




The Revelator

Wild, Incisive, Fearless.

[News](#) [Ideas](#) [Culture](#) [About](#) [Subscribe](#) 

An initiative of the [Center for Biological Diversity](#)   



Aerial view of California's Lake Oroville in 2013 showing the water level at 29 percent of total capacity. (Photo by Zack Cunningham / California Department of Water Resources)

How Climate Change Will Affect Real Lives — Now and in the Future

To better understand future climate projections, let's look at how they may play out in the life of someone born in 2000.

Essays

May 3, 2019 - by Dan Farber

Climate change has already had serious effects, but as we know from the steady and increasingly loud drumbeat of projections from various scientific bodies, the dangers will grow much greater in future decades.

But what does this actually look like?

Projections of life in 2050 or 2100 seem like the stuff of science fiction, yet those seemingly distant decades are not so far off. The 22nd century is roughly one lifetime away. The great majority of today's young adults will see 2050, and many children currently in your local daycare or elementary school will see 2100.

It seems difficult for us to plan for developments that are decades away, but climate science is clear that our actions today and over the next few years will make a profound difference to the planet and its inhabitants in the years to come.

How will climate change affect the lives of today's young adults?

Let's imagine the life of someone born in 2000 and, for the sake of specificity, say she lives in California, where scientists have done lots of [climate-related modeling](#).

Our hypothetical young California woman, we'll call her Emily, can expect to live until around 2080. Based on current statistics, she can probably anticipate her first child at around age 26, and that child will likely live well past 2100. Emily would be in her prime years during mid-century (2040-2060), the same period when her daughter will be transitioning into adulthood. So let's start then.

To flesh this out, we need to consider two scenarios, one where significant but not stringent efforts are made to control carbon emissions, the other where little is done — the latter being the path we're currently on. Much will depend on the actions humanity takes between now and the middle part of the century.

What will her world look like?

By 2050 the low- and high-emissions scenarios will already be starting to diverge, though not as far as they will later. Sea level will be up under either scenario, about eight inches with lower emissions and more than 10 inches with higher emissions. San Francisco airport is about a foot above sea level, so with high tides and storm surges it will be underwater on a regular basis. Major droughts will be a bit more likely even in the lower-emissions scenario, but will come twice as often with higher emissions. Average annual temperatures in California will also rise about 4.4 degrees Fahrenheit with lower emissions, or about 5.8 degrees with higher emissions.

By late in the century (2080 to 2100), Emily will be elderly or will have died, her children may be retired, and there may well be grandchildren or even a great-grandchild. By this

time the differences between the lower-emissions and high-emissions scenarios become very stark.

In the high-emissions scenario, things will have gotten much worse by 2100. Sea level in San Francisco will be up over four feet, which means much of the city on average will be under water (and even more so with high tides). Many of Southern California's beaches will be gone.

What used to be the once-in-a-century driest year will happen three times as often. Temperatures will have risen 8.8 degrees. As a result, Sacramento, which currently has 60 to 90 days a year with the temperature exceeding 90 degrees, will have about that many days over 105 degrees by the end of this century. Similarly, while Los Angeles now has only about 18 90-degree days a year, by the end of the century, 2 out of 3 years will see 50 to 100 days like that. This translates to four to six times as many deaths from heat waves, the projected loss of nearly all of the Sierra snowpack and two-and-a-half times as many critically dry years.

Outside California the world that Emily's daughter and grandchildren have inherited is also vastly changed. Globally, by the end of the century the high-emissions scenario where average temperatures are more than 7 degrees Fahrenheit looks grim. We would see "unprecedented heat waves, severe drought and major floods in many regions, with serious impacts on human systems, ecosystems and associated services," according to a [report](#) by the World Bank. The world's poor would be the most vulnerable to the resulting water and food insecurity. The kind of heatwaves that killed tens of thousands in Russia in 2010 would become the "new normal."

The World Bank's sober conclusion is that there's no guarantee we could even adapt to that world.

We'll have slowed this damage a bit in the lower-emissions scenario, but the problems will still be severe. In this version of the world to come, the sea has risen more than two feet in California. Average temperatures are up 5.6 degrees Fahrenheit there. According to [researchers](#), even in this low-emissions scenario, there will be sharp decreases in the Sierra snow packs that supply California's water in the summer, and there will be two or three times as many deaths from heatwaves. That's terrible, but it's still progress compared to the high-emissions scenario, and an even stronger effort to reduce emissions might have done more — but it's worth emphasizing that our actions still make a real difference even if we fail to stabilize climate completely.

Of course long-term climate models predict probabilities, not certainties, and are most uncertain at the local or regional level. Actual emissions trajectories are likely to be different from these scenarios. And demographics vary by race, age and social class, so a really complete analysis would have to make such distinctions and also consider future

trends in thinking about life expectancy, fertility and childbearing. The usual caveat applies: “Your mileage may vary.” But none of these refinements would change the basic thrust.

There are three big lessons here. The first is that 2100 isn’t all that far away. The children of someone like Emily have a very good chance of seeing 2100, and their children almost certainly will. The trajectory of carbon emissions between now and then will have a major impact on their lives.

The second lesson is that even the lower-emissions scenario will cause a serious amount of warming and all the problems that come with it. We — as a nation and as a society — need to do better than that, which means a strenuous effort to cut worldwide emissions as soon as possible.

The third lesson is related: The future is not fixed. Even if we fall short of the ideal effort against climate change, what we do will still make a big difference. As we saw in the two models for the year 2100, the changes we make today to curb emissions will compound over time, like interest rates providing increased yields for the planet. We have a tremendous ability — and responsibility — to shape what the world will look like, not just for hypothetical Emily but for all future generations.



[Dan Farber](#) teaches environmental law and directs the Center for Law, Energy and the Environment at the University of California, Berkeley.

<http://twitter.com/dfarber>



Tags: [Climate Change](#) | [Human Health](#)