

The Climate Challenge

Eight hottest years on record (since 1880):

2016

2020

2019

2021

2018

2022

2017

2015



The Climate Challenge



Eight hottest years on record (since 1880):

2016

2020

Why is this happening to us???

When will it stop???

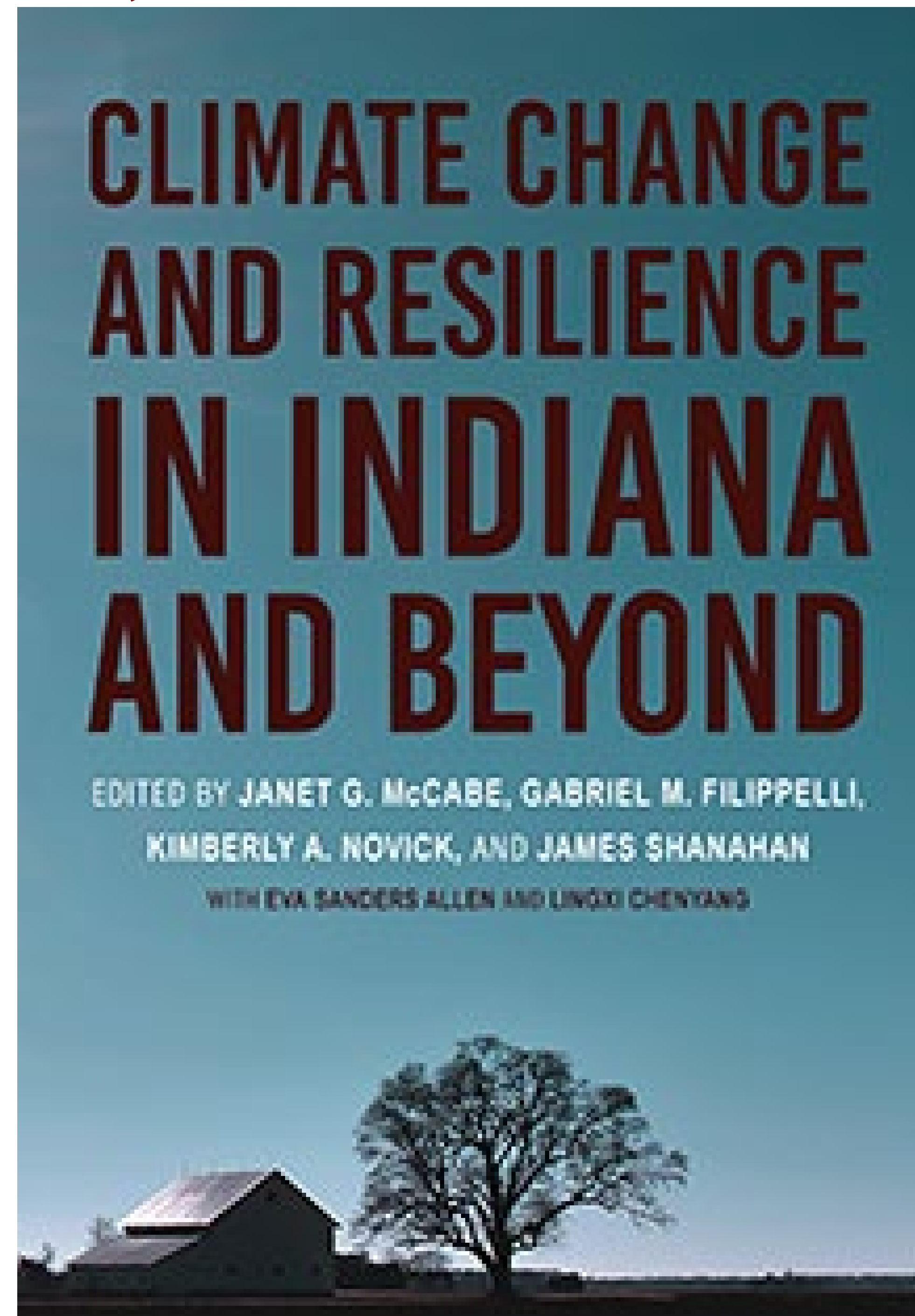
Is there hope or are we toast???



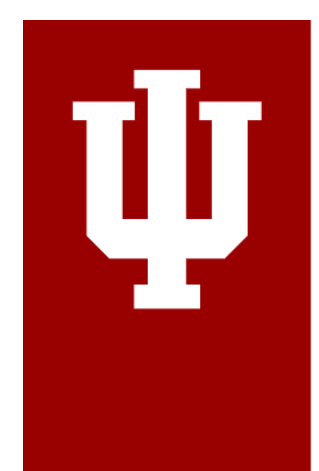
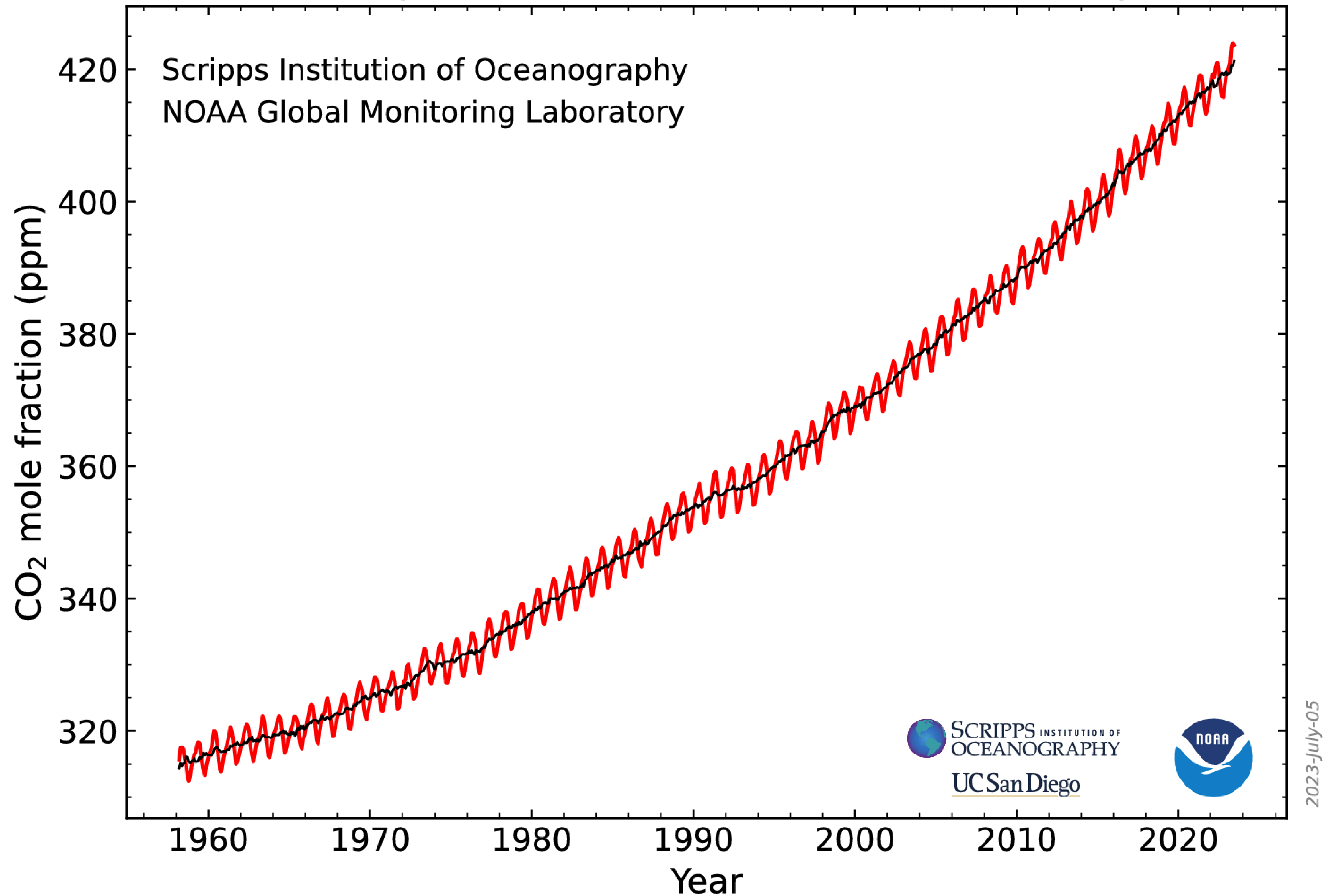
2015



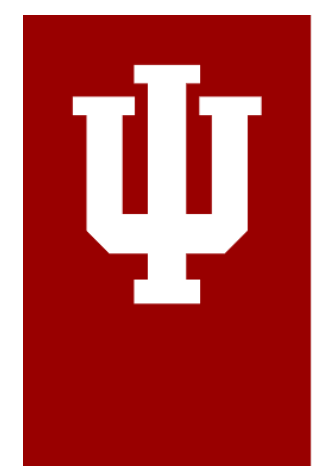
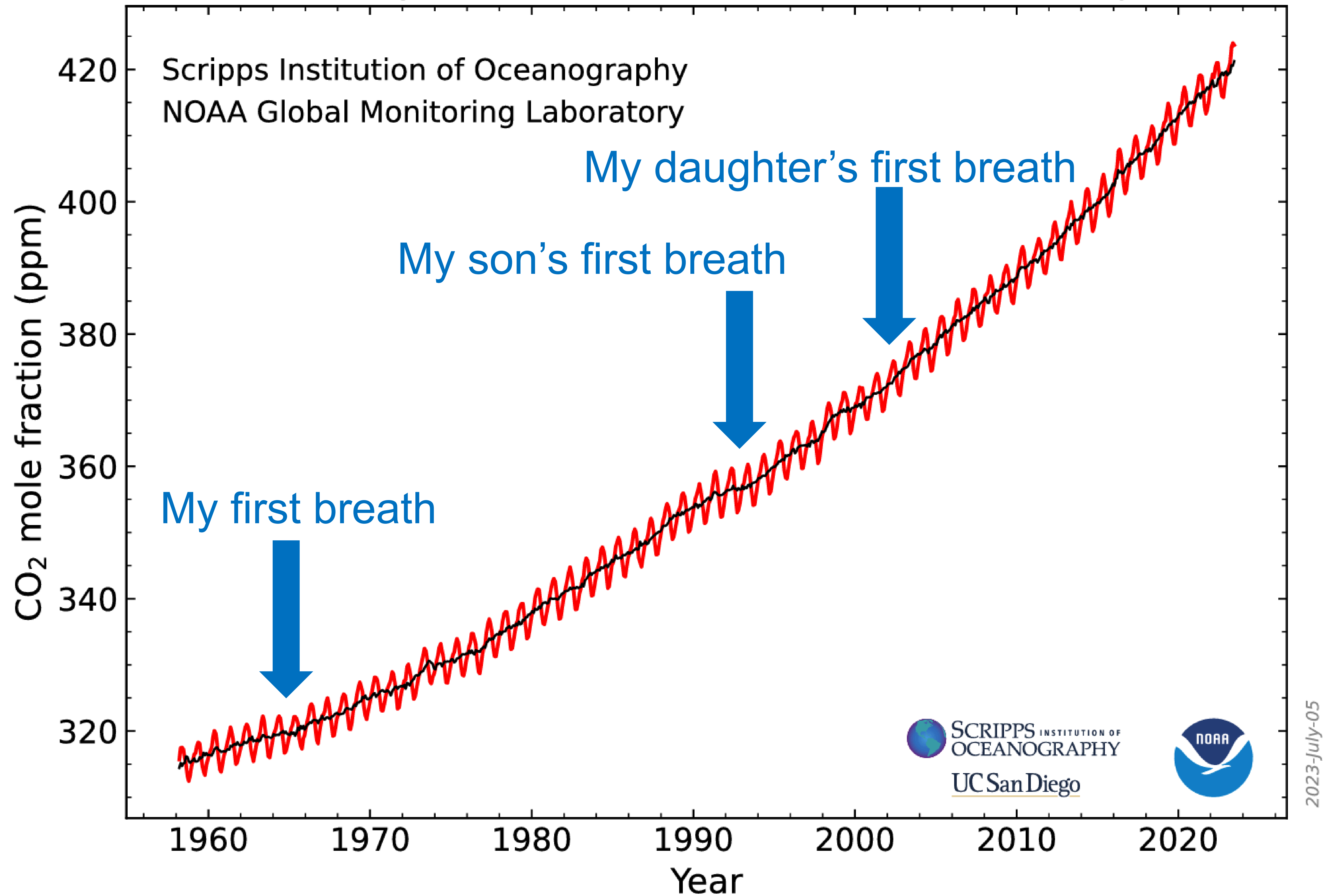
**There are climate solutions—some are easy,
some are not, all should be pursued**



Atmospheric CO₂ at Mauna Loa Observatory



Atmospheric CO₂ at Mauna Loa Observatory



You, me, everyone

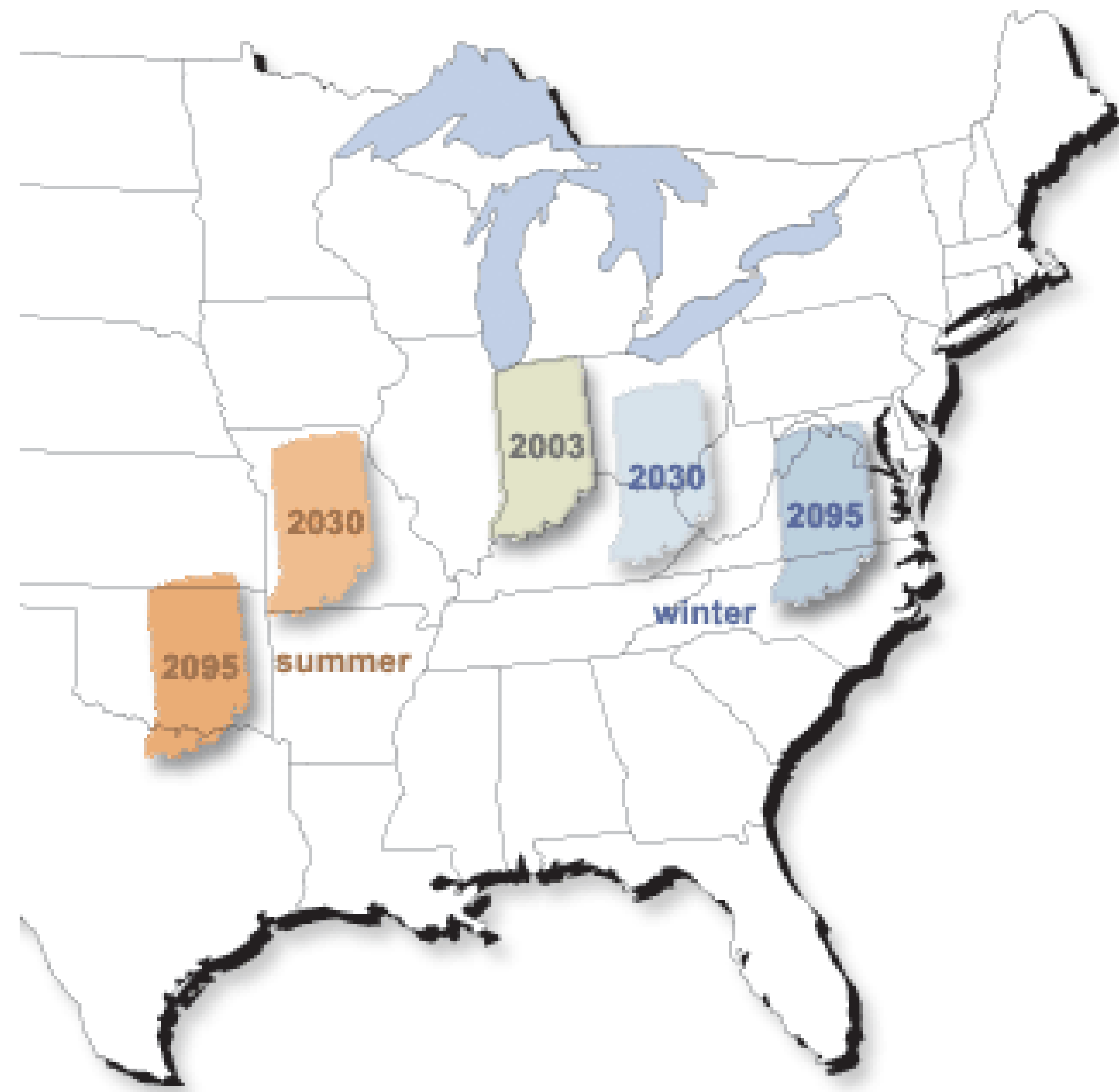
- No person, community, or country will emerge unaffected by current and future climate change
 - Some impacts might be positive, like extended growing seasons and changes in shipping routes due to the loss of Arctic ice
 - **Most will not**

Mitigation-yes, certainly

Adaptation-yes, sadly



Indiana's Climate Future



		°F	°C
2030	summer	↑ 3-4	2
	winter	↑ 2	1
2095	summer	↑ 8-10	4-6
	winter	↑ 5-7	3-4

		% Increase/Decrease
2030	summer	↓ -15
	winter	---
2095	summer	↓ -10 to -15
	winter	↑ 5 to 10

		% Increase 24hour/Multiday precipitation events
2095	summer	---
	winter	---

TEMPERATURE CHANGE

PRECIPITATION CHANGE

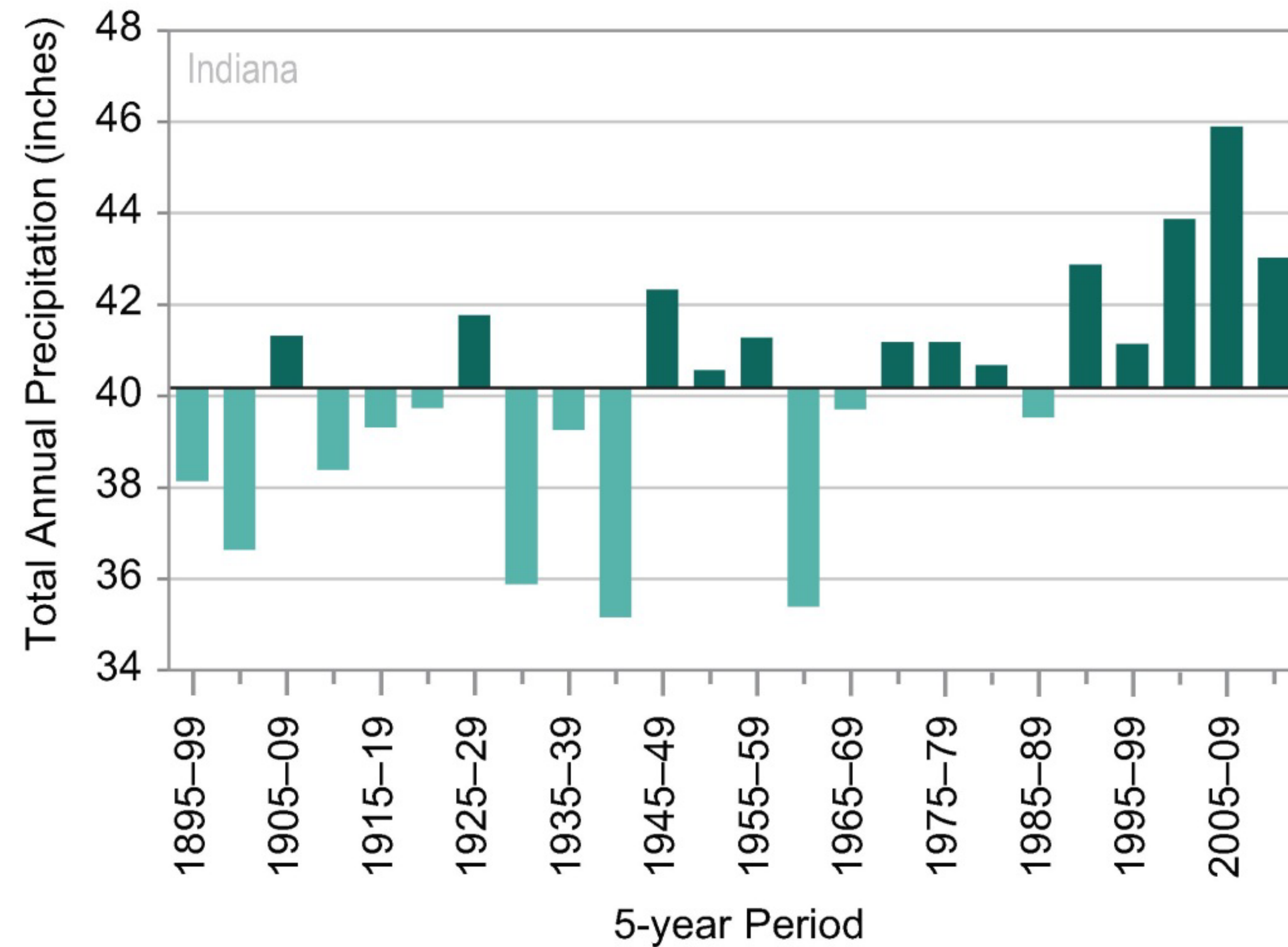
EXTREME EVENTS



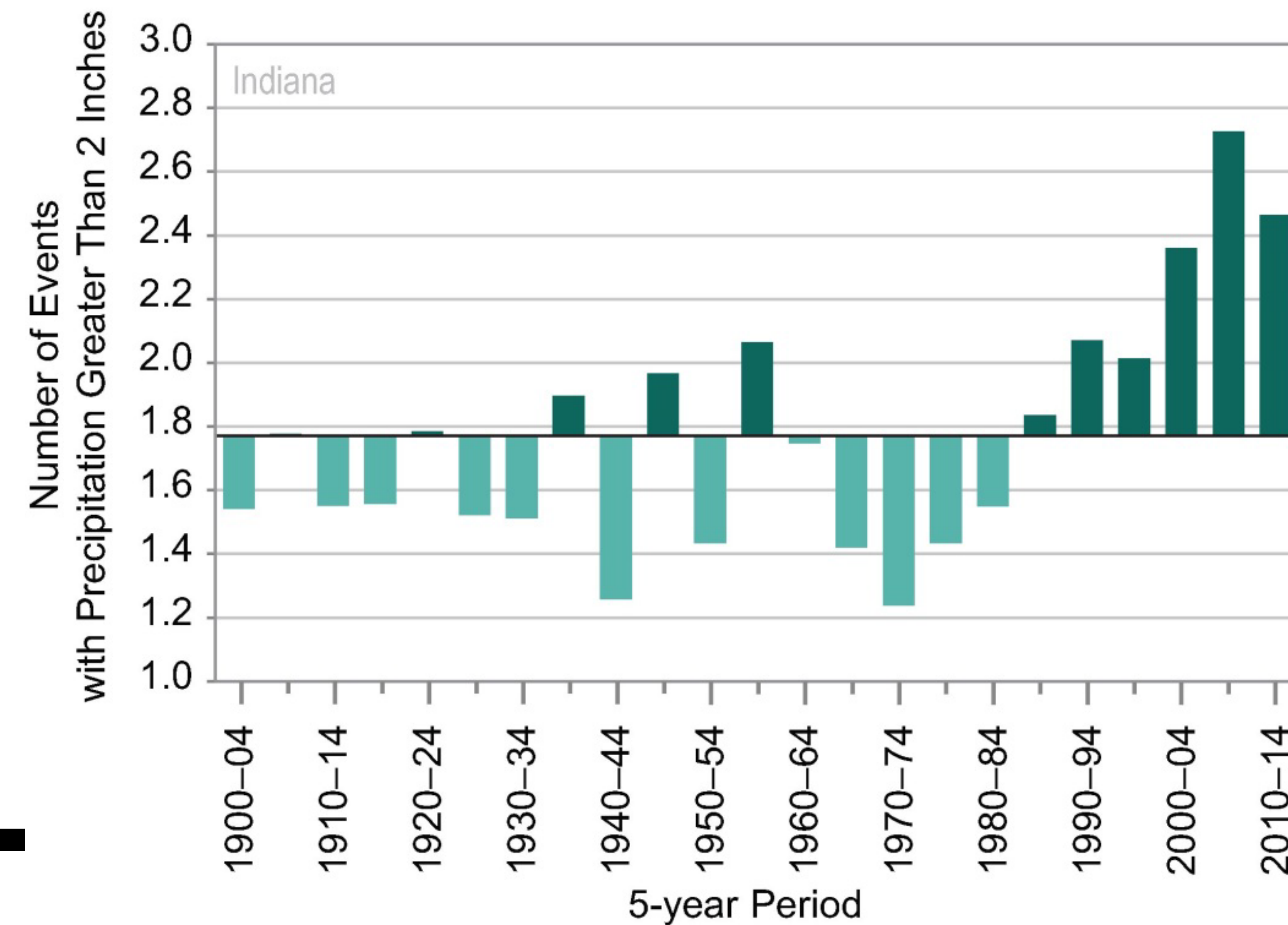
Regional capacity building on water quality driven by climate



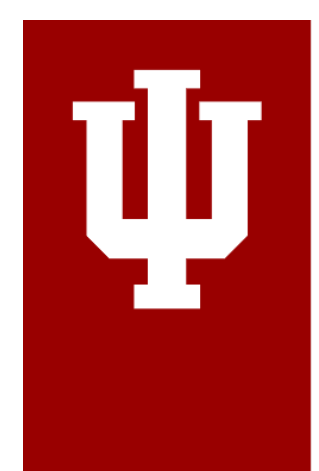
Observed Annual Precipitation

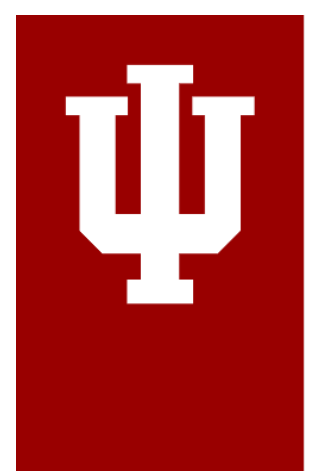


Observed Number of Extreme Precipitation Events



INDIANA





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Additional partnerships to reduce burdens in EJ communities

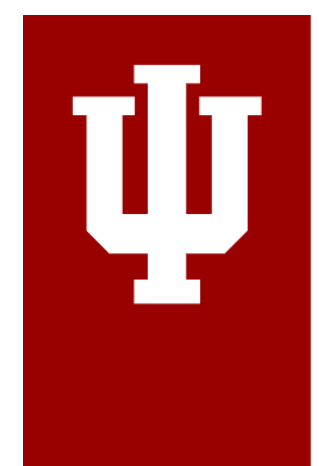
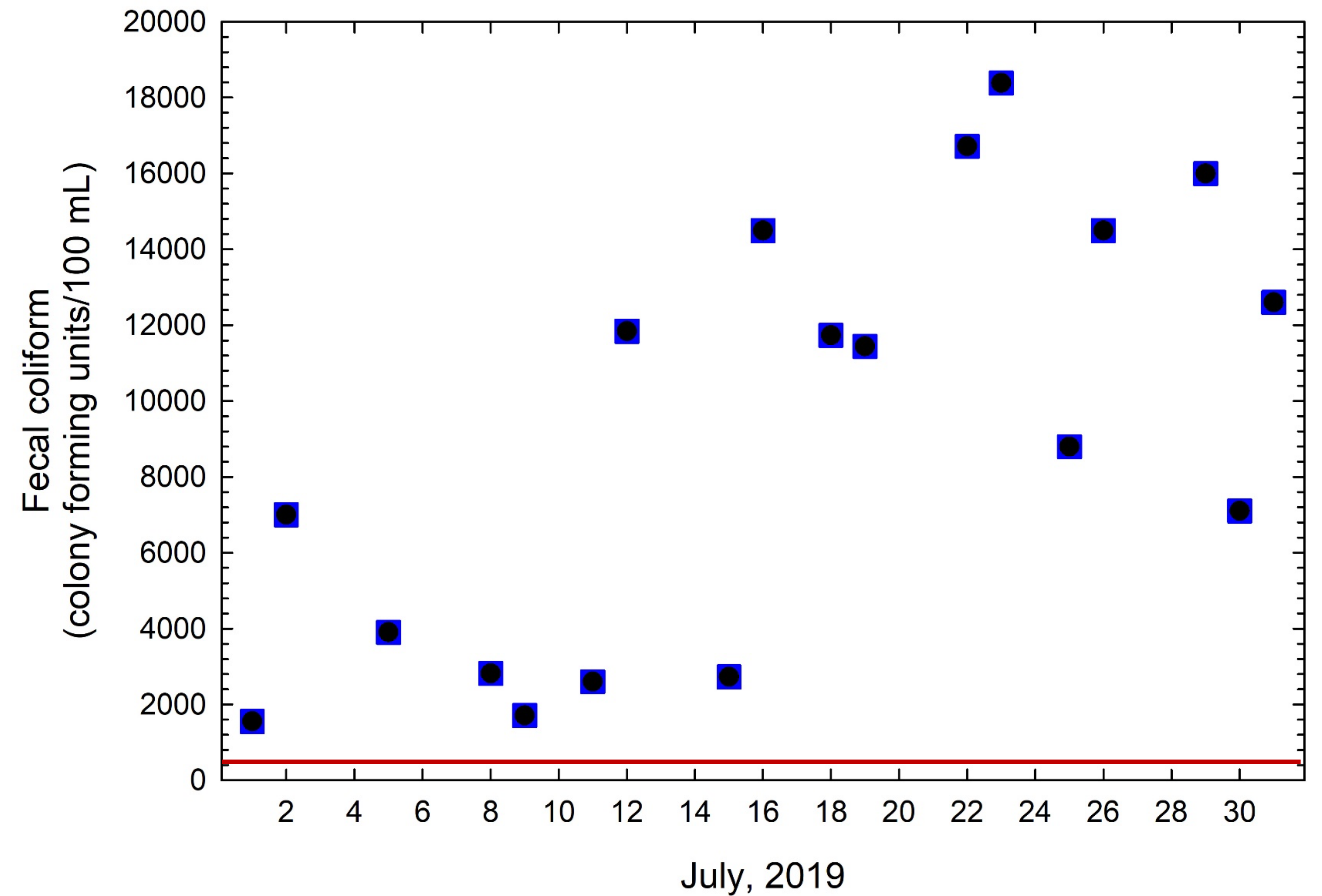
KIB/Reconnecting to Our Waterways (ROW)

Frequent flooding highlights importance of trees and native landscape buffers in riparian areas

- ROW and collective impact, community listening, value to Indy
- regional convention and visitors associations rallied for millions for sensitive development
- preserving green space
- creating access to it for their residents



White River, partnership with IndyStar



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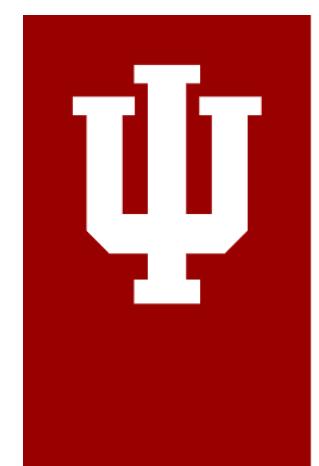
State engagement on climate solutions

Environmental Resilience Institute

The mission of the Environmental Resilience Institute is to enhance resilience to environmental change in Indiana and the Midwest by accurately predicting impacts and effectively partnering with communities to implement feasible, equitable, and research-informed solutions.

“ In just a few short years, the Environmental Resilience Institute has proven invaluable to cities and towns. The data and educational resources being provided by the institute are critical new tools that local officials have never had before.”

Matt Greller, Accelerated Indiana Municipalities CEO



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McKinney Climate Fellows



201

STUDENT FELLOWSHIPS

64,000+

HOURS SERVED

70%

OF FELLOWS LIVE AND WORK IN INDIANA AFTER
COMPLETING THE PROGRAM

40%

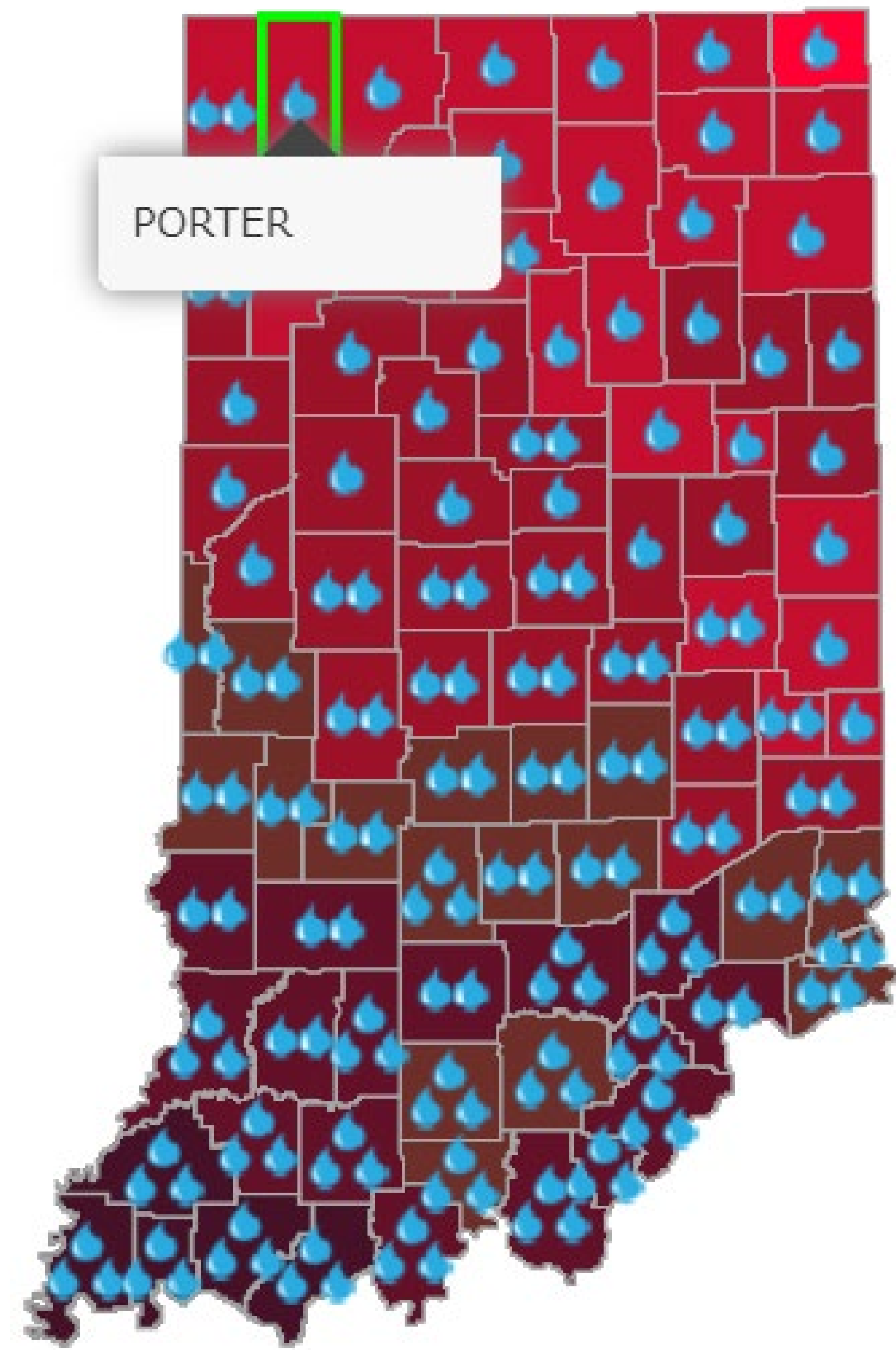
OF MCF ALUMNI WORK IN CLIMATE CAREERS IN THE
MIDWEST



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Hoosier Resilience Index



Extreme Heat

Average Number of Extreme Heat Events per Year

Porter County

Timeframe	High Heat Days <i>i</i>	High Heat Nights <i>i</i>	High Heat Days and Nights <i>i</i>	Total Days with Extreme Heat Events* <i>i</i>
Current <i>i</i>	8	7	7	23
2050s - Medium Emissions Scenario <i>i</i>	21	12	27	60
2050s - High Emissions Scenario <i>i</i>	24	13	37	73

hri.eri.iu.edu/



FutureWater

[ABOUT FUTUREWATER](#)

[RESEARCH PROJECTS](#)

[OUR TEAM](#)

[PUBLICATIONS + NEWS](#)

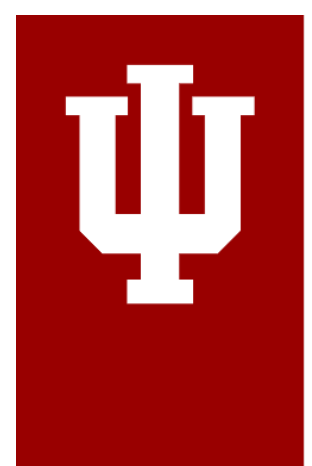
[TEACHING RESOURCES](#)



FutureWater – modeling climate change impacts on Indiana's water resources

Part of the "Prepared for Environmental Change" Grand Challenge

[Explore Modeling Results](#)



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Environmental Resilience Institute Toolkit

Air Quality

- Indoor Air
- Outdoor Air

Critical Infrastructure

- Buildings and Housing
- Communications
- Energy Generation, Procurement and Transmission
- Transportation Systems
- Waste and Wastewater

Ecosystem Protection

- Estuaries
- Invasive Species and Pests
- Lakes, Rivers and Streams
- Maintaining Biodiversity
- Parks, Trees and Forests
- Urban Ecosystems
- Wetlands

Energy

- Alternative and Renewable Energy Sources
- Distribution Mechanisms
- Energy Efficiency

Equity and Justice

- Climate and Environment
- Energy
- Food
- Housing

Food and Agriculture

- Food Distribution and Access
- Rural Agriculture
- Urban Gardens and Farms

Policies and Planning

- Disaster Preparedness and Emergency Response
- Greenhouse Gas Inventories and Mitigation
- Resilience Planning
- Risk and Vulnerability Assessments
- State and Local Policies

Public Health

- Air Quality
- Extreme Heat
- Mosquitoes, Ticks and Other Vectors
- Water Quality

Solid Waste Management

- Contaminated Site Management
- Disaster Debris Management
- Waste Reduction and Recycling

Transportation

- Alternative Fuels
- Multi-modal Transportation
- Walkable Communities

Water Management

- Algal Blooms
- Drinking Water
- Drought
- Erosion and Sedimentation
- Flooding
- Green Infrastructure
- Saltwater Intrusion
- Sea-level Rise

New Case Studies

Evansville's solar technician training program for low-income residents

NWI's voluntary air quality improvement program

Richmond's solar potential map

Plymouth's EV charging infrastructure

Lucas County, OH's nutrient source inventory

New Albany's walkable downtown

Thank you!

Gabriel Filippelli
Executive Director
Environmental Resilience Institute

eri@iu.edu

812-855-0684

eri.iu.edu

@GabeFilippelli

