

Woodwell's Impact in Our Own Backyard

Massachusetts-Based Research

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Woodwell Climate Research Center's researchers conduct science for solutions at the nexus of climate, people, and nature—solutions that are urgently needed to propel us toward a more equitable, healthy, and sustainable world. Originally founded as the Woods Hole Research Center in 1985, our world-leading science helps individuals, communities, corporations, and nations across the globe understand the realities of climate change and embrace the urgent action needed to safeguard the future of life on Earth. While we have a global footprint, Woodwell's impact starts right in our own backyard: Massachusetts.

RISK: JUST ACCESS

As the threat of climate change grows, so does the need for accessible climate risk analyses. To protect against future climate-driven risks, communities must be armed with the most up-to-date and location-specific science so they can make informed grant-writing, planning, zoning, and adaptation decisions. Woodwell has cultivated partnerships with cities and towns providing them with the information they need to make climate-smart decisions.

To date, we have or are working with **7 communities in Massachusetts**. As a result, we have investigated the present and future risks of various climate hazards, including flooding, heat, drought, and wildfires, across the Commonwealth (see Figure 1).

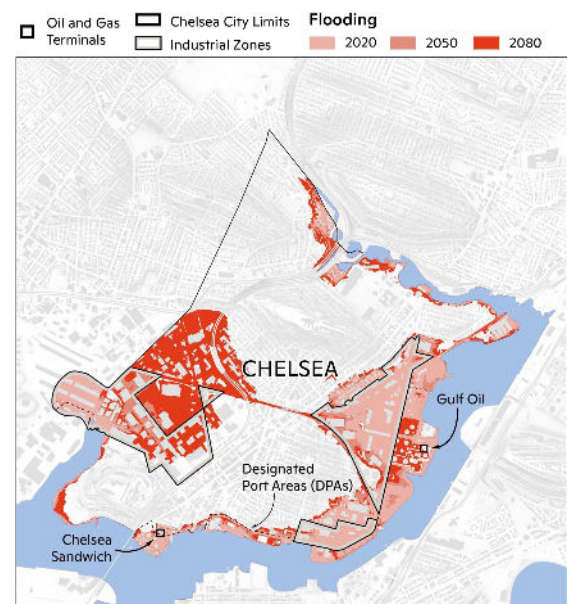


Figure 1. On top are the 7 communities in Massachusetts that Woodwell has or is working with and their corresponding climate hazards. On bottom is an example of a climate hazard map for Chelsea, MA, that shows present, 2050, and 2080 1% annual chance storm surge flood map.

WATER: PROTECTING RIVERS & AQUATIC ECOSYSTEMS

Woodwell scientists study freshwater ecosystems to gain insights into how climate change and human development are affecting the water cycle. Ultimately, understanding the water cycle is critical because, not only does it cut across virtually every area of climate research, but it is absolutely vital to supporting ecosystem adaptation and improving resilience in a time of global change.

River Monitoring

For more than a decade, Woodwell has established and led the Cape Cod Rivers Observatory (CCRO) to monitor, protect, and restore rivers in Cape Cod that support critical ecosystem services and biodiversity. Woodwell, with Fishpond, also established Science on the Fly (SOTF) to unite the fly fishing community and river scientists to monitor rivers across the globe, including almost several across the Commonwealth.

Coastal

For over 20 years, Woodwell has been conducting a unique project to understand the long-term impacts of human development, including fertilizer runoff and pollution, on coastal ecosystems. Known as the **TIDE Project**, Woodwell altered nutrients in carefully controlled amounts and studied the impacts on biodiversity, water quality, and carbon storage in the Plum Island Estuary.

Restoration

For many years, Woodwell has worked with Buzzard Bay Coalition as well as other partners on monitoring and reporting water quality in Buzzard Bay to inform restoration efforts. For example, the **Baywatchers Monitoring Program** has collected water quality data to understand long-term trends for over 30 years. Alongside this program, Woodwell is working with local partners to test the effectiveness of new restoration efforts to prevent the loss of salt marsh or revitalize former cranberry bogs. Restoration can increase biodiversity, ecosystem services, and carbon storage.

Carbon: Powering Climate Solutions with Nature

As natural climate solutions (NCS) are the only cost-effective strategies capable of providing near-term carbon dioxide removal, Woodwell scientists conduct research to promote and develop the most effective NCS strategies. NCS are activities that avoid greenhouse gas emissions and increase carbon sequestration through improved land stewardship: protection, improved management, and restoration of forests, wetlands, agricultural lands, and grasslands.

Such research begins in Massachusetts. For example, Woodwell scientists are working with Martha's Vineyard Commission Climate Action Task Force to create an **island-wide climate action plan** that includes NCS. Our scientists have also provided support to state agencies, such as serving as scientific experts on the Commonwealth's **Forests as Climate Solutions** initiative or contributing to the **Massachusetts Climate Forestry Committee**.

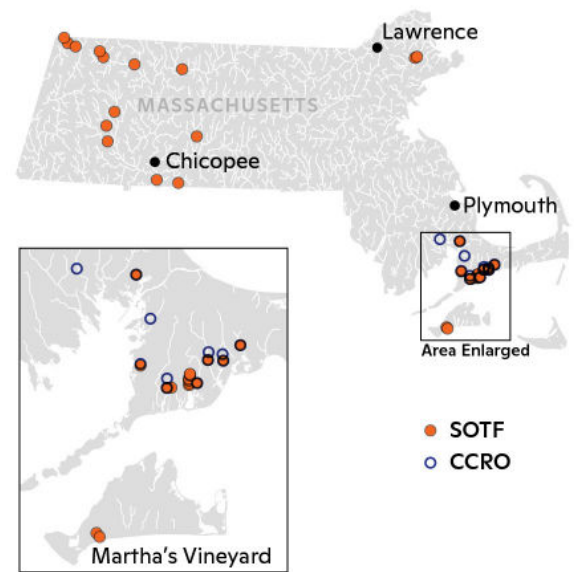


Figure 2. River monitoring locations across the Commonwealth for both CCRO and SOTF.



WOODWELL CLIMATE RESEARCH CENTER conducts science for solutions at the nexus of climate, people and nature. We partner with leaders and communities for just, meaningful impact to address the climate crisis.

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