

Politicians Scratching Their Heads Over Mid-County's Water Puzzle

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It appears it will be the politicians, not the scientists, who decide whether the underground water supply that lies beneath central Santa Cruz County is being over-pumped.

Analysis

Hydrologists, the scientists of water supply, are in disagreement.

The question will be decided in upcoming decisions by the Soquel Creek County Water District board and the county Board of Supervisors, and the direction they take will have a major influence on the future of this county and probably on the future makeup of the two elected boards.

The decision weighs the immediate fate of over \$100 million in development. Along with it is the legal question of individual water rights against the threat that increased pumping will lessen aquifer pressure and let the underground sea flow inland and destroy coastal wells.

It also will determine which areas of the county will have to absorb new

housing development, because if the central section is closed down it will shift growth into the rural areas of San Lorenzo Valley, north coast and south county. Live Oak has some protection, as its general plan guarantees that it will only have to absorb its "fair share" of growth.

The water question is not new and two major decisions have been made in the past two decades based on information provided the water district by the U.S. Geological Survey, a respected scientific arm of the federal government.

USGS information came in two reports on the hydrology of the Purisima Formation, the underground water pool that provides water for the Soquel Creek district.

Back in 1968, J. J. Hickey and Jay P. Akers, hydrologists for the USGS, submitted a survey report to the district which stated the Purisima Formation has 800,000 acre feet of water that should be maintained and that it has 10,000 acre feet of flow-through water.

The report stated that the 800,000 acre acre foot pool and the 10,000 flowing acre feet need only four in-

ches or new water soaking through the ground each rainy season to keep up their levels.

The central county area gets from 25 to 32 inches of a rain a year, but it is a tricky business to determine how much of it gets down to recharge the aquifer.

Hickey's report stated, "Only the perennial supply of water discharging past the coastline (10,000 AF if rains maintain the level) can be safely developed for public supply."

It has been taken to mean that 10,000 acre feet of water can be pumped out of the underground water supply each year as a "safe yield" harvest.

Today's official estimate of the water taken is 5,400 acre feet. Others are saying that as much as 7,000 acre feet are being taken, without damage to the aquifer.

The second USGS report was taken from a survey that was conducted specifically to come up with a safe yield figure. It was released last year, and contained the message from USGS hydrologist Ken Muir that the
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district and private users were already overdrafting the aquifer by 1,000 acre feet a year and that salt water intrusion had made a dangerous inroad to fresh water supplies onshore.

Muir said the 1,000 acre foot overdraft — which in turn means the district and other users can only take 4,400 acre feet — had created a "scallop" of sea water intrusion down to 100 feet lying inland to one-half mile in the Capitola area.

Wells can still be drilled down past the 0-100 foot seepage of seawater, but that it is a dangerous sign that the massive aquifer is being harmed.

Based on Muir's report, the district slapped a moratorium on new water connections, exempting only proposed new homes that were applied for in 1979. The district then asked the county to ban new well drilling, as the county is the permit authority for wells.

County supervisors complied and within the district have banned new well drilling. The board is considering banning new wells throughout the entire area that lies above the Purisima Formation, an area that includes the land from the sea to the Zayante Fault line in the mountains and from the Santa Cruz City water lines to an area beyond Aptos.

It was during hearings on the expanded well drilling ban last week that USGS chief hydrologist Akers stunned the board by saying Mr. Muir's approach is not that definitive and the confidence level "leaves something to be desired."

Akers said he believed the "safe yield is somewhere in between the Hickey and Muir data."

Supervisors noted the testimony cast a lot of doubt on the credibility of the heretofore respected USGS.

Akers testimony included the caveat that USGS does not make recommendations, but only analyses and will not enter into public comment or debate on political decisions.

USGS Chief of Water Resources Bill Boning told The Sentinel Friday that his scientists are reviewing the Muir report and then will "state our position as to how accurate we feel those figures are and if there is some potential for further (water) withdrawal from the basin."

Boning said his staff will meet with Soquel Creek staff and county representatives on March 9 (in a meeting closed to the public) to announce their findings.

"We'll probably come out of the March 9 meeting with some decision," he said.

Muir was contacted and said he will not join in the meeting as he has now been transferred to the USGS division that checks into the hydrology of mines.

But he did say, "I stand behind the (his) report."

He said from the data he had that he ran two systems of methodology and came up with the 4,400 acre foot figure.

He said the systems involved looking at the total inflow and outflow as reflected by well levels — the fluctuation and discharge — over a period of years.

His data came under attack by water biologist Laurence Frommhagen at the supervisors meeting and the biologist's

testimony was given credence by Akers who said "he has a point."

Frommhagen said the data used by Muir (well levels and salt content) was incorrectly collected. He said that other hydrologists will be called in to refute the findings.

Well drillers have also testified that the data was collected from old wells that had deteriorated and showed no more than the historical collection of salts.

Muir says that in his broad testing of the aquifer he is convinced the overdraft amounts to 1,000 acre feet and that it has been going on since 1970.

He said he believes the scallop of seawater seepage is caused by that overdraft and that his testing of from 30 to 40 smaller wells shows the salt content is increasing in the area of the scallop.

Muir said that a further analysis on well levels and fluctuation over similar rainfall-pumping periods was plotted and showed that the safe yield figure should be only 4,100 acre feet.

He concluded, "If they continue to overdraft and the water level remains down, they're going to get seawater intrusion and if you do get it, it's extremely difficult to reclaim the aquifer — then you're really in trouble, and then what do you do."

Frommhagen and Akers' testimony casts a lot of doubt on Muir's analyses, and information that could be obtained from Soquel Creek water office seems to indicate that the level of their 15 wells is not recovering each year to their prior year level. The difference is small, but it appears it is there.

Also the Opal well on Garnett Street, the closest one to the sea, has shown a one-third increase in salt content over the past two decades.

Earlier in the 1960's, the well was showing a salt content in the low 60s milligrams per liter and that has increased to the mid 80s.

Hydrologists don't begin to worry about deterioration of the supply until the level is at 125 to 150 and the federal standards for pollution are in the range of 225 to 250.

It appears that whatever happens on the scientific front — and hydrology as the hydrologists say "is not an exact science" — the decision will be political.

Aptos-Capitola Supervisor Robley Levy is in the middle of the issue.

She voted for the well ban in the water district and last week expressed her concern over the USGS's waffling on its report.

She said Friday, "At this point Soquel Creek has paid a lot of money for substantial information on which to base its action and now they're told the information is not that valuable."

"I think there absolutely has to be a clarification of what the position of USGS is."

She's aware that the decision of whether and how long there should be a moratorium will be a political decision and indicated her reasoning.

"You can err on the side of conservatism (a ban) and be safe, but if you err on the side of there being hypothetical water, then you can in fact be creating a very bad situation down the line."