

Great Missouri River Flood of 2011: Lessons for the future

Neil S. Grigg¹

Civil and Environmental Engineering Department, Colorado State University

Abstract. Whether climate change was the cause or not, during 2011 the mainstem Missouri River Reservoir System experienced the largest volume of flood waters since the initiation of record-keeping over 100 years ago. Runoff from snowpack and rainfall stressed the system and caused massive damage and disruption. The U.S. Army Corps of Engineers came under severe criticism for their actions to operate the reservoirs, and appointed a panel to conduct an independent technical review. The result of the panel review will be explained in terms of implications for hydrology and water management. Topics covered will include the Missouri River Master Manual, differences in how the reservoir system and the tributary reservoirs should be operated and were operated, whether operations for environmental purposes influenced flood risk operations, whether accurate and timely hydrologic and weather forecasts were available, whether the Corps properly assessed basin conditions and runoff, whether regulation of the Missouri system impacted Mississippi River flooding, how the Flood of 2011 should be characterized in terms of frequency or recurrence interval. Conclusions will address the panel's opinion of whether climate change played a role in the record runoff and if future regulation should be adjusted.

¹ Civil and Environmental Engineering Department
Colorado State University
Fort Collins, CO 80523-1372
Tel: (970) 491-3369
e-mail: neilg@engr.colostate.edu