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Water Supply to Become More Corrosive

Michael Reilly, Discovery News

Feb. 17, 2009 -- The [water supply](#) in the American west could become more toxic as a result of [climate change](#), according to a new study, thanks in large part to run-off from thousands of abandoned mine sites that pepper the region.

Global climate predictions call for conditions similar to the Dust Bowl of the 1930's to set in by the year 2050. With a burgeoning population and ever increasing need for [clean water](#), the situation is already grim.

But it's going to get worse, according to Kirk Nordstrom of the [U.S. Geological Survey](#) in Boulder, Col. Expanding dry spells and worsening storms will flush large amounts of acid out of mine tailings and into the water supply, dragging along a suite of poisonous heavy metals in the process.

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In an examination of three sites across the United States, he found that acidity and dissolved metals in water skyrocket after rain hits an area that had been dry for months.

Much of that water runs off into streams and rivers. A small fraction also seeps into the ground, though, where it often remains for decades before trickling back out into surface waters.

Over time, continuous precipitation will dilute the 'first flush' of surface contaminants. And as the trickle of acidic ground water meets fresh rain and snow melts, it can dilute that, too. The problems come as rain fails to materialize.

"Think of two spigots feeding the water supply," Nordstrom said. "One spigot is slightly open, a continuous supply of acid water from the ground. The other is a spigot of rain and snow. When it comes down it dilutes acid and metals in a river or lake. But if it's lessening, there's going to be relatively more acid water coming in from the groundwater."

Increasing toxicity due to acid and heavy metals is just one of a suite of problems facing water utilities in the American west, Kathleen Miller of the [National Center for Atmospheric Research](#) said.

"There's been a lot of work done on the impacts of [climate change](#) on water water resources, but not so much on water quality," Peter Gleick of the [Pacific Institute](#) in Oakland, California said. "If this study is right, it suggests there are additional risks associated with climate change, other than flood and drought."

Gleick added that the two laws that govern water quality in the United States -- the Clean Water Act and the Safe Drinking Water Act -- are outdated, and don't consider the effects of climate change on the country's water supply.

"They were written 40 years ago, and there are all sorts of things they don't take into account; among them is climate change," Gleick said. "We need to revise water quality laws so some of the threats posed by climate change can be addressed."

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