

Science of Storage Hearing

Select Committee on Regional Approaches to Addressing the State's Water Crisis
March 20, 2013 – 3 to 4:30PM

Testimony of Tim Parker

Tim Parker, California Licensed Hydrogeologist, Parker Groundwater – I would also like to acknowledge that I am a director, chairman, committee member of a number of non profit organizations including Groundwater Resources Association of California, California Groundwater Coalition, Association of California Water Agencies, American Groundwater Trust, National Groundwater Association, and International Association of Hydrogeologists, and it is with the combined experience and knowledge from my practice and extensive volunteer work that I speak today.

Thank you for the opportunity to participate in this discussion on the science of storage today. I will focus my remarks on where do we go from here, that is how California might address what needs to be done to facilitate enhancing groundwater recharge and creating more groundwater storage and water banks. I'll begin with a brief summary of what you've heard so far, some key pieces of information, discuss some of the challenges, both science and policy, and close with some suggestions on how to move forward to facilitate increasing groundwater recharge and storage in California.

You heard today the status and need for storage from a statewide perspective – we are going to rely more on groundwater resources, and therefore need to increase groundwater recharge and storage in the state.

You also heard about CASGEM the CA statewide groundwater elevation monitoring program.

You heard some of what we know, and some of what we don't know.

You've also heard a lot from several public agency groundwater managers about the science of what it takes to store water in our underground reservoirs, aquifers.

And you've heard some of the challenges in the Sacramento area

You've heard that there is good science for developing groundwater recharge and storage projects. But as a state legislative body, I think I might ask do we have enough information to make strategic decisions and prioritize where the state should invest resources into local recharge and storage projects? And the answer is probably no on the information. I think in large part the data exists, there is a lot of monitoring and studies going on, but it is difficult for the state to obtain data from all local water agencies, largely because of the fear of that data being used against them in water rights or other legal battles over water. This is a difficult challenge, but we need to find ways to encourage or find incentives for all public water agencies to share data.

Most of our challenges with putting water into underground reservoirs are policy, economic or physical.

The easy ones to touch on are (1) physical – you need to have surface water to put underground and conveyance and facilities to get it to where you want to place it, and a viable reservoir – not all are created equal and it won't work everywhere, (2) economic - insufficient funds to do the characterization, monitoring, build the infrastructure, obtain the surface water. "Surface water" today comes from many sources. While in the past groundwater basin managers have relied principally on imported water, today, they are also increasingly, capturing, cleaning up and using wastewater and stormwater resources.

The policy and institutional issues are more complex.

First of all, groundwater is a local issue, as was recognized in the passage of AB3030 (1992), SB1938 (2002) and AB359 (2011), and groundwater is best managed locally. In order to develop a viable groundwater recharge or groundwater storage or water bank, a foundation of sound groundwater management needs to be in place to ensure certainty in water rights and returns on investments and water. Granted some areas are managed better and more proactively than others. Some areas are experiencing chronic groundwater level declines with no solution. We need to continue to raise the bar on groundwater management to ensure that all groundwater areas are protected and managed towards a sustainable resource, while at the same time not effecting areas that have sound groundwater management programs and practices in place, and in many cases this will require increasing groundwater recharge.

A key fundamental science requirement of groundwater management is to have a viable water budget for the area. Think of your bank account – you need to know how much is coming into the account and how much is going out so that you don't bounce a check. Groundwater is similar in that need to know how much is coming in (rainfall, infiltration, basin underflow, gains from streamflows, irrigation returns) and how much is going out (basin underflow, loss to streamflows, evapotranspiration, and pumpage).

When it comes to groundwater management, some areas have the pumping data they need and others do not. For example, unless a basin is adjudicated or under a strict legislative mandate, with the exception of water supply wells, large production pumpage is not required to be reported. Not having the data on large scale groundwater pumping makes it difficult to do the science – in a sense, it is as if you are working blind with only part of the data you need to manage the resource.

Now there are a lot of issues and history surrounding this idea of reporting pumpage –

Fear that you will be regulated.

Fear that you won't have enough water in the future –

Fear of not being in control of your own destiny –

But the reality of the science is that groundwater is a common pool resource that everyone shares in a given area – and everyone needs to work together, share information and if need be some pain, to ensure the resource is protected and sustainable for future generations.

There are a number of policy issues that exist and many of these are related to the historical development of both infrastructure in the state, and federal and state laws and agency mandates.

Many of the laws that currently drive water and groundwater resources were passed in the 70's and early 80's, at a time when the main impetus was to clean our surface and groundwater resources from past poor hazardous materials management practices. This includes the SDWA, CWA, Superfund, RCRA and Porter Cologne.

For example, under Porter Cologne and the the Safe Drinking Water Act with the Under Injection Control program under EPA:

The Water Boards permit a groundwater storage project using drinking water as the source water and wells for recharge and recovery (aquifer storage and recovery) with a 'waste discharge permit'. The connotation of "waste" to drinking water is bad policy. Although I want to acknowledge that the Central Valley RWQCB EO and city of Roseville and Sacramento Suburban Water Agency developed a work around for some of the other challenging issues with ASR to be implemented in the Central Valley.

Another example is that to recharge your groundwater, you need to have surface water and a legal right to that surface water. To recharge and store that surface water underground, you have to file a permit with the SWRCB that identifies your legal right to the surface water, where, when and how much you will put underground, the characteristics of the underground reservoir; where, when and how much of that stored water you will recover, and how that water will be put to beneficial use. If you want to use that surface water to recharge your groundwater basin to correct for decades of decline in groundwater levels, this is not considered a beneficial use so it is not allowed under the legal system.

Another policy issue is that there are many different state and federal agencies that have a mandate, policy or permitting responsibility to regulate some part or aspect of a groundwater recharge, groundwater storage, or groundwater banking project – and in some cases these mandates and policies overlap or are in conflict – This is again, probably a result of the history of the development of water law and policy.

Where do we go from here:

The state should have a complete and comprehensive statewide inventory on groundwater recharge and storage projects in place and plans and needs for future projects – and this should be part of the DWR mandated five Year Water Plan Updates. I would like to acknowledge the DWR Water Plan staff - It is amazing what DWR continues to undertake, synthesize, and move forward for the Water Plan Update 2013 in the face of a highly compressed schedule and resources constraints.

Another piece of the science , water and groundwater are connected and part of the hydrologic system – One Water. The DWR is also separately mandated to prepare a report on California’s Groundwater known as Bulletin 118, and this mandate is unfunded. This Water Plan update (2013), for the first time, will contain a separate detailed section on Groundwater. It seems to me that it would make sense to change the mandate to **fund** DWR to update California’s Groundwater every five years and to integrate the groundwater update it into the Water Plan Update.

There is a State Agency Steering Committee composed of 28 state agencies, boards, departments and commissions which guides development of the Water Plan Update, and is informed through stakeholder involvement through the Advisory committee, Regional & Topic Specific Caucuses, workshops & forums. Would it make sense to establish a state groundwater coordinating council of state agencies, with representation by water and groundwater organizations, and direct the council to assist state agencies and water districts in the coordination and exchange of information related to groundwater programs. One of the priorities could be looking at how to better coordinate for groundwater recharge and storage projects including how to address the conflicting mandates. Ultimately, this Council could be a one-stop shop to provide readily available information to other agencies and the public on the quality and quantity of groundwater around their area of interest.

A final thought on where do we go from here- do we know how much additional groundwater recharge and storage is needed to move towards sustainability? and at what cost? and how do we pay for it? What is feasible in the next 10 years? and next 50 years? This will require additional science, data and information, and that means data sharing. It will not be precise but will give us something to work towards. It seems to me it may be appropriate to consider developing a statewide groundwater recharge and storage policy that includes purpose, background information and rationale for the policy, why we need to increase groundwater recharge and storage, and goals for the next 10, 20 even perhaps 50 years out. The policy could also identify alignment of mandates, policies and permitting responsibilities to better facilitate groundwater recharge and storage in the state.

In closing, addressing some of the policy challenges and developing some goals and a range funding options for groundwater recharge and storage is likely to put California in the best position to meet the challenges of sustainable surface water and groundwater management (One Water) in support of a strong 21st century environment, society and economy.