A Third Of California's Deep Groundwater Aquifers Are Being Used For Oil And Gas

Samantha Page, Climate Progress News, 6-28-16

California has a lot more usable groundwater than previously thought — but that water might already be in danger from oil and gas extraction in the state.

A study released this week by Stanford scientists shows that there is nearly three times more groundwater in California's Central Valley than earlier surveys had indicated.

"It's not often that you find a 'water windfall,' but we just did," study co-author Robert Jackson, the Michelle and Kevin Douglas Provostial Professor at Stanford, said in the study's release. "There's far more fresh water and usable water than we expected."

Jackson and his research partner looked at deep groundwater aquifers, between 1,000 and 3,000 feet below the surface. This water was not previously thought of as usable water, but as technology has improved, so has our ability to tap underground reservoirs.

The Central Valley, the bread-and-vegetable basket of the nation, produces a quarter of the United States' food. Agriculture, which uses 80 percent of the state's water resources, has been hit hard by the ongoing drought. Less rainfall means farmers need to use more ground and surface water.

But the Central Valley doesn't only produce food. There are also thousands of oil and gas wells in the region, which stretches from just north of Los Angeles up past Sacramento. And this is where things get tricky.

Nearly one out of every three oil or gas wells in California is drilled directly into a usable freshwater source, the study showed. In fact, oil and gas drilling is happening in 30 percent of the aquifers with deep groundwater resources.

"We don't know what effect oil and gas activity has had on groundwater resources, and one reason to highlight this intersection is to consider if we need additional safeguards on this water," said Jackson.

Funny he should say that. California's oil and gas industry has already been taken to task by environmental watchdog groups, which found that the industry was operating in protected aquifers all over the state — without getting clearance from the Environmental Protection Agency. Last year, it was revealed that the state had approved hundreds of injection wells into aquifers protected under the Safe Drinking Water Act. The wells were all either oil and gas extraction or wastewater disposal injection wells.

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The regulatory agency that approved the wells — the Division of Oil, Gas, and Geothermal Resources, commonly known as DOGGR — has been working with the industry to file exemption permits with the EPA. In February, DOGGR filed the first of the exemption requests, with the support of the California Water Board, which said the aquifer in question, near San Luis Obispo, was "impenetrable."

According to EPA guidelines, aquifers can be exempt if they are not currently being used for drinking water and “cannot now or will not in the future serve as a source of drinking water.” The reasons aquifers wouldn’t be used in the future include high levels of contamination and potential for collapse. Aquifers that are able to produce oil, gas, or geothermal energy and that are too deep for water reclamation can also be exempt. The guidelines were developed in coordination with the oil and gas industry, Maya Golden Krasner, a staff attorney with the Center for Biological Diversity, told Think Progress.

And as technology has advanced and people are able to reach and purify deeper groundwater, we might have to pick which is more important: fossil fuels or water.

“In California, oil might be black gold, but water should be platinum,” Golden-Krasner said. As climate change continues to fuel drought and extreme weather, “what we’re going to need, ultimately… is water.”

Drought-Stricken California Let Oil Companies Inject Waste Into Drinkable Water Sources

The Center for Biological Diversity is working to encourage the EPA to reject the applications for aquifer exemptions, while DOGGR has identified 60 aquifers that it will work with industry to put forward for continued injections.

"I hope that it becomes clear that we need to just not issue any more aquifer exemptions and we need to stop this process of sacrificing our groundwater and start the process of thinking about how we’re going to move beyond that," Golden-Krasner said.

The Stanford authors stressed that we don't actually know the level of contamination the industry has caused.

"What we are saying is that no one is monitoring deep aquifers. No one's following them through time to see how and if the water quality is changing," study co-author Mary Kang, a postdoctoral associate at Stanford School of Earth, Energy & Environmental Sciences, said in a statement. "We might need to use this water in a decade, so it's definitely worth protecting."