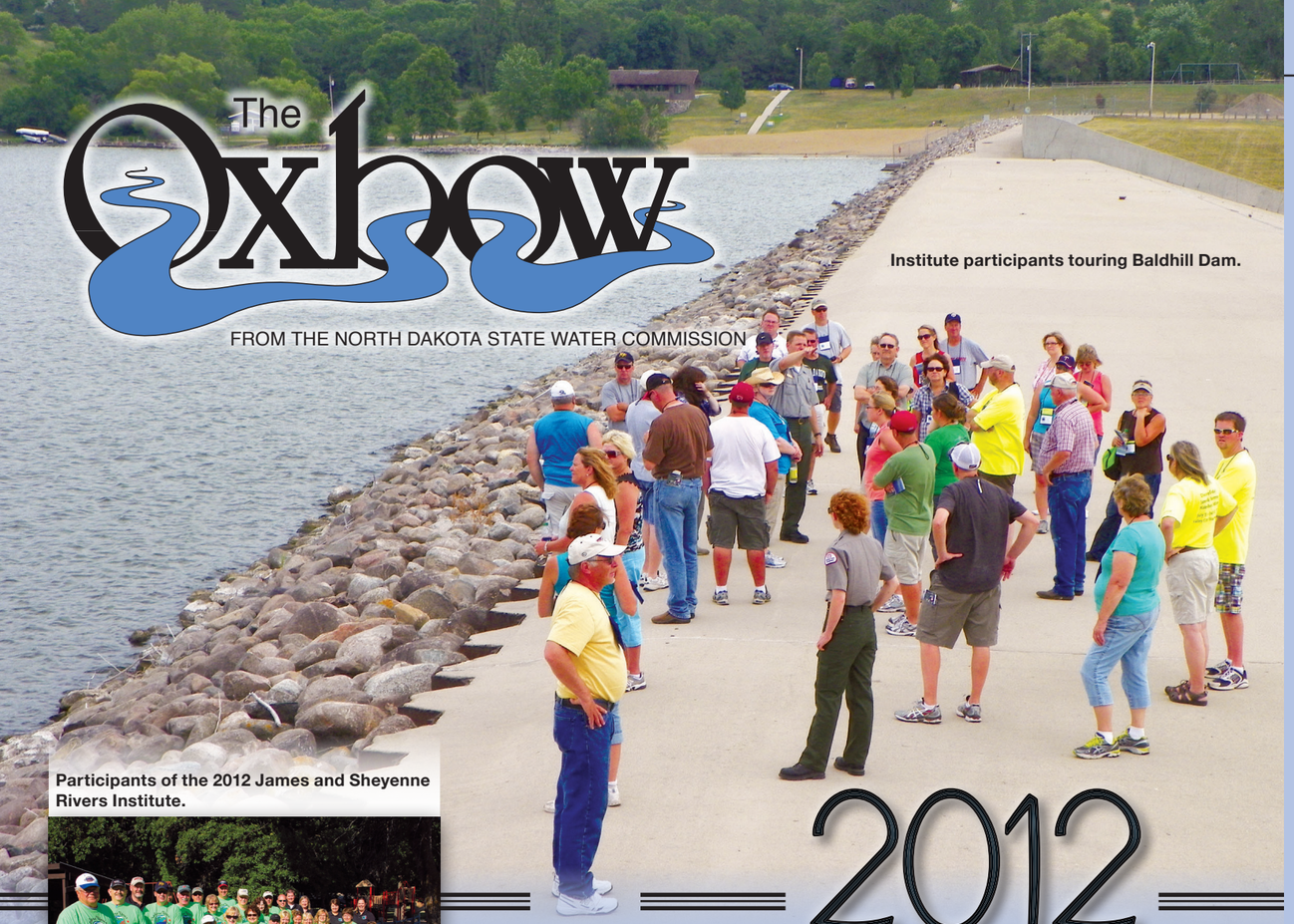
The Oxbow

FROM THE NORTH DAKOTA STATE WATER COMMISSION



Institute participants touring Baldhill Dam.

Participants of the 2012 James and Sheyenne Rivers Institute.

2012

James and Sheyenne River Basins

WET Institute

The 2012 Discover Today's James and Sheyenne Watershed Institute was held on the campus at Valley City State University in July. The Institute is a part of North Dakota's Project WET (Water Education for Teachers), and the State Water Commission's goal of water education. Attending the institute were a record 33 educators and natural resource personnel, representing all parts of North Dakota, who gained insight into both basin's water-related issues and concerns, with guidance and information from the program's six facilitators and 14 presenters.

Record flooding and a host of other water issues over the past several years made it a timely location for educators to explore. The Institute was conducted in collaboration with the Prairie Waters Education and Resource Center.

During a busy week, participants visited the Valley City Water Treatment Plant, the Valley City National Fish Hatchery, Baldhill Dam and Lake Ashtabula, viewed Discovery Farms test sites, conducted wetland and riparian investigations at Clausen Springs and Little Yellowstone Park, and toured sites such as the Cargill Malt Plant, Cavendish Farms, the Jamestown Water Facility, Pipestem Dam, and Fort Ransom State Park.

Throughout the institute, instructors conducted numerous hands-on activities from the Project WET Generation 2.0 Curriculum Guide that correlated to the field tours, environmental investigations, and presentations. Many of these activities were "make and take," where the materials were provided for the participants to construct the activity in class, and then take back to their own formal or informal classroom for use with students across the state. Participants were also provided with a comprehensive stream investigations field guide, several North Dakota water resource guides, and Project WET children's interactive books. This year's Institute also focused on introducing online water education resources. To assist in these lessons, Mayville State University loaned the Institute 24 iPads for use in classroom activities.

As in past years, Institute attendees were asked to provide evaluations on the program, and as usual, the feedback was extremely positive.

"I loved this class! I would definitely recommend it to other teachers. Well organized in every way." Mary Conant, Fargo

"A very worthwhile learning experience. I will be promoting it in my district. Good people, good education, good food, great facility!" David Burchill, Arthur

Institute participants taking in information about the watersheds.

"Initially, I did not think it was going to meet my expectations, but this was something unexpected. I truly enjoyed my time, my experience, and most importantly bringing this information to my classroom." Kerry Oberlander, Bismarck

"I expected some repeat lessons, as I attended last year [Devils Lake Institute], but everything was different and fun." Bonnie Belcourt, Williston

"I am impressed at how everyone helping with this workshop has been able to offer extensive ideas, cross-curricular ideas, and something for every age level. This is perfect for every teacher!" Mindy Johnson, Mapleton

"I thoroughly enjoyed this institute, and would encourage others to attend. I hope to attend another Watershed Institute in the future!" Mari Baldwin, Minot

The institute was funded in part by an EPA Section 319 Non-point Source Pollution grant, the North Dakota State Water Commission, county water resource districts, and soil conservation districts.

The James and Sheyenne Rivers Watershed Institute was offered to educators for four graduate credits through Minot State University, North Dakota State University, or the University of North Dakota. Several of the institute participants were able to receive scholarships from their local water resource districts to cover their cost of the registration fee.

In 2013, the Watershed Institute will be held in the heart of the oil patch at Williston State College, the week of July 14-19.

2012 HIGHLIGHTS

JAMES AND SHEYENNE RIVERS WATERSHED INSTITUTE

- Valley City Flooding
- Valley City Water Treatment Plant
- Valley City National Fish Hatchery
- Baldhill Dam and Lake Ashtabula
- AG Waste STEM sites
- Discovery Farms sites
- Travelling Irrigation System site
- Prairie Waters Education and Research Center
- Clausen Springs
- Fort Ransom State Park
- Spiritwood Station
- Cavendish Farms
- Jamestown Wastewater Facility
- Pipestem Dam and Pipestem River flooding

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Putting Water MEASUREMENTS Into Perspective

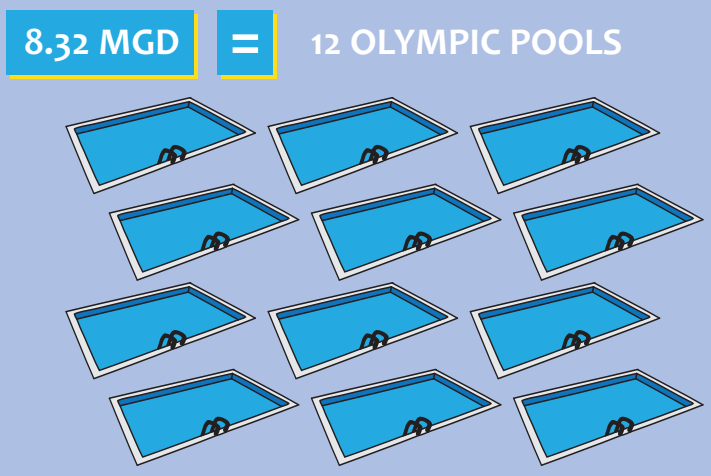
By Steve Best

Most people have heard or read reports on the evening news or in newspapers regarding water volumes and flow. During flood events, reports will often reference water volumes as acre-feet, million gallons per day, or cubic feet per second. An understanding of how these common water measurements relate to the everyday world can prove to be very useful. The actual definition of each of these terms is fairly easy to understand, but not without some sort of visualization.

Million Gallons Per Day

Million Gallons per Day or MGD is a common term used in water management. MGD is generally used when referencing water consumption, or usage. For instance, in 2011, the Bismarck water treatment plant had an average daily production of 8.32 MGD and had the capability of processing up to 30 MGD. This amount of water is hard to put into perspective.

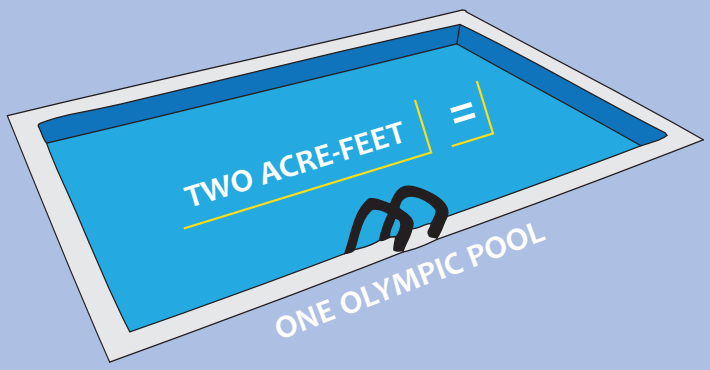
One MGD is enough water to fill 1.5 Olympic size pools. Therefore, the city of Bismarck at the current rate processes the equivalent of approximately 12 Olympic size pools of water per day. The city of Fargo processes an average of 11 MGD, which is the equivalent of 17 Olympic size swimming pools per day.



The Bismarck water treatment plant processes 8.32 MGD equaling the volume of 12 Olympic size swimming pools.

Acre-Foot

An acre-foot is defined as the volume of water needed to cover one acre in area (one acre is 208' x 208') with one-foot of water. This volume of water is equal to 325,851 gallons. The average North Dakota household uses approximately 1/3 of an acre-foot of water annually. It takes approximately two acre-feet of water to fill an Olympic size swimming pool.

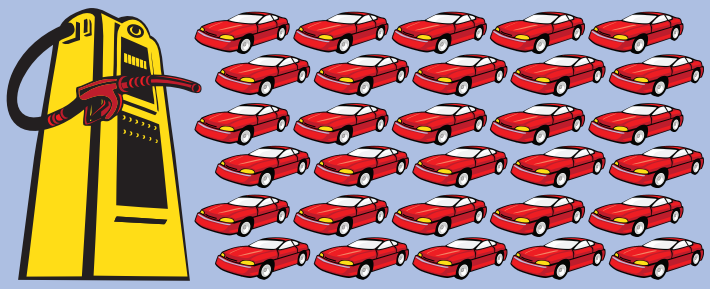


Two acre-feet of water equals 1 Olympic size swimming pool.

Cubic Feet Per Second

Cubic feet per second (cfs) is a unit of measurement commonly used to describe the rate of flow in streams and rivers. A cubic foot of water equals the amount of water that would fit into a 1-foot by 1-foot by 1-foot box or cube. This amount of water is equal to 7.48 gallons and weighs 62 pounds.

At the rate of 1 cfs, it would take just over 24 hours to fill an Olympic size swimming pool to capacity (660,430 gallons). While this doesn't seem like a fast rate of flow, one could also look at it in terms of filling the fuel tank of a mid sized car with a 15-gallon gas tank. If the pump at the gas station could pump at a rate of 1 cubic foot per second, it would only take 2 seconds to fill the tank completely.



If a gas pump could pump at a rate of 1 cfs, it could fill 30 mid sized car gas tanks in one minute.