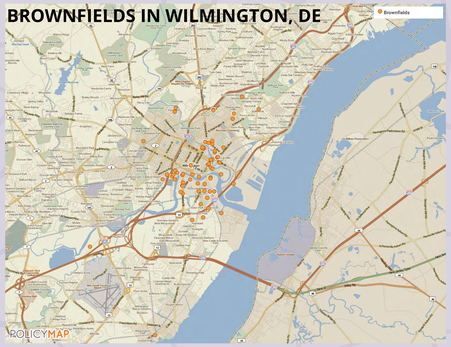
Visualizing the Geography of Environmental Justice

Environmental justice can be measured and analyzed in myriad ways, but for students not majoring in geography or social sciences, the subject can be daunting. Professors can use online mapping tools to help students not only understand presentations, but also let them do their own analyses, without spending hours learning to use sophisticated software they may not use again.

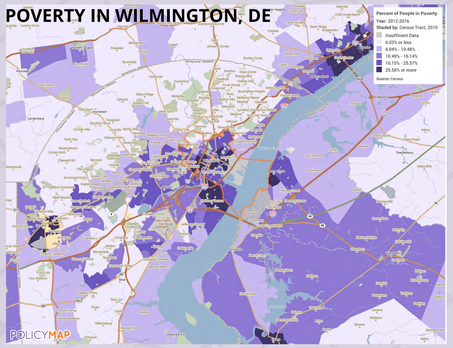
LOCATING ENVIRONMENTAL HAZARDS

Brownfields are "abandoned, idled, or underutilized industrial and commercial facilities [i.e., property and land] where expansion or redevelopment is complicated by real or perceived environmental contamination" (Yount 1997:367, as quoted in Lee and Mohai 2012:602). Brownfield data from the EPA contains detailed information on the type of contaminants, cost of cleanup, previous use, owner, and more.



LOCATING ECONOMIC INEQUALITY

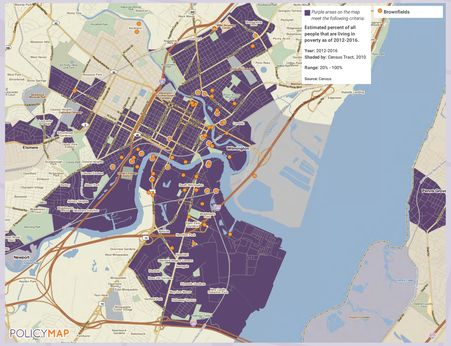
Current poverty data at the local level is available from the Census's American Community Survey (ACS). Delaware's highest rates of poverty are centered in Wilmington.



WHO LIVES NEAR BROWNFIELDS?

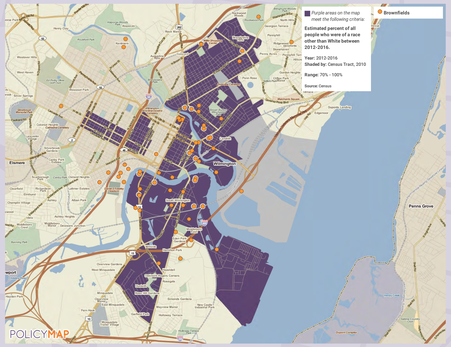
People in poverty: While the association between poverty and environmental hazards is well-documented, students were able to create a fast, compelling visualization to confirm this relationship on a city-wide level.

In the purple areas, at least 1 in 5 residents lives below the poverty threshold.



People of color: Using PolicyMap, students quickly identified concentrations of people of color in areas adjacent to brownfields in Wilmington, Delaware.

In the purple areas, at least 70% of residents identify as people of color.



VICTOR PEREZ, University of Delaware

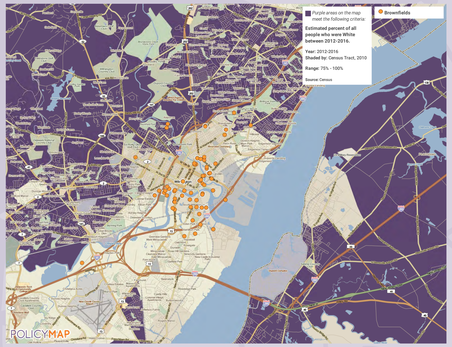
Dr. Perez is an assistant professor of sociology with specializations in environmental justice, health & illness, and the sociology of risk. He is trained in quantitative survey research and has developed skills in mixed-methods research approaches in recent years, including field observations and focus groups. Current research projects include a mixed-methods approach to examining perceptions of historic contaminants and sea-level rise in South Wilmington, DE, working with an interdisciplinary team that is evaluating levels of historic contaminants and hypothesizing their mobility through water inundation.

"The promise of mapping technology for the social sciences lies in its ability to reveal the underlying spatial sources/dynamics of social behaviors and circumstances…the context within which social activity takes place…" Logan, 2012

WHO DOESN'T?

To confirm their suspicions, students looked at the spatial relationship between primarily white neighborhoods and brownfields. While other factors contribute to the geographic placement of white neighborhoods outside of downtown Wilmington, this simple map — contrasted with the two maps before it — gave students a quick understanding of which populations are at risk from environmental contaminants in brownfields.

In the purple areas, at least 3 in 4 residents identifiy as white.



By creating these maps, students could see that environmentally polluted areas are concentrated precisely where people with limited social, political, and economic opportunities live. By identifying areas where specific populations are forced to bear a disproportionate share of adverse environmental and health impacts, students could begin to understand the geography of environmental justice in Wilmington, Delaware.

POLICYMAP

PolicyMap lets students and professors make maps whether or not they have special GIS training. Since all the data is built in and constantly updated, students can spend less time learning the technology, and more time focused on the content. There's data on countless topics, like brownfields, demographics, income, and health, so students can create projects like this with a variety of indicators, anywhere in the country.