

Deadliest Floods in West Virginia History, Ranked by Fatalities

Draft, J. Steven Kite, West Virginia University Geology & Geography, 17 August 2016

Date(s)	Locations	Description	Fatalities	WV Damage (adjusted to 2015 \$)	References
26 Feb 1972	Buffalo Creek, Logan County	Coal waste dam failure; USGS calculated 1,400 cms (50,000 cfs) peak flow from 15.7 km ² (6.05 mi ²) basin; 1/3 of material behind dam was sediment; may have begun as hyper-concentrated or debris flow. Modest 94 mm, 3 day rainfall; nearby streams had only 2-10 year flows.	125, including 4 missing 1,100 injured >4000 homeless	\$30,000,000 to \$100,000,000 (\$170,454,000 to \$568,181,000) \$100 million suit (\$50 million for damages & clean up) settled for only \$1 million, COE cleanup cost \$3.7 million; class action suits by victims & child survivors settled for \$18.3 million; 551 homes destroyed, 943 damaged. FEMA Decl. 323	Davies et al., 1972; Erickson, 1976; Stern, 1976; WV Division of Culture & History, 2015.
9 Aug 1916	Cabin Creek, incl. Cane Creek, Coal Creek, Little Coal Creek	Cloudburst floods, 2 reports of 150 mm rainfall at Madison; antecedent Hurricanes 1 & 3, tracked SW of WV in July	40 to 60 Henry (1916): <50 Erskine (1952): 40 Hoyt & Langbein, (1955): 60	\$5,000,000 (\$108,696,000) Henry (1916): \$575,000 (\$12,500,000) damage according to later dispatches	Erskine (1952) p. 3; Henry 1916; Hoyt & Langbein (1955) p. 362;
4-7 Nov 1985	Cheat, Potomac, Shenandoah, Greenbrier, Elk, Buckhannon, Tygart, Monongahela, Upper Gauley rivers	Tropical low tracked over eastern WV after Hurricane Juan passed thru Western KY; Many debris flows in Potomac Highlands, Cheat runoff nearly unprecedented in Ohio River basin; 100-300 mm rain in 48 hr. over large area.	47 in WV 22 in VA, 1 in MD, 1 in PA 18,000 homeless in all states	Nearly \$700,000,000 in WV (\$1,540,000,000) WV only: ~4000 homes and 2,027 bridges destroyed; >8968 homes damaged, 711 business destroyed or damaged; FEMA Decl. 753	Carpenter (1990); Clark et al., 1987; Colucci et al. (1993); Janssen (1985); Jacobson (1993); Jacobson et al. (1987); Jacobson et al. (1993); Kite & Linton (1993); Lescinsky (1986); Miller & Parkinson (1993); Noonan (1988); Region III Interagency Flood Hazard Mitigation Team (1985)
30 Sep 1870	Shenandoah River, especially Virginus Island, Harpers Ferry	“Waterspout” south of Front Royal, VA; Potomac R. was not flooding, thus high velocity flow on Shenandoah R. at Harpers Ferry. >200 mm rain in 48 hr.	43 in WV 17 dead in VA (42 or more die on Virginus Island)	\$5,000,000 (\$91,000,000) in whole Shenandoah Valley, incl. every bridge & all but two mills. 70 buildings destroyed on Virginus Island	Hoyt & Langbein (1955), p. 340; Jansen (1985), p. 30-31; Johnson (1995); Kite, (1908?) p. 70-79; National Park Service, (undated); Silvius, (1998); WV Division of Culture & History (1997)
24-26 Jun 1950	West Fork, Hughes, & Little Kanawha rivers, Middle Island & Leading Crk.; Berea, West Union, Weston, Smithburg, Doddridge & Ritchie Co.	Torrential rains & flash floods; Charleston Gazette: 175 to 200 mm in 5 hr; USGS bucket survey: >350 mm total rainfall.	31 to 35 1000 families homeless	>\$10,000,000 (>\$98,000,000) 123 homes destroyed; 1292 damaged	Charleston Gazette, 1950a & 1950b; Gilchrist, 1997?; Hoyt & Langbein, 1955, p. 405-406; Ruffner & Blair (1981); Wells, (1954) p. 977

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19 Jul 1888	Caldwells Run, Wheeling & Ohio Co.	Most appalling cloudburst ever known in this section of WV for nearly 2 hr. Unofficial estimates of 150-200 mm.	~ 25 (16 to ~39) 3 or more in OH	\$300,000-\$582,000 (\$7,500,000-\$14,550,000) Loss of 2 city bridges & 6 trestles (B&O, Elm Grove RR)	Preston County Journal, 1888; Wheeling Intelligencer, 1888a; 1888b; New York Times, 1888; Anonymous, 2013.
4-5 Aug 1943	Little Kanawha R. basin, incl. small tributaries	Severe flash floods from violent thunderstorms that produced up to 375 mm rainfall in 2 hr.	23	\$1,300,000 (\$17,808,000)	Erskine (1952); Hoyt & Langbein, 1955, p. 60, 397; Ruffner & Blair (1981)
23 Jun 2016	Greenbrier, Elk, Gauley river basins, and numerous smaller streams, including Howard Creek.	Flash floods from repeated lines of intense convective storms along a stationary front; 100-200 mm 12-24 hr. rainfall over >4000 km ² area.	23	<i>Preliminary</i> \$340,000,000 in disaster assistance cost, estimated by State of WV; >1,000 (?) homes destroyed or damaged beyond repair; FEMA Disaster Declaration 4273 in 12 counties	West Virginia Office of the Governor press releases (2016); DiLiberto (2016), FEMA 2016a; 2016b); numerous AP and other media news stories
19 Jul 1961	Small streams near Charleston, incl. Magazine Hollow (Garrison Ave.)	Cloudburst during wettest July in history causes flash floods and debris flows; 146 mm rainfall in 4 hr.	22 (2 landslide fatalities; >200 homeless families)	\$4,000,000 (\$31,746,000) FEMA Disaster Declaration 117	Charleston Gazette, 1991; Rostvedt (1965); Ruffner & Blair (1981)
10-11 Jul 1932	Paint & Armstrong Crks., Fayette & Kanawha Co.; Otter Crk., Tucker Co.	Flash floods, most damage in Powellton, Elkridge; landslides in Tucker Co.	20 (1 landslide fatality; >500 homeless)	\$2,500,000 (\$43,103,000) >205 homes destroyed	Deitz, 1988; Erskine (1952) p. 3; Fansler (1962); Hoyt & Langbein (1955) p. 376
18 Jul 1889	Little Kanawha R. basin, esp. streams near Limestone Hill: Slate, Lee, Pond, & Sandy crks; Wood, Wirt, Jackson, & Ritchie Co.	Cloudburst causes "torrent" & landslides (debris flows?); Tygart Crk. rose 6.7 m in 1 hr; Tucker Crk. at Morristown rose 6.1 m in <2 hr; 495 mm rainfall in 2 hr. 10 min at Rockport (WV record).	19 to 23	>\$650,000 (>\$16,670,000)	The Daily State Journal (1889); Ruffner & Blair (1981); Smith et al. (2011)

Damage Conversions to 2015 \$ from Sahr, 2016

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