

# World Scientists Warning to Humanity: A Second Notice



Over 20,000 scientists in 184 nations have signed a **2<sup>nd</sup> Scientists Warning to Humanity** of the severe and existential threats to human well-being posed by negative social and environmental trends. We face deforestation, ocean acidification, diminishing fresh water supplies, the Earth's sixth mass extinction event, exponential human population growth, overconsumption and a climate system veering outside of the conditions within which human civilization developed. The warning was published in the December 2017 issue of *BioScience*, a well-respected international journal.

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Fundamental changes are urgently needed to avoid the consequences of our present course. Steps can be taken to reverse negative trends, but it will take a groundswell of public and corporate pressure to convince political leaders to avoid a catastrophic future. We could establish more terrestrial and marine reserves, strengthen enforcement of anti-poaching laws and restraints on wildlife trade, expand family planning and educational programs for women, and shift diets toward more plant-based foods. We

could massively adopt renewable energy and other 'green' technologies and reassess a global economic system *dependant* upon exponential growth on a planet with finite resources and 'sinks' for our waste products.

Global trends have worsened since 1992, when the **1<sup>st</sup> World Scientists' Warning to Humanity** was published by the **Union of Concerned Scientists** and signed by over 1,700 scientists, including a majority of then living Nobel laureates. In the ensuing 25 years, trends in ten environmental dimensions suggest that humanity is continuing to gamble with its future, with only *limited progress* in addressing *some* trends during this time.

Progress in a few areas, such as a reduction in ozone-depleting chemicals and an increase in energy generated from renewable sources, shows that positive changes *can* be made. The rate of population growth has declined in some regions, attributable to investments in education for women. And the rate of deforestation in some regions has also slowed. Among the disturbing 25-year global trends are the following:

- 26% reduction in the amount of fresh water available per capita
- Reduced harvests of wild-caught fish, despite increased fishing effort
- 75% increase in the number of ocean dead zones
- Loss of nearly 300 million acres of forestland, much of it converted for agricultural uses
- Continuing significant increases in global carbon emissions and average temperatures
- 35% rise in human population
- Collective 29% reduction in the numbers of mammals, reptiles, amphibians, birds and fish

The **Second Notice** was drafted by an international team led by Dr. William Ripple, distinguished professor of ecology at Oregon State University. They based their analysis on data maintained by government agencies, nonprofit organizations and individual researchers. The authors concluded that action must be taken to avoid "widespread misery and catastrophic biodiversity loss.... Soon it will be too late to shift course away from our failing trajectory, and time is running out. We must recognize, in our day-to-day lives and in our governing institutions, that Earth with all its life is our only home."

*"Some people might be tempted to dismiss this evidence and think we are just being alarmist. Scientists are in the business of analyzing data and looking at the long-term consequences. Those who signed this second warning aren't just raising a false alarm. They are acknowledging the obvious signs that we are heading down an unsustainable path. We are hoping that our paper will ignite a wide-spread public debate about the global environment and climate."* – **William Ripple**

\* - The **Alliance of World Scientists** is a collective voice on environmental sustainability and human well-being. Scientists may *sign* the warning at <http://scientists.forestry.oregonstate.edu/>. Individuals and organizations may endorse it at [ScientistsWarning.org](http://ScientistsWarning.org).