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# Response to the Napa Valley Subbasin GSP

The Sierra Club Napa Group is commenting on omissions in the Napa Valley Subbasin Groundwater Sustainability Plan. These omissions include lack of recognition that groundwater in the Subbasin is currently being over-drafted, lack of recognition that watershed resources will also require monitoring to protect the inflow into the Subbasin, a requirement for metering groundwater pumping, surface water diversion, and for monitoring streamflow to provide accurate data for models and assumptions, and lack of incorporation of preventive indicators.

## We are already in overdraft

The discussions and the plan do not give proper consideration to the fact that this subbasin is already in a condition of overdraft. As such, water usage is unsustainable at the beginning of this process, without consideration of additional population growth, development, and climate change. This should be acknowledged with concern and responsiveness to the situation.

The situation in the Napa Valley Subbasin is especially critical and in need of Project and Management Actions to reduce groundwater pumping and to curtail development that will entitle new pumping. According to the GSP, the Subbasin sustainable yield, as defined by SGMA, is approximately 15,000 acre-feet per year (GSP Executive Summary).

Groundwater pumping has exceeded this amount since the water year 2012, as shown by the Total Groundwater Pumping bars in Figure 6-7 (pg 199) in the 2020 Napa Annual Groundwater Report.

![Chart

Description automatically generated]()

The repeated overdraft condition is an indicator of a groundwater management problem. It does not mean that the storage is decreasing in the short run, but does indicate that if current management practices persist and usage grows or the climate becomes drier and hotter, current practices will lead to triggering of all indicators of adverse conditions. This is the ultimate leading indicator, showing changes that will subsequently appear in the Napa basin.

# Critical issues that need to be addressed

Our review of the GSP has focused on a few issues we consider critical drivers of the ability to manage for sustainability. We have commented on drafts and attempted to address the GSPAC directly. We have received reactions, but no engagement or substantive responses. These, we believe, are the critical drivers to manage sustainable groundwater.

## Consider the whole system; the subbasin groundwater is part of an interdependent system.

GSP needs to accurately reflect the reality of the entire Napa Valley water resource. It should illustrate dependent communities, water sources and the interdependence between them all. The plan should acknowledge that direct users are not the only community dependent upon subbasin water. Also, the sustainability of the subbasin is very much dependent on the sustainability of other water sources (surface, imported, and watershed aquifers). In order to define what is healthy and sustainable, all communities and sources must be monitored for sustainability and interdependence.

A systemic overview of interdependencies would reveal a truer picture of these source and community interdependencies.

That systems view of interdependencies would reveal important scenarios to be considered. For instance, the valley floor, the subbasin, is pumped primarily by agriculture and industry (wineries), while groundwater in the hillsides, including watersheds, are used by large and small vineyards and many domestic wells. The cities and towns get water imported or access stored surface water.

In the case of a historic drought, which is increasing in probability, imported water will disappear and the stored surface water will be depleted; hillside wells will go dry. Subbasin groundwater will be the last resort for all the communities. In such scenarios, subbasin groundwater demand will increase at a far greater rate than extrapolated forecasts would lead us to believe.

What are the plans for the scenarios in which the system, as a whole, fails?

We strongly hold that considering the whole valley, with its constituent communities and sources, be treated as a system and monitored. Constituents’ concerns should be attended to and included in all planning.

A useful plan should run the set of scenarios that include the cascading failure of water resources, scenarios that are only increasing in likelihood.

Questions, data, and discussions of the whole valley and the impact of each domain on others should be allowed, encouraged, and taken into consideration.  Developing a subbasin sustainability plan without data and open discussion of all parts of the valley’s water system is not going to lead to sustainability and preparedness, though it may lead to literal compliance.

## Meter and monitor all groundwater pumping and surface water diversions.

We need actual data on water usage, and not estimates and extrapolations. We need to see levels of aquifers at all points in the complex system underlying the subbasin and watersheds. All wells should be monitored; all large users should be metered. Some large groundwater users are exempted from reporting well pumping; the regulations that allow this should be repealed.

## Streamflow monitoring

Streamflow monitoring should be increased. Anecdotal reports of rivers and streams going dry are increasing in frequency, and nearby wells and upstream diversions are called into question as being responsible.

Current low-flow gaging is essentially non-existent at this time, and Section 5 obfuscates this fact by providing a detailed description of a flood gauging system. Section 5.10.6 (Proposed Actions to Address Data Gaps) proposes upgrading 10 existing flood gauges to include low-flow monitoring and says that the GSA will follow the lead of DWR and SWRCB in choosing any additional sites. There are no timeframes associated with this work.

## Groundwater Dependent Ecosystems

GDEs are at risk and should be monitored more robustly than is described in the GSP. This deficiency was described in point 3 of the letter to the GSA written by Hackett, Manfree, von Rosenberg, and Sauer, dated December 1, 2021.

## Use preventive indicators for management dashboard

SGMA requires the definition of undesirable results, monitoring, triggers, and PMA for each of six potential groundwater related problems. All of the indicators suffer for want of actual leading and preventive indicators. For instance, for indicator “**Chronic Lowering of Groundwater Levels**”, the indicator is a prolonged reduction in groundwater below a running historical average. Drought years are excluded as though drought might not be a contributor to lowering groundwater. There is no consideration for a trend in the rolling 10-year average, which would result in a “boiled frog” problem. The requirement that there is impact to beneficial users requires actual harm, and eliminates trends that are statistically significant, indicative of imminent harm, but the harm has not yet accrued. The various conditions imposed on action causes the indicator to be reactive and insensitive.

All the indicators suffer from similar reactive properties and qualifiers make them less sensitive to approaching harm.

### All indicators should be predictive and preventive

There are statistical methods that can detect trends toward undesirable outcomes *before* the undesirable conditions are observed. They should be employed in much simpler ways than are described in this plan. Rules with conditions and limitations can easily be less sensitive and more reactive than the plain rules, and those are less sensitive than statistically predictive rules.

Additionally, there should be effort to get “upstream” from the assigned undesirable conditions, to put alarms on the forces that will trigger the undesirable trends toward undesirable results. Of course, these upstream causal systems will fall into categories that are difficult to address, such as permitting, planning, zoning, and decisions made in political bodies. They can also be indicators of trends in systems beyond the control of a GSA, most notably climate. We expect the GSA to require a complete rewrite of this section, and require true leading indicators and triggers for action.

## Backward vs forward view

The whole process of developing this GSP reflects a bias toward historical perspectives. Modeling uses historical data to predict how the system works. The definitions of what are drought or wet years influenced by our experience and our data inventories. The projections for uses, supplies, and needs are heavily influenced by normative thinking by a team with shared experience in a world that is quickly evaporating. Forecasts and modeling use tools that have embedded assumptions and biases about the future being like the past, but maybe having more strings of drought years. This begets a confidence that creates blind spots. As David Rizzardo, manager of the California Department of Water Resources hydrology section has noted,“If you’ve changed the climate and then you try to use statistics — which relies on what happened in the past — to predict the future, you’re already running into an issue” (Cal Matters, 2.23.22).

The future environment will be fundamentally different, and we don’t know what the norms of the future will be, or even if there will be a future normal. The term “uncertainty” describes the utter blindness we have about future conditions. We have significant clues, namely that we will be dealing with drier and hotter, but how that will arrive is anybody’s guess. The extreme heat wave that hit the Pacific Northwest last year was not an outlier event, as a “once in a hundred year” event. It was an event that was utterly unthinkable just days before it arrived, completely unprecedented in history. Our climate is going to have those surprises for us; not just the improbable events, but the unthinkable, too. We need to factor in human behavior, because humans do not behave in ways that are rational for the collective. The hoarding impulse and the rejection of authority are recent examples of stress on whole systems. Humans will make things worse, if given the chance. The “if they like it, I hate it” impulse seems to be the American Way now.

Involvement from all communities involved would be an improvement in this process. Inclusion of expertise from behavioral science experts might open a door to insights that could inform better plans. The plan seems ignorant of the benefits from statistical thinking, which could produce significantly more forward-looking indicators. If we consciously audit our methods to change the view from historical one that embraces uncertainty and systems approaches, we might avoid inevitable surprises.

## Conclusion:

The Sierra Club Napa Group is critical of the submitted GSP because it does not address the severity of the current situation, nor does it include immediate management actions to monitor and regulate inflows from the watershed and over-extraction of groundwater to the detriment of GDEs and all the human communities dependent on this resource.

Thank you.

Sincerely,

The Executive Committee of the Sierra Club Napa Group