DEGRADATION OF GROUNDWATER QUALITY

WHAT IT MEANS FOR YOUR COMMUNITY

Groundwater quality in the Ukiah Valley Basin is used as an indicator to understand groundwater conditions. Issues with groundwater quality may affect the supply (the quantity of usable groundwater) or beneficial uses (e.g., municipal, agricultural…) of groundwater. Water quality includes the physical, biological, chemical, and radiological quality of water. Water quality can be impacted by natural conditions (for instance thermal waters or hot springs), or anthropogenic conditions (such as landfills and land use). All groundwater naturally contains some microbial matter and chemicals. Inorganic chemicals commonly found in groundwater include calcium, magnesium, sodium, potassium, chloride, bicarbonate and sulfate. When one or multiple constituents become a concern for either ecosystem health, human consumption, industrial or commercial uses, or for agricultural uses, the constituent of concern becomes a "pollutant" or "contaminant".

Concentrations of constituents measured in groundwater throughout the Ukiah Valley Basin are compared to regulatory standards (table provided below). Concentrations that regularly exceed regulatory standards are examined more closely during the planning process. If the concentration is deemed problematic or potentially problematic, monitoring of the chemical will be conducted to maintain an updated understanding of the constituent's condition.

CURRENT CONDITIONS IN UKIAH VALLEY

Groundwater in the Basin is generally of good quality and meets local needs for municipal, domestic, and agricultural uses. Therefore, the objective is to maintain existing groundwater quality in the Basin within the historical range of values.

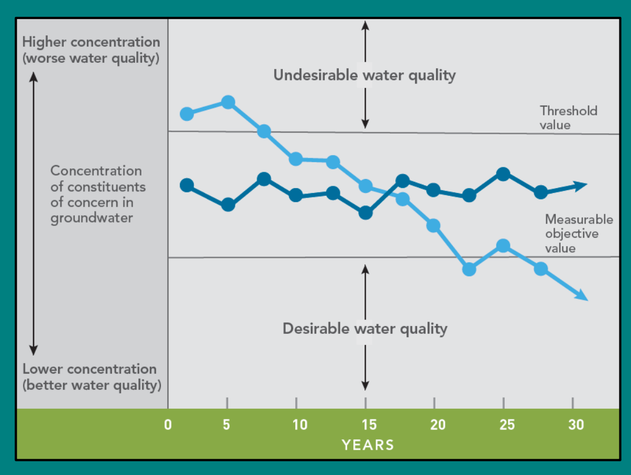
The following constituents have been mentioned in previous reports and/or during meetings with stakeholders and therefore were examined: boron, iron, manganese, nitrate, and specific conductivity. Boron, iron, and manganese are known to be naturally occurring in the basin at higher concentrations than their water quality objectives. Nitrate and specific conductivity have been identified as important for tracking sustainability in the future and as prevalent contaminants in California's groundwater.

For each constituent, the analysis involved two steps: 1) mapping the location of wells with measured concentrations above regulatory standards; and, 2) graphing measured concentration over time and comparing to regulatory standards. This provides an understanding of the spatial extent of groundwater quality, as well as how groundwater quality has changed over time. Examples of specific conductivity and nitrate are provided to the right for step 1 of the analysis process.

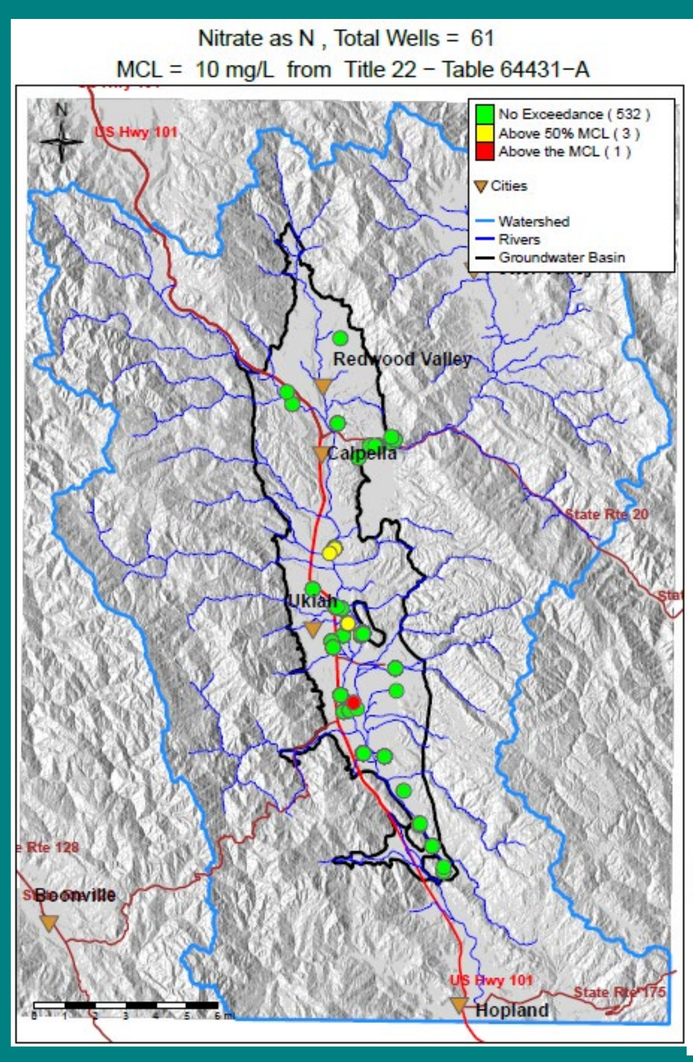
REGULATORY STANDARDS

Constituent (units)	Regulatory Standard
Nitrate as N (mg/L)	10
Specific Conductivity (micromhos)	900
Iron (mg/L)	1
Boron (µg/L)	300
Manganese (µg/L)	50

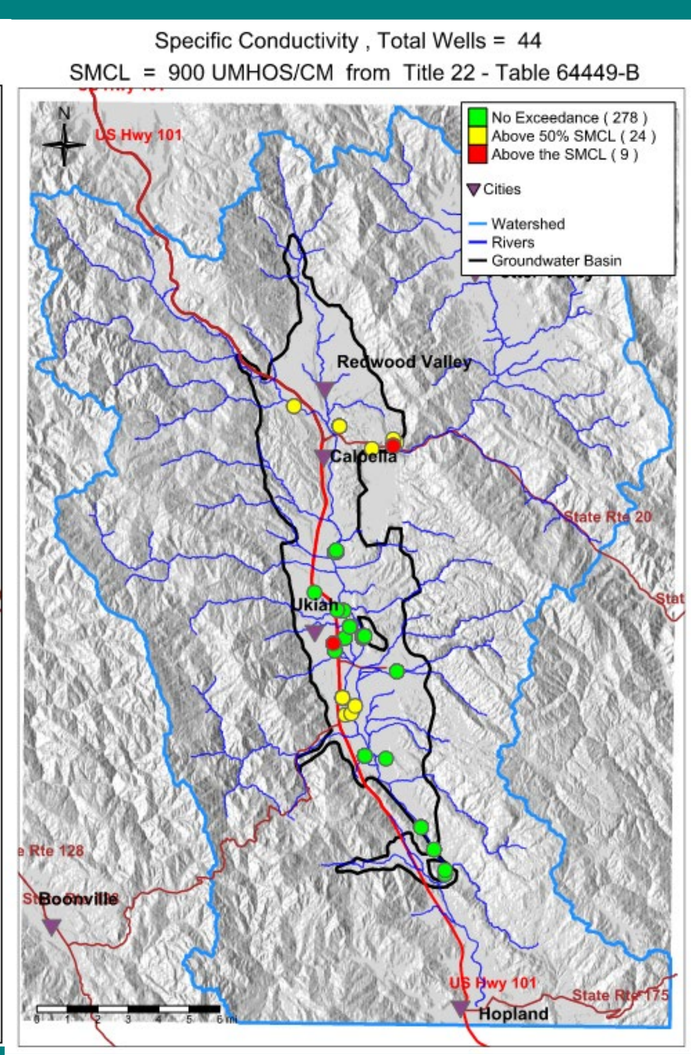
HYPOTHETICAL TRENDS



NITRATE



SPECIFIC CONDUCTIVITY



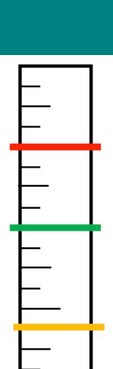
PROPOSED SUSTAINABLE MANAGEMENT CRITERIA

Significant and unreasonable degradation of groundwater quality is the degradation of water quality that would impair beneficial uses of groundwater or result in failure to comply with groundwater regulations.

Maximum Thresholds (MTs) define the concentration at which undesirable results occur. Maximum thresholds are defined for two constituents in the Subbasin: Nitrate and Specific Conductivity. Additionally, concentrations far below the MT are defined to proactively avoid the occurrence of undesirable results; these are known as triggers.

Measurable Objectives (MOs) for groundwater quality define desired water quality at levels that protect beneficial uses and users. The "rulers" to the right show MTs and Mos for nitrate and specific conductivity.

NITRATE

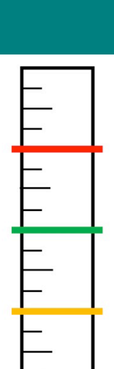


Maximum Threshold (MT) 10 mg/L as N

Measurable Objective (MO) 7.5 mg/L as N

Trigger 5 mg/L as N

SPECIFIC CONDUCTIVITY



Maximum Threshold (MT) 900 µmhos/cm

Measurable Objective (MO) 675 µmhos/cm

Trigger 500 µmhos/cm

What concerns you most about groundwater quality in the Subbasin?

Do you have a well you would allow to be monitored for water quality?