

December 16, 2015

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Submitted via email to: sgmps@water.ca.gov and Trevor.Joseph@water.ca.gov

RE: Comments to inform Draft Groundwater Sustainability Plan Regulations

Dear Mr. Joseph,

The Nature Conservancy (the Conservancy) appreciates the opportunity to offer the following recommendations in anticipation of the Department of Water Resources' (the Department) draft regulations on Groundwater Sustainability Plans (GSPs) pursuant to the Sustainable Groundwater Management Act (SGMA). This letter is intended to supplement recommendations we made previously in our letter dated October 20, 2015. We appreciate the extraordinary effort the Department has made to conduct an open and transparent process leading up to the draft regulations.

The Conservancy is a global, non-profit organization dedicated to conserving the lands and waters on which all life depends. We have over 100,000 California members and seek to achieve our mission through science-based planning and implementation of conservation strategies. For several years, our staff studied groundwater basins in different regions of the state and documented significant overdraft conditions in many areas. This research also demonstrated the adverse impact of groundwater overdraft on surface water streams and lakes and, in turn, our economy, environment, and communities. The Conservancy was part of a stakeholder group formed by the California Water Foundation in early 2014 to develop recommendations for groundwater reform and actively worked to shape and pass the landmark reforms contained in SGMA.

Our reason for engaging in this monumental legislation, and now on implementation, is simple. California's freshwater biodiversity is highly imperiled. We have lost more than 90 percent of our native wetland and river habitats, leading to precipitous declines in native plants and the populations of animals that call these places home. These natural resources are intricately connected to California's economy providing direct benefits through industries such as fisheries, timber and hunting, as well as indirect benefits such as clean water supplies. We must reverse these steep

declines to sustain California's future. The ongoing drought only makes this call to action more urgent.

SGMA provides a much-needed opportunity to manage groundwater as the critical resource that it is. In developing SGMA, California intentionally focused on *groundwater sustainability* – not just groundwater management. Our comments seek to build upon and clarify the numerous environmental protections provided by SGMA, starting with the “State Policy of Sustainable, Local Groundwater Management,” which states:

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. (Water Code Section 113, emphasis added)

Sustainability as a Clear Goal

The legislative intent of SGMA makes clear that sustainability is the goal. This is supported by:

- Water Code Section 10720.1 on Legislative Intent states: “In enacting this part, it is the intent of the Legislature to do all of the following:
 - (a) To provide for the sustainable management of groundwater basins.
 - (c) To establish minimum standards for sustainable groundwater management.
 - (d) To provide local groundwater agencies with the authority and technical and financial assistance necessary to sustainably manage groundwater.”
- Sustainability is explicitly defined in several places in Water Code Section 10721:
 - (t) “Sustainability goal” means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.
 - (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...
 - (2) Significant and unreasonable reduction of groundwater storage.

- (3) Significant and unreasonable seawater intrusion.
- (4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
- (5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.
- (6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

Undesirable Results Include Detrimental Impacts on Ecosystems

In addition, SGMA requires consideration of ecosystem impacts in at least two of the undesirable results. In Water Code Section 10721(w)(1), one undesirable result is defined as the “chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply.” Since a portion of that supply sustains Interconnected Surface Water (ISW) and Groundwater-Dependent Ecosystems (GDEs), significant and unreasonable depletions must consider the impact of groundwater levels on ISWs and GDEs. (See below for definitions.)

A second ecosystem impact is covered by Water Code Section 10721(w)(6), which defines another undesirable result as, “depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of surface water.” Water Code Section 1243 states that “the use of water for recreation and preservation and enhancement of fish and wildlife resources is a beneficial use of water.” Since preserving or enhancing these resources is a beneficial use, depletions to interconnected surface waters must avoid negatively impacting the plants and animals that depend on those water bodies, as well as the processes and functions required to sustain those species and ecosystems.

Both of the above are reinforced in Water Code Section 10727.4(i), which requires groundwater sustainability plans to include “impacts on groundwater dependent ecosystems.”

Baseline is Not January 1, 2015

Water Code Section 10733.2(b)(2) contains the only mention of “baseline” in SGMA, which significantly *does not mention a date* or particular definition. It reads:

The regulations adopted... shall identify appropriate methodologies and assumptions for baseline conditions concerning hydrology, water demand, regulatory restrictions that affect the availability of surface water, and unreliability of, or reductions in, surface water deliveries to the agency or water users in the basin, and those conditions on achieving sustainability. The baseline for measuring unreliability and reductions shall include historic average reliability and deliveries of surface water to the agency or water users in the basin.

Baseline is commonly defined as “a minimum or starting point used for comparisons.”¹ In the context of sustainable groundwater management, the baseline should incorporate two important factors. First, the overriding goal of SGMA is to achieve sustainable groundwater management. Second, the

¹ See Google search results for “baseline” at: <https://www.google.com/search?q=baseline&ie=utf-8&oe=utf-8>, visited on December 15, 2015.

current status of groundwater and related resources in 2015 is the result of the fourth consecutive year of drought, which is clearly not compatible with sustainability or an acceptable “minimum.”

RECOMMENDATIONS FOR DRAFT REGULATIONS

To address the above, the Conservancy recommends that the Department incorporate the following in developing the draft regulations for evaluating and implementing GSPs:

Definitions

The regulations should include the following definitions:

- Disconnected Surface Water: surface waters that feature a year-round, unsaturated zone of sediments between the lowest elevation of the surface water body and the top of the saturated groundwater zone and that infiltrate water through the unsaturated zone into groundwater.²
- Groundwater-Dependent Ecosystems: Ecosystems that require access to, replenishment or benefit from, or otherwise rely on subsurface stores of water to function or persist.³ Groundwater-Dependent Ecosystems are often supported by Interconnected Surface Water.
- Interconnected Surface Water: Surface waters, including streams, lakes, rivers, and wetlands that are not disconnected from groundwater. This includes losing streams and water bodies where surface water is being lost but is still connected to groundwater by a saturated zone. Interconnected Surface Water often supports Groundwater-Dependent Ecosystems.

10727.2 and 10727.4: Required Plan Elements

Regulations should require GSPs to include:

- A map of Interconnected Surface Water (ISW) and Groundwater-Dependent Ecosystems (GDEs) that captures the natural fluctuations in the presence and extent of these habitats across seasons and water year types.
- A list of ecosystems, such as springs, riparian zones, wetlands and vegetation alliances, as well as native species of plants and animals that rely on ISW and/or comprise GDEs, along with scientifically-based estimates of each species’ water need across the year.
 - These data should include citations to sources, an assessment of the degree of certainty around the data, and when necessary, a plan to improve the data in the future.
- A water budget that includes water needs of native plants and animals in terms of in-stream flows or surface water, water consumption and groundwater levels necessary to sustain them. Water budgets should be provided for different water-year types and show

² See: Kalus, E, Reinstorf, F, Schirmer, M, 2006. Measuring Methods for Groundwater-Surface Water Interactions. Hydrology and Earth System Sciences. Available at: <https://hal.archives-ouvertes.fr/hal-00305227/document> and Winter, T.C., Harvey J.W., Franke, O.L. and Alley, W.M, 1998. Ground Water and Surface Water: A Single Resources. U.S. Geological Survey Circular 1139. Available at: <http://pubs.usgs.gov/circ/circ1139/index.html>

³ Howard, J, Merrifield M, 2010. Mapping Groundwater Dependent Ecosystems in California. PLoS ONE 5(6): e11249. doi:10.1371/journal.pone.0011249

month-to-month variability in demand and supply to capture the natural dynamism found in California's climate and ecosystems.

- Measurable ecological objectives for maintaining and enhancing ISW and GDE health. *Measuring What Matters*⁴ provides a framework for objectives that includes creating thresholds (targets beyond which outcomes become unacceptable) and triggers (protective limits to avoid exceeding the threshold). These thresholds and triggers should include ecological triggers and targets tied to management actions that influence groundwater levels, connections between groundwater and surface water and, where appropriate, in-stream flows or surface water.
 - Objectives to maintain groundwater levels should include levels needed to sustain GDEs.
 - Objectives to maintain interconnected surface waters should include flows, groundwater-surface water interconnections and surface water availability necessary to sustain native species.
 - Objectives should, at a minimum, comply with the requirements of the U. S. Clean Water Act, the U.S. Endangered Species Act and the California Endangered Species Act.
 - Regulations should emphasize the need to set ecological thresholds and triggers conservatively because:
 - There is a high degree of uncertainty around the water needs for many plants and animals;
 - We have already lost more than 90 percent of our wetlands and river habitat in California; and
 - Exceeding a threshold could mean the permanent loss of a species of plant or animal. In many cases, this cannot be reversed and in some cases, this could mean the extinction of an entire species.
- Monitoring of the size, volume and temporal availability of interconnected surface water bodies.
- Monitoring of extent and health of GDEs

GSP Recommended Management Practices

In addition to GSP requirements, the Conservancy supports including the following as guidance for Groundwater Sustainability Agencies (GSAs):

- To better understand the dynamics and needs of GDEs, GSAs should develop historical maps of and data on GDEs. Examples of historical ecology studies (see for example work by San Francisco Estuary Institute (<http://www.sfei.org/cb#tab-1-1>)). Good data sources on GDEs include:

⁴ Christian-Smith, J, Abhold, K, 2015. *Measuring What Matters: Setting Measurable Objectives to Achieve Sustainable Groundwater Management in California*. Available from: www.ucsusa.org

- Howard J, Merrifield M (2010) Mapping Groundwater Dependent Ecosystems in California. PLoS ONE 5(6): e11249. doi: 10.1371/journal.pone.0011249
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0011249>
- Brown, J. et. al. (2007) Groundwater and Biodiversity Conservation. The Nature Conservancy Oregon. http://www.oregon.gov/dsl/docs/groundwater_meth_08.pdf
- Fox Canyon GSA has developed a good example of a GSP outline that includes the necessary ecosystem considerations. This outline can be found at: www.fcgma.org/public-documents/committee-meetings/tag-committee under “TAG 07-30-2015 Agenda Packet”. The outline includes:
 - Section 5.2.3.3 Future Water Budget Component Estimates, which includes surface water
 - Section 6.4 Overview of sustainability objectives, which includes improve aquatic and terrestrial ecosystems and mitigate impacts to surface water.
 - Appendices A-F as technical appendices for specific groundwater basins, will include for each basin:
 - Section 3.1 Water budget recharge components, which include surface water supply and localized recharge from streams, lakes, wetlands, reservoirs, etc.
 - Section 3.4 Water budget discharge components, including evapotranspiration for natural vegetation and riparian vegetation, as well as baseflow/discharge to streams
 - Section 9.4 Sustainability objectives, including improve aquatic and terrestrial ecosystems and mitigate impacts on surface water (including groundwater dependent ecosystems)

The Nature Conservancy’s California Water Program would be pleased to provide further information and work with the Department to help ensure that the emergency regulations provide clear guidance for protecting Groundwater-Dependent Ecosystems.

Thank you for the opportunity to comment.

Sincerely,



Sandi Matsumoto
Associate Director, California Water Program