FIFTH NATIONAL CLIMATE ASSESSMENT

21 - Northeast Chapter

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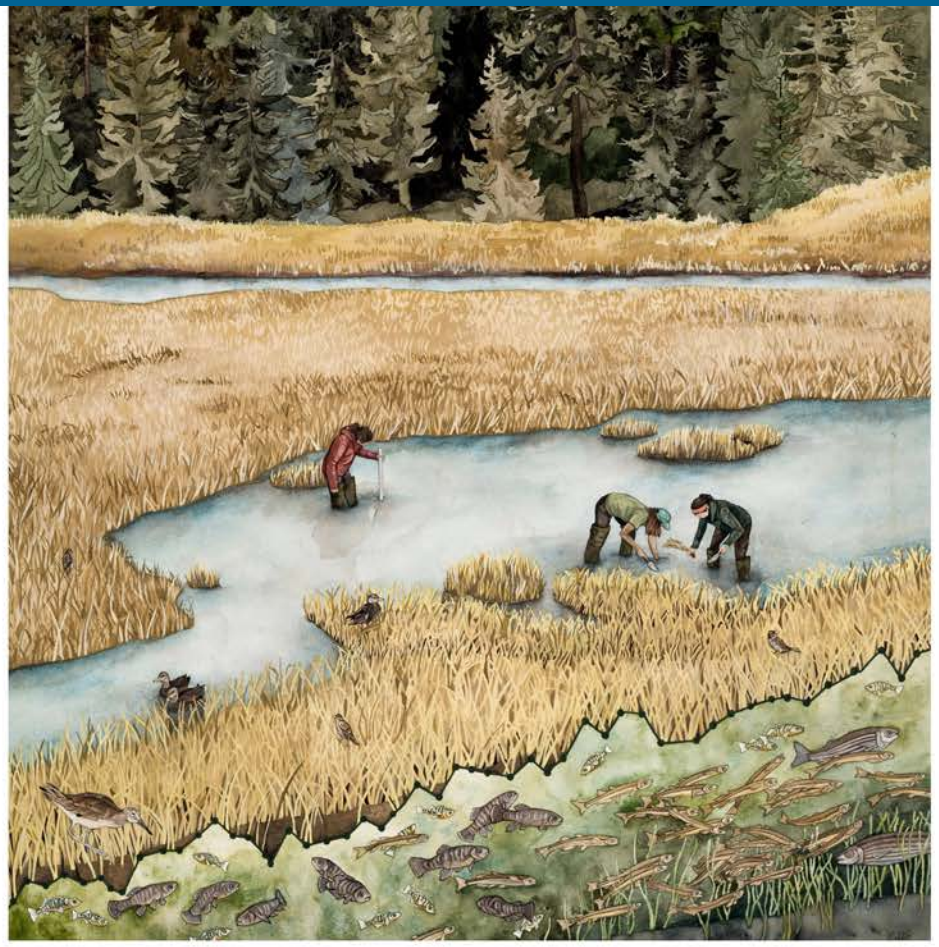
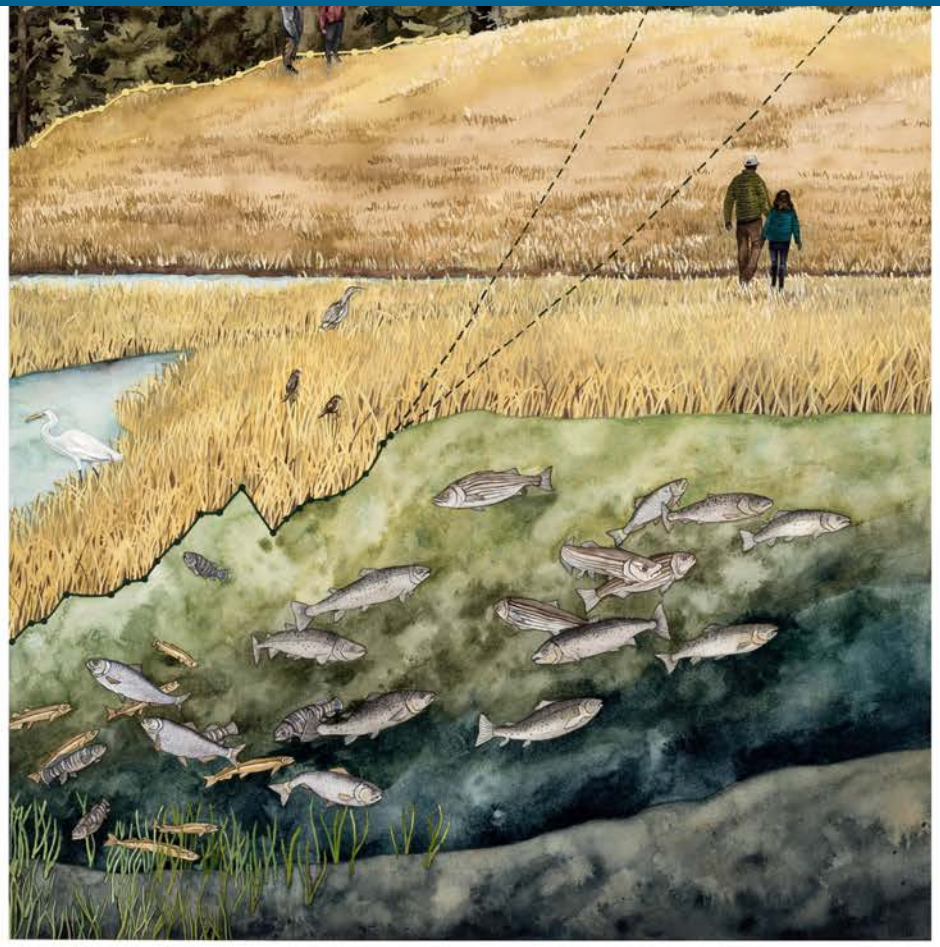





Before we go any further...
... The disclaimer

U.S. Global Change Research Program

- The U.S. Global Change Research Program (USGCRP) was mandated by Congress in the Global Change Research Act of 1990 (P.L. 101-606), “to assist the Nation and the world to **understand**, **assess**, **predict** and **respond** to human-induced and natural process of global change”

- Through USGCRP, agencies work to:
  - Coordinate global change research across the government
  - Use research results and products to provide information regarding risk management in a changing climate
  - Inform and deliver products mandated by the GCRA, including the quadrennial National Climate Assessment (NCA)

Legislative Origins for the National Climate Assessment

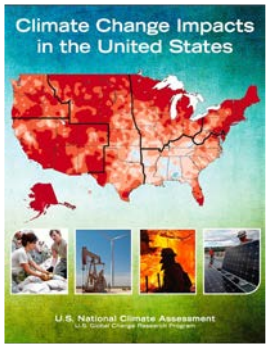
Global Change Research Act of 1990, Section 106:

Not less frequently than every 4 years [USGCRP] shall prepare and submit to the President and Congress an assessment which:

- **Integrates, evaluates, and interprets** the findings of [USGCRP] and discusses the scientific **uncertainties** associated with such findings
- Analyzes the effects of global change on the **natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity**
- Analyzes **current trends** in global change, both human- induced and natural, and **projects major trends** for the subsequent 25 to 100 years

National Climate Assessment History

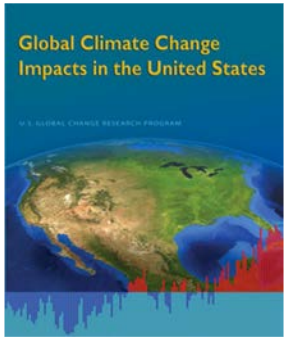
2001



2014

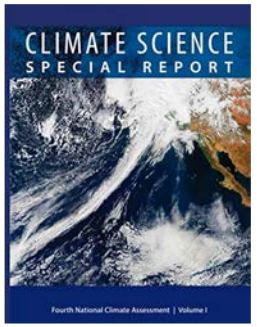
2023

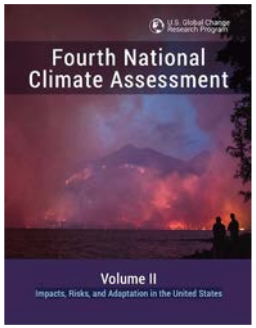
2009



2017-2018

Vol. I





Vol. II

National Climate Assessment Basics

- **Evaluates** a wide range of scientific and technical inputs from diverse and authoritative sources. **Synthesizes** individual studies, data, models, and **applies best expert judgment** to characterize certainty.
- A **consensus-based** view of the state of science.
- **Relevant for policy** and decision-making but **does not prescribe** specific policy interventions or advocate for a particular viewpoint.
- Fully compliant with the Global Change Research Act (GCRA) and other applicable laws and policies, making it **authoritative, timely, and transparent**.
- Assesses a **range of potential impacts**, helping decision-makers better identify risks that could be avoided or reduced
- Provides multiple opportunities for **public engagement**
- Employs an **extensive review** process

NCA5 Timeline

Public Engagement

Content

- Public call for scientific/technical inputs to the assessment
- Art x Climate, first ever call for visual art to be featured in the NCA
- Tribal consultation on restructuring of information quality guidance

Contributors

- Public call for authors and chapter leads
- Public call for review editors

Review

- Public comment on the Draft Prospectus
- Public comment on the annotated chapter outlines
- Public engagement workshops – 2700 attendees from all NCA regions
- NASEM and public comment on Third Order Draft (English, Spanish Caribbean chapter)

Key Takeaways from NCA5

1. The United States is taking action on climate change
2. People in the United States are experiencing increased risks from extreme events
3. Climate change exacerbates social inequities
4. Available mitigation strategies can deliver substantial emissions reductions, but additional options are needed to reach net zero
5. Climate action is an opportunity to create a more resilient and just nation

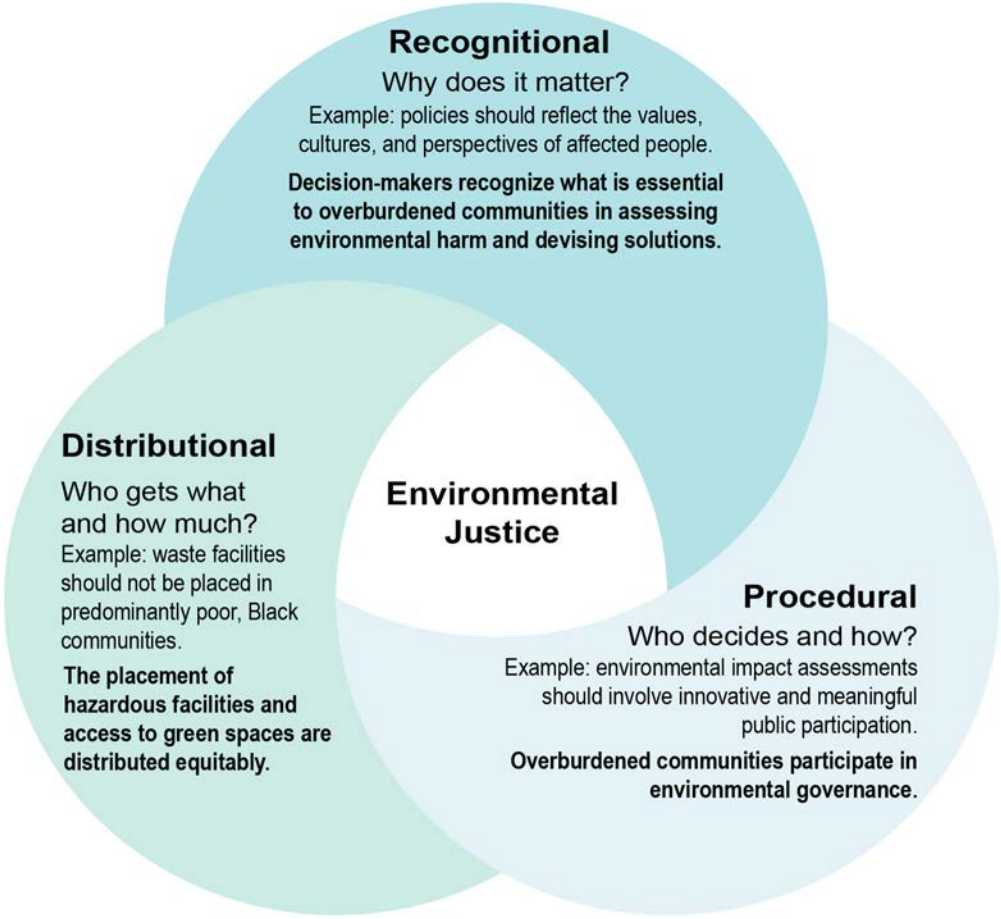
Scientific Advancements

Advancements in our understanding of observed and projected climate change (e.g., narrowed climate sensitivity; extreme event attribution)

Featuring two new chapters, one on Economics and one on Social Systems and Justice

Exploring themes of environmental justice and equity across the entire Assessment

Highlighting local and state climate mitigation and adaptation actions



Creative Communication

NCA's first-ever call for visual art, "Art x Climate," received more than 800 submissions; 92 pieces were selected for inclusion in the Assessment

NCA5 includes the poem "Startlement" written for the Assessment by the 24th US Poet Laureate Ada Limón

Six podcast episodes featuring interviews with authors, artists, and staff

Recorded "audiobook" reading of the Overview chapter (executive summary)

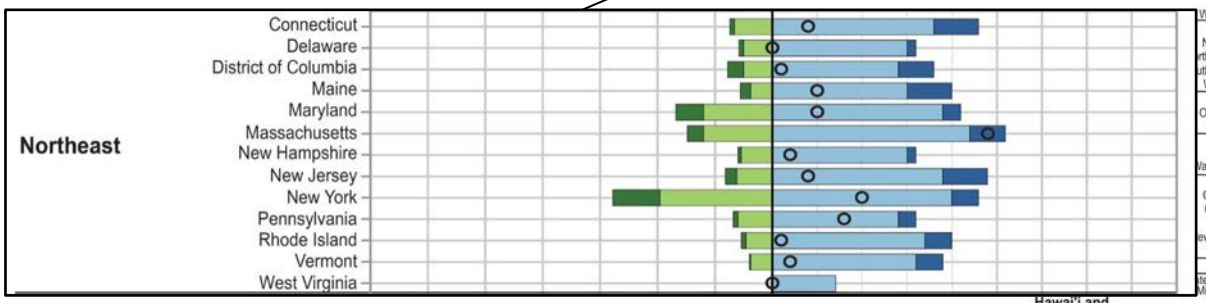
TAMMY WEST
KEEP IT TOGETHER
(*2021, site-specific installation*)

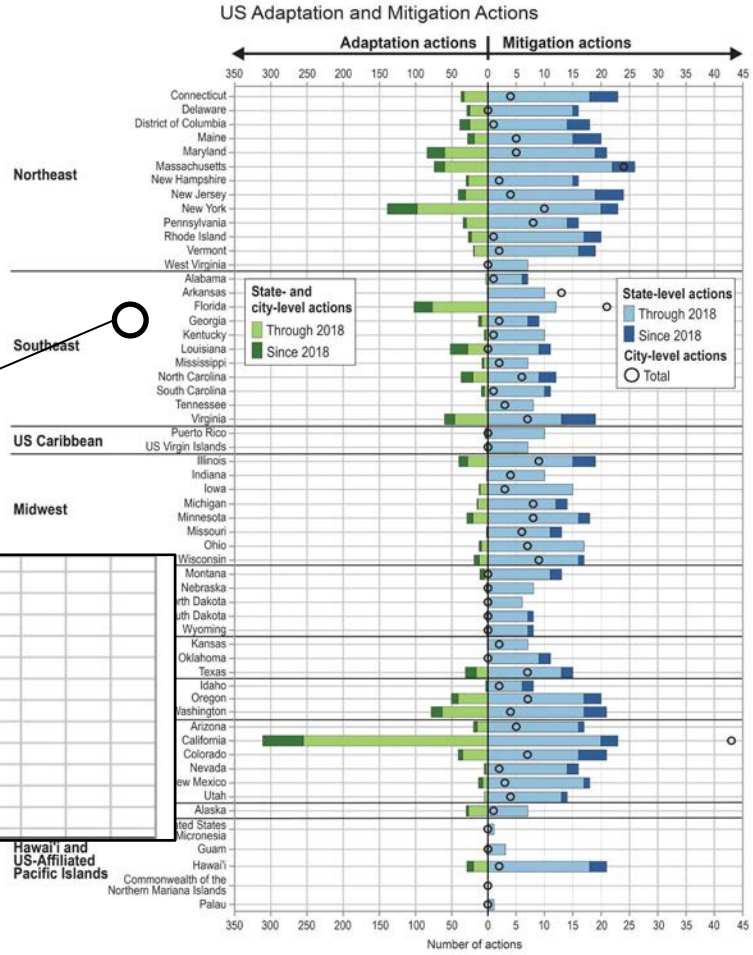
KEY MESSAGE 1

The United States is Taking Action on Climate Change

Since 2007, U.S. emissions have fallen and U.S. energy and emissions intensity have decreased—all while population and GDP have grown.

Since 2018, city- and state-level adaptation plans and actions increased by 32%, complemented by a 14% increase in the total number of new state-level mitigation activities.



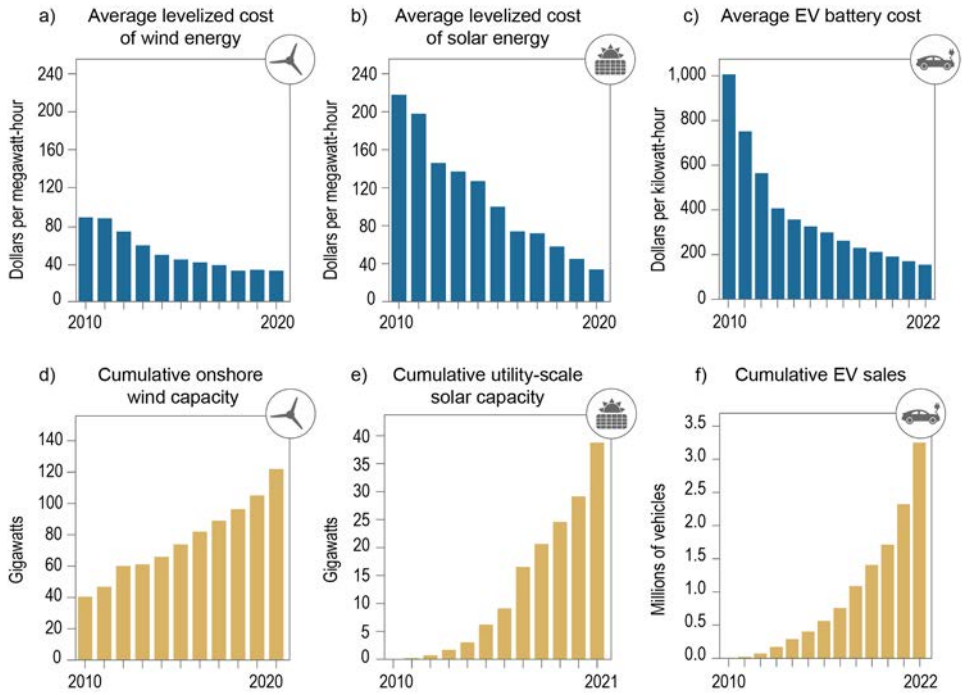


KEY MESSAGE 1

The United States is Taking Action on Climate Change

Recent growth in renewable capacities is supported by rapidly falling costs of zero- and low-carbon energy technologies, which can support even deeper emissions reductions.

Recent legislation is expected to increase deployment of low- and zero-carbon technology.



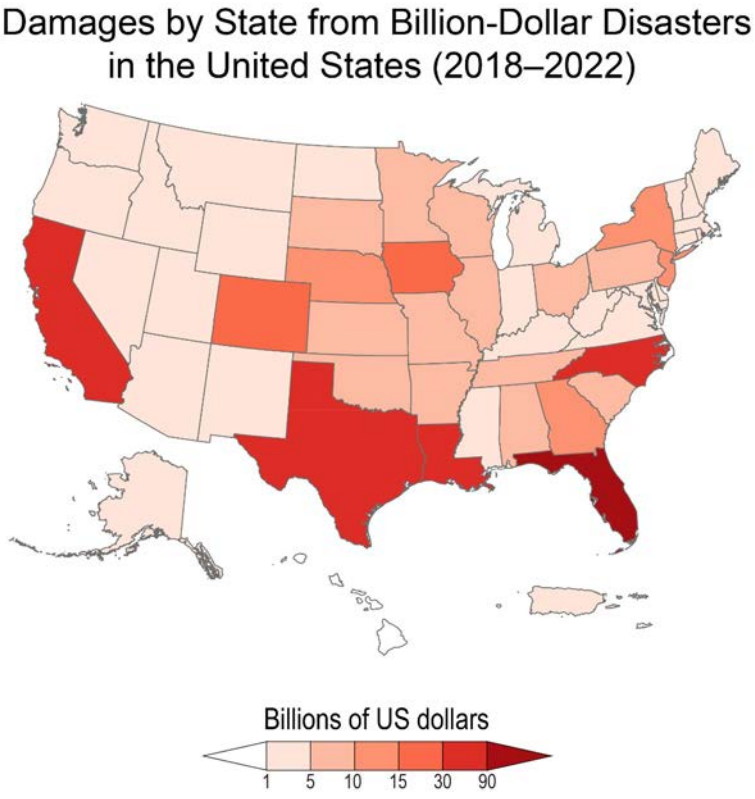
Increasing capacities and decreasing costs of low-carbon energy technologies are supporting efforts to further reduce emissions.

KEY MESSAGE 2

People in the U.S. Are Experiencing Increased Risks from Extreme Events

When the harmful impacts from more frequent and severe extremes interact with other stressors, the effects can ripple through systems, multiply harms, and lead to cascading failures.

In the 1980s, the United States experienced one (inflation-adjusted) billion-dollar disaster every four months, on average; now, there is one every three weeks.

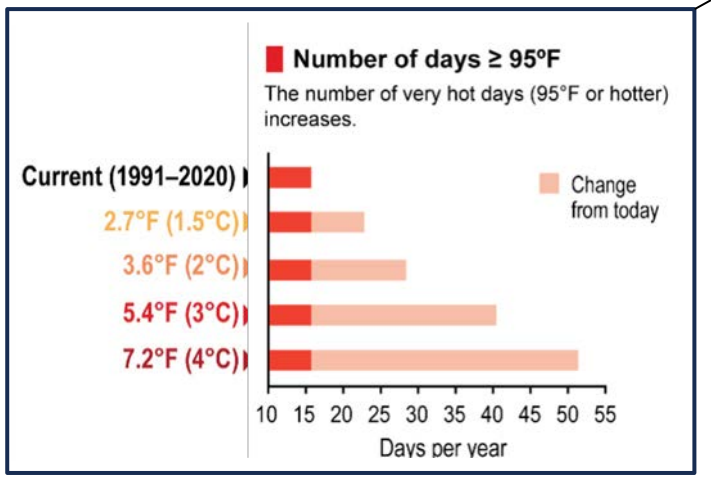


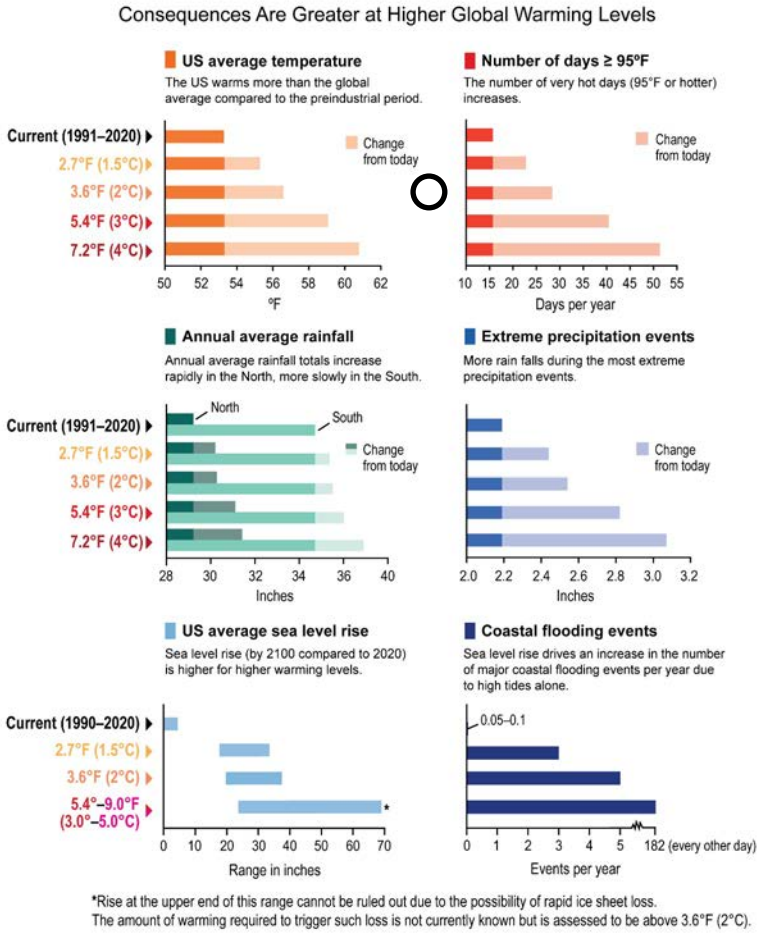
KEY MESSAGE 2

People in the U.S. Are Experiencing Increased Risks from Extreme Events

Every degree matters. At higher global warming levels, the US will experience more severe climate impacts.

Each additional increment of global warming is expected to lead to more damage and greater economic losses; at the same time, each avoided increment of warming will reduce risks and harmful impacts.



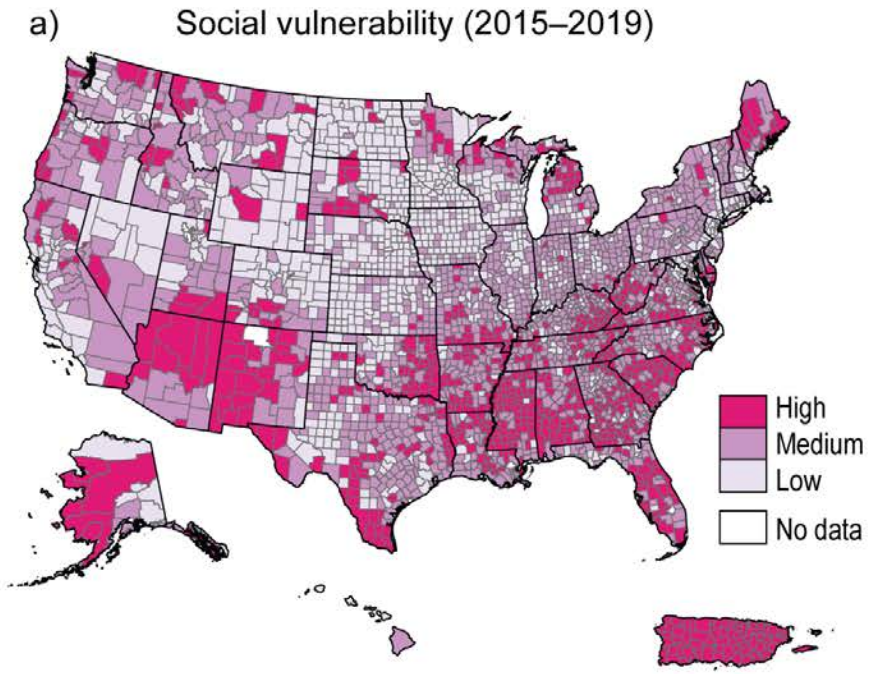


KEY MESSAGE 3

Climate Change Exacerbates Social Inequities

Underserved and overburdened communities face disproportionate risks and impacts from climate change, which exacerbates social and economic inequities and contributes to persistent disparities in the resources needed to prepare for, respond to, and recover from climate impacts.

Some overburdened communities are at higher risk of climate impacts due to the cumulative effects of social and economic inequities caused by ongoing systemic discrimination, exclusion, and under- or disinvestment.



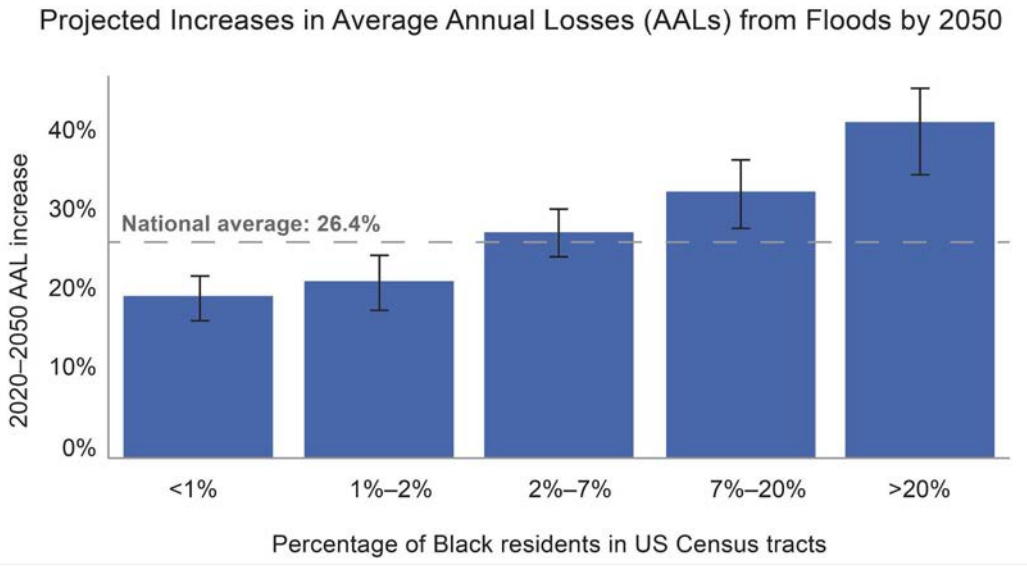
Some highly vulnerable areas also have high economic losses from climate hazards (shown above: counties' Social Vulnerability Index (SoVI) scores, which comprise 29 different inputs that characterize underlying socioeconomic and demographic factors)

KEY MESSAGE 3

Climate Change Exacerbates Social Inequities

Neighborhoods that are home to racial minorities and low-income residents have the highest inland (riverine) flood exposures in the South.

Black communities nationwide are expected to experience a disproportionate share of future flood damages.

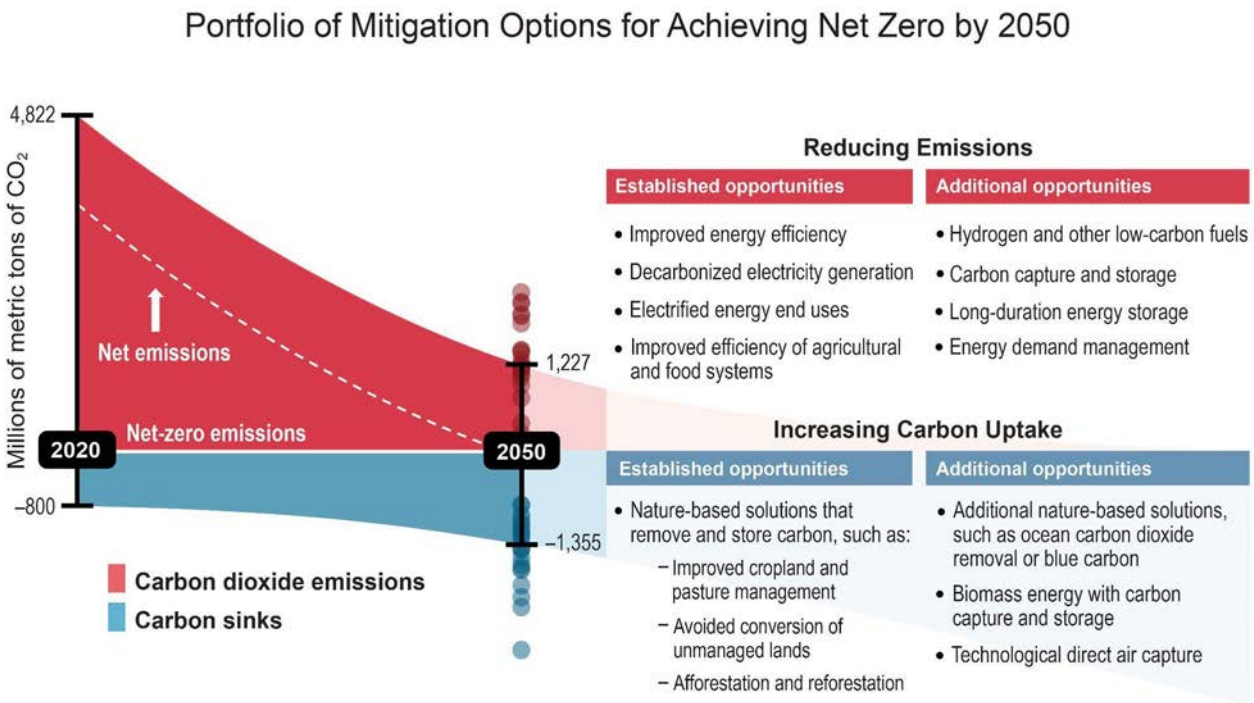


KEY MESSAGE 4

Available Mitigation Strategies Can Deliver Substantial Emissions Reductions, But Additional Options are Needed to Reach Net Zero

Limiting global warming to 1.5°C (2.7°F) above preindustrial levels requires a path to net-zero GHG emissions by 2050.

Net-zero emissions pathways require widespread implementation of currently available and cost-effective options for reducing emissions alongside rapid expansion of technologies and methods to remove carbon from the atmosphere to balance remaining emissions.



KEY MESSAGE 4

Available Mitigation Strategies Can Deliver Substantial Emissions Reductions, But Additional Options are Needed to Reach Net Zero

While adaptation planning and implementation have advanced in the United States, most adaptation actions have been incremental in scale.

In many cases, transformative adaptation will be necessary to adequately address the risks of current and future climate change.

Transformative climate actions can strengthen resilience and advance equity.

Table 1.3. Incremental Versus Transformative Adaptation Approaches

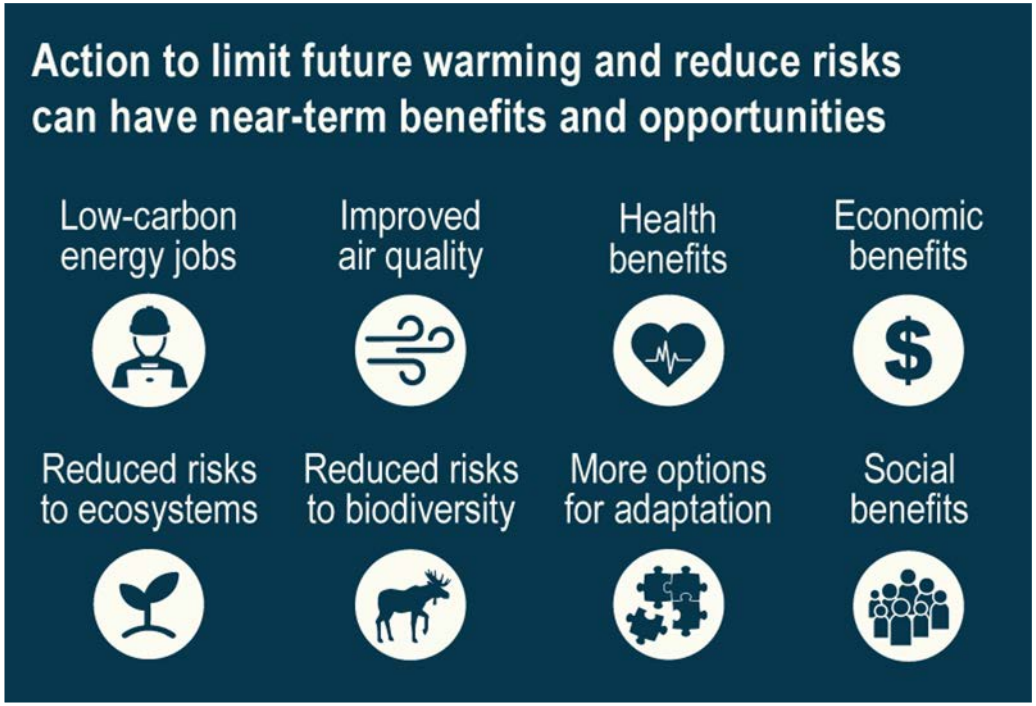
	Examples of incremental adaptation	Examples of transformative adaptation
	Using air-conditioning during heatwaves	Redesigning cities and buildings to address heat
	Reducing water consumption during droughts	Shifting water-intensive industry to match projected rainfall patterns
	Elevating homes above flood waters	Directing new housing development to less flood-prone areas

KEY MESSAGE 5

Climate Action is an Opportunity to Create a More Resilient and Just Nation

Actions taken now to accelerate net emissions reductions and adapt to ongoing changes can reduce risks to current and future generations.

Climate action can result in a range of near-term benefits that outweigh the costs, with the potential to improve well-being, strengthen resilience, benefit the economy, and, in part, redress legacies of racism and injustice.

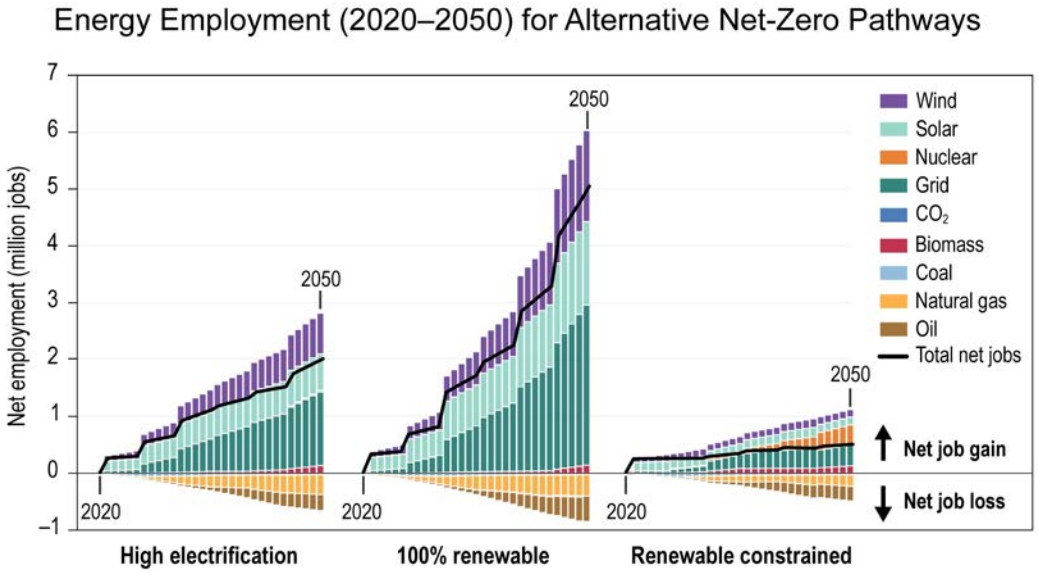


KEY MESSAGE 5

Climate Action is an Opportunity to Create a More Resilient and Just Nation

A "just transition" is the process of responding to climate change with transformative actions that address the root causes of climate vulnerability while ensuring equitable access to:

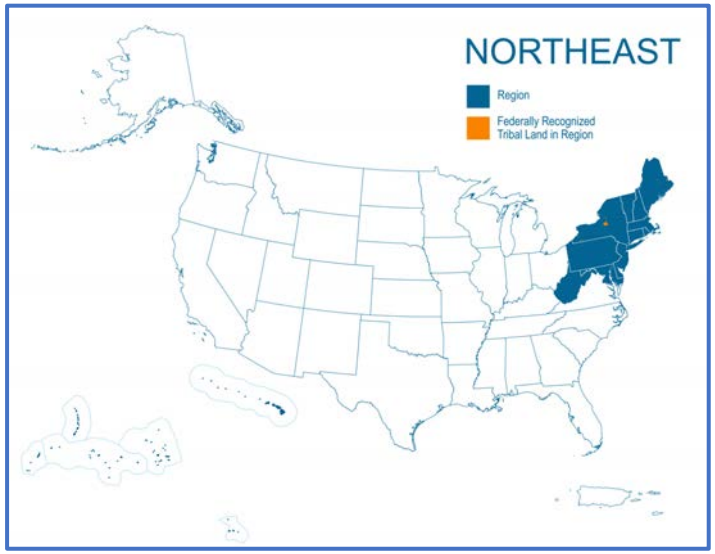
- jobs;
- affordable, low-carbon energy;
- environmental benefits such as reduced air pollution; and
- quality of life for all



Effective and just transitions require reducing impacts to overburdened communities, increasing resources to underserved communities, and integrating diverse worldviews, cultures, experiences, and capacities into mitigation and adaptation actions

Key Takeaways from NCA5: Northeast

1. Chronic impacts of extreme weather are shaping adaptation and mitigation efforts.
2. Ocean and coastal impacts are driving adaptation to climate change.
3. Disproportionate impacts highlight the importance of equitable policy choices.
4. Climate action plans are now being implemented.
5. Implementation of climate plans depends on adequate financing.



KEY MESSAGE 21.1

Chronic impacts of extreme weather are shaping adaptation and mitigation efforts.

The Northeast continues to be confronted with extreme weather, most notably extreme precipitation—which has caused problematic flooding across the region—and heatwaves.

Climate adaptation and mitigation efforts, including nature-based solutions, have increased across the region, with a focus on emissions reductions, carbon sequestration, and resilience building.

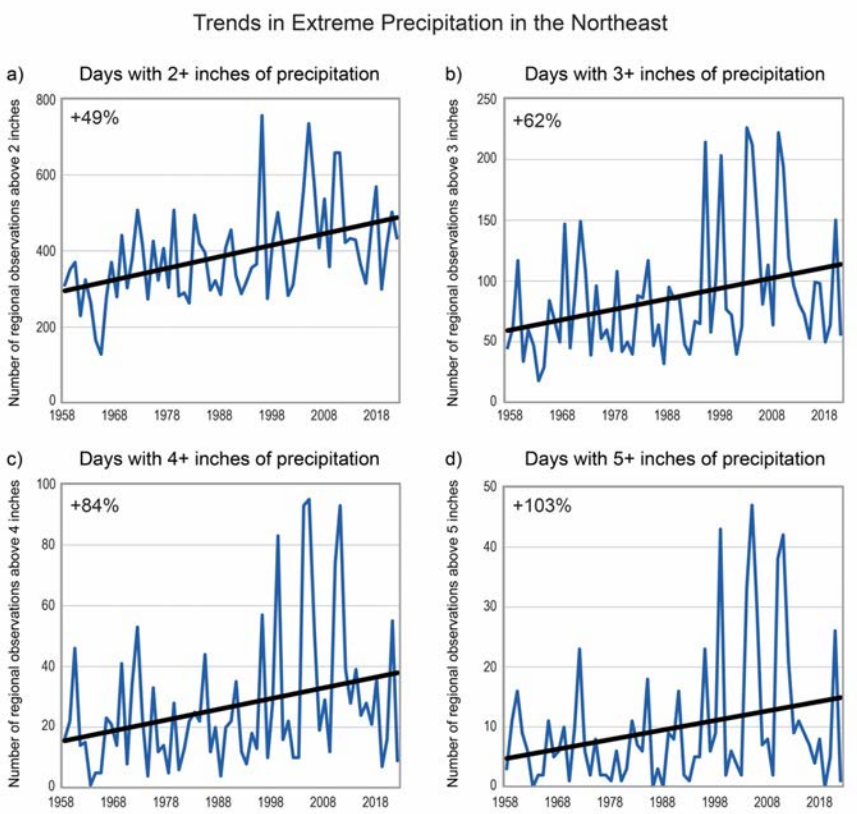


Figure 21.1. The number of days in the Northeast with extreme precipitation has increased (KM 21.1).

KEY MESSAGE 21.2

Ocean and coastal impacts are driving adaptation to climate change.

Ocean and coastal habitats in the Northeast are experiencing changes that are unprecedented in recorded history, including ocean warming, marine heatwaves, sea level rise, and ocean acidification.

Resulting shifts in distribution, productivity, and seasonal timing of life-cycle events of living marine resources in the Northeast have spurred adaptation efforts, such as coastal wetland restoration and changes in fishing behavior.

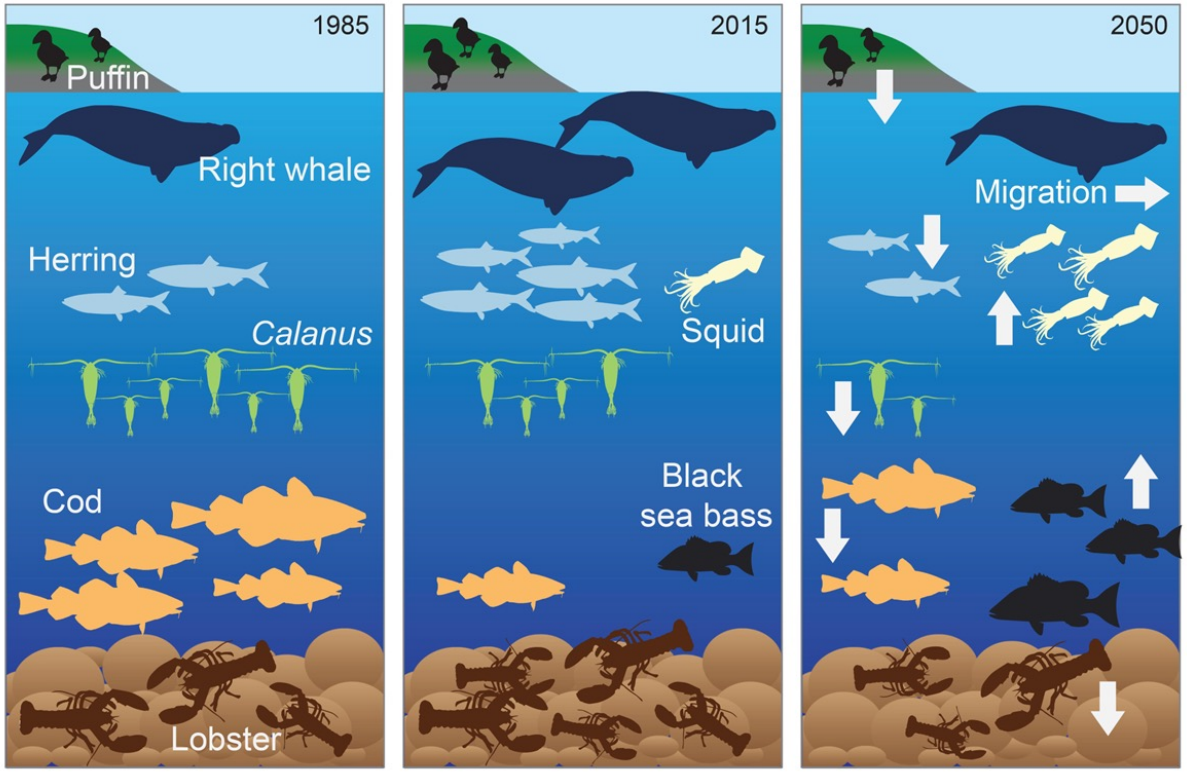


Figure 21.5. Shifts in Gulf of Maine species abundance and composition are expected to continue (KM 21.2).

KEY MESSAGE 21.3

Climate change impacts in the Northeast do not affect everyone equally.

Disproportionate impacts among certain communities in the Northeast, notably including racial and ethnic minorities, people of lower socioeconomic status, and older adults, highlight the importance of equitable policy choices.

Local level efforts to improve equity in climate adaptation are improving, but still uneven throughout the Northeast.

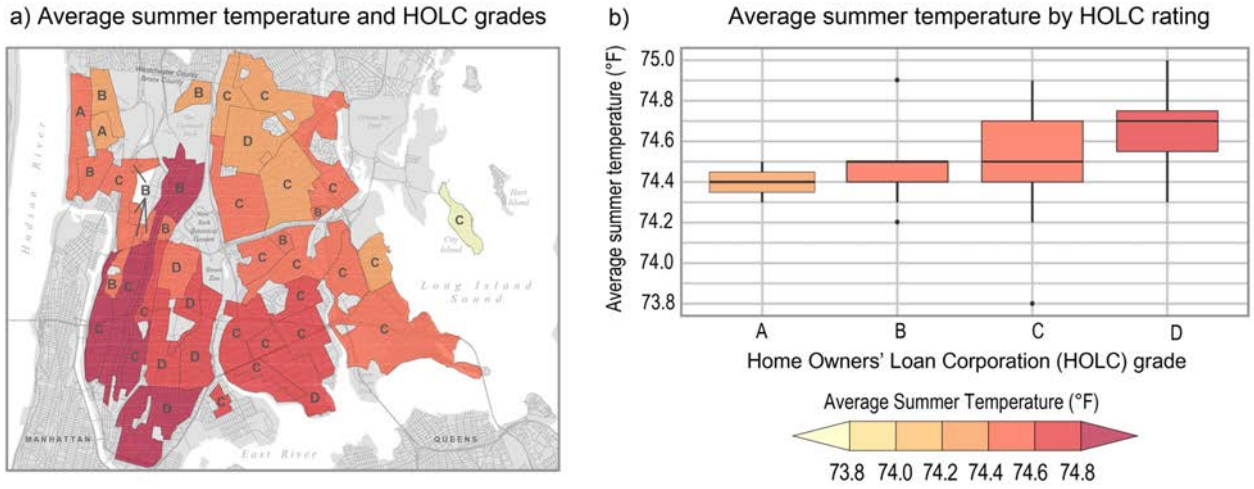


Figure 21.8. Average summer temperatures are generally higher in historically redlined neighborhoods in the Bronx, New York (KM 21.3).

KEY MESSAGE 21.4

Climate action plans are now being implemented.

Almost every state in the region has conducted or updated a climate impact assessment, developed a comprehensive climate action plan, and enacted climate-related laws since 2018.

Innovative approaches to transparent, inclusive, and equitable processes around climate action are being embraced by Tribes, municipalities, and states. Although ambitious emissions reduction targets have been put forward, meeting these goals is expected to be challenging.

Table 21.1: Recent Climate Planning and Action Among States and Tribal Nations in the Northeast

The table is a compilation of state and selected Tribal climate impact assessments and action plans, alongside illustrative climate-related laws, since 2018.

State	Climate Impact Assessment	Climate Action Plan	Climate-Related Laws
Maine	Scientific Assessment of Climate Change and Its Effects in Maine [196] Maine Climate Science Update 2021 [197]	Maine Won't Wait [198]	An Act to Analyze the Impact of Sea Level Rise [199] An Act to Implement Agency Recommendations Relating to Sea Level Rise and Climate Resilience [200] An Act to Establish a Pilot Program to Encourage Climate Education in Maine Public Schools [201]
New Hampshire	New Hampshire Climate Assessment 2021 [202]	N/A (The state has a pre-2018 climate action plan [203])	An Act Establishing a Coastal Resilience and Economic Development Program [204]
Vermont	Vermont Climate Assessment 2020 [205]	Initial Vermont Climate Action Plan [206]	Global Warming Solutions Act [207]
Massachusetts	Massachusetts Climate Change Assessment [208]	Massachusetts Clean Energy and Climate Plan for 2025 and 2030 [209]	An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy [210]

Find the full Table 21.1:
https://nca2023.globalchange.gov/chapter/21/#table-21-1

KEY MESSAGE 21.5

Northeast action to address climate change is happening, but the degree of implementation relies on available funding.

Options for financing mitigation and adaption efforts have expanded in recent years, providing households, communities, and businesses with more options for responding to climate change.

Many at-risk homeowners lack adequate flood insurance coverage. Although the public sector remains the primary source of funding for adaptation, private capital has started to invest in a variety of mitigation and adaptation projects.

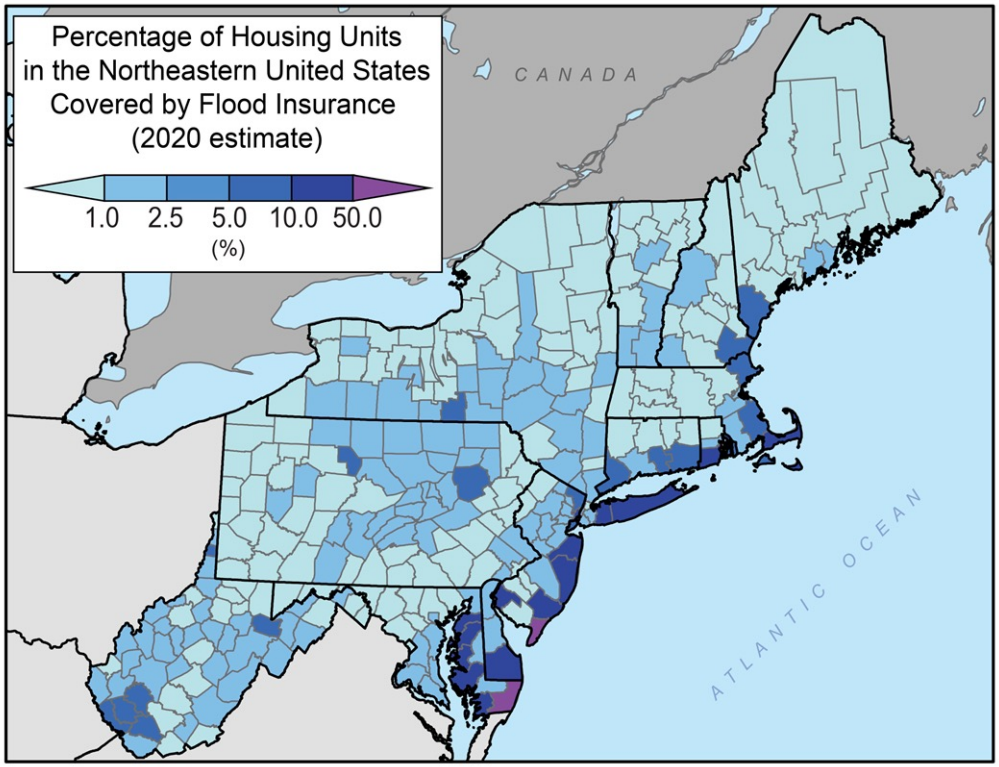
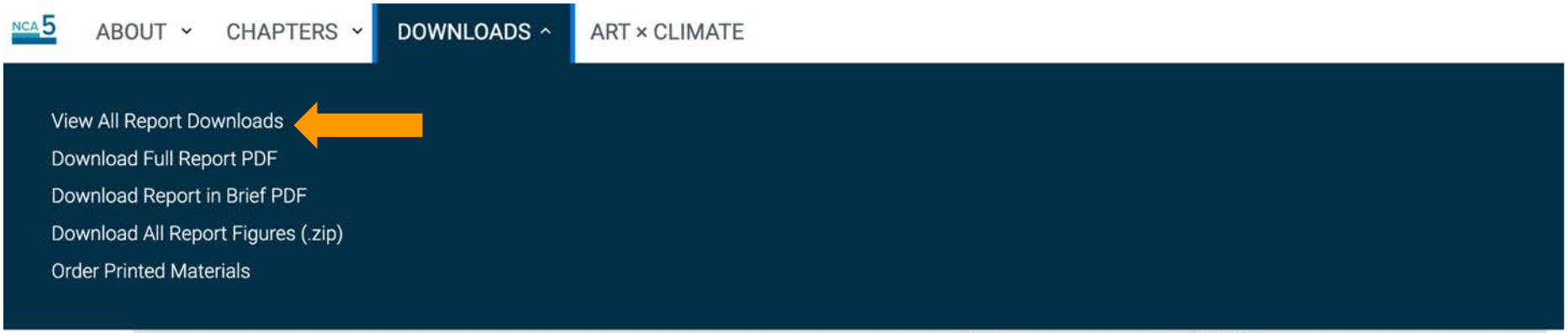


Figure 21.9. Many Northeast households and communities risk financial hardship from a lack of flood insurance coverage (KM 21.5).

NCA5 Resources



	DOWNLOAD	PDF	PDF (ESPAÑOL)	CHAPTER HANDOUT	FIGURES	SLIDES
Report Downloads	Full Report	PDF	*Coming soon*	-	ZIP	-
	Overview	PDF	*Coming soon*	-	ZIP	PPT
	Report in Brief	PDF	*Coming soon*	-	-	Order Printed Materials
Chapter Downloads	Front Matter	*Coming soon*	*Coming soon*	-	ZIP	-
	1: Overview	PDF	*Coming soon*	PDF	ZIP	PPT
	2: Climate Trends	*Coming soon*	*Coming soon*	PDF	ZIP	PPT

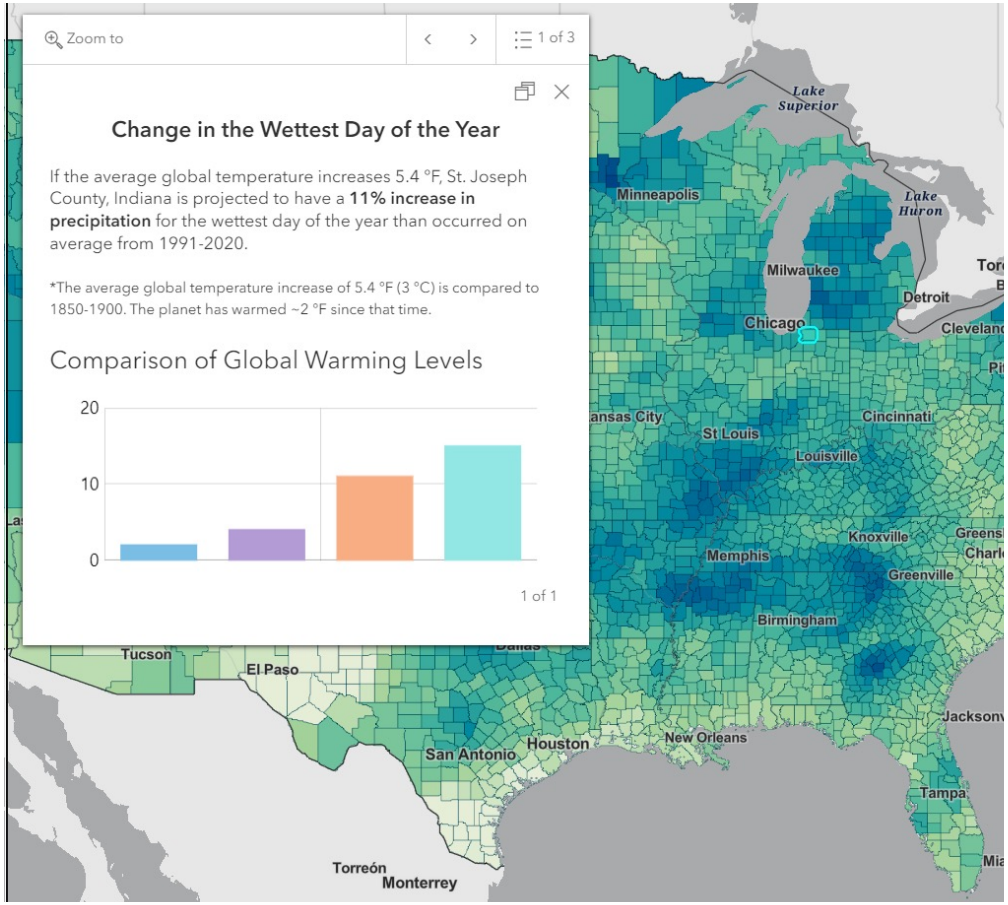
NCA Atlas

A digital data viewer developed as an extension of the NCA5 text and figures

Atlas variables were produced with the same methodology as the downscaled climate data in NCA5

Interactive features allow users to generate and download their own regional and local maps

Users can select from a range of global warming levels or scenarios/ time periods, and impact-relevant climate variables (e.g., “days over 95°F”)



Post-Release Engagement and Resources

Engagement opportunities

- Webinar series for all chapters (Nov 2023 – March 2024)
  - Northeast: February 22nd, 2024 3:00PM - 4:00PM EST
- Regional workshops series (Spring/Summer 2024)

Resources coming soon

- PDFs of all chapters
- Conference materials for authors (posters, postcards, etc.)
- Spanish translated PDFs of all chapters: Overview, Caribbean, and Southwest by end of 2023; all chapters by April 2024
- Atlas and Climate Mapping for Resilience and Adaptation updates
- Updates to Climate Resilience Toolkit TBD
- Agency events and products TBD

https://www.globalchange.gov/our-work/fifth-national-climate-assessment

Visit the “Engagement” tab for webinar registration

Thank you

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Recommended Chapter Citation

Whitehead, J.C., E.L. Mecray, E.D. Lane, L. Kerr, M.L. Finucane, D.R. Reidmiller, M.C. Bove, F.A. Montalto, S. O'Rourke, D.A. Zarrilli, P. Chigbu, C.C. Thornbrugh, E.N. Curchitser, J.G. Hunter, and K. Law, 2023: Ch. 21. Northeast. In: Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023.CH21

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