Bob Knight: Too polluted to drink

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Once again, we are warned. Bob Knight has explained one of the major problems with our drinking water, that many people do not even know exists. Nitrate poses a serious health problem to people of Florida that our state does not address.

Our water and health authorities know very well the situation, and also the causes and solution, but allow it to continue.

The reason: the fix will cost money.

Meanwhile, the people will pay the price.

Read the original article here in the Gainesville Sun.

Comments by OSFR historian Jim Tatum.
-A river is like a life: once taken, it cannot be brought back-

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Bob Knight: Too polluted to drink

By Bob Knight / Special to The Sun
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For too many families, North Florida's once pristine groundwater may be unsafe to drink. One nasty pollutant is nitrate, a principal ingredient in synthetic agricultural and urban fertilizers, and in animal manure and human waste.

In the past 100 years of rapid development, the ambient concentration of nitrate throughout the Floridan Aquifer has risen from a baseline concentration of less than 0.05 parts per million (ppm) to 1 ppm, a 20-fold increase.

As with most environmental variables, this average concentration is greatly exceeded in some local portions of the aquifer. For example, in areas of intensive animal confinement such as dairies and horse farms, in urban areas with high septic tank densities and under highly-fertilized landscapes such as golf courses, nitrate concentrations can exceed 10 ppm, the Federal Safe Drinking Water Act maximum contaminant level goal.

Drinking water nitrate concentrations above 10 ppm can cause methemoglobinemia, or "blue baby syndrome," a potentially lethal interference with the normal ability of a baby's blood to

transport oxygen to the body’s cells. At lower concentrations, there is growing evidence of a strong relationship between nitrate in drinking water and various cancers and birth defects.

A 2018 comprehensive review of the subject, led by Dr. Mary Ward of the National Cancer Institute and an international team of epidemiologists, concluded that ”… many studies observed increased risk with ingestion of water nitrate levels that were below regulatory limits.” The most common health effects noted by the researchers were colorectal cancer, thyroid disease and birth defects. Additionally, drinking water with nitrate concentrations in the range of 2.46 to 5 ppm were found to be associated with increased risk of bladder and ovarian cancers in women.

A review of nitrate in 1,139 public water supplies in Marion County found that 54 percent had nitrate concentrations above 1 ppm, and 11 were above the 10 ppm drinking water limit. Based on this count and Marion County’s total population, it can be estimated that more than 3,300 residents are drinking water with unsafe levels of nitrate. A similar analysis of private, self-supply wells in Alachua County indicates that more than 1,000 people may be drinking unsafe groundwater.

As part of an ongoing study, the Florida Springs Institute sampled public water supplies in 28 incorporated communities in Alachua, Gilchrist, Columbia, Suwannee and Marion counties. Nitrate concentrations in these municipal water supplies ranged from less than 0.05 to 2.87 ppm. None were above the 10 ppm threshold, but the highest was measured at a concentration associated with increased cancer risk.

The institute also sampled a variety of bottled spring waters sold in these counties. All had nitrate concentrations greater than 0.5 ppm and one was over 2 ppm, or 40 times higher than

background.

In a few local areas, the Floridan Aquifer is polluted with nitrate concentrations many times higher than the 10 ppm drinking water standard. For example, the Florida Department of Environmental Protection has been sampling nitrate in wells just west of the Gilchrist/Alachua county line. The nitrate concentration in one well, immediately downgradient from a former dairy, has increased from 30 ppm to more than 90 ppm over the past five years.

Even more troubling is the Springs Institute's finding that one of the many springs feeding the lower Santa Fe River in Gilchrist County has an average nitrate concentration of about 53 ppm. Troop Spring is immediately downgradient from the Alliance Branford Dairy (previously American Dairy) operation that disposes manure wastewaters from 2,300 lactating cows on about 520 acres of cropland.

Nitrate loads entering the Santa Fe River from spring discharges are currently more than 1,100 tons per year and continuing to rise. This is the inevitable result of intensive fertilizer and animal waste disposal on highly vulnerable karst landscapes.

For those individuals living on or in proximity to intensive agricultural or urban development, it is prudent to have your water supply tested for nitrate as nitrogen. If your water has unhealthy pollutant levels, you should contact your local health department and find an alternate water supply. The problem is that some of you may also have trouble finding low-nitrate water from your municipal supplier and favorite bottled spring water.

Bob Knight is director of the Howard T. Odum Florida Springs Institute and received his doctorate degree in systems ecology at the University of Florida and his master of science in public health degree from the University of North Carolina at Chapel

Hill. The institute's most recent sampling of nitrate in regional groundwater can be viewed at https://floridaspringsinstitute.org/analyzing-nitrates-in-north-floridas-drinking-water/.