

Snake River Inflow and Outflow, Water Year 1980

INTRODUCTION

This report is one in a series resulting from the U.S. Geological Survey's Snake River Basin (SRB) Regional Aquifer-System Analysis study that was initiated in October 1979. The study was to (1) define the hydrologic characteristics of the SRB, (2) evaluate the regional water resources, and (3) describe water quality. The purpose of this report is to provide a description of the Snake River Basin and to provide a water budget for the Snake River Basin. Data and interpretations in this report will be used in development of ground-water flow models.

EXPLANATION

- Snake River Basin
- Boundary between eastern and western Snake River Plan

THE AID TO REMEMBER SNAKE RIVER PLAN IS DEPENDENT ON RELIEF FROM THE SUBSURFACE MOUNTAINS FOR MOST OF ITS WATER SUPPLY.

The plan is an estimate of about 15,000 sq ft that extends across southern Idaho into eastern Oregon. The plan extends from 7,000 to 2,000 ft and elevation from 2,800 to 6,000 ft above sea level from west to east, respectively. Mountain ranges and basins within the plan are shown in red and blue. The Snake River Basin above Water includes about 53,000 sq ft of mountains, mountain valleys, and basins that surround the plan. All surface water discharge to the basin is to the Snake River. The Snake River is a major tributary to the Columbia River and one of the largest tributaries of the larger basin in North America (Madsen, 1968).

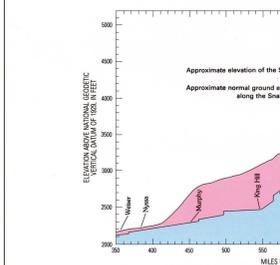
Regional agriculture and related activities dominate the economy of the plan; about 3.1 million acres were irrigated in 1980 (U.S. Geological Survey, water resources, 1983). Ground-water supplies about one-third of the water for irrigation and most of the water for municipal, industrial, and domestic uses. Most water in the Snake River Plan is defined on the basis of geology and topography. Generally, the plan's boundary is drawn along contacts between Quaternary deposits and the Snake River Basin. The plan's boundary is shown in red and blue. The plan's boundary is drawn along contacts between Quaternary deposits and the Snake River Basin. The plan's boundary is shown in red and blue. The plan's boundary is drawn along contacts between Quaternary deposits and the Snake River Basin. The plan's boundary is shown in red and blue.

CONVERSION FACTORS

From	To	Conversion Factor
acre	square meter	4,047
cubic foot	cubic meter	0.0283
foot	meter	0.3048
inch	centimeter	2.54
mile	kilometer	1.609
square mile	square kilometer	2.59

Note of 1979 National Geographic Vertical Datum of 1929: The term "National Geographic Vertical Datum of 1929" replaces the formerly used "mean sea level" to describe the datum for altitude measurements. The geoid datum is defined from a general adjustment of the first-order leveling networks in both the United States and Canada. For convenience in this report, the datum also is referred to as "sea level."

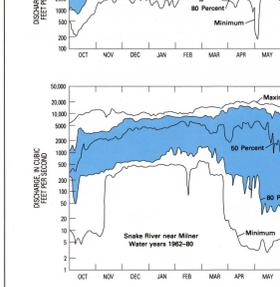
FLOW IN THE SNAKE RIVER



THE SNAKE RIVER DESCENDS 2,900 FEET IN THE 500-MILE REACH FROM HEISE TO WESER.

More than half of the total drop, or 1,570 ft, is in the 92-mile reach upstream from Heise. The total drop is 2,900 ft, or 5.8 ft per mile. The average slope of the Snake River is 5.8 ft per mile between Heise and Weser, and the latter slope is 1.9 ft per mile between Heise and King Hill. The headwater basin of the Snake River above Heise and the Henry Fork basin have mean elevations of 7,700 and 6,000 ft, respectively.

FLOW IN THE SNAKE RIVER VARIES SEASONALLY DUE TO CLIMATIC VARIATIONS AND WATER-MANAGEMENT PRACTICES



HOW FLOW FREQUENCIES REFLECT THE QUANTITY OF THE SNOWPACK AND SPRING CLIMATIC CONDITIONS

High flows in the Snake River, Henry Fork of the Snake River, and Payette River occur in May and June. Upstream reservoirs contribute about 10 percent of the total flow. The amount of water stored in the Snake River Basin is regulated by the Snake River Basin. The amount of water stored in the Snake River Basin is regulated by the Snake River Basin. The amount of water stored in the Snake River Basin is regulated by the Snake River Basin.

1260000 SNAKE RIVER AT WESER

Mean discharge (1980)	16,160 cfs
Discharge area	2,200 sq mi
Period of record (water year)	1911-80
Maximum discharge (1911-80)	215,140 cfs
Minimum discharge (1977)	4,200 cfs
Average discharge (71 years)	18,000 cfs

1260000 WESER RIVER NEAR WESER

Mean discharge (1980)	1,275 cfs
Discharge area	2,200 sq mi
Period of record (water year)	1906-99, 1901-04
Maximum discharge (12-23-53)	19,900 cfs
Minimum discharge (1977)	14 cfs
Average discharge (71 years)	1,129 cfs

1260000 PAYETTE RIVER NEAR PAYETTE

Mean discharge (1980)	3,200 cfs
Discharge area	3,200 sq mi
Period of record (water year)	1911-80
Maximum discharge (12-23-53)	7,800 cfs
Minimum discharge (1977)	1,500 cfs
Average discharge (48 years)	3,000 cfs

1260000 SNAKE RIVER NEAR MENDOC

Mean discharge (1980)	5,600 cfs
Discharge area	5,600 sq mi
Period of record (water year)	1895-90
Maximum discharge (10-29-41)	47,500 cfs
Minimum discharge (1977)	670 cfs
Average discharge (54 years)	7,168 cfs

1260000 SNAKE RIVER NEAR LEWISVILLE

Mean discharge (1980)	6,200 cfs
Discharge area	6,200 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-29-41)	9,100 cfs
Minimum discharge (1977)	2,000 cfs
Average discharge (71 years)	7,035 cfs

1260000 HENRY FORK NEAR REBURG

Mean discharge (1980)	2,025 cfs
Discharge area	2,025 sq mi
Period of record (water year)	1904-80
Maximum discharge (10-29-41)	79,000 cfs
Minimum discharge (1977)	180 cfs
Average discharge (71 years)	2,035 cfs

1260000 SNAKE RIVER NEAR LORENDO

Mean discharge (1980)	3,918 cfs
Discharge area	3,918 sq mi
Period of record (water year)	1908-27, 1918-80
Maximum discharge (10-29-41)	60,000 cfs
Minimum discharge (1977)	4,000 cfs
Average discharge (71 years)	4,248 cfs

1260000 SNAKE RIVER NEAR HEISE

Mean discharge (1980)	6,531 cfs
Discharge area	6,531 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	460 cfs
Minimum discharge (1977)	4,000 cfs
Average discharge (70 years)	6,248 cfs

1260000 SNAKE RIVER NEAR SHELLEY

Mean discharge (1980)	5,511 cfs
Discharge area	5,511 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	1,295 cfs
Minimum discharge (1977)	210 cfs
Average discharge (70 years)	5,511 cfs

1260000 BLACKFOOT RIVER NEAR BLACKFOOT

Mean discharge (1980)	207 cfs
Discharge area	207 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	1,295 cfs
Minimum discharge (1977)	210 cfs
Average discharge (70 years)	210 cfs

1260000 SNAKE RIVER AT TOSSA

Mean discharge (1980)	11,330 cfs
Discharge area	56,700 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	41,900 cfs
Minimum discharge (1977)	4,300 cfs
Average discharge (70 years)	12,700 cfs

1260000 OWYHEE RIVER AT OWYHEE

Mean discharge (1980)	215 cfs
Discharge area	215 sq mi
Period of record (water year)	1896, 1906-16, 1922-79, 1943-80
Maximum discharge (10-10-56)	20,000 cfs
Minimum discharge (1977)	10 cfs
Average discharge (107 years)	1,048 cfs

1260000 SNAKE RIVER NEAR HILL

Mean discharge (1980)	9,345 cfs
Discharge area	9,345 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	35,500 cfs
Minimum discharge (1977)	47,200 cfs
Average discharge (71 years)	10,750 cfs

1260000 SNAKE RIVER NEAR HAGERMAN

Mean discharge (1980)	7,305 cfs
Discharge area	7,305 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	31,200 cfs
Minimum discharge (1977)	3,925 cfs
Average discharge (63 years)	9,929 cfs

1260000 SNAKE RIVER NEAR RUIE

Mean discharge (1980)	3,729 cfs
Discharge area	3,729 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	23,300 cfs
Minimum discharge (1977)	1,300 cfs
Average discharge (63 years)	5,046 cfs

1260000 ROCK CREEK NEAR TWIN FALLS

Mean discharge (1980)	208 cfs
Discharge area	208 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	1,295 cfs
Minimum discharge (1977)	210 cfs
Average discharge (63 years)	208 cfs

1260000 PORTNEUF RIVER AT KOCATELLO

Mean discharge (1980)	2,087 cfs
Discharge area	2,087 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	1,295 cfs
Minimum discharge (1977)	210 cfs
Average discharge (63 years)	2,087 cfs

1260000 SNAKE RIVER NEAR RABERTS

Mean discharge (1980)	2,087 cfs
Discharge area	2,087 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	1,295 cfs
Minimum discharge (1977)	210 cfs
Average discharge (63 years)	2,087 cfs

1260000 CEDAR DRAW NEAR FLIER

Mean discharge (1980)	195 cfs
Discharge area	195 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	1,295 cfs
Minimum discharge (1977)	210 cfs
Average discharge (63 years)	195 cfs

1260000 MALHEUR RIVER BELOW NEVADA DAM, NEAR WALE, OREGON

Mean discharge (1980)	276 cfs
Discharge area	276 sq mi
Period of record (water year)	1906-99, 1906-02, 1901-04
Maximum discharge (10-10-56)	15,900 cfs
Minimum discharge (1977)	271 cfs
Average discharge (107 years)	271 cfs

1260000 BOISE RIVER NEAR PARRMA

Mean discharge (1980)	1,627 cfs
Discharge area	1,627 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	17,800 cfs
Minimum discharge (1977)	80 cfs
Average discharge (63 years)	1,600 cfs

1260000 BIG WOOD RIVER NEAR GOODING

Mean discharge (1980)	279 cfs
Discharge area	279 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	2,900 cfs
Minimum discharge (1977)	0 cfs
Average discharge (48 years)	268 cfs

1260000 SNAKE RIVER AT MELNER

Mean discharge (1980)	1,778 cfs
Discharge area	1,778 sq mi
Period of record (water year)	1911-80
Maximum discharge (10-10-56)	18,000 cfs
Minimum discharge (1977)	20 cfs
Average discharge (54 years)	2,474 cfs

1260000 SNAKE RIVER NEAR MELLY

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