

Scientist: Water account overdrawn

Extraction limits needed to protect precious resource for future sustainability in Florida

By Chris Van Ormer

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Few people are strangers to dealing with a limited budget.

Last week, a water scientist warned the Citrus County Board of County Commissioners (BOCC) that ground water should be treated like a bank account, too.

"This is a pressing problem in north Central Florida, which is a depletion of groundwater flow resulting in loss of spring flows," said Dr. Todd Kincaid, a hydrogeologist who studies groundwater flow in springs and caves.

Minimum flows and levels are being established for many springs in Florida, Kincaid said, and needed to be based on correct modeling. Experts have established that the Floridan aquifer is karst containing caves and springs, but newer concepts have emerged.

In earlier modeling, Kincaid said, "Either caves did not exist in the Floridan Aquifer or that they were so insignificant as to not warrant any special interest. The bottom line is that we have lost many springs in Florida and are continuing to lose springs right now."

Kincaid said better modeling is needed to understand the aquifer system. He gave an example of flow reversals in North Florida from Lost Creek, which flowed to both Spring Creek, as expected, and to Wakulla Springs, which was unexpected.

"Spring flow reversals are periods when the springs are siphoning water into the aquifer rather than discharging," Kincaid said. "When this happens to springs along the coast, it propels saltwater deep into the Floridan aquifer."

Three reasons for the losses are:

- 1 Less recharge or less rainfall;
- 2 Too much extraction; and
- 3 Rising sea level, although Kincaid said rising sea level wouldn't cause a loss of flow; it would just change the location of that flow.

"As long as we maintain spring flows, those flows represent sustainable access to groundwater in the Floridan aquifer," Kincaid said. "The fact that we are losing flows means that we are depleting the aquifer. We are mining groundwater out of the aquifer. If we are mining the aquifer, we are going to run out of water."

He recommended several actions:

- 1 Make it rain more, which would not be possible;
- 2 Reduce pumping;
- 3 Recognize groundwater as a finite resource with current operations near its capacity; and
- 4 Embrace and engage the politics and economics of scarcity.

"The best way to preserve the Floridan aquifer as a fresh water supply is to set and enforce extraction limits," Kincaid said. "The Floridan aquifer cannot supply everyone with all of their

water needs or dreams, but it can provide for a sustainable society and economy if managed properly.”

Kincaid concluded that pumping was at least part of the reason for losing springs. Reasonable water budgets need to be established and models need to be designed using key components of karst aquifers. Monitoring programs need to be sustained and expanded. Limits need to be set on groundwater pumping.

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