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Depletion of Ogallala Aquifer

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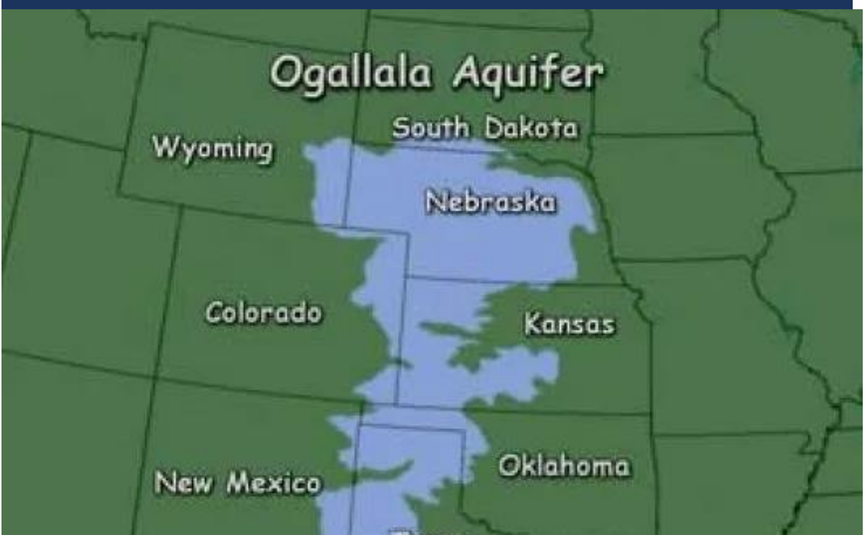
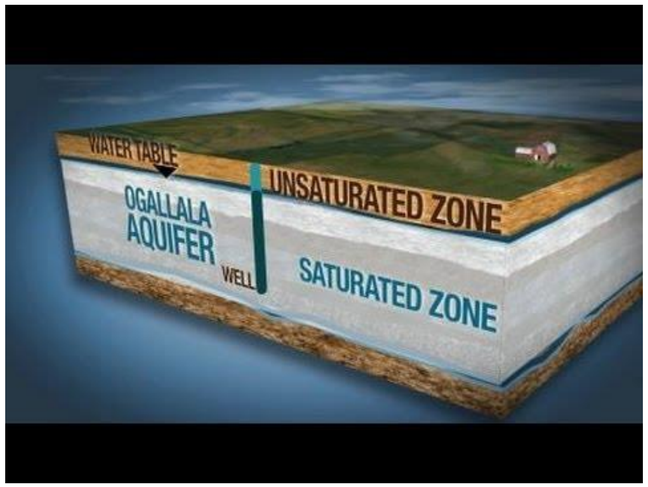
The Ogallala Aquifer is an underground water resource that stretches underneath the Great Plains. It spans across Wyoming, South Dakota, Nebraska, Colorado, Kansas, New Mexico, Oklahoma, and Texas. It is responsible for providing irrigation for 30% of our nation's agricultural needs, and gives farmers the ability to put crops in our markets and food on your plates. However, if not taken care of properly, it could one day be useless.



What does this mean?

Farmers all over the great plains are responsible for producing a majority of our nation's crops. However, when precipitation isn't enough, they must turn to the Ogallala Aquifer, pumping water from the ground. This is not a sustainable solution, as we are pumping out much more than can naturally be replaced. In a matter of time, the aquifer will be completely diminished, rendering it useless. If we are to sustain this precious and pertinent resource, things must change.

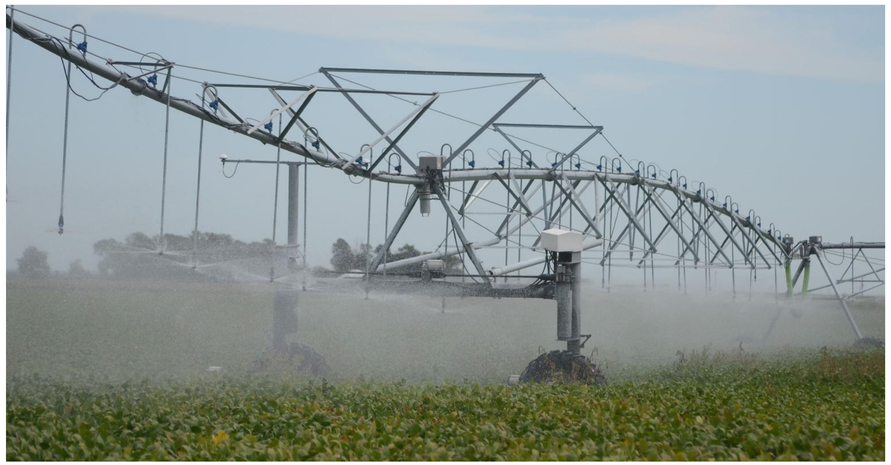


Short Term Solutions

- Groundwater banking—where users store unused groundwater for the next year, allowing it to carry over into the next year
- This would allow the water pumped from the aquifer to be used more efficiently
- Allows less uproar from farmers and is fairly easy to implicate

Social/Political Pressures

You might be thinking, so why aren't steps being taken to protect the aquifer? In states like Texas, regulations regarding the aquifer are taken lightly, remaining "user-friendly". Most landowners feel entitled to their groundwater rights, and fear even the slightest regulation will lead to complete government control of the aquifer. However, regulation could be a key solution to this issue.



Long Term Solutions

- Find alternative crops that require less irrigation—for example, soybean, sunflower, and sorghum as opposed to corn.
- Transition to dryland agriculture
- Use tools such as SWAT (The Soil and Water Assessment Tool) to predict how much irrigation crops really need and use the aquifer more efficiently

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Works Used

- Alvar Closas, & François Molle. (2018). Chronicle of a Demise Foretold: State vs. Local Groundwater Management in Texas and the High Plains Aquifer System. *Water Alternatives, Vol 11, Iss 3, Pp 511-532 (2018)*, (3), 511. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=edsdoj&AN=edsdoj.f41d2ef65938449ca9411dad57cf5137&site=eds-live&authtype=sso&custid=s847557
- Chaudhuri, S., & Ale, S. (2014). Long term (1960–2010) trends in groundwater contamination and salinization in the Ogallala aquifer in Texas. *Journal of Hydrology, 513, 376–390*. https://doi.org/10.1016/j.jhydrol.2014.03.033
- Cano, A., Núñez, A., Acosta-Martinez, V., Schipanski, M., Ghimire, R., Rice, C., & West, C. (2018). Current knowledge and future research directions to link soil health and water conservation in the Ogallala Aquifer region. Geoderma, 328, 109–118. https://doi.org/10.1016/j.geoderma.2018.04.027
- J. A. Aistrup, T. Bulatewicz, L. J. Kulcsar, J. M. Peterson, S. M. Welch, & D. R. Steward. (2017). Conserving the Ogallala Aquifer in southwestern Kansas: from the wells to people, a holistic coupled natural–human model. Hydrology and Earth System Sciences, *Vol 21, Pp 6167-6183 (2017)*, 6167. https://doi.org/10.5194/hess-21-6167-2017
- Lutgens, Frederick K., Tarbuck, Edward J. (2016). Essentials of Geology, 13e. Hoboken, NJ: Pearson.
- Yong Chen, Gary W. Marek, Thomas H. Marek, Jerry E. Moorhead, Kevin R. Heflin, David K. Brauer, … Raghavan Srinivasan. (2018). Assessment of Alternative Agricultural Land Use Options for Extending the Availability of the Ogallala Aquifer in the Northern High Plains of Texas. *Hydrology, Vol 5, Iss 4, p 53 (2018)*, (4), 53. https://doi.org/10.3390/hydrology5040053