



# Risk e-Learning Webinar Series: Climate Change and Health Opening Remarks

**William Suk, Ph.D., M.P.H**  
**Director Superfund Research Program**  
**National Institute of Environmental Health Sciences**

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# The Impact of Climate Change on Health

- Climate change affects human health in a variety of ways, both direct and indirect.
- In the context of environmental health, one important avenue is through altering the movement, bioavailability, and toxicity of hazardous substances.

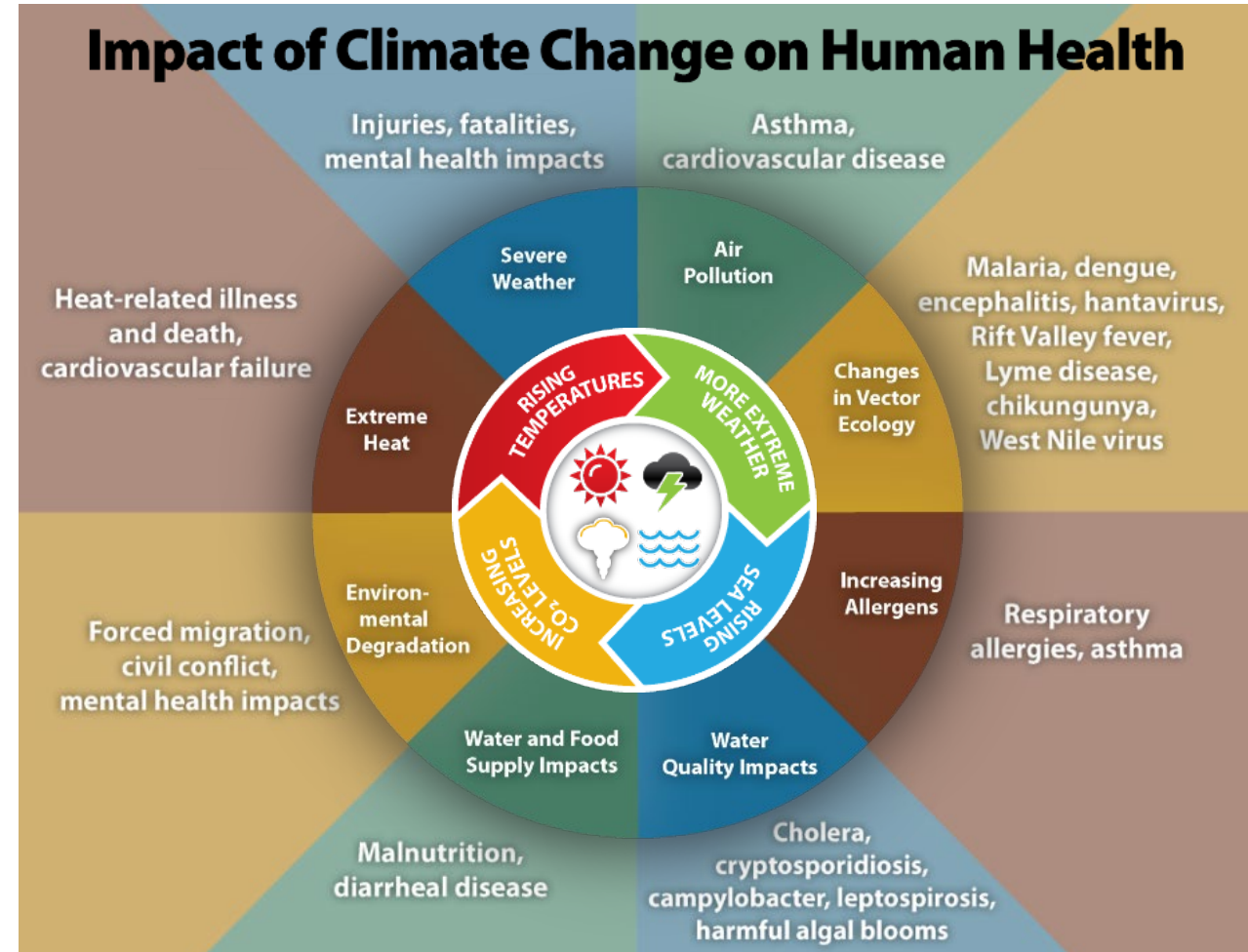


Image courtesy of CDC

## Relevance to Superfund

- ~10,000 EPA-managed contaminated sites with hundreds of hazardous chemicals: potentially at risk with climate change.
- This affects people, and children.
- Addressing climate change as a complex, multifaceted environmental health problem will require multidisciplinary, systems-focused research and collaborations.



**2,000** Official & potential Superfund sites near coast



**>800** Sites at risk of flooding under different rates of sea level rise



**>70 million** People live within 3 miles of a Superfund site



**>25%** Of all minorities and households below the poverty line live within 3 miles of a Superfund site



**>20%** Of all children in the U.S. live within 3 miles of a Superfund Site

# SRP Mandates Under SARA

University-based basic research program established in 1986 under Superfund Amendments Reauthorization Act (SARA)

## Health Effects

- Advanced techniques to detect, assess, and evaluate the human health effects of hazardous substances

## Assessing Risk

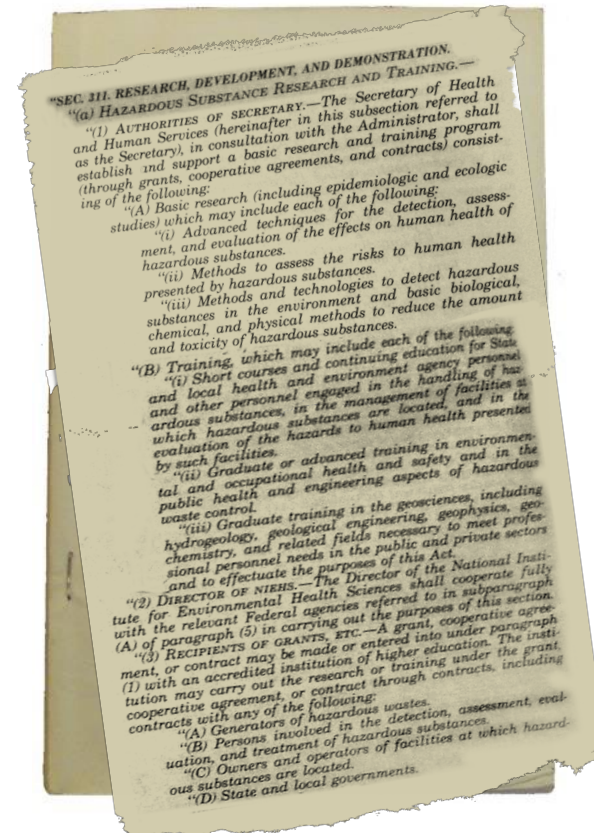
- Methods to assess the risks to human health presented by hazardous substances

## Detection

- Methods and technologies to detect hazardous substances in the environment

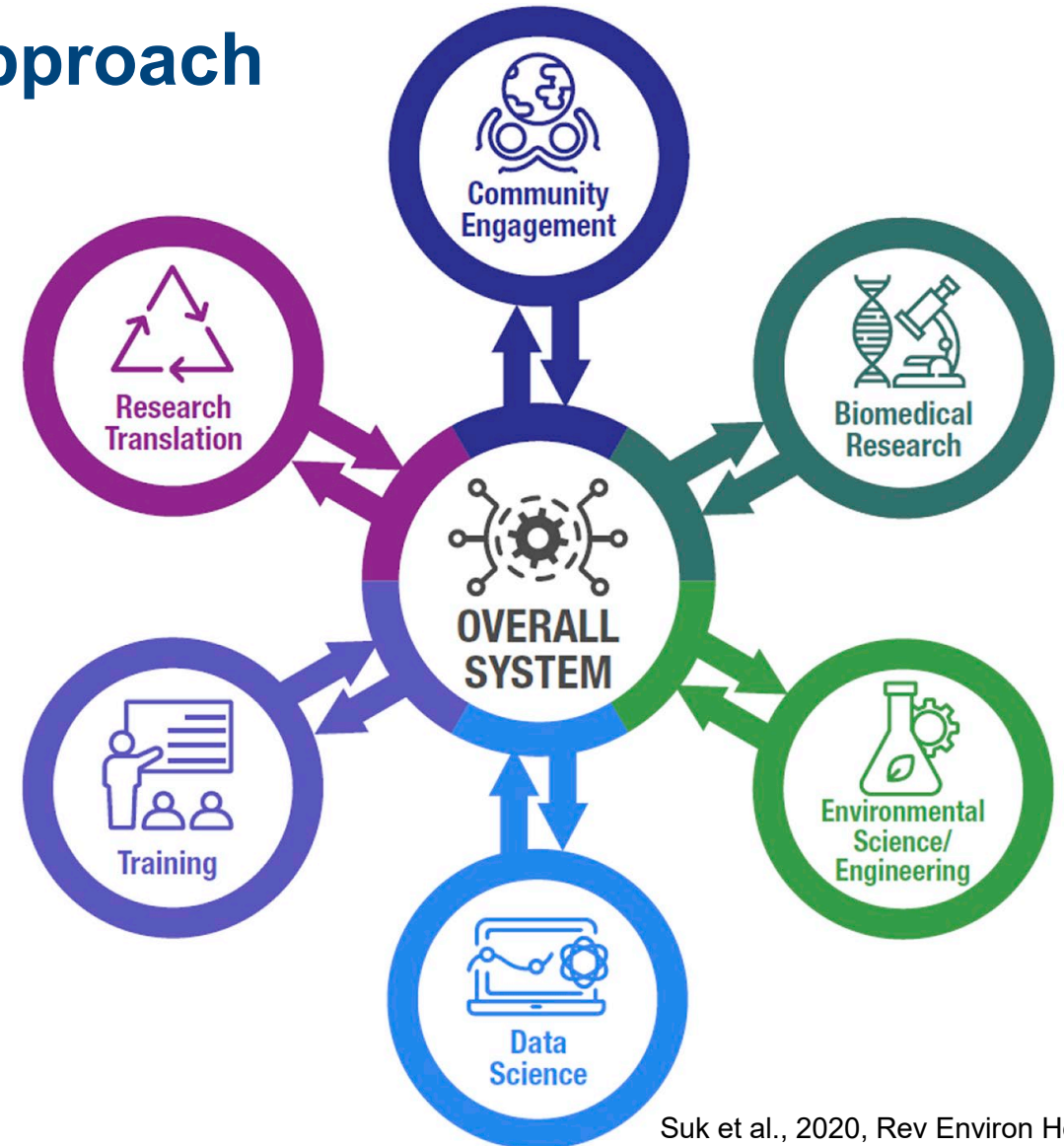
## Remediation

- Basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances



## SRP's Multidisciplinary, Systems Approach

- SRP grantees integrate expertise across broad disciplines.
- Collaborate with agencies, governments, nonprofits, and communities affected by hazardous waste.
- Address specific environmental health questions from many angles as part of a larger system.



## Solving Complex Climate Issues

- Addressing multifaceted climate-related problems requires **multidisciplinary research and collaboration**, advances in **data science**, and **community engagement**, all hallmarks of the SRP.



# Leveraging Multidisciplinary Research to Promote Climate Change Resilience

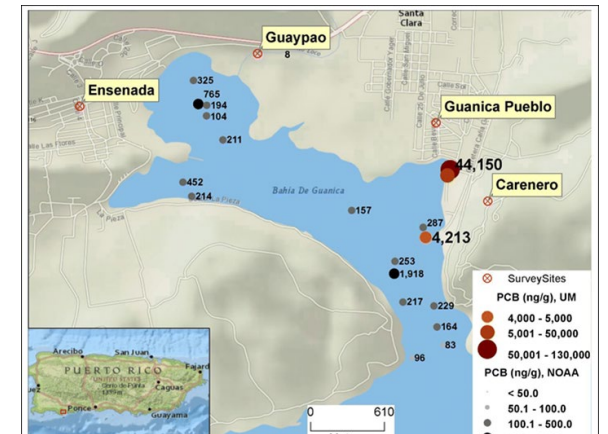
- In the context of climate change, SRP grantees are developing and using:
  - **Advanced sampling techniques** to understand how disasters redistribute pollutants.
  - **Innovative modeling approaches** to understand exposures and health effects of extreme-weather events.
  - **Sustainable cleanup strategies** to reduce contaminants.
- Grantees work closely with communities to understand effects and to promote health and resilience.



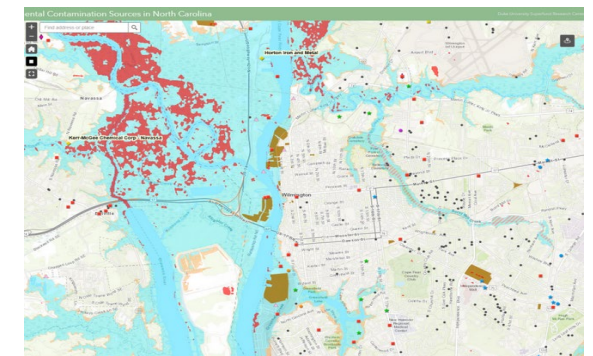
# Climate Change and Extreme Weather Events: Grantees in Action

## Understanding Effects and Protecting Health

- Developing comprehensive tools and models for addressing exposures to mixtures during environmental emergency-related events. (TAMU)
- Characterizing impacts of increasing temperatures on ecosystem sustainability and human health. (UAZ; Dartmouth)
- Developing resources for communities to prevent exposures after hurricanes. (Duke, NCSU, U of Miami)
- Using interactive maps to assess vulnerability. (Duke, TAMU, UC Berkeley)
- Using green infrastructure to plan resilient communities. (TAMU)



*This image illustrates the quantity of PCBs in Puerto Rico, and was part of a study to create a school-based intervention for PCB awareness (Ramirez-Ortiz et al., 2019)*



*The Duke SRP Center mapping tool shows where chemical contaminants may enter the environment during a flood. (Photo courtesy of the Duke University SRP Center)*



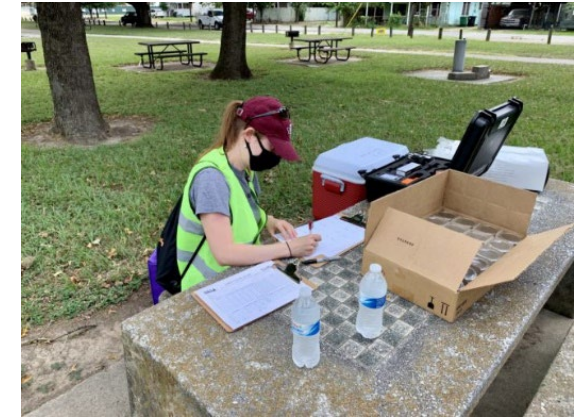
# Climate Change and Extreme Weather Events: Grantees in Action

## Contaminant Movement

- Measured redistribution of PCBs after hurricanes in Puerto Rico to assess community exposure. (U Miami)
- Developing biosensing tools to monitor contamination. (VIMS/TAMU)
- Understanding how disasters redistribute pollutants. (TAMU, Northeastern)

## Sustainable Cleanup

- Identifying how vegetation covering can stabilize mine waste in arid environments and dryland ecosystems as the climate continues to change. (UAZ)
- Developed strategy to treat contaminated urban stormwater and ensure that the quality of urban runoff improves during the filtration process. (UC Berkeley)



TAMU SRP Center trainee collects samples after Hurricane Harvey. (Photo courtesy of the TAMU SRP Center)



University of Arizona SRP Center trainee tests 30 potential capping materials for mine sites. (Photo courtesy of the University of Arizona SRP Center)

## Snapshot of this Series on Climate Change and Health



- **Session I - Reducing Exposures and Promoting Resilience**

Friday, October 7, 2022, 1:00 PM-3:00 PM EDT

*The archive will be available on [EPA's CLU-IN Training & Events webpage](#).*

- **Session II - Untangling Complex Exposures and Health Effects**

Friday, November 4, 2022, 1:00 PM-3:00 PM EDT

*To register, visit [EPA's CLU-IN Training & Events webpage](#).*

- **Session III - Documenting Exposures and Promoting Health**

Friday, November 18, 2022, 1:00 PM-3:00 PM EDT

*To register, visit [EPA's CLU-IN Training & Events webpage](#).*