

2013: Year of Drought, Floods and Everything in Between

When the year 2013 was still a youngster in diapers, experts were predicting the drought that ravaged much of Iowa in 2012 would continue, or at the very least, conditions would be on the “drier side” most of the year. Historical weather data reveals that one drought year often begets another, so no one expected the sweltering summer of 2012—14th hottest on record — would be followed by the state’s wettest spring in recorded history.

The state set new precipitation records for April and May, and it wasn’t just spring showers falling. May 2013 kicked off with snow and freezing temperatures.

“It was exactly the opposite of our best guess,” declared Harry Hillaker, state climatologist for Iowa.

MOST UNPREDICTABLE WEATHER IN 111 YEARS

To find another year so unpredictable in Iowa’s weather history, Hillaker dug deep into the archives for the stats from 1901-1902. It turns out that 1901 featured the hottest summer on record at the time, and the summer of 1902 still ranks as the fourth wettest.

The April-May 2013 statewide average precipitation was 15.47 inches, nearly twice the normal amount and 2.3 inches more than the previous high set in April-May 1892.

But the bizarre pattern didn’t end there. Following on the heels of the wettest spring ever recorded was one of

the driest summers in modern times. The July-August 2013 statewide average precipitation was 3.34 inches, less than half the normal rainfall of 8.70 inches for this period, and the fourth lowest July-August total ever recorded. The lowest total came in 1894 with 2.37 inches.

HEAVY RAINS PRECIPITATE CONSERVATION

“There are always exceptions to every rule,” Hillaker said. “The drought was officially over statewide on May first.” With all the precipitation, “Saylorville [Lake] took only days to get back to normal.” Saylorville is a major reservoir used to help regulate the flow and levels of the Des Moines River, a primary water source for Des Moines Water Works and the metro area.

The swift end to the 2012 drought, brought about by the cool spring temps and record-breaking precipitation, conspired to test water distribution and treatment systems. While groundwater sources such as wells benefited from the wet spring, the swift rise in river levels and flows catapulted nitrates to excessive levels.

“It became necessary to conserve water on a voluntary basis, not because we were worried about having too little water, but because we had so much precipitation after the drought that nitrate levels soared in the Des Moines and Raccoon rivers,” said Diana Wilson, general manager of the West Des Moines Water Works.

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WDMWW Shatters Glass Ceiling; Names Wilson to GM Post

West Des Moines Water Works made history earlier this year when it hired a woman, Diana Wilson, as the new general manager.

Wilson is not only the first woman to lead WDMWW and the first female to hold the top position at any water treatment facility in Iowa, she is one of only a scant number of women in the U.S. serving as water utility GMs.

THE BEST CANDIDATE

“We were not specifically looking to hire a woman from the multitude of applications; we were looking for the best candidate,” said Karen Novak-Swalwell, chair of WDMWW Board of Trustees. “Diana’s intimate knowledge of WDMWW together with her professional experience and accomplishments

in the water industry uniquely qualified her as a leading candidate for the position.”

Serving as engineering project manager at WDMWW since 2010, Wilson already played a key role in operations at the utility. The positive rapport she had built with employees, contractors, vendors and customers allowed her to hit the ground running when she was named GM in May. Before working as a project engineer at the Water Works, Wilson also spent six years at the Iowa Department of Natural Resources, where she worked as an environmental engineer in the water supply section.

“It was a great way to gain a broad perspective on water supply issues, as well as distribution systems,” she said.



Diana Wilson at the A.C. Ward Water Treatment Plant in West Des Moines.

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DID YOU KNOW



The last outbreak of typhoid fever in Iowa took place in Cedar Falls in 1912. Thanks to advances in water treatment (think chlorine) and medicine, Iowans are at very low risk for the disease, which afflicts 21 million people annually around the globe.

WDMWW Delivers Safe Drinking Water During Mercurial Weather

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In response, Des Moines Water Works fired up its nitrate removal facility for the first time in six years. West Des Moines Water Works, in turn, boosted production at its water treatment facility. WDMWW draws from a combination of deep and shallow wells, which are not susceptible to nitrate run-off, whereas rivers and streams are directly and immediately affected.

"When we increased our production, we reduced the amount of water we normally purchase from Des Moines during the summer months," Wilson explained. "Des Moines Water Works was then able to use the additional capacity to serve other customers and municipalities, which do not have access to independent water sources like we do in West Des Moines."

By the end of July, nitrate issues in Central Iowa moderated as dry summer heat replaced the soggy spring. So dry was August 2013, in fact, that water consumption hit a new record with 377.4 gallons pumped, 13 percent more from previous record set in August 2012.

'ANYTHING SEEMS POSSIBLE'

So what's next in a year that already generated seven consecutive months of wetter than normal weather and six consecutive months of cooler than normal temperatures, followed by two months of drought conditions? Hillaker is as flummoxed as the next.

"There's not much to hang your hat on, and there hasn't been for quite some time," Hillaker answered.

He points to the Pacific Ocean, which plays a major role in predicting the weather. Hillaker described the Pacific to be in a "neutral" state, meaning it is neither affected by El Nino, which brings milder weather to the Midwest or La Nina, a condition that precipitates more extreme weather swings.



Hot August temperatures cracked the ground near DMACC in West Des Moines.

"We don't have real strong correlations of what happens in a neutral condition," Hillaker said. "Anything seems possible."

Throughout all of the temperature and precipitation swings over the past nine months, the supply of safe, quality drinking water for West Des Moines customers never wavered.

"We were prepared, and we have plenty of water to meet the needs of our customers," Wilson concluded.

Wilson Takes the Helm of WDMWW; Seamless Transition

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As project engineer, Wilson worked with many aspects of the staff including finance, supply, distribution and customer service. "I already had an overall perspective on operations and management, which helped make this a seamless transition. I cannot thank the staff and board of trustees enough for having faith in me and my abilities to do the job," she said.

As Wilson looks ahead to the future she points to renewed development in West Des Moines as both a challenge and opportunity.

"Growth is important to this community, and as a utility, we want to be responsive rather than reactive," Wilson explained. "We continue to work closely with the city and the development community early on in the planning stages in order to best allocate our water distribution and financial resources."

Wilson is often asked what it is like to be a woman GM in an industry where women have not traditionally made it into top leadership roles. Only 6.1 percent of U.S. water utility general managers and CEOs are

women, according to a study conducted by Colgate University. Rather than bemoaning the fact there are so few women in the field, Wilson, a civil engineering graduate from Iowa State University, believes the focus should be on preparing women for leadership positions in the field.

"Women are generally under-represented in engineering, math and science. Changing that dynamic will make the biggest difference in getting women in leadership positions in water treatment and other fields," Wilson explained.

IN MEMORIAM



W. Kent Gaer

Kent Gaer, long-time WDMWW trustee and community advocate, passed away in September. His contributions to the Water Works were many, and his dedication served as a role model for others. He will be missed.

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