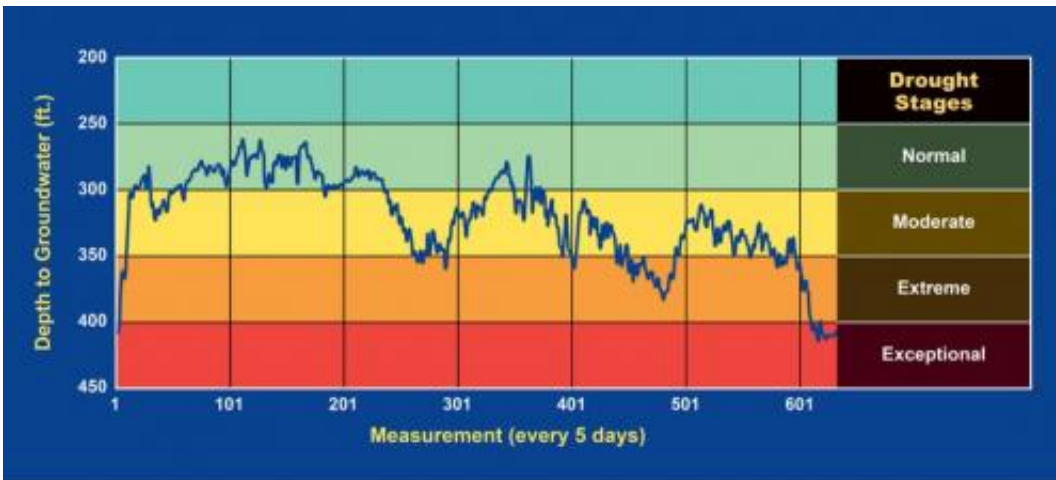


# Groundwater conservation through development of a drought plan

September 6 2012

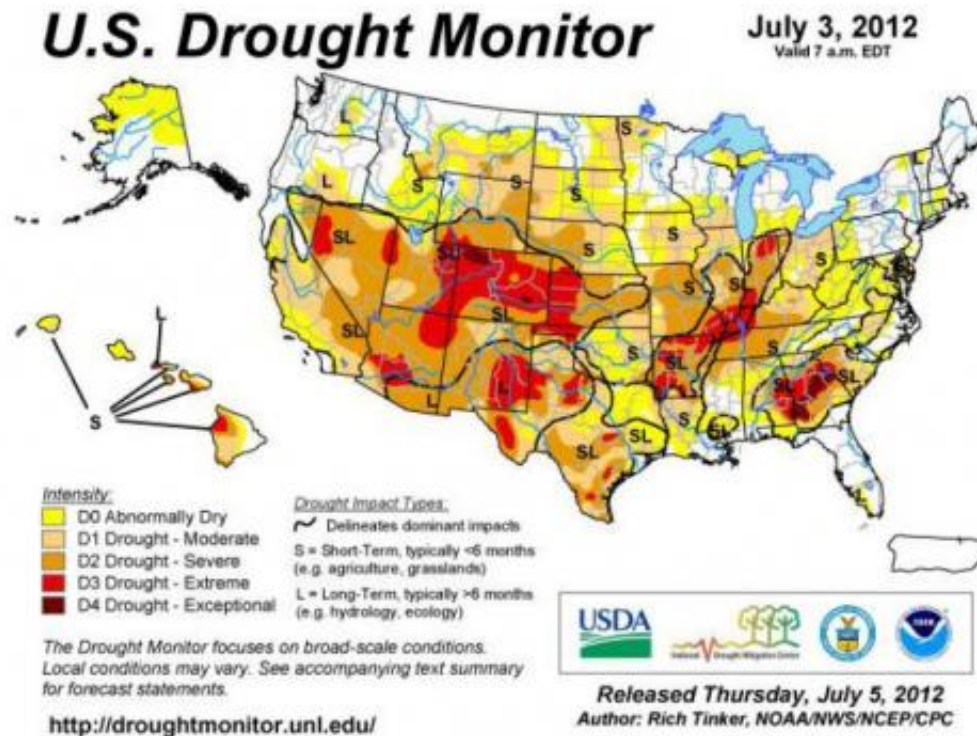


SwRI scientists work closely with staff of groundwater conservation districts to identify appropriate drought trigger levels.

(Phys.org)—The goal of a drought plan is to sustain water availability by reducing water use in response to drought or emergency conditions. Because emergency conditions can develop rapidly, responses must be enacted quickly. Consequently, drought plans need to be prepared in advance, considering conditions that will initiate and terminate the conservation measures.

Drought severity maps are insufficient indicators of local drought conditions. Common indicators such as the Palmer Drought Severity Index map can be informative of regional climatic trends, but are

insufficient as indicators of local [drought conditions](#). Environmental and hydrogeological indicators such as groundwater elevation, river-[flow rate](#), spring discharge, and reservoir stage can provide more explicit and quantifiable drought triggers.



Drought severity maps are not good indicators of local drought conditions.

Designation of a quantifiable conservation (drought) trigger, such as groundwater elevation in a drought index well, provides communities with a transparent, easily understood measure of drought severity.

The [Geosciences](#) and Engineering Division of Southwest Research Institute (SwRI) has extensive experience in providing groundwater

conservation districts with assistance to:

- Evaluate local hydrogeological conditions affected by drought
- Determine an appropriate drought indicator (e.g., monitoring well)
- Determine drought stages and pumping restrictions
- Determine appropriate conservation (drought) trigger levels
- Prepare drought plan documentation

| Time Period | Trigger Levels (ft, msl) |     |      |      |
|-------------|--------------------------|-----|------|------|
|             | 845                      | 850 | 855  | 860  |
| 1940-2010   | 8.8                      | 9.6 | 10.6 | 13.6 |
| 1960-2010   | 0.0                      | 0.2 | 0.7  | 3.3  |

Percentages of time when candidate conservation (drought) trigger levels are reached can be calculated with or without record period of drought.

Development of a well-documented drought plan can provide groundwater conservation districts with a defensible plan and mechanism to manage their groundwater and surface-water resources during times of limited precipitation and recharge.

Provided by Southwest Research Institute

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