



The updated study will help develop more representative PMP estimates for evaluating flood safety and assessing potential flood risk. In 2011, flooding on the Missouri River caused the inundation of multiple developments along the Missouri River.

WATER COMMISSION MODERNIZES PROBABLE MAXIMUM PRECIPITATION STUDY

The Water Commission's probable maximum precipitation (PMP) study, being conducted by Applied Weather Associates (AWA), reached its halfway mark in May 2020. The project will provide updated, state-of-the-science PMP data and analysis techniques to advance hydrology studies in North Dakota.

The project started in December 2019, and is following the protocols established by the National Oceanic and Atmospheric Administration (NOAA) for Hydrometeorological Reports (HMRs) 48, 51, and 52. HMRs describe the PMP storms based on shape, size, and duration for areas across the United States. The current PMP dataset covering North Dakota was developed in the 1970s and 1980s. The original data focused primarily on the Red River of the North and the Souris (Mouse) River. The data reports include influences attributed to snowmelt, which has proven to influence runoff and flooding.

Since the completion of the existing HMRs, North Dakota has experienced a wet-cycle that was not prevalent during the climate record used in previous studies. This period consisted of a number of large spring floods and precipitation events. Many of the historic flooding events in North Dakota occurred due to melting snow or rain on snow events, most recently in 1997, 2009, 2010, and 2011.

The updated study's purpose is to develop more representative PMP estimates for evaluating flood safety, assessing flood risk, and calibrating event-specific hydrological models. Currently, the manner in which PMP values are calculated is inconsistent and cumbersome, from the use of hand calculations to coarse chart estimators. This study aims to provide the public with a user-friendly tool to estimate PMP values. The events studied in the project vary in size and duration from one square mile to 10,000 square miles, and one hour to 120 hours.

The new and robust dataset utilized to determine the PMP will be updated through 2020, an additional 40 years of information, and will also expand the "cool season PMP," rain on snow events, throughout the entire state - as opposed to just the Red River and Souris (Mouse) River basins.

The warm season PMP development, covering the period from June through September, is virtually complete and now includes storms from North Dakota, surrounding states, and southern Canada. Storms from Grand Forks County (2000) and Cass County (1975) are two examples that have been added. These events are rain events occurring during the warm season.

The cool season storm study continues to take shape. Within the cool season study, a state-wide map of snow water equivalent has been developed. This data depicts the 1% exceedance of water held in the snowpack for varying periods

during the spring months, March through May. The storm list has been finalized and the first runs of cool season PMP events have been analyzed.

This project is managed by a Review Board. The Review Board consists of both state and federal agencies with direct knowledge of the sciences and methods involved in a PMP analysis. Headed by the Water Commission, the remaining members of the Review Board are the National Weather Service (NWS) offices of Bismarck and Grand Forks, ND; the Natural Resources Conservation Service (NRCS) office in Bismarck, ND; the North Dakota State Climatologist at North Dakota State University (NDSU); and the United States Army Corps of Engineers (USACE) Omaha District. This board was developed with the intent to guide the Water Commission's program, maintain the analysis integrity through participation in meetings and discussions, and review the deliverables and final products.

The project is on track to be completed by May 2021 with new PMP data and an accompanying GIS tool which will provide all output in one simplified interface. In addition, this database can be continually updated if and when new storms occur, or updated methods are developed. This will prevent work developed during this project from becoming outdated.

For more information regarding the PMP study, please go to https://www.swc.nd.gov/project_development/pmp.html.

2020 COMMISSIONER-HOSTED BASIN MEETINGS CONDUCTED VIRTUALLY

In July, the Commissioner-hosted basin meetings were held virtually due to COVID-19 related concerns. In the interest of prioritizing public health and safety, the Water Commission utilized remote communication technology in order to host these stakeholder meetings and discuss ongoing agency efforts and water management and development issues in the state's eight major drainage basins.

The Legislative Assembly passed House Bill 1206 (NDCC 61-02-01.3) in 2013, requiring that the Water Commission schedule meetings within the state's major drainage basins, including the Red River, James River, Mouse River, upper and lower Missouri River, and Devils Lake. The 2017 Legislative Assembly then separated the Red River basin into the upper and lower. And then in 2019, the Legislature added an eighth basin and Commissioner to represent the Little Missouri, Upper Heart, and Upper Cannonball.

This summer's virtual meetings focused on Water Commission budget-related updates, 2019-2021 biennium cost-share policy modifications, the 2021 Water Development planning process, project summaries from sponsors, and general question and answer discussions.

On behalf of Water Commissioners, Interim State Engineer John Paczkowski, and the Water Commission's staff, we would like to express continuous gratitude to everyone who participated in the virtual Commissioner-hosted basin meetings. You and your constituents play an important role in the future of North Dakota's water management and development.

If you would like to discuss water management or development issues of interest with your basin commissioner, contact information is available at https://www.swc.nd.gov/thescw/commission_members.html.

NORTH DAKOTA'S WATER COMMISSIONERS BY BASIN

