



**WEATHERING  
CHANGE**



ANTIOCH UNIVERSITY NEW ENGLAND  
**Center for Climate Preparedness  
and Community Resilience**



Strengthen communities to prepare,  
respond and recover in the face of  
climate impacts and other disruptions  
through collaborative, innovative  
solutions.

[communityresilience-center.org](https://communityresilience-center.org)

Dr. Christa Daniels  
Senior Associate, CCPCR

# Climate Change Resilience

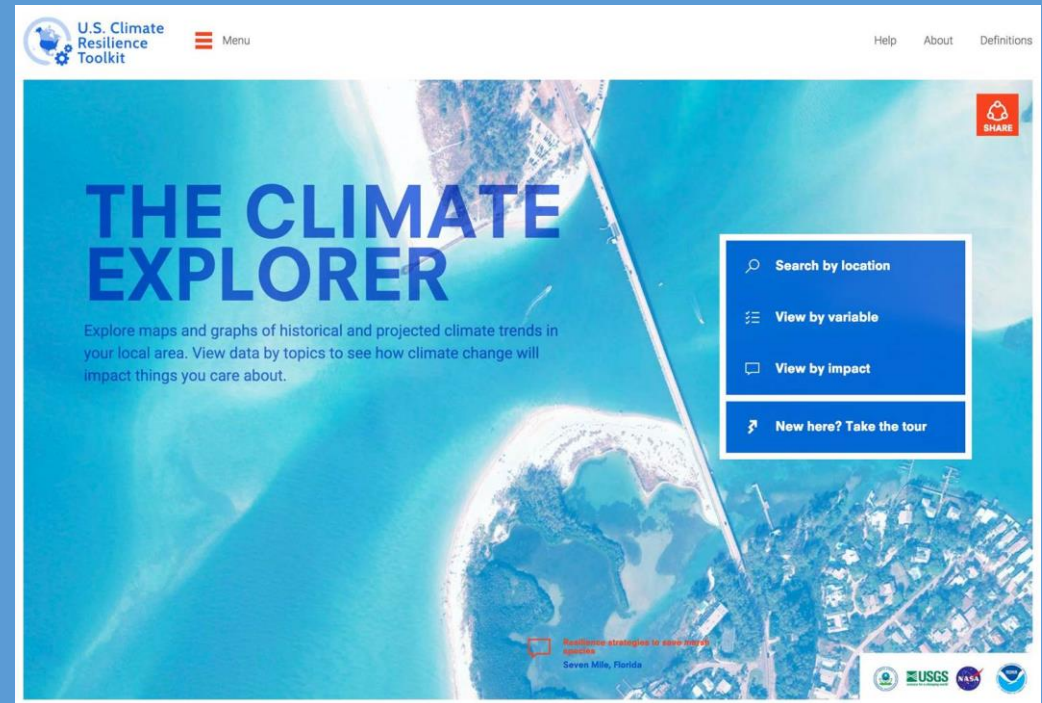
... a series of online courses focused on the fundamentals of climate change resilience.

- Engage in each course for 4 weeks
- Enroll for graduate credit or audit the course
- Increase your skill set in climate resilience for better outcomes
- Discover solutions to local issues you face on the job or in your community.
- Register for one course or the whole series.



<http://www.communityresilience-center.org/climate-change-resilience-series/>

This course focuses on identifying what and who are most vulnerable to such impacts, how to facilitate a stakeholder process to prioritize these identified vulnerabilities, along with an overview of planning for resiliency and adaptation at different scales. After this module, you should feel comfortable knowing what steps need to be taken to integrate resiliency recommendations and projects into community planning and policy processes.



For more information or to register for this course:

<https://www.antioch.edu/new-england/resources/centers-institutes/center-climate-preparedness-community-resilience/climate-change-resilience-series/>

# Climate Change Resilience

... Sneak Preview



**Communication, Facilitation and Stakeholder Capacity Building**  
**Climate Justice and Equitable Adaptation**  
**Public Health**

<http://www.communityresilience-center.org/climate-change-resilience-series/>





Ned Gardiner, PhD  
Engagement Manager

Meet the challenges of a changing climate by finding information and tools to help you understand and address your climate risks.

[toolkit.climate.gov](https://toolkit.climate.gov)

# Logistics



If you have a question, please write it in the Q&A section (not Chat) and select to All Panelists, so we can see the questions.



If you are having technical difficulty, please use Chat and send to Host, so we can address the issue with you directly.



The presentation will be recorded and posted to the Antioch website within a week [www.communityresilience-center.org](http://www.communityresilience-center.org)

Published: 07 January 2019

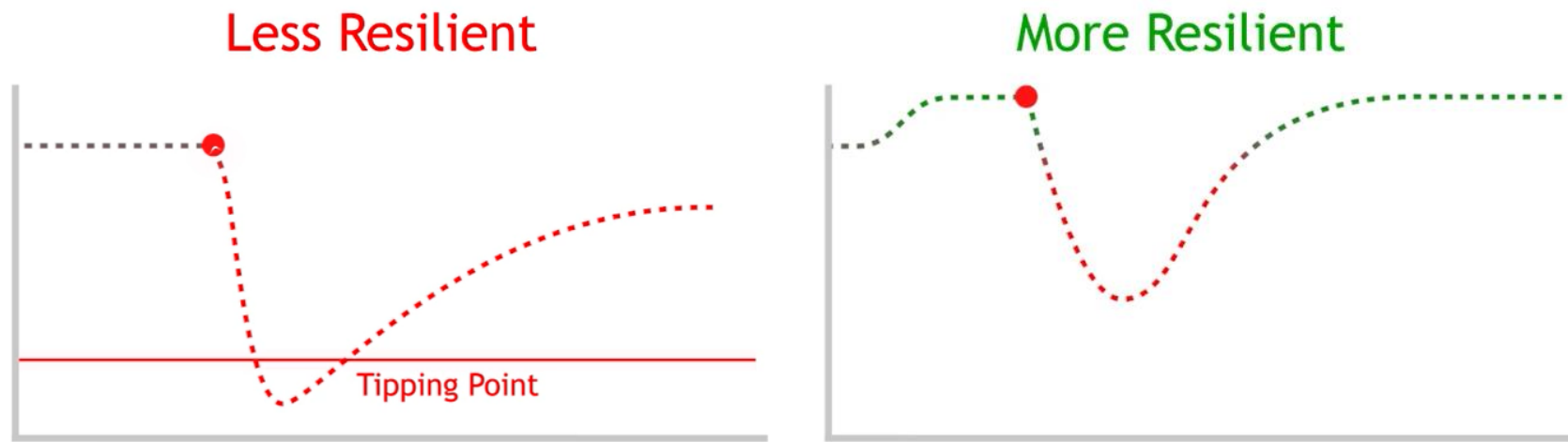
# The turbulent world of resilience: interpretations and themes for transdisciplinary dialogue

[Susanne Moser](#) , [Sara Meerow](#), [James Arnott](#) & [Emily Jack-Scott](#)

[Climatic Change](#) **153**, 21–40(2019) | [Cite this article](#)



# Social Vulnerability and Climate Resilience





## Welcome to the Coastal County Snapshots

The Coastal County Snapshots turn complex data into easy-to-understand stories, complete with charts and graphs.

To get started, select a state and county from the dropdown menus or from the map below.



North Carolina ▼

Onslow ▼

+

-

Onslow, North Carolina

LAUNCH





SHARE



TWEET



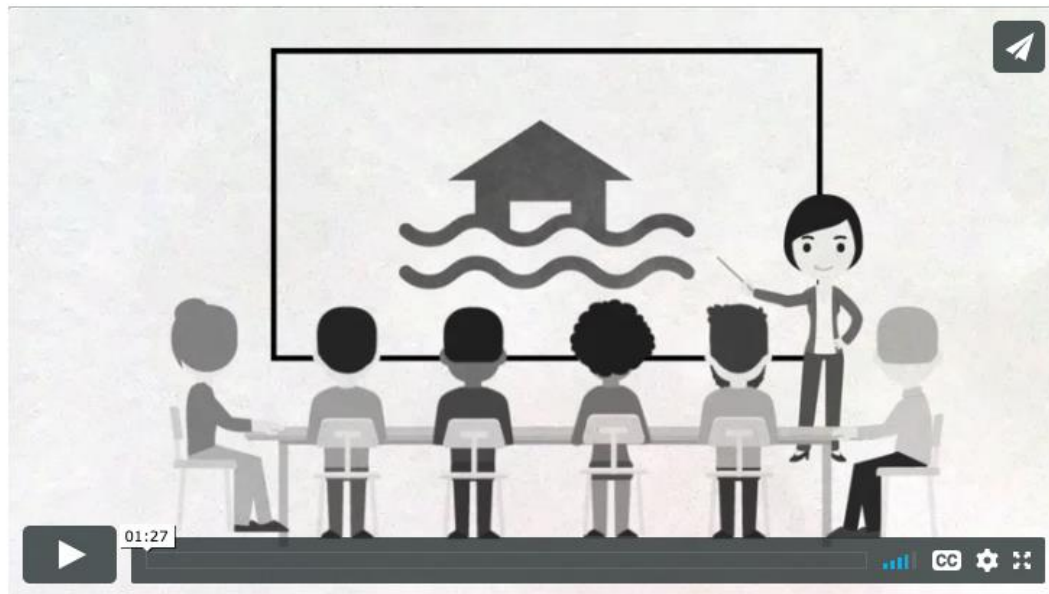
PRINT

## Explore Hazards

- Gather a team of people who want to protect local assets.
- Check past weather events and future climate trends.
- List the things you value that could be damaged.
- Determine which of your assets are exposed to harm.

After this exploration, you'll discover if weather and climate represent a hazard to things you value.

[Steps to Resilience](#) > [Explore Hazards](#) >



Step 1. Explore Hazards

## Establish a team

## Steps to Resilience

- 1 Explore Hazards
- 2 Assess Vulnerability & Risks
- 3 Investigate Options
- 4 Prioritize & Plan
- 5 Take Action

## Case Studies

[Motivating the Agricultural Community to Build Climate Resilience >](#)

[Shopping Mall Exhibit Raises Awareness of Sea Level Rise >](#)

[Yukon Delta Villages Document Baseline Environmental Data >](#)

[View all Step 1 Case Studies >](#)

## Tools

[Climate at a Glance >](#)

[Climate Explorer >](#)

[FEMA Flood Map Service Center >](#)

[Guidelines for Considering Traditional Knowledges in Climate Change Initiatives >](#)

[Sea Level Rise Viewer >](#)

[View all Step 1 Tools >](#)





# The Climate Explorer

Explore graphs and maps of historical and projected climate variables for any county in the contiguous United States.

## New!

Climate projection charts are now available for boroughs in Alaska.

To get started, enter a county, city, or zip code



or choose from the following suggested cities:

New York City, NY

Los Angeles, CA

Chicago, IL

Phoenix, AZ

Houston, TX

Anchorage, AK





## Social Vulnerability Index

Decision makers can use this index—with an online mapping feature and downloadable data—to identify communities that may need support in preparing for hazards or recovering from disaster.

[Tools](#) › [Social Vulnerability Index](#) ›



SHARE



TWEET



PRINT

Social vulnerability is a term describing how resilient a community is when confronted by external stresses on human health. These stresses can range from natural or human-caused disasters to disease outbreaks. By reducing social vulnerability, we can decrease both human suffering and economic losses.

The Social Vulnerability Index (SVI) employs U.S. Census Bureau variables to help users identify communities that may need support in preparing for hazards or recovering from disasters. The tool is particularly useful for emergency response planners and public health officials, as it can identify and map the communities that are most likely to need support before, during, and after a hazardous event.

The SVI uses U.S. Census Bureau data to determine the social vulnerability of every census tract (census tracts are subdivisions of counties for which the Census Bureau collects statistical data). The SVI ranks each tract on 14 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them

## Steps to Resilience

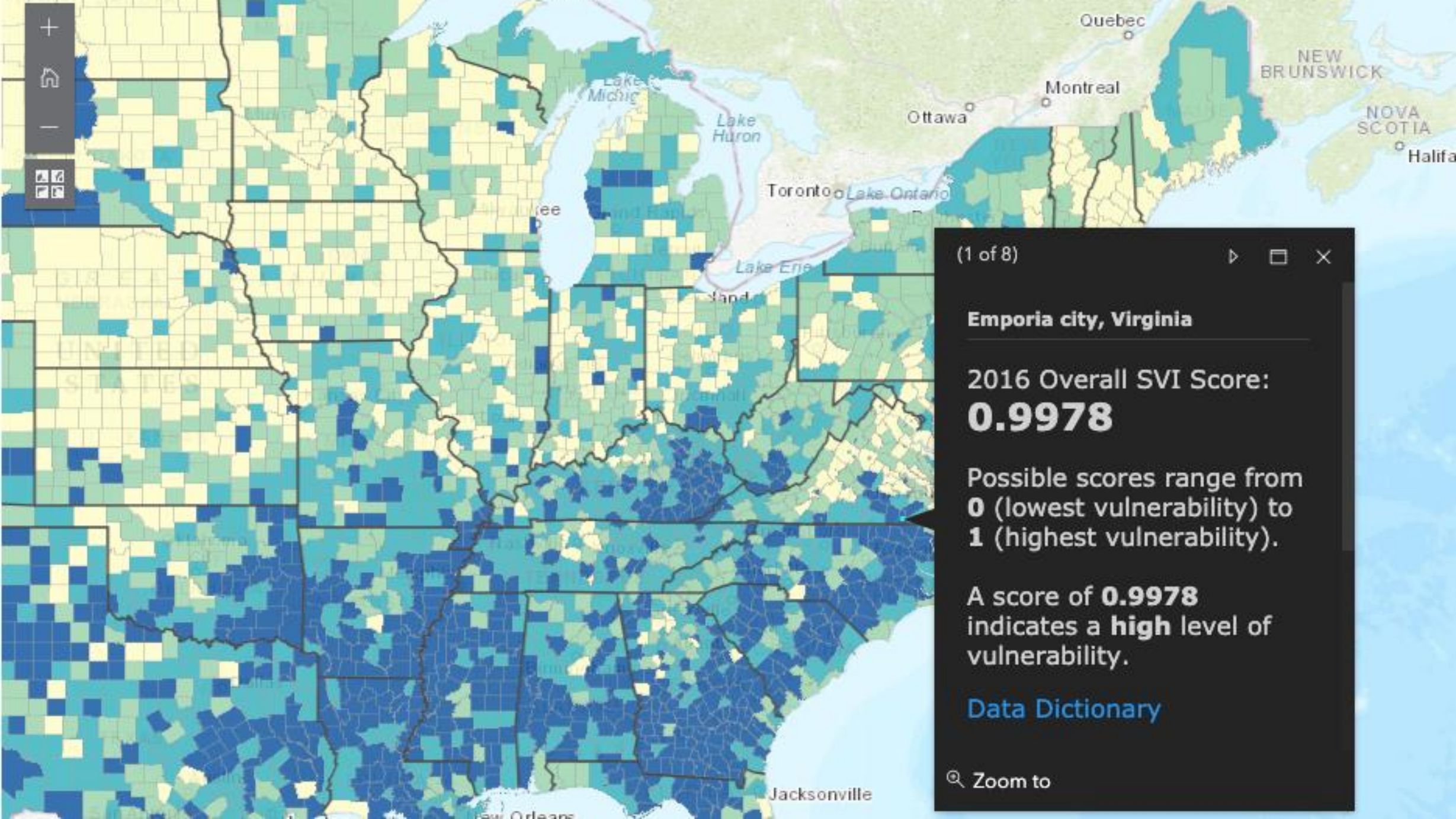
This content supports the highlighted step.

- 1 Explore Hazards
- 2 Assess Vulnerability & Risks
- 3 Investigate Options
- 4 Prioritize & Plan
- 5 Take Action

## Tool URL

<http://svi.cdc.gov/> ›





(1 of 8)



### Emporia city, Virginia

2016 Overall SVI Score:  
**0.9978**

Possible scores range from  
**0** (lowest vulnerability) to  
**1** (highest vulnerability).

A score of **0.9978**  
indicates a **high** level of  
vulnerability.

[Data Dictionary](#)

Zoom to





## Coastal Flood Exposure Mapper

Explore local maps to stimulate discussions about the people, places, and natural resources exposed to coastal flooding. Create a collection of maps showing risk from various hazards.

[Tools](#) > [Coastal Flood Exposure Mapper](#) >



SHARE



TWEET



PRINT

This tool can serve leaders who want to support a community-based approach to assessing coastal hazard risks and vulnerabilities. The site provides maps that show people, places, and natural resources exposed to coastal flooding.

Based on the *Roadmap for Adapting to Coastal Risk* training, the tool builds upon knowledge and experiences gained by personnel in NOAA's Office for Coastal Management as they facilitated community-based risk and vulnerability assessments. Users can select their geography and create a collection of maps that can be downloaded or shared online. The site also includes tips for using these maps in a community workshop, case studies illustrating the use of the tool, and resources for continuing risk and vulnerability conversations. Maps are available for coastal areas along the entire U.S. East Coast and Gulf of Mexico.

## Steps to Resilience

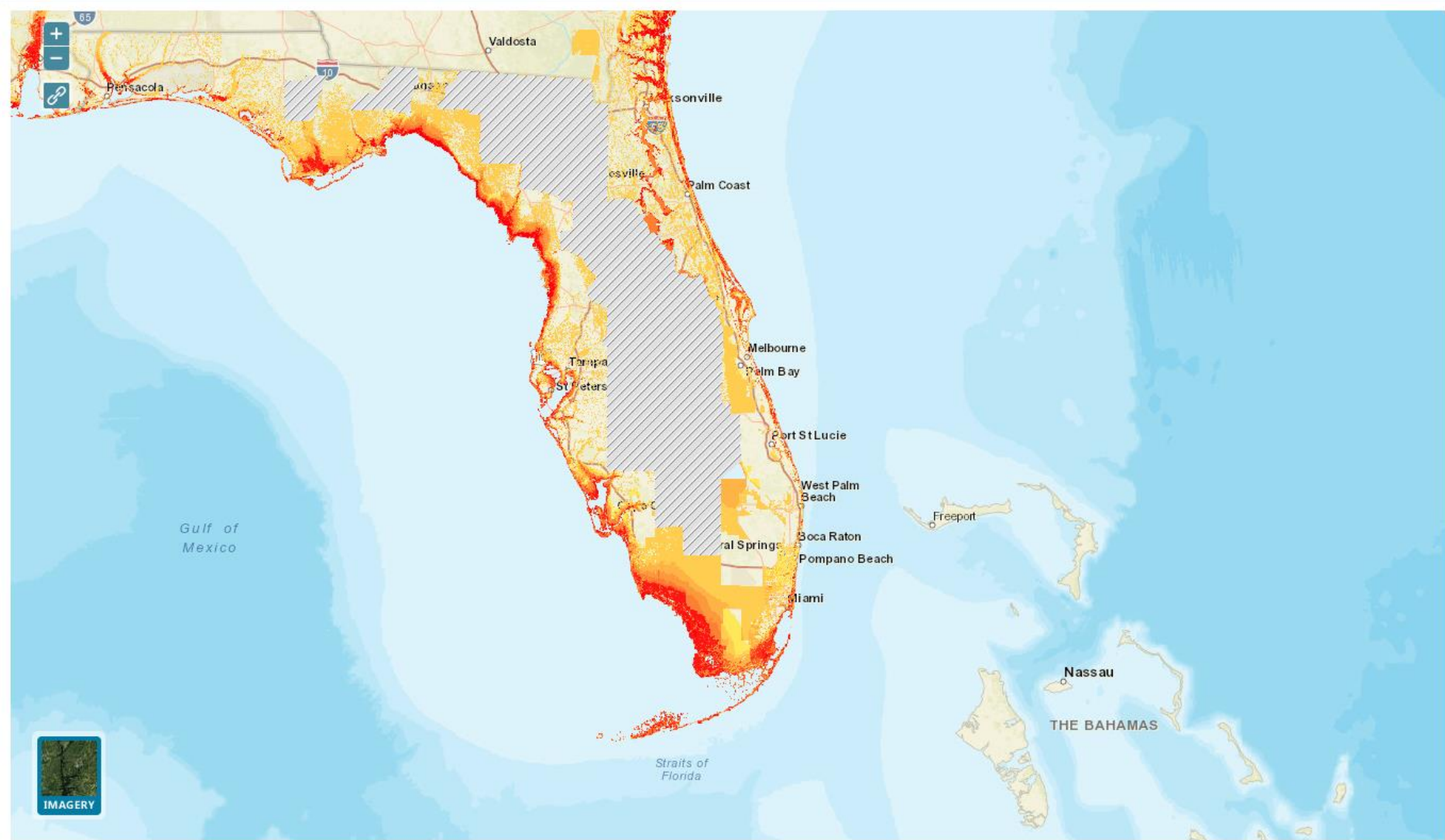
This content supports the highlighted step.

- 1 Explore Hazards
- 2 Assess Vulnerability & Risks
- 3 Investigate Options
- 4 Prioritize & Plan
- 5 Take Action

## Tool Webpage

[Digital Coast: Coastal Flood Exposure Mapper >](#)

# CLIMATE EXPLORER



LAYERS

HISTORICAL DATA

## TOPICS:

### Coastal Flood Risk

#### Climate Stressors

☐ Inundation from Sea Level Rise (6ft)

☒ Coastal Flood Hazard Composite

☐ Flood Hazard Zones

#### People and Assets Impacted

☐ Population Density (2000)

☐ Coastal Vulnerability to Sea Level Rise

☐ Social Vulnerability Index

#### LAYER INFORMATION

##### Coastal Flood Hazard Composite

Source: NOAA Office For Coastal Management

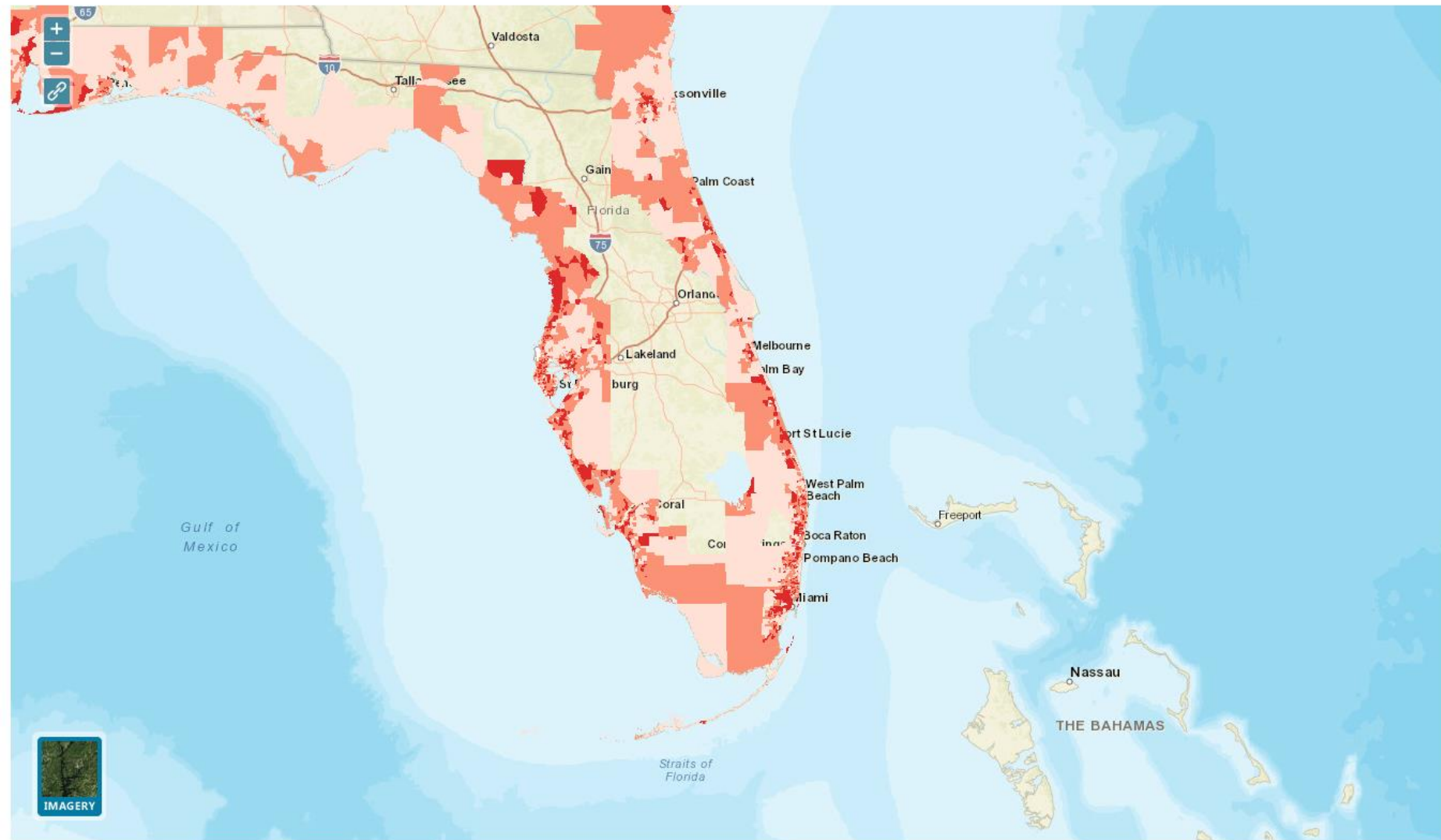
Relative threat of coastal flooding as indicated by total number of flood hazard zone designations.

##### Coastal Flood Hazard Composite





# CLIMATE EXPLORER



LAYERS

HISTORICAL DATA

## TOPICS:

### Coastal Flood Risk

#### Climate Stressors

☐ Inundation from Sea Level Rise (6ft)

☐ Coastal Flood Hazard Composite

☐ Flood Hazard Zones

#### People and Assets Impacted

☐ Population Density (2000)

☐ Coastal Vulnerability to Sea Level Rise

☒ Social Vulnerability Index

#### LAYER INFORMATION

##### Social Vulnerability Index

Source: NOAA Office For Coastal Management

Social Vulnerability Index (SoVI) for Coastal States based on 2010 census tracts.

##### Social Vulnerability Index





## Populations at Risk

Customize and download reports about U.S. populations more likely to experience adverse social, health, or economic outcomes due to race, age, gender, poverty status, or other factors. Reports can be generated for census tracts, counties, or states.

[View Tool](#)

## Neighborhoods at Risk

See where flooding, urban heat, and hurricanes impact the most vulnerable people. Map and explore information at the neighborhood level for every community in the U.S. Find climate projections for temperature and precipitation.

[View Tool](#)





## ***A Seat at the Table:***

***Integrating needs of underrepresented and socially vulnerable populations into coastal hazards planning in New Jersey***



***Jeanne Herb***  
***Bloustein School***

**RUTGERS**  
Edward J. Bloustein School  
of Planning and Public Policy

***Lisa Auermuller***  
***JC NERR***





## ➤ What makes a community resilient?

NJVOAD

### Public Health

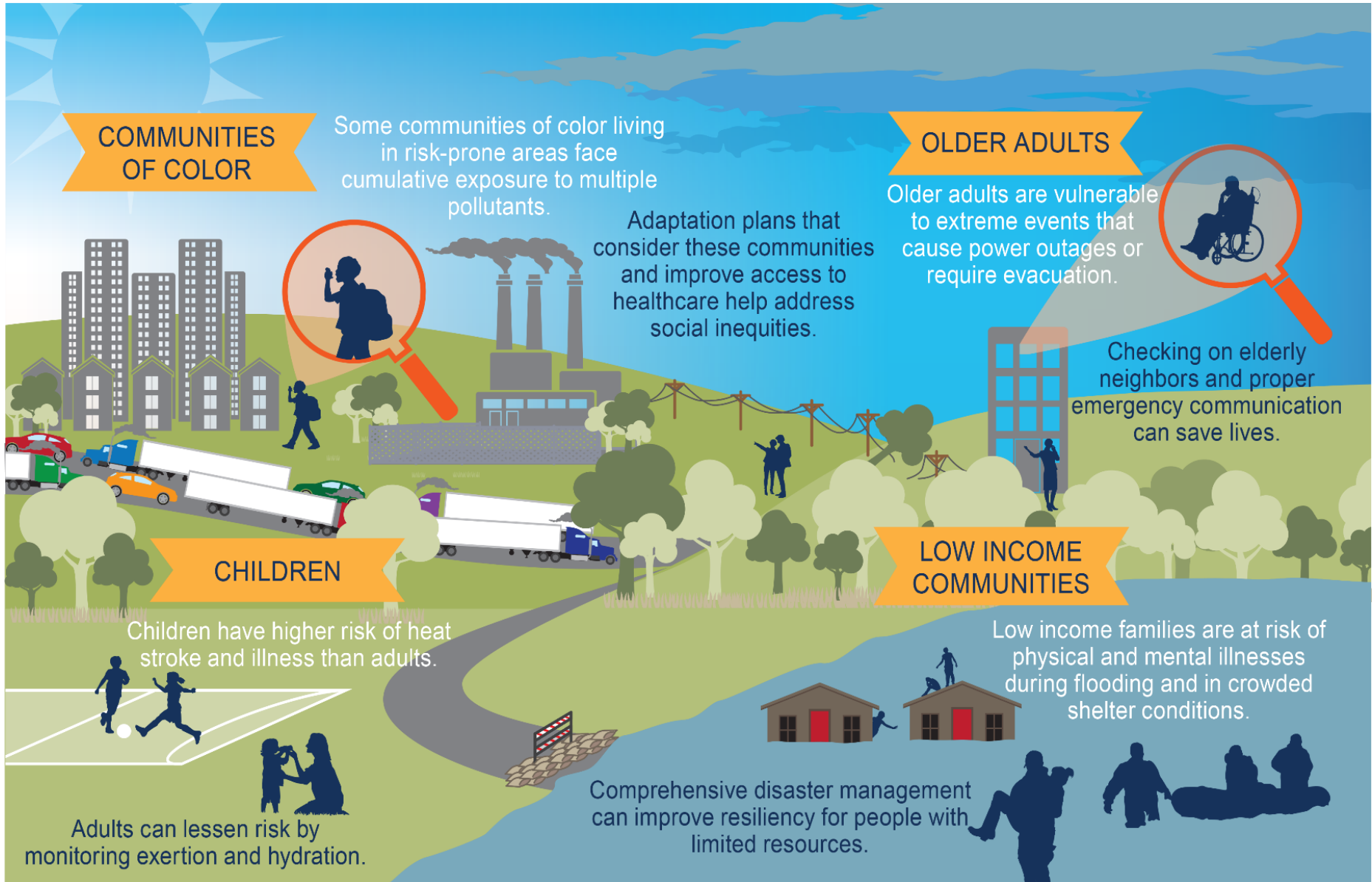


The Milken Institute



*"Our idea...is to bring members together and help them as they respond to help New Jerseyans prepare for disasters."*  
Keith Adams, NJVOAD

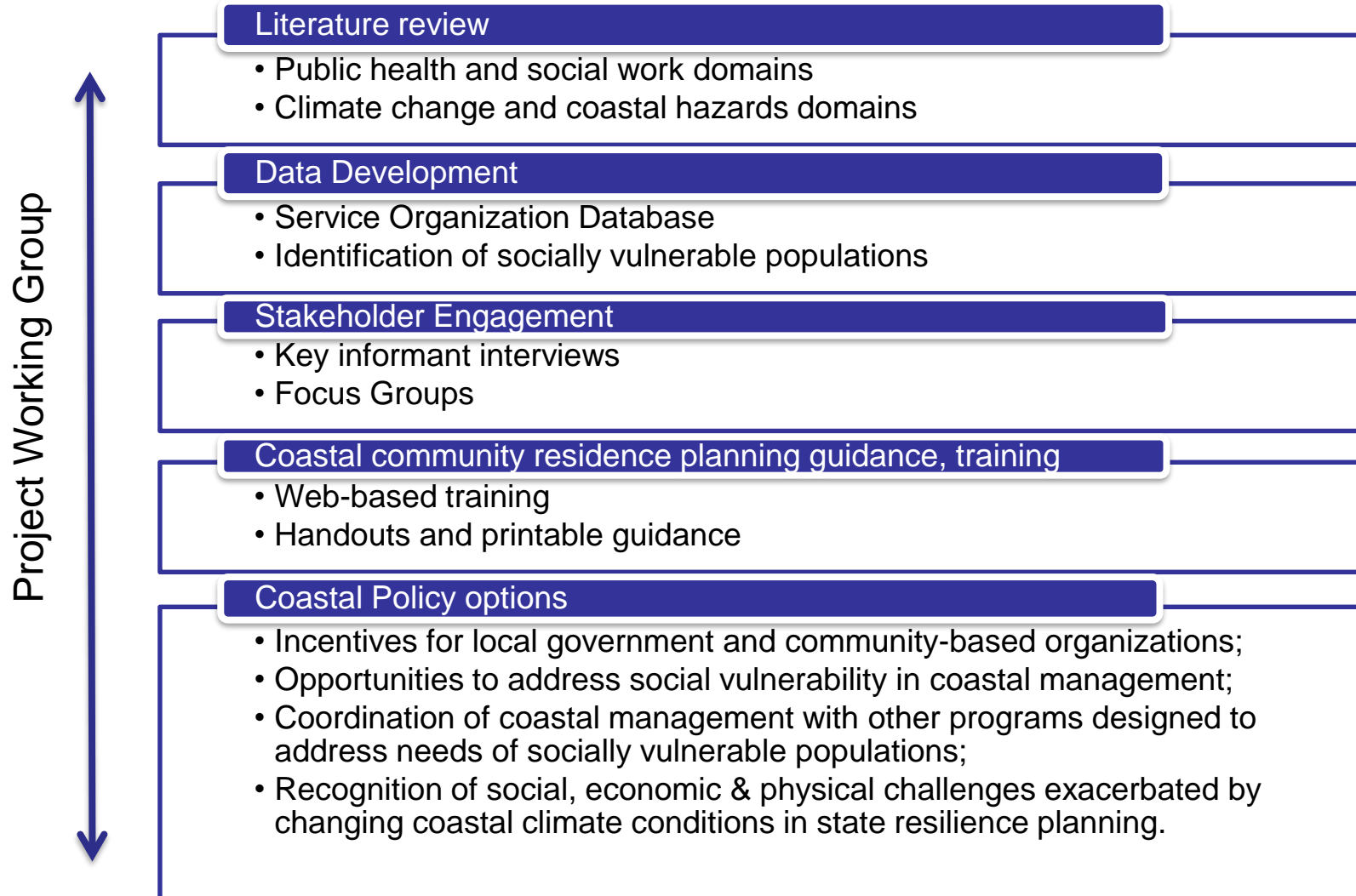
### Disaster response





**TIME TO TURN  
THE TABLES**

# Project Tasks



**Final Report:**

<https://njclimateresourcecenter.rutgers.edu/resources/a-seat-at-the-table/>

**Recorded Rutgers Summer Climate Academy Presentation:  
“New Tools to Visualize and Map Climate Futures in New  
Jersey”**

[https://njclimateresourcecenter.rutgers.edu/past\\_events/summer-climate-academy-new-tools-to-visualize-map-climate-futures-in-new-jersey/](https://njclimateresourcecenter.rutgers.edu/past_events/summer-climate-academy-new-tools-to-visualize-map-climate-futures-in-new-jersey/)

**Web-based Training site:**

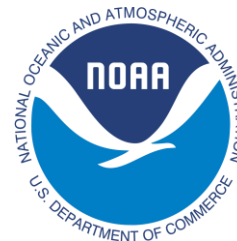
<https://www.nj.gov/dep/climatechange/trainings/asat-about.html>



## The Challenge - Traditional Definition of Resilience...



Coastal resilience means building the **ability of a community to "bounce back"** after hazardous events such as hurricanes, coastal storms, and flooding – rather than simply reacting to impacts.

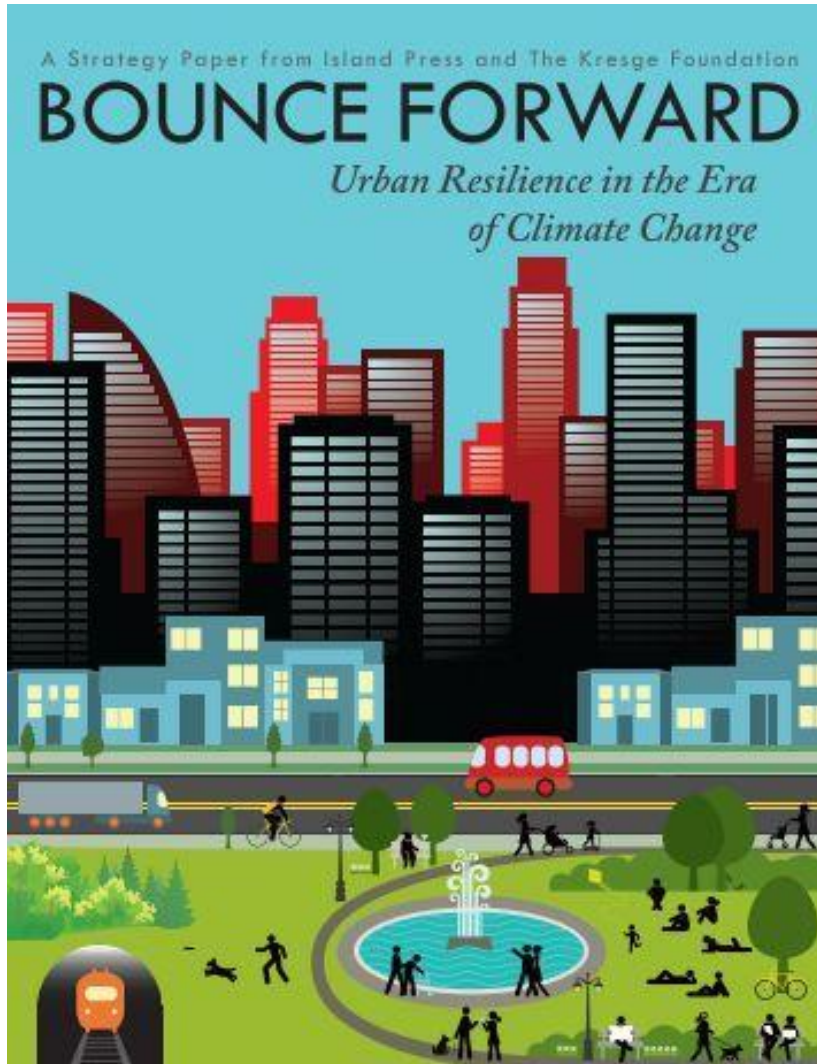




## WHAT WE HEARD ABOUT RESILIENCE...



*"If you want people to bounce back from a storm, make sure they have the resources they need to live a happy and healthy life **now** and then they can take care of themselves if there's a storm event!"*

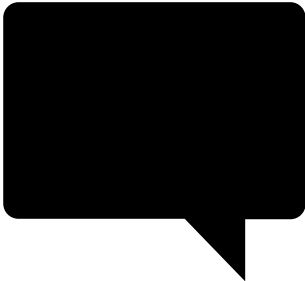


## The Opportunity....

- In a world of rising inequality, risks and opportunities are not equally shared.
- Current understanding of resilience remains siloed.
- Resilience is an idea with potentially transformative power.



## What We Learned



Underlying societal inequities are the biggest hurdle to achieving resilience.

Populations most affected by climate change are underrepresented in decision-making.

Socially vulnerable populations & service providers perceive that resources are inequitably distributed.

Government has a role to play but must work with trusted community sources.

Inclusion of socially vulnerable populations is not enough: resilience planning needs to “bake in” assessment of actions.

Including socially vulnerable people in resilience planning creates more resilient communities overall.





**TIME TO TURN  
THE TABLES**

# Implementation Strategies



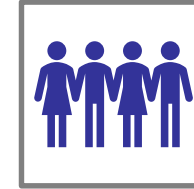
## Redefine Resilience

- ✓ Recognize underlying causes of vulnerability



## Whole community resilience planning increases overall community resilience

- ✓ Addressing underlying social, economic and physical challenges



## Integrate equity, diversity & inclusion into climate resilience planning

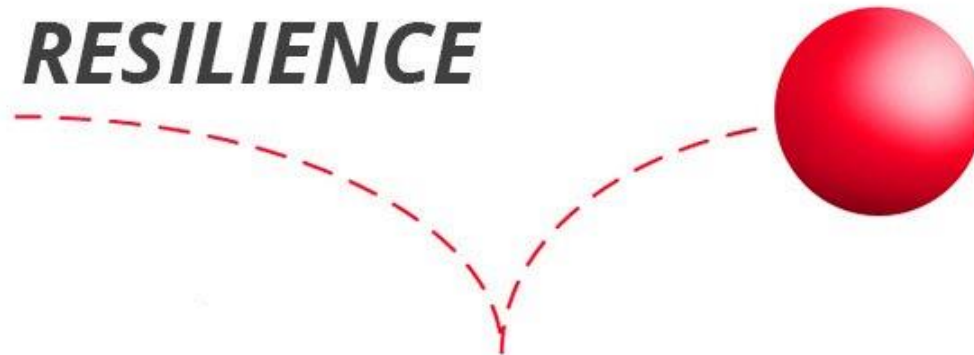
- ✓ **Add seats to the table** for populations that are traditionally underrepresented
- ✓ Adding seats to the table is not enough: **Assess impact** of resilience actions on socially vulnerable populations.

**IDEAS**  
**+ ACTION**  
**= CHANGE**

## Redefining Resilience...

“Bouncing **forward**” to improved conditions where all people live in communities that are healthier, greener, cleaner, more equitable and more prosperous.....and more resilient.

***RESILIENCE***







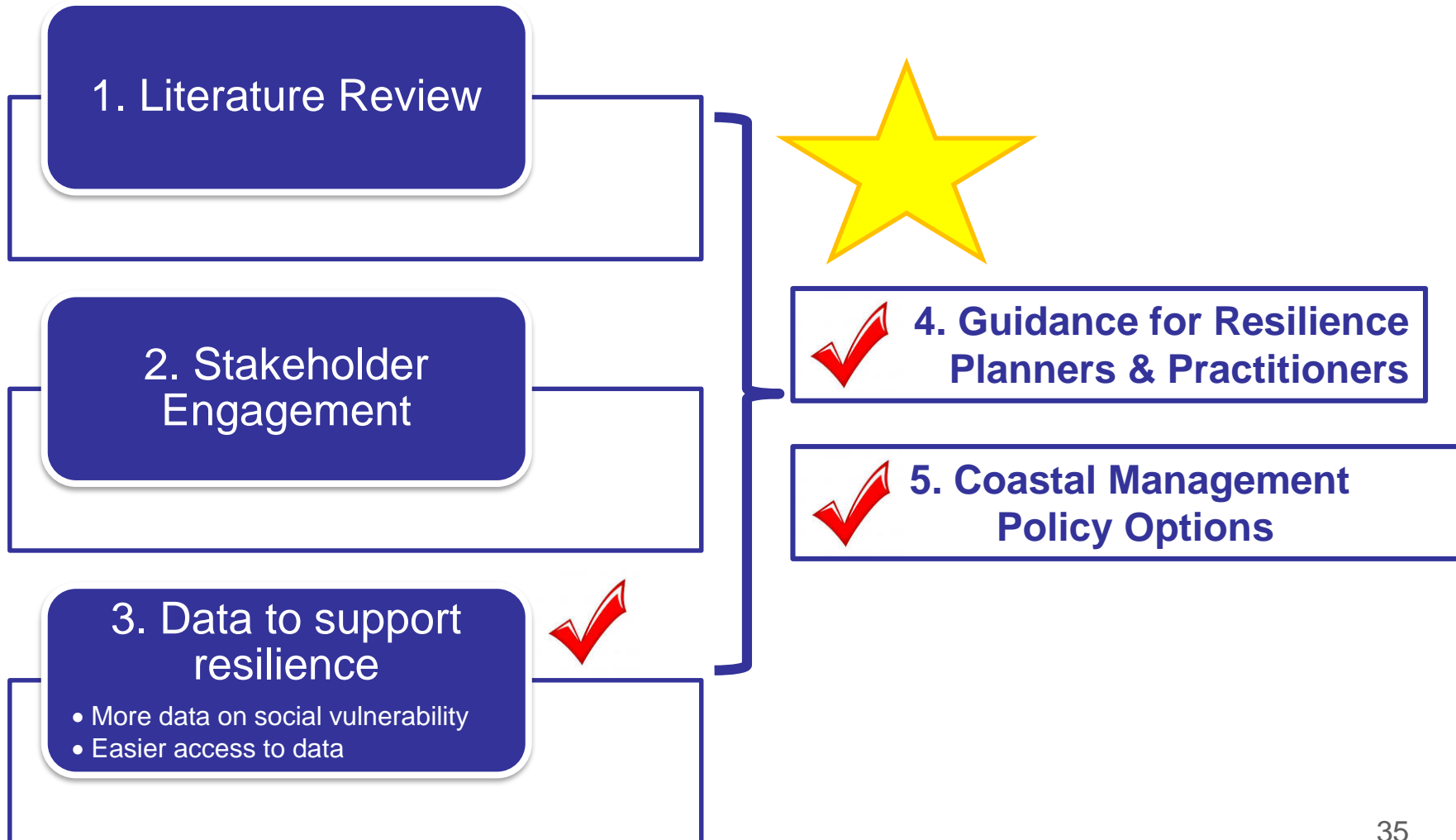
## **Whole community climate resilience planning:**

*An opportunity to address social, economic and physical challenges faced by socially vulnerable populations and, in doing so, increase the resilience of a whole community*

# Integrate equity, diversity & inclusion into resilience planning



# Overall Project Outcomes





# Project Outcomes - Data



<https://njclimateresourcecenter.rutgers.edu/nj-adapt/>



<https://www.njfloodmapper.org/>



# Project Outcomes - Guidance and Training



Department of Environmental Protection

## Training: Whole-Community Coastal Climate Resilience Planning

Home Trainings About This Training Key Concepts Planning Identifying Engaging Training Survey Contact

Home / Whole-Community Coastal Climate Resilience Planning

1 CONCEPTS

**Six Key Concepts**

Essential concepts and definitions.

Read more

2 PLANNING

**Planning for the Whole Community**

Inclusive, community-driven processes lead to effective outcomes benefiting all residents.

Read more

3 IDENTIFYING

**Identifying Socially Vulnerable Populations**

Several tools are available to identify and reach out to socially vulnerable populations and characterize the nature of their vulnerability.

Read more

4 ENGAGING

**Engaging Socially Vulnerable Populations**

The goal of whole-community planning is to engage all segments of the community – including the most vulnerable – to create a resilience-based vision of the future.

Read more

## Getting to Resilience

<http://www.prepareyourcommunitynj.org/>

## Web-based Training

<https://www.nj.gov/dep/climatechange/trainings/asat-about.html>



## Training: Whole-Community Coastal Climate Resilience Planning

Home  
Home

Trainings  
Home

About This  
Training

Key  
Concepts

Planning  
▼

Identifying

Engaging

Training  
Survey

Contact



[Home](#) / Whole-Community Coastal Climate Resilience Planning

### 1 CONCEPTS



#### Six Key Concepts

Essential concepts and definitions.

[Read more](#)

### 2 PLANNING



#### Planning for the Whole Community

Inclusive, community-driven processes lead to effective outcomes benefiting all residents.

[Read more](#)

### 3 IDENTIFYING



#### Identifying Socially Vulnerable Populations

Several tools are available to identify and reach out to socially vulnerable populations and characterize the nature of their vulnerability.

[Read more](#)

### 4 ENGAGING



#### Engaging Socially Vulnerable Populations

The goal of whole-community planning is to engage all segments of the community – including the most vulnerable – to create a resilience-based vision of the future.

[Read more](#)

## Web-based Training

<https://www.nj.gov/dep/climatechange/trainings/asat-about.html>



# Outline of training

## 4 Sections

1. Six Key Concepts
2. Planning for the Whole Community
3. Identifying Socially Vulnerable Populations
4. Engaging Socially Vulnerable Populations

Training Evaluation\*

### Assessing Your Plan's Impact on Socially Vulnerable Populations

The Resilient NJ Planning to Action Framework instructs resilience planners to develop climate adaptation scenarios and the actions needed to achieve those scenarios. Asking the following questions will help planning teams assess the impacts of resilience scenarios and actions on socially vulnerable populations:

- ① Who will be advantaged/disadvantaged most by the resilience scenarios and actions?
- ② What current challenges and inequities exist that will be exacerbated by the scenarios and actions under consideration?
- ③ How do priorities of socially vulnerable populations differ from other residents with regard to the proposed scenarios and actions?
- ④ Should the scenarios and actions under consideration mitigate historic disadvantages to socially vulnerable populations to ensure their ability to "bounce forward"?
- ⑤ Is there the possibility that the scenario or action might be less effective for socially vulnerable populations?

## Elements to enhance climate resilience planning



Development of a community *Social Vulnerability Profile*



Inventory of pre-existing social, economic and physical challenges exacerbated by changing coastal climate conditions



Written plan for engaging socially vulnerable populations



Written checklist to assess how the resilience vision, scenarios and actions:

- Affect socially vulnerable populations;
- Affect (+ or -) pre-existing social, economy & physical challenges.



For each hazard, identify increased risks faced by socially vulnerable populations as a feature in the Resilience Vulnerability Assessment.



**TIME TO TURN  
THE TABLES**



## Project Outcomes – Policy Options




Incentives for local  
government and  
community-based  
organization


Opportunities to address  
social vulnerability in  
coastal management


Coordination of coastal  
management with other  
programs designed to  
address needs of  
socially vulnerable  
populations

Recognizing social,  
economic & physical  
challenges exacerbated  
by changing coastal  
climate conditions in  
state resilience planning


Department of Environmental Protection

[Home](#)
[Trainings Home](#)
[About This Training](#)
[Key Concepts](#)
[Planning](#)
[Identifying](#)
[Engaging](#)
[Training Survey](#)
[Contact](#)




1
CONCEPTS


**Six Key Concepts**

Essential concepts and definitions.


[Read more](#)

2
PLANNING


**Planning for the Whole Community**

Inclusive, community-driven processes lead to effective outcomes benefiting all residents.


[Read more](#)

3
IDENTIFYING


**Identifying Socially Vulnerable Populations**

Several tools are available to identify and reach out to socially vulnerable populations and characterize the nature of their vulnerability.

[Read more](#)

4
ENGAGING


**Engaging Socially Vulnerable Populations**

The goal of whole-community planning is to engage all segments of the community – including the most vulnerable – to create a resilience-based vision of the future.

[Read more](#)



## Contact Information:

[jherb@ejb.rutgers.edu](mailto:jherb@ejb.rutgers.edu)

[auermull@marine.rutgers.edu](mailto:auermull@marine.rutgers.edu)

## Web-based Training

<https://www.nj.gov/dep/climatechange/trainings/asat-about.html>



Join us for the next webinar in the series



WEATHERING  
CHANGE

# Climate Migration: Research, Analyze, Implement What can We Learn from Other Places?

Thursday, October 22, 2020

12:00-1:15 PM ET

[www.communityresilience-center.org](http://www.communityresilience-center.org)