

Citizen science for a healthier community: Soil and water sampling in Burlington and Winooski

Sandra Walser, Nico Perdrial, Paul Bierman, Christine Massey

Lead contamination is a prevailing environmental justice and public health issue in the cities of Burlington and Winooski, VT, where legacy paint on aging housing stock has contributed to widespread residential soil Pb levels above the EPA threshold of toxicity. Lead contamination typically affects disproportionately low-income, rental populations often of foreign origin. Within these communities, however, children are those who are at the greatest risk of lead poisoning, leading to deleterious health effects such as developmental delays and behavioral issues.

In order to obtain a more comprehensive dataset on local lead contamination, a new EPA-supported project seeks to equip Burlington and Winooski students with the tools and background to do citizen science targeted at identifying Pb contamination in residential soils and tap water. Through collaboration between the University of Vermont and 7th–12th grade teachers from six Burlington and Winooski schools, over 1,000 students will be recruited as citizen scientists. Involving directly the impacted “citizens” enables mass sampling in areas of concern, provides a pathway for awareness outreach to the greater community and serves to engage students in STEM.

By providing resources to students so they may participate in an environmental justice project affecting them directly, we hope to encourage a generation of community and environmental problem solvers. Our desire to partner with local schools was sparked by the will to reach as diverse a group of young citizen scientists from varying socioeconomic and cultural backgrounds as possible. By using the existing school structure we also ensure that our citizen pool is heterogeneous while anchored in a stable framework. We seek to produce a project protocol that is sensitive to the variable resources available to participating students. Ultimately, the Burlington/Winooski project aims to serve as a replicable citizen science template for other cities in New England, and beyond, where lead contamination may be an issue.