

resulting damage totaling approximately \$220,000, or nearly one-third of all the reported damage from the flood. Very little direct damage was done within the city of Portland, the principal loss being the cost of moving goods, pumping water from basements in the business section, and cleaning up after the flood.

The Snake River reached its crest at Lewiston May 20, and at Weiser May 23, but did not commence to fall rapidly until the crest was reached in the upper Columbia shortly before the middle of June. Flood stages were not reached on the Snake River, nor at Umatilla,

Celilo, or Cascade Locks on the Columbia. The backwater in the Willamette River at Portland reached the flood stage May 17, three days earlier than the average, and fell below the flood stage on July 10, one day later than the average. The crest, 24.3 feet, was 0.1 foot below the one-day forecast, 0.2 below the two-day forecast, and 0.4 below the three-day forecast. Summaries of flood data and loss and damage are given below. The number of acres affected is greater than the number reported.

Flood data for 1921 and comparative data.

Station.	River.	1921.				Comparative data.				
		Flood stage.	Duration days.	Crest height.	Date of crest.	Highest record.	Average date of crest.	Average height of crest.	Mean June, 1921.	June normal.
Weiser.....	Snake.....	14	0	13.6	May 23.....	26.5	June 1	11.5	10.5	8.6
Kamiah.....	Clearwater.....	14	10	15.4	May 20.....					
Lewiston.....	Snake.....	22	0	19.1	May 20.....	26.6	May 30	16.0	14.1	11.5
Bonniers Ferry.....	Kootenai.....	26	14	27.9	June 10.....	32.7	June 11	24.7	24.7	20.8
Newport.....	Pend Oreille.....	16	31	19.8	June 13.....	24.9	June 12	16.0	18.2	
Marcus.....	Columbia.....	24	56	32.1	June 13.....	33.8	June 23	30.5	30.4	
Wanatchee.....	do.....	40	19	44.4	June 11-12.....	58.0	June 14	38.2	41.3	38.9
Umatilla.....	do.....	25	0	24.8	June 10-11.....	34.5	June 9	21.5	22.1	18.3
Celilo.....	do.....	30	0	21.9	June 11.....	23.4			18.8	14.9
The Dalles.....	do.....	40	10	42.4	June 11.....	59.6	June 12	36.7	37.4	
Cascade Locks.....	do.....	46	0	33.9	June 11.....	49.6	June 11	28.8	29.4	23.3
Vancouver.....	do.....	15	55	25.2	June 12.....				22.9	18.2
Portland.....	Willamette.....	15	54	24.3	June 12-13.....	33.0	June 11	20.3	22.1	17.6

Highest summer stages, Willamette River, Portland, Oreg.

Year.	Feet.								
1876.....	28.2	1887.....	25.7	1896.....	23.8	1905.....	13.6	1914.....	16.8
1879.....	20.5	1888.....	18.2	1897.....	23.7	1906.....	13.4	1915.....	12.6
1880.....	27.3	1889.....	10.0	1898.....	20.7	1907.....	19.2	1916.....	23.9
1881.....	19.7	1890.....	20.1	1899.....	24.2	1908.....	21.2	1917.....	23.8
1882.....	25.1	1891.....	14.1	1900.....	17.8	1909.....	21.6	1918.....	19.2
1883.....	17.8	1892.....	19.3	1901.....	20.8	1910.....	19.1	1919.....	18.6
1884.....	20.2	1893.....	22.0	1902.....	20.8	1911.....	19.2	1920.....	14.8
1885.....	14.5	1894.....	33.0	1903.....	24.0	1912.....	19.7	1921.....	24.3
1886.....	20.0	1895.....	16.3	1904.....	20.8	1913.....	24.0		

Floods during month of July, 1921.

River and station.	Flood stage.	Above flood stages—dates.		Crest.	
		From—	To—	Stage.	Date.
ATLANTIC DRAINAGE.					
<i>Santee:</i>	<i>Feet.</i>			<i>Feet.</i>	
Rimini, S. C.....	12	18	18	12.2	18
Do.....	12	20	27	13.3	24
Do.....	12	30	30	12.1	30
Ferguson, S. C.....	12	19	29	13.0	26,27
MISSISSIPPI DRAINAGE.					
<i>Big Pigeon:</i>					
Newport, Tenn.....	6	21	21	6.5	21
<i>Missouri:</i>					
St. Charles, Mo.....	25	(*)	5	28.0	1
<i>Grand:</i>					
Brunswick, Mo.....	10	(*)	8	12.4	3
<i>Arkansas:</i>					
Fort Lyon, Colo.....	6	19	19	6.7	19
<i>Canadian:</i>					
Logan, N. Mex.....	8	21	21	15.0	21
<i>Sulphur:</i>					
Finley, Tex.....	24	(*)	5	27.6	1
Ringo Crossing, Tex.....	20	(*)	1	21.0	1
<i>Neches:</i>					
Rockland, Tex.....	20	12	16	21.0	13
<i>Trinity:</i>					
Liberty, Tex.....	25	(*)	4	28.0	1,2
COLORADO DRAINAGE.					
<i>Colorado:</i>					
Parker, Ariz.....	7	(*)	15	9.6	1
Yuma, Ariz.....	25	(*)	1	25.0	1
PACIFIC DRAINAGE.					
<i>Columbia:</i>					
Marcus, Wash.....	24	(*)	16	29.2	1
Vancouver, Wash.....	15	(*)	10	18.9	1
<i>Willamette:</i>					
Portland, Oreg.....	15	(*)	9	18.1	1

* Continued from June.

Statistics of money loss by flood.

Kind of loss or damage.	In Port-land.	Outside.	Total.
Buildings, etc.....	\$30,505	\$99,975	\$130,480
Crops.....		57,600	57,600
Prospective crops (acres 13,965).....		318,790	318,790
Movable property.....		1,650	1,650
Suspension of business.....	9,123	140,404	149,527
Total.....	39,628	618,419	658,047
Saved by warnings.....	121,625	481,030	602,655

MEAN LAKE LEVELS DURING JULY, 1921.

By UNITED STATES LAKE SURVEY.

[Detroit, Mich., Aug. 4, 1921.]

The following data are reported in the Notice to Mariners of the above date:

Data.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during July, 1921:				
Above mean sea level at New York.....	602.59	580.44	572.90	246.37
Above or below—				
Mean stage of June, 1921.....	+0.16	-0.14	-0.12	-0.24
Mean stage of July, 1920.....	-0.28	-0.59	+0.27	+0.67
Average stage for July, last 10 years.....	+0.05	-0.53	+0.05	-0.42
Highest recorded July stage.....	-1.23	-3.14	-1.51	-2.35
Lowest recorded July stage.....	+1.11	+0.54	+1.44	+1.78
Average relation of the July level to:				
June level.....		+0.10	0.00	0.00
August level.....		0.00	-0.20	+0.80

* Lake St. Clair's level: In July, 575.62 feet.