

**AQUALLIANCE**  
DEFENDING NORTHERN CALIFORNIA WATERS



**Butte County's Ground Water**  
*What do we know and how are we trying to protect it?*

**November 14, 2013**  
**Chico City Hall Chambers, Chico, CA**

**AGENDA**

- 1. Welcome (6:00PM – 6:10PM)**  
Tami Ritter, Chico City Council  
Barbara Vlamis, Executive Director, AquAlliance  
Maureen Kirk, Butte County Board of Supervisors
- 2. Agricultural Perspective on Groundwater – (6:10PM - 6:30PM)**  
Ed McLaughlin, Durham Farmer and Former Butte County Board of Supervisor
- 3. Overview of Regional Hydrology – (6:30PM -7:00PM)**  
Dr. Christina Buck, Water Resource Scientist, Butte County Department of Water and Resource Conservation
- 4. Managing Butte County Groundwater – (7:00PM - 7:15PM)**  
Paul Gosselin, Director, Butte County Department of Water and Resource Conservation
- 5. Current Groundwater Conditions – (7:15PM –7:45PM)**  
Dr. Christina Buck
- 6. Emerging Threats – (7:45PM - 8:30PM)**
  - **Internal Threats – Paul Gosselin and Christina Buck**
    - Drought /Climate Change
    - Land Use Changes
  - **External Threats – Barbara Vlamis, Jim Brobeck and Paul Gosselin**
    - Bay Delta Conservation Plan
    - Water Transfers
    - Bay Delta Water Quality Plan
- 7. Wrap up, Questions and Closing – (8:30PM -9:00PM)**

11/17/13

# Scratching the surface: Will north state keep groundwater flowing?

By **HEATHER HACKING**  
Staff Writer

**CHICO** — Groundwater is pumped into homes and onto fields, and people in Northern California want to ensure the water keeps flowing.

The Chico City Council Chambers were packed Thursday night during a forum on the topic hosted by the city of Chico, Butte County and the water advocacy group AquAlliance.

When farmer and former county supervisor Ed

■ See **WATER, 7A**

Enterprise-Record

## WATER

From 1A

McLaughlin was a younger man, people drilled wells and didn't think much about the well going dry. But in the early 1990s, after several years of drought, that started happening, particularly in the Durham/Dayton area, McLaughlin said.

Many people linked the change to irrigation districts, which had sold water to other areas of the state.

Since then, the county has passed rules that groundwater can't be sold outside the county without approval from county supervisors. Also, landowners can't sell surface water and then grow crops with groundwater.

The Butte Basin Water Users Association was also formed, and started raising money to learn more about how groundwater works.

Groundwater settles into the cracks of porous material like sand and gravel. If the water is removed for too long, the soil can compact — which is called subsidence. Once the damage is done, the land sinks and water can no longer be stored as it had been in the past.

The San Joaquin Valley is grappling with this issue in many areas, McLaughlin noted.

As a boy, raised on a dairy farm in Durham, "when we dug fence holes for posts there was water in the bottom of the hole," he said.

"Last weekend I finished irrigating acreage," and it took days for the pressure in his well pump to recover.

### COUNTY ACCOUNTS FOR WATER

County water resource scientist Christina Buck spent a lot of time Thursday night reviewing groundwater charts and discussing changes over time.

A third of the water used in the area is groundwater, she explained, and there has been a slight decline in some areas. Yet, the charts show that after several years of heavy rain, the aquifer has historically recovered.

In the past dozen years, there have been several dry years, and only one "wet" year. What's needed is several wet years to see if the aquifers rebound, she said. Currently, dozens of wells on the monitoring grid are at "historic lows," Buck explained.

Tracking groundwater is an ongoing process, explained Paul Gosselin, director of the county Department of Water and Resource Conservation. Several times during his presentation, he stressed the goal is to have information to avoid a groundwater crisis.

Many plans and studies have been compiled over the past 10 years, he explained.

Currently, the county keeps track of groundwater levels through a series of monitoring wells. Staff also tracks subsidence, which so far has not been a problem, Gosselin said.

People think groundwater is held in one big bathtub under the soil, Buck noted. However, some areas have volcanic rock or clay, where water is not retained and moves along underground. Some aquifers fill up slowly, and some quickly.

From the surface, it takes a lot of research to find out how the pieces all

fit together — and a lot more research is needed, she explained.

Currently, the county is working on a project to track trends in water use, including what crops are planted.

For example, rice is grown with surface water (mostly from irrigation districts), whereas orchards use groundwater. If crop patterns significantly shift, so could the groundwater use.

The point is not to be caught by surprise. Gosselin said a recent upswing in wine grape planting in the San Luis Obispo and Paso Robles areas caused groundwater to drop 70 feet, resulting in crisis management.

### MORE CURVES AHEAD

McLaughlin recalled that in 1971, the same City Council Chambers in Chico were packed with 100 people over an offer to bring surface water from Shasta Dam to the Vina area for groundwater recharge.

McLaughlin said the crowd overwhelmingly rejected that idea, and now Vina is one area experiencing a drop in groundwater levels.

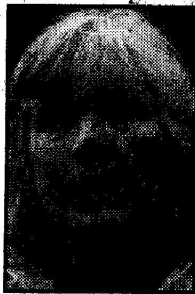
While he thinks the twin tunnels to move water south under the Sacramento/San Joaquin Delta "is a disaster," he believes the state should look at more off-stream surface water storage.

But others, such as AquAlliance, which also had speakers at the forum, believe water use efficiency is more cost-effective in solving water shortage problems, said the group's director, Barbara Vlamis.

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## AquAlliance warns not to follow in dry footsteps of San Joaquin Valley

By **HEATHER HACKING**  
Staff Writer



**Vlamis**

CHICO — As California struggles to provide water to a growing state, increased pressure is being made on the rich water supply of Northern California, said Barbara Vlamis, director of AquAlliance, during a groundwater forum Thursday night.

In 2009, state legislators passed several water bills, and now several large-scale plans are being written for statewide water management.

"I believe most of them don't want to harm our area. But the pressures are great. The demands are great from outside our region," Vlamis said.

One goal is to build twin tunnels that would bring water under the Sacramento/San Joaquin Delta.

"The costs are astronomical, and what it could do to the Sacramento River watershed is horrendous," she said.

"The majority of water that leaves our region goes to industrial agriculture on the west side of the San Joaquin Valley. It's not lawns and swimming pools."

AquAlliance works to "defend Northern California waters and to challenge threats to the hydrologic health of the northern Sacramento River watershed," the group's website states (AquAlliance.net).

Jim Brobeck, of AquAlliance, told those at the forum that before the 1880s, groundwater in the San Joaquin Valley was shallow, and at times bubbled up from the ground on its own.

Droughts occurred and people began pumping deeper wells, he said. As technology improved, so did the number of wells.

Land subsidence is now a major problem in the San Joaquin Valley, Brobeck said. This occurs when soil compacts in the absence of water, and water no longer is stored in soils such as sand and gravel.

In addition to not being available for pumping, lack of shallow groundwater ~~harm~~ plants and wildlife, he said.

"Valley oak groves need access to perennial groundwater," ideally at about 33 feet below the surface and a maximum of 70 feet, Brobeck said.

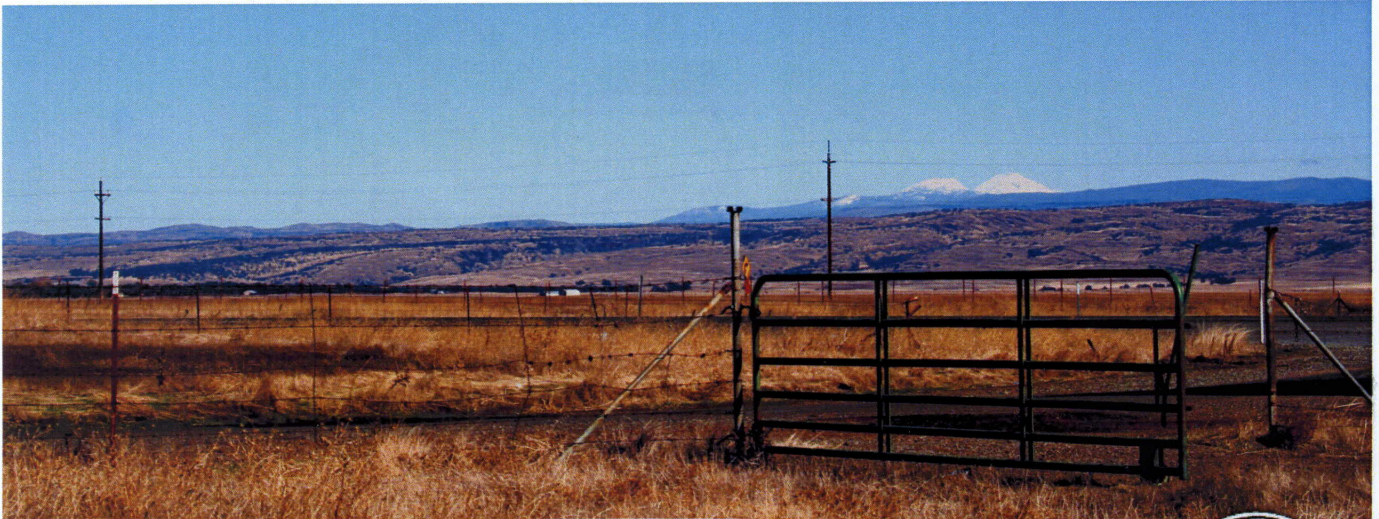
He said he talked with a tree expert in Visalia recently who said oak trees in that area now need to be irrigated, as the water levels are 100 feet below the surface.

"This is what could happen in our area," Brobeck said.

Tulare Lake, in the extreme south of the San Joaquin Valley, was once a hotspot for wildlife, Brobeck said. In just 100 years, the lake has gone from the largest freshwater lake west of the Mississippi to an agricultural area now facing water shortages, he said.

"We have the opportunity up here to preserve rather than attempting to restore something after we lose it."

A recent news article in the Merced Sun-Star talks about groundwater overdraft, <http://goo.gl/o67oen>, and a forum on groundwater overdraft will be held next week in Tulare, (<http://goo.gl/RmdCsV>).



## Basin Management Objectives

Butte County Department of Water & Resource Conservation



### Chapter 33A

A Butte County ordinance is in place to help protect the County's valuable groundwater resource. Implemented as Chapter 33A of the Butte County Code, the BMO Program provides for systematic monitoring, reporting, and evaluation of groundwater conditions.

The first BMOs were adopted in June of 2006. The program underwent review and Chapter 33A was amended in 2011.

**The BMO program provides data, analysis, and outreach to those who manage land and rely on groundwater.**

### **Why establish Basin Management Objectives (BMOs)?**

The beneficial use and maintenance of groundwater and protection of recharge zones is of critical importance to the economy and environment of the County. BMOs provide critical data and information to ensure the continued sustainability of groundwater quantity and quality within the County.

### **What are the main components of the BMO program?**

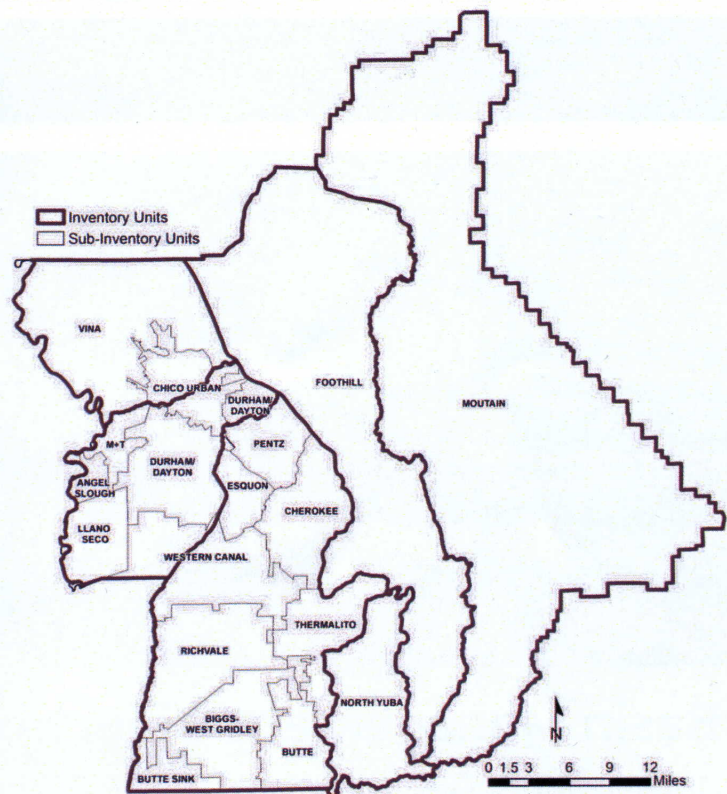
A strong monitoring program, sound evaluation of data and information sharing through the Water Advisory Committee (WAC) and the Technical Advisory Committee (TAC), education/outreach to stakeholders, and clear reporting of data.

**What monitoring is involved?** Groundwater levels are measured in about 100 wells throughout the County four times per year, typically March, July, August, and October. The network continues to grow. Water quality (pH, temperature, and Electrical Conductivity) is measured from 12 wells annually in July or August. Extensometers operated by the Department of Water Resources provide data on subsidence.

**How are BMOs established?** Chapter 33A defines clear procedures to establish BMO Alert Stages for groundwater

## Sub-Inventory Units (SIU)

The ordinance defines 16 sub-inventory units of the Sacramento Valley Groundwater Basin in Butte County. These sub-inventory units are identified in the Butte County Inventory and Analysis Report (March 2001), and represent regions within the County that have similar sources of irrigation water, applied water usage, and cropping patterns, in addition to the larger urban areas. BMOs have been developed in each of the defined SIUs. The Foothill and Mountain regions participate in the Water Advisory Committee (WAC) process but do not develop BMOs.



levels, water quality, and subsidence for each SIU. For groundwater levels, one of two methods can be used. Alert Stages for spring and fall groundwater levels are calculated by staff in consultation with SIU representatives.

**What's the WAC?** The Water Advisory Committee plays an important role as a forum for stakeholders to receive data and share information. The WAC includes SIU representatives as well as at-large members from municipalities, watershed groups, the Foothill and Mountain inventory units, and the Environmental and Agricultural sectors. SIU representatives are appointed by the Board of Supervisors (Board). The WAC meets twice each year.

**What's the TAC?** The Technical Advisory Committee is a 7 member committee, also appointed by the Board. The TAC's role is to evaluate BMO monitoring data and information provided by SIU representatives and provide feedback and recommendations. The TAC meets twice with the WAC, and a third time to technically evaluate the annual groundwater status report prepared by staff.

**What's the role of a SIU Representative?** To act as a liaison between stakeholders, the Department, and the TAC. They provide input on their BMOs, monitoring wells, and local conditions to assist in the evaluation of their BMOs. They also facilitate outreach to stakeholders in their SIU.

**What happens if Alert Stages are exceeded?** Exceeding an Alert Stage indicates that measurements are historically unusual for the particular location. Outreach to stakeholders and an investigation that includes data collection and possibly additional monitoring will occur. The TAC evaluates possible causes (for example, hydrological conditions or changes in water use) and may provide recommendations to the WAC, the Board, and the public. The BMO program is advisory and is intended to provide information to those who manage land and rely on groundwater.

**Have BMOs been established in other areas of the Sacramento Valley?** Yes. Glenn and Tehama Counties have adopted a BMO ordinance.

More Information Available Online at the Butte County Department of Water and Resource Conservation's website under 'BMO' or Call the Department at 530-538-4343