

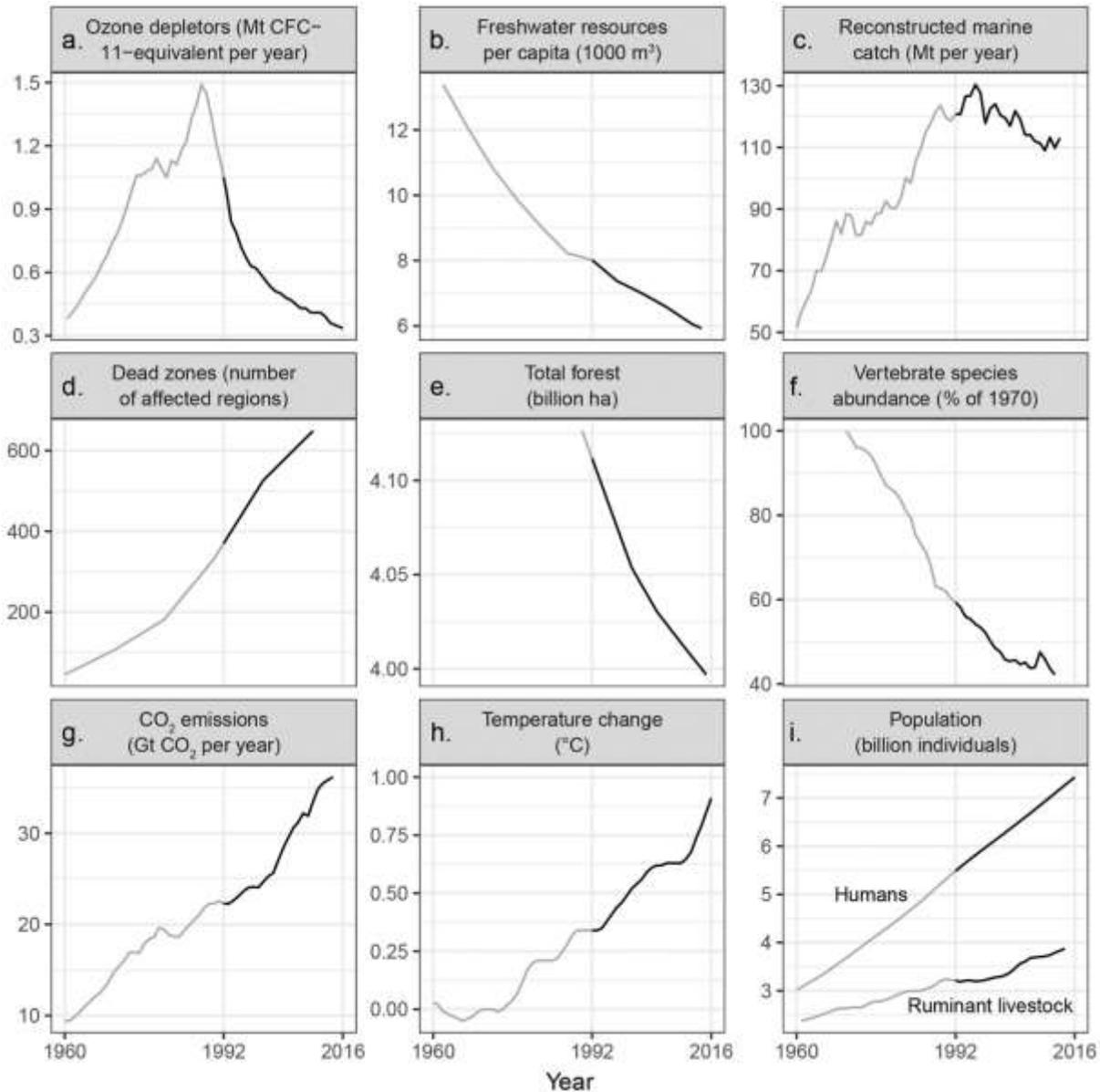
## WORLD SCIENTISTS GIVE SECOND WARNING TO HUMANITY ON CLIMATE

By Alice Loyd

The “World Scientists’ Warning to Humanity: Second Notice,” signed by 15,000 scientists, was published by *BioScience* on November 13, 2017 ([academic.oup.com](http://academic.oup.com)). This second warning updates the original warning twenty-five years ago by the Union of Concerned Scientists and more than 1,700 independent scientists, including the majority of living Nobel laureates ([uclsusa.org](http://uclsusa.org)). The scientists say the picture is far worse now than it was in 1992, and that almost all of the problems identified then have simply been exacerbated. They find especially troubling the current trajectory of potentially catastrophic climate change due to rising greenhouse gases from burning fossil fuels, deforestation, and agricultural production—particularly from farming ruminants for meat consumption. “Moreover, we have unleashed a mass extinction event, the sixth in roughly 540 million years, wherein many current life forms could be annihilated or at least committed to extinction by the end of this century.”

The 1992 warning stated that humans were on a collision course with the natural world, and expressed concern about current, impending, or potential damage on planet Earth involving ozone depletion, freshwater availability, marine life depletion, ocean dead zones, forest loss, biodiversity destruction, climate change, and continued human population growth. The second warning states that only the hole in the ozone layer has improved since that first letter was released, as it urges humanity to use that improvement as an example of what can happen when people act decisively. Led by top US ecologist Professor William Ripple, from Oregon State University, the group wrote, "Humanity is now being given a second notice . . . . We are jeopardizing our future by not reining in our intense but geographically and demographically uneven material consumption and by not perceiving continued rapid population growth as a primary driver behind many ecological and even societal threats" ([independent.co.uk](http://independent.co.uk)).

Global average temperatures have risen by more than half a degree Celsius since 1992, and annual carbon dioxide emissions have increased by 62 percent. Access to fresh water has declined, as has the amount of forestland and the number of wild-caught fish, a marker of the health of global fisheries. The number of ocean dead zones has increased. The human population has grown by 2 billion people, while the populations of all other mammals, reptiles, amphibians and fish have declined by nearly 30 percent ([washingtonpost.com](http://washingtonpost.com)).

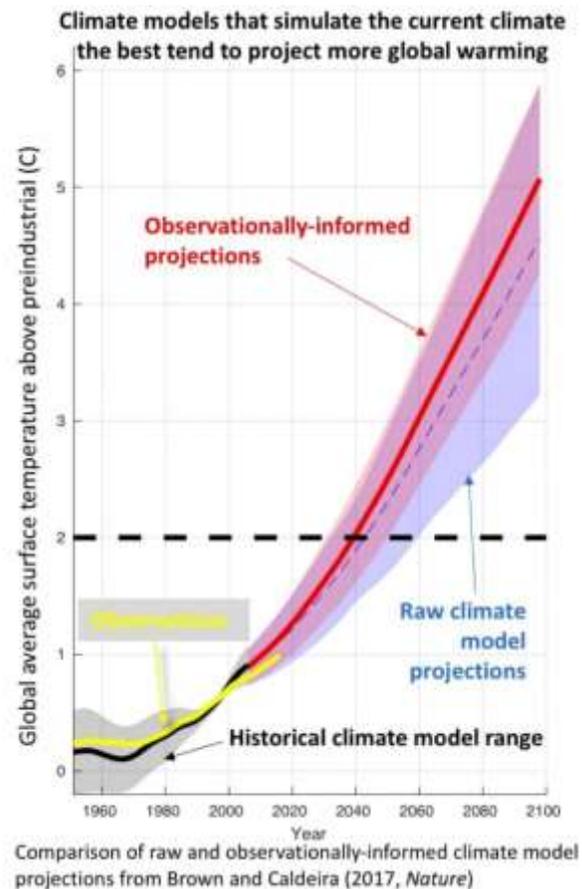


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One notable aspect of the second notice was that it avoided spelling out the “doomier scenarios” that we face if we don’t change. With signatories including Jane Goodall and E.O. Wilson, this group constitutes the largest number of scientists to ever co-sign a published journal article. “And there’s no reason to feel good about what they’re telling us” ([fortune.com](http://fortune.com)). Ripple and his coauthors present [13 different strategies](#) for moving towards sustainability, including establishing well-funded nature reserves, reducing food waste through education and infrastructure, promoting dietary shifts towards plant-based foods, developing green technologies, and establishing economic incentives to shift patterns of consumption. Few of these changes can happen without popular support, however, and the authors argue that

scientists, media influencers, and regular citizens must take action “as a moral imperative to current and future generations of human and other life” ([futureoflife.org](http://futureoflife.org)).

In what might be considered an update of that update, on December 6, 2017, the journal *Nature* published findings that suggest international policy makers are relying on projections that underestimate how much the planet will warm—and therefore underestimate the cuts in greenhouse gas emissions needed to stave off catastrophic impacts of climate change. In other words, as headlines covering the report warned in several publications, the climate models that most successfully simulate the past, predict some of the worst-case scenarios for the future. The study found that if countries stay on a high-emissions trajectory, there's a 93 percent chance the planet will warm more than 4 degrees Celsius by the end of the century. Previous studies placed those odds at 62 percent ([insideclimatenews.org](http://insideclimatenews.org)). An implication of the report is that the carbon budget for staying under a two degree Celsius rise in temperature shrank by 15% ([washingtonpost.com](http://washingtonpost.com)).



Finally, on December 13, 2017, the annual report of the American Meteorological Society included the finding that several specific extreme weather events could not have happened without human-caused CO<sub>2</sub> emissions. For scientists to say “this event was caused by climate change” is a new phenomenon, and at the press conference announcing the report, that fact was acknowledged. "The conversation needs to change," said Jeff Rosenfeld, editor-in-chief of the *Bulletin of the American Meteorological Society*. "These are not just new odds. These are new weather extremes that are made possible by a new climate." The report, which was compiled and edited by scientists affiliated with the National Oceanic and Atmospheric Administration, several universities and the British government, included 27 peer-reviewed studies that examined extreme weather events around the globe in 2016. The devastating heat wave that hit Asia, the unprecedented warmth of ocean waters off of Alaska, and extreme temperatures that made 2016 the warmest on record—all would have been impossible without climate change, the report said. Among the events for which no climate link was found was a winter storm in the eastern US, a drought in Brazil, and marine heat in the eastern Pacific ([insideclimatenews.org](http://insideclimatenews.org)).