

## 6 human activities that pose the biggest threat to the world's drinking water

Clean, drinkable water is more than a precious resource—it's crucial to human life. Unfortunately, population growth and pollution are threatening to seriously undermine the availability of clean drinking water.

That means that getting clean, pure drinking water to people has become an increasingly difficult task, requiring cities not only to pay for expensive treatments, but pay for the construction of treatment plants to dole out said expensive treatments.

The study, which was a joint effort from researchers at the Nature Conservancy, Yale University, and Washington State University, looked specifically at how three kinds of water pollution—sediment, nitrogen, and phosphorus—have degraded the watersheds from which we obtain our drinking water. These kinds of pollution can enter into watersheds for a variety of reasons, but they all come back to one thing—human activity, which can have seriously detrimental impacts on drinking water.

Here are some of the ways that human activity is seriously messing with clean water, both in the United States and around the world.

### Agriculture

Agriculture is a huge contributor to water pollution, from fertilizers used for grow crops to the manure created by large-scale animal agriculture. In Washington state, a 2015 lawsuit found that a huge dairy operation had been [polluting groundwater](#) in a nearby community, causing the level of nitrates in residents' drinking water to spike to unsafe levels. Nitrates, when found in high levels, can cause serious health problems for both infants and adults with compromised immune systems.

Elsewhere, industrial production of crops like corn and soy, which rely heavily on fertilizers to increase yields, can lead to dangerous algal blooms which, when toxic, can shut down drinking water for entire cities. When fertilizer is overapplied, not all of it can be taken up by crops—the remaining fertilizer ends up as runoff in streams, rivers, and, eventually, lakes and oceans. It's fertilizer runoff that was [largely blamed](#) for the toxic algal bloom that shut down Toledo, Ohio's drinking water for three days in 2014.

## Fossil fuel production

Fossil fuel production is another human activity that places considerable strain on drinking water—and not just because fracking and coal mining use a great deal of water, but because their waste products can pollute groundwater, and therefore drinking water, as well.

With fracking—also known as hydraulic fracturing, when high pressure water, sand, and chemicals are used to break open subsurface shale in order to liberate the natural gas trapped therein—water is a massive component of the entire process. Each fracked well requires somewhere [between 1 million and 6 million gallons](#) of water per well, which can place strain on surface water resources. In California, for instance, fracking used [70 million gallons of water](#) in 2014, despite an ongoing drought that forced water restrictions throughout the state. But fracking can also impact water quality well after the actual fracking itself has finished, when waste fluids are injected back underground for disposal. In some cases, that cocktail of wastewater and chemicals can leach into aquifers, polluting the groundwater near fracking operations. That's what happened in [Dimock, Pennsylvania](#) in 2009, when two families sued Cabot Oil & Gas Corp. for polluting their wells with methane. That's also what happened in 2008, in [Pavillion, Wyoming](#).

But it's not just natural gas production that can impact water quality—coal consumption can also have serious implications for water quality. Coal ash, the byproduct of burning coal for energy, is one of the largest forms of waste generated in the United States. It also contains toxic contaminants, like arsenic and mercury, as well as [radioactive material](#). In some cases, power companies store coal ash in unlined pits, which can [leach into groundwater](#).

## Sewage

In some places, population growth has strained wastewater treatment plants to the point where they cannot handle the amount of sewage that is produced by the city or town.

In the United States, raw sewage can make its way into lakes and streams during intense rainstorms, when pipes that carry sewage and rainwater in the [same system](#) (yes, those still exist, and Troy has also one of those systems) fill to capacity, spilling a mix of rainwater and raw sewage into bodies of water.

## Development

Development and land-use changes—or the changing of land from rural to urban—is a big part of what degrades drinking water. In some places, like in Asia, population density in key watersheds has expanded rapidly since the beginning of the 20th century. Globally, the population density around key urban watershed sources has increased by a factor of 5.4 since 1900, with the most rapid development happening in the last few decades.

The study found that, between 1900 and 2005, [sediment pollution](#) increased in watersheds by 40 percent. Development is a massive driver of that pollution—when urbanization or agriculture comes into a watershed, land that was previously covered with native vegetation is cleared. That means that the soil that was once bound by root systems is free to run into waterways when a storm comes along, choking waterways with sediments and damaging both drinking water quality and ecosystems that depend on clean water. Deforestation—which often occurs to make way for agriculture or development—is also a huge contributor to sediment pollution. [Wildfires](#) can also increase sediment pollution, by burning away vegetation that kept soil intact.

## Climate change

The bad news is that climate change is expected to exacerbate a lot of the problems that already threaten our waterways. It has already [lengthened the global fire season](#), which means more possibilities for a wildfire to burn down trees and brush that help prevent sediment pollution. It is expected to [increase the number of extreme precipitation events](#), which could lead to more instances of combined sewer systems spewing sewage into water bodies. And it's expected to raise the temperature of the world's waters, creating the [perfect environment for toxic algae to grow](#).