July 2, 2019

Michael McHatten, Chair
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Via email peterseng@svbgsa.org, camela@svbgsa.org

RE: Chapter 8: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Chair McHatten and Members of the Board of Directors:

In general, LandWatch Monterey County supports the *sustainable management criteria* in Chapter 8. In particular, we support a long-term future sustainable yield as the minimum threshold for *reduction in groundwater storage* and the *measurable objective* of moving the 500 Mg/L chloride isocontour to the line defined by Highway 1. We have the following concerns and recommendations:

1. **Seawater Intrusion**

We recommend that the *minimum threshold* be revised to reflect 2018 data when they are available. As noted in public hearing testimony, seawater intrusion has probably exceeded the 2017 lines identified by the Monterey County Water Resource Agency (MCWRA).

2. **Reduction in Groundwater Storage**

We support setting the minimum threshold for depletion based on a scientifically sound sustained yield. The 112,000-acre feet per year (AFY) sustained yield estimate must be revisited as soon as the USGS historical model is available to calibrate the operational model on which this yield is based. In addition, concerns regarding double counting of surface and groundwater raised by other commenters must be resolved because, if accurate, it may significantly reduce the sustained yield.

Uncertainty in the historical and current water budgets reflects the differing levels of certainty associated with each component of the water budgets. Although the water budgets may be sufficiently constrained to provide a basis for developing the Groundwater Sustainability Plan (GSP), an important element of the plan is the monitoring program (Chapter 7) that will provide

valuable data for improving the water budget during plan implementation. Therefore, the individual components of the historical and current water budgets as well as the overall water budgets should be viewed only as the best current estimates, subject to revision as more information becomes available.

3. Reduction in Groundwater Storage and Seawater Intrusion

The groundwater *minimum thresholds* should be set at the levels that have been determined to be sufficient to prevent seawater intrusion. These levels must clearly be higher than sea level. These levels should be determined based on the most current modeling or groundwater levels that are sufficient to prevent seawater intrusion. If currently modeling is not available, then the 2013 modeling prepared by Geoscience for MCWRA should be used.

Chapter 8 sets *minimum thresholds* and *measurable objectives* for chronic lowering of groundwater levels. Section 8.6.2 sets a minimum threshold for groundwater elevations at one foot above the 2015 groundwater levels. This proposed level is equal to the 1991-1992 groundwater level, which was the lowest historical level that occurred in the 1967-1998 climatic cycle. (See Chapter 8, Figure 8-2). Figures 8-2 and 8-3 show that ***the proposed minimum groundwater levels would be well below sea levels in the northern end of the Salinas Valley.*** This is consistent with the MCWRA groundwater contour maps for 2015, which show that 2015 elevations were in fact well below sea level in the northern Salinas Valley. (Maps available at https://www.co.monterey.ca.us/home/showdocument?id=31284 and https://www.co.monterey.ca.us/home/showdocument?id=31286.)

Section 8.6.3 sets a measurable objective for chronic lowering of groundwater levels that "represent groundwater elevations that are higher than the minimum thresholds" in order to "provide operational flexibility to ensure that the Subbasin can be managed sustainably." This level was set at the 2003 groundwater levels, representing "an *average* groundwater level from the relatively recent past." Figures 8-4 and 8-5 show that ***the proposed measurable objective for groundwater levels would be well below sea levels in the northern end of the Salinas Valley.*** Again, this is consistent with the MCWRA groundwater contour maps for 2003, which show that 2003 elevations were well below sea level in the northern Salinas Valley. (Maps available at https://www.co.monterey.ca.us/home/showdocument?id=19538 and https://www.co.monterey.ca.us/home/showdocument?id=19554.

The Chapter 8 discussion at pages 17-18 appears to justify the minimum thresholds and measurable objectives based on the percentage of wells that would still have 25 feet of water. **However, setting *minimum thresholds* and *measurable objectives* for groundwater levels at this level would permit continued seawater intrusion because that level is demonstrably insufficient to prevent seawater intrusion.**

Seawater intrusion occurred throughout the 1967-1998 climatic cycle and has continued to date. It is caused by groundwater levels that are too low to hold back seawater. In its 2013 study for MCWRA, *Protective Elevations to Control Seawater Intrusion in the Salinas Valley*, Geoscience reported the historic rate of seawater intrusion in various time intervals. (Report available at https://www.co.monterey.ca.us/home/showdocument?id=19642.) Intrusion *accelerated* over the period 1965 to 1999. (*Protective Elevations*, p. 5, Table 2.) It has recently accelerated again.

Geoscience explained that "historical pumping has lowered ground water levels in both the 180-Foot and 400-Foot aquifer systems such that there is a landward hydraulic gradient which has caused extensive sea water intrusion." (Id., p. 4.) The report explains that control of sea water intrusion requires achieving and maintaining "protective elevations," which are defined as "those groundwater elevations which will keep the fresh/salt water interface from migrating inland. ***In the northern portion of the Salinas Valley these elevations need to be above sea level*** and the flow of ground water toward the coast." (Id., p. 6, emphasis added.) The report explains that Geoscience quantified the protective elevations necessary to halt seawater intrusion using the SVIGSM model. Geoscience's report sets out these necessary protective elevations in Figures 9 and 10 for the 180-Foot and 400-Foot Aquifers. ***These protective elevations necessary to prevent seawater intrusion are from 10 to 30 feet above sea level in the northern Salinas Valley***.[1]

As Chapter 8 explains at page 18, "the GSP must describe the relationship between the selected minimum threshold and minimum thresholds for other sustainability indicators (e.g., describe how a water level minimum threshold would not trigger an undesirable result for land subsidence)." In short, the GSP must set minimum thresholds that ensure that *all* undesirable results are addressed.

Chapter 8 discusses the relation of seawater intrusion and the *minimum threshold* for groundwater levels at page 19 as follows:

> **Seawater intrusion**. A significant and unreasonable condition for seawater intrusion is seawater intrusion in excess of the extent delineated by MCWRA in 2017. Lower groundwater elevations, particularly in the 180-and 400-Foot Aquifers, could cause seawater to advance inland. The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion.

The discussion is not accurate. The proposed groundwater *minimum thresholds* and *measurable objectives* would cause seawater to advance, would exacerbate existing conditions, and would not help control seawater intrusion. The fact that the minimum thresholds are proposed to be higher than existing groundwater elevations or that the measurable objectives are based on average conditions is insufficient. **Because historic groundwater levels have**

[1] Geoscience determined that in order to achieve these protective elevations, additional recharge or “in lieu recharge,” i.e., coastal pumping reductions made possible by moving water from the south to the north, would be required:

> The amount, location and timing of groundwater recharge (direct and in lieu), needed to maintain protective elevations and a seaward hydraulic gradient was determined using the SVIGSM. Based on model results, and assuming 2030 land use conditions, 12,000 acre-ft/year will be required from the SVWP Phase I facilities and 48,000 acre-ft/year will be required from the SVWP Phase II facilities. Given the hydrologic variability in the Salinas Valley area, in order to supply a total of 60,000 acre-ft/year (on average), to the SVWP, it will be necessary to have the right to divert up to 135,00 acre-ft/year from the Salinas River.

caused seawater intrusion, the minimum thresholds and measurable objectives cannot simply be based on historic minimums or averages.[2]

4. **Groundwater Dependent Ecosystems**

We recommend that *minimum thresholds* be established for *groundwater dependent ecosystems* when the GSP is next updated. As the Nature Conservancy notes in its February 7, 2019 letter to the SVBGSA:

> 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. Given the inextricable connection between the Salinas River and the Salinas Valley's groundwater supply, SGMA must be successful for a sustainable future for the Salinas Valley in which people and nature thrive.

Thank you for the opportunity to comment on Chapter 8.

Sincerely,

Michael DeLapa
Executive Director

[2] Chapter 8 also discusses the relation of groundwater elevation minimum thresholds with changes in groundwater storage. That discussion concludes that because the proposed minimum thresholds are set above existing groundwater levels, they "will not result in long term significant or unreasonable change in groundwater storage." This is also not accurate. Chapter 6 of the GSP concludes at page 15 that there has been an average loss of storage of 2,100 afy during the historical period. This conclusion is consistent with the calculated 2,000 average loss of storage in the Pressure Subarea during the period from 1944 to 2013, reported in Table ES-3 of MCWRA's *State of the Salinas River Groundwater Basin*. (available at https://www.co.monterey.ca.us/home/showdocument?id=19586). If the *average* historic groundwater elevations are correlated with the continuous depletion of the aquifer, setting the minimum groundwater elevations at the *lowest* historic level cannot support maintenance of aquifer storage.