

Sustainable Management Criteria: Degraded Water Quality

What we will cover today:

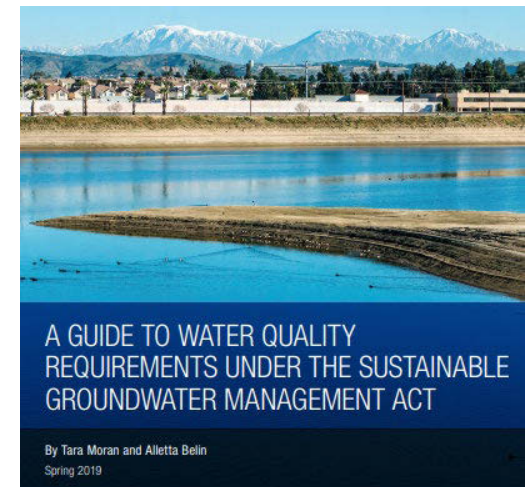
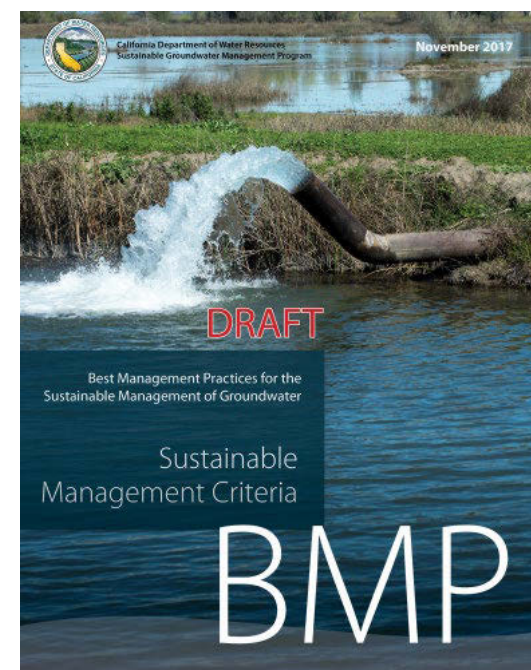
- Background Information
- Data Availability
- Considerations and Recommendations
- Questions and Discussion



Water Quality and SGMA Considerations



- Unlike most other sustainability indicators, degraded water quality is the subject of robust federal, state and local regulatory regimes carried out by a number of different entities.
- GSAs are not responsible for enforcing existing water quality standards or collecting data to support existing water quality programs.
- However, they are responsible for avoiding “significant and unreasonable” degradation of water quality in their basins.



Existing Groundwater Quality Regulatory Programs and Agencies

What's Regulated?	Who Regulates?
Public supply wells	State Water Resources Control Board Department of Drinking Water (DDW)
Small water systems	County Health Department
Underground fuel storage tanks	County Environmental Health and RWQCB
Point source pollution and groundwater clean-up	Regional Water Quality Control Board
Hazardous waste facilities	California Department of Toxic Substances Control
Superfund sites	U.S. Environmental Protection Agency

Background on Sonoma Valley Groundwater Quality

- Long history of groundwater testing through existing regulatory programs and special studies
- Groundwater quality is highly variable
- Local areas within Subbasin of poor groundwater quality:
 - Land-use related issues (e.g., active remediation sites from some commercial activities, septic systems, etc.)
 - Deep, ancient connate water, geothermal fluids etc.
 - Natural geologic conditions (e.g. arsenic, etc)
- Existing water quality monitoring programs, such as testing of public supply wells could help with GSP implementation

Steps for Development of Sustainable Management Criteria for Water Quality

Multiple step process to guide decision making:

1. Define level of groundwater quality management and coordination
2. Determine type of metric to use
3. Determine and identify beneficial users
4. Define Constituents of Concern (COC) for identified beneficial users
5. Determine the limits and concentrations for each COC and category of beneficial user
6. Identify existing water quality monitoring programs that can be used for setting SMCs
7. Establish SMC

*** Recommendations for Steps 1-6 included for consideration**

#1. Defining level of groundwater quality management & coordination

Recommendations:

- *GSA*s should **address groundwater quality issues related to changed groundwater conditions caused by management of the Subbasin pursuant to SGMA, such as from implementation of projects and management actions**
 - For example, changes in groundwater-levels that have the potential to induce migration of poor-quality water and impact water supply wells; and active recharge operations that may alter geochemical conditions or mobilize existing contaminants
- *GSA*s should **establish a process for routine consultations with other water quality regulatory agencies to discuss ongoing programs and initiatives relevant to the Subbasin, share monitoring data and information, and consider any applicable policy recommendations that would benefit groundwater quality within the Subbasin**

#2. Determine type of metric to use

Three options are available for the degradation of groundwater quality metric:

- 1. A volume of affected groundwater (adequate data not available to calculate)*
- 2. The location of an isocontour (adequate data not available to calculate)*
- 3. A number of affected supply wells. The term supply well is not defined in the SGMA legislation or regulations. Our recommendation is that the term supply well include public water supply wells and irrigation wells that are included in existing monitoring programs.*

#2. Determine type of metric to use (continued)

Recommendation: *The proposed metric to be used for setting minimum thresholds and measurable objectives in this Subbasin is **the number of affected supply wells** with concentrations measured at established representative monitoring points. This straightforward metric can be monitored over time. It requires establishing a groundwater quality monitoring network consisting of supply wells, which can be coordinated with existing programs.*

#3. Determine and identify beneficial users

Recommendation: *The general categories of beneficial users identified for groundwater quality include **drinking water users (municipal supply, small water systems, and domestic wells) and agricultural users (irrigation supply wells).***

#4. Determine constituents of concern for beneficial users

Constituents of concern should meet three proposed criteria:

- Have an established level of concern such as an MCL or SMCL, or a level that reduces crop production*
- Found in the Subbasin at levels above the level of concern*
- Extensive occurrence of the COC throughout the Subbasin*

Recommendation: *It is recommended that **arsenic, boron, nitrate, and salts be categorized as Constituents of Concern (COCs)** for the purposes of establishing SMCs in the GSP. Should new or additional water quality constituents be identified as potential COCs applicable to the GSP implementation activities through routine consultation and information sharing with other regulatory agencies, the GSA will consider adding these to the COC and monitoring list through GSP updates.*

#4. Determine constituents of concern for beneficial users

Other considerations:

Additionally, as specific projects and actions are developed and recommended for implementation through the GSP, any site- or area-specific water quality constituents will be evaluated and considered for project-specific monitoring in consultation with applicable regulatory agencies.

Question: *Are there other constituents that should be considered related to beneficial users?*

#5. Determine the limits, concentrations for each COC and beneficial users

Each COC should have an associated level of concern for each category of beneficial user.

Recommendation: *It is recommended that we use the Maximum Contaminant Levels (MCL) (or Secondary Maximum Contaminant Level (SMCL), as applicable) as the levels of concern for drinking water constituents.*

For boron, which is of particular concern for irrigation water for sensitive crops, the concentration threshold should be set at 700 ug/l as above this value it can be toxic to sensitive plants such as grapes (Farrar et al, 2006).

#6. Identify existing water quality monitoring programs for setting SMCs

Recommendation: *Identify sets of supply wells that are currently monitored for various groundwater constituents and supply uses such as drinking water and irrigation water.*

Existing Monitoring Network	Responsible Party	Type of Wells	Constituents Sampled	Sampling Frequency	Purpose of Network
Salt and Nutrient Management Plan	Sonoma Valley Sanitation District	Irrigation, domestic, public supply, monitoring	EC, TDS, Nitrate	Annually, in October.	Abide by SNMP requirements
DDW Public Supply Wells	Cities and small water systems	Public Supply	Subset of Title 22 constituents	Monthly?	Protect drinking water beneficial users

#7. Establish SMC

Draft Significant & Unreasonable Statement: *Significant and unreasonable water quality conditions occur if Sonoma Valley GSP projects or management activities cause an increase in the concentration of constituents of concern in groundwater that lead to adverse impacts on beneficial users or uses of groundwater. Adverse impacts include diminished supply due to water quality impacts, such as non-compliance with drinking water standards or undue costs for mitigating negative impacts such as wellhead treatment or well replacement.*

Next steps on minimum thresholds and measurable objectives: *Staff will bring strawman to Advisory Committee at next meeting.*

Degraded Water Quality SMC – Recap & Feedback



Multiple step process to guide decision making:

1. Define level of groundwater quality management and coordination
 - *Propose “do no harm” approach – thoughts?*
2. Determine type of metric to use
 - *Propose “number of affected supply wells” - do you agree?*
3. Determine and identify beneficial users
 - *Are drinking water users and agricultural users appropriate?*
4. Define Constituents of Concern (COC) for identified beneficial users
 - *Proposed As, B, N, salts; Are there other constituents that should be considered related to beneficial users?*

Degraded Water Quality SMC – Recap & Feedback (cont.)



Multiple step process to guide decision making:

5. Determine the limits and concentrations for each COC and category of beneficial user

- *For drinking water, recommend using MCLs and SMCLs and crop toxicity thresholds for irrigation?*

6. Identify existing water quality monitoring programs that can be used for setting SMCs

- *Any input on existing monitoring programs to evaluate for groundwater quality?*

7. Establish SMC

- *Review Significant & Unreasonable Statement – any suggested revisions?*

Questions and Discussion

