

# YOUTH PERSPECTIVES ON THE SOUTHEAST TEXAS ENVIRONMENT



Connecting learning and research in the Urban Integrated Field Lab

## WHY NOW?

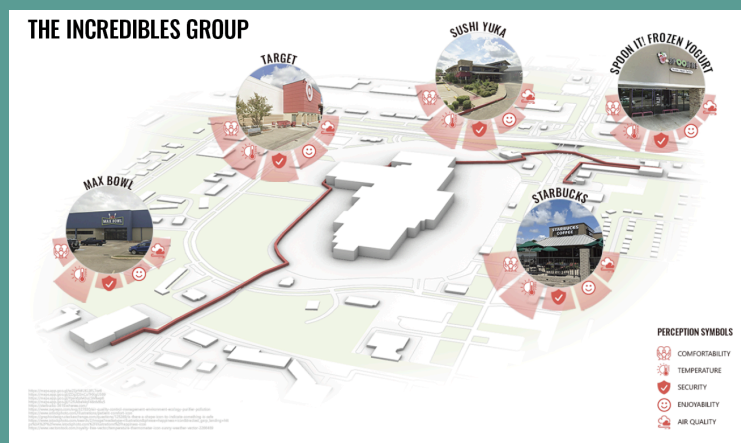
Youth are often left out of hazard planning activities, even though they represent an important constituency today that spends time in the environment and will be affected by decision-making in the future. Working with youth through engaging learning opportunities creates a dual benefit: young people learn more about the environment around them, and their knowledge contributes to scientists' understanding of hazard experiences within the community. We aimed to understand youth's perception of environmental risk while educating them on environmental awareness within their community.

## WHAT WE DID

Over 3 days in 2025, researchers conducted walking interviews with 13 high school students from Beaumont and Port Arthur. The students identified important locations in the community and designed routes along a walking tour to each location. The students then learned to use handheld environmental sensors to capture temperature, humidity, heat index, and particulate matter as they went along the route. This objective information was combined with the students' described perceptions and feelings about the locations.

## WHO WAS INVOLVED?

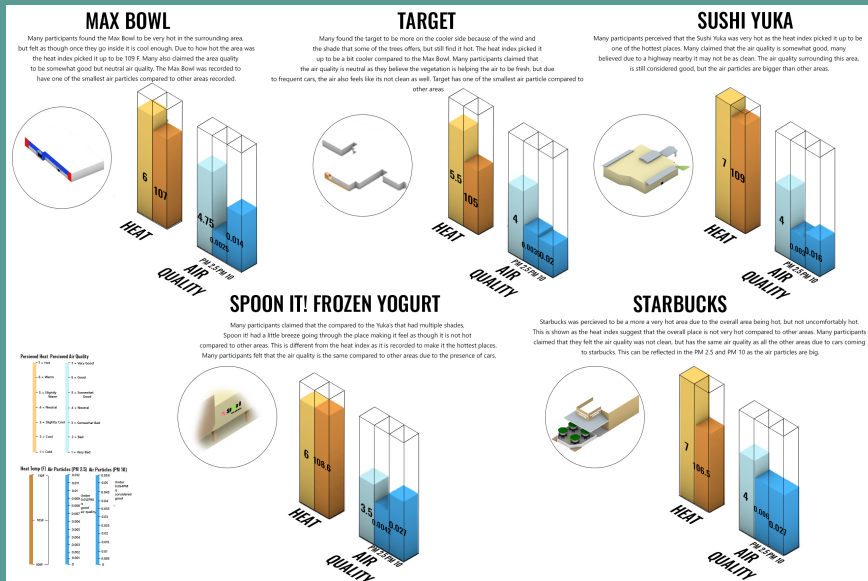
Working closely with Charity Productions, a community-based organization that educates and trains youth in disaster management, the research recruited 13 local high school students. Students received completion certificates for their time and earned a small monetary stipend for their 3-day commitment.



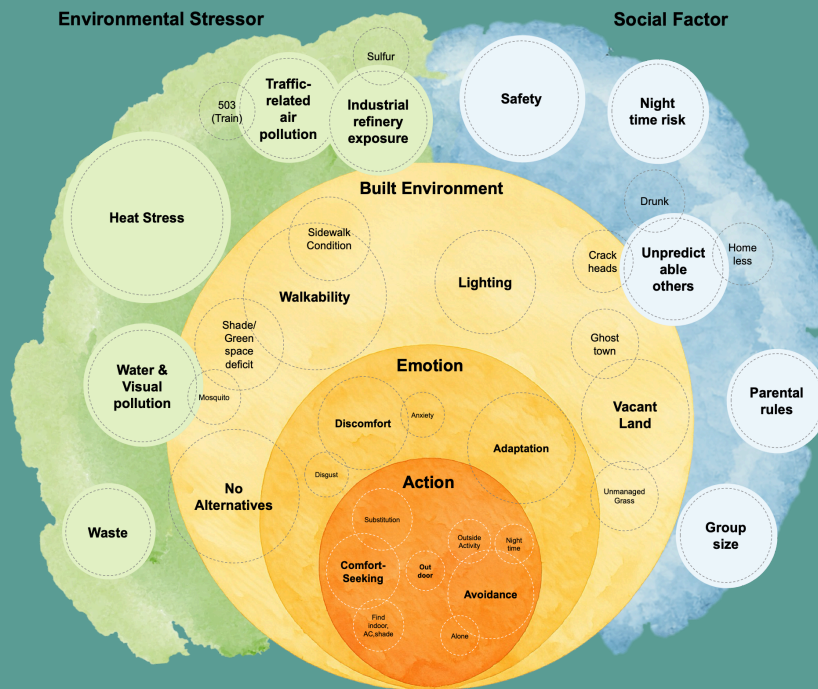
*Youth-led Walking Interview route (Team Incredibles)*

## FINDINGS

Figure 1 shows the Incredibles Group's walking interview route across five stops in Port Arthur, where students evaluated comfortability, temperature, security, enjoyability, and air quality at each location. Perceptions shifted across the route: early stops such as Max Bowl received lower comfort and security ratings, while commercial spaces like Target and Starbucks received higher scores across most perception categories, likely reflecting the presence of shade and maintained surroundings. Stops near high-traffic area, such as Sushi Yuka and Spoon It!, showed more mixed responses, particularly in temperature and air quality perception. Figure 2 presents the heat index and air quality measurements collected at each stop alongside youth perceptions. Measured heat index remained relatively high across all locations, ranging from 105°F to 109°F, yet perceived heat varied more widely across stops. Locations with shade or wind, such as Target, were rated as cooler despite only marginally lower heat index values, suggesting that perceived thermal comfort was more sensitive to microenvironmental features than to absolute temperature differences. A similar gap appeared in air quality: PM10 concentrations gradually increased toward the latter half of the route, but youth ratings of air quality did not follow the same trend. Instead, perceptions were driven more by sensory cues such as car exhaust, food odors, and the visual presence of traffic than by measured particulate levels. Four interconnected pathways shape environmental risk perception and behavior among youth in Figure 3. Perceived heat was repeatedly reported as higher in locations with limited shade and extensive paved surfaces, prompting comfort-seeking actions such as seeking covered areas or shortening outdoor activities. Environmental contamination, including visible trash and polluted water, evoked disgust and led to avoidance or substitution behaviors such as moving indoors. Perceptions of air quality did not consistently align with measured particulate concentrations; instead, interpretations were strongly shaped by contextual cues such as odor and traffic presence, with chronic industrial exposure, especially sulfur odors, often normalized over time rather than triggering avoidance. Social constraints, including parental rules and safety concerns, further influenced mobility by shaping group size and timing, limiting independent use of certain spaces. Youth engagement and education build environmental awareness while also revealing how environmental risks are experienced locally. Even under similar conditions, youth perceptions vary with surrounding physical environments, indicating that planning should incorporate youth perspectives and improve on-the-ground conditions. In Port Arthur and Beaumont, students' responses show that industrial pollution is often perceived as part of the everyday environment rather than an immediate trigger for behavioral change, in contrast to traffic-related pollution. This highlights the need for planning approaches that address not only physical conditions but also how long-term environmental exposure is experienced. More broadly, combining data collection with interviews offers a citizen engagement approach that centers local experiences. This approach can help reveal place-specific characteristics that may not be captured by measured data alone. It can also be applied in other communities as a way to identify and incorporate local conditions into planning.



Comparing Perceived Thermal Comfort and Air Quality (Team Incredibles)



Youth-led Walking Interview qualitative analysis about environmental perception

## MORE ABOUT SETX-UIFL

The Southeast Texas Urban Integrated Field Lab (SETx-UIFL) is one of four projects funded in 2022 by the U.S. Department of Energy to study how climate, environment, and urban changes affect cities. A team of over 80 researchers from UT, Lamar University, Texas A&M, Prairie View A&M, Oak Ridge National Lab, and Los Alamos National Lab has collected data and conducted

modeling across hazards including flooding, hurricanes, heat stress, and air quality. Our Why: Southeast Texas faces numerous hazards, yet smaller communities like this one have often felt forgotten compared to larger cities. The SETx-UIFL was designed to explore the complex dynamics of disaster vulnerability for this economically and culturally vibrant region. We believe Southeast Texas is a bellwether for the entire Gulf Coast, and an exemplar for strategies that protect people and places. We hope this effort supports your path toward lasting resilience.



**DONGYING LI**

[dli@arch.tamu.edu](mailto:dli@arch.tamu.edu)

