

Opinion / Op-Ed

David Levy: A simple declaration of a climate emergency by itself isn't enough: It's time to act

Opinion: The oceans appear to be transitioning from a carbon sink to a carbon source and are evolving from being a friend to a foe, making the control of atmospheric CO2 even more urgent

David Levy
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The world's oceans are warming quicker and deeper, according to results of a study of ocean temperature records dating back over a century. PHOTO BY DAVID LEVY

Climate change is a fact of the 21st century, and most of the Earth's ecosystems and species are subject to increasingly severe impacts. Despite widespread awareness of the consequences of climate change, there is a disconnect between the scientific realities of climate change and the effective implementation of policies designed to mitigate the most severe effects.

Global temperature data leads to an uncontroversial conclusion that the planet is warming. Global temperatures have already increased by around 1 degree Celsius since the pre-industrial period. The Paris Agreement target to limit the global temperature increase to 1.5 degrees C by 2050 appears to be increasingly unlikely, and under some future scenarios, such as "business-as-usual," global temperature increase is predicted to be much higher.

Over the 60-year period when atmospheric CO₂ has been reliably monitored at the Mauna Loa Observatory in Hawaii, atmospheric CO₂ has steadily increased and shows no signs of slowing down despite our efforts to control emissions. Other aerosols like methane are also increasing and contributing to the greenhouse effect. In order to mitigate climate change, the atmospheric CO₂ concentration curve will need to "bend over," flat line, and rapidly decrease. Is this achievable considering the connections between the atmosphere and the oceans?

Since 1870, Earth's oceans, which cover 71 per cent of our planet, have absorbed about a quarter of human-generated carbon dioxide, slowing down climate change. However, the oceans appear to be transitioning from a carbon sink to a carbon source and are evolving from being a friend to a foe, making the control of atmospheric CO₂ even more urgent. The oceans are warming in many areas, except for polar regions where cooling is occurring due to climate-induced ice melt. When you warm up the ocean, just like warming up a bottle of Coke, it drives the gas out. Further, climate change has doubled the frequency of marine heat waves ("warm blobs") that affect marine life in many of the world's oceans.

Global temperature projections by Global Climate Models predict different futures that are book-ended by severe reductions in CO₂ loading and "business-as-usual" scenarios. In reality, future temperature increases will likely fall somewhere between these extremes and will severely damage ecosystems and fundamentally impact human civilization.

Simple arithmetic can inform relevant emission reduction strategies required to deliver carbon neutrality by 2050. The calculations undertaken by Johan Rockström in 2017 provide a roadmap for rapid decarbonization. In order to achieve neutrality by 2050, CO₂ emissions need to be reduced by 50 per cent between 2020-2030, another 50 per cent between 2030-2040 and another 50 per cent between 2040-2050. Concurrently, there

would need to be massive CO₂ removal by carbon capture and a revolution in food production and sustainability.

Are emissions decreasing? In spite of the attempts by governments and the private sector, emissions from many jurisdictions such as B.C. are actually increasing. In Canada, emissions have flat-lined. During 2020, a seven-per-cent reduction in global CO₂ emissions during the COVID pandemic, largely due to the transportation sector, drove a record drop in carbon emissions. However, this was rapidly reversed as much of the world returned to business-as-usual. By December 2020, global CO₂ emissions returned to, and surpassed, 2019 numbers.

The Union of Concerned Scientists, a group of 14,000 individuals, have issued a series of “World Scientists’ Warning to Humanity” reports that start with the premise that human beings and the natural world are on a collision course and that fundamental changes are urgent. The scientists conclude that climate action to date has been inadequate and current planetary vital signs reflect the catastrophic consequences of conducting business as usual.

The 2021 report renews the call for transformative action and proposes a “three-pronged near-term policy approach,” including a significantly higher global price on carbon, a worldwide phase-out and eventual ban of fossil fuels, and development of climate reserves to protect and restore biodiversity and carbon sinks, such as the Amazon rainforest.

These prescriptions are supported by science and effective in principle. Where they potentially can fail is when implementation is disconnected from well-intentioned climate change policies. Implementation requires that there be emission reductions and a concomitant decrease in atmospheric CO₂ and this has proved to be extremely difficult. A simple declaration of a climate emergency is in the realm of useful communication but by itself won’t lead to transformative action.

How much time do we have? Zero. It is time to act, put a price on carbon, phase out fossil fuels and protect the earth’s ecosystems.

Dr. David Levy is a fisheries scientist who has worked on climate change and salmon survival in the Fraser River.
