



# How we RESPOND | AAAS

## COMMUNITY RESPONSES TO CLIMATE CHANGE

### EXECUTIVE SUMMARY

The full report is available at <https://howwerespond.aaas.org/report>.

#### **We face an urgent problem: climate change**

Our nation, our states, our cities and our towns face an urgent problem: climate change. Since the beginning of the Industrial Revolution, humans have released more than 615 billion tons of carbon into the atmosphere, causing the planet to warm much more rapidly than in the past. This warming is altering the Earth's natural processes. Americans are already experiencing climate change impacts on communities, including Indigenous Peoples, and on ecosystems, oceans, human health, water quality and access, infrastructure, industries, and the economy. While climate change affects nearly everyone, the most severe impacts often fall on those who are least able to cope with them. Continuing to emit greenhouse gases such as carbon dioxide will make climate change more severe. Communities across the United States are working to both adapt to the impacts of climate change and reduce future emissions.

#### **Reasons to act**

Science tells us that the sooner we respond to climate change, the lower the risks and costs will be in the future. Climate change is affecting our lives and livelihoods in many ways, including lower air quality, increased illness and death, higher energy costs, and damages to the economy. In addition to reducing these impacts, responding to climate change can bring a wide range of benefits and opportunities to a community, including energy security, new jobs, and social and economic equity — making it a more desirable place to live. Even in cases where climate change is not the primary reason that people act to address community issues, it can be part of a community's decision-making process on issues that they value.

**Above: Superintendent of Glacier National Park Jeff Mow next to Lake McDonald in Glacier National Park.**

Credit: Impact Media Lab / AAAS



Windmills on the horizon near Colby, Kansas.

Credit: Impact Media Lab / AAAS

## Science can support decision-making and planning

Since climate change can have a broad range of impacts, the best responses rely on a similarly broad range of science (e.g., physical, social, economic analyses). Science can be used in all stages of community response, from understanding the risks to analyzing possible options to implementing a plan, monitoring progress and making improvements. Increasingly, community members are partnering with scientists and other experts to conduct vulnerability assessments, which can be used to understand local climate risks and inform the development of effective climate action plans. Together, scientists and community members are seeking resources, sharing expertise, and collecting and using data sets that are relevant for the community. These partnerships draw on and connect local knowledge; colleges and universities; federal, state and local government agencies; community organizations; and foundations.

## Responding to climate change

Using both science and traditional knowledge, two main types of approaches for addressing climate change are used: adapting to the changes that are happening or expected to happen in the future (adaptation), and limiting the extent of changes that will occur by reducing

or eliminating greenhouse gas emissions (mitigation). The best responses involve both approaches, as research consistently shows that adaptation efforts are more difficult and costly — and less likely to work — if mitigation efforts are not also taken. Important features of adaptation efforts include increased resiliency, strategic planning and flexibility. Mitigation can entail reducing greenhouse gas emissions by moving away from carbon-intensive energy sources and improving energy efficiency, and by changing the way we manage land, through restoring forests and wetlands and implementing sustainable agricultural practices. Mitigation can also involve the removal of greenhouse gases from the atmosphere.

## Acting together, we can make a difference

At the heart of most solutions to climate change is cooperation and knowledge sharing within and across communities. One of the most powerful tools we have at our disposal is scientific research, which can help us better understand climate change and potential responses. Science can help individuals, communities, businesses and government agencies make more-informed decisions. By working together to identify solutions and bring about positive change, individuals and communities can reduce the risks that current and future generations face.

# THANK YOU TO OUR FUNDERS

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# How We Respond – Community Spotlights

Find community stories and short films online:

<https://howwerespond.aas.org/communities>

Scientists, governments, nonprofits, businesses and community members are using their knowledge and ingenuity to take action on climate change and find solutions that work for their communities. Some of these spotlights include new initiatives, while others account for climate change in existing projects focused on other important issues. *How We Respond* tells the stories of

these communities — how they formed collaborations with scientists, acquired funding, collected data and implemented plans. While the impacts of climate change vary, and how communities respond depends on their needs, values and resources, these stories demonstrate what is possible and offer solutions and approaches for communities to consider.

## Community Spotlights

<b>Dane County, WI</b>	Dane County Turns Waste Into Profit and Reduces Greenhouse Gas Emissions
<b>Herring River Estuary, MA</b>	Herring River Illustrates the Value of Wetlands in Reducing Greenhouse Gas Emissions
<b>Homer and Napakiak, AK</b>	Alaskan Communities Adapt to Dramatic Climate Change
<b>Laramie, WY</b>	Using Biochar in the High Plains to Reduce Carbon Emissions
<b>Marquette, MI</b>	As the Great Lakes Warm, Marquette Plans for a Healthier Future
<b>Netarts Bay, OR</b>	A Crippled Oregon Shellfish Hatchery Spawns Better Ocean Monitoring Systems
<b>New Orleans, LA</b>	New Orleans Residents Respond to Flooding With Citizen Science
<b>Savannah, GA</b>	Residents of Savannah Rise to the Occasion as Higher Seas Encroach
<b>Sheridan County, KS</b>	Kansas Farmers Minimize Water Use as the Southern Great Plains Become More Arid
<b>Whitefish, MT</b>	From Conversations to Action: Whitefish Tackles Climate Change Impacts on Wilderness and Tourism
<b>Yurok Territory, CA</b>	Restoring Yurok Forests and Rivers Using Traditional Knowledge

## Brief Community Spotlights

<b>Austin, TX</b>	Churches Put Faith in Sustainability and Renewable Energy
<b>California and New Jersey</b>	Regional Alliances Forge Ahead in California and New Jersey, Expanding in Scope and Impact
<b>Cambridge, MA</b>	Starting Small and Scaling Up: Cambridge Sets Its Climate Adaptation Plan in Motion
<b>Davenport, IA</b>	Thinking Outside the Box: How Davenport Uses Marshes to Combat Floods and Climate Change
<b>Fort Hood, TX</b>	Fort Hood Embraces Renewable Energy; Other Military Posts Follow Suit
<b>Phoenix, AZ</b>	The Heat Is On: Phoenix Continues Its Search for a Sustainable and Healthy Future
<b>Washington, D.C.</b>	Washington, D.C., Transportation Policies Cut Pollution and Greenhouse Gases





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