

Future hurricanes could compromise New England forests' ability to store and sequester carbon

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Nature-based climate solutions can help mitigate climate change, especially in forested regions capable of storing and sequestering vast

amounts of carbon. New research published in *Global Change Biology* indicates that a single hurricane in New England, one of the most heavily forested regions in the United States, can down 4.6–9.4% of the total above-ground forest carbon, an amount much greater than the carbon sequestered annually by New England's forests.

The work revealed that emissions from hurricanes are not instantaneous—it takes approximately 19 years for downed carbon to become a net emission, and 100 years for 90% of the downed carbon to be emitted.

Models showed that an 8% and 16% increase in hurricane wind speeds leads to a 10.7- and 24.8-fold increase, respectively, in areas that would experience widespread tree mortality. Increased [wind speed](#) also leads to geographical shifts in damage, both inland and northward, into heavily forested regions that have traditionally been less affected by hurricanes.

"If we are going to rely on forest carbon as a primary tool to mitigate [climate change](#)—which seems to be the dominant direction that policies and voluntary/compulsory carbon markets are going in—we have to adequately account for the risks to this forest carbon from disturbances," said corresponding author Shersingh Joseph Tumber-Dávila, Ph.D., of Dartmouth College and Harvard Forest.

"We show that current carbon market policies are incredibly insufficiently buffered against these risks, with a single hurricane having the capacity to emit the equivalent of 10+ years of carbon sequestration from New England forests. To put this in perspective, currently in California's regulatory carbon market (the largest in the US), less than 3% of [carbon credits](#) are set aside to mitigate catastrophic risks. Any storm is likely to deplete what is set aside for risks over 100 years."

More information: Hurricanes pose substantial risk to New England

forest carbon stocks, *Global Change Biology* (2024). [DOI: 10.1111/gcb.17259](https://doi.org/10.1111/gcb.17259)

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