

Report of the Special Committee on Natural Resources to the 2020 Kansas Legislature

CHAIRPERSON: Senator Jeff Longbine

VICE-CHAIRPERSON: Representative Ron Highland

OTHER MEMBERS: Senators Marci Francisco, Dan Goddard, Dan Kerschen, and Carolyn McGinn; Representatives J.R. Claeys, John Eplee, Shannon Francis, Annie Kuether, and Jason Probst

STUDY TOPIC

The Committee is directed to:

- Review the flood damage caused by 2019 flooding events concerning:
 - The relationships between local, state, tribal, and federal entities regarding flood control and flood prevention, including state compacts;
 - The role of state government in flood control and response to flooding events; and
 - The availability and need of resources.

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Special Committee on Natural Resources

REPORT

Conclusions and Recommendations

The Committee recommends:

- The Kansas Water Office conduct a basin-by-basin evaluation of Kansas reservoirs to determine where flooding is occurring, what damage has occurred as a result of flooding, and possible actions that could be taken to prevent or provide remediation for flooding events. Such an evaluation should include possible use of floodplain easements and long-range planning for future flood events. When basins are located in more than one county, the evaluation should focus on the entire basin regardless of county lines;
- The House Committee on Appropriations and the Senate Committee on Ways and Means consider a plan to restore the \$8.0 million statutory transfer to the State Water Plan Fund;
- The State Water Plan include efforts to combat the build-up of sedimentation in Kansas reservoirs. The Kansas Water Office should provide information to the House Committee on Agriculture and the Senate Committee on Agriculture and Natural Resources regarding sedimentation, including the estimated timeline for clearing sedimentation to increase reservoir capacity and the associated costs. The sedimentation removal planning should include preventive activities such as streambank stabilization and prevention of field erosion;
- The Kansas Water Office provide information to the House Committee on Agriculture and the Senate Committee on Agriculture and Natural Resources regarding Iowa's system for reporting flooding events and providing resources to affected citizens and landowners. Such information should include suggestions for how Kansas citizens can best access information on flood events as they occur; and
- The Kansas Department of Wildlife, Parks and Tourism provide information to the House Committee on Agriculture and the Senate Committee on Agriculture and Natural Resources regarding damage to state property and infrastructure due to 2019 flooding events.

Proposed Legislation:

- Adopt a Joint Resolution urging the Kansas federal delegation to make appropriations for the 2019 flood damage in Kansas and to ask for congressional authority for the Tulsa Division, U.S. Army Corps of Engineers, to create a study similar to the study being conducted by the Kansas City Division, U.S. Corps of Engineers, on river bed degradation.

BACKGROUND

The 2019 Legislature created the Special Committee on Natural Resources (Committee) to evaluate damage caused by the 2019 flood events and consider possible options to repair flood damage and prevent future major flood events in Kansas.

The Legislative Coordinating Council approved two meeting days, and the Committee met in the Statehouse November 12, 2019.

COMMITTEE ACTIVITIES

The Committee held an all-day meeting on November 12, 2019. During the meeting, the Committee received testimony from both Kansas and federal agencies on impacts of 2019 flooding activities and the responsibilities of these agencies regarding flood disaster prevention and response efforts.

2019 Flooding Events

Flood Year in Review

After staff from the Kansas Legislative Research Department provided an overview of the Committee's charge, the Committee began with an overview of conditions that led to the 2019 major flooding events in Kansas. The Kansas Adjutant General (Adjutant General) and the Warning Coordination Meteorologist (meteorologist) with the National Weather Service in Topeka described strong storm systems early in the year that saturated the ground. Significant rainfall in March and May, combined with the melting snow pack, created major flooding as the rainwater created runoff because it could not soak into the already completely saturated ground.

The meteorologist stated May 2019 was the wettest month on record for Kansas, with rainfall of as much as two feet in certain areas, far exceeding the typical four to six inches of rainfall for the month. The Adjutant General stated approximately 200 miles of compromised levies across Iowa, Kansas, Missouri, and Nebraska contributed to the flooding.

The Adjutant General described action taken by the Kansas Division of Emergency Management (KDEM) State Emergency Operations Center (SEOC) in response to the flooding events. The SEOC was activated for 65 days between April 29, 2019, and July 1, 2019—the longest time it had been activated since the 1993 flood events. He described challenges faced by the SEOC and lessons learned, including the need for pet sheltering (people will refuse to evacuate if there is not a safe place for their pets) and the important role mapping programs played both in predicting where water will go and in convincing residents to be proactive with flood prevention. He explained where improvements need to be made with the SEOC to increase space, technology, and bandwidth to handle multiple disaster events, as well as the need for automated river gauges to understand when the water is rising in certain rivers or reservoirs so that local, state, and federal organizations can respond early.

The Adjutant General also stated the National Guard can be deployed if the community (the local county emergency manager) requests support and the National Guard is the available resource to provide support.

State Agency Responsibilities

Representatives of the Kansas Department of Agriculture (KDA), Division of Water Resources (DWR); the Kansas Department of Health and Environment, Bureau of Water (KDHE); the Kansas Water Office (KWO); and the Kansas Department of Wildlife, Parks and Tourism (KDWPT) presented information on the responsibilities of state agencies in flood prevention, management, and response.

KDA, Division of Water Resources. The Water Structure Program Manager of the DWR, KDA, discussed the National Flood Insurance Program (NFIP) and stated only approximately 10.0 percent of homes in a floodplain carry NFIP flood insurance. He stated, in 2019, there were 287 NFIP claims totaling \$3.78 million.

He discussed the KDA's utilization of light detection and ranging (LIDAR) grants to create flood risk maps using elevation data and the utilization of community assistance grants to contact communities and inform them of areas at

risk of flooding. He stated there are approximately 170 significant-risk dams and 220 high-risk dams in Kansas. He informed the Committee that, other than major levees, only eight agricultural levees reported damage from the flood events.

KDHE, Bureau of Water. The Director of the Bureau of Water, KDHE, discussed the statewide stream advisory issued after the flood events warning people to stay out of streams due to the increased risks of sewage contamination, debris in the water, and rapids.

He explained there were a large number of facility discharge limit violations due to the wet weather conditions, but the number of permit limit violations decreased as the flood events ended.

He described the effects of the flood events on local communities, including the issuance of 14 boil water advisories as a result of water line breaks, pressure loss, inundated wells, or loss of chlorine residual. He stated three communities near Perry Lake required alternative water supplies during the flooding, and one community, Lakeside Village, continued to require fresh water to be hauled to the community on a daily basis.

KWO. The Acting Director of the KWO stated the KWO's statutory responsibility as it pertains to flooding is established in KSA 74-2608 and includes collecting and compiling information and planning. He explained the planning component involves developing a plan for the state's water resources, but dealing with floods has not been a major responsibility of the KWO for years.

He explained, while Kansas sustained damage from the flood events, the damage pales in comparison to damage in Iowa, Missouri, and Nebraska, and the KWO will continue to work with those states to repair damage and for future flood prevention.

He described sedimentation in Kansas reservoirs and stated sedimentation levels are much higher than average in 2019, especially in Tuttle Creek (475.0 percent higher than average), John Redmond and Pomona (both around 370.0 percent higher than average), Melvern, and Elk City lakes.

The Acting Director outlined KWO requests and potential recommendations for the Committee, including:

- Streamgaging network enhancement;
- SEOC enhancement;
- Geographic information system enhancement at the cost of \$75,000 with ongoing costs of \$75,000 to \$100,000;
- Flood inundation modeling;
- A basin-by-basin evaluation and plan at a cost of approximately \$200,000 per basin; and
- Public water supply emergency planning, including alternative water sources and contingencies.

Reservoir sedimentation, the Acting Director noted, affects the ability of the agency to respond to flooding because the majority of sedimentation (around 90.0 percent) moves during flooding. While sedimentation is typically seen as a water supply issue, the 2019 flood events caused more sediment to build in reservoirs than has ever been seen before, and he anticipates this will cause more loss of the flood pool than KWO has previously seen.

KDWPT, Law Enforcement Division. The Director of the Law Enforcement Division (Division), KDWPT, stated the Division deployed under the KDEM to conduct rescues, searches, and welfare checks. He stated the Division also provided equipment to local governments, including life jackets and rescue air boats.

KDWPT, State Parks Division. The Director of Kansas State Parks, KDWPT, described the effects the flooding events had on state park operations, infrastructure, and tourism in the state. She stated state parks usually average 6.8 million to 7 million visits per year but received only 4.6 million visits in 2019. She stated there was flooding in U.S. Army Corps of Engineers (USACE) parks, Bureau of Reclamation parks,

and KDWPT-owned parks, as well as significant damage to nine Kansas marinas.

She explained the Kansas Department of Transportation is assessing damage to roads and is assisting the KDWPT in assessing damage to roads within parks, but the extent of damage remained unclear as some roads remained covered in water. She described damage to KDWPT cabins and stated the cost to repair four cabins is \$25,000.

She also described the significant erosion damage that resulted from the long period of time high water levels were sustained, combined with high winds, which caused not only significant erosion, but damage to assets that had never before been damaged.

She stated the Kansas State Parks Division has averaged revenues of about \$1 million a month for the five busiest months in recent years, with a June average of \$1.5 million, but revenues were \$1 million less than average in June 2019 and also below expectations in the remaining busiest months of 2019.

Federal Agency Responsibilities

Representatives of the U.S. Department of Agriculture (USDA), the Kansas City District of USACE, and the Tulsa District of USACE provided information to the Committee on federal disaster and flood response efforts and federal emergency management programs.

Natural Resources Conservation Service, USDA. A State Conservationist with the Natural Resources Conservation Service (NRCS), USDA, provided an overview of federal programs regarding natural resources and disaster response.

She described the Environmental Quality Incentives Program (EQIP) as NRCS' main program. EQIP was not designed to be a disaster response program but, she stated, there is flexibility to use resources in times of disaster and the program has been used for both wildfire and drought initiatives. She stated EQIP's Kansas Disaster Flood Recovery Initiative provided assistance to agriculture producers in disaster-declared counties. She stated this program focused on cover crops and was granted approximately \$1.0 million.

She described the Emergency Conservation Program (ECP) administered by the Farm Service Agency. The ECP provides financial and technical assistance to farmers and ranchers to restore farmland damaged by natural disasters.

She also described the Emergency Watershed Protection Program (EWPP), which includes two response programs: a Recovery program and a Floodplain Easements program. These response programs are utilized to remove hazards and restore stream hydrology back to pre-disaster conditions. The EWPP requires a sponsor with land rights (generally, a local unit of government). Criteria applying to the EWPP Recovery Program include the presence of a natural disaster, sudden watershed impairment, and an imminent hazard to life or property, and the utilization of the program must be economically, socially, and environmentally defensible. The EWPP Floodplain Easements Program has rarely been used in Kansas, but it allows landowners to voluntarily enter into a perpetual easement that provides the NRCS with the full authority to restore and enhance the floodplain's functions and values. The EWPP cannot be used for conditions existing before the natural disaster, for operation and maintenance problems, for federal aid highway projects, for private transportation facilities, or to rebuild infrastructure.

Finally, she described the Kansas PL-566 Watershed Program. This program provides technical and financial assistance to project sponsors to develop and implement planned watershed activities in a specific geographic area to benefit the general public. The program has a limited scope and can be used only for watersheds with a size of less than 250,000 acres.

Responding to a question regarding watersheds that span more than one county, she stated in order for federal funds to be disbursed equitably, they are based on counties, not watersheds. She noted there can be opposition from counties to distribute funds based on the watershed boundaries as counties will not want to use funds allocated to them for projects outside of their county lines.

Tulsa District, USACE. The Hydrology and Hydraulics Engineering Section Chief of the Tulsa District, USACE, discussed Tulsa District flood

control reservoirs in Kansas. He explained releases from reservoirs are based on the principle of “water on the ground,” rather than on rainfall forecasts, as the uncertainty of future rainfall is considered an unacceptable risk.

He described the 2019 rainfall as historic—areas of Oklahoma received almost three feet of water in May (the highest amount in the 125 years on record). He explained reservoirs are for flood control, not prevention, and without the reservoir system, the downstream control point in Van Buren, Arkansas, would have approached 1.0 million gallons per second during the May flooding event. He also described USACE aid provided to Coffeyville to protect the oil refinery. The Oklahoma National Guard filled sandbags and the Tulsa District trucked them to Coffeyville.

Kansas City District, USACE. Three representatives of the Kansas City District, USACE, provided information to the Committee: the Hydrologic Engineering Branch Chief, the Readiness and Contingency Operations Office Chief, and the Plan Formulation Section Chief.

The Hydrologic Engineering Branch Chief discussed reservoirs under control of the Kansas City District, USACE, in the Missouri River Basin. He mentioned streams traversing approximately 165,000 square miles in the Missouri River Basin are unregulated and do not pass through a federal reservoir and this played a part in the May flooding.

He stated 65.0 percent to 95.0 percent of reservoir storage space is dedicated to flood control. He described USACE flood control zones, where the only operation conducted is flood control. There are three flood control phases: Phase 1, where 50.0 percent of available storage space is filled; Phase 2, where 50.0 percent to 80.0 percent of storage space is filled; and Phase 3, where 80.0 percent to 100.0 percent of storage space is filled. He explained Kansas reservoirs were holding water in March and April and could not then make releases, so when the record rainfall began in May, there were numerous places where the storage space exceeded 100.0 percent.

He explained USACE water control manuals; each reservoir has a water control manual and there is also a master control manual that instructs

the USACE on how to operate all reservoirs in the system. He explained there can be deviations from the manual and the Kansas City District requested and received approval from the district office to make four deviations in the spring and fall of 2019.

He stated the reservoirs operated as designed during the May 2019 flooding events, in that the reservoirs caught water and held it until it could be released downstream without any major structural failures. He also stated the Kansas City District is making efforts to evacuate water in reservoirs before the freezing season and next spring’s rainfall.

Responding to a question concerning sediment buildup in reservoirs during the 2019 flooding events, he stated while it is best to keep waters flowing to prevent a buildup of sedimentation, based on the flooding, they had to hold water in the reservoirs for months and were not able to deal with sediment as they were focused solely on flood control.

Regarding the sedimentation in the Tuttle Creek Reservoir, he stated the sediment in that reservoir is in the multi-purpose zone and will have an effect on recreation and long-term water use, but is not currently affecting flood control.

The Readiness and Contingency Operations Office Chief provided information on Kansas City District emergency management operations, including that the Kansas City District utilizes the “risk management lifestyle approach” of preparation and training, response, recovery, and mitigation. He explained the Kansas City District responds to disasters and has a 24-hour number so it can respond quickly and coordinate efforts even if it cannot mobilize immediately.

He stated the Kansas City District has supplies for floods, including sandbags, automatic sandbag filling machines that fill 25 sandbags per minute, hoses, and other equipment that can be deployed rapidly. He stated the USACE response operations are supplemental to state and local efforts and USACE worked with the KDEM during the 2019 flooding events. He explained the USACE has two types of assistance: technical assistance (sending people to provide aid) and direct assistance (providing equipment or machinery, which is

covered at 100.0 percent federal cost during a flood).

The Readiness and Contingency Operations Office Chief stated the Kansas City District's Emergency Operation Center (EOC) was activated for flood response on March 13, 2019, when an emergency was declared in Kansas, and as of the date of the meeting, the EOC had been activated for 245 days. He stated because of the 2019 flooding events, 45 levees in the Kansas City District system were overtopped and breached, and another 21 levees were overtopped, but did not breach.

He explained federal levees are constructed by the USACE but are maintained by local governments. He stated the 500-R federal levee in the Missouri River Levee System was the first levee to breach in the Kansas City District since the 1993 floods.

He explained the USACE rehabilitates only levees that were active in the USACE system before a disaster event damaged the levee. The Readiness and Contingency Operations Office Chief stated federal levees are repaired at 100.0 percent federal cost and non-federal levees are repaired at 80.0 percent federal cost and 20.0 percent local cost. He explained Hays and Marysville have non-federal levees that are treated like federal levees because of the potential danger to the community if those levees breach.

The conferee addressed the time frame to repair damaged levees, stating it could be up to two years to fully rehabilitate certain areas. He explained, in most years, 75.0 percent of the annual rainfall occurs from March to August, but by March 2019, there was already record runoff from March rain and there was no time to release water before more heavy rainfalls in April and May.

The Plan Formulation Section Chief provided information on both the 2019 flood events response and future plans for the Kansas City District.

He explained there were three phases for response and recovery for the 2019 floods. Phase 1 was the initial response, and the objective was to handle the levees that had breached and assess

initial damage. Phase 2 was the recovery, and the objective was to rehabilitate the damaged levee systems and conduct a full system repair. Phase 2 will last until 2021 and has an estimated cost of \$1.1 billion. Phase 3 is the long-term planning for future actions and challenges and the objective is to reduce long-term flooding risks.

He also described a study the USACE is conducting from Gavin's Point Dam in South Dakota to the Missouri River endpoint in St. Louis, Missouri. The Omaha District, USACE, was conducting this study to evaluate past flooding and to make recommendations for possibly adopting new flow frequency estimates for the Missouri River Basin. As part of this study, the USACE is looking into how reducing sedimentation can increase flood resiliency.

The Plan Formulation Section Chief described another study of the Kansas River Basin to plan for flood risks, to study the impact of sediment in lakes, and to improve lake sustainability and storage protection.

He also stated both the State of Kansas and the USACE are conducting the study, and any work done by the USACE will be vetted by Kansas state agencies.

CONCLUSIONS AND RECOMMENDATIONS

The Committee recommends:

- The Kansas Water Office conduct a basin-by-basin evaluation of Kansas reservoirs to determine where flooding is occurring, what damage has occurred as a result of flooding, and possible actions that can be taken to prevent or provide remediation for flooding events. Such an evaluation should include possible use of floodplain easements and long-range planning for future flood events. When basins are located in more than one county, the evaluation should focus on the entire basin regardless of county lines;
- The House Committee on Appropriations and the Senate Committee on Ways and Means consider a plan to restore the \$8.0

million statutory transfer to the State Water Plan Fund;

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- The KDWPT provide information to the House Committee on Agriculture and the Senate Committee on Agriculture and Natural Resources regarding damage to state property and infrastructure due to 2019 flooding events.