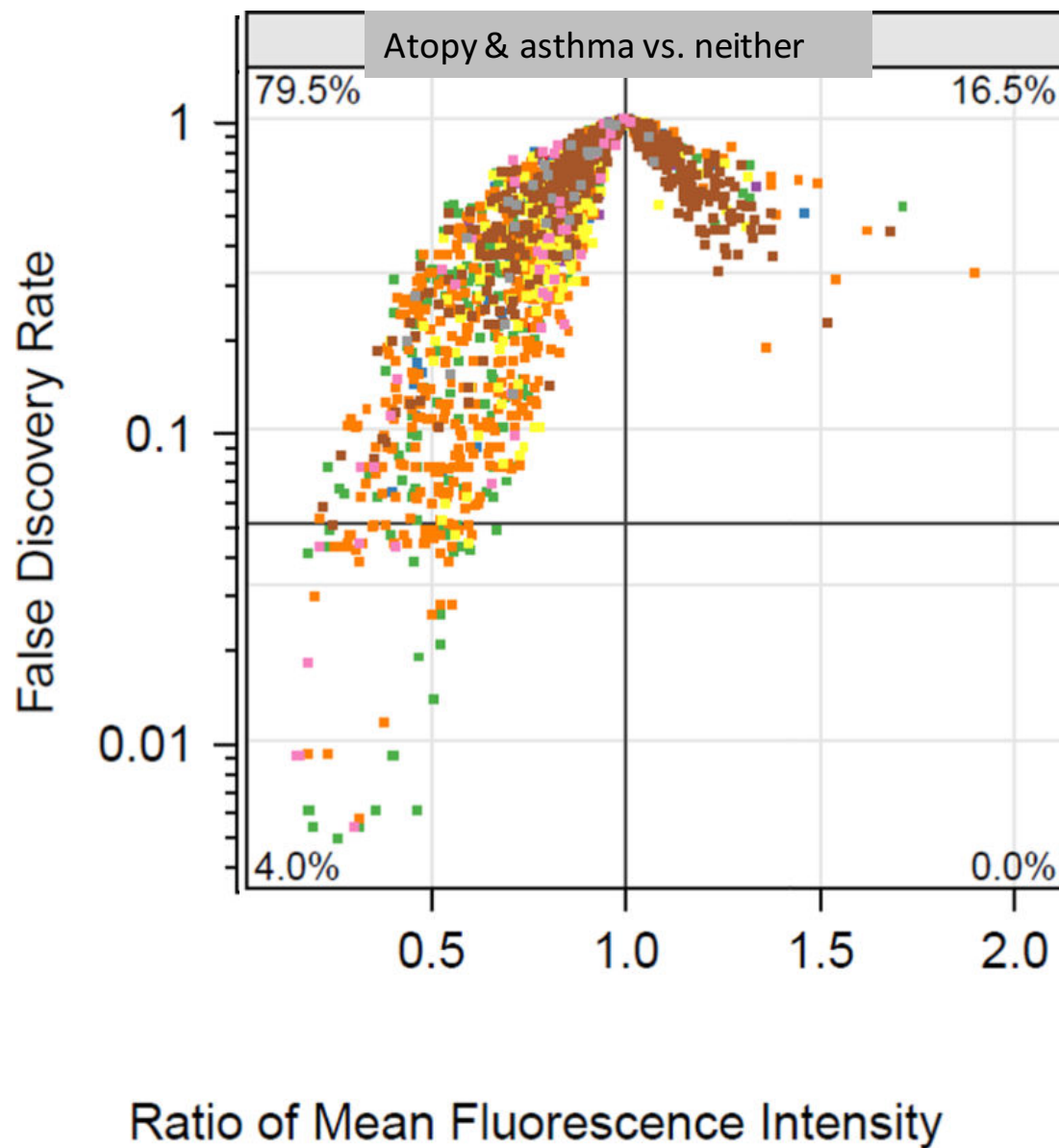
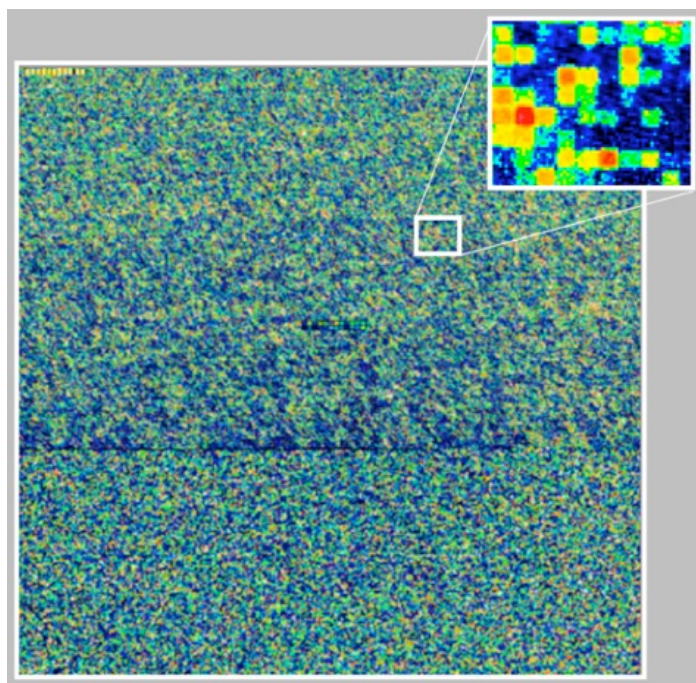
School of Medicine

Effects of Early Life Exposure to Allergens and Bacteria on Recurrent Wheeze and Atopy in Urban Children

Methods—The Urban Environment and Childhood Asthma (URECA) study examined a birth cohort at high risk for asthma (n=560) in Baltimore, Boston, New York, and St. Louis.



Lynch et al. (O'Connor, Sandel at BU); J Allerg Clin Immunol 2014



Madeleine K. Scammell

Assistant Professor

Department of Environmental Health

School of Public Health

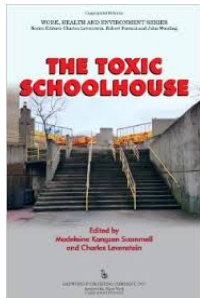
Chemical, Physical & Social Hazards where we Live, Work & Play



City of Chelsea, Chelsea Collaborative.
EPA STAR (2011-2014) and CRESSH (2015 – 2020).
Outdoor and Indoor Air Quality



Boston Housing Authority and BU School of Social Work
Prevalence of Hoarding Behavior and Pest Problems



The Toxic Schoolhouse Baywood Press, 2014.
*Lead in Drinking Water, Indoor and Outdoor Air,
Siting of Schools on Contaminated Land, PCBs in
Schools...*



BU Superfund Research Program and the University of
Iowa Superfund Research Program. *PCBs in Ambient
Air: Responding to Community Concerns in New
Bedford, MA. 2015 - 2016*



www.HEAR-DB.org



Health and Environment Assistance Resources Database

log in



The HEAR database is a collaborative project of three different organizations. Every day, each of our organizations is called by members of community groups seeking legal, scientific, medical and technical expertise. Sometimes we can handle the questions ourselves, but often we look outside our single organizations' networks to each other for assistance with highly technical requests. This kind of assistance, and in some cases partnership, is absolutely essential to our work and the services we provide community groups. The purpose of the HEAR database is to increase and diversify the legal, scientific, medical and technical expertise available to community groups with environmental and public health concerns.

Do you have expertise you can share? You will have the option to choose which organizations have access to your contact information, and your information will never be shared without your permission.

include yourself in the database now



The Boston University
Superfund Basic Research Program



Ann Aschengrau

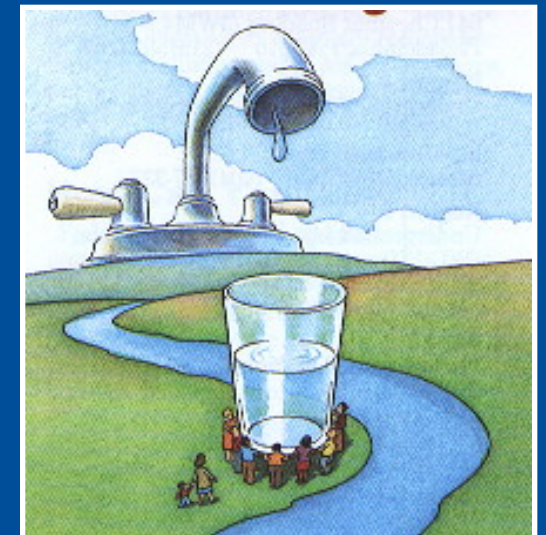
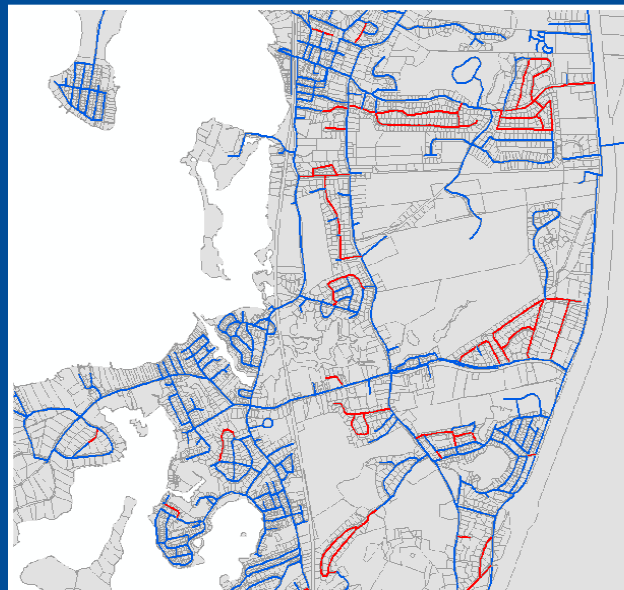
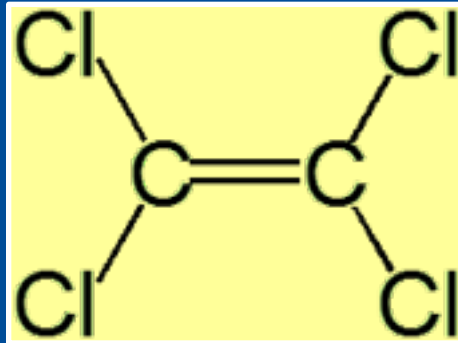
Professor

Department of Epidemiology

School of Public Health

Contaminated Drinking Water is Hard to Swallow

Prof. Ann Aschengrau, SPH Epidemiology



My Research

My team has used this unique exposure setting to learn about health effects of PCE in drinking water among individuals exposed in the womb and during early childhood.



Increased risk of
placental abruption



Increased risk of
certain birth defects



Increased risk of
illicit drug use

Research provides scientific basis for regulating water contaminants thereby ensuring safety of drinking supplies for vulnerable populations.

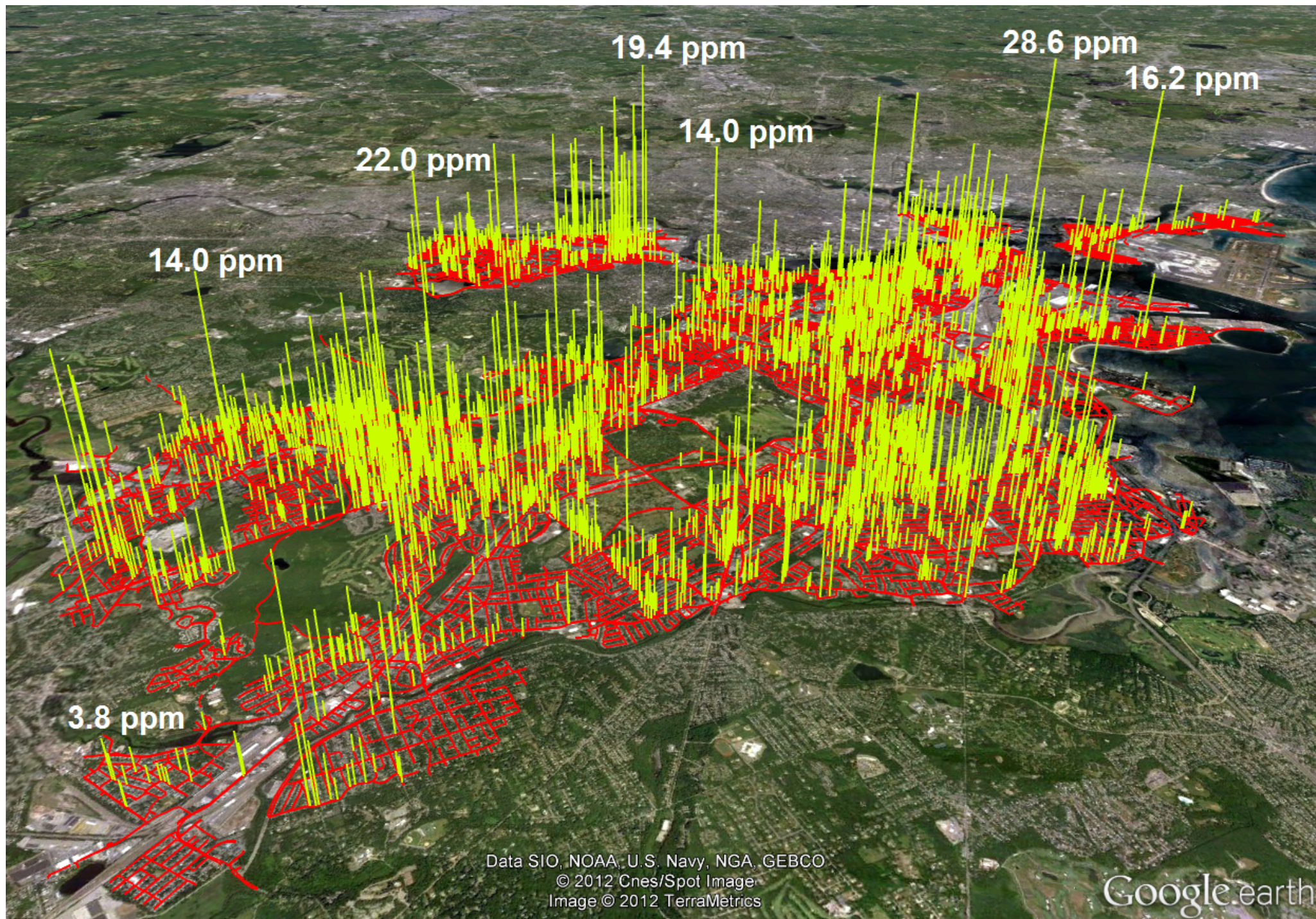
Nathan Phillips

Professor

Department of Earth & Environment

College of Arts & Sciences





3356leaks > 2.5ppm; range: 1.80 - 28.6 ppm; mode = 2.07 ppm

Robinson “Wally” Fulweiler

Associate Professor

Department of Earth & Environment

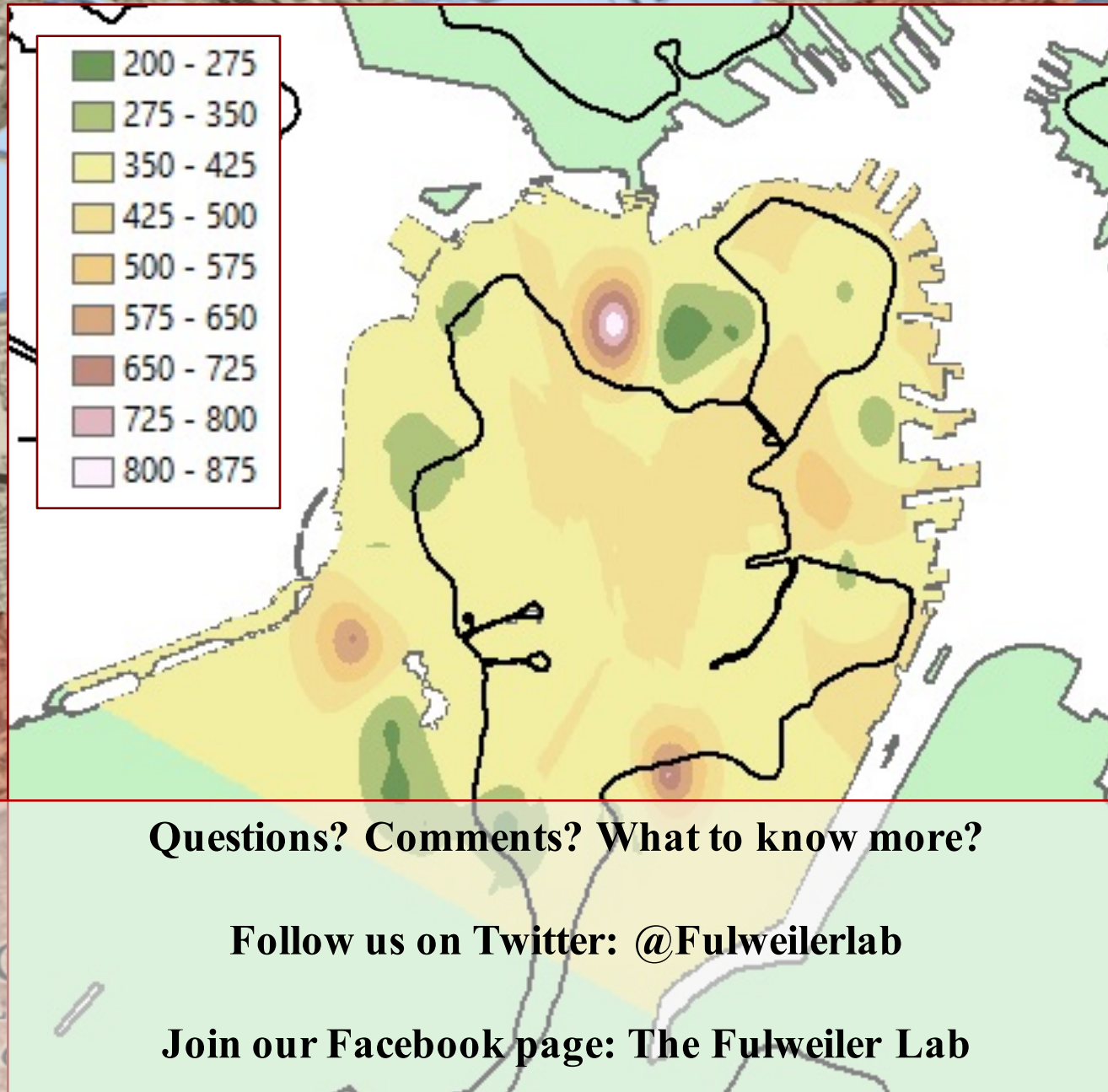
College of Arts & Sciences



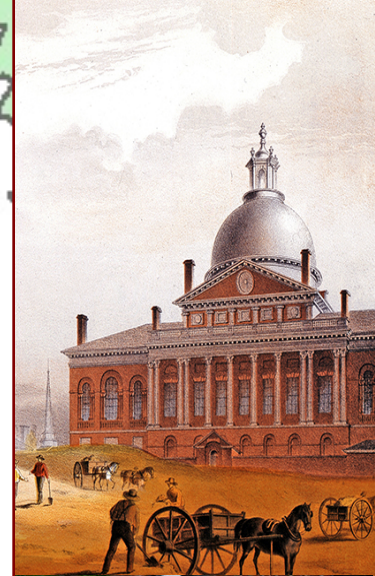
WHAT LIES BENEATH: HOW THE HISTORY OF BOSTON IMPACTS ITS WATER QUALITY TODAY

Timothy J. Maguire and Robinson W. Fulweiler





Check out our website: www.fulweilerlab.com



Jay Wexler

Professor

Department of Law

School of Law



Religious Practices That Harm the Environment



Religious Practices That Harm the Environment

Pamela Templer

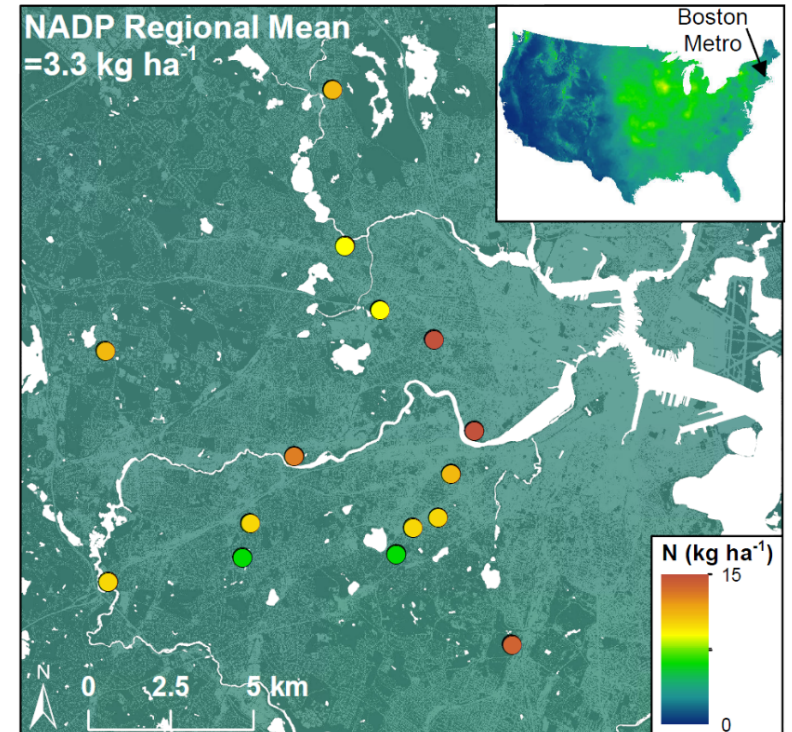
Associate Professor

Department of Biology

College of Arts & Sciences

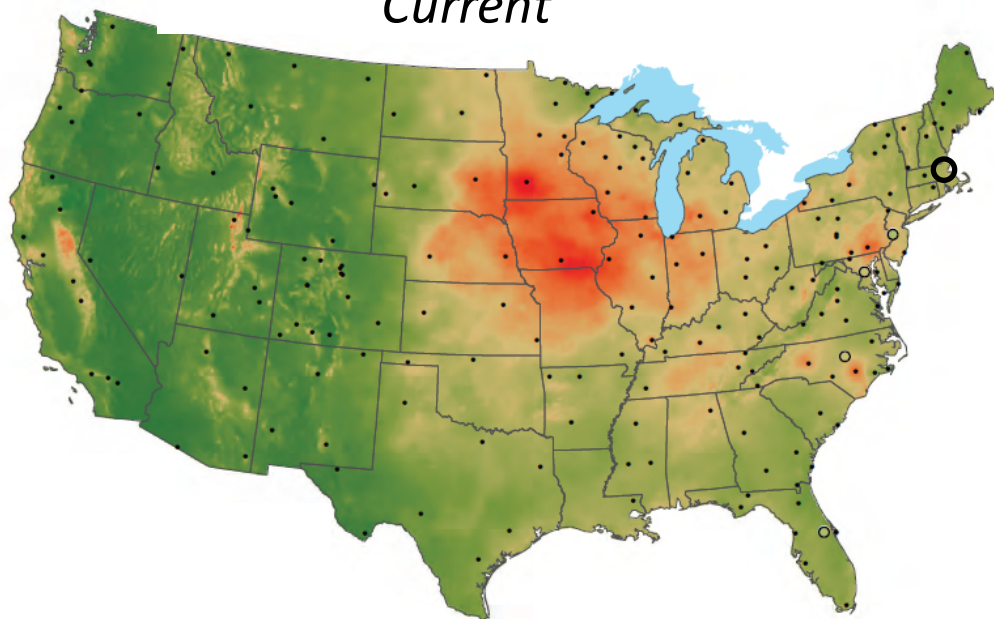
Atmospheric Nitrogen Deposition in Urban Areas: Implications for Water and Air Quality

Pamela Templer,
Lucy Hutyra, Steve Decina

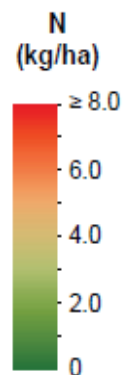
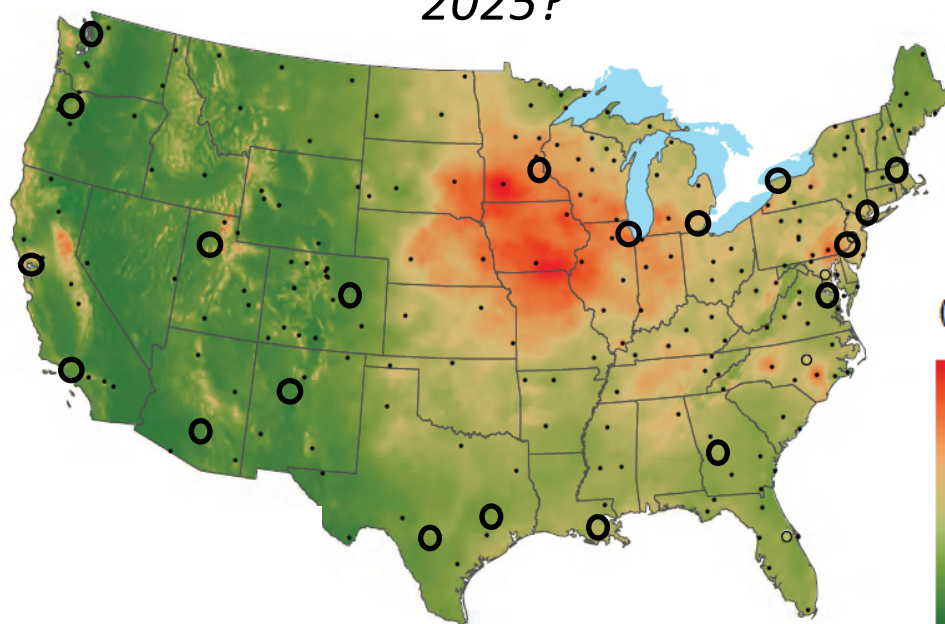


National Atmospheric Deposition Network

Current



2025?



○ Urban Site



Japonica Brown-Saracino

Associate Professor

Department of Sociology

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The Study

The Plan

Urban Heat: Intra-neighborhood Variation in Individual-scale Heat Exposure

Measure the temperatures people experience as they go about their daily lives

Boston's South End
23 participants
July 17-24, 2013
(heat wave during first few days)

daily surveys
exit interviews
temperature sketch maps
demographic surveys
ethnographic field observations



Thermochron iButton data-loggers record ambient air temp every 5 minutes

Heterogeneity in individually experienced temperatures (IETs) within an urban neighborhood: insights from a new approach to measuring heat exposure

E. R. Kuras · D. M. Hondula · J. Brown-Saracino

Received: 2 July 2014 / Revised: 2 December 2014 / Accepted: 4 December 2014 / Published online: 9 January 2015
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Abstract Urban environmental health hazards, including exposure to extreme heat, have become increasingly important to understand in light of ongoing climate change and urbanization. In cities, neighborhoods are often considered a homogenous and appropriate unit with which to assess heat risk. This manuscript presents results from a pilot study examining the variability of individually experienced temperatures (IETs) within a single urban neighborhood. In July 2013, 23 research participants were recruited from the South End neighborhood of Boston and equipped with ThermoChron iButtons that measured the air temperatures surrounding individuals as they went about their daily lives. IETs were measured during a heat wave period (July 17–20), which included 2 days with excessive heat warnings and 1 day with a heat advisory, as well as a

below the mean OAT. Compared with IETs during the reference period, IETs during the heat wave period were 1.0 °C higher. More than half of participants did not experience statistically different temperatures between the two test periods, despite the fact that the mean OAT was 6.5 °C higher during the heat wave period. The IET data collected for this sample and study period suggest that (1) heterogeneity in individual heat exposure exists within this neighborhood and that (2) outdoor temperatures misrepresent the mean experienced temperatures during a heat wave period. Individual differences in attributes (gender, race, socioeconomic status, etc.), behaviors (schedules, preferences, lifestyle, etc.), and access to resources are overlooked determinants of heat exposure and should be better integrated with group- and

Wendy Heiger-Bernays

Associate Professor

Department of Environmental Health

School of Public Health

Growing Food in Urban Soils

Balancing Risks and Benefits

Wendy Heiger-Bernays

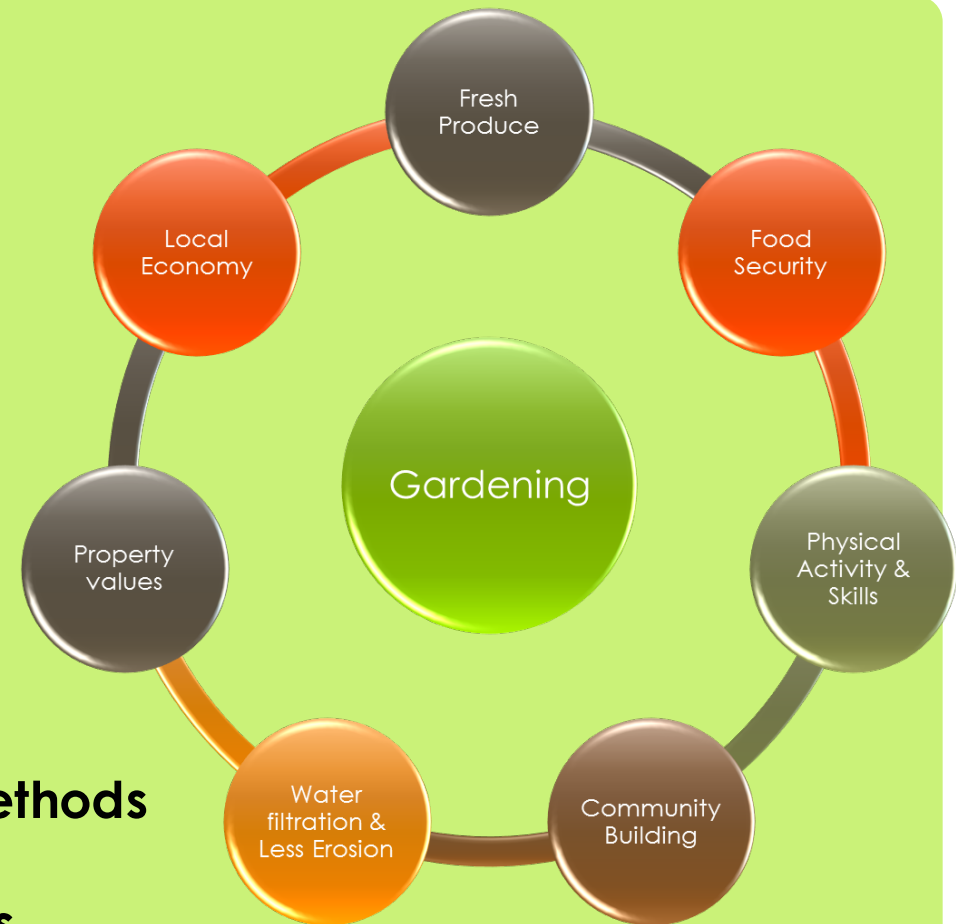
Historical
Contamination

On-Going
Contamination

**Contaminated
Soils**

**Quantitative & Qualitative Methods
Education**

Best Management Plans



Lead (mg/kg) Measured in Multiple Compost Sources					
	Boston City Compost (mg/kg)		Source A	Source B	Source C
n	3	24	28	30	24
Mean	220	283	92	122	105
SD			20	30	25
Median	220	277	87	113	104
Maximum	240	413	134	198	152
Minimum	200	192	57	83	62
Source A; farm waste					
Source B; unknown					
Source C; food waste					



Jillian Goldfarb

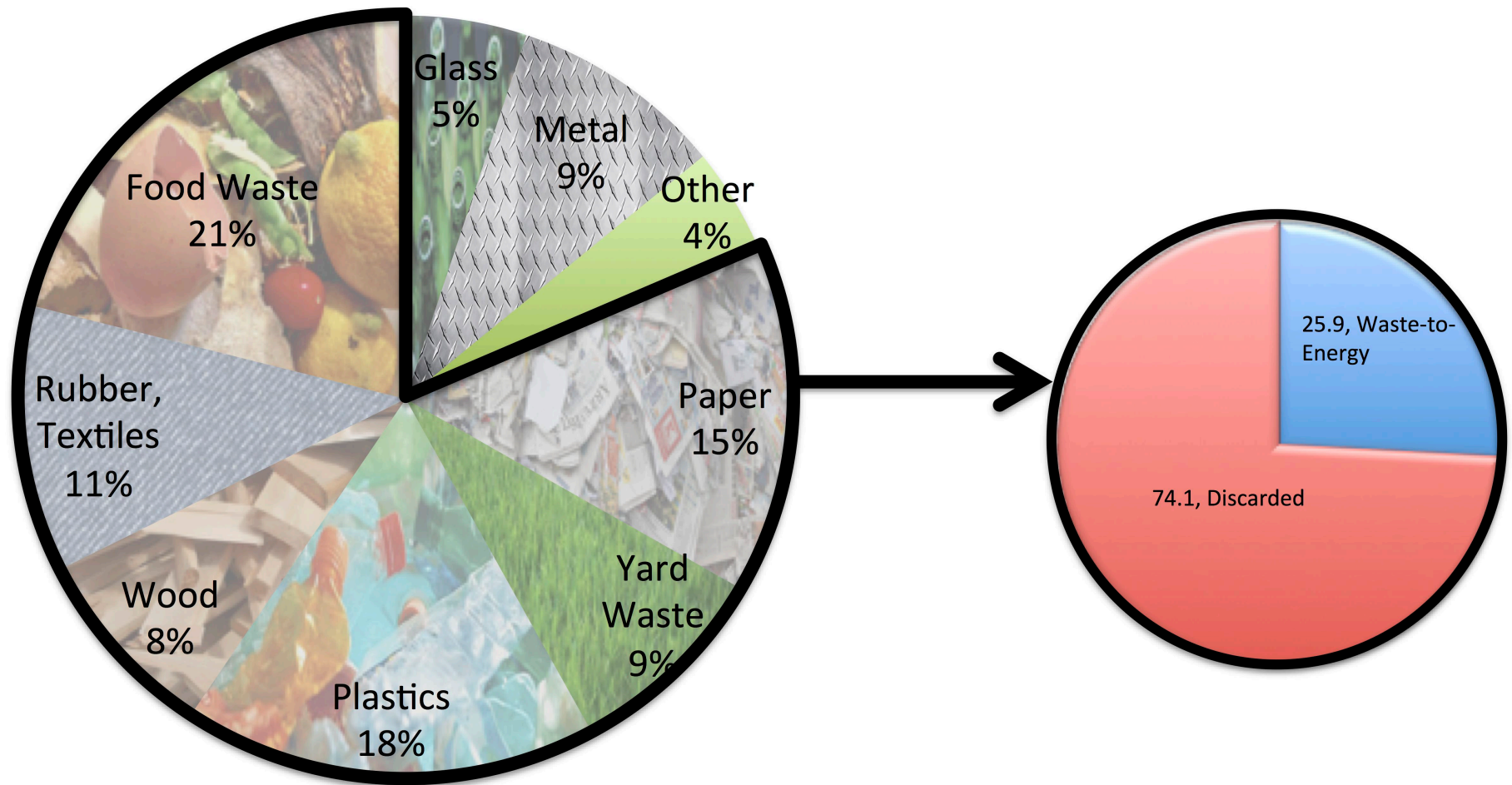
Research Assistant Professor

Department of Mechanical Engineering

College of Engineering

Integrated Solutions at the Water-Energy Nexus for Urban Municipal Solid Waste Management

The Waste in Waste



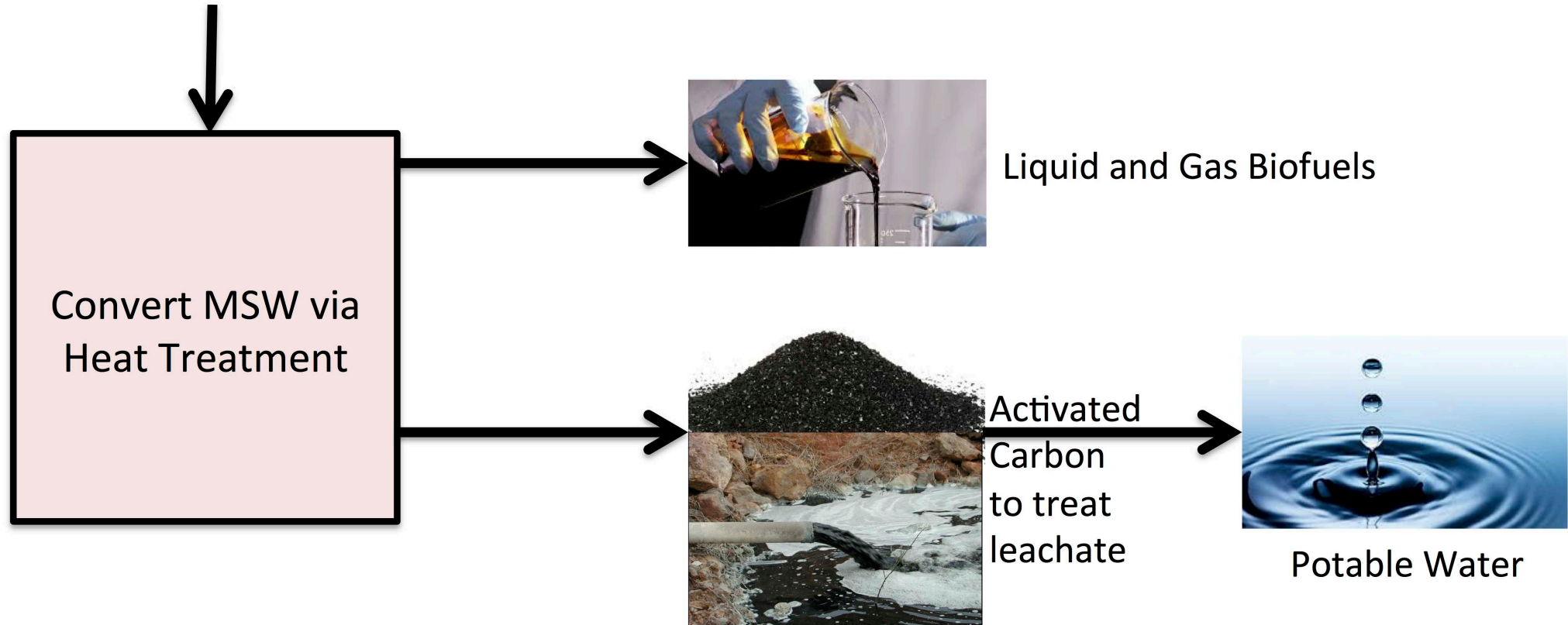
Integrated Solutions for MSW

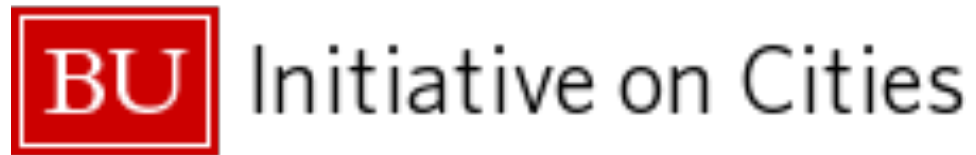


Problems with Conventional Disposal:

- Decomposition of MSW leads to increased greenhouse gas emissions
- Rainwater running through MSW creates contaminated leachate stream

Proposed Integrated Solution:





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