

## CLIMATE COACH

# Why you should tell your children about vanishing fireflies



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OQUOSSOC, Maine — Every morning this week, I’ve woken up to a sea of yellow birch and balsam fir in this northern stretch of the Appalachians. The wind whipping off Mooselookmeguntic Lake stirs millions of leaves with a sound like the ocean. Once darkness falls, the loons arrive, their voices pealing across the water as they dive for chub, golden shiners and small brook trout.

To my eye, this is as Edenic as you get in America today. Yet almost everything I assumed about this “pristine” landscape was wrong.

Maine, while [90 percent forest](#), is also one of our most logged states. If you’re wondering where a lot of America’s 2-by-4s and toilet paper come from, it’s here. Of Maine’s original species, sea minks, cougars, caribou and gray wolves are either [extinct](#) or expatriated from the state.

Without this knowledge, it was easy to think I stood on the edge of primeval wilderness. Changes here unfolded over centuries. Each generation came to see the woods and rivers around them as normal even as the ecosystem degraded.

There’s a name for this: shifting baselines.

Today, a new normal is being rewritten in our own lifetimes amid [climate-related disasters](#), from [smoke-filled skies](#) to [lethal heat waves](#). Yet accepting these conditions as normal threatens to unravel what made the world capable of withstanding these shocks in the first place. To restore the rich relationships of species, and our place among them, we need to remember our “baselines,” whether that’s in Maine or your own backyard.

One of the best ways to do this, even scientists admit, is by telling stories.

## What are shifting baselines?

The term was coined by marine biologist Daniel Pauly in 1995. Pauly, now at the University of British Columbia, noticed fishery scientists generally accepted the size of fish populations at the start of their careers as normal, and then managed toward that goal. If stocks declined by the time the next generation entered the field, *this* became the new normal.

“The result, obviously, is a gradual shift of the baseline,” he wrote in the journal *Trends in Ecology and Evolution*, “a gradual accommodation of the creeping disappearance of resource species.”

Shifting baselines is now shorthand for generational amnesia of the natural world. As species decline or die off, our cultural memory of them fades. We might remember the abundance and diversity of our childhood but never imagine the world of our grandparents — or of their ancestors. This phenomenon has already been documented among groups as diverse as bush meat hunters in Africa and birders in the United Kingdom.

In Maine, I’ve been thinking about this a lot. How can we remember what once was, even as climate change promises to transform the planet?

The answer, Pauly suggests, is not simply more wildlife counts. We need stories from people who remember to re-create these baselines as best we can. “The big changes happened way back,” he wrote, “but all we have to recall them are anecdotes.”

To hear those stories, I called on the people who have been in Maine longer than anyone else.

## A seven-generation approach

The Penobscot Nation is among the oldest continuous governments in the world. Some of its members still recall stories of Atlantic salmon filling Maine’s rivers and alewife, or river herring, swimming upriver by the millions, says Chuck Loring Jr., the Penobscot Nation’s director of natural resources. Last year, fewer than 1,400 salmon returned to the state.

Loring, who manages forests, game and fisheries across 189 square miles, doesn’t think in decades to plan for the future. He looks back centuries. “We have a seven-generation approach,” he says. Unlike most commercial timber harvesters, he’s aiming to create an old-growth forest like those that existed hundreds of years ago across Maine but now only cover 0.01 percent of the state.

Instead of cutting trees every 30 to 40 years, Loring plans to grow them for a century or more. And he’s not optimizing for wood. “We’re one of the biggest timber tribes,” says Loring, “but the most highly regarded goal is water quality.”

For the Penobscot, the goal is restoring a landscape and its inhabitants' place in it — from fish to moose to future members of the Penobscot Nation. “That’s one of our goals getting into the school, and talking about everything we do,” says Loring. “The tribe has made ensuring a viable forest in the future the priority, even if we’re not generating income from the forest.”

## A new baseline for the next generation

Maine, and the rest of the world, can never fully recapture the past. Our new landscape must straddle a healthier past and a warming future because of climate change.

Jessica Leahy, a natural resources professor at the University of Maine who manages 600 acres of her own forests, is already living there. “The ground isn’t freezing in the winter, the mud season is extending, and our roads are washing out,” she says. “Everything I do now is not called a climate change project, but it is driven by it.”

She’s creating a new baseline for Maine. Leahy now orders her new tree saplings from nurseries in warmer climates such as New Hampshire. She’s diversifying the species, planting white pine and northern red oak, as new insect pests and other challenges emerge. She mentions others pursuing “assisted migration,” moving trees beyond their historic range in anticipation of warmer temperatures to come.

## Getting to know your baselines

The deep past can be a foreign concept in a nation of immigrants. For most of us, our memories of the natural world date back decades, or perhaps a few generations. And our firsthand experience is declining: In the 1800s, three-quarters of Americans made their living on the land. Today, that figure has fallen to less than 2 percent.

But you don’t need to identify every flower, plant and tree around you, or manage forests as Loring and Leahy do, to know what once lived in your neck of the woods — and could again.

Playing outside is enough to start.

That’s what did it for me. I spent my earliest years rooting around mangrove forests and oak hammocks in Florida. I played video games like everyone else, but my mother and great-grandmother slowly introduced me to the plants and animals around us. I grew up awed by land crab migrations and lovebug swarms, sparking a natural curiosity I never lost.

But this affinity is not necessarily innate. It’s learned, suggest researchers at the University of Chicago. If you live in a place that once glowed with fireflies each summer night, tell your children what you remember, and ask your parents to tell their stories.

I'll be telling my son stories about the wild lives that existed in the places we go before anyone thought to call them "Maine" or "California." If he won't inherit an ecosystem with all its parts, he'll have a shot at reassembly.

Baselines, after all, don't always decline.

Many of the days I've been in Maine, I've watched bald eagles fly over Lake Mooselookmeguntic on their way to fishing grounds. In the 1960s, no one in my parents' generation could have done this. Just 800 or so bald eagles remained in the Lower 48. Today, more than 316,000 live in the contiguous United States, and the population is growing.

When my son is my age, he'll know those flights as the new normal.