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PERSPECTIVE

# A climate change call to arms

Don't let snowy predictions fool you. Winter is going away.

By David Sleeper and Pamela H. Templer | OCTOBER 14, 2012



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**Paul Boulanger of North Andover's Turtle Lane Maple Farm didn't collect sap in spring 2012 because of the warm winter.**

**THE OFFICIAL START OF WINTER** may still be more than two months away, but in New England, we should be watching the long-term forecasts. Despite predictions for a snowy winter, the season's temperatures have been rising over the long term. And the implications of climate change for this region's economy — including how we play on and earn our livings from the snow — are enormous.

For more than five decades, the changing face of winter has been studied by scientists at the 7,800-acre Hubbard Brook Experimental Forest in Woodstock, New Hampshire, which is managed by the USDA Forest Service. According to our ongoing Hubbard Brook Ecosystem Study, average winter temperatures have warmed by 2.5 degrees Fahrenheit since 1955. Maximum snowpack levels have declined by about 10 inches. Over the past 45 years, the ice cover on Mirror Lake in the White Mountains has decreased by 22.5 days.

These changes are incontrovertible. Less certain are the implications to our winter way of life. But in recent meetings between Hubbard Brook scientists and traditional users of the winter landscape — including ski area operators, managers of the White Mountain National Forest, and maple sugar makers — a picture is taking shape of a startlingly different kind of New England than that experienced by our parents and grandparents.

For ski area operators, winter seasons that once somewhat predictably started after Thanksgiving are now more likely to begin after the New Year. Needing to make do with less natural snow, ski areas must continue investing in significant artificial-snow making. Even though they have learned to make snow using less energy and water, the operators still face a battle of perceptions: When there is no snow on the ground in Boston, fewer people think about driving north to ski.

Other sorts of outdoor recreation — snowshoeing, ice fishing, snowmobiling, cross-country skiing — have suffered from inconsistent weather, too. Less snow cover and more ice can lead to deadly accidents.

Maple sugar producers are affected by a complex array of temperature and snow conditions. While improvements in technology, such as vacuum systems to extract sap, have kept pace with an apparently shortening sugaring season, scientists point out that sugar maples are already influenced by stresses such as acid rain (a threat discovered in North America at Hubbard Brook). Warming temperatures may also inflict harm to stands of trees over the long term.

Not all winter climate changes are deleterious to New England's economy and well-being, as evidenced by the warm December days when tourists enjoy wearing T-shirts in downtown Boston or legions of hikers take to the White Mountains. The

driveways.

But some results of climate change are ambiguous and related in complex ways. Lower snow depths can help deer populations in their hunt for food, but they can hurt moose by causing an explosion of ticks. The ticks infest the moose, which rub off their fur in an attempt to get rid of them, causing the animals to freeze to death in a warming world.

Cold and snowy weather has helped define who we are in New England, yet the Hubbard Brook data show that winter is inexorably fading away. We'll have to alter our self-definitions in the years ahead.

Long-term studies offer an invaluable tool for understanding what is happening to our winter landscape, but they're not enough. To address how society should respond requires broad participation in the conversation. It's time to join in.

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