



The Current

2018 Issue I



Garland Erbele, P.E.
State Engineer &
Chief Engineer-Secretary

A NEWSLETTER FROM NORTH DAKOTA'S OFFICE OF THE STATE ENGINEER & STATE WATER COMMISSION

Part of the vision of the State Water Commission is to bring present and future generations of North Dakotans an adequate supply of good quality water for people, agriculture, industry, and fish and wildlife.

I take great pleasure in seeing this vision brought to life as I visit SWC projects across the state. While these projects supply a vast quantity of high quality water, they also require financial support. The State Water Commission implements a variety of funding programs to support these efforts and reflect our vision. One such program is the Municipal, Rural, and Industrial (MR&I) Water Supply Program.

Funding for the MR&I program was authorized by Congress through the 1986 Garrison Diversion Unit Reformulation Act, and is jointly administered by the Garrison Diversion Conservancy District and the SWC. The Act originally authorized a federal MR&I grant program of \$200 million, which has all been expended. Additional federal funding resulting from the passage of the Dakota Water Resources Act of 2000, included another \$200 million for the MR&I Program. These funds are indexed annually based on the rate of inflation. Since authorization of the program, the federal government has provided a total of \$372 million in funding to the State of North Dakota.

The MR&I program provides funding for municipal and regional systems that strive to provide quality drinking water to the people of North Dakota. These designated funds have allowed several projects to make improvements to groundwater wells, pipelines, pumping plants, intake works, new or enlarged storage facilities, modifications and upgrades to water treatment plants, and enlargements or extensions of regional water systems.

(continued)

Can You Find The Water Drop?



This water drop is hidden
somewhere in this issue.

MILESTONE

The State of North Dakota recently celebrated a monumental milestone when the Devils Lake Outlets pumped the millionth acre-foot of water from Devils Lake. This considerable achievement serves as a reminder of the continued flood fighting efforts that still remain in the Devils Lake basin.

In 1993, the State of North Dakota pursued a three-pronged approach to fighting Devils Lake basin flooding in response to the rapid and record-breaking rise of the big lake. This approach included infrastructure protection, basin water management, and an outlet to the Sheyenne River. The outlets have been important in relieving the flooding in the basin, and helping to prevent a potentially catastrophic spill of floodwater through Tolna Coulee, into the Sheyenne and Red Rivers.

Construction of the West Devils Lake Outlet began in 2002 and became operational in late 2005, pumping water from Round Lake (a bay of Devils Lake), into the Sheyenne River. The original project had a capacity of 100 cubic feet per second (cfs), but it was significantly limited in its operation because of the requirements of a water discharge permit. As time passed, and a better understanding of the outlet and Sheyenne River were gained, operational guidelines were modified, allowing the outlet to run at full capacity.

Even after increasing the pumping capacity of the West Devils Lake Outlet to 250 cfs in 2010, inflows of water into Devils



Lake were still too great, and the lake continued to rise. To further improve the ability to remove water from the lake, construction of an East Devils Lake Outlet was initiated in 2011, and was completed in 2012. The East Devils Lake Outlet has a capacity of 350 cfs, which brings the total maximum discharge of the combined Devils Lake outlets to 600 cfs, or about 1,200 acre-feet per day. While the West Devils Lake Outlet is a combination of open channel and pipeline, the East Devils Lake Outlet is pipeline only, until it reaches its discharge point into the Tolna Coulee, which eventually flows into the Sheyenne River.

After a dozen years of operation, the Devils Lake outlets have discharged approximately 1,043,482 acre-feet of water, resulting in a lake elevation nearly five and a half feet lower than it would be without the outlets. At its current elevation of 1,449.6 feet above mean sea level, the amount of water removed equates to about 60,000 acres, or 91 square miles. This is land that would be flooded today without the Devils Lake outlets.

AERIAL SURVEY

The State Water Commission recently conducted an airborne electromagnetic survey (AEM) of aquifers in parts of Cass and Richland counties. The survey, performed in November will provide a high-resolution map of the local aquifers and will help water managers analyze and develop local sources of available groundwater.

The airborne survey involved a helicopter towing a large hoop-shaped antenna about 100 feet about the ground which sends and receives electromagnetic signals to characterize the geology beneath the surface.

The helicopter collected geophysical data while flying in a grid pattern within an approximate 8-mile wide block extending from Gardner, ND in the north to the Wahpeton area. The survey was completed in four weeks.

“The AEM method is a game-changer in groundwater investigations. It’s quicker, cheaper, more efficient, and safer than conventional methods for buried aquifer characterization,” said Jon Patch, Director of Water Appropriations for the State Water Commission. “The Water Commission also used this technology in central North Dakota on the Spiritwood Aquifer near Jamestown and it was extremely successful.”



NEW HIRE

JORDAN WORONIECKI Water Resource Engineer



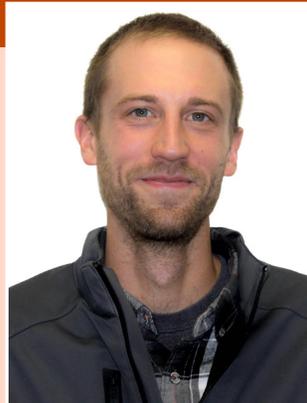
On November 1, Jordan Woroniecki started his career at the State Water Commission as a Water Resource Engineer III in the Regulatory Division. A North Dakota native, Jordan grew up in Hebron where his family still makes their home. He received his Bachelor's Degree in

Construction Engineering from North Dakota State University in 2011.

Jordan comes to the State Water Commission from Kadrmas, Lee & Jackson's (KLJ) Dickinson office where he worked in civil transportation engineering and construction since 2012. He also completed a summer internship with KLJ in 2011 in the Devils Lake region. During his time at KLJ, Jordan worked on county and state road systems, and was also involved in project design and construction administration. His new job duties will include providing assistance to water resource district boards and reviewing and making recommendations on permit applications for stream crossings, drains, dikes, and dams.

NEW HIRE

JESSE KIST Missouri River Engineer



Jesse Kist joined the State Water Commission staff in October as a Water Resource Engineer III in the Investigations Section of the Water Development Division. Jesse was born and raised in Mandan, ND and graduated from Mandan High School. He attended the University of North

Dakota and graduated in 2013 with a Bachelor's degree in Civil Engineering. Jesse worked both as an intern and a Project Engineer for the City of Bismarck and was later employed by AE2S (Advanced Engineering and Environmental Services) as a Water Resources Engineer for three years.

Jesse enjoys traveling and spending time with his wife Breanna. He spends most of his time hiking, reading, kayaking, and fishing. Hobby carpentry and visiting the mountains of Montana are a couple of his favorite activities.

UPCOMING SWC MEETINGS

JANUARY 11, 2018 / 9:00 A.M. – 5:00 P.M.
Pioneer Room, Judicial Wing, State Capitol, Bismarck

FEBRUARY 8, 2018 / 1:00 P.M. – 5:00 P.M.
Brynhild Haugland Room, State Capitol, Bismarck

APRIL 12, 2018 / 1:00 P.M. – 5:00 P.M.
Brynhild Haugland Room, State Capitol, Bismarck

JUNE 14, 2018 / 1:00 P.M. – 5:00 P.M.
Brynhild Haugland Room, State Capitol, Bismarck

AUGUST 9, 2018 / 1:00 P.M. – 5:00 P.M.
Couteau Room, Judicial Wing, State Capitol, Bismarck

OCTOBER 11, 2018 / 1:00 P.M. – 5:00 P.M.
Brynhild Haugland Room, State Capitol, Bismarck

DECEMBER 7, 2018 / 9:00 A.M. – 12:00 P.M.
Ramkota Hotel, Bismarck

For more information, check out the State Water Commission website at www.swc.nd.gov.

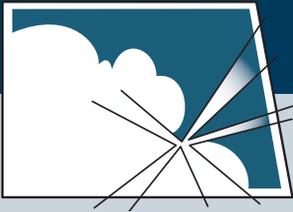
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During 2016 and 2017, several projects benefited from MR&I program funds. These projects included the Burlington Water Tower; Carrington Water Tower; Cass Rural Water Users District, Leonard Service Area; Casselton Water Tower; Gladstone Water Storage; Glenburn Water Storage; Kindred Water Tower; Makoti Water Tower; Mohall Water Tower; New England Water Tower; Northeast Regional Water District Rural Expansion; Rugby Water Treatment Plant Improvements; Sherwood Water Main; Wahpeton Water Treatment Plant Improvements; Westhope Water Main; Dickinson Water Treatment Plant; and the Southwest Pipeline Project.

For more information regarding the program, please go to our website, www.swc.nd.gov or contact Jeff Mattern, MR&I Program Manager, at (701) 328-4952.

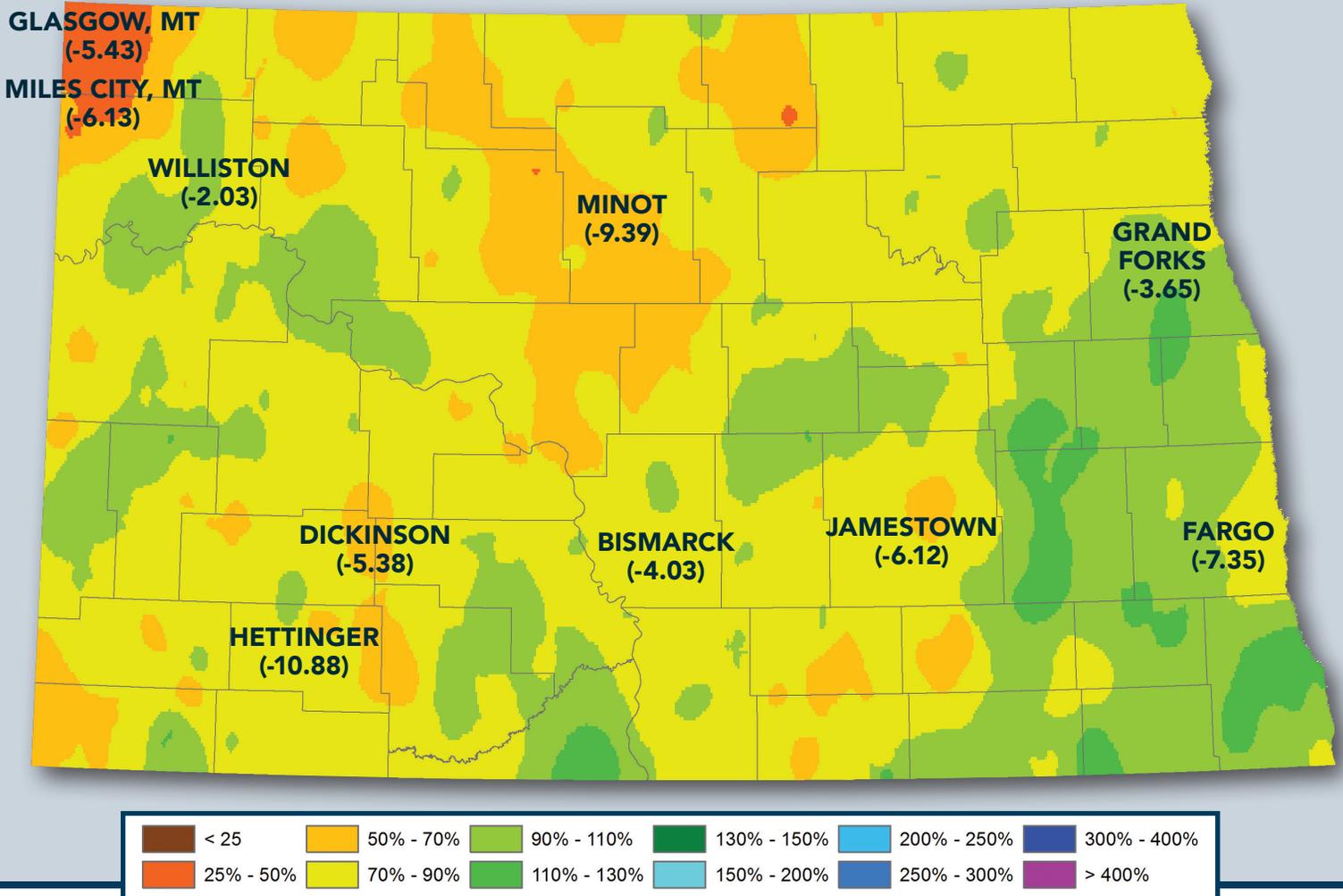
Garland Erbe
State Engineer and Chief Engineer-Secretary



ATMOSPHERIC RESOURCE BOARD

APRIL - SEPTEMBER 2017 PERCENT OF NORMAL RAINFALL

Source: NDARB Cooperative Observer Network



2017 DROUGHT RECAP

The drought of 2017 had a pronounced effect on the northern Great Plains, in addition to North Dakota. Its origins go back to last February when snowfall tapered off for most of the region and growing season rains were scarce through mid-summer. Glasgow, MT had their driest February through June on record with only 2.75 inches of moisture! In addition to below normal precipitation, the region experienced above normal temperatures from late winter through mid-summer, further exacerbating dry conditions.

The snowfall that North Dakota received from November (2016) through January (2017), before the onset of drought, helped many producers through the dry growing season. North west and north central areas of our state that have

experienced wet conditions over the last decade, actually saw some of their ditches and sloughs dry up.

Although drought conditions appear to have improved across our state when looking at the latest drought products (such as the Drought Monitor), it's important to keep in mind that once harvest was completed, factors such as the effects of drought on agriculture were "tabled" until the beginning of the next growing season. North Dakota hasn't received significant moisture since fall harvest and will go into next years' growing season with a moisture deficit unless substantial snowfall or early spring rains occur. As of December, some of the existing year-to-date precipitation totals in the state (and region) are two to ten inches below normal (see map).

STEWARDSHIP AWARD



ARNE BERG

Arne Berg was honored with the 2017 Devils Lake Basin Joint Water Resource Board's Stewardship Award. Arne has demonstrated a profound commitment to promoting water resource management and has contributed influential

direction concerning the Devils Lake Basin, rural water, flood relief, and flood protection projects throughout the years.

Arne served as a Ramsey County Commissioner and was a State Water Commissioner for 11 years

Congratulations to Arne for his well-deserved award and recognition!

WATER WHEEL AWARD



DARIN LANGERUD

Darin Langerud, Atmospheric Resources Division Director at the State Water Commission, was honored with the 2017 North Dakota Water Wheel Award at the 54th Annual Joint North Dakota and Upper Missouri Water Convention and Irrigation Expo. The ND Water Wheel is awarded in recognition of distinctive leadership and perseverance in motivating development of the state's water resources thereby fostering a better quality of life for our people.

Darin demonstrates immense commitment and pivotal leadership in his role with the Atmospheric Resource Board and the utilization of weather modification and cloud seeding operations.

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Congratulations to Darin for his well-deserved award and recognition!

ATTENTION WATER PROJECT SPONSORS

In preparation for the next budgeting process, the State Water Commission will begin developing a Water Development Plan for the 2019-2021 biennium and beyond. To make this process a success, the Planning and Education Division will be sending letters in January to potential project sponsors from all across the state; asking for their help in identifying the water development projects they're trying to move forward, the timing of their implementation, and estimated costs.

So, if you're a local water board member, a community leader, or you're the manager of a large-scale water project, please look for a letter in the mail in the next few weeks.

As in the past, the input gained from this process will become the foundation of the agency's budget request to the Governor and Legislature.

If you have any questions please contact the Planning and Education Division at (701) 328-4989 or email ndswmp@nd.gov.

Commission Meeting Approvals

At the Commission meeting held on December 8, 2017, the State Water Commission approved multiple cost-share requests.

Drought Disaster Livestock Water Supply Program	\$200,000
USGS Cooperative Hydrologic Monitoring Program	\$553,790
City of Valley City, Permanent Flood Protection Project	\$2,171,925
Mouse River Enhanced Flood Protection Project	\$2,315,300
McLean-Sheridan Water District, Turtle Lake Water Tower	\$107,450
Tri-County Rural Water District, System Expansion	\$103,250
Western Area Water Supply (WAWS) Project	\$11,250,000
Northwest Area Water Supply (NAWS), Biota Water Treatment Plant Design	\$5,500,000
Northwest Area Water Supply (NAWS), Minot Water Treatment Plant Phase II	\$4,500,000



NORTH DAKOTA STATE WATER COMMISSION

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