

October 20, 2015

Trevor Joseph
Sustainable Groundwater Management Chief
California Department of Water Resources
901 P Street, Room 213
P.O. Box 942836
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Submitted via email to: sgmps@water.ca.gov and Trevor.Joseph@water.ca.gov

RE: Comments on Topic Paper 1 - Pre-SGMA Conditions and Undesirable Results

Dear Mr. Joseph,

The Nature Conservancy (the Conservancy) appreciates the opportunity to offer the following comments on the Department of Water Resources' (the Department) discussion paper on Groundwater Sustainability Plan regulations for Topic 1 - Pre-SGMA Conditions and Undesirable Results (Topic Paper 1). The discussion papers are important as they inform the Department's drafting of the Emergency Regulations concerning development of Groundwater Sustainability Plans (GSP) as directed by Section 10733.2 of the Sustainable Groundwater Management Act (SGMA). We commend the Department for reaching out and communicating with stakeholders through these discussion papers and for the well-organized meetings you have held with interest groups about the discussion papers.

As the Department develops guidelines for GSPs, we recommend the following:

Definitions:

- We recommend adding a definition for Groundwater-Dependent Ecosystems, which are defined as, "Ecosystems that require access to, replenishment or benefit from, or otherwise rely on subsurface stores of water to function or persist."¹

10727.2(b)(4): Required Plan Elements

¹ Howard, J, Merrifield M, 2010. Mapping Groundwater Dependent Ecosystems in California. PLoS ONE 5(6): e11249. doi:10.1371/journal.pone.0011249

- *Undesirable Results Prior to January 1, 2015:* Acknowledging that January 1, 2015 follows a multi-year drought, we strongly support regulations that encourage and incentivize GSAs to develop measurable objectives that target sustainable management for conditions that exceed the baseline conditions on January 1, 2015. These objectives should be considered as “management objectives” that GSAs voluntarily seek to manage to – and not as “regulatory objectives” that trigger regulatory action.
 - A study² by the Conservancy modeled the impacts of groundwater pumping on stream flows and shows that impacts of pumping – which we have seen increase dramatically in this drought – can persist for decades after the pumping event. Therefore, the regulations should require GSPs to explicitly address how management objectives anticipate the significant time lags between groundwater pumping and impacts to stream flows.
- *Establishing Baseline:* Analysis of baseline conditions should include identification of the Groundwater-Dependent Ecosystems that are supported by the groundwater resources of the basin. The groundwater support of such ecosystems may include both surface water in streams and wetlands and also groundwater occurring near the surface that sustains wetlands or riparian vegetation with particular emphasis on wetlands falling under the jurisdiction of the U.S. Clean Water Act.

Regarding the list of methodologies on how to establish pre-SGMA conditions provided on pages 3-4 in Issue Paper 1, we recommend:

- Including: “A map of native Groundwater-Dependent Ecosystems and an associated list of native species of plants and animals that are, in turn, dependent upon these groundwater dependent habitats with particular emphasis on species listed pursuant to the United States and California Endangered Species Acts.”
- Adding “An analysis of how groundwater withdrawal currently affects, and could affect in the future, Groundwater-Dependent Ecosystems and dependent plant and animal species.”
- Revising the fourth bullet to read: “A description of land use and changes in land, *including native habitat*, over the base period. “
- Adding “Identification of native species and habitat monitoring, data gaps, and plans to improve the understanding of the spatial extent and surface and groundwater needs of Groundwater-Dependent Ecosystems.”
- Including “Identification of the interaction between the groundwater resources of the basin and surface flows within and outside of the basin with particular emphasis on those surface flows that are subject to established water rights. Analysis of groundwater withdrawal should identify how such groundwater withdrawal currently affects, and could affect in the future, such surface flows.”

10721(w)(3): Definitions – Undesirable Results: Seawater Intrusion

² The Nature Conservancy, 2014. *Groundwater and Stream Interaction in California’s Central Valley: Insights for Sustainable Groundwater Management*. Available soon at: www.scienceforconservation.org.

- *Sea Level Rise*: In defining “significant and unreasonable” seawater intrusion, “unreasonable” should include considerations for sea level rise, which will likely significantly but not unreasonably increase seawater intrusion in the coming decades.

10721(w)(6): Definitions – Undesirable Results: Interconnected Surface Waters

SGMA contains numerous provisions related to the interconnection between groundwater and surface water and the need for addressing both the natural environment and interconnected surface flows. (The attachment to this letter excerpts these provisions for reference.) These SGMA provisions cumulatively require a GSP to address these environmental and interconnection considerations, and page 9 of the Topic Paper 1 elaborates on the SGMA direction as follows:

“Declining groundwater levels may decrease the discharge to surface streams and result in reduced instream flow and supply to wetland, estuary areas, and other groundwater dependent ecosystems. Loss of streamflow may reduce the supply available for downstream diverters, or require additional releases to be made from surface water reservoirs to meet required instream and downstream needs.

An analysis of baseline conditions should be performed. Gaged streamflow and groundwater-level information may need to be collected and an estimate of streamflow contribution to the groundwater supply may need to be included in the water budget.”

The provisions of SGMA clearly require that the beneficial use of water for the natural environment and the groundwater contribution to surface water that supports beneficial uses be analyzed and accounted for in the water balance of a groundwater basin.

- *Minimum Standards*: We recommend the regulations make clear that GSPs must address the requirements of existing legislation, including the U.S. Clean Water Act, the U.S. Endangered Species Act and the California Endangered Species Act.
- *Considerations*: We recommend modifying paragraphs three and four of your Considerations to read:

Declining groundwater levels may decrease the discharge to surface streams and/or increase stream depletions, resulting in reduced instream flow and supply to wetland, estuary areas, and other Groundwater-Dependent Ecosystems. Loss of streamflow may reduce the supply available for downstream diverters or reduce flows needed to meet water quality and/or ecological obligations. Loss of streamflow may also require additional releases to be made from surface water reservoirs to meet required instream and downstream needs.

An analysis of baseline conditions should be performed, and gaged streamflow and groundwater-level information shall be collected to complete this analysis. This analysis should include an estimate of streamflow contribution to the groundwater supply, and this estimate should be included in the water budget.

- *Interconnection*: The guidelines should make clear that losing streams, rivers and streams that lose surface flows to groundwater recharge, are still interconnected to surface water and are therefore covered under SGMA.
- *Assessing Interconnection*: Undesirable Result 6 on Interconnected Surface Water is likely to be one of the harder undesirable results to identify, assess and monitor. Recognizing this,

GSPs should be required to document how GSAs will improve their understanding of the impacts of groundwater management on surface flows, including through investments in science, monitoring and adaptive management.

- *Accounting for Uncertainty:* Again, recognizing the data limitations on interconnected surface water, GSPs should explicitly address the high degree of uncertainty related to depletions of interconnected surface water. This uncertainty should be reflected in conservative measurable objectives that err towards improving the connections between surface water and groundwater rather than potentially allowing for depletions due to the poor understanding of the interconnection.
- *Magnitude of Impact:* Depletions of interconnected surface waters are exceptional undesirable results in that the impacts accrue to public trust resources and, in many cases, the detrimental impacts can be extremely difficult if not impossible to reverse or mitigate. Recognizing the potential severity related to this undesirable result, extra care should be required as GSAs set measurable objectives and management actions to avoid depletions of interconnected surface water.

The Nature Conservancy's California Water Program would be pleased to provide further information and work with the Department in refining the proposed text above to help assure that the emergency regulations provide clear guidance for protecting Groundwater-Dependent Ecosystems.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Sandi Matsumoto". The signature is fluid and cursive, with the first name "Sandi" being more prominent.

Sandi Matsumoto
Associate Director, California Water Program

Attachment

SGMA Provisions Related to the Need for Consideration of the Natural Environment and the Interconnected Surface Flows

UNCODIFIED FINDINGS

(a) The Legislature finds and declares as follows:

(3) Excessive groundwater extraction can cause overdraft, failed wells, deteriorated water quality, environmental damage, and irreversible land subsidence that damages infrastructure and diminishes the capacity of aquifers to store water for the future.

(11) Sustainable groundwater management in California depends upon creating more opportunities for robust conjunctive management of surface water and groundwater resources. Climate change will intensify the need to recalibrate and reconcile surface water and groundwater management strategies.

(b) It is, therefore, the intent of the Legislature to do all of the following:

(3) To require the development and reporting of those data necessary to support sustainable groundwater management, including those data that help describe the basin's geology, the short- and long-term trends of the basin's water balance, and other measures of sustainability, and those data necessary to resolve disputes regarding sustainable yield, beneficial uses, and water rights.

Water Code

113. STATE POLICY OF SUSTAINABLE, LOCAL GROUNDWATER MANAGEMENT

It is the policy of the state that groundwater resources be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses. Sustainable groundwater management is best achieved locally through the development, implementation, and updating of plans and programs based on the best available science.

10721. DEFINITIONS

Unless the context otherwise requires, the following definitions govern the construction of this part:

(u) "Sustainable groundwater management" means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

(v) "Sustainable yield" means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.

(w) "Undesirable result" means one or more of the following effects caused by groundwater conditions occurring throughout the basin:

(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

(6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

10723.2. CONSIDERATION OF ALL INTERESTS OF ALL BENEFICIAL USES AND USERS OF GROUNDWATER

The groundwater sustainability agency shall consider the interests of all beneficial uses and users of groundwater, as well as those responsible for implementing groundwater sustainability plans. These interests include, but are not limited to, all of the following:

(e) Environmental users of groundwater.

(f) Surface water users, if there is a hydrologic connection between surface and groundwater bodies.

(g) The federal government, including, but not limited to, the military and managers of federal lands.

10727.2. REQUIRED PLAN ELEMENTS

A groundwater sustainability plan shall include all of the following:

(a) A description of the physical setting and characteristics of the aquifer system underlying the basin that includes the following:

(2) Groundwater levels, groundwater quality, subsidence, and groundwater-surface water interaction.

(d) Components relating to the following, as applicable to the basin:

(2) The monitoring and management of groundwater quality, groundwater quality inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin.

(e) A summary of the type of monitoring sites, type of measurements, and the frequency of monitoring for each location monitoring groundwater levels, groundwater quality, subsidence, streamflow, precipitation, evaporation, and tidal influence. The plan shall include a summary of monitoring information such as well depth, screened intervals, and aquifer zones monitored, and a summary of the type of well relied on for the information, including public, irrigation, domestic, industrial, and monitoring wells.

(f) Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin. The

monitoring protocols shall be designed to generate information that promotes efficient and effective groundwater management.

10727.4. ADDITIONAL PLAN ELEMENTS

In addition to the requirements of Section 10727.2, a groundwater sustainability plan shall include, where appropriate and in collaboration with the appropriate local agencies, all of the following:

- (l) Impacts on groundwater dependent ecosystems.