Sustainable Management Criteria – Overview

Sustainable Management Criteria (SMCs) establish targets that support sustainable groundwater management. SMCs specifically include the following items:

- **Management Objectives** (MOs) indicate the desired target for maintaining a specific groundwater condition. These management objectives should be attained, or getting close to attainment, by 2042. MOs are established for each Representative Monitoring Point (e.g., each specific well) for the planning and implementation period.
- **Minimum Thresholds** (MTs) set a level which, when exceeded, would result in Undesirable Results. While Minimum Thresholds might be exceeded for a short time during the GSP implementation phase – they should not be exceeded after 2042.

  Minimum Thresholds are often established to reflect historical conditions at, or near, their worst. MTs are established for each Representative Monitoring Point (e.g., each specific well) for the planning and implementation period.
- **Undesirable Results** describe the outcomes deemed to be "significant and unreasonable." Undesirable results are identified by the GSAs and basin stakeholders.

California Water Code 1071 (x) states the following:

> (x) 'Undesirable result' means one or more of the following effects caused by groundwater conditions 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 groundwater 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.
>
> (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.

NOTE: Overdraft due to drought conditions **alone** is not considered chronic lowering of groundwater levels, as noted by the section of highlighted text.

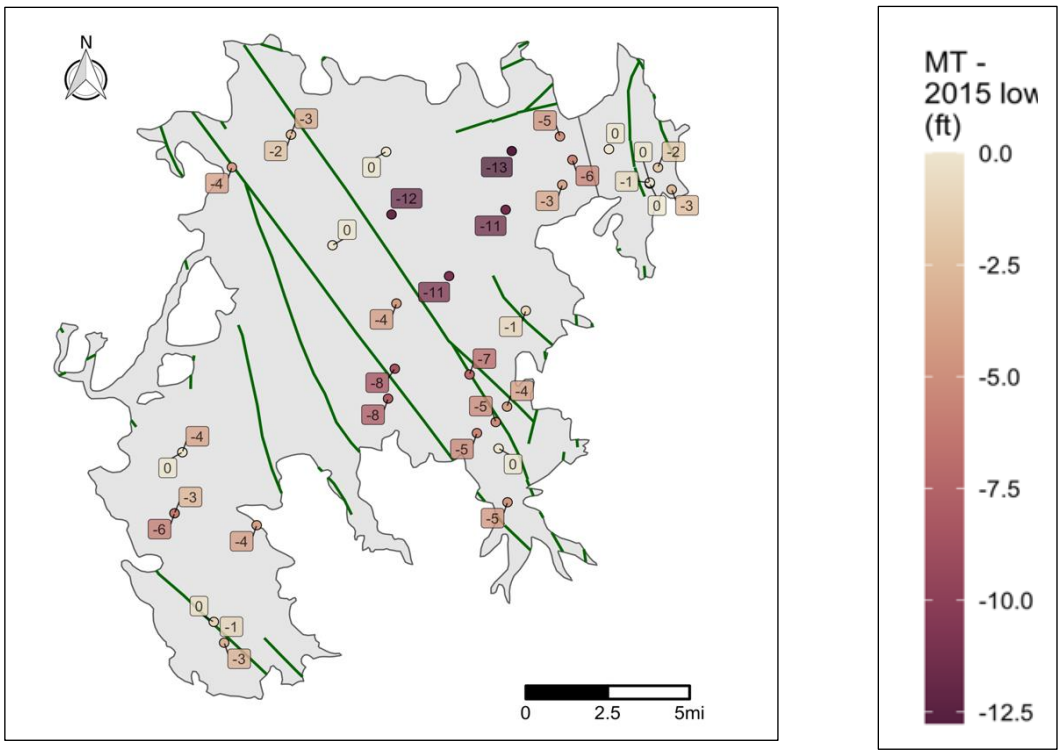
Sustainable Management Criteria – Groundwater Levels

Proposal for Management Objective (to be achieved during the implementation timeframe)

- Reach the average groundwater elevations observed after January 1, 2015 (similar to present-day conditions)

Proposal for Minimum Thresholds (during the planning and implementation timeframe)

- Near Interconnected Surface Water and Groundwater Dependent Ecosystems, the Minimum Threshold would equal historic lows for groundwater levels
- In all other areas, a 10-year linear decline is plotted for each Representative Monitoring Point (e.g., each well) with an additional buffer equal to 10% of the historic range in groundwater levels for that well. (See graphs on following page.)
- The Minimum Thresholds, across the monitoring network, comprise groundwater levels ranging from those associated with historic lows to those with an additional 12.5 feet of lowering of groundwater levels (compared to historic low groundwater levels)



Proposal for Undesirable Results

Undesirable Results occur if 25% of fall low groundwater level observations (i.e., the minimum groundwater level in any given water year) in any of the RMPs fall below their respective MTs for two consecutive years (e.g., any 25% of the wells fall below MTs for two consecutive years).

Examples of: Measurable Objectives (MOs); Minimum Thresholds (MTs); and [optional] Interim Milestones (IMs) – for Groundwater Levels

Example groundwater level MTs, IMs, and MOs for 6 RMPs

Proposal for Groundwater Levels Monitoring Network

- 36 wells
- Measured at least twice a year
- Supplemented with additional monitoring wells, as needed to fill data gaps

Sustainable Management Criteria – Groundwater Storage

Proposal for Measurable Objectives – same as for Groundwater Levels

Proposal for Minimum Thresholds – same as for Groundwater Levels

Proposal for Undesirable Results – same as for Groundwater Levels

NOTE: Sustainable Yield will be established consistent with the SMCs

Sustainable Management Criteria – Integrated Surface Water and Groundwater Dependent Ecosystems

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Proposal for Measurable Objectives – same as for Groundwater Levels

Proposal for Minimum Thresholds

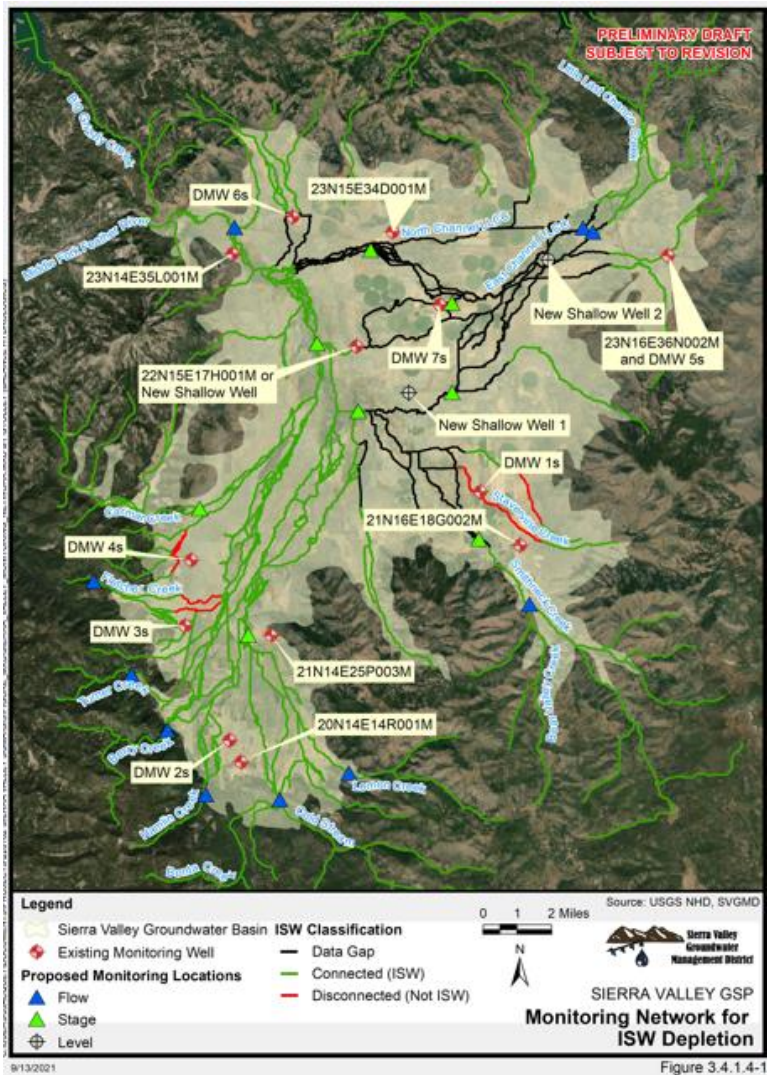
- Minimum Thresholds for Representative Monitoring Points (e.g., individual wells) located near Interconnected Surface Water and Groundwater Dependent Ecosystems would be set equal to historic low groundwater levels at those wells.

Proposal for Undesirable Results

Undesirable Results occur if ISW gradients are worsened and ISW is depleted further.

Proposal for ISW – GDE Monitoring Network

- 13 wells
- Up to 9 stream gages, as budget allows



Sustainable Management Criteria – Groundwater Quality

General Approach

Groundwater quality conditions are evaluated in terms of concentrations for various Constituents of Concern. In Sierra Valley, that includes: nitrate, total dissolved solids (TDS), arsenic, boron, pH, iron, manganese and MTBE. Sustainable Management Criteria will be established for two constituents of concern – nitrate and TDS – based on the following considerations:

- Arsenic, boron, pH, iron and manganese are affected by natural processes and local geological conditions that are not controllable by the GSAs through groundwater management processes.
- MTBE is associated with contaminated sites undergoing cleanup and no exceedances of regulatory levels have been identified in the past five years
- Arsenic, boron and pH concentrations will be monitored and any exceedances of Maximum Contamination Levels will be recorded

Proposal for Management Objective (to be achieved during the implementation timeframe)

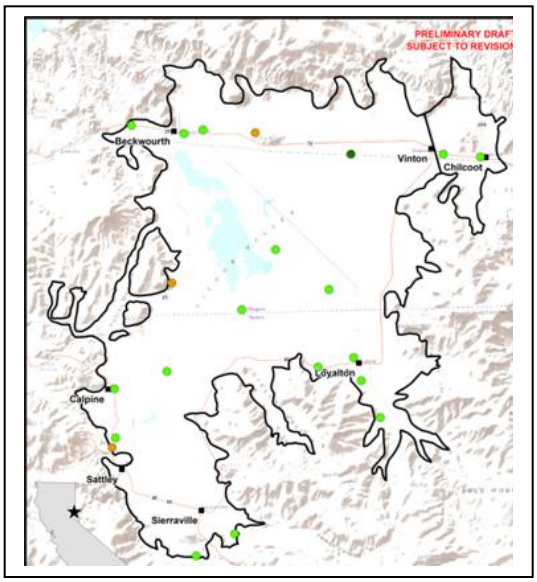
- The MOs for wells within the water quality monitoring network where TDS or nitrate concentrations have historically been below the MTs for water quality, are equal to the highest measured concentrations during the period 1990 to July 2020. (e.g., water quality would not deteriorate beyond conditions since 1990)
- For wells where the concentrations have historically exceeded or equaled 90% of the MT, the MO is 90% of the MT. (e.g., improving water quality – to 90% of MT)

Proposal for Maximum Thresholds
(during the planning and implementation timeline)

- The MT for nitrate (as nitrogen) is set at the regulatory threshold (Primary Maximum Contaminant Level) of 10 mg/L
- The MT for TDS is set at the Secondary Maximum Contaminant Level of 500 mg/L

Proposal for Water Quality Monitoring Network

- 17 GAMA wells
- Annual monitoring



Sustainable Management Criteria – Subsidence

Proposal for Management Objective (to be achieved during the implementation timeframe)

- Same as for Groundwater Levels

Proposal for Minimum Thresholds (during the planning and implementation timeframe)

- Same as for Groundwater Levels

Proposal for Undesirable Results

Specific examples of undesirable results include substantial interference with land use, and significant damage to critical infrastructure, such as building foundations, roadways, other infrastructure elements, canals, pipes, and water conveyance infrastructure.

Proposal for Subsidence Monitoring Network

- For the first five years, the GSP will use groundwater elevation proxy for land subsidence.
- Within the first five years of plan implementation, effort will be made to better correlate the groundwater level proxy using ground-based elevation surveys, and satellite-based InSAR data.