Butler County Stream Team

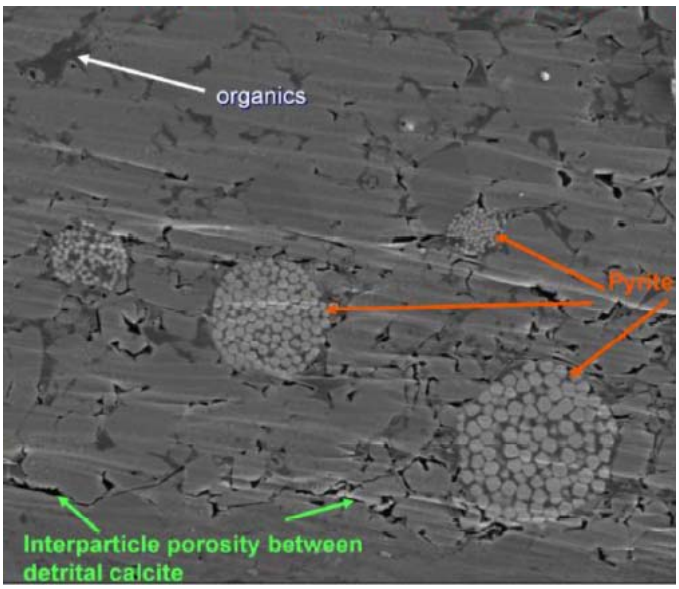
November News - 2011

Volunteer Stream Monitoring in Southwest Ohio

Next Sampling Day - November 12th

Fracking and Ohio water

If you have been listening to the news lately, you must certainly have heard about hydraulic fracturing or "fracking". Fracking is a method of mining for natural gas in which water, sand and chemicals are forced into layers of shale deep underground to fracture the rock layers and release gas contained in microscopic pockets or cracks (dark areas in image below).



The gas follows the path of least resistance, the well pipe, and rises to the surface along with a large amount of the injected liquid.

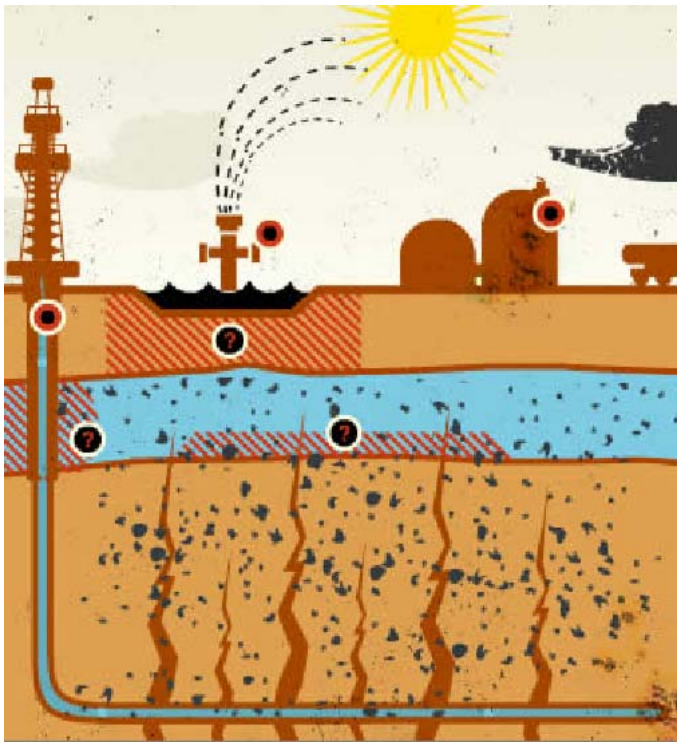
Volunteer Spotlight

Bob Lentz

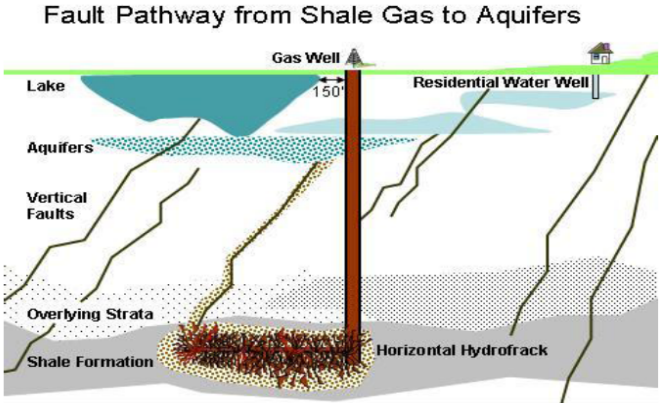
Many of you have met our Butler County Storm Water District partner, Bob Lentz.

Bob has been the Storm Water District Coordinator since it was created in 2003. He is responsible for implementing and managing the district's storm water management plan, especially in the areas of public education and outreach, illicit discharge detection and elimination, and pollution prevention at public facilities.

Bob was one of the original creators of the Butler County Stream Team and is an active participant each month, bringing the cooler from the Engineers Office and working in lab. The lab work is not a big stretch for Bob,since before joining the Storm Water District, Lentz worked as an Environmental Specialist at the Regional Air Pollution Control Agency, as a chemist at



Fracking has been going on for decades, but recently drilling techniques have raised serious social, economic and environmental concerns. Technological advances in drilling have allowed **horizontal** fracking, where the initial vertical well is turned 90 degrees and runs horizontally through a shale layer for up to 1600 meters (about a mile) from the vertical well pipe. The length of the horizontal pipe increases the chances it will encounter naturally-occurring rock fractures. These fractures may give shale gas an unintended "path of least resistance" to the surface, through the rock layers instead of in the pipe, possibly allowing gas and fracking fluids to enter aquifers and drinking wells in shallow rock layers.



Cargill, Inc. He graduated from the University of Dayton and did graduate work in Environmental Sciences at Wright State University.

Bob's family (dad and brothers) are in law enforcement, and sometimes give him a hard time for his "cushy" job. But don't you worry Bob, we all understand that trying to improve the handling of storm water in the whole county is just as hard or harder!

In his "spare" time, Bob enjoys his two young children and works with a variety of other civic organizations. He's on the boards of the Mill Creek Watershed Council, Ohio Stormwater Assoc., and Greater Hamilton Safety Council. For several years he organized the Great Miami River Days Festival - a great opportunity to spread the word that water is important!

So from all of us ... THANKS BOB!

7 Ways 7 Billion People Affect the Planet

On October 31st, we got word that the population of the world has reached 7 billion. Wow! When I was born, the number was just 2.6 billion - almost tripling of the population in less than one lifetime. And we stand to reach 8 billion by about 2020.

As we travel down this trajectory of growth, leaders around the globe are concentrating on how to minimize the impact of increased human needs on our global environment and society. Much needs to be learned if we are to live equitably and sustainably. To learn more about how 7 billion people will impact the world, read 7 Ways 7 Billion People Affect the Planet.

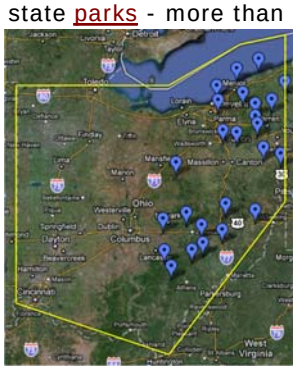
Creativity Corner ...

Rivers and the inhabitants of the watery elements are made for wise people to contemplate and for fools to

The horizontal pipe also decreases the life of the well. Up to 75% of the available gas is removed in the first year alone and the average life of a well is only 8 years. This short life cycle means the mining company gains little after the first few years, so they can easily "walk away". Because they are exempt from environmental regulation, they often walk away without placing plugs to keep the fracking fluids from leaking up the well. The short well life also means that after 8 years or so, the abandoned steel pipe can begin to rust and the concrete containment can crack with no one around to notice.

So why does this matter to Ohio?

This summer, Ohio opened up its state parks - more than 2 dozen- to fracking. While drilling has been occurring rapidly in Pennsylvania (drilling estimates include 3-4,000 wells/year for the next 30 years), less than 40 fracking wells have been drilled in Ohio. The opening of state lands brought the controversy already occurring in PA to Ohio. Lots of folks are worried about the impacts in Ohio's most pristine areas, while some are happy that the increase in drilling will bring jobs and cheaper natural gas.



There are lots of reasons to be worried about horizontal fracking if you're concerned with surface and ground water purity and availability. A short list might include:

- Each well uses 2 to 8 million gallons of water per fracking event. Each well may be fracked up to 18 times. And that water has to come from somewhere ...
- While 99.5% of the injected fluid is harmless water and sand, the remaining 0.5% contains up to 500 toxic chemicals. Many of these have been linked to various cancers as well as gastrointestinal, developmental, circulatory, respiratory, brain and nervous system disorders.
- The math on that (0.5% of an average 4 million gallons) is **20,00 gallons of toxic chemicals** per fracking event ... 18 times per well, up to 7 wells on a 4-5 acre well pad ...

pass without consideration.

Izaak Walton

As our population continues to increase, will we have enough resources, especially clean water? Check out this quote from 1966 when there were only 3.4 billion people ...

The crisis of our diminishing water resources is just as severe (if less obviously immediate) as any wartime crisis we have ever faced. Our survival is just as much at stake as it was at the time of Pearl Harbor, or the Argonne, or Gettysburg, or Saratoga.

Jim Wright, U.S. Representative, The Coming Water Famine, 1966

Let's all remember that one way we can make our stewardship voices know is by prioritizing what is important to us ...

Clean water is not an expenditure of Federal funds; clean water is an investment in the future of our country.

Bob Shuster, U.S. Representative, quoted in Washington Post, 9 January 1987

Care to contribute ?

Do you have a favorite poem, picture or article you'd like to pass along to our fellow volunteers? Do you write poetry, stories, or articles or take or create pictures - even better! To contribute to our next Creativity Corner, email Donna McCollum at mccollds@muohio.edu

Mark Your Calendars!

November Sampling Day - Saturday, November 12th

Grand Opening for Twin Creek Preserve - Tuesday, November 15th
Twin Creek Preserve is the new name of a wetland project at the confluence of the Mill Creek and East Fork Mill Creek.

- About half of that fluid quickly returns to the surface and must either be reused or disposed of. A recent change in Pennsylvania law disallowed disposal of the fracking liquids into sewage treatment plants, so about 400,000 gallons of toxic waste was brought to Ohio last year and injected into some of its 170 deep disposal wells.
- Recovered fracking fluid contains more than the water, salt and chemicals originally injected. As the brine is forced through the shale it picks up radioactive elements from the rock, such as radium226 (at 276 times the safe exposure level) and radon (for which there is "no safe exposure level").
- Fracking waste is disposed of either by trucking it to disposal sites or storing it in large, tarp-lined pits, where the fluid is allowed to evaporate. Loading and transporting the waste incurs the possibility of spills and storage pits may leak; both may lead to contamination of surface water.
- Fracking was exempted from normal environmental regulations in 2005, including the Clean Water Act, Clean Air Act, and Safe Drinking Water Act, even though a 2002 EPA report found multiple infractions.
- Most problems with fracking contamination of water occur at the surface, not from the well itself. But "shale drilling results in more problems on the surface than drilling that doesn't involve fracking". One estimate suggests that one serious environmental concern occurs for every 150 wells drilled; with current estimates of 3,000 to 5,000 wells drilled every year for the next 30 years, that means 600 to 1,000 serious problems at wells.

I probably could go on ... and on and on ... but that might seem like everything is negative. Instead, as with every use of natural resources, the issue is more complicated. Mining does bring jobs, a real need today. The gas in Marcellus Shale is quite abundant - enough to supply US natural gas needs for 14 years. Recent reports suggest the entire process of getting and using fracked natural gas releases more greenhouse gases than coal or oil, it's hard to explain to the general public; after all, burning natural gas (not including mining, recovery, and transport) releases **half** the CO2 as coal and **no** mercury. Finally,

It has been a wonder watching it come together with the cooperation of multiple groups, including our own Butler Soil and Water and Stormwater Districts. So if you want to celebrate and take a look at a very interesting way of treating storm water, check it out at http://www.millcreekwatershed.org/confluence-project. Don't forget to RSVP to Annie Rahall at arahall@millcreekwatershed.org

Upcoming Events - Macroinvertebrates??

We've had some interest in forming a group of volunteers who would sample

macroinvertebrates at some of our stream sampling sites. Would you be interested?? If so, let Donna, Beth, or Marion know.

We're thinking we might run some training sessions - 2 or 3 in February and March to decide how to tackle this project and get you up to snuff on identifying bugs. Then in the summer we will do the sampling.

Sampling will be volunteer - so don'tfeel like you will be overwhelmed - we'll fit our project to the number of people who want to be involved and their schedules.

Again,if you're interested - LET US KNOW!

here in Butler County there are no oil shale layers, so we don't have to worry about all those nasty ... or do we?

We might all need to contemplate the questions posed by an investment researcher - "should there be a 'bridge fuel' as we switch to renewables? – if so how long and wide should that bridge be? – and if fracking shale is worse than coal, should it be included as part of the bridge?" Can we all just wipe our hands of the issues? Or as concerned water stewards, should we keep our eyes, ears and minds open as the controversy continues to bubble and more data becomes available? Perhaps, only by understanding the issues can we be sure we are doing our best to keep our Ohio water clean and abundant.

Crisis Spot

As you are out sampling or just out for a walk along the waterways and see something wrong, email us. We always want to hear from our volunteers and especially if there is a problem that can be corrected.

You are our eyes in the field, the first line of defense for streams in Butler County when there is a problem. Once the problems have been reported to us, we can pass it along to the appropriate agencies.

Thanks again for all you do for Butler County Stream Team!
Crisis Spot emails can be sent to Donna McCollum at mccollds@muohio.edu.

For comments, concerns, or suggestions, please contact us at mccollds@muohio.edu