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Re: ***Comments on Questions posed by DWR on Basin Boundaries***

Dear Mr. Springhorn,

Please accept these comments on the questions posed in DWR's Basin Boundary Regulations Discussion Paper. We appreciated last Friday's discussion with staff and have modified our comments to reflect our understanding of the process and the direction being taken by DWR. The overarching theme of our comments emphasizes the importance of science in the revision or establishment of basin boundaries. Throughout our comments, we highlight some of the impacts to disadvantaged communities, along with the need for robust stakeholder engagement and greater accountability. We welcome your thoughts on our comments and look forward to continued participation in the SGMA implementation process.

Question 3-1*: Prior to the regulations being finalized, the DWR is considering making a series of cleanup adjustments to exiting basin boundary lines based on updated, higher-resolution geographic information or technical information. Examples of these adjustments include:*
1) Minor revisions to basin boundary lines to be consistent with the original intent (and Bulletin 118 narrative documentation) of matching county and river boundaries; and
2) Minor and major revisions to more closely match the extent of alluvial areas based on higher resolution maps.

What are the advantages and disadvantages if DWR makes these cleanup adjustments prior to or after regulations are adopted?

The primary advantage to updating these basins sooner rather than later is to provide the most up-to-date information to GSAs that are in the process of forming and to expedite decisions around GSA formation. In particular, we want to ensure that stakeholders whose status as residents of a basin may change are able to get that information soon enough to fully participate in GSA formation and plan development.

SGMA already requires GSPs to look cross basin, requiring, "(1) A single plan covering the entire basin developed and implemented by one groundwater sustainability agency; (2) A single plan covering the entire basin developed and implemented by multiple groundwater sustainability agencies; (3) Subject to Section 10727.6, multiple plans implemented by multiple groundwater sustainability agencies and coordinated pursuant to a single coordination agreement that covers the entire basin." Establishing a consistent, science-based approach would be ideal.

A concern with this short-term update of basin boundaries is that it will not address the many problems we've seen, such as on the Scott River, where current basin boundaries fail to include significant problem areas. In addition, the recent CASGEM prioritization update did not include an initial effort at identifying basins with surface-groundwater interaction. DWR has the authority to adjust the boundaries of low and very low priority basins; however, we're concerned that the tight schedule under which DWR is operating will cause these basins to be omitted from early consideration. One thought might be to include low and very low priority basins covered by the current groundwater management plans in your review for potential boundary adjustments. While we're hopeful that the next Bulletin 118 update will address these issues, the delay in completing that update will result in disenfranchising some stakeholders.

As we've stated previously, watershed-based basin boundaries are preferable because they provide opportunities for broader stakeholder engagement, include recharge areas, surface connection, and potentially areas where pumping or other groundwater-dependent use is affecting the basin's water quantity or quality. DWR should review current groundwater management plans that use watershed boundaries, such as Sonoma County, and consider whether sufficient information exists to incorporate these boundaries into their interim boundary update.

Providing updated, high-resolution mapping in a publicly available format online and as GIS files is also critical to reducing redundancy during the development of GSAs and GSPs. Many of these needs were stated with the intent of the legislature during development of SGMA: "Information on the amount of groundwater extraction, natural and artificial recharge, and groundwater evaluations are critical for effective management of groundwater."

Question 4-1: *Has DWR accurately summarized and clearly characterized the boundary issue types?*
Question 4-2: *Are there additional basin boundary issues types that need to be considered?*

We find the listing of Basin Boundary issues in the document to be extremely comprehensive. One area that could use further elaboration is around the restriction of groundwater basins in bulletin 118-2003 to alluvial basins, as some parts of the state rely upon volcanic formations for their water supply. These formations cannot even be classified as a basin, let alone one subject to SGMA. That leaves these basins without appropriate protection. Many of them are in the mountain regions of the state that provide a significant portion of California's water reserves, so the impacts of over-exploitation can be far-reaching.

We are concerned that that basin boundary issues are in some cases being confused with GSA formation. SGMA clearly allows multiple GSAs to be formed within a basin, recognizing that political boundaries can facilitate development of governance structures and relationships. This allows basin boundary discussions to focus on issues of science. We think that division makes sense and should be retained as regulations are developed.

Question 5-1: *Does the proposed goal 1) meet the intent of the SGMA and 2) allow for the development of methodology and criteria for fair evaluation of proposed basin boundary revisions?*
Question 5-2*: What are the advantages and disadvantages of the characteristics?*
Question 5-3: *Are there additional characteristics that need to be considered?*
We appreciate your sharing your draft goal for the basin boundary regulations:

Proposed Basin Boundary Regulation Goal

> "**Groundwater resources are sustainably managed within existing groundwater basin** boundaries defined by Bulletin 118-2003 unless compelling reasons, which are supported by adequate technical information and broad agreement [at the local level] are provided for alternative boundaries that increase the likelihood of sustainable management of the proposed and adjacent basins."

We think is a comprehensive goal that allows the major issues to be considered. As we mentioned at last week's meeting, we think a more explicit definition of what constitutes "adequate technical information" and "broad agreement" is needed. Our suggestion:

"Adequate technical information" is sufficient information to identify where in the basin "significant and unreasonable" impacts occur, or may occur in the future, and where in the basin opportunities may exist to reverse or mitigate those impacts.

"Broad agreement" means that the GSA requesting the change has, at minimum, complied with the reporting and engagement requirements in SGMA, including Water Code 10723.2, 10723.4 and 10723.8.

Basin Boundary Regulation Characteristics

Size and Hydrogeologic Characteristics

> ***Basin adequately sized to maximize water management opportunities*** *– Would it be advantageous if a groundwater basin is revised to be the largest hydrologic and hydrogeologically-contiguous alluvial area encompassing the service areas of multiple local agencies, and defined to maximize opportunities to sustainably manage groundwater, integrate surface water management activities, and limit undesirable results?*

Management of basins at the "*largest hydrologic and hydrogeologically-contiguous"* area is the very basis and the need for sustainable groundwater management and SGMA, in general. We recommend delineating full basins or sub-basins with very clear hydrologic distinctions. As stated previously, these basins should include all recharge areas as well as areas where water withdrawals or other groundwater dependent activities affect groundwater or groundwater dependent surface water quality and quantity.

One example of where the absence of this approach has affected communities and ecosystems is in the Cuyama Basin. A recent study by US Geological Survey only evaluated hydrology in the eastern portion of the valley. Because the western portion of the valley was excluded, it did not take into account the impacts of over-pumping in the eastern valley on water availability in the western valley. We are concerned that this limited delineation of the basin unnecessarily limits the possible solutions, and in fact excludes the most effective solutions, thus exacerbating already dire conditions in many of the high priority groundwater basins. Inter- and Intra-basin planning should be viewed as a standard practice, if we are to achieve sustainable groundwater management.

This issue was exemplified in a recent California Water Foundation report, "Recommendations for Sustainable Groundwater Management: Developed through a Stakeholder Dialogue." The report was the culmination of discussions with a diverse stakeholder group including local water agencies, utilities, counties, growers, irrigation districts, NGOs, and scientists. These diverse stakeholders agreed that: "Groundwater should be managed as part of a broader integrated approach that includes surface water, conservation, water quality, reuse, environmental stewardship, and other water management strategies."

Our preferred criterion for designating or updating basins, include, but are not limited to:

- the location and use of recharge areas;
    - Many existing AB3030 Groundwater Management Plans (GMPs) lack maps of recharge areas. Groundwater recharge mapping was a requirement of AB 359 and in fact, many of these strategies are already written into the Water Code, but have not been enforced.[1] At minimum, DWR must require compliance with current groundwater law and reporting requirements as a pre-requisite for consideration of boundary changes.
- the interconnectedness of groundwater and surface water bodies within the basin and where that interconnectedness occurs;
    - Many existing GMPs do not provide information about the connections between surface and groundwater systems, both critical to long term sustainability and protection from overdraft and maintenance of streamflows.[2]
- where withdrawals occur and how they impact the basin;
- information about groundwater dependent ecosystems;
    - None of the existing GMPs identify groundwater-dependent ecosystems, however, DWR is required to do so in the next iteration of the CASGEM basin prioritization;
- the basin's water quality and the activities and hydrologic functions that affect it; or
- Upper watershed-lower watershed hydrologic connections.

Basin properly sized for development and management of basin budgets *– Should an existing groundwater basin be the largest hydrologic and hydrogeologically-defined contiguous area in which local agencies are capable of leveraging resources to characterize and sustainably manage the water budget and sustainable yield over the implementation and planning horizon?*

The SGMA legislation allows GSAs to be formed at the sub-basin level in order to do precisely these tasks. Local agencies should rely on the GSA process to properly size their management areas, not the boundary basin regulations. Since the law allows GSAs to self-identify governance and area issues, basin boundary requirements can appropriately be limited to scientific issues.

[1] California Water Code Section 10750(a) (1) requires as follows: Prepare and implement a groundwater management plan that includes basin management objectives for the groundwater basin that is subject to the plan. The plan shall include components relating to the: monitoring and management of groundwater levels within the groundwater basin, groundwater quality degradation, inelastic land surface subsidence, changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin, and a description of how recharge areas identified in the plan substantially contribute to the replenishment of the groundwater basin.

[2] http://www.californiawaterfoundation.org/uploads/1405009350-GMPReport2014%2800256304xA1C15%29.pdf

Fragmentation of a contiguous groundwater aquifer system *– Should fragmentation of existing groundwater basins in the same geographic area with multiple local agencies managing the same groundwater aquifer system and water budget be considered?*

No, please see our response to the questions above.

Governance and Jurisdictional Characteristics

Solely jurisdictional revisions *– To what extent should a groundwater basin or subbasin that is solely defined by a jurisdictional boundary such as, adjudication, county line, or other geopolitical boundary be considered?*

We refer again to the California Water Foundation report, "Recommendations for Sustainable Groundwater Management**:** Developed through a Stakeholder Dialogue." The multi-stakeholder group agreed: "Groundwater should be managed at the level of existing subbasins and not based on political boundaries. There is broad support for inter-basin coordination, particularly from subbasins whose neighbors are creating problems that cross boundaries." Political divisions are not warranted as a reason for basin plan amendments, since SGMA already allows for the establishment of multiple GSAs within a basin, provided appropriate coordination occurs.

We understand that some of the Bulletin 118-2003 boundaries were established using political boundaries, and while that may be advisable for basins covering millions of acres, such as Central Valley Basins. DWR should consider whether it has the ability to require coordination between GSAs in subbasins created in Bulletin 118-2003 for political reasons.

Basin properly sized for GSP governance *– Should existing groundwater basin or subbasin boundaries be revised to match the alluvial portion of an entire county, assuming the entire redefined basin or subbasin is completely managed? Would this revision:*

1) Leverage the existing groundwater authority of counties;
2) Maximize the new authorities provide to GSA's through SGMA; and
3) Result in sustainable groundwater management in the State?

We again would refer to the SGMA guidance allowing a basin to be subdivided into multiple GSAs for governance purposes. We understand that some basins covering millions of acres may be more easily governed at a smaller level, but think that the boundaries established in bulletin 118-2003 already accomplish this, in most cases.

Scientific evidence vs. jurisdictional convenience *– Should scientific evidence be given greater consideration than proposed revisions based on jurisdictional convenience?*

See previous response on basin boundary development. We would argue that scientific accuracy should be considered the highest priority. This is also stated in SGMA, "Sustainable groundwater management is best achieved locally through the development, implementation, and updating of plans and programs *based on the best available science*."

> ***Basin boundary revision that does not create unmanaged area(s) in original basin*** *– Should a groundwater basin or subbasin revision only be considered if there is sufficient evidence that the entire basin will be covered by a GSA(s) and will not result in unmanaged areas?*

We find that "evidence" of coverage is insufficient. As per SGMA, (10724):" *(a) In the event that there is an area within a basin that is not within the management area of a groundwater sustainability agency, the county within which that unmanaged area lies will be presumed to be the groundwater sustainability agency for that area*." That means that a GSA seeking to break up a basin could reasonably state that the entire basin is covered due to the county's responsibility. We recommend that each basin be required to show (physically, institutionally and financially) how an existing bulletin 118-2003 basin will be managed in a coordinated fashion (even if it is sub-divided), as a pre-requisite for consideration of boundary revisions. This can only happen if a basin has the capacity to develop such an agreement in an open forum.

> ***Fragmentation to exclude areas experiencing undesirable results*** *– Should a groundwater basin be revised for the purpose of excluding areas experiencing undesirable results rather than including other regional entities to sustain a long-term regional groundwater planning effort to ensure water supply reliability, water quality, and environmental stewardship be considered?*

No, see response on coordination below. Again, the intent of SGMA is to improve coordination and accountability. One example demonstrating the pitfalls of this excluding portions of a basin can be found by looking at historical groundwater management in the Tulare Lake Basin, as was recently done by DWR. This basin is served by 26 groundwater management plans, covering 69 percent of the Bulletin 118-2003 basin area. Groundwater provides more than half of all water in the basin. Yet, extensive pumping is contributing to declining groundwater levels by as much as 60 feet, and at the same time 329 wells feeding community water systems, or small water suppliers, are contaminated by one or more chemical above safe levels and hundreds more have gone dry. According to DWR, there is a need to further improve the characterization of many of the region's aquifers, especially those aquifers that serve disadvantaged communities. As shown above, omitting portions of a basin can prove to be detrimental to sustainable groundwater management practices and the provision of adequate access to clean water and data.

Coordination Characteristics

Boundary revisions developed through multi-stakeholder process *– Should a groundwater basin be large enough to support the formation of functional GSA(s) that are inclusive and utilize a collaborative, multi-stakeholder process to:*

1) Achieve broad local agreement;
2) Assist disadvantaged communities;
3) Monitor the basin and mitigate undesirable results;
4) Address groundwater management issues; and
5) Develop integrated, multi-benefit, regional solutions that result in a compliant GSP(s)?

Yes, this is required to comply with the stakeholder engagement requirements of the SGMA in developing boundary recommendations and the information to support them. Coordination with all relevant water and land management agencies within the current basin boundaries is also a requirement. In addition, there are both substantive and procedural requirements for stakeholder engagement through SGMA (see below).

Overarching substantive statutory requirements for stakeholder engagement in SGMA:

- "The groundwater sustainability agency shall consider the interests of all beneficial uses and users of groundwater" (CA Water Code Sec. 10723.2)
- "The groundwater sustainability agency shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin" (CA Water Code Sec. 10727.8 (a)).

Specific, procedural statutory requirements for stakeholder engagement in SGMA:

- "Before electing to be a groundwater sustainability agency… the local agency or agencies shall hold a public hearing" (CA Water Code Sec. 10723 (b))
- "A groundwater sustainability agency may adopt or amend a groundwater sustainability plan after a public hearing" (CA Water Code Sec. 10728.4)
- "Prior to imposing or increasing a fee, a groundwater sustainability agency shall hold at least one public meeting" (CA Water Code Sec. 10730(b)(1))
- "The groundwater sustainability agency shall establish and maintain a list of persons interested in receiving notices regarding plan preparation, meeting announcements, and availability of draft plans, maps, and other relevant documents" (CA Water Code Sec. 10723.4).
- "Any federally recognized Indian tribe… may voluntarily agree to participate in the preparation or administration of a groundwater sustainability plan or groundwater management plan … A participating tribe shall be eligible to participate fully in planning, financing, and management under this part" (CA Water Code Sec. 10720.3(c)).
- "A list of interested parties [shall be] developed [along with] an explanation of how their interests will be considered" (CA Water Code Sec. 10723.8.(a)(4))
- "The groundwater sustainability agency shall make available to the public and the department a written statement describing the manner in which interested parties may

participate in the development and implementation of the groundwater sustainability plan" (CA Water Code Sec. 10727.8(a))

Coordination agreements (Inter-basin) *– If an existing basin or subbasin is split, what requirements and content should be included in an inter-basin coordination agreement?*

We think coordination agreements on an inter-basin basis should mirror those required for multiple GSAs operating in the same basin. If coordination agreements are to be used as a surrogate for an official partnership, they should include the following assurances:

- Compliance with the stakeholder engagement requirements of the SGMA in developing boundary recommendations and the information to support them;
- Coordination with all relevant water and land management agencies within the current basin boundaries.
- In the case of the Scott River, an adjudicated basin, the boundaries are drawn narrowly and fail to include a significant part of the basin that is responsible for dewatering the River. Again, the agreement should include requirements to account for and maintain water needs across the basin, which should include availability of water for ecosystems and surface water flows.
- Also on the Scott River, downstream impacts may not be covered by a basin-wide management plan, so a process must identify and address those interests.
- An adequate accounting system that includes characteristics stated in our previous responses that will protect against the potential for double counting of water quantity and utilize a single, basin-wide surface-groundwater budget.
- A transparent and open data sharing agreement between all relevant parties in the basin. For instance, DWR documented the difficulty of obtaining data on groundwater recharge operations in the Tulare Lake basin.
- A MOU between basins requiring the sharing of all data inputs to water balance models (including the model platforms that will be used, the types of data, the units, and the data sharing portals)

***Coordination agreements as an alternative to boundary revisions (Intra-basin*)**: Should local agencies be encouraged to expand existing groundwater management coordination and governance structures, through an intra-basin agreement, within existing basins to include stakeholders that manage, direct, or are involved in processes that influence regional water management rather than revising existing boundaries?

Yes – see Scott River example above

Additional Characteristics

We've emphasized the need for science to guide the decision about basin boundary changes. However, the process to apply for boundary changes must be based on an

appropriate and inclusive governance model, as outlined in SGMA. Such a model must include stakeholders both within current boundaries and those outside the boundaries that may be impacted by propose changes. We also strongly feel that the lack of information and regulation about groundwater-surface water interaction will make it quite difficult to correctly amend boundaries in basins that still have the potential for such interaction and that appropriate delineation of this relationship is an essential pre-requisite to this process

Other Issues

We appreciate having the opportunity to comment directly on your proposed regulations and think that your proposed approach matches many of our issues and concerns. As you will have gathered from our comments, we have dual priorities of ensuring the scientific integrity of basin boundaries and of ensuring that stakeholders have the opportunity to engage in or comment on the development of basin boundary adjustments.

We also think that these regulations have the potential of significantly overlapping the regulations for groundwater sustainability plans; that's not necessarily bad, but care needs to be taken to ensure that duplicate requirements are not in conflict with one another.

Thank you for meeting with us on this important first step in the groundwater regulatory program, and for meeting with us to review your initial thoughts on this process.

Sincerely,

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