

# Rochester Post-Bulletin

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## At Least 5 Dead in Flood Here; Property Damage Worst Ever

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Figure 2--Newspaper account of the extreme storm and its tragic effect

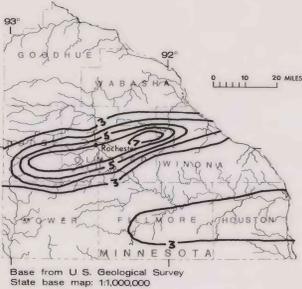


Figure 1--Isohyet map for July 5-6 storm rainfall, interval 1-inch



Second Avenue NE bridge



Entrance to Soldiers Field



Sixth Avenue SE and Fourth Street SE



Apache Mall



Sewage treatment plant



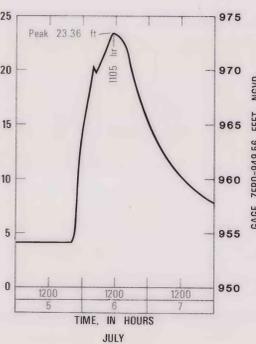
Confluence of South Fork Zumbro River and Cascade Creek



Center Street Bridge and railroad bridge



Confluence of South Fork Zumbro River and Bear Creek



### Zumbro's Record 23-Ft. Crest Came At Noon Thursday

Tons of rain which fell for about eight hours Wednesday night and Thursday morning caused the biggest flood in Rochester's history.

Figure 3--Graph indicating rise, peak, and decline of South Fork Zumbro River near Rochester gaging station, July 5-7, 1978 and newspaper article about flood peak



County Road 22



Powerplant



Civic Center



Milk processing plant



Soldiers Field



Intersection of Broadway Ave. and Highways 14 and 52

**INTRODUCTION**  
The above photomosaic shows the area inundated by the South Fork Zumbro River (hereafter referred to as South Fork) at Rochester, Minn., during the flood of July 5-7, 1978. Description of the magnitude of the flood should assist local, State and Federal officials in evaluation, coordination, and management programs concerned with floods and flood losses. The purpose of this report is to provide a summary of some of the hydrologic data collected during the flood.

Floodmarks were identified in a 10-mile reach of the South Fork upstream, within the city, and downstream of Rochester. Elevations of the floodmarks were determined by leveling to benchmarks, and from U.S. Geological Survey gaging-station data. Flood boundaries were delineated from aerial photographs (scale 1 in = 300 ft) taken at or very near the peak stage and verified by field inspection and cross-referencing profile data collected by other State and Federal agencies.

Peak elevation (stage) and discharge data for major floods on the South Fork for the dates indicated are tabulated below:

| Date   | Elevation Above NGVD of 1929 (ft) | Discharge (ft <sup>3</sup> /s) |
|--|-----------------------------------|--------------------------------|
| South Fork Zumbro River on Bellline at Rochester (1969-78) |                                   |                                |
| July 6, 1978   | 1005.97                           | 20,500                         |
| South Fork Zumbro River near Rochester (1855-1978)         |                                   |                                |
| Oct. 18, 1855  | 967.6 (estimated)                 | Undetermined                   |
| June 23, 1908  | 967.6 (estimated)                 | Undetermined                   |
| Mar. 29, 1962  | 968.02                            | 18,000                         |
| Mar. 1, 1965   | 968.68                            | 19,600                         |
| July 6, 1978   | 972.92                            | 30,500                         |

**RECURRENT INTERVALS**  
As applied to flood events, recurrence interval is the average interval of time within which a given flood will be equaled or exceeded once. It is inversely related to the chance of a flood of a given height being equaled or exceeded in any one year. Thus, a 20-year flood would have 1 chance in 20 of being equaled or exceeded in any year, or a 100-year flood would have 1 chance in 100 of being equaled or exceeded in any year.

**ACKNOWLEDGMENTS**  
The Minnesota Department of Natural Resources (DNR) State Climatology Office, furnished the rainfall and storm chronology data. The aerial photography for the photomosaic was taken by Mark Hart Aerial Surveys, Inc., Golden Valley, Minn. Flood photographs were furnished through the courtesy of the U.S. Army Corps of Engineers, St. Paul District.

**REFERENCES**  
Minnesota Department of Natural Resources, 1976. Hydrologic year data 1976. Minnesota Department of Natural Resources, Division of Waters, 58 p.  
U.S. Geological Survey, 1979. Water resources data for Minnesota, water year 1978, Volume 2. Upper Mississippi and Missouri River basins. U.S. Geological Survey Water-Data Report MN-78-2, 425 p.

**FLOOD DATA**  
The flood of July 5-7, 1978, on the South Fork reached a peak elevation of 972.92 feet above the National Geodetic Vertical Datum (NGVD) of 1929, on July 6 at the Geological Survey gaging station, South Fork Zumbro River near Rochester, located 1.6 miles downstream from Rochester. It was the highest for the period of known floods since at least 1855 (Post-Bulletin, Rochester, Minn., July 11, 1978). The previous maximum of record was 968.68 feet NGVD of 1929, at the same station during the flood of March 1, 1965. Figure 3 shows the rise, peak, and decline of the South Fork for the July 1978 flood.

**FLOODED AREA**  
The area covered by the photomosaic is shown in figure 4. The photomosaic shows the area flooded by the main river only; tributaries crested earlier in the day and caused some flooding locally. Although the extent of flooding was for the most part clearly visible and discernible, it is possible that flooding may have extended beyond the flood outline in some areas. Flood-peak elevations for the 1978 flood, in feet, are shown on the photomosaic. Also shown are USGS gaging stations.

**CONVERSION TABLE**

| Multiply inch-pound units by               | To obtain SI units                                 |
|--|--|
| inch (in)                                  | 25.40 millimeter (mm)                              |
| foot (ft)                                  | 0.3048 meter (m)                                   |
| mile (mi)                                  | 1.609 kilometer (km)                               |
| square mile (mi <sup>2</sup> )             | 2.590 square kilometer (km <sup>2</sup> )          |
| cubic foot per second (ft <sup>3</sup> /s) | 0.02832 cubic meter per second (m <sup>3</sup> /s) |

**EXPLANATION**

- Area flooded July 5-7, 1978
- Boundary of 1978 flood
- 1005.97 Flood crest elevation, in feet, NGVD
- Gaging station

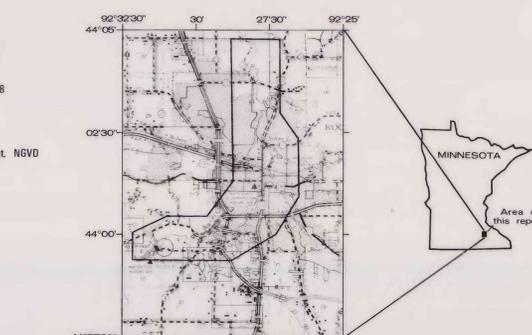


Figure 4--Index map showing location of flood area

## FLOOD OF JULY 5-7, 1978, ON THE SOUTH FORK ZUMBRO RIVER AT ROCHESTER, MINNESOTA

By Vito J. Latkovich  
1979