

To: Jonah
From: Allison Bailey
Date: November 21, 2019
Subject: California Groundwater Technical Brief

Background

In 2014, Governor Jerry Brown signed in to law the Sustainable Groundwater Management Act (SGMA) which requires local governments and state agencies to develop and implement sustainable groundwater water management strategies. SGMA requires an immediate halt of overdraft from high and medium priority basins in an effort to bring groundwater basins into balanced levels of inputs and storage replenishment.¹

Analysis

Utilizing water storage estimates from the stochastic model estimates depicted in the Sankey diagrams, I reproduced “Business As Usual” (BAU) projections against a theoretical policy scenario where there is 20% reduction in average irrigated water use using a linear regression as shown below. The graph pulls the projected data points between 2000 and 2050 in order to anticipate water storage values. Included in the graph, is the upper and lower limit estimates on water storage boundaries within a 90% confidence interval for both BAU and the theoretical policy.

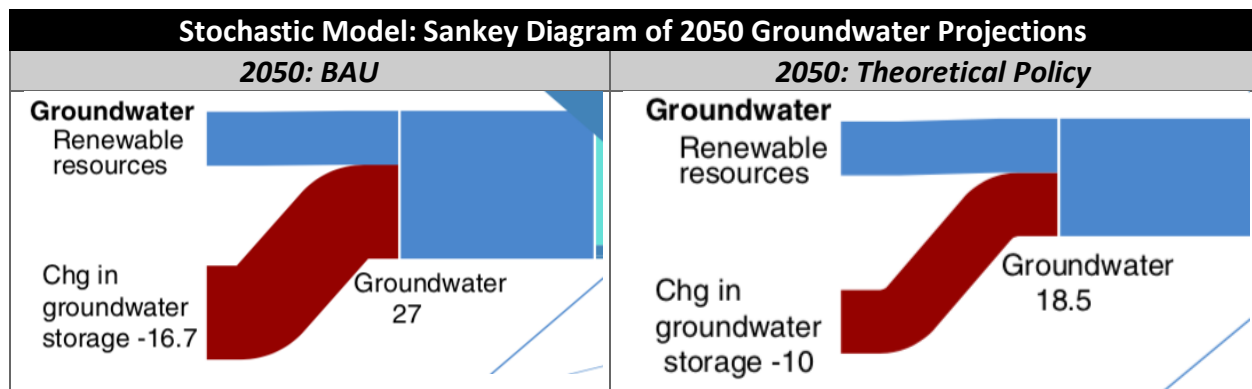


Figure 1. Table visualizes the depletion of groundwater in 2050 from “Business As Usual” versus the implementation of theoretical policy.

¹ California Department of Water. Sustainable Groundwater Management Act, 2014.
<https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management>

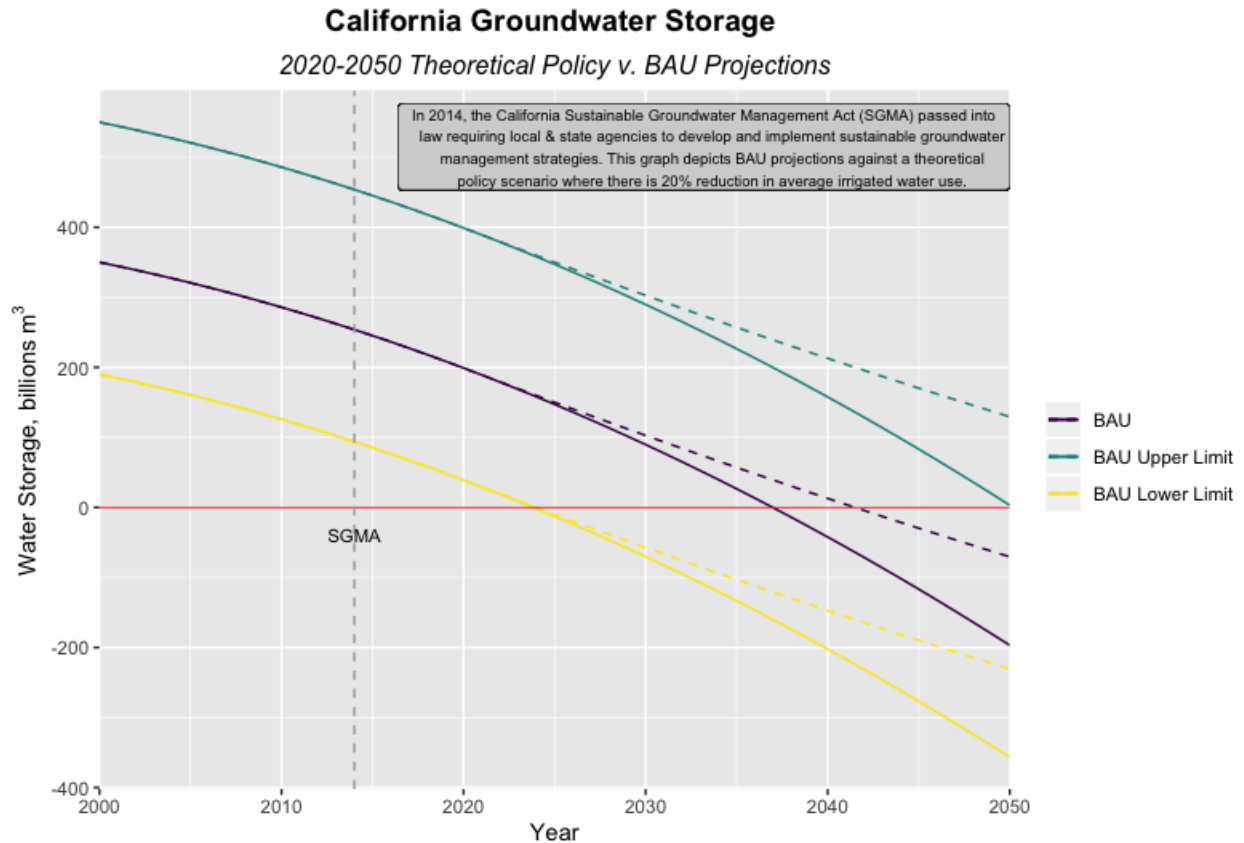


Figure 2. Graph visualizes the deviation in groundwater depletion from "Business As Usual" versus a theoretical policy implementation (dotted-line).

Recommendation

As represented in the supporting materials, the implementation of the SGMA policy will extend the longevity of statewide groundwater from a BAU depletion expected in 2036. However, the lower limits forecasted do not begin to deviate with a policy implementation until well-after depletion which is estimated at 2024. Therefore, it is my recommendation to Senator Meyer that it is essential for local governments and state agencies to base their management strategies on the lower limit trend and implement SGMA policy as soon as possible. Due to time constraints, there are several available options for immediate implementation to avoid groundwater depletion. One option resides in redistributing the 32% of treated urban water that is currently being discharged to the sea into agriculture and landscape purposes.² Alternatively, investing further grant funds toward desalinization projects across the state to augment municipal and industrial water supplies may also be utilized. Although an option for short-term alleviation, desalinization is not economically nor environmentally conducive for long-term implementation.³

² Curmi, E., Fenner, R., Richards, K. et al. Water Resource Manage (2013) 27: 3035.
<https://doi.org/10.1007/s11269-013-0331-2>

³ Congressional Research Service, 2015, Desalination and Membrane Technologies: Federal Research and Adoption. R40477, www.crs.gov