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1952 flood swamps farm in Washington Cty, NE



OmahaRiverFront.com - MISSOURI RIVER HISTORY and FA Missouri River - A sleeping giant's never-enchistory of uncontrollable flooding

Published June 13, 2002 by Randy Neuman

» MIDWESTERN and NATIONAL RIVER FLOOD NEW: INFORMATION LINKS

In 1907 writer G. Fitch described the Missouri River as a river:

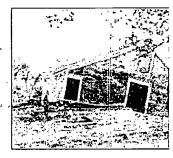
"that goes traveling sidewise, that interferes in politics, rearranges geography. a in real estate. It cuts corners, runs around at night, lunches on levees, and swall and small villages for dessert."

The Missouri River Basin extends over 530,000 square miles and covers appraised a sixth of the continental United States. The Missouri River's source stream Bitterroot Mountains of northwestern Wyoming and southwestern Montana. The mile-long Missouri River begins at Three Forks, Montana where the Gallatin, M Jefferson rivers merge on a low, alluvial plain.

Throughout recent history, the Missouri River has proven capable of thwarting a every attempt to control it. The United States Army Corps of Engineers complet reservoirs along the "main-stem" of the Missouri in order to try to control floods provide other benefits. However, as the flood of 1993 illustrates, the Missouri stream 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 inpart 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 happened 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.





Superfund



Flooded S. Sioux

City roadside farm

Dating back to pioneer times, the first detailed report of Missouri River flooding in 1881 stated that three people died in northeastern I as a result of an ice jam breakage. The reports indicate that thousands of livestoc killed and that entire towns were swept away by the torrent. The release of water was yellow with clay and debris from cornfields, trees, and houses, later flooded to 9th Street. Several hundred yards of rip-rap "gave away like cheesecloth" before floodwaters as they inundated and consumed the Union Pacific coal and lumber Muddy' reportedly remained at a high level for several weeks and, during the helflooding, was reported to have been five miles wide.

Since shipping was one of the only forms of transportation, the industrial, trade, docking buildings were situated close to the river's edge and were severely dama destroyed. Losses from this flood were said to be "in the millions," and in 1881 a would equate to a major flood.

SOME HELPFUL TERMINOLOGY DEFINITIONS

Crest: The highest level of a flood wave as it passes a point. Also, the top of a dike, levee, or spillway, to which water must rise before passing over the structu Gage Datum: The arbitrary "zero plane" from which all stage measurements are ta from. Usually set below the natural bottom of the channel so all stage height rewill be greater than zero.

River Stage: The height of a water surface above an established "zero" plane, or Datum.

Flood Stage: A height at which a watercourse overtops its banks and begins to c damage to any portion of the river valley. Flood stage is usually higher than or equ Bankful Stage.

Bankfull Stage: An established river stage at a certain point along a river which intended to represent the maximum safe water level which will not overflow the banks (flood) or cause any significant damage within the reach of the river

Cubic Feet per Second (CFS): A measurement of water flow representing one cu of water (7.48 gallons) moving past a given point in one second. One cfs equals two acre-feet per day.

Another major flood occurred in April, 1943. Mountain and plains snow accume to two feet melted rapidly with the arrival of sudden warm weather. This snowm into the Missouri River all at once which, at the peak of flooding, spanned 15 mi between Decatur, Nebraska, and Onawa, Iowa.

At Omaha, the river crested at 22.45 feet and had a discharge of 200,000 cubic for second (CFS), or 89,760,000 gallons per minute. 3000 men helped fight the floo a week, the surging Missouri River found a weak spot in one of the temporary we earthen dikes that were constructed, and the battle was lost. 100 homes were ravithe floodwater breached a new dike constructed at Locust Street.

The Omaha industrial section on Grace Street was flooded, and businesses were several days. Approximately 1000 people were evacuated from Carter Lake and Omaha as the old Lake Florence bed filled, spilling over the airport with a seven of muddy water in 18 hours. One person was killed in Omaha and the damage es there was \$1.4 million.



Sorry gents, your reserved tee time has been cancelled



Rescue by boat



Flood water waves lapping at storefronts



lowa highway 366 will be detoured for awhile

RIVER FLOOD RELATED LINKS

USACE: Missouri

River Region - Water

Management
Information

NWS - NOAA: » Missouri Basin River Forecast Center

NWS - NOAA:

» Hydrologic Info Center
- River Conditions

» River Forecasting Is
Done

» NOAA: Flood Events
Satellite Images

Weather Channel -» Flood Encyclopedia and resources

WGBH - NOVA ->> FLOOD! - River flooding and history At Tekamah, NE, water filled the then dry Lake Quinnebaugh. Downriver, earth Pacific Junction and Hamburg held, but the big dike at Peru failed.

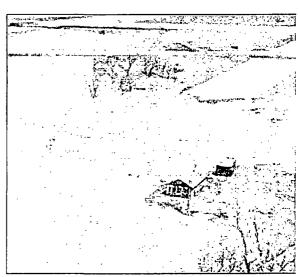
A new record crest was established in Omaha in 1947. In 1950, a flood of the sar magnitude as the 1943 event occurred, but Omaha's new \$6 million floodwall pr any damages. Constructed as a result of the 1943 Pick-Sloan Plan, the U.S. Arm Engineers constructed a levee/floodwall system to provide protection against the projected 500-year (0.2% chance per-year) flood.

The Great Flood of 1952

The Second Great Flood: A repeat of 1881 leads to a new, manmade river chann Item of Interest: This past April, 2002 - marked the 50th anniversary of this n catastrophe - the "Great Flood of 1952".

It would become one of the greatest April Fool's jokes in this area's history. On April 1st 1952, George Stutts, a Missouri River engineer, inspected the levees at Rulo, Nebraska, and declared that there was no threat of a flood in northwest Missouri.

It started with snow pack melting under an early spring sun. Raging mountain streams swollen with snow pack runoff, flowed through tributaries and into the Jefferson, Gallatin and Jefferson Rivers. These three historical rivers merge at Three Forks, Montana to form the



Water creeps onto Sioux City Airport despite battle during the great flood of '52

headwaters of the Missouri River. The Montana snows were deep and melted qu Above normal Spring temperatures promoted massive snow melt conditions. Rt washed down through tributaries and on into the Missouri River. The quickly ris flooded Pierre, S.D., ripped through the stockyards at Sioux City, Iowa, and late lids off sewer manholes in Omaha - The 'Great Flood' was on its way.

Here is a summarized daily account of the local flood events:

Monday, April 7: The first flood warnings were issued on April 7 from Niobrar Nebraska - a sign of the severity of the impending flood.

Council Bluffs Iowa Mayor James Mulqueen declares levee system in "excellent condition," but realizes vulnerability of homes on three-mile flood plain in West Mulqueen informs Iowa Governor Val Peterson of the city's situation, in case state are needed. Evacuation orders were issued and an emergency human exodus of play began to flee towns along the river, including all 622 residents of Dakota City, 3 Council Bluffs, 40,000 from Carter Lake and East Omaha, including Rulo,

- » FLOOD 2001.com:
 Midwest Flood News
 RED CROSS: Flood
 Disaster Services
- » EPA: Flood Cleanup Fact Sheet RIVERWATCH:
- » Online River Flood News
- MISSOURI RIVER

 » INSTITUTE: Research
 Info Repository
- » TERMINOLOGY GLOSSARY NOAA: RIVER
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 CORRIDOR



1993 Flood Midwest Rainfall Chart Nebraska.. South Sioux City town officials ordered the immediate evacuation of hundred residents. The Missouri's raging swell crushed dikes protecting South S Dakota City, Iowa.

Tuesday, April 8: U.S. Weather Bureau predicts a 26-foot crest, which would b higher than the great flood of 1881.

Wednesday, April 9: The river crest prediction climbs to 28.5 feet. An Army C Engineer's representative stated, "We haven't seen anything yet. ... It will be a fig the levees." The recorded Omaha river stage was 20.4 feet.

Thursday, April 10: City of Council Bluffs calls for 5,000 volunteers to man th The Red Cross says a levee break would endanger 5,846 families in the Bluffs. 7 recorded Omaha river stage was 20.7 feet.

Friday, April 11: Council Bluffs Mayor James Mulqueen declares an emergenc everyone west of 30th Street to evacuate their homes and businesses and move to ground. Council Bluffs starts to construct a backup levee system. The recorded Criver stage was 21.5 feet.

Saturday, April 12: There were places where the Missouri River now spread out 15 miles wide... and all of that water was heading south to Omaha, Nebraska and Council Bluffs, Iowa.

All nonessential businesses were ordered closed. Flooding over the elevated tracks forces the closure of the Illinois Central Railroad line north of Council Bluffs.



Omaha's 1943 floodwall holds during the F 1952

The Iowa National Guard received orders and mobilizes to assist with Council Bluffs police and surveillan Most Levee roads become unusable due to rain, floodwater and mud. One mile croad is laid at the town's important north levee. Walls of sandbags were stacked business district in Council Bluffs.

Volunteers were lining up as Omaha's disaster plan took shape. Ironically, it was of another world war, and a fight with the Russians (Cold War stress) that had O ready. Omaha's Mayor Glenn Cunningham turned to the city's Civil Defense team



leadership in this battle. A plan was put into military organization and precision. In a mat hours, volunteers began topping levees on bethe river with another three to five feet of sa flash boards. The work crews stretched alon fifteen miles of the Missouri River shoreline

Omaha's industrial backbone, and just a coul away was all of downtown. Union Pacific rail crews shored up the floodwalls ale and switchyards on both sides of the river. The recorded Omaha river stage was

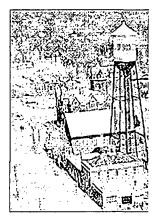
Easter Sunday, April 13: The Chicago and North Western Railroad suspends a operations and mass evacuations were well underway in the west and south side Council Bluffs, as well as east Omaha. Crews work all night to add two feet of d of Council Bluffs levees. The recorded Omaha river stage was 24.24 feet.

Meanwhile upriver, seventy-five homes had been flash- flooded in Niobrara, Ne towns of Homer and La Platte were by now virtually abandoned. Yankton South recorded the river stage of 35.5 ft at a discharge of 480,000 cubic feet/second (ct same day, further down river, all 5,557 residents of South Sioux City were order evacuate by the mayor as dikes protecting the City had failed days earlier and a 1 City was flooded. Eight feet of water poured across the city, claiming one third c and businesses.

Monday, April 14: The river at Sioux City Iowa now crested at 24.3 feet. Water surrounded the meatpacking plants and filled the stockyards. Downstream, spring planting had been only days away. The Missouri River crumbled fragile farm levees and spread across hundreds of thousands of acres of crop land.

The riverside Nebraska town of Blair recorded a record crest of 23.15. The Council Bluffs crest prediction was revised up to expect at least 31.5 feet.

An Omaha based U.S. Army Corps of Engineers spokesman was overheard lamenting, "The Missouri is coming with a rip and a roar... We're in a hell of a lot of trouble." The U.S. Army sends in 6,000 troops. Lt. Gen. Lewis Pick, chief of the U.S. Army Corps of Engineers arrives in Omaha to access the situation up close. All Council Bluffs schools are



Click on this picture SLIDESHOW of SIO AREA scenes from 1

officially closed until further notice. The recorded Omaha river stage was 25.6 fc Tuesday: April 15: Council Bluffs evacuated to Seventh Street. Violent sand be

threaten and beat at levees. Water-soaked and saturated levees were said to "quiv Jello" under footsteps. A confident member of the Corps of Engineers was overl say, "...the river's going to know it's in the damnedest fight it's ever had. And we to lick it."

Over 100,000 local Omaha and Council Bluffs, Iowa citizens were had thus far l to evacuate. Council Bluffs residents had evacuated 17 square miles of the city a tons of sand and gravel were used along the levees. The recorded Omaha river st feet.

Wednesday, April 16: President Harry Truman stops at Offutt Air Force Base f briefing. He personally visited the scene of the flooding in Omaha and during a l broadcast on KOIL radio, officially declared Omaha-Council Bluffs a disaster area. Volunteers completed a four-foot flashboard fence atop the main Council F levee and begin backing it with dirt and sandbags. The river's discharge at Omah recorded at 396,000 CFS, or, 177,724,800 gallons per minute. The Omaha flood was set at 29 feet. The recorded Omaha river stage was 28.3 feet.

Thursday, April 17: The Missouri River crested in Omaha at 30.25 feet...the h in the city's history, and a record never broken thus far.

The river stage hits 34.24 feet at north levee in Council Bluffs. In Omaha, approximately 4,000 U.S. troops were now ordered in to assist with shoring the levees along the riverfront.

A great portion of the Omaha riverfront area was protected by the existing levee/floodwall system constructed in 1943. At this time, Omaha's existing wooden floodwall was showing signs of stress from holding back the rising river. Roadblocks set up on highways leading to river bridges, restricting traffic to only necessary vehicles. There were an estimated 35,000 local citizen volunteers and troops down on the riverfront filling and throwing sandbags, driving earth



Click on this picture SLIDESHOW of CC BLUFFS scenes from Flood

moving equipment, moving supplies and whatever else was needed to support th "front lines". The recorded Omaha river stage was 29.67 feet and cresting.

Friday, April 18: The river's crest would take about eight hours to pass. Meanw emergency Omaha workers scramble to plug a storm drain blowout at 11th and 6 Streets flooding 1,000 industrial acres north of downtown, threatening to flank a undermine levees. The Army Corps of Engineers rushed in with men and heavy After a hectic period of time, they successfully created a temporary steel and roc block the escaping river water.

Saturday, April 19: The cresting high water at Omaha passes by and levees hol began to slowly recede. Twenty stranded families had to be rescued from floodin Bellevue, Nebraska. In Iowa, Plum Creek levee became saturated and collapsed, north of Hamburg, causing massive flooding of homes and acreage in lowlands the valley.

At Plattsmouth, Nebraska, river discharge reached a recorded maximum flow of CFS. Just to the south on the same side of the river at Nebraska City, the raging reached a stage of 27.66 feet (flood stage was 18.0 feet) with a record discharge CFS, exceeding the predicted 500-year historic projected level. At that time, rec an estimated figure of just over 187,000 acres of land bordering the Missouri Rivbeen inundated by flood water.

Further downriver in Missouri at the city of St. Joseph, the river Crested at 26.8 April 23. (14.5 feet above flood stage). This recorded stage matched the record of 1882. 10 billion gallons of water was rushing by the city every hour. Eventual

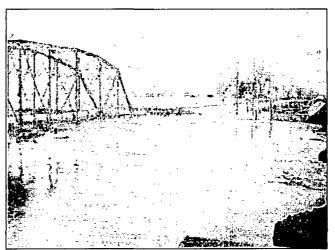
flood waters created a situation where the mayor of St. Joseph requested that all were to report immediately to the now-threatened Rosecrans Memorial Airport *a* order to shore up the existing levees and make them higher. The river water rose eventually flooded the Rosecrans Memorial Airport, then on through to the Lake Amusement Park. It was estimated that at it's widest point, at cresting, the river *s* miles from St. Joseph to Wathena, Kansas. Some 2,500 people stood along the to stacking up sandbags in a frantic effort to keep the water out of the oldest part of

Original river channel redirected

When the water receded at St. Joseph, Missouri, the U.S. Army Coof Engineers had a plan: Why not take out the wide bend in the river wrapped around Rosecrans Memorial Airport, and force the river intense and supposedly less flood-prone channel? Although the new channel would cut St. Joseph off from its own airport, the plan won to city's backing, and on Oct. 4 thousands of folks gathered on blufftop and overlooks to see the spectacle.

Only a wall of dirt separated the old river from its new manmade b With one and a half tons of nitroglycerin and dynamite, the Corps blacked in the wall and threw dirt and rock 600 feet into the air. The rive rushed through the gap and -- during the next six months of rapid erosion, established new banks between Rosecrans Airport and the bluffs along MacArthur Drive. An oxbow lake (Browning Lake) was formed in the old Bellemont Bend and Elwood Bend portions of the channel. The cut-off channel modified portions of Bon Ton Bend and Joseph Bend, and separated the city from the airport. A bridge and highway were later constructed to connect the two.

Farmers were eventually forced to empty their stock yards or else the cattle wou drown. Cities along the river looked like ghost towns when the evacuation was



Little Sioux River train bridge engulfed by flood water

Many sewers were ripped water pressure and erosior time during the flood, ove. acres of land was inundate water falls were formed or destroying many roads. W flood waters finally had go down the "Muddy Mo" let of thousands of pounds of silt on the land.

An estimated 7,500 Red C would be sent in to make 1 camps for the 100,000 evaliving along the Missouri I the entire area would be at

an official disaster area. Now even more troops were sent in.

Whether the Corps' flood-fighting measure was successful has been debated even on more so than during the Great Flood of 1993, which came just 31 years after engineering project.

It lasted from April 12 to June 29, that unmerciful torrent of seemingly unstopp floodwater bullied it's way through lowlands and bottom areas from Niobrara t north, then southward to the "Big Bend", where directly in it's path lie the old (town of old South Sioux City, at the same time on it's eastern river banks envel Sioux City itself - Draining southward, steamrolling through vulnerable small lying towns that dot along the old river channel like targets at a turkey-shoot the heart of the Missouri River Valley, which is bordered by the majestic rollin elevations of the Loess Hills and then, to be constricted and squeezed by the sc river channel that carves through the stalwart, 'big' cities of Omaha and Counci The muddy beast ripped unleashed through levees and dikes, unconscionably d farmland and killing livestock. Basic community support infrastructures such a water systems were polluted and uncontained sewage was spread with the poss infectious disease. Power and communication systems were disrupted and som destroyed. Whole communities were shut down, ruination of personal property keepsakes, historical items, irreplaceable objects, family heirlooms and docum-Lives were forever altered and families became temporarily displaced. Busines resources and capital equipment were ruined. Unparalleled devastation and total destruction was witnessed and recorded along the invading rogue's path, unmer spreading destruction to states and towns in it's inevitable path until meeting ul termination at it's confluence with 'Old Man River'.

Other floods claimed more lives, but the devastation brought by the swollen Mis Spring of 1952 was staggering. 50 years later no other emergency has matched to River flood of 1952. It was the largest recorded flood in the history of the Misso and still stands as the flood-of-record for the Missouri at Omaha Nebraska.

Although the crest passed Omaha without causing a floodwall breach, other plac as fortunate. South Sioux City damage estimates alone were \$2.5 million, and \$1 was the Corps of Engineers' preliminary estimate for the entire flood. It is doubt however, that this estimate takes into consideration all aspects of flood damage s infrastructure, agriculture, business interruption, and other direct losses. 180,000 agricultural acres were inundated, and of the 1,400 houses inundated in the flood farmsteads. In urban areas, 2,100 homes were evacuated, totaling 13,000 displac (not including Omaha). 1.4 million manhours were worked to fight the flood.

A federal plan for a massive Missouri River flood control system collected dust years before the disaster of '52. President Harry Truman saw the damage to Net Iowa and his home state of Missouri...and he got mad. The Garrison Dam and Fo Dams were completed two years later, Gavin's Point in 1956. Oahe, in '62, Big I later.

1960 to 1990 Floods

Smaller flood events continued on the Missouri after 1952. Evacuations took pla Bellevue and Rulo, Nebraska on March 30, 1960. On April 1, 1962, 400 familie:

evacuated from the bottomland areas near Bellevue due to the flooding Missouri which backed-up the Platte River causing upstream flood surges.

On June 18, 1967, the worst flood since 1952 in Nebraska City (23-foot crest, 18 stage) flooded the docks and industrial area. On June 15, 1984, 200 families wer evacuated from their homes in La Platte and Bellevue, Nebraska. They could not their homes for two weeks. This same flood event equaled the 100-year flood in Nebraska, where many families were forced to evacuate as their homes and cabi flooded.

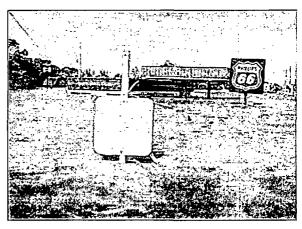
On June 18, 1990, fifteen to thirty homes had floodwater 2-4 feet deep at Iske Pa Holubs Place Subdivisions in Nebraska. (Note: the Papio-Missouri River Natura Resources District acquired and demolished homes in the Holubs Place and neig Elbow Bend, Nebraska subdivisions after they were severely flooded again in 15

Great Flood of 1993

The Great Flood of 1993 on the upper Mississippi River, the Missouri River and other rivers flowing into them cost an estimated \$21 billion, covered parts of nin and lasted three months. Even with the main stem dam system and channel modi the Missouri River again threatened riverside farmland, highways, homes, busin lives. Unusual weather conditions brought wave after wave of storms over the M 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, 52 counties were declared Federal disaster areas due to flooding and tornadoes from the severe storms.

The month of June 1993 was the sixth wettest on record since



1993 Floodwaters in St. Joseph, Missor

1931 with an average of 5.30 inches of precipitation - normal is 3.73 inches. In J statewide precipitation set an all-time record with 8.50 inches of rainfall. 20-26 i rain fell in the southeastern counties of Pawnee, Nemaha, Otoe, and Richardson, 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

1993 Midwest Flood st historical comparison statistic

Flood 1993 P Mississippi stage record re

Power	P	lant
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		17111

This flood event was probably the most damaging in Nebraska history as far as monetary figures are concerned. 258 different entities filed for federal disaster assistance:

Private assistance	\$ 18,776,097
Public assistan	ce\$ 47,799,46
Farm losses Crop losses (es	\$ 61,443,215 st.)\$ 317,000,000
Total	\$ 445,018,773

In addition to the high damage figures, the American Red Cross 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 American Red Cross also served 12,850 meals in ten shelters, which housed the 247 people whose homes were destroyed by the flooding and tornadoes.

River	in feet	in feet	fe d:
Quad Cities,	15	22.6	2: 4/
Burlington, lowa	15	25.1	2 ⁻ 4/
Quincy, III.	17	32.2	28 4/
St. Louis	30	49.6	4 : 4/
Chester, III.	27	49.7	4 : 4/
Missouri River			
St. Joseph, Mo.	17	32.7	2 € 4/
Kansas City, Mo.	32	48.9	46 7/
Jefferson City, Mo.	23	38.6	3 4 7/
St. Charles, Mo.	25	39.5	37 1(

Instead of prompting calls for more flood control measures, the 1993 flood gave the idea of relocating homes, businesses and even entire small towns away from plains. The 1993 floods along with other floods since then are encourging lawns find ways to discourage people from building in areas likely to be flooded and to those who live in such areas to buy more insurance.

While the flood damaged or destroyed moe than 22,000 homes and water compleovered more than 75 small towns, it could have been worse. The Army Corps o reported that reservoirs and levees held back water that would have doubled the value of the damage. \updownarrow

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