

# HOW MUCH WATER ARE WE SITTING ON ANYWAY?

GOT A WELL, NEED A WELL OR CONCERNED ABOUT WATER QUALITY?



*INVITES YOU TO THE FOLLOWING FREE AND OPEN TO THE PUBLIC PRESENTATIONS:*

## THE DEEP AQUIFER & SUBSURFACE GEOLOGY OF THE FLATHEAD VALLEY

Two presentations by MBMG scientists John Wheaton & James Rose

**WED, APRIL 6:**

Flathead Valley Community College, Arts and Technology Building, Theater, 6:30-8:30pm

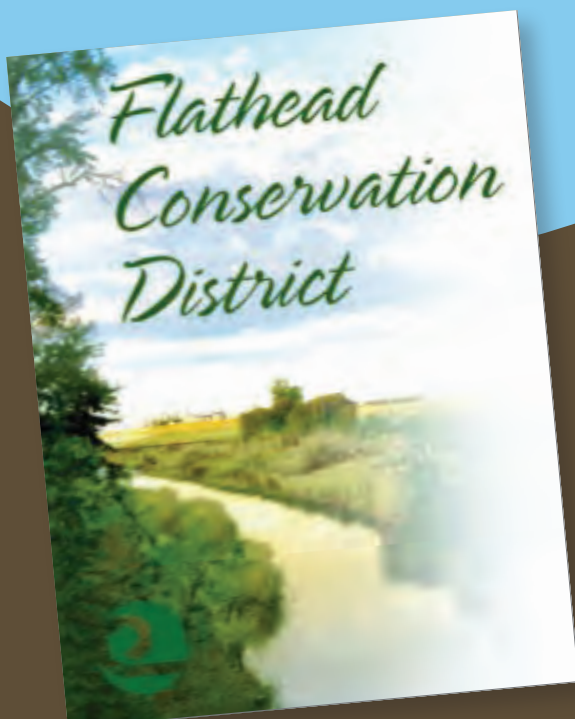
*Covering details about the deep aquifer, research results and implications for our water supply*

**TUES, APRIL 5:**

*An informal introduction to the Wed. presentation:*

Science on Tap - 6pm at Flathead Lake Brewery in Bigfork

[www.scienceontapflathead.org](http://www.scienceontapflathead.org)



For more information, call the Flathead Conservation District at (406) 752-4220

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# The Geology and Hydrogeology of the Flathead Valley Deep Aquifer

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<http://www.mbm.mtech.edu/gwip/gwip.asp>

## Purpose

The deep confined aquifer supplies high-capacity municipal and irrigation wells in addition to thousands of domestic wells throughout the Kalispell Valley. Continued groundwater demand has raised concerns about the long-term sustainability of the deep aquifer and whether pumping from it will impact surface water resources.

The Deep Aquifer is generally considered to be separated from surface water and other aquifers by a overlying confining unit that consists of fine-grained lake sediments and glacial till. The effectiveness of this confining unit is the primary research question of this project. The purposes of this investigation were twofold: 1) determine if current stresses were creating declining water-level trends; and 2) determine whether withdrawals from the deep aquifer affect surface-water resources.



## Geology

Understanding the deep aquifer and how it interacts with other water resources starts with a detailed understanding of the geology and geologic history of the area. Formation of the Rocky Mountains also created intermontane valleys that were filled or partially filled by sediments. A series of glacial advances and retreats scoured the Kalispell Valley and then filled it with glacial outwash and till. Flathead

Lake formed behind the Polson terminal moraine as the glacier melted. The sand and gravel outwash units are the deep aquifer and the till is part of the confining unit. A major result of this project is a detailed, digital, 3-dimensional geologic model of the subsurface of the Kalispell Valley which provides the best tool to date to interpretation the hydrogeologic setting.

## Hydrogeology

Long-term groundwater level declines in the deep aquifer have been documented in very few locations and are not occurring aquifer-wide. Groundwater in the deep aquifer flows south in the direction of Flathead Lake, although actual discharge to the lake has not been identified or confirmed. Water levels in both the lake and deep aquifer follow only minimally similar trends and changes in discharge from the lake have not been successfully correlated with deep aquifer pumping.