From: <https://medium.com/predict/we-have-poisoned-the-rain-e0d6cbde56aa>

Date: 20220825

Keywords: Polyfluoroalkyl Substances (PFAS) (11),

3 min read

We Have Poisoned The Rain

A silent, hidden, and deadly self-made catastrophe is playing out in our water.

It is common knowledge that humanity is poisoning this precious planet with our astronomical carbon emissions and the millions of tonnes of plastic pollution we generate each year. Sadly, this brilliant world is starting to deteriorate under the pressure of our environmental crimes. But, it turns out that things are worse than we thought. We have contaminated even the rain with lethal levels of chemicals that are deadly to plants, animals, and ourselves. So, what are these chemicals? What are the risks? And is there anything we can do to stop this self-made disaster?

[A recent study found that rainwater contained unsafe levels of PFAS](https://pubs.acs.org/doi/10.1021/acs.est.2c02765), a group of substances also known as “[forever chemicals](https://www.bbc.co.uk/news/science-environment-62391069).” PFAS is an incredibly useful group of chemicals. They have been used to make everything from nonstick pans, firefighting foam, food packaging, and even pesticides. But there is a dark side to them.

You see, [PFAS breaks down into incredibly stable and biologically active chemicals](https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas). This means that they hang around for millennia and can bind to and interact with crucial chemical pathways in living organisms. To make matters worse, [these chemicals are water soluble](https://pubmed.ncbi.nlm.nih.gov/31421451/), so they quickly enter the water cycle, spread for miles around, and get concentrated inside living organisms.

Once inside a living thing, [these chemicals can cause havoc](https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas). They interrupt hormones, bind with crucial proteins and clog up vital pathways. This results in a wide range of problems, including decreased fertility, developmental issues such as low birth weight or early puberty, reduced immune response, reduced vaccine response, behaviour changes, increased cholesterol, and an increased risk of prostate, kidney, and testicular cancer.

We have known about these adverse effects for a while now. But we thought their environmental levels were low enough not to be an issue.

Well, we were very much wrong.

As I said earlier, [we have found unsafe levels of PFAS in rainwater](https://www.bbc.co.uk/news/science-environment-62391069). This means that everything that interacts with rain is contaminated. So rivers, lakes, aquifers, and even soil likely also have dangerous levels of PFAS floating in them. But, don’t forget that the fish swimming in these rivers and lakes or plants growing in this soil will absorb and concentrate PFAS in their tissues, and then we eat them.

We also get our drinking water from these bodies of water, and our processing methods aren’t enough to extract PFAS. So many [drinking water supplies are contaminated](https://pubmed.ncbi.nlm.nih.gov/31421451/) and may [actually be unsafe to drink](https://www.consumerreports.org/water-quality/even-extremely-low-levels-of-pfas-in-drinking-water-unsafe-a1147585461/).

We have poisoned the water cycle with long-lasting bioaccumulating deadly chemicals, making everything from the water we drink to the food we eat laced with lethal chemicals. Yet, because we are the ones atop the global food chain, this will likely impact us the most. Maybe this is our form of karma for being so short-sighted.

But the big question is, can we stop this catastrophe?

[In theory, yes](https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies). Ultrafine membrane filtration, such as those found in reverse osmosis machines, can remove PFAS chemicals from water. So if we started using these devices to treat our drinking water and stopped producing PFAS-containing products (yes, [we are still using this tainted chemical](https://www.ewg.org/what-are-pfas-chemicals)), we could slowly reduce the environmental concentration back to safe levels.

However, reverse [osmosis machines are damn expensive](https://www.forbes.com/consent/?toURL=https://www.forbes.com/home-improvement/home/reverse-osmosis-system-cost/), and many products we use today rely on PFAS chemicals to work. So, despite how simple and easy this may sound, it will be a financially, legally, and economically challenging solution. But for now, it is our best one.

So yes, we have poisoned the rain and, in turn, the entire environment with potentially lethal chemicals. All so we can fry an egg with no oil or ensure food slips neatly out of a container. Right now, the levels in our rain, food, and drinking water are just tipping into dangerous levels. So we have time to solve this before it gets seriously damaging. The real question is: will we?