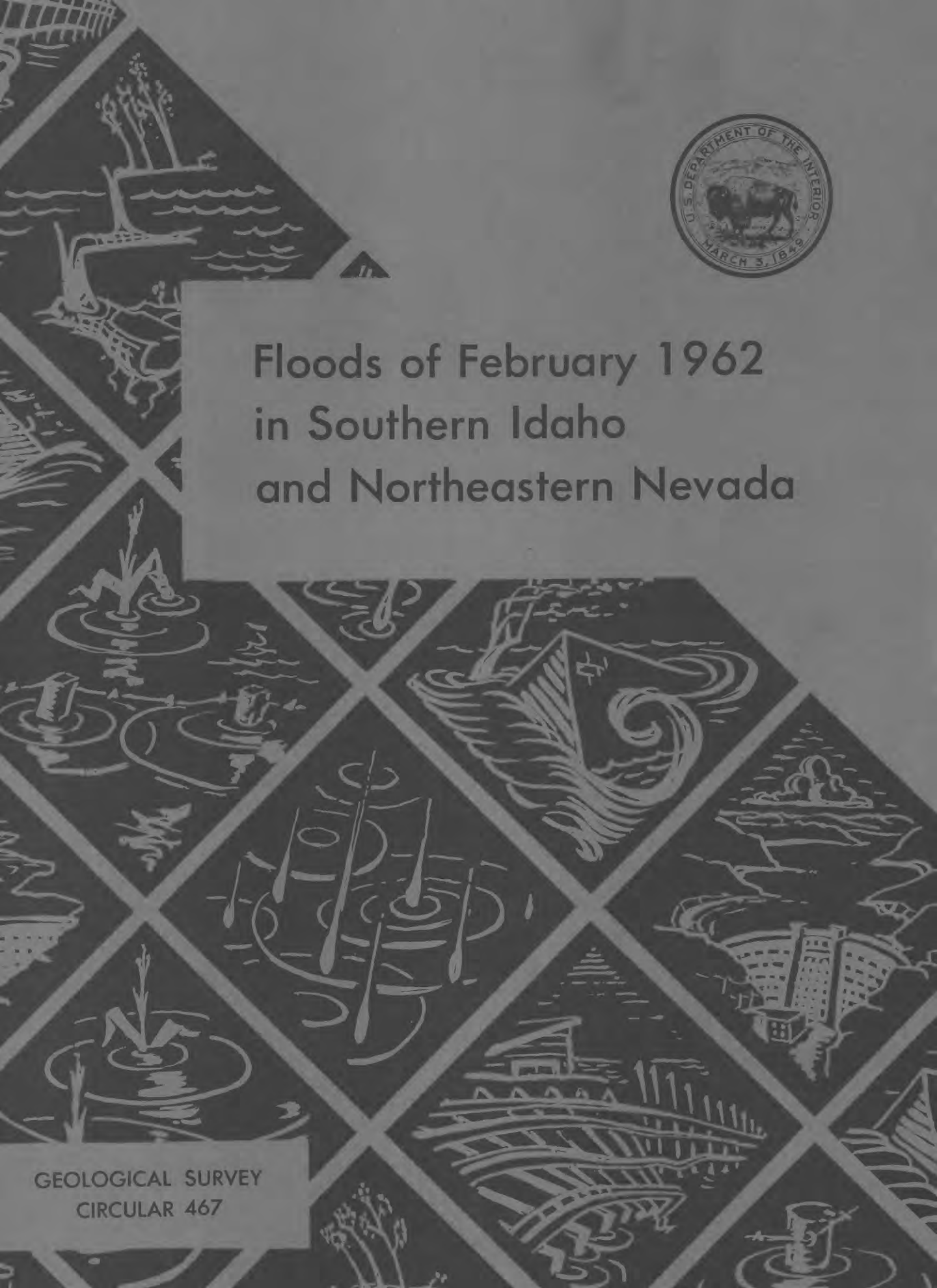

Floods of February 1962 in Southern Idaho and Northeastern Nevada

GEOLOGICAL SURVEY
CIRCULAR 467

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By Cecil A. Thomas and Robert D. Lamke

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United States Department of the Interior

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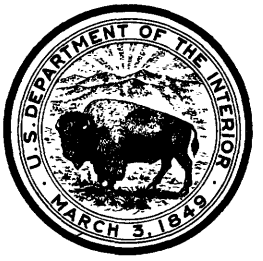

Geological Survey

THOMAS B. NOLAN, DIRECTOR

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Floods of February 1962 in Southern Idaho and Northeastern Nevada

By Cecil A. Thomas and Robert D. Lamke

ABSTRACT

The floods of February 10–15, 1962, were the highest known on many streams in southern Idaho and northeastern Nevada. Some of the peak discharges have recurrence intervals greater than a hundred years.

The floods resulted from an unusual combination of conditions, each of which contributed to the sudden severe flooding. These conditions were an extended period of above-freezing temperatures and prolonged light rainfall, an extensive area of snow at low altitudes, and deeply frozen ground. The snow at higher altitudes did not contribute to the floods.

Runoff was greatest from watersheds at altitudes ranging from 4,500 to 6,500 feet. Flooding from small tributaries with large parts of their drainage within this range rank among the highest snowmelt floods ever recorded in Idaho and northeastern Nevada. The Snake River main stem had only minor flooding.

The flood damage was the greatest ever experienced in most of the flood area because of the large areas inundated and because the value and amount of improvements has increased steadily. The total damage has been estimated as more than $10 million.

INTRODUCTION

The floods of February 1962 in southern Idaho and northeastern Nevada (fig. 1) were the highest floods experienced in recent times and the most devastating. The flood area includes some of the most valuable agricultural and ranching land in both States and some of the most heavily populated areas in Idaho.

This report presents available data collected by the U.S. Geological Survey on these floods. The data are provisional and fall short of complete coverage. Many sites for indirect measurements of peak discharge have been selected, and the high-water profiles have been marked but not surveyed. Other indirect measurements have been surveyed but not computed.

The data in this report were collected as part of the cooperative programs between the Survey and various Federal and State agencies. The district engineers for Idaho and Nevada, W. I. Travis and E. E. Harris, respectively, supervised the work of the Surface Water Branch district personnel. Regional flood specialists, G. L. Bodhaine, H. Hulsing, and H. F. Matthai, gave technical assistance in collecting and analyzing data and in preparing the report. Six engineers from districts other than Idaho and Nevada were temporarily assigned to the flood areas to determine peak discharges as soon as possible after the flood. The field and office work of determining peak discharges by indirect methods were directed by C. A. Thomas and R. D. Lamke in Idaho and Nevada, respectively.

Weather data were furnished by the U.S. Weather Bureau, and estimates of flood damage in Idaho were furnished by the U.S. Army Corps of Engineers.

Data presented in this report include: descriptions of the cause, extent, and effects of the floods; hydrographs, table of mean daily discharges and discharges at indicated times for selected gaging stations; damage figures; peak stages and discharges for the February 1962 floods and for previous maximum floods at selected gaging stations; peak discharges at miscellaneous sites; and whatever data are available for the incomplete indirect measurements.

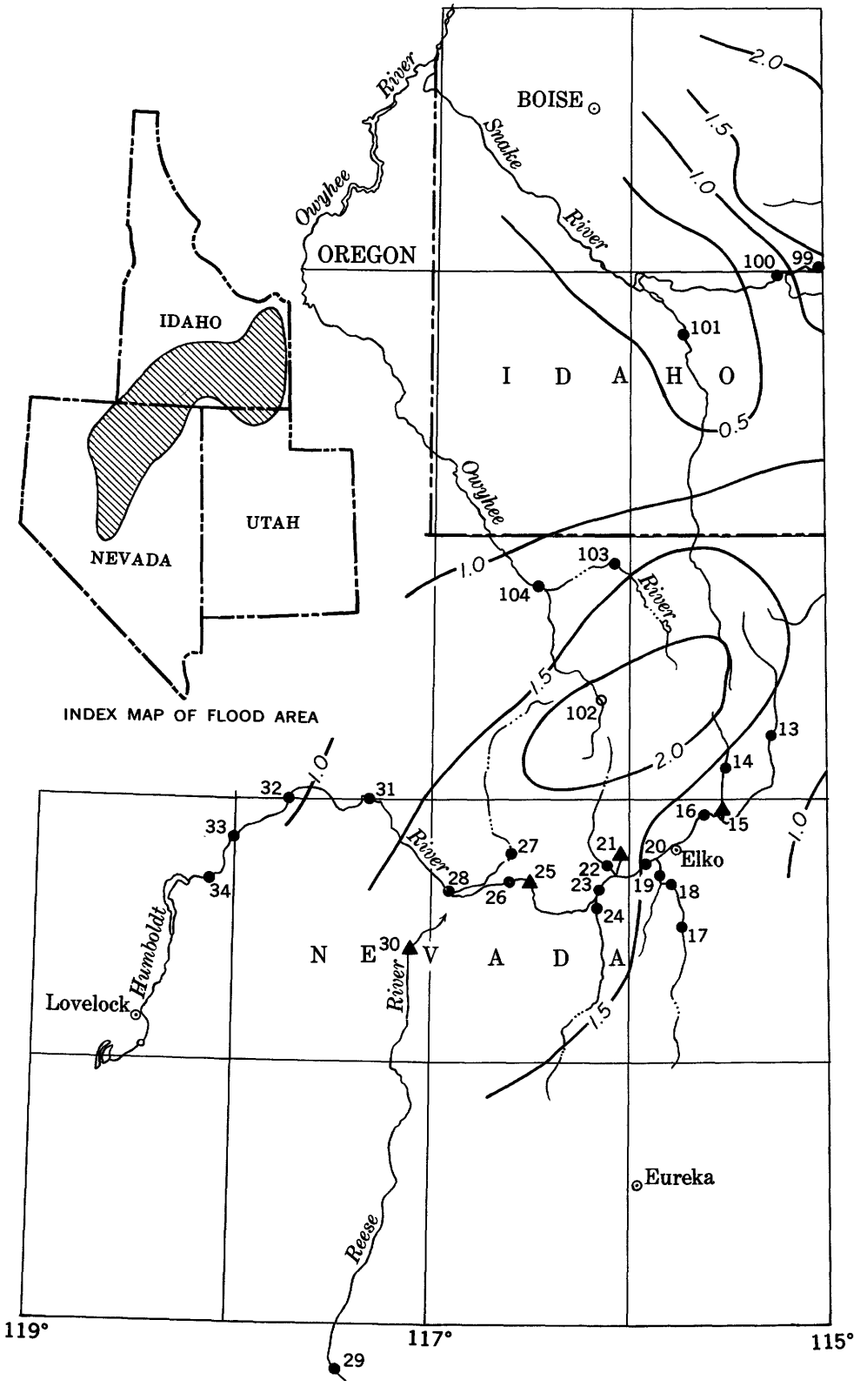
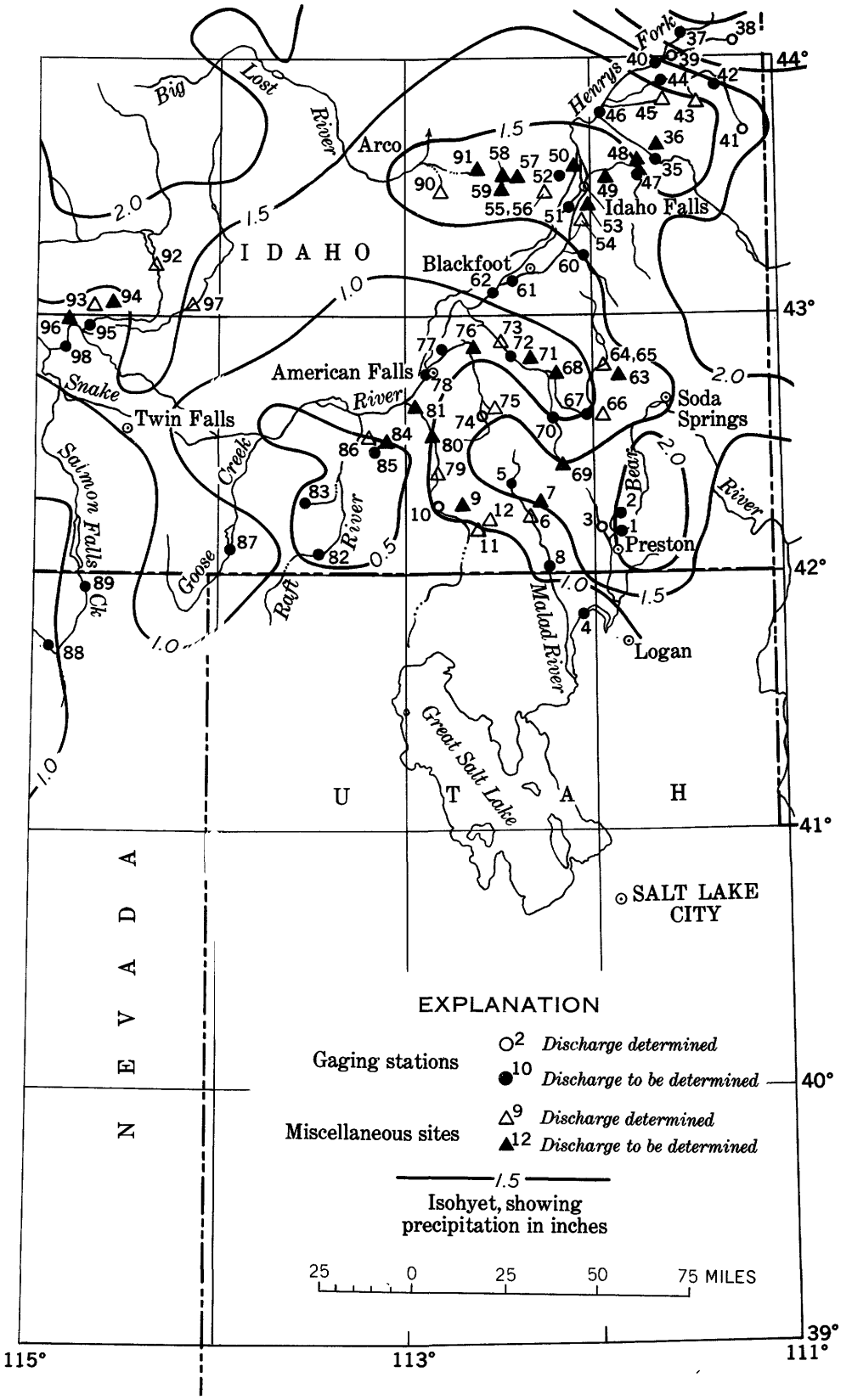


Figure 1.—Map of southern Idaho and northeastern Nevada showing location



flood-measurement points, floods of February 1962, and isohyets for February 7–12.

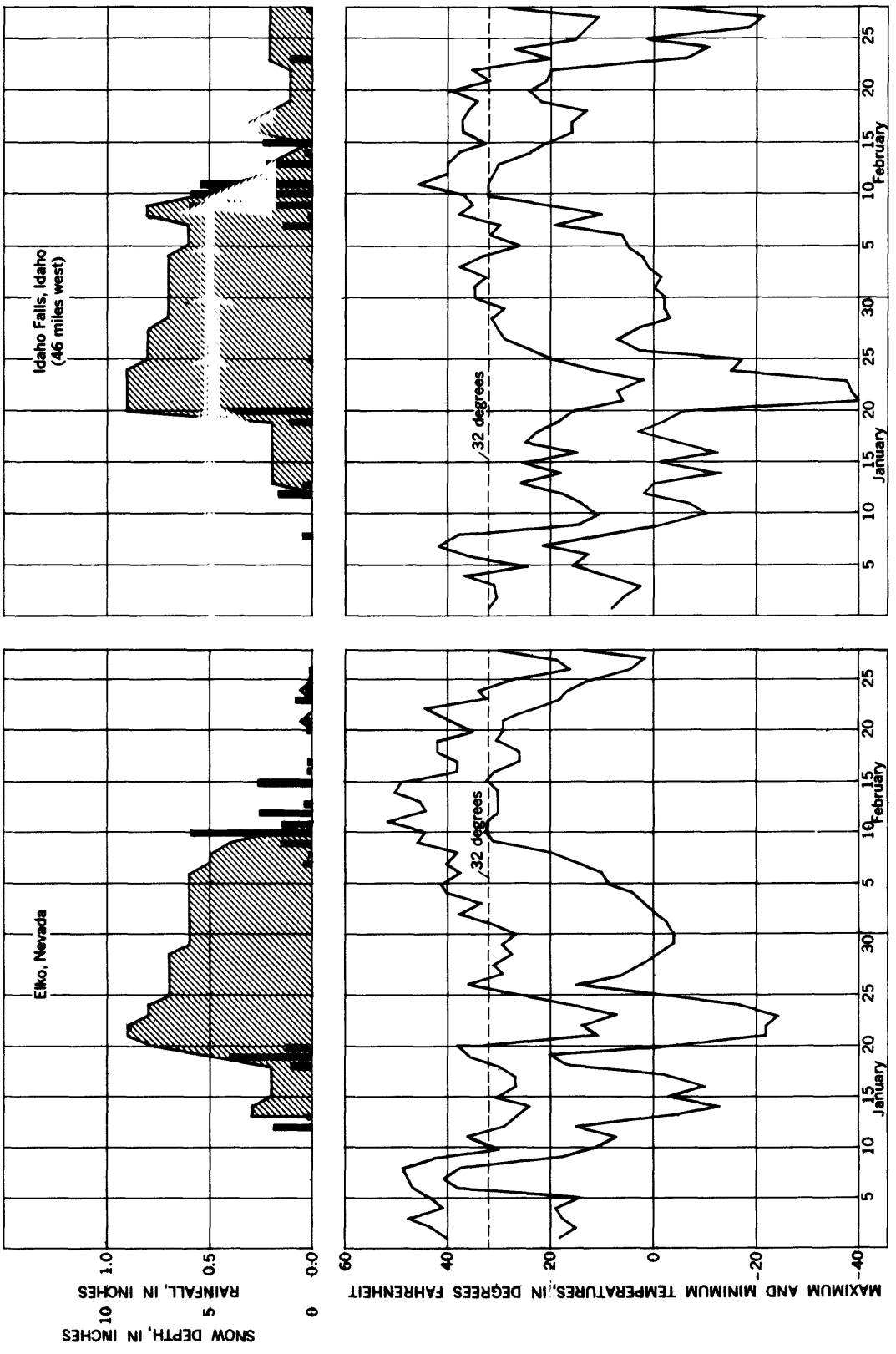


Figure 2.—Weather conditions for January and February 1962 at Elko, Nevada, and west of Idaho Falls, Idaho.

CAUSE OF THE FLOODS

These floods resulted from an unusual combination of conditions. These conditions were prolonged low-intensity rainfall, moderate amounts of snow on low-altitude areas, warm days and nights, and a glaze of ice over deeply frozen ground. Total rainfall for the period February 7–12 is shown in figure 1. Temperatures, rainfall, and snow on ground during January and February at Elko, Nev., and west of Idaho Falls, Idaho, are shown in figure 2. These sites, at opposite ends of the flood area, are in areas of intense flooding and show the similarity of weather conditions that existed throughout the flood area.

The antecedent weather had a marked effect on the flood. Temperatures were 2° to 3°F below average during October, November, and December. The mean monthly temperatures for January were 4° to 9° below average. Alternate freezing and thawing of the existing cover of light snow occurred in December and early January and transformed the shallow snow into a mantle of ice over the ground. Flooding occurred on January 8 in Goose Creek and other small basins in southern Idaho when light rain fell on these watersheds and temperatures remained above freezing for about 48 hours. In most low-altitude basins, this short-lived thaw produced little runoff but melted and settled the snow which froze quickly with the sharp drop in temperature on January 9. This increased the depth of frost and ice covering the ground.

Subfreezing temperatures continued over the flood area from January 9 until the end of January. Temperatures were especially low January 20–25, when below-zero temperatures during the night and below-freezing temperatures during the day were general. For example, minimum readings of -40°F were recorded during this period near Idaho Falls and readings of -20° were recorded near Elko. These low temperatures froze the ground under the cover of light snow as deep as 3 feet. The temperatures then moderated during late January and early February.

Prolonged rain of low intensity fell during the period February 7–12. The amounts measured at Weather Bureau gages ranged from $\frac{1}{2}$ to about 3 inches in southern Idaho and from $\frac{1}{2}$ to about 2 inches in northeastern Nevada. Greater amounts of precipitation occurred adjacent to the flood areas. Snow fell at higher altitudes. In other areas heavy rainfall occurred, but the other factors causing the flood were absent. The greatest total rainfall measured within the flood areas was 2.91 inches at Ashton, 65 miles northeast of Idaho Falls. In Nevada the maximum was 2.06 inches at Turcarora, 30 miles northwest of Elko. The greatest daily rainfalls recorded were 1.06 inches on February 10 at Charleston, 60 miles northeast of Elko, and 0.90 inch on February 12 at Preston, 60 miles southeast of Pocatello, Idaho. The heaviest hourly rainfall recorded in Nevada was 0.15 inch south of Elko. These amounts of rainfall or more could occur, on the average, once every 2 years according to Weather Bureau Technical Paper 40, "Rainfall Frequency Atlas of the United States."

The moderation in temperature that began in late January culminated in minimum temperatures of 20° or higher from February 9 through the flood period. The daytime temperatures were above freezing and were as much as 50° or higher. The rains plus the heat were sufficient to melt most of the shallow snow on low-altitude areas. This snow ranged in depth from 1 foot at 6,700 feet to 0 at 4,500 feet in Nevada, and ranged from 3 feet at the upper limits of the flood-generation zone to 0 in Idaho. Greater amounts of snow were present at higher altitudes, but they did not melt.

The rain plus the melted snow ran off rapidly, as the frozen ground prevented infiltration. This resulted in floods with unusually rapid rises of unusual magnitudes.

DESCRIPTION OF FLOODS

Damaging record-breaking floods occurred in valleys and along streams tributary to the Snake River from St. Anthony as far downstream as King Hill and in the Bear River basin and Curlew Valley in the Great Basin in Idaho. Flooding occurred in adjacent watersheds in Nevada, including the upper Bruneau, Humboldt, and Owyhee Rivers. Discharges were the highest known on many streams in both States. Many of the floodflows have recurrence intervals probably larger than 100 years. In other words, the flows experienced during the flood are not exceeded, on the average, more than once in a 100 years or more.

Runoff was most intense from watersheds ranging in altitude from 4,500 to 6,500 feet. Flooding from small tributaries with large parts of their drainage within or near this range rank among the highest winter floods recorded in Idaho. Because of deeper snow and unfrozen ground, little or no runoff occurred at elevations above about 7,000 feet. Velocity was not a problem, except in the foothills and mountainous areas. Inundation caused most of the damage.

Streams rose at rates unusually rapid for snowmelt floods. Evacuation from urban and rural areas in Idaho was orderly and no lives were lost by drowning, but several persons died from overexertion or from other causes indirectly connected with the flood. Damage was much lighter than if the floods had occurred after crops were planted. Water also carried much less silt than it would have carried had the ground not been frozen. Some flooding occurred because of ice jams.

All data for discharge and damage are preliminary and subject to revision when surveys and computations are completed.

In the following description of the floods, basins are discussed in the downstream order used by the Geological Survey in annual reports.

BEAR RIVER BASIN AND CURLEW VALLEY

Floods occurred in the Malad River and in Deep Creek in Curlew Valley and in the Bear River near Preston, Idaho, and near Colliston, Utah. The damage was minor on Bear River. Idaho State Highway 37 from Roy to Holbrook was severely damaged and was closed for several weeks. Many bridges and road fills were washed away, and some of the principal roads were blocked for several days in both the Malad River Valley and the Curlew Valley. Flood water damaged considerable farmland, farm buildings, crops, feed, and livestock.

The peak discharge of Malad River at Woodruff was 370 percent of the previous maximum in 24 years of record. Stages and discharges for selected time intervals and daily mean discharges are given in table 2 for this station, and figure 3 shows the discharge hydrograph.

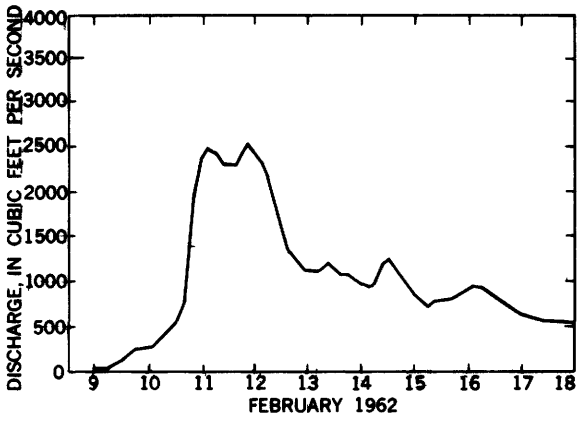


Figure 3.—Discharge hydrograph, Malad River at Woodruff, Idaho, February 9–18, 1962.

HUMBOLDT RIVER BASIN

The floods in the Humboldt River basin were limited to the upper part. The Humboldt River basin is entirely within Nevada. These 1962 floods were greater than the 1952 floods in the upper part of the basin above Battle Mountain. In the lower Humboldt River basin these flood peaks have been exceeded 8 or 9 times in 50 years of record. A major flood occurred in March 1910 throughout the basin, and the 1962 flood might be comparable to the 1910 flood in the upper part. There is some evidence that another major flood occurred in the 1860's on the upper Humboldt River.

Stages and discharges for selected time intervals and mean daily discharges are given in table 2 for Humboldt River at Palisade, Nev., and for South Fork Humboldt River near Elko, Nev.

Discharge hydrographs in figure 4 for the Humboldt River at Palisade, Battle Mountain, and Comus and for the South Fork Humboldt River near Elko, Nev., show the effects of storage caused by meanders and overflow below the Palisade gaging station. The hydrograph for the Palisade gaging station shows the two very distinct peaks on February 12 and 14. The first peak was caused by floodwaters from the South Fork Humboldt River, Maggie Creek, Susie Creek, and other smaller contributors immediately upstream from Palisade, and the second peak was caused by North Fork Humboldt River above Elko. The hydrograph for South Fork Humboldt River shows two distinct peaks that occurred on many of the major tributaries.

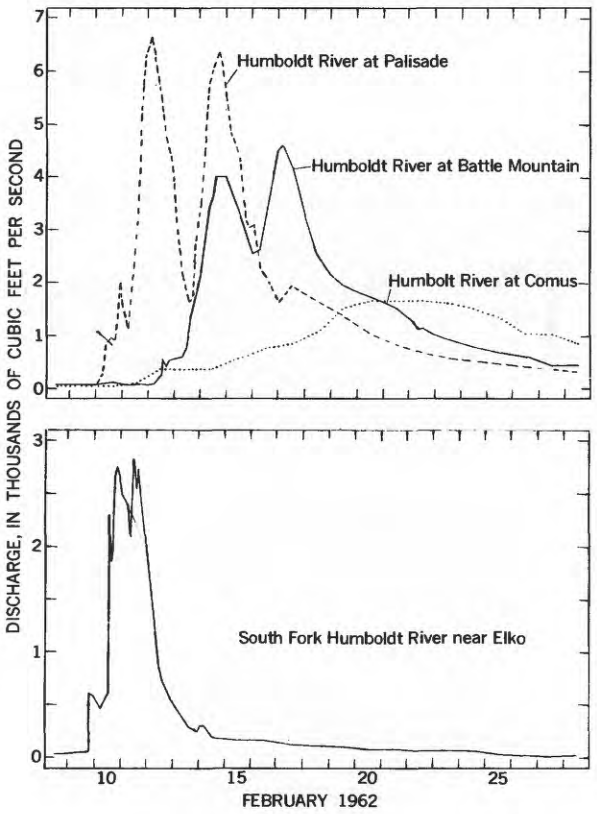


Figure 4.—Discharge hydrographs for selected gaging stations in Nevada.

The 1962 floods on the Humboldt River and on all measured tributaries above Battle Mountain have recurrence intervals greater than 50 years. These floods were the highest recorded at all gaging stations in the upper Humboldt River basin, some of which have more than 50 years of record. The gaging station on North Fork Humboldt River at Devils Gate, near Halleck, Nev., recorded a flood five times greater than the 50-year flood.

The floods occurred mainly in ranching country and caused damage to rural roads (fig. 5). Some ranches lost cattle in the flood (fig. 6). The damage to the main highways was comparatively minor. The end of a bridge on U.S. Highway 40 over the North Fork Humboldt River was almost washed out. U.S. Highway 40 and the Southern Pacific Railroad tracks were cut in Battle Mountain to allow Reese River floodwaters to subside. Battle Mountain (fig. 7) was flooded by the normally dry Reese River. The small towns of Deeth and Beowawe had some minor floods and small sections of Elko and Carlin next to the Humboldt River were flooded. The total damage in Nevada has been estimated as $1.5 million by the Red Cross, with an estimate of $114,000 damage to the State Highway system.

HENRYS FORK

The flood in the Rexburg-Sugar City area resulted from unprecedented discharges in Teton River and in Moody Creek, Lyons (Lyman) Creek, and other tributaries draining the hills to the east. Preliminary figures of peak discharge of Teton River near St. Anthony was nearly twice as high as the previous maximum in 52 years of record. No previous records are available on Moody and Lyons Creeks, but local residents indicate that the flood was more severe than any other in more than 50 years. Considerable water also came from snowmelt and rain on the valley floor. Lyons Creek near Ririe discharged at a rate of 84 cfs per sq mi from 18 square miles. This rate occurs only rarely in Idaho streams, except during thunderstorms. Natural channels and canals were clogged with ice as much as 2 feet thick. Ice jams and extreme discharge resulted in flooding of large areas of valuable farmland and urban areas. Farmland, farmsteads, livestock, stored farm crops, roads, railroads, bridges, canals, and a great many residences in Rexburg, Sugar City, and Teton were damaged considerably. Flooding was not a problem on Henrys Fork above St. Anthony. Some flooding occurred in tributaries to Teton River above Newdale.

IDAHO FALLS-BLACKFOOT LOWLANDS

The largest area inundated was the lowlands from Ririe southwest toward Blackfoot. About 56,500 acres was covered, and damage totaled $3,185,000. The flood occurred as a result of rain and snowmelt on the valley floor and from the adjacent foothills and as a result of floods in Willow, Birch, Henry, and Cedar Creeks and smaller tributaries. Much of the watershed adjacent to these lowlands was in the altitude range from which the greatest discharges were generated. Willow Creek tributary near Iona discharged at a rate of 135 cfs per sq mi from 9.8 square miles. This is the highest rate ever recorded by the Survey for a winter flood in Idaho.

Figure 5.—Typical flood damage to road at Devils Gate Ranch on North Fork Humboldt River. Photographed by Mel Steninger of the Elko Daily Free Press.

Large urban developments, agricultural improvements, farm and city dwellings, canals, roads, and railroads were flooded to depths ranging from 1 to 4 feet. Because natural drainage channels are interconnected with canals and diversion laterals in this intensely developed agricultural and industrial area, the flow patterns have become complicated and ponding has resulted, especially where ice jamming has occurred. Canals were flowing bankfull and many overtopped. Some large canals prevented serious damage in heavily populated parts of Idaho Falls and other cities.

Figure 8 shows a new housing development east of Idaho Falls which was flooded by Willow Creek.

NORTH AND WEST OF SNAKE RIVER ABOVE AMERICAN FALLS

Over most of the flooded areas rain and snowmelt water ordinarily infiltrates rapidly into the ground, because the soils are loose and shallow and are underlain by porous lava. Thousands of acres of lava have little or no soil cover. Most rivers carry return flows most of the time. Overland flows are scarce over large acreages. This is especially true of the area north and west of Snake River between St. Anthony and American Falls. There are practically no well-defined channels running into the Snake River on the right bank. Lava flows of recent origin are close to the surface, and water percolates rapidly into the ground under normal conditions. During

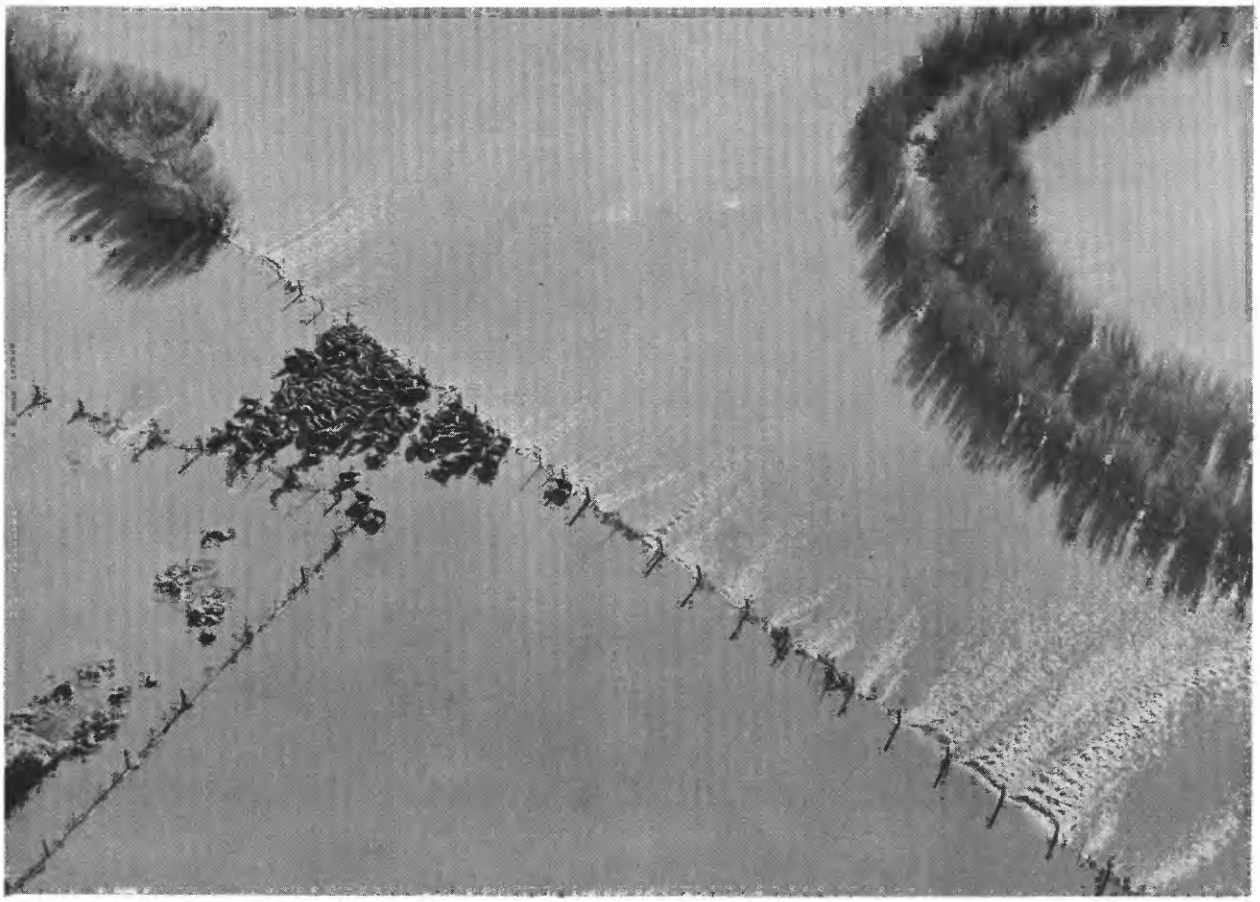


Figure 6.—Cattle in floodwaters at McKinley Ranch on Humboldt River. Photograph by Mel Steninger of Elko Daily Free Press.

the flood, the ground was glazed with ice underlain by deep frost. Percolation was inhibited and runoff at rapid rates occurred over considerable areas of the lava beds. The pockets of shallow soil scattered over the lava shed water at especially rapid rates.

Residents report that the flows here have not been exceeded in 40 years or more. Highways were overtopped, bridges and road fills were damaged, and scattered farms and farm improvements in low-lying areas were flooded. Discharges were measured indirectly at several road crossings and in one coulee to document the magnitude of the flows. Detailed maps are not available for most of the watersheds in the lava beds.

BLACKFOOT RIVER BASIN

Even though Blackfoot River near Blackfoot reached a discharge which was 60 percent greater than any peak previously recorded in 32 years of complete record plus 19 years of summer records, damage was comparatively light. Work on the levees before and during the flood was highly successful in confining the flow within narrow limits.

PORTNEUF RIVER BASIN

Floodflows in the Portneuf River and tributaries greatly exceeded previously recorded maximums, even though some records are longer than 50 years. Highly developed areas at Bancroft, Lava Hot Springs, Pocatello, and, to a lesser degree, Inkom, were severely damaged by the flood waters.

Practically the entire town of Bancroft was under several feet of water for days. Flow from the surrounding hills and lowlands flowed into the town much faster than the drainage channels carried it away. Residences, commercial buildings, livestock, highways, railroads, and stocks of grain, feed, groceries, and other commodities were damaged considerably.

Lava Hot Springs was hard hit by the fast-flowing Portneuf River, and damage to buildings, roads, and railroads in the resort town of 593 inhabitants was estimated at more than $1 million. Figure 9 shows the river rampaging through Lava Hot Springs. Water can be seen flowing down the main street in the background. The Union Pacific Railroad and roads were damaged severely from the raging waters between Bancroft and Pocatello. Figure 10 shows a break developing in a high road fill on U.S. Highway 30. The pipe through the fill is in the left background. Flow through the break in right background is around a cattle underpass. Note the vortex above the highway on the left. When the fill went completely out, discharge at the gaging station at Topaz, 2 miles downstream, increased from 2,850 cfs to 6,140 cfs in $1\frac{1}{2}$ hours. The surge overtopped railroad fills, canal headings, and roads downstream and caused extreme damage.

Discharge of the natural peak at the gaging station Portneuf River at Topaz was 3,700 cfs, which is more than 260 percent greater than the previous recorded maximum in 45 years of record, and the flood which occurred after the highway fill broke was much more extreme. Frequency studies show a flood of the magnitude of the natural peak would have a recurrence interval probably in excess of 200 years. This rare phenomenon is probably caused by the ice and frost glaze over the watershed upstream. Normally the thin soil over the lava flows in the Bancroft area absorb the free water before runoff is generated.

Figure 7.—Battle Mountain during peak of February 14, 1962. Photograph by Nevada Highway Department.

Discharge of 2,990 cfs at Pocatello was smaller than the sum of the peaks on Marsh Creek and Portneuf River at Topaz because of hundreds of acres of ponded areas along the river bottoms above Pocatello. Channel and valley storage prevented a major catastrophe in Pocatello where the waterway is incapable of passing large flows through the city. Many houses, roads, bridges, and the large switch yards of the Union Pacific Railroad in and near the city were flooded in various degrees. As in several other localities, a major and timely effort was made by volunteer helpers, the Idaho National Guard, and U.S. Army Corps of Engineers which prevented more serious damage to much valuable property. In Pocatello about 12,000 lineal feet of sandbag dikes, which averaged $2\frac{1}{2}$ feet high, were placed. Frequency studies at Pocatello indicate the recurrent interval of the 1962 flood to be more than 100 years.

A flood profile was marked in the city of Pocatello and elevations will be determined at a later date.

Figure 8.—New housing development in the flooded area northeast of Idaho Falls. Photograph by U.S. Bureau of Reclamation.

Figure 9.—Portneuf River, viewed upstream through Lava Hot Springs near the crest of the February flood. Photograph by Idaho Department of Highways.

Damage in the Portneuf River basin was more extensive than in any other flooded area. Railroads and highways are crowded into narrow canyons and were directly in the path of the swollen, swiftly flowing streams. Lava Hot Springs and Pocatello are built close to the river channel. During many flood-free years of moderate flows developments have gradually encroached on the flood plains.

SOUTH SIDE TRIBUTARIES OF SNAKE RIVER BELOW PORTNEUF RIVER

Severe flooding occurred in the Bannock Creek and Rock Creek basins. Discharges were unusually high, but damage was limited to roads and bridges. Population is sparse in these basins, and absence of intensive development accounted for low damage. Flood damage in the two basins was about $90,000. Roads were inundated and several bridges were washed completely away. Highway 30N which crosses the streams near the mouths was damaged extensively and the highway fills were nearly lost. Although records are scanty in these basins, available records indicate this flood has a recurrence interval of more than 100 years.

Raft River flooded only moderately, but some tributaries had high flows.

Goose Creek above Oakley Reservoir reached stages above previous maximums. Discharge has only been estimated but it apparently exceeded the maximum in 48 years of record by a considerable amount. The stream flows through a sparsely populated area, and damage was slight.

Salmon Falls Creek basin flooded but was not as high as the flood of 1943. This basin, like Goose Creek, is thinly populated and undeveloped and therefore damages were slight.

Bruneau River basin flooded near the headwaters in the Charleston area in Nevada. Surveys of the discharges have not yet been made. Damage to roads and bridges and to the dam impounding Charleston Reservoir, which had failed, were included. The roads along the Bruneau River were washed away in at least three places. Field inspection, rainfall, and reports of residents indicate floods in the Bruneau River basin south of the Idaho-Nevada line were unusually high. Because of proximity to the Elko area where extreme flooding occurred, the recurrence intervals of these floods were probably longer than 50 years. Floods north of the Idaho-Nevada State border were not noteworthy because of lack of snow cover and only moderate rains in the area.

Flooding in the Owyhee River basin was also moderate and was limited to the drainages in Nevada.

BIG WOOD RIVER AND CLOVER CREEK BASINS

Flooding in Little Wood River basin caused damages estimated at $155,000. Although the flow from the adjacent foothills was very high, a large part of the damage was due to ice which forced the flow out of the river banks. Thorn Creek and Dry Creek which enter Big Wood River north of Gooding were extremely high. Big Wood River crested near the maximum of record even though gates

Figure 10.—A break developing in a fill on U.S. Highway 30, 2 miles downstream from Lava Hot Springs. Photograph by Idaho Department of Highways.

were closed at Magic Reservoir. The magnitude of the flood from the low-altitude tributaries at the lower end of the Big Wood River basin was unusual, probably of longer than a 100-year recurrence interval. Damage was limited to flooding of farmland and erosion of road fills and bridge approaches.

Clover Creek near Bliss also reached a peak flow of unusual magnitude. Record there is short but it appears that this was at least a 50-year flood. Damage was slight because the creek flows through a ranching area.

SNAKE RIVER MAIN STEM

Flooding in the Snake River main stem was minor. Flows were well below previously recorded maximums. Island Park, Jackson Lake, Palisades, Blackfoot-Marsh, American Falls, and Chesterfield Reservoirs were either closed or released only normal flows during the flood period and greatly reduced the discharges downstream.

FLOOD DAMAGE

The damage caused by the floods of February 1962 probably exceeded $10 million, with $8½ million in Idaho and $1½ million in Nevada. The damage date available is incomplete and preliminary. A summary of the damages for the Snake River basin in Idaho is given in table 1.

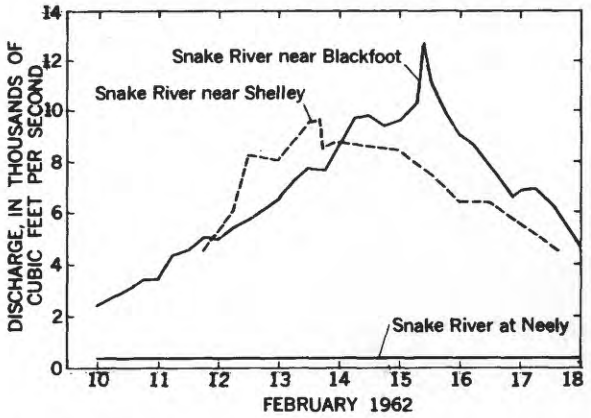


Figure 11.—Discharge hydrographs for selected gaging stations on Snake River, Idaho.

The flood is probably the most damaging ever experienced in these river basins, because the basins are now more highly developed. New residences, highways and bridges, commercial and industrial developments, and railroad improvements have greatly increased property valuations since the time of previous floods. Also the stages were higher in many places than at any time since the area was settled. Estimated damage prevented by flood-fighter crews was $1,796,000.

The damage in Nevada was less than in Idaho because most of the Nevada flood area was primarily ranch land with few improvements. The damage was limited mainly to loss of cattle, rural roads, and irrigation structures. Damage to the railroads and

Table 1.—*Summary of flood damages in Snake River basin in Idaho, February 1962*

[Adapted from U.S. Army, Corps of Engineers, preliminary data]

Basin	Acres flooded	Damage, in thousands of dollars				
		Agricultural	Residential	Commerical and industrial	Highways, railroads, utility, and others	Total
Henrys Fork	10,900	197	20	127	245	589
Idaho Falls-Blackfoot lowlands	56,500	1,594	736	129	726	3,185
Blackfoot River	6,800	51	2	3	102	158
Portneuf River	9,000	143	534	1,319	1,875	3,871
Little Wood River	-------	26	21	0	108	155
Miscellaneous	13,000	140	8	0	452	600
Total	96,200	2,151	1,321	1,578	3,508	8,558

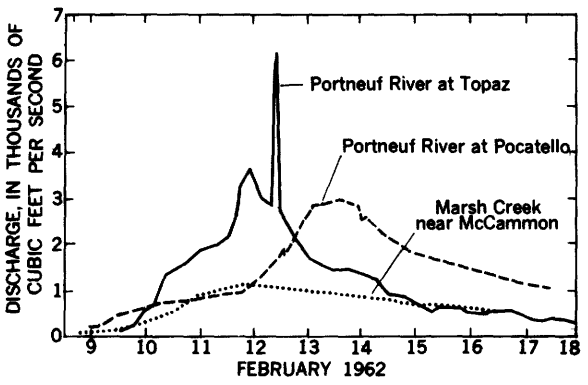


Figure 12.—Discharge hydrographs for gaging stations in Portneuf River basin, Idaho.

main highways was slight. Only one town, Battle Mountain, was inundated.

PEAK DISCHARGE DATA

Hydrographs for selected gaging stations in the flood area are shown in figures 11 to 13. Stages and discharges for selected time intervals are given in table 2.

Flood stages and discharges are summarized in table 3. The list is in downstream order as presented in Geological Survey annual reports. The sites listed are those given in figure 1 and in table 3 by index numbers. Table 3 also gives the station number (for gage sites only) and name and the drainage area. The stage and discharge for maximum floods previously known are shown with their year of occurrence. The date, stage, discharge, and recurrence interval, T, of the 1962 peaks are given.

As much data as are available are shown in table 3 for sites where indirect measurements have not yet been made or computed. The sites where the peak discharge has not been determined yet are shown in figure 1 as open circles or triangles. A circle is used in figure 1 to denote a gaging station, a discontinued gaging station, or a crest-stage gage. A triangle denotes a miscellaneous site.

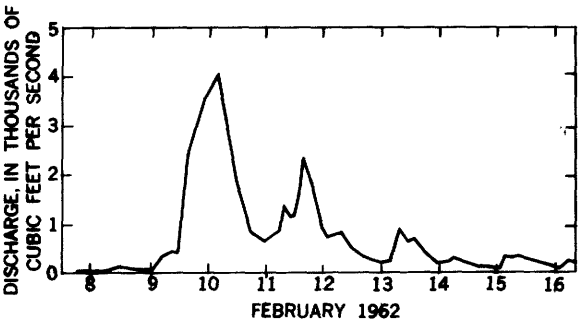


Figure 13.—Discharge hydrograph for Clover Creek near Bliss, Idaho.

Table 2.—*Records of 1962 flood stages, in feet, and discharges, in cubic feet per second, at selected gaging stations in Idaho and Nevada*

[Number after gaging station name is index number used in table 3 and figure 1]

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
Malad River at Woodruff, Idaho (8)								
February 9 (mean discharge 53)			*February 12—Continued*			*February 16 (mean discharge 859)*		
12:00 m	2.35	44	6:00	8.86	2,440	3:00 a.m.	7.11	790
6:00 p.m.	2.42	48	8:30	8.93	2,530	6:00	7.16	815
8:00	2.67	66	10:00	8.90	2,490	12:00 m	7.34	907
10:00	3.07	90	12:00 m	8.84	2,420	3:00 p.m.	7.38	929
12:00 p.m.	3.56	120	3:00 p.m.	8.76	2,320	6:00	7.35	912
February 10 (mean discharge 294)			6:00	8.60	2,130	12:00 p.m.	7.15	810
			9:00	8.38	1,870			
2:00 a.m.	4.13	159	12:00 p.m.	8.13	1,590	*February 17 (mean discharge 653)*		
4:00	4.62	198	*February 13 (mean discharge 1,200)*			12:00 m	6.73	635
6:00	4.85	224				9:00 p.m.	6.48	554
8:00	4.97	240	3:00 a.m.	7.91	1,350	12:00 p.m.	6.46	549
10:00	5.04	250	6:00	7.78	1,220			
12:00 m	5.09	257	9:00	7.70	1,150	*February 18 (mean discharge 512)*		
2:00 p.m.	5.23	279	12:00 m	7.66	1,120			
4:00	5.48	319	3:00 p.m.	7.65	1,110	6:00 a.m.	6.46	549
6:00	5.74	369	6:00	7.68	1,130	12:00 m	6.36	521
8:00	6.00	428	9:00	7.74	1,190	6:00 p.m.	6.20	478
10:00	6.20	478	12:00 p.m.	7.68	1,130	12:00 p.m.	6.08	447
12:00 p.m.	6.43	540	*February 14 (mean discharge 1,050)*			*February 19 (mean discharge 409)*		
February 11 (mean discharge 1,860)								
			3:00 a.m.	7.59	1,060	6:00 a.m.	6.04	438
2:00 a.m.	6.76	646	6:00	7.58	1,060	12:00 m	5.97	421
4:00	7.11	790	12:00 m	7.45	970	6:00 p.m.	5.80	382
6:00	7.77	1,210	3:30 p.m.	7.40	940	12:00 p.m.	5.62	344
8:00	8.38	1,870	6:00	7.48	988			
10:00	8.58	2,110	10:00	7.76	1,200	*February 20 (mean discharge 371)*		
12:00 m	8.78	2,350	12:00 p.m.	7.80	1,240			
2:00 p.m.	8.87	2,450				3:00 a.m.	5.64	348
3:00	8.88	2,470	*February 15 (mean discharge 903)*			9:00	5.81	384
6:00	8.84	2,420				12:00 m	5.85	393
9:00	8.75	2,310	3:00 a.m.	7.71	1,150	6:00 p.m.	5.77	375
12:00 p.m.	8.73	2,290	12:00 m	7.19	830	12:00 p.m.	5.69	358
			3:00 p.m.	7.04	758			
February 12 (mean discharge 2,240)			6:00	6.96	723			
			9:00	7.06	767			
3:00 a.m.	8.73	2,290	12:00 p.m.	7.10	785			

Table 2.—*Records of 1962 flood stages, in feet, and discharges, in cubic feet per second, at selected gaging stations in Idaho and Nevada*—Continued

Humboldt River at Palisade, Nev. (23)

Hour	Gage height	Discharge
February 9 (mean discharge 47)		
12:00 p.m.	1.77	58
February 10 (mean discharge 710)		
5:00 a.m.	1.80	62
6:00	2.40	190
8:00	2.75	284
11:00	4.00	811
2:30 p.m.	4.31	993
6:00	4.13	885
9:00	4.55	1,140
11:00	5.55	1,980
12:00 p.m.	5.34	1,790
February 11 (mean discharge 3,150)		
4:00 a.m.	4.64	1,200
6:30	4.51	1,110
8:00	4.69	1,230
2:00 p.m.	6.75	3,100
6:00	8.90	5,340
9:00	9.35	5,840
12:00 p.m.	9.75	6,310
February 12 (mean discharge 5,510)		
5:00 a.m.	10.0	6,610
8:00	9.73	6,290
11:00	9.26	5,740
2:00 p.m.	8.85	5,280
6:00	8.42	4,640
9:00	8.05	4,440
12:00 p.m.	7.61	3,980
February 13 (mean discharge 2,570)		
4:00 a.m.	6.92	3,270
9:00	5.83	2,230
1:00 p.m.	5.25	1,700
3:00	5.17	1,630
5:00	5.25	1,700
6:00	5.74	2,150
8:30	6.43	2,780
12:00 p.m.	7.04	3,390
February 14 (mean discharge 5,470)		
5:00 a.m.	8.23	4,620
7:45	8.86	5,300
February 14—Continued		
10:00 a.m.	9.21	5,680
1:00 p.m.	9.54	6,060
3:30	9.85	6,430
9:00	9.55	6,070
12:00 p.m.	9.18	5,650
February 15 (mean discharge 4,210)		
5:30 a.m.	8.48	4,880
12:00 m	7.98	4,360
7:00 p.m.	6.83	3,180
10:00	6.72	3,070
12:00 p.m.	6.75	3,100
February 16 (mean discharge 2,230)		
2:00 a.m.	6.64	2,990
8:00	5.90	2,290
12:00 m	5.73	2,150
2:00 p.m.	5.65	2,080
12:00 p.m.	5.11	1,610

South Fork Humboldt River near Elko, Nev. (19)

Hour	Gage height	Discharge
February 8 (mean discharge 40)		
12:00 p.m.	2.87	40
February 9 (mean discharge 115)		
8:30 p.m.	2.94	56
9:00	3.13	81
9:15	4.90	605
12:00 p.m.	4.87	592
February 10 (mean discharge 1,390)		
7:00 a.m.	4.55	456
11:00	4.77	556
1:00 p.m.	4.90	614
1:30	7.51	2,310
3:30	6.70	1,850
4:30	6.93	2,130
6:00	7.50	2,520
February 10—Continued		
6:30 p.m.	7.63	2,660
8:00	7.66	2,680
9:00	7.86	2,770
12:00 p.m.	7.70	2,700
February 11 (mean discharge 2,470)		
3:00 a.m.	7.26	2,480
7:30	7.12	2,410
11:00	6.56	2,090
12:30 p.m.	8.00	2,830
5:00	7.44	2,570
6:00	7.76	2,730
12:00 p.m.	6.42	2,000
February 12 (mean discharge 1,050)		
12:00 m	4.80	858
February 12—Continued		
6:00 p.m.	4.55	713
12:00 p.m.	4.21	543
February 13 (mean discharge 370)		
1:00 p.m.	3.70	345
6:00	3.47	273
12:00 p.m.	3.39	250
February 14 (mean discharge 231)		
3:00 a.m.	3.58	310
4:30	3.58	310
12:00 m	3.24	211
5:00 p.m.	3.13	185
12:00 p.m.	3.14	187

Table 2.—*Records of 1962 flood stages, in feet, and discharges, in cubic feet per second, at selected gaging stations in Idaho and Nevada*—Continued

Snake River near Shelley, Idaho (51)

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
February 12			*February 14*			*February 16*		
6:00 a.m.	6.45	4,660	4:30 a.m.	8.00	9,790	12:00 m	7.06	6,570
12:00 m	6.70	5,410	6:00	7.67	8,620	12:00 p.m.	7.04	6,500
6:00 p.m.	6.95	6,210	12:00 m	7.75	8,900			
12:00 p.m.	7.59	8,350	12:00 p.m.	7.68	8,660	*February 17*		
February 13			*February 15*			12:00 m	6.80	5,730
						12:00 p.m.	6.51	4,820
12:00 m	7.53	8,140	12:00 m	7.64	8,520			
12:00 p.m.	7.95	9,610	12:00 p.m.	7.39	7,670			

Blackfoot River near Blackfoot, Idaho (61)

[Stage-discharge relation affected by ice Feb. 9 and probably most of Feb. 10.]

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
February 9			*February 12*			*February 16*		
4:00 a.m.	3.03	26	5:00 a.m.	7.42	1,580	12:00 m	6.09	991
10:00	3.06	26	6:00	7.47	1,600	10:00 p.m.	4.70	554
12:00 m	3.12	26	12:00 m	7.12	1,430	12:00 p.m.	4.64	539
2:00 p.m.	3.25	50	12:00 p.m.	7.10	1,420			
4:00	3.84	150				*February 17*		
6:00	3.89	200	*February 13*					
12:00 p.m.	3.84	200				10:00 a.m.	4.57	522
			6:00 a.m.	7.15	1,440	2:00 p.m.	3.79	352
February 10			12:00 m	7.26	1,500	12:00 p.m.	3.70	334
			6:00 p.m.	7.35	1,540			
4:00 a.m.	4.16	300	12:00 p.m.	7.27	1,500	*February 18*		
9:00	4.33	350						
12:00 m	5.10	600	*February 14*			12:00 m	3.63	321
1:00 p.m.	5.46	700				4:00 p.m.	2.95	208
12:00 p.m.	5.50	785	12:00 m	7.05	1,400	7:00	2.90	201
			12:00 p.m.	6.89	1,320	10:00	2.51	149
February 11						12:00 p.m.	2.50	148
			February 15					
6:00 a.m.	5.61	821						
12:00 m	5.62	825	12:00 m	6.80	1,280			
6:00 p.m.	5.67	841	6:00 p.m.	6.77	1,270			
8:00	5.70	851	12:00 p.m.	6.54	1,170			
10:00	7.52	1,630						
12:00 p.m.	7.68	1,710						

Snake River near Blackfoot, Idaho (62)

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
February 10			*February 11*			*February 11*—Continued		
12:00 m	2.82	2,520	6:00 a.m.	3.41	3,480	6:00 p.m.	3.98	4,470
12:00 p.m.	3.19	3,080	12:00 m	3.44	3,530	12:00 p.m.	4.10	4,680

Table 2.—*Records of 1962 flood stages, in feet, and discharges, in cubic feet per second, at selected gaging stations in Idaho and Nevada*—Continued

Snake River near Blackfoot, Idaho (62)—Continued

Hour	Gage height	Discharge
February 12		
6:00 a.m.	4.35	5,170
12:00 m	4.31	5,100
6:00 p.m.	4.56	5,560
12:00 p.m.	4.70	5,830
February 13		
6:00 a.m.	4.85	6,210
12:00 m	5.05	6,610
6:00 p.m.	5.38	7,340
12:00 p.m.	5.59	7,840
February 14		
6:00 a.m.	5.55	7,740
12:00 m	5.94	8,760
6:00 p.m.	6.29	9,750
12:00 p.m.	6.33	9,870
February 15		
6:00 a.m.	6.19	9,450
12:00 m	6.25	9,630
7:00 p.m.	6.51	10,400
9:30	7.14	12,600
12:00 p.m.	6.73	11,200
February 16		
6:00 a.m.	6.38	10,000
12:00 m	6.09	9,160
6:00 p.m.	5.90	8,650
12:00 p.m.	5.60	7,860
February 17		
9:00 a.m.	5.09	6,690
12:00 m	5.23	6,990
6:00 p.m.	5.25	7,040
12:00 p.m.	5.02	6,550
February 18		
12:00 m	4.63	5,740
12:00 p.m.	4.28	5,080

Portneuf River at Topaz, Idaho (67)

Hour	Gage height	Discharge
February 10 (mean discharge 647)		
2:00 a.m.	2.63	156
7:00	3.16	266
9:00	3.68	383
12:00 m	4.46	575
3:00 p.m.	4.83	692
5:00	5.32	890
9:00	5.67	1,350
12:00 p.m.	5.73	1,460
February 11 (mean discharge 1,810)		
6:00 a.m.	5.80	1,600
12:00 m	5.93	1,860
6:00 p.m.	5.99	1,980
12:00 p.m.	6.07	2,140
February 12 (mean discharge 3,250)		
3:00 a.m.	6.23	2,470
6:00	6.61	3,290
10:00	6.79	3,690
12:00 m	6.70	3,490
3:00 p.m.	6.50	3,050
8:00	6.41	2,850
9:00	7.50	5,320
9:30	7.83	6,140
10:00	7.40	5,040
11:00 p.m.	6.53	3,120
12:00 p.m.	6.34	2,700
February 13 (mean discharge 1,860)		
6:00 a.m.	6.06	2,120
12:00 m	5.86	1,720
6:00 p.m.	5.77	1,540
12:00 p.m.	5.72	1,440
February 14 (mean discharge 1,330)		
6:00 a.m.	5.74	1,480
12:00 m	5.69	1,380
6:00 p.m.	5.63	1,270
12:00 p.m.	5.37	915
February 15 (mean discharge 740)		
6:00 a.m.	5.27	868
12:00 m	4.95	740
6:00 p.m.	4.43	568
12:00 p.m.	4.73	656
February 16 (mean discharge 568)		
3:00 a.m.	4.76	666
6:00 a.m.	4.61	618
12:00 m	4.29	532
6:00 p.m.	4.16	500
12:00 p.m.	4.40	560
February 17 (mean discharge 462)		
6:00 a.m.	4.49	582
12:00 m	3.91	438
6:00 p.m.	3.54	350
12:00 p.m.	3.72	393
February 18 (mean discharge 326)		
6:00 a.m.	3.68	383
12:00 m	3.31	299
6:00 p.m.	3.18	271
12:00 p.m.	3.28	293
February 19 (mean discharge 230)		
6:00 a.m.	3.14	262
12:00 m	2.88	207
6:00 p.m.	2.82	194
12:00 p.m.	2.96	224
February 20 (mean discharge 207)		

Table 2.—*Records of 1962 flood stages, in feet, and discharges, in cubic feet per second, at selected gaging stations in Idaho and Nevada*—Continued

Marsh Creek near McCammon, Idaho (70)

Hour	Gage height	Discharge
February 9 (mean discharge 87)		
6:00 a.m.	3.33	59
12:00 m	3.52	71
6:00 p.m.	3.92	103
12:00 p.m.	4.60	170
February 10 (mean discharge 348)		
6:00 a.m.	5.32	246
12:00 m	6.04	329
6:00 p.m.	7.00	440
12:00 p.m.	8.20	588
February 11 (mean discharge 862)		
6:00 a.m.	9.60	746
12:00 m	11.03	903
6:00 p.m.	11.80	980
12:00 p.m.	12.48	1,050
February 12 (mean discharge 1,100)		
6:00 a.m.	13.00	1,100
12:00 m	13.23	1,120
3:00 p.m.	13.25	1,120
6:00	13.15	1,120
12:00 p.m.	12.78	1,080
February 13 (mean discharge 1,000)		
6:00 a.m.	12.35	1,040
12:00 m	12.02	1,000
6:00 p.m.	11.70	970
12:00 p.m.	11.40	940
February 14 (mean discharge 889)		
6:00 a.m.	11.12	912
12:00 m	10.90	889
6:00 p.m.	10.75	872
February 14—Continued		
12:00 p.m.	10.33	826
February 15 (mean discharge 735)		
6:00 a.m.	9.74	761
12:00 m	9.43	727
6:00 p.m.	9.20	702
12:00 p.m.	8.95	674
February 16 (mean discharge 621)		
6:00 a.m.	8.73	650
12:00 m	8.47	622
6:00 p.m.	8.22	594
12:00 p.m.	7.92	560
February 17 (mean discharge 501)		

Portneuf River at Pocatello, Idaho (72)

Hour	Gage height	Discharge
February 9		
12:00 m	4.96	209
4:00 p.m.	5.02	227
12:00 p.m.	5.69	484
February 10		
6:00 a.m.	5.85	556
12:00 m	5.98	615
6:00 p.m.	6.19	715
12:00 p.m.	6.33	785
February 11		
12:00 m	6.36	800
12:00 p.m.	6.57	914
February 12		
6:00 a.m.	6.68	974
February 12—Continued		
12:00 m	7.12	1,180
6:00 p.m.	7.75	1,460
12:00 p.m.	8.51	1,790
February 13		
1:00 a.m.	8.74	1,890
2:00	8.46	1,770
6:00	9.38	2,170
12:00 m	10.48	2,640
2:00 p.m.	10.97	2,840
12:00 p.m.	11.30	2,970
February 14		
2:30 a.m.	11.35	2,990
10:00	10.99	2,850
12:00 m	10.27	2,560
1:00 p.m.	10.37	2,600
February 14—Continued		
6:00 p.m.	9.97	2,420
12:00 p.m.	9.37	2,160
February 15		
12:00 m	8.56	1,810
12:00 p.m.	8.09	1,610
February 16		
12:00 m	7.72	1,450
12:00 p.m.	7.38	1,300
February 17		
12:00 m	7.04	1,150
12:00 p.m.	6.84	1,050

Table 2.—*Records of 1962 flood stages, in feet, and discharges, in cubic feet per second, at selected gaging stations in Idaho and Nevada*—Continued

Clover Creek near Bliss, Idaho (99)

Hour	Gage height	Discharge
February 7		
12:00 p.m.	0.52	19
February 8 (mean discharge 44)		
6:00 a.m.	0.51	18
12:00 m	.64	28
6:00 p.m.	.92	55
9:00	1.37	104
12:00 p.m.	1.42	109
February 9 (mean discharge 203)		
6:00 a.m.	1.29	95
12:00 m	1.19	83
2:00 p.m.	1.32	98
6:00	3.29	373
9:00	3.72	457
11:00	3.65	442
12:00 p.m.	3.82	478
February 10 (mean discharge 2,950)		
4:00 a.m.	7.38	2,480
6:00	7.64	2,790
12:00 m	8.31	3,680
4:30 p.m.	8.59	4,100
12:00 p.m.	6.91	1,960
February 11 (mean discharge 1,050)		
6:00 a.m.	5.17	874
February 11—Continued		
12:00 m	4.58	676
6:00 p.m.	5.22	893
8:00	6.22	1,380
11:00	5.80	1,150
12:00 p.m.	5.83	1,160
February 12 (mean discharge 1,220)		
2:00 a.m.	6.43	1,530
4:00	7.29	2,370
8:00	6.71	1,770
12:00 m	5.32	932
2:00 p.m.	4.86	765
5:00	5.09	844
12:00 p.m.	4.07	536
February 13 (mean discharge 465)		
6:00 a.m.	3.22	361
12:00 m	2.66	272
2:00 p.m.	2.58	260
4:00	2.79	292
8:00	5.27	912
12:00 p.m.	4.45	638
February 14 (mean discharge 393)		
2:00 a.m.	4.71	716
6:00	3.91	498
12:00 m	2.70	278
2:00 p.m.	2.54	254
February 14—Continued		
3:00 p.m.	2.71	280
5:00	2.60	263
7:00	2.97	320
12:00 p.m.	2.45	241
February 15 (mean discharge 258)		
6:00 a.m.	2.05	186
12:00 m	1.80	155
2:00 p.m.	1.85	161
4:00	3.35	384
6:00	3.20	358
8:00	3.42	397
12:00 p.m.	3.21	360
February 16 (mean discharge 230)		
6:00 a.m.	2.47	244
12:00 m	1.90	167
3:00 p.m.	1.78	153
6:00	2.45	241
8:00	2.58	260
12:00 p.m.	2.09	192

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*

[T, recurrence interval]

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Bear River Basin								
1	10-0905	Bear River near Preston, Idaho.	4,500	1907	-------	8,500	12	5.51	4,300	5
2	908	Battle Creek tributary near Treasureton, Idaho.	4.5	----	-------	-------	11	------	60	50+
3	-------	Deep Creek near Clifton, Idaho.	80	----	-------	-------	13	------	180	50+
4	1180	Bear River near Collis-ton, Idaho.	6,000	1909	7.70	11,600	14	7.80	[1]8,880	15
5	1190	Little Malad River above Elkhorn Reser-voir, near Malad, Idaho.	120	1955	3.63	351	10	4.18	1,600	50+
6	-------	Little Malad River at road crossing 3.5 miles southwest of Malad City, Idaho.	226	1948	9.6	240	11	------	------	------
7	-------	Devil Creek at road crossing 2 miles north-west of Malad City, Idaho.	45	1943	-------	[2]220	11	------	199	25+
8	1255	Malad River at Wood-ruff, Idaho.	485	1943	8	650	12	8.93	2,530	50+
		Curlew Valley Tributaries								
9	-------	Deep Creek 7 miles north of Holbrook, Idaho.	72	----	-------	-------	----	------	1,220	50+
10	1729.7	Rock Creek 7 miles north of Holbrook, Idaho.	---------	----	-------	-------	----	------	------	------
11	-------	Rock Creek at Highway 37 crossing at Hol-brook, Idaho.	---------	----	-------	-------	----	------	------	------
12	-------	Wood Canyon at Highway 38 crossing 4 miles northwest of Holbrook, Idaho.	---------	----	-------	-------	----	------	------	------

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Humboldt River Basin								
13	10-3155	Marys River above Hot Springs Creek, near Deeth, Nev.	415	1952	6.57	1,250	12	7.63	4,210	50+
14	3175	North Fork Humboldt River at Devils Gate, near Halleck, Nev.	830	1952	9.63	2,450	11	16.12	10,400	50+
15	----------	North Fork Humboldt River near mouth, near Halleck, Nev.	1,000	----	-------	-------	12	------	5,550	50+
16	3185	Humboldt River near Elko, Nev.	2,800	1952	9.60	3,860	12	12.32	7,100	50+
17	3195	Huntington Creek near Lee, Nev.	770	1952	6.54	1,210	10	8.07	2,210	------
18	3200	South Fork Humboldt above Dixie Creek, near Elko, Nev.	1,150	1952	-------	1,700	----	------	------	------
				1957	5.58	-------	11	7.2	2,760	------
19	3205	South Fork Humboldt River near Elko, Nev.	1,310	1914	[3]12.0	[4]2,400	11	8.00	2,830	------
20	3210	Humboldt River near Carlin, Nev.	4,310	1943	9.8	5,900	----	------	------	------
				1952	9.35	5,220	14	10.27	6,230	50+
21	----------	Susie Creek at Carlin, Nev.	210	1943	-------	[5]1,900	11	------	2,470	------
22	3220	Maggie Creek at Carlin, Nev.	420	1922	[3]4.30	800	----	------	------	------
				1943	-------	[6]1,200	12	------	2,310	------
23	3225	Humboldt River at Palisade, Nev.	5,010	1943	9.92	6,250	12	10.0	6,610	50+
24	3230	Pine Creek near Palisade, Nev.	920	1952	4.69	1,010	11	8.51	3,460	50+
25	----------	Humboldt River at Dunphy, Nev.	----------	----	-------	-------	12	------	7,620	50+
26	3235	Humboldt River near Argenta, Nev.	7,490	1952	-------	5,700	15	10.75	6,000	50+
27	3245	Rock Creek near Battle Mountain, Nev.	875	1952	5.60	3,000	11	6.89	4,800	50+
28	3250	Humboldt River at Battle Mountain, Nev.	8,870	1952	-------	5,800	17	9.66	4,600	------
29	3255	Reese River near Ione, Nev.	44	1956	4.86	512	11	1.83	167	2
30	----------	Reese River at State Highway 84, near Battle Mountain, Nev.	2,200	----	-------	-------	12, 13	------	4,760	------
31	3275	Humboldt River at Comus, Nev.	12,100	1952	11.52	5,860	21	9.87	1,700	5+
32	3309	Humboldt River near Winnemucca, Nev.	----------	----	-------	-------	28	8.32	1,160	5+

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Humboldt River Basin—Continued								
33	10-3315	Humboldt River near Rose Creek, Nev.	15,200	1952	11.41	5,810	2	5.06	922	5+
34	3330	Humboldt River near Imlay, Nev.	15,700	1952	12.15	6,080	3	6.17	814	5+
		Snake River Main Stem								
35	13-0375	Snake River near Heise, Idaho.	5,752	1927	16.0	[7]60,000	12	2.52	[1]3,940	1-
		Lyons Creek Basin								
36		Lyons (Lyman) Creek 4.5 miles northeast of Ririe, Idaho.	18						1,560	50+
		Henrys Fork Basin								
37	460	Henrys Fork near Ashton, Idaho.	1,040	1925	[3]3.11	6,220	11	6.09	[1]1,210	1
38	475	Falls River near Squirrel, Idaho.	351	1927		6,440				
39	495	Falls River near Chester, Idaho.	520	1927	6.60	6,380				
40	505	Henrys Fork at St. Anthony, Idaho.	1,770	1925	6.78	[8]9,030	12	4.69	[1]3,180	1
41	522	Teton River below Bear Creek, near Driggs, Idaho.	350	1936		[9]1,480				
42	544	Milk Creek at Highway 33 near Tetonia, Idaho.	18				11	7.72	179	50+
43		Canyon Creek at Highway 33 near Clementsville, Idaho.								
44	550	Teton River near St. Anthony, Idaho.	890	1893	[3]6.90	5,830	12	9.36	10,600	100+
45		Moody Creek at railroad crossing 0.4 mile south of Moody, Idaho.	88						2,140	50+
46	565	Henrys Fork near Rexburg, Idaho.	2,920	1927		[4]9,490	14	[10]10.02	[1]6,590	3

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Willow Creek Basin								
47	13-0580	Willow Creek at discontinued station site 6 miles southeast of Ririe, Idaho.	622	1917	16.3	4,200	----	------	5,080	50+
48	----------	Birch Creek 3.5 miles southwest of Heise, Idaho.	21	----	-------	-------	11	------	980	50+
49	----------	Willow Creek tributary 2.1 miles southeast of Iona, Idaho.	9.8	----	-------	-------	11	------	1,320	50+
		Snake River Tributary No. 2 Basin								
50	----------	Snake River tributary No. 2 at Interstate Highway 1.5 miles east of Osgood, Idaho.	9.0	----	-------	-------	11	------	81	50+
		Snake River Main Stem								
51	600	Snake River near Shelley, Idaho.	9,790	1894	-------	75,000	14	8.00	9,790	1
		Tributaries to Snake River Between Shelley and Blackfoot								
52	611	Snake River tributary 2 miles west of Osgood, Idaho.	8.4	----	-------	-------	11	12.4	387	50+
53	----------	Henry Creek 6 miles south of Ammon, Idaho.	29	----	-------	-------	11	------	716	50+
54	----------	Cedar Creek 1 mile east of Goshen, Idaho.	----------	----	-------	-------	----	------	------	------
55	----------	Channel at U.S. Highway 20 crossing 10.6 miles west of Idaho Falls, Idaho.	(11)	----	-------	-------	----	------	------	------
56	----------	Channel at U.S. Highway 20 crossing 11 miles west of Idaho Falls, Idaho.	(11)	----	-------	-------	----	------	------	------
57	----------	Channel at U.S. Highway 20 crossing 16.5 miles west of Idaho Falls, Idaho.	(11)	----	-------	-------	----	------	362	50+

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Tributaries to Snake River Between Shelley and Blackfoot—Continued								
58	----------	Channel at U.S. Highway 20 crossing 20.5 miles west of Idaho Falls, Idaho.	(11)	----	----------	----------	----	------	122	50+
59	----------	Channel along U.S. Highway 26 above Peoples Canal 4 miles northwest of Moreland, Idaho.	(11)	----	----------	----------	----	------	1,680	50+
		Blackfoot River Basin								
60	13-0660	Blackfoot River near Shelley, Idaho.	[12]325	----	----------	----------	----	------	1,600	[13]50+
61	685	Blackfoot River near Blackfoot, Idaho.	[12]714	1960	6.42	1,070	11	7.68	1,710	50+
		Snake River Main Stem								
62	695	Snake River near Blackfoot, Idaho.	11,310	1918	14.8	46,200	15	7.14	[1]12,600	1
		Portneuf River Basin								
63	----------	Portneuf River tributary 1 mile northwest of Bancroft, Idaho.	130	----	----------	----------	----	------	492	50+
64	----------	Portneuf River tributary at county road 6.5 miles northwest of Bancroft, Idaho.	----------	----	----------	----------	----	------	------	------
65	----------	Portneuf River 6.5 miles northwest of Bancroft, Idaho.	----------	----	----------	----------	----	------	------	------
66	----------	Fish Creek 2 miles east of Lava Hot Springs, Idaho.	----------	----	----------	----------	----	------	------	------
67	730	Portneuf River at Topaz, Idaho.	570	1957	5.71	1,040	12	6.79	[14]3,690	100+
68	----------	Portneuf River at railroad bridge 1.1 miles southeast of Inkom, Idaho.	650	----	----------	----------	----	------	4,380	100+
69	----------	Marsh Creek at Highway 191 2.5 miles southwest of Downey, Idaho.	68	----	----------	----------	----	------	550	50+

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Portneuf River Basin—Continued								
70	13-0750	Marsh Creek near McCammon, Idaho.	355	1958	6.72	342	12	13.25	1,120	50+
71		Gibson Jack Creek 5 miles southeast of Pocatello, Idaho.	10.3						57	50+
72	755	Portneuf River at Pocatello, Idaho.	1,250	1917		2,000+	14	11.35	2,990	100+
73		Portneuf River at county bridge 5 miles northwest of Pocatello, Idaho.								
		Bannock Creek Basin								
74	760	Bannock Creek near Pocatello, Idaho.	230	1957	7.00	675				
75		Rattlesnake Creek near mouth, near Pocatello, Idaho.								
76		Bannock Creek at Highway 30 near Pocatello, Idaho.	413						4,010	50+
		Snake River Main Stem								
77	765	Inflow to American Falls Reservoir.	13,580				13, 14		[4]14,600	
78	770	Snake River at Neeley, Idaho.	13,600	1918	[3]13.5	48,400	15	2.37	[1]497	1-
		Rock Creek Basin								
79		Rock Creek 2.5 miles north of Roy, Idaho.								
80		Rock Creek above East Fork at Rockland, Idaho.	216	1960	6.21	[15]275	11		2,150	50+
81		Rock Creek at mouth, near American Falls, Idaho.	320						3,630	50+
		Raft River Basin								
82	780	Raft River at Peterson Ranch, near Bridge, Idaho.	412	1951	4.52	1,090	11	4.14	722	25+

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Raft River Basin—Continued								
83	13-0792	Cassia Creek near Elba, Idaho.	84	1957	4.61	233	11	4.71	245	25+
84		Heglar Creek below North and South Heglar Canyons, above Heglar Canyon tributary near Rockland, Idaho.	45						142	50+
85	798	Heglar Canyon tributary below North and South Heglar Canyons near Rockland, Idaho.	7.72	1958	7.5	1,660	11	6.02	132	50+
86		Heglar Canyon below Heglar Canyon tributary near Rockland, Idaho.	54							
		Goose Creek Basin								
87	825	Goose Creek above Trapper Creek, near Oakley, Idaho.	633	1943	7.6	1,670	11	9.0	2,500	50+
		Salmon Falls Creek Basin								
88	960	Salmon Falls Creek above Upper Vineyard ditch, near Contact, Nev.	461	1952	4.82	1,170	12	6.68	2,300	50+
89	1050	Salmon Falls Creek near San Jacinto, Nev.	1,450	1943	10.2 to 11.4	2,060 to 2,420	12	12.65	1,980	35+
		Mud Lake-Lost River Basin								
90		Channel at U.S. Highway 20 crossing 40 miles west of Idaho Falls, Idaho.	(11)							
91		Channel to U.S. Highway 20 crossing 29 miles west of Idaho Falls, Idaho.	(11)						407	50+

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
		Big Wood River Basin								
92	----	Big Wood River tributary at Highway 93 and railroad 20 miles north of Shoshone, Idaho.	----	----	----	----	----	----	----	----
93	----	Thorn Creek above Preacher Creek 9 miles northeast of Gooding, Idaho.	46	----	----	----	----	----	----	----
94	----	Preacher Creek near mouth 9.5 miles northeast of Gooding, Idaho.	26	----	----	----	----	----	680	50+
95	13-1465	Big Wood River at Gooding, Idaho.	2,190	1896	9.6	5,940	10	6.50	[12]2,300	[13]50+
96	----	Dry Creek at bridge 6 miles northwest of Gooding, Idaho.	84	----	----	----	----	----	1,300	50+
97	----	Jim Byrnes Slough at Highway 20 bridge 1 mile east of Richfield, Idaho.	----	----	----	----	----	----	----	----
98	1525	Big Wood River near Gooding, Idaho.	2,990	1952	10.67	6,500	10	10.34	[12]6,010	[13]50+
		Clover Creek Basin								
99	1540	Clover Creek near Bliss, Idaho.	140	1960	7.57	2,700	10	8.59	4,100	50+
		Snake River Main Stem								
100	1545	Snake River at King Hill, Idaho.	35,800	1918	16.3	47,200	11	9.04	[1]16,200	1
		Bruneau River Basin								
101	1685	Bruneau River near Hot Spring, Idaho.	2,630	1910	13.0	6,500	13	8.99	3,200	7
		Owyhee River Basin								
102	1760	Owyhee River above China diversion dam, near Owyhee, Nev.	458	1952	10.07	2,710	12	8.83	[12]1,280	[13]6

See footnotes at end of table.

Table 3.—*Records of flood stages and discharges by drainage basins, Idaho and Nevada*—Continued

Index No.	Station No.	Stream and location	Drainage area (sq mi)	Maximum floods						
				Before February 1962			February 1962			
				Year	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)	T (years)
Owyhee River Basin—Continued										
103--	13-1772	South Fork Owyhee River at Spanish Ranch, near Tuscarora, Nev.	330	----	----	----	----	----	----	----
104--	1778	South Fork Owyhee River near Whiterock, Nev.	1,080	1957	7.17	3,420	11	6.49	2,720	6

[1]Regulated.
[2]At site above Evans Dividers.
[3]Site and datum then in use.
[4]Daily.
[5]At site 2.5 miles upstream.
[6]At site 4.5 miles upstream.
[7]Result of washing out of landslide on Gros Ventre River.
[8]May have been higher during winters.
[9]At site above Bear Creek.
[10]Backwater from ice.
[11]Part of contributing area in lava beds; boundary indefinite.
[12]Reservoir upstream not contributing.
[13]For drainage below reservoir.
[14]Natural peak; discharge rose to 6,140 (gage height, 7.83 ft), when highway fill broke 2 miles upstream.
[15]At site 3.5 miles upstream.

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