

CLIMATE TALK

Climate and the Madeline Island ice road

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They are visible from most Bayfield streets, the line of retired Christmas trees marking the path of the ice road to Madeline Island. But this year we have watched them slip into the depths as the ice cover melted before it was ever adequate to support a car. This is good news if you work for the ferry (I suppose) and not so good if you commute from Madeline Island or if (like me) you look forward to the adventure of driving across. If the ferry is able to run all winter it will be the fourth time in 150 years of records, with three of these in the past six years.

Our little ice drama is a microscopic reflection of what is happening worldwide to seasonal ice covers. The grandest of all such wonders is in the Arctic Ocean. Here an island of ice survives all year long near the very top of the globe, more than doubling in area during the northern hemisphere winter. It reaches its maximum in mid-March, and then begins shrinking toward its smallest in mid-September. While this grand expansion and contraction continues as it has for millennia, the average size of the ice island for any given time of year is shrinking. Satellites provide us a very clear record of this.

Human release of carbon from fossil fuels and land-use change is the root cause of these changes to seasonal ice covers. A recent scientific study (published in the journal *Science*) brought into sharp focus our role in this by demonstrating a straight-line relationship between the loss of Arctic sea ice and human carbon releases. The primary scientific advance in the paper was to propose an explanation for the apparent simplicity of this relationship (something scientists love to do). The personal take-home, however, was to understand that the carbon released annually by the average American's routine (18 tons or so) leads to the loss of another 500 square feet of Arctic sea ice each year.

The Arctic is a big place, but there are a lot of us and this has been going on for decades. The damage is real — to livelihoods and homes of native peoples and the very survival of some polar bear populations, to cite two poignant examples. Also, both here and in the Arctic, fewer days of ice cover increases the absorption of sunlight, subtly accelerating warming of water and air.

Perhaps the greatest challenge of human-caused climate change is that it is very hard to understand and envision our individual impacts. All of the greenhouse gases are invisible. Understanding climate requires thinking across decades and over large areas of Earth. But this scientific report helps me see my personal role — and opportunity — in a new way: for every ton of fossil carbon dioxide that I can avoid releasing this year some 30 square feet of Arctic sea ice will be spared. This ice will remain in place to reflect sunlight, help polar bears find adequate food, and (one theory says) reduce the chances of droughts and floods in the Midwest. My restraint will also up the chances of an ice road to Madeline Island, too.

We can have an impact, personally, in our households, and in our communities. Our individual lifestyle choices are only a start, however. The future of sea ice and ice roads is best assured by "putting a price" on carbon releases. I support the Citizens Climate Lobby's idea of a "carbon fee and dividend," which

economists agree creates the right market-based incentives for individuals, communities and businesses to reduce carbon losses, with no increase in the size of government.

(Bill Bland retired from the University of Wisconsin-Madison, where he was a professor of soil science. He moved to Bayfield with sailboat in tow, and is now working on figuring out a low carbon housing situation.)