

The Current

2018 Issue II



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

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

North Dakota endures some of the widest-ranging weather in the United States as each season brings distinct events and impacts. Fluctuating and extreme conditions have been well documented and prominent throughout the state's history. This notion has become exceedingly more evident based upon weather events that have taken place in the past few years.

In 2011, North Dakota faced unprecedented and disastrous flooding that devastated several areas throughout the state. Just a few years later in 2017, the state was plagued with a harsh and sprawling drought. Ultimately, these weather events generated widespread response efforts from state and federal agencies, along with various stakeholders and organizations.

The State Water Commission's Drought Disaster Livestock Water Supply Project Assistance Program (Program) was just one of the many response efforts to the recent drought. North Dakota's agriculture industry, especially farmers and ranchers, faced considerable adversity and were burdened financially by the abnormally dry conditions. In order to help alleviate some of these hardships, the State Water Commission's Program provided cost-share assistance to livestock producers with water supply shortages directly caused by the drought.

Since the Program was reestablished last June, about \$1.5 million in cost-share funding has been provided and approved for over 500 projects. Today, funding to support emergency livestock water supply projects is still available, with about \$530,000 in unallocated funds remaining. Please go to the State Water Commission's website, www.swc.nd.gov, for more information regarding the program.

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Can You Find The Water Drop?



This water drop is hidden
somewhere in this issue.



Discover Today's

LITTLE MISSOURI RIVER watershed institute



JULY 8-13, 2018

Attention teachers and other educators...

Join us in Dickinson for an opportunity to experience current watershed management and water resource issues on the Little Missouri River. While exploring challenges and identifying solutions, participants will receive real world, user friendly and classroom ready instruction from specially trained Project WET facilitators, resource professionals, and scientists.

Participants will experience hands-on, minds-on learning through a balance of presentations, discussions, activities, field tours, and environmental investigations and will be able to transfer the institute's field studies to practical classroom applications.

Discover, explore, and experience some of the region's unique water resource sites in the Little Missouri River watershed.

See, hear, live, and feel the pulse of the Little Missouri River watershed through some of the region's foremost experts on water resources, watershed science, and social issues.

Complete environmental investigations to understand methods for determining overall watershed quality.

- Biological, Chemical & Physical Assessments.
- Stream Flow & Cross-Section Assessments.
- Stream Habitat Assessment.

Learn about and complete hands-on activities from Project WET resources.

- Completely revised Project WET K-12 Curriculum and Activity Generation 2 Guide.
- Healthy Water, Healthy People Educator's Guide & Field Monitoring Manual.

- Access to lots of online resources and classroom ready materials.
- Participate in fun-filled educational activities and events while learning.
- Tour major watershed sites on the Little Missouri River.
- Make and take classroom materials and kits.
- Discover institute curriculum materials through hands-on activities.

Credit, Costs, Scholarships

Participants can receive four semester graduate credits (upon approval) through MISU, UND, or NDSU. There is a \$50 per credit fee payable to the preferred institution. Online registration is available. Registration must be done on-line at www.swc.nd.gov/info_edu/water_education/education/. The registration fee covers room, board, materials, instructors, and resources.

Your local water resource district, school staff development funds, or local soil conservation district may offer full scholarships. Participants are responsible for contacting their local districts. To find your local district, go to www.swc.nd.gov/info_edu/water_links/.

UPCOMING SPRING WATER FESTIVALS/EVENTS

Month	Date	Event Name	Location
MAY	1-2	Grand Forks Water Festival	E.G.F. Heritage Village
	9-11	Envirothon	Crystal Springs
	10	Fort Totten Water Festival	Fort Totten
	14	Red River / Wahpeton Water Festival	Wahpeton
	15-16	Bismarck Water Festival	Bismarck State College
	17	Missouri River Splash	Moritz Sport & Marine
JUNE	1	Kick Off to Reading	Bismarck
	20-22	ND Teacher Resource Coalition	State Heritage Center
JULY	8-13	Discover Today's Watershed Institute	Dickinson
	26	ND State Fair Water Day	Minot

NEW HIRES



CHRIS COLBY - Water Resource Program Administrator I

Chris Colby accepted a full time position as a Water Resource Program Administrator in January 2018. Beginning April 2017, Colby worked as a temporary field inspector for the Water Appropriation Division and gained valuable experience within the State Water Commission. Now, he will assist in overseeing water use in North Dakota by monitoring activities such as water depot sales and telemetry systems. He will also perform water permit inspections and help to ensure water permits are kept in compliance.

Prior to working at the State Water Commission, Colby attended Bismarck State College (BSC) where he received an Associate's Degree in Petroleum Engineering Technology and a certificate in Geographic Information Systems (GIS) in 2013. Then, after working for a short period in the oil field conducting well site geology, Colby decided to continue his education at the University of North Dakota (UND) where he received a Bachelor of Science Degree in Geology in the Spring of 2016. In addition, he also obtained a Bachelor of Applied Science Degree in Energy Management via BSC's online program in the Fall of 2016.

A native of Kenmare, North Dakota, Colby now lives in Bismarck with his girlfriend and dog. He is passionate about hunting, fishing, and never misses an opportunity to spend a weekend outdoors.



KELSEY HUBER - Water Resource Engineer III

In January, Kelsey Huber was hired as a Water Resource Engineer in the State Water Commission's Engineering and Permitting Section. Her duties include reviewing and making recommendations on drain, dike, and dam permit applications, as well as providing assistance to water resource district boards.

Huber grew up in Woodbury, Minnesota and moved to Fargo, North Dakota in time to experience both the 2009 and 2011 flood events. In addition to learning the skill of sandbagging, she also received a Bachelor of Science Degree in Mathematics and a Master of Science in Agricultural Engineering, both from North Dakota State University. Huber brings work experience from the United States Geological Survey (USGS), where she worked as a hydrologist out of the Bismarck office before being hired at the State Water Commission.

Huber recently married her husband, Jamison, on January 12th in Key West, Florida; a destination far from their home in Mandan. In her free time, Huber enjoys curling, golfing, running half marathons, pheasant hunting, and fishing for walleye in Lake Sakakawea.



EMILY JOYNT - Hydrologist II

In January, Emily Joynt began her career at the State Water Commission as a Hydrologist II in the Water Appropriation Division. Her job responsibilities include, managing ground water resources by reviewing water permit applications in her assigned project areas, which are Burleigh, McLean, and Sheridan counties. Emily is also responsible for assessing legal compliance, conducting technical analyses, submitting recommendations on permit conditions to the State Engineer, and she will help collect field data via test drilling in order to support ongoing analyses of ground water resources in the state.

Emily was born and raised in Burlington, Wisconsin and is the youngest of four children. She attended the University of Wisconsin-Milwaukee and graduated with a double major in Environmental Science and Geology. After receiving her Bachelor's Degree in 2014, Emily furthered her education by earning a Master's Degree in Geology in 2017. After graduate school, she relocated and was employed as a hydrologist for the Black Hills National Forest Service in South Dakota.

Traveling, mountain biking, downhill skiing, hiking, and spending time with her kitten Min are some of Emily's favorite activities. She also enjoys playing the alto saxophone and recently joined the Missouri River Community Band.

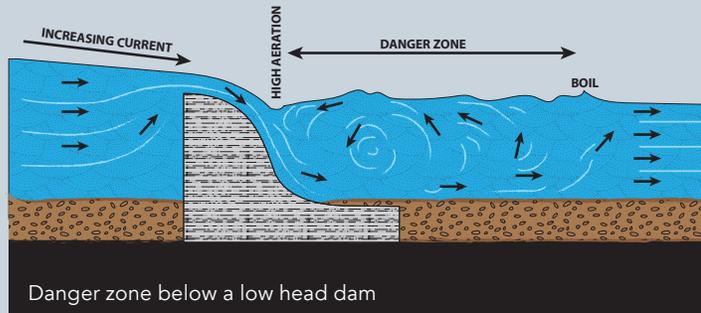


LOW HEAD DAM AWARENESS EFFORT LAUNCHED

National Dam Safety Awareness Day is on May 31. The day was established to encourage and promote individual and community responsibility and best practices for dam safety, and to highlight measures to prevent future catastrophic dam failures or lessen the impact of a potential failure. In the spirit of Dam Safety Awareness Day, the State Water Commission has been working hard to raise awareness of the dangers of low head dams.

Many low head dams have been built throughout North Dakota for use in livestock watering, irrigation, water supply, and recreation. Low head dams are usually simple concrete or rock masonry structures that span the width of the river or stream, raising the water level behind them until it reaches a height sufficient to flow over the dam.

Under the right conditions, water flowing over the dam can cause a “roller effect” on the downstream side of the dam. Strong recirculating currents can trap and drown boaters, swimmers, or other water users. Air mixing in the turbulent water below the dam reduces buoyancy, making it more difficult to stay afloat even with a life jacket. Hazardous conditions may not exist at a dam all the time, potentially giving people a false sense of security. Over the years, multiple deaths have occurred at low head dams in North Dakota. Nationwide, many deaths at low head dams occur when people have drowned attempting to rescue someone else. Even trained rescue personnel have fallen victim to low head dams.



Danger zone below a low head dam

According to the Association of State Dam Safety Officials (ASDSO), “Each year, dozens of lives are lost at dams on U.S. streams and rivers, many at low-head dams, also known as run-of-river dams or “drowning machines.” These structures, generally less than 15 feet high, can create backflow currents and turbulence capable of producing disorientation,

hypothermia, exhaustion, and brutal battering. The forces combine to create a practically inescapable circular trap for even the strongest, life jacket-clad swimmer.”

Options to eliminate the public safety concerns associated with low head dams include removing the dam, or modifying the dam to eliminate the dangerous conditions. Modifying the structure with the installation of a rock ramp on the downstream side of a low head dam alters how the river flows, so that the “drowning machine” effect is no longer an issue.

Progress has been made in North Dakota toward eliminating this public safety hazard. To date, one low head dam has been removed, 11 low head dams have had rock ramp fish passages installed, but 40 known low head dams remain unmodified in the state. Under the Water Commission’s cost-share program, local dam owners are able to get up to 75% of their project covered by the state, if a dam safety concern exists.

As part of the state’s education efforts, the State Water Commission has purchased signs that are available free of charge to dam owners who want to install them at low head dams. For more information on the free dam safety signs, call 701-328-2782, or email jessiewald@nd.gov.

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It is important to understand that North Dakota remains in a significantly dry period despite Mother Nature delivering many powerful winter storms this past month. On a positive note, below average snow/water totals combined with current temperature patterns have allowed the melting rate to be more controlled and stable than in previous years. These factors, although seemingly negative, should prevent us from having problematic flooding issues that impacted so many communities in 2011.

For the latest drought conditions and flood information, please go to www.ndresponse.gov.



2019 Water Development Plan Underway

As part of the State Water Commission's water development efforts, the agency began the process of developing a 2019 Water Development Plan - focusing on potential water development projects during the 2019-2021 biennium and beyond. In early January, staff sent inquiries to potential project sponsors from across the state, requesting that they submit projects they are working to advance in their respective water management basins – making this planning process a grassroots-driven approach. The deadline to submit projects was set for March 23, and the information collected will become the foundation of the State Water Commission's budget request to the Governor and Legislature.

Over 280 projects have been submitted from a variety of project sponsors, and in the coming weeks State Water Commission staff will collaborate with Water Commission members to review and prioritize the projects. Ultimately, the project information will be presented during Commissioner-hosted basin meetings around the state.

The basin meetings are expected to be scheduled for the summer of 2018. Traditionally at those meetings, the Commission has asked sponsors to verify the project information they submitted. This enables the agency to include the most accurate information possible in the Water Development Plan to the water community, and the 2019 Legislative Assembly.

Commission Meeting Approvals

At the Commission meeting held on **February 8, 2018**, the State Water Commission approved multiple cost-share requests.

Lincoln Water Supply Improvement	\$1,130,000
Williston Water System Improvements	\$2,336,000
Valley City Membrane Replacement	\$338,550
South Central Regional Water District Phase 5	\$495,000
Northwest Area Water Supply Project (NAWS)	\$26,868,00
Drought Disaster Livestock Water Supply Program	\$500,000

At the Commission meeting held on **April 12, 2018**, the State Water Commission approved multiple cost-share requests.

City of Mandan, Sunset Reservoir Water Transmission Line	\$3,135,000
City of Wing, Water Tower Repair	\$72,000
East Central Regional Water Supply District	\$5,345,000
Stutsman Rural Water District Phase 6	\$2,100,000
Walsh Rural Water District Expansion	\$1,242,625
City of Mapleton, Recertification of Levee System	\$213,670
City of Lisbon, Levee D/Levee F	\$704,000
Mouse River Enhanced Flood Protection Project (Reallocation)	\$11,042,691
Mouse River Enhanced Flood Protection Project (Acquisitions)	\$1,000,000

LIFE CYCLE COST & ECONOMIC ANALYSIS WORKSHOP SCHEDULED

The North Dakota State Water Commission will provide a workshop to educate project sponsors or their consultants about the new guidance and models for Economic Analysis and Life Cycle Cost Analysis processes that have been developed for the agency.

Per Legislative mandate, starting with the 2019-2021 biennium, an Economic Analysis will be required for SWC-funded water conveyance and flood related projects expected to cost more than one million dollars. Also, a Life Cycle Cost Analysis will be required for municipal water supply projects with an estimated cost of one million or more.

The workshop is free of charge, but you are required to register for the workshop in advance. If you are unable to attend, the workshop will be recorded and a video webcast will be accessible from the SWC website in the future.

To register, please send an email to stevebest@nd.gov that includes your name, phone number, and organization.

WORKSHOP DETAILS

WHEN: Thursday, June 21, 2018

TIME: 9:00 am - 5:00 pm

PLACE: BSC National Energy Center of Excellence; Bavendick Stateroom
1200 Schafer Street
Bismarck, ND 58501



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