Water Matters – April 2010
Global Water Supply

Our bodies are comprised of 60% water. We can live only about 10 days without water. We need water for everything. And yet, in many ways, we are not taking care of this crucial resource on which our lives depend.

This is never clearer than in times of drought. In 2008, Lake Lanier, which is Atlanta's main water supply, had only 90 days of water left. The Shenandoah Valley experienced a drought in 1999-2003. Farm ponds dried up, wells went dry and the Shenandoah River dropped to a trickle. Thing is, we can't predict when our next drought will hit so Virginia is requiring every locality to create a water supply plan detailing current water availability, population projections and actions which will be taken in times of drought.

This brings up a general environmental question– we humans need water but how much do animals need? How much is needed to maintain a healthy ecosystem? How much does that leave us?

It has been postulated that wars result from conflicts over scant resources. In parts of the Middle East, this is already occurring where water supplies are limited and populations continue to grow. Humans have not always been very good at choosing the best places to live either. Take Las Vegas. Many conservationists have questioned the wisdom of creating a booming metropolis in the middle of the desert – a metropolis whose population seems to favor lush green lawns and massive golf courses.

But our powers to engineer solutions are tremendous. We can build fabulous constructs to allow us to live in any environment we desire and not think too hard about long term impacts. Pumps draw up ground water from ever-increasing depths, mining ancient water supplies which have taken hundreds of years to develop. Canals and pipes carry surface water thousands of miles, taking the water from one watershed and transferring it as far as a state away.

Dams are some of the most impressive engineer feats created. We now see, however, that by disrupting the natural flow of rivers, the law of unforeseen consequences is at play. Native Americans in the northwest have long campaigned for dam removal as dams have destroyed natural salmon migrations. Dams also disrupt the natural cycle of flooding downstream, which deposits rich alluvial soil in flood plains, creating wildlife habitats and allowing for natural stream meandering, all of which decreases flooding.

Too, our best laid plans for water allocation aren't always accurate and our desire to control whole watersheds doesn't always turn out the way we intend. For instance, Lake Mead and Lake Powell were constructed during the 20th century and calibrated to those water flows which happened to be among the wettest in the last 1,200 years. Typical years show much lower flows as evidenced by tree ring analysis. However, the measurements from the 20th century form the basis for long-term planning regarding the river uses. Water shortfalls in the Colorado could be even more severe if the river's flow is more in line with that shown by the tree rings.
One other limiting factor to our global water supply is how little freshwater actually exists. 97% of global water is salty, 2%is locked in snow/ice leaving less than 1% for us for drinking water.

With global climate change we are in a wild card scenario. For as much as we know about engineering and science, the earth and minute climate interactions and how they affect us are uncertain. One thing is for sure though; we are discovering that the earths' systems are a lot more

delicate than we first believed. Changing weather patterns are disrupting the water supply on which so many rely, particularly in the western states.

We are fortunate here in Page County to have a seemingly stable supply of groundwater and, except in times of drought, to be able to support our water needs. As the Commonwealth has realized though, we do not know when the next drought may begin so we need to be ready when it does.

This is the twenty second article in a series addressing Page County's Water Resources and was written by Chris Anderson, Page County Environmental Coordinator. For more information contact canderson@pagecounty.virginia.gov or stop by the Department of Environmental Services located at 101 South Court Street, Luray.