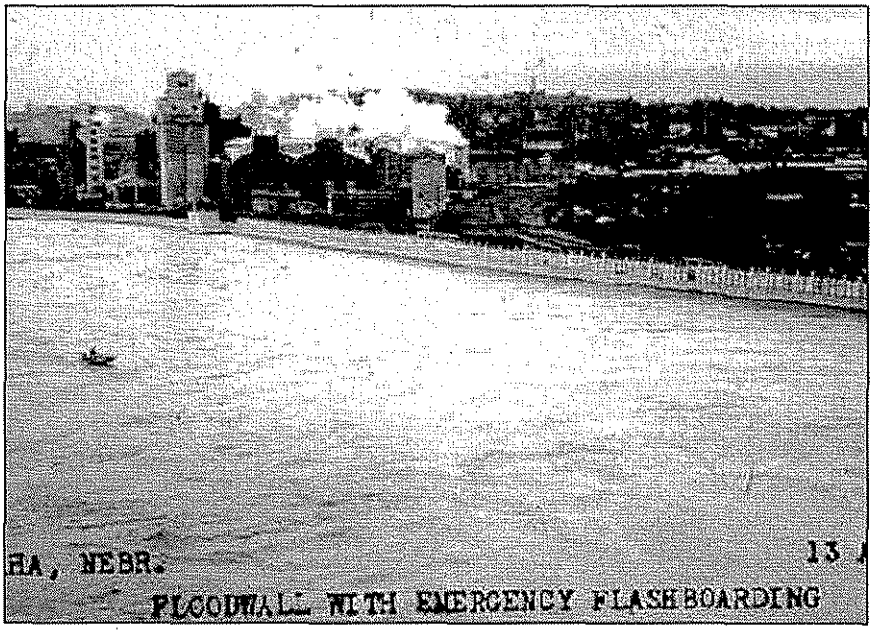
Historic Floods on the Missouri River

Fighting the Big Muddy in Nebraska



The Missouri Flood of 1952
Omaha's floodwall is tested for the first time. As you can see in the photo, emergency freeboard was added to the floodwall for additional height.

The Missouri has the largest upstream drainage basin of any river in Nebraska (414,400 mi.2 at Nebraska City), so it has proven capable of thwarting almost every attempt to control it. The United States Army Corps of Engineers (USACE) completed six large reservoirs along the "main-stem" of the Missouri in order to try to control floods and provide other benefits. However, as the flood of 1993 illustrates, the Missouri still has the potential for causing major problems.

Ice jam, snowmelt, and intense rainfall are all causes of floods which have occurred historically on the Missouri. Ironically, the main-stem reservoirs built in-part to control floods may exacerbate the ice jam problem because low wintertime discharges might facilitate ice formation. Floods along the Missouri River in Nebraska have occurred frequently; however, major floods have occurred in 1881, 1943, 1952, 1967, 1978, and 1993. The flood of record occurred in April, 1952.

Originally settled because of its proximity to the valuable river transportation of the Missouri River, settlers soon discovered that contending with floods was one of the prices they would have to pay for convenience. Dating back to pioneer times, the first detailed report of Missouri River flooding in 1881 stated that three people died in northeastern Nebraska as a result of an ice jam breakage. The reports indicate that thousands of livestock were also killed and that entire towns were swept away by the torrent. The release of water, which was yellow with clay and debris from cornfields, trees, and houses, later flooded Omaha up to 9th Street. Several hundred yards of rip-rap "gave away like cheesecloth" before the floodwaters as they inundated the Union Pacific coal and lumber yards. The River reportedly remained high for several weeks and, during the height of flooding, was reported to have been five miles wide. Since shipping was one of the only forms of transportation, the industrial, trade, and docking buildings were situated close to the river's edge and were severely damaged if not

destroyed. Losses from this flood were said to be "in the millions," and in 1881 dollars that would equate to a major flood.

Another major flood occurred in April, 1943. Snow accumulations up to two feet melted rapidly with the arrival of sudden warm weather. This snowmelt emptied into the Missouri River all at once which, at the peak of flooding, spanned 15 miles between Decatur, Nebraska, and Onawa, Iowa. At Omaha, the river crested at 22.45 feet and had a discharge of 200,000 cubic feet/second (89,760,000 gallons/minute). 3000 men helped fight the flood, but after a week, the River found a weak spot in the temporary dike and the battle was lost. 100 homes were flooded when the floodwater also breached a new dike at Locust Street. The industrial section on Grace Street was flooded, and businesses were closed several days. 1000 people were evacuated from Carter Lake and East Omaha as the old Lake Florence bed filled and inundated the airport with seven feet of water in 18 hours. One person was killed in Omaha and the damage estimate there was $1.4 million. At Tekamah, water filled the then-dry Lake Quinnebaugh. Downstream, dikes at Pacific Junction and Hamburg held, but the dike at Peru failed.

A new record crest was established in Omaha in 1947. In 1950, a flood of the same magnitude as the 1943 event occurred, but Omaha's new $6 million floodwall prevented any damages.

The flood of April, 1952, still stands as the flood-of-record for the Missouri at Omaha. On April 16, the river's discharge was 396,000 cubic feet/second (177,724,800 gallons per minute) with a record stage of 40.2 feet (flood stage at Omaha is 29 feet). The first flood warnings were issued on April 7 from Niobrara to Rulo, a sign of the severity of the impending flood. By the 13th, all 5,557 residents of South Sioux City were urged to evacuate by the mayor as dikes protecting the City had failed days earlier and a third of the City was flooded to a depth of eight feet. Evacuation orders were commonplace: all 622 residents of Dakota City, 30,000 in Council Bluffs, 40,000 from Carter Lake and East Omaha, and numerous other places up and down the river. 75 homes were flooded in Niobrara; Homer and La Platte were virtually abandoned; Blair set a record crest of 23.15 feet (flood stage is 18.0 feet); the flow reached 400,000 cfs at Plattsmouth; 20 families were rescued in Bellevue; the stage of 27.66 feet and record discharge of 414,000 cfs meant that the flood exceeded the 500-year level at Nebraska City; and families were evacuated in Rulo. President Truman personally visited the scene of the flooding in Omaha and officially declared it a disaster area. Although the crest passed Omaha without causing a floodwall breach, other places were not as fortunate. South Sioux City damage estimates alone were $2.5 million, and $11.9 million was the Corps of Engineers' preliminary estimate for the entire flood. It is doubtful, however, that this estimate takes into consideration all aspects of flood damage such as infrastructure, agriculture, business interruption, and other direct losses. 180,000 agricultural acres were inundated, and of the 1,400 houses inundated in the flood, 681 were farmsteads. In urban areas, 2,100 homes were evacuated, totaling 13,000 displaced people (not including Omaha). 1.4 million manhours were worked to fight the flood.

Smaller flood events continued on the Missouri after 1952. Evacuations took place in Bellevue and Rulo on March 30, 1960. On April 1, 1962, 400 families were evacuated from the bottomland areas near Bellevue due to a high Missouri which backed-up the Platte River. On June 18, 1967, the worst flood since 1952 in Nebraska City (23-foot crest, 18-foot flood stage) flooded the docks and industrial area. On June 15, 1984, 200 families were evacuated from their homes in La Platte and Bellevue; they couldn't go back for two weeks. This same flood event equalled the 100-year flood in Rulo, and several families were forced to evacuate as their homes and cabins were flooded. On June 18, 1990, 15-30 homes had floodwater 2-4 feet deep at Iske Park and Holubs Place Subdivisions (note: the Papio-Missouri River Natural Resources District acquired and demolished homes in the Holubs Place and neighboring Elbow Bend Subdivisions after they were severely flooded again in 1993).

The United States Army Corps of Engineers (USACE) completed the construction of six large dams on the Missouri River in the early 1960s. The severe flooding in the 40s and 50s was a major impetus for their construction. These dams provide a flood control benefit, but also provide recreation, power generation, fish and wildlife, water supply, and irrigation benefits. The Corps also constructed a levee/floodwall system in

Omaha which provides protection to the 500-year (0.2% chance per-year) flood. While these actions have reduced flood damages and tamed the river, environmentalists would also be quick to point out that they have been devastating to the environment. The habitat of fish and wildlife like the Pallid Sturgeon and Piping Plover has been significantly reduced because they depend on the seasonal variations in current and sediment load. As a result, both species have been placed on the Endangered Species List.

But even with the structural projects and channel modifications, the Missouri River again threatened riverside development in 1993. Unusual weather conditions brought wave after wave of storms over the Midwest, dumping record amounts of rain. Hardest hit was the State of Iowa which had every county declared a Federal disaster area. All told, nine states along the Upper Mississippi and Missouri rivers had counties which were declared disaster areas.

In Nebraska in 1993, 52 counties were declared Federal disaster areas due to flooding and tornadoes from the severe storms. The month of June was the sixth wettest on record since 1931 with an average of 5.30 inches of precipitation - normal is 3.73 inches. In July, statewide precipitation set an all-time record with 8.50 inches of rainfall. 20-26 inches of rain fell in the southeastern counties of Pawnee, Nemaha, Otoe, and Richardson, and 10 to 20 inches of rain fell in a band from Harlan County Dam to Omaha. The Missouri set record crests in Plattsmouth and Brownville, and river levels from Omaha to Rulo were the highest since 1952. The stretch from Brownville to Rulo was above flood stage for the entire month of July. A breach in a Corps levee (L-550) near Brownville threatened the Cooper Nuclear Power Plant. This flood event was probably the most damaging in Nebraska history after 258 different entities filed for federal disaster assistance. They were as follows:

Private assistance ----> $ 18,776,097
Public assistance -----> $ 47,799,461
Farm losses ----------> $ 61,443,215
Crop losses (est.) ----> $317,000,000
Total ----------> $445,018,773

In addition to the high damage figures, the American Red Cross (ARC) reported that 42 single family residences, 90 mobile homes, and 3 multi-family dwellings were destroyed. 1,457 additional residential structures received major or minor damage. The ARC also served 12,850 meals in ten shelters, which housed the 247 people whose homes were destroyed by the flooding and tornadoes.