



THE YEAR, 2019

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES



From the Director

The year 2019 was eventful and productive for the Department of Natural Resources. We made excellent progress on a number of key initiatives and programs, and experienced a number of unexpected weather events. While busy, these challenges provided the Department's team to join with many other federal, state, and local entities with citizen heroes, and the opportunity to apply our breadth of technical water resources expertise for the benefit of the public.

The unprecedented spring flooding posed challenges to the staff of our floodplain management, engineering, and water administration divisions; but they responded to those challenges, and were recognized by Governor Ricketts for their hard work that went beyond their duties to assist our fellow Nebraska citizens. Further, in middle of the irrigation season, an infrastructure failure of a 100-year old irrigation canal and tunnel unexpectedly collapsed cutting off the entire supply of water to irrigated cropland in eastern Wyoming and western Nebraska. This required teamwork from various agency divisions working with other state, federal and local agencies to seek and assist the local irrigation district in implementing solutions. Our team has met these challenges and many others with solid science-based knowledge, a variety of skills, and dedication to protect and manage the State's most valuable natural resource: water.

"The Year 2019" Annual Report highlights just a few of our most significant accomplishments and recognizes the hard work of our team in service to the people of Nebraska.

We look forward to a productive 2020.

Gordon W. "Jeff" Fassett, Director
Nebraska Department of Natural Resources

First Republican River Basin-wide Plan Adopted

After five years of planning, the Republican River Basin-Wide Plan was adopted. This plan has been developed cooperatively by the Nebraska Department of Natural Resources (NeDNR), the Upper Republican, Middle Republican, Lower Republican, and Tri-Basin Natural Resources Districts (NRDs), and a 42-member stakeholder committee representing a variety of water interests across the basin.

This plan will support coordinated management of the basin's hydrologically connected surface and groundwater supplies. The purpose of the Republican River Basin-Wide Plan is outlined in state statute and described in its mission statement "To sustain a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare of the Republican River Basin can be achieved and maintained for both the near term and long term." Statute also requires this plan to ensure that Nebraska continues to comply with the Republican River Compact, which is an interstate water agreement among Colorado, Kansas, and Nebraska. This plan was required by the passage of LB 1098 (2014), and it must be completed by April 17, 2019 (*Neb. Rev. Stat. § 46-755*).

The Plan has clear goals, objectives, and action items developed jointly by the stakeholder committee, the NRDs, and the NeDNR. These goals involve (1) maintaining Nebraska's compliance with the Republican River Compact and state laws, (2) maximizing efficient and beneficial consumptive use of water, increasing certainty, and increasing collaboration, (3) positive public relations and information sharing, and (4) pursuit of projects to benefit water supplies and uses that also provide benefits for fish, wildlife, recreation, or conveyance. Some unique features of this plan include a 25-year implementation timeline and five measurable hydrologic objectives for evaluating plan progress.

Every five years, NeDNR and the NRDs will conduct a technical review of plan progress, evaluate based on the technical review whether changes to the plan are needed, and submit a report to the Legislature on plan implementation progress and any needed changes.



A Timeline

April 17, 2014:

LB 1098 took effect requiring a basin-wide plan to be completed within 5 years

April—December, 2014:

Preparation (hired consultant, etc.)

Development Phase:

January, 2015, through April, 2018:

22 NeDNR/NRD Coordination Meetings held

March, 2015, through June, 2018:

15 Stakeholder Advisory Committee meetings held

Adoption Phase:

August—October, 2018:

NRD board votes and exchange of letters between NeDNR

and NRDs agreeing to take plan to hearing

October-November, 2018:

Published hearing notices

November, 2018:

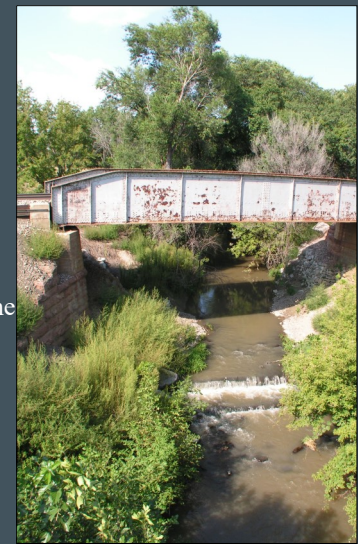
4 public hearings; consider testimony from hearing, modifications made to plan in response to testimony

December 2018: NRD board votes and exchange of letters between NeDNR and NRDs agreeing to adopt final draft of plan

January 2019: NRDs and NeDNR publish orders adopting the plan

January-February 2019: published notices of orders adopting the plan in local newspapers

March 1, 2019: plan took effect



Dam Safety: Oliver Dam

The Department's Dam Safety Program conducts routine safety inspections at more than 600 dams across Nebraska every year. When problems are found during these inspections, the Department notifies the owner of the dam about the need for maintenance and repairs.

During a recent safety inspection of the Oliver Dam in western Nebraska, a significant problem was discovered. While crawling through the dam's 280-foot long, 42-inch tall spillway tunnel running through the earthen dam, the inspectors found the 109-year-old, spillway conduit was cracked and leaking in several locations. Over time, leaks in the conduit can lead to erosion and eventual failure of the earthen dam. After being notified about the problem, the owner of the dam, the South Platte Natural Resources District, began budgeting for the restoration of the spillway conduit.

In 2019, a liner was installed inside the old conduit, sealing the cracks and assuring the spillway will continue to safely pass flood flows through the dam.



The inside of the Oliver Dam spillway conduit after it was lined in 2019 with a cast-in-place pipe (Photo Courtesy of Miller & Associates and FYRA).



Surface Water: Process Improvement

In 2019, NeDNR's Surface Water Permitting Division continued to demonstrate a commitment to efficient and effective customer service.

The division has reduced the time it takes to process applications for new surface water rights dramatically in the past few years. At the time they began using a QDIP board, the average time taken to approve a new application was 18 weeks.

Mike Thompson, the Division Head, set an ambitious goal to process new applications *within* 18 weeks. The team consistently met that goal, so they lowered the goal to 15 weeks in 2018, and 13 weeks in 2019.

Through the end of November 2019, the team has averaged seven weeks to approval, well below their goal time.



Levee Repairs Begin

In October, ground was broken for repairs and improvements to levees along the Missouri River, Papio Creek, and Platte River which were damaged during the 2011 flooding.

Partial funding for these repairs were provided by the state and made available through the Critical Infrastructure Facilities Fund (C.I.F.), which was created by LB 957 in FY 2016 and funded by a \$13.7 million transfer from the Cash Reserve Fund. NeDNR was assigned to administer the fund.

The Papio-Missouri River Tributaries Natural Resources District (P-MRNRD) applied for a grant through this fund to help offset the costs associated with its Offutt Air Force Base levee project, and the \$13.7 million grant was approved.

Work on the project was hampered by the length of time it took to obtain a U.S. Army Corps of Engineers permit and the repeated Spring 2019 flood events.





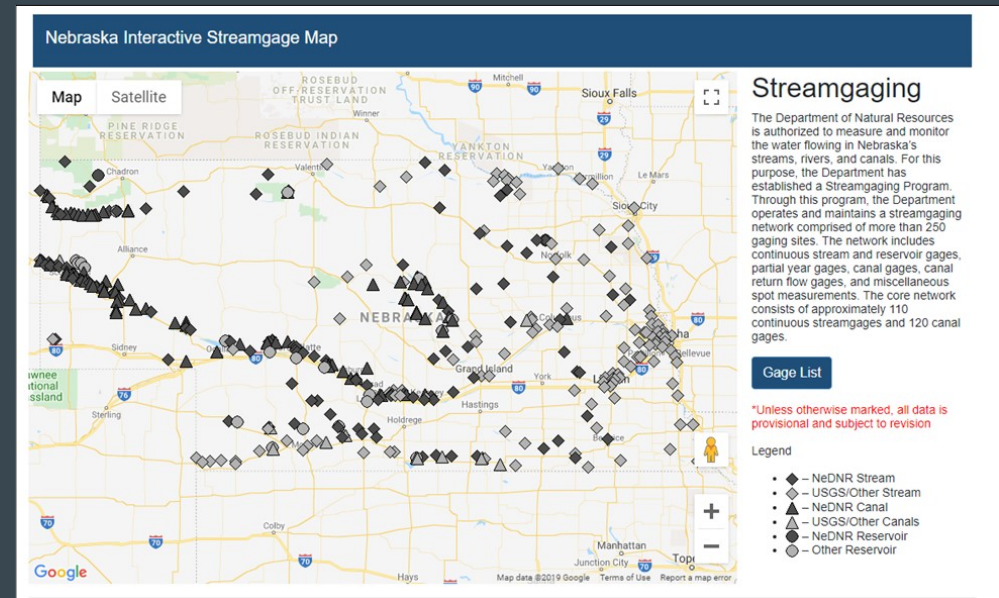
Real-Time Streamgaging Website

The Department of Natural Resources measures and monitors the water flowing in Nebraska's streams, rivers, and canals. For this purpose, NeDNR established a Streamgaging Program.

Data collected through the streamgaging program is used to make informed decisions when administering water rights, issuing permits, studying surface water/groundwater interactions, responding to flood emergencies, modeling floodplains, quantifying water supplies and uses, calibrating groundwater models, complying with interstate compacts, and planning for future water demands.

NeDNR has developed a real-time streamgaging website to provide information to stakeholders from more than 250 gaging sites throughout the state.

During the March floods, several of the streamgages were lost; but NeDNR staff went out and gathered the information and relayed it back through other electronic means.





March Floods

NeDNR Answered the Call of Duty



On March 13 the first call came in from the Nebraska Emergency Management Agency (NEMA). “Report to the SEOC (State Emergency Operations Center).”

Driving out to the National Guard base, no one had any idea just exactly what was coming. No one could have imagined what was to come.

For the next few weeks, and still today, staff at the Department of Natural Resources (NeDNR) went above and beyond their typical work assignments as they answered the call to duty to keep Nebraskans safe.

NeDNR teams worked tirelessly providing onsite support at the Emergency Operations Center (EOC), in the field collecting valuable river level data, and providing valuable information to the public.

We would like to recognize the following team members for all their efforts during this historic event.

Engineering Division:

Shuhai Zheng, Katie Ringland, Jamie Reinke, Stefan Schaepe, Jared Ashton, Chuck Chase, Deanna Ringenberg, Ryan Kelly, Tom Schuerman, and Mark Noble worked shifts and have served as on-call staff at the EOC. Activities at the EOC included:

Staff coordinated with other state agencies and the U. S. Army Corps of Engineers (USACE) in the EOC.

Staff helped contact local emergency managers to verify information as it came into the EOC.

Katie helped write part of the Disaster Declaration on March 18, 2019.

Stefan compiled a list of levees and dams that were impacted. The list of levees included whether or not the levee is in the USACE PL84-99 program and therefore eligible for federal money for levee repair.

Stefan, Jared, Ryan Kelly and Deanna prepared estimated inundation mapping based on river stage for the Platte and Elkhorn Rivers.

Jamie has coordinated the collection of High Water Marks with NeDNR’s Survey group, USACE, and Federal Emergency Management Agency (FEMA).



Chuck, Jamie, Jared and Katie prepared a “2019 State of Nebraska Disaster Damage Assessment Packet”. The packet was email and sent via govdelivery to all Floodplain Administrators (FPAs). The packet includes information and sample worksheets that the FPAs can use to complete substantial damage estimates of structures. This is a requirement of the National Flood Insurance Program (NFIP).

March 20 and 26, 2019 **Chuck** hosted a webinar to go through the “2019 State of Nebraska Disaster Damage Assessment Packet”. These were well attended with 52 and 78 participants, respectively.

Chuck, NeDNR and FEMA provided Substantial Damage and Flood Insurance workshops at select locations in the impacted area.

April 2 in St. Paul, Nebraska

SDE Workshop: 13 attendees, representing 9 communities

Insurance Workshop: 7 attendees

April 3 in Norfolk, Nebraska

SDE Workshop: 31 attendees, representing 24 communities

Insurance Workshop: 19 attendees

April 4 in Omaha, Nebraska

SDE Workshop: 55 attendees, representing 19 communities

Insurance Workshop: 37 attendees

Ryan Johnson, Ryan Kelly, Jeehoon Kim, Isaac Remboldt, Jake Bruihler, Christopher Marker, Deanna Stefan Scheape, and Jared Ashton completed phone survey assessments of all NFIP communities in the affected areas. These calls were to ensure that all floodplain administrators received the Disaster Assessment Packets and understood the permitting requirements. The surveys provided NeDNR a chance to communicate directly with our administrators and get a better understanding of the current needs in the State. The phone surveys were performed from March 21 through March 28.



Ryan, Ryan, Jeehoon, Isaac and Jake collected High Water Marks

Chuck and Katie received a significant volume of technical assistance phone calls, and we expect this high call volume trend to continue.

Katie continues to coordinate with the FEMA Joint Field Office, to ensure that the state stays involved with what FEMA is doing floodplain management wise.

Tim Gokie, who was on vacation at the time, answered phone calls overnight and worked with dam owners addressing dam safety concerns.

Water Administration Division:

Tom Klanecky, Pat Breitzkreutz, Jeramy Sedlacek, and Stacey Kolar in Ord all worked overtime on streamgaging to keep track of the extensive flooding. After the immediate danger passed, they spent time documenting “high water marks” in the communities affected by the flooding.

Jordan Koerwitz and Stjepan Figuric spent time covering overnight shifts monitoring Willow Creek Dam near Pierce.

Bill Birkel in Norfolk traversed the flooded countryside to streamgage and mark high water elevations at our gages.

Lucas Geyer and Justin Hladik measured flood flows across the basin and documented the flooding with the drone.

Jeff Vifquain and Lucas Hadenfeldt spent time streamgaging and documenting flooding in the Big and Little Blue River Basins.

Jim Williams, Jim Ostdiek, and Jim Marburger worked on coordinating the response and documenting the results.

Spencer Campbell and Lenny Beal spent time

repairing the Platte River at Shelton and recorded high water marks along the Central Platte.

Taylor Stephens with our Bridgeport Field Office measured and documented high water marks in the upper Niobrara River Basin.

NeDNR Staff:

Lori Arthur, the public information officer, put in long hours for more than two weeks at the SEOC writing news releases for the joint information center.

Ryan Werner, Jeff Hogan and Margeaux Carter collaborated together using Jupyter notebooks to create Flood Inundation boundary maps from the Sentinel 2 imagery for areas where cloud cover was minimal.

BJ Green and Kim Menke took shifts at the SEOC call center. **Christine Southwick and Pam Bonebright** volunteered but were not needed. More than 700 people volunteered to help answer citizens’ calls for information and aid.



Vision

Water today. Water tomorrow.

Mission

Managing Nebraska's most precious natural resource
through sound partnerships, cooperation,
and science-based decision making.

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES