WATER SUPPLY OUTLOOK FOR MONTANA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE,

and

MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

AS OF

FEB. 1, 1969

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80521
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

USDA SCS PORTLAND, OREG. 1966

WATER SUPPLY OUTLOOK FOR MONTANA

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FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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MONTANA WATER SUPPLY OUTLOOK

February 1, 1969

Mountain snow pack in Montana is above average, mountain soils are wet, valley floors are snow covered, reservoir storage is generally above average - all indicators for good to excellent spring and summer water supplies for Montana.

COLUMBIA RIVER DRAINAGE

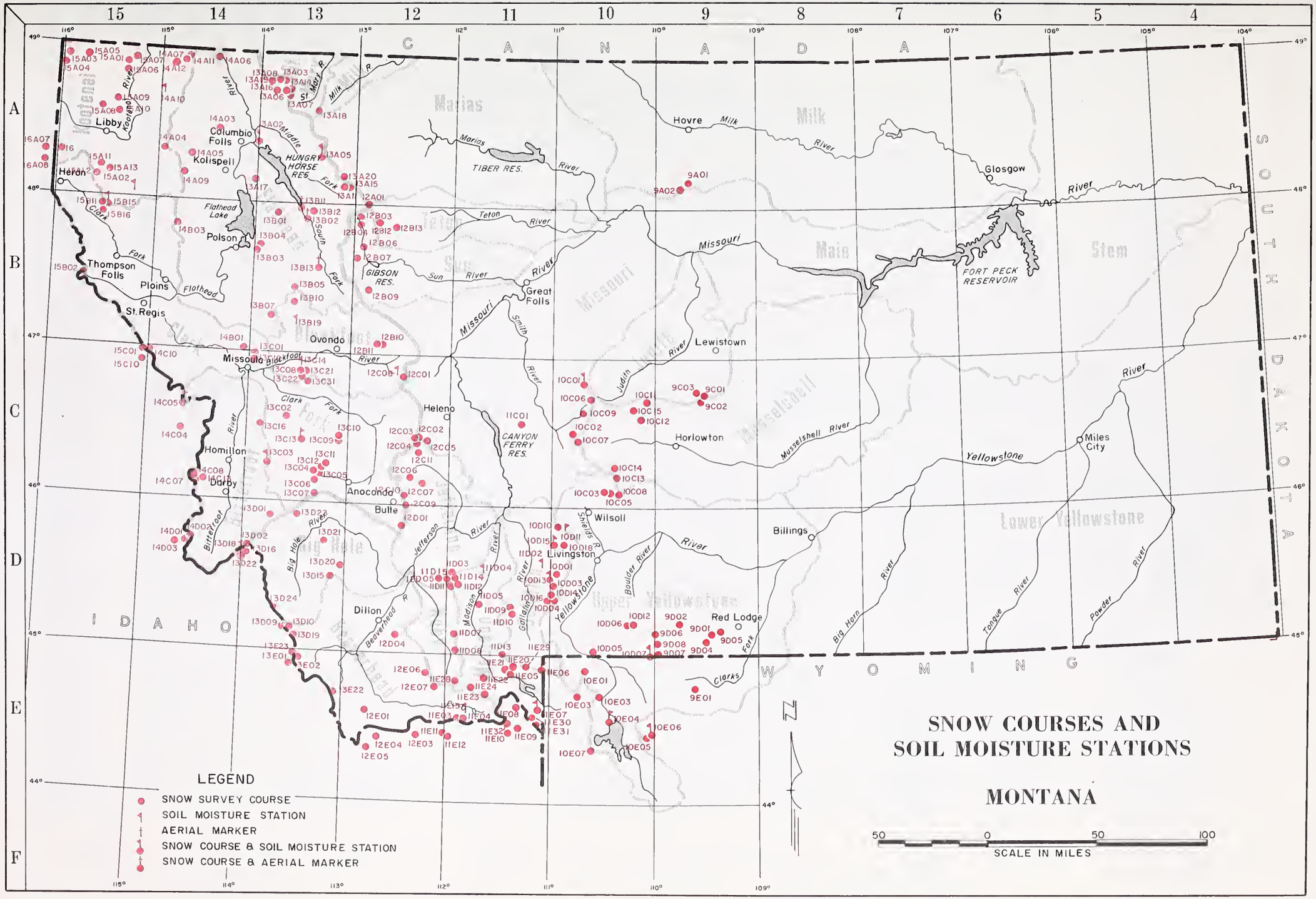
Snow - The mountain snow pack is well above average along the Continental Divide in the Blackfoot River headwaters, and along the Montana-Idaho border in the Lower Clark Fork area. Snow pack in the Kootenai River headwaters is increasing to above average in the Montana portion of the drainage. The remainder of the Columbia River drainage in Montana is 10 to 30 percent above average. Soil moisture is generally above average and will increase runoff normally expected from the snow pack.

Streamflow - Water supply forecasts are not prepared until after March 1 snow surveys, but present indications are for runoff in the Kootenai River to be 110 to 115 percent average. The Upper Clark Fork, Blackfoot and Bitterroot Rivers are about 125 to 130 percent; the Flathead River and tributaries, 110 to 120 percent average. Combined the flow is about 120 to 125 percent average for the Clark Fork below the junction with the Flathead River.

MISSOURI RIVER DRAINAGE

Snow - Surveys are made at only a portion of the snow courses for February, but heavy snow pack is indicated in the headwaters of the Red Rock River along the Continental Divide, along the Missouri main stem, and in the Yellowstone River headwaters. The remainder of the Missouri River drainage appears to have well above average snow pack. Many snow courses now have snow water equivalents greater than their April 1 average. Mountain soils under the snow pack are wetter than normal and will require less snow melt for recharge.

Streamflow - Water supply forecasts are not prepared until after March 1 snow surveys. It is likely that all streams in the Missouri River will flow 10 to 30 percent above average. Some smaller streams, particularly the Red Rock and Beaverhead Rivers will probably have flows greater than 130 percent of average, depending on snowfall for the next two months and precipitation during the spring melt. Depending on temperatures and other climatic conditions, snow on the valley floors could provide some runoff between now and April.



U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE — USDA-SCS-PORTLAND, OREG. 1965 M-4473

INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. By 2/
COLUMBIA RIVER BASIN								
KOOTENAI RIVER								
Bald Eagle Peak	15A11	5700	6	27N	31W	1969	3,4,5	1
Banfield Mountain	15A08	5600	4	32N	30W	1969	1,2,3,4,5,5½,6	1
Baree Creek	15B11	5500	30	26N	31W	1956	3,4,5,5½	2
Baree Midway	15B16	4600	31	26N	30W	1965	3,4,5,5½	2
Baree Trail	15B15	3800	5	25N	30W	1965	3,4,5,5½	2
Bristow Creek	15A10	4200	3	32N	30W	1969	1,2,3,4,5	1
Brush Creek	14A04	5000	12	30N	26W	1937	3,4,5	1,2
Cedar Grove	15A13	4100	35	28N	31W	1969	1,2,3,4,5,5½,6	1
Clingback Trail	15A06	6100	9	36N	29W	1969	3,4,5,5½,6	1
Davis Creek	15A04	5400	20	37N	33W	1969	1,2,3,4,5,5½,6	1
Dodge Creek	15A07	5200	35	37N	29W	1969	3,4,5,5½,6	1
Garver Creek	15A05	4250	18	37N	32W	1969	1,2,3,4,5,5½,6	1
Graves Creek	14A11	4300	1	36N	25W	1937	3,4,5,5½,6	1,2
Hawkins Lake	15A03	6550	18	37N	33W	1969	1,2,3,4,5,5½,6	1
Keeler Creek	14A09	3300	25	30N	35W	1969	3,4,5	1
Lost Soul	15A09	5000	31	33N	29W	1969	1,2,3,4,5,5½,6	1
Peterman Creek	15A12	5100	5	27N	31W	1969	1,2,3,4,5,5½,6	1
Red Mountain	15A01	6000	4	36N	29W	1937	3,4,5,5½,6	1,2
Stahl Peak	14A12	6050	5	36N	25W	1969	3,4,5,5½,6	1
Wessel Divide	14A07	5450	20	37N	24W	1937	3,4,5,5½,6	1,2
FLATHEAD RIVER								
Bass[illegible] Peak	14B03	5150	11	24N	25W	1961	3,4,5	1,5
Beaver Lake	13A11	5900	31	28N	11W	1964	3,4,5	2
Bill Creek	13B03	6750	7	22N	18W	1941	3,4,5, 6	1,5
Camp Misery	13A17	6400	30	28N	18W	1962	3,4,5	1,2
Desert Mountain	13A02	5600	24	31N	19W	1937	1,2,3,4,5, 6	1,2
Fatty Creek	13B04	5500	8	22N	18W	1962	3,4,5, 6	1,5
Flattop Mountain	13A19	6300	12	35N	18W	1968	1,2,3,4,5 6	1,6
Griffin Creek Divide	14A09	5150	11	28N	25W	1960	3,4,5	1,5
Sunlight Lake	13B12	6300	35	26N	14W	1964	3,4,5	1
Hell Roaring Divide	14A03	5770	35	32N	22W	1942	1,2,3,4,5,5½,6	2
Holbrook	13B13	4530	18	21N	13W	1951	1,2,3,4,5	1,2
Kishenehn	14A06	3840	14	37N	22W	1954	3,4	6
Logan Creek	14A05	4300	34	30N	24W	1937	3,4,5	1,2
Marias Pass	13A05	5250	34	30N	14W	1934	1,2,3,4,5	3
Mineral Creek	13A16	4000	29	35N	17W	1957	3,4,5	6
North Fork Jocko	13B07	6330	3	17N	17W	1941	3,4,5,5½,6	1,5
Spotted Bear Mountain	13B02	7000	23	25N	15W	1948	1,2,3,4,5	1
Trinaus Lake	13B01	6100	9	25N	17W	1948	3,4,5	1
Twin Creeks	13B11	3580	24	26N	16W	1951	1,2,3,4,5	1
Upper Holland Lake	13B05	6200	28	20N	15W	1948	3,4,5	1
CLARK FORK RIVER								
Black Pine	13C13	7100	26	8N	15W	1959	1,2,3,4,5,5½,6	1
Copper Creek	12B10	5700	1	15N	9W	1962	3,4,5	1,2
Cotter Mine	12B11	6250	2	15N	9W	1962	3,4,5	1,2
Coyote Hill	13B10	4200	12	18N	16W	1947	1,2,3,4,5	1,2
El Dorado Mine	13C09	7800	23	8N	12W	1949	3,4	1
Fred Burr Pass	13C11	8000	12	6N	13W	1957	3,4,5	1
Gold Creek Lake	13C10	7200	14	8N	12W	1949	3,4	1
Heart Lake Trail	14C10	4800	11	14N	27W	1965	3,4,5	1,2
Noodoo Basin	15C10	6600	17	14N	27W	1967	1,2,3,4,5,5½,6	1,2
Noodoo Creek	15C01	5900	16	14N	27W	1937	1,2,3,4,5	1,2
Intersect	13C04	6450	6	5N	13W	1936	2,3,4,5	4
Lubrecht Forest No. 3	13C21	5450	19	13N	14W	1951	1,2,3,4,5	8
Lubrecht Forest No. 4	13C22	4650	23	13N	15W	1951	1,2,3,4,5	8
Lubrecht Forest No. 6	13C08	4640	11	13N	15W	1951	1,2,3,4,5	8
N. Fork Elk Creek	13C31	6250	20	13N	13W	1968	1,2,3,4,5,5½,6	8
Red Lion	13C12	7100	22	6N	12W	1958	3,4,5	1
Seeley Summit	13C03	7260	30	6N	17W	1937	3,4,5,5½,6	1
Silver Mine Mountain	13C02	7100	35	10N	16W	1937	3,4,5	1
Southern Cross	13C05	6560	8	5N	13W	1936	2,3,4	4
Spring Gulch	13C18	6000	12	14N	19W	1961	1,2,3,4,5	8
Storm Lake	13C07	7780	19	4N	13W	1939	1,2,3,4,5	1
Stuart Mill	13C06	6500	19	5N	13W	1936	2,3,4	4
Stuart Mountain	13C01	7400	6	14N	18W	1936	1,2,3,4,5,5½,6	8
T.V. Mountain	14BC1	6800	33	15N	19W	1956	1,2,3,4,5,5½,6	8
BITTERROOT RIVER								
Ambrose	13C16	6480	28	9N	18W	1960	3,4,5	1
East Fork R.S.	13D01	5400	16	2N	17W	1937	3,4	1
Gibbons Pass	13D02	7100	4	2S	19W	1934	1,2,3,4,5,5½,6	1,3
Lost Horse	14C07	5940	5	4N	23W	1960	3,4,5,5½,6	1
Nez Perce Camp	14D02	5680	19	1S	23W	1937	3,4,5	1
Nez Perce Pass	14D01	6570	25	1S	24W	1937	3,4,5	1
Saddle Mountain	13D22	7940	5	2S	19W	1965	3,4,5,5½,6	1
Twelvemile Creek	14C13	5660	34	5N	23W	1968	1,2,3,4,5,5½,6	1
Twin Lakes	14C08	6510	32	5N	23W	1960	3,4,5,5½,6	1
ST. MARY RIVER BASIN								
Hudson Bay Divide	13A18	5800	24	34N	14W	1963	3,4,5	3
Iceberg Lake No. 3	13A03	5600	1	35N	17W	1922	5	3,9
Josephine Lower No. 9	13A14	4900	22	35N	16W	1955	5	3,9
Mount Allen No. 7	13A07	5700	27	35N	16W	1922	5	3,9
Pitaman Pass No. 6	13A06	5500	27	35N	16W	1922	5	3,9
Pitamitan No. 8	13A08	5800	36	36N	17W	1937	5	3,9

MISSOURI RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. By 2/
BEAVERHEAD RIVER								
Bloody Dick	13D16	7600	12	8S	16W	1948	3,4,5	1
Carter Creek	12D04	7400	22	8S	7W	1963	2,3,4	11
Dad Creek Lake	13E22	8400	24	12S	13W	1965	3,4,5	1
Elk Horn Springs	13D15	7800	21	4S	12W	1935	3,4,5	3
Hell Stone	13D09	8100	11	8S	14W	1948	3,4,5	1
Lakeview Canyon	11E04	6930	26	14S	2W	1948	3,4,5	10
Lakeview Ridge	11E03	7400	27	14S	2W	1948	3,4,5	10
Lemhi Pass	13E01	7480	9	10S	15W	1948	3,4	1
Lemhi Ridge	13E23	8100	4	10S	15W	1967	3,4	1
Trail Creek	13E02	7590	15	10S	15W	1948	3,4	1
White Pine Ridge	12E01	8850	18	14S	9W	1948	3,4,5	1
RUBY RIVER								
Branham Lakes	11D14	8850	5	4S	3W	1967	3,4,5	1,12
Clover Meadow	11D08	8600	28	9S	2W	1963	3,4,5	1
Divide	12E07	7900	14	12S	4W	1963	3,4,5	1
Middle Mill Creek	11D15	7850	17	4S	3W	1967	3,4,5	1,12
Netch	12E06	8500'	18	11S	4W	1963	3,4,5	1
Smuggler Mine	12D05	6960	24	4S	3W	1967	3,4,5	1,12
BIG HOLE RIVER								
Abundance Lake	13D20	8800	7	3S	11W	1963	3,4,5	1
Darkhorse Lake	13D19	8600	4	8S	16W	1963	3,4,5	1
Foolhen	13D21	8280	11	1S	13W	1963	3,4,5	1
Pallsade Creek	13D23	8450	3	2N	15W	1967	3,4,5	1
Slag-A-Melt Lake	13D24	8750	29	5S	17W	1968	3,4,5	1
JEFFERSON RIVER								
Berry Meadow	12C07	7300	8	5N	5W	1962	3,4,5	1
Copper Mountain	12C09	7700	13	3N	7W	1966	2,3,4,5	4
Nez Perce Creek	12C10	6500	16	4N	6W	1967	2,3,4,5	4
Picnic Grounds	12C06	6500	21	5N	6W	1941	2,3,4	4
Pipestone Pass	12D01	7200	10	1N	7W	1938	1,2,3,4,5	1
Rocker Peak	12C11	8000	17	7N	5W	1968	1,2,3,4,5	1
MADISON RIVER								
Call Road	11D07	8050	21	8S	2W	1962	3,4,5	1
Four Mile	11D12	6900	5	4S	2W	1965	3,4,5	1
Hebgen Dam	11E05	6550	22	11S	3E	1934	1,2,3,4,5	3
Jack Creek	11D05	7500	13	6S	1E	1961	3,4	1
Lake Creek	11E22	6100	27	11S	1E	1965	3,4,5,5½,6	2
Lion Mountain	11E28	8760	23	11S	2W	1967	3,4,5,5½,6	2
Lower Twin	11D11	7900	12	4S	3W	1965	3,4,5	1
Madison Plateau	11E31	7750	28	14S	5E	1968	1,2,3,4,5,5½,6	1,2
Meridian Creek	11E23	7000	31	12S	1E	1965	3,4,5,5½,6	2
North Meadow	11D03	7500	24	3S	3W	1961	3,4,5	1
Potomageton Park	11E21	7150	33	10S	3E	1965	3,4,5	2
Sentinel Creek	11E20	8300	17	10S	3E	1965	3,4,5	2
Tepee Creek	11E24	8000	15	12S	1W	1965	3,4,5,5½,6	2
West Yellowstone	11E07	6700	34	13S	5E	1934	1,2,3,4,5	1,3,6
Whiskey Creek	11E30	6800	19	14S	5E	1967	3,4,5	2
GALLATIN RIVER								
Arch Falls	10D14	7350	3	5S	6E	1963	1,2,3,4,5,5½,6	1
Bear Basin	11D09	8150	9	6S	3E	1963	3,4,5	1
Bridger Bowl	10D15	7250	25	1N	6E	1965	1,2,3,4,5,5½,6	1
Carrot Basin	11E29	9000	18	10S	4E	1967	1,2,3,4,5, 6	2
Devil's Slide	10D04	8100	14	5S	6E	1935	1,2,3,4,5,5½,6	1
Hood Meadow	10D03	6600	22	4S	6E	1935	2,3,4,5,5½,6	1
Lick Creek	10D13	6860	10	4S	6E	1964	1,2,3,4,5,5½,6	1
Little Park	11D10	7400	22	6S	3E	1963	3,4,5	1
Maynard Creek	10D18	6210	19	1N	7E	1967	1,2,3,4,5,5½,6	1
New World	10D01	6700	24	3S	6E	1939	2,3,4	1
Shower Falls	10D16	8100	14	5S	6E	1966	1,2,3,4,5,5½,6	1
Taylor Peaks	11D13	8500	26	9S	2E	1967	3,4,5	1
Twenty-One Mile	11E06	7150	1	11S	5E	1934	1,2,3,4,5	3
MISSOURI RIVER MAIN STEM								
Beer Pew Ski Area	9A02	5200	21	28N	16E	1967	1,2,3,4,5	7
Boulder Mountain	11C01	7950	1	9N	3E	1963	3,4,5	1
Chessman Reservoir	12C05	6200	2	8N	5W	1936	1,2,3,4,5	3
Daisy Cabin	10C15	7600	33	11N	11E	1969	3,4,5	2
Eagle Creek	10C13	7000	2	5N	10E	1969	3,4,5	2
Elk Peak	10C07	8000	10	8N	8E	1963	3,4,5	1
Forest Lake C.S.	10C14	6400	26	6N	10E	1969	3,4,5	2
Grasshopper	10C02	7000	19	9N	8E	1938	3,4,5	1
Haymaker	10C11	8050	16	11N	12E	1969	3,4,5	2
Johnson Park	10C12	6450	16	10N	11E	1969	3,4,5	2
Kings Hill	10C01	7500	34	13N	8E	1934	3,4,5,5½,6	1,3
Rocky Boy	9A01	5200	15	28N	16E	1941	1,2,3,4,5	7
Stemple Pass	12C01	6600	16	13N	7W	1934	3,4,5	3
Ten Mile Lower	12C02	6600	12	8N	6W	1935	1,2,3,4,5	3
Ten Mile Middle	12C03	6800	13	8N	6W	1934	1,2,3,4,5	3
Ten Mile Upper	12C04	8000	19	8N	5W	1935	1,2,3,4,5	3
SUN-TETON-MARIAS RIVERS								
Badger Pass	13A15	6900	4	27N	11W	1964	3,4,5	1
Blue Lake	13A20	5900	25	28N	11W	1969	3,4,5	1
Cabin Creek	12D06	5200	33	23N	10W	1949	3,4,5	2
Five-Bull	12B09	5700	25	20N	10W	1948	3,4,5	1
Freight Creek	12A01	6000	13	26N	10W	1948	3,4,5	1
Goat Mountain	12B07	7000	20	22N	10W	1934	3,4,5	3
Mount Lockhart	12B12	6400	18	24N	9W	1969	1,2,3,4,5,5½,6	2
Waldron	12B13	5650	17	25N	9W	1969	1,2,3,4,5,5½,6	2
Wrong Creek	12B04	5700	32	25N	10W	1949	3,4,5	2
Wrong Ridge	12B03	6800	17	25N	10W	1949	3,4,5	2
JUDITH RIVER								
Avalanche	9C02	7100	24	12N	17E	1966	3,4,5	1
Crystal Lake	9C01	6100	19	12N	18E	1941	3,4,5	1
Nock Creek	9C03	5600	8	12N	18E	1966	3,4,5	1
Spur Park	10C06	8000	20	12N	9E	1963	1,2,3,4,5, 6	1
UPPER YELLOWSTONE RIVER								
Bald Ridge	10C05	7500	11	4N	10E	1961	3,4,5	1
Camp Senle	9D01	7890	2	8S	18E	1937	3,4,5,5½,6	1
Cooke Station	9D07	8150	19	9S	15E	1966	3,4,5	2
Crevice Mountain	10D05	8400	22	9S	9E	1935	3,4	2
Fisher Creek	9D06	9100	11	9S	14E	1966	1,2,3,4,5,5½,6	1,2
Grizzly Peak	9D05	8400	26	7S	19E	1961	1,2,3,4,5	1,2
Independence	10D06	7850	22	7S	12E	1940	3,4,5	1
Monument Peak	10D12	8800	22	7S	12E	1961	3,4,5	1
Northeast Entrance	10D07	7400	33	9S	14E	1937	1,2,3,4,5,5½,6	1,6
Porcupine R.S.	10C03	6500	10	4N	10E	1938	3,4,5	1
Sacajawea	10D10	6550	36	2N	6E	1960	3,4,5	1
South Fork Shields	10C08	8100	13	4N	10E	1965	3,4,5	1
Timberline Creek	9D04	8850	10	8S	18E	1961	3,4,5	1
West Rosebud	9D02	7500	9	7S	16E	1960	3,4	4
White Mill	9D08	8700	18	9S	15E	1967	3,4,5	2

SOIL MOISTURE STATIONS

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Began	Measuring Dates 1/	Meas. By 2/
COLUMBIA RIVER BASIN								
KOOTENAI RIVER								
Baree Trail	15B15M	3800	5	25N	30W	1964	Monthly	2
Murphy Lake R.S.	14A10M	3000	5	34N	25W	1964	Monthly	2
Raven R.S.	15A02M	3050	2	26N	29W	1964	Monthly	2
FLATHEAD RIVER								
Desert Mountain	13A02M	5600	24	31N	19W	1956	Monthly	1
Marias Pass	13A05M	5250	34	30N	14W	1950	Monthly	1
CLARK FORK RIVER								
Black Pine	13C13M	7100	26	8N	15W	1965	Monthly	1
Lubrecht Forest	13C14M	4100	11	13N	15W	1961	Monthly	8
Seeley Lake	13B19M	4030	21	17N	15W	1963	Monthly	2
Skalkaho Summit	13C03M	7260	30	6N	17W	1964	Monthly	1
BITTERROOT RIVER								
Gibbons Pass	13D18M	7100	4	2S	19W	1962	Monthly	1
Lolo Pass	14C05M	5250	11	10N	24W	1963	Monthly	1
MISSOURI RIVER BASIN								
BEAVERHEAD RIVER								
Lakeview	11E13M	6700	23	14S	2W	1962	Monthly	10
MADISON RIVER								
Red Bluff	11D04M	4800	7	3S	1E	1961	Monthly	7
West Yellowstone	11E07M	6700	34	13S	5W	1966	Monthly	6
GALLATIN RIVER								
Bridger Bowl	10D15M	7250	25	1N	6E	1965	Monthly	1
College Site	11D02M	4856	18	2S	5E	1956	Monthly	1
Lick Creek	10D13M	6850	10	4S	6E	1965	Monthly	1
Twenty-One Mile	11E06M	7150	1	11S	5E	1963	Monthly	6
MISSOURI RIVER MAIN STEM								
Kings Hill	10C01M	7420	34	13N	8E	1963	Monthly	1
Stemple Pass	12C08M	6350	16	13N	7W	1963	Monthly	1
YELLOWSTONE RIVER								
Battle Ridge	10D11M	6020	32	2N	7E	1960	Monthly	1
Northeast Entrance	10D07M	7350	33	9S	14E	1962	Monthly	6

LEGEND

1/ Numerals 1,2,3,4,5,5½,6 refer to January 1, February 1, March 1, April 1, May 1, May 15 and June 1.

2/ Numerals refer to Agency that makes the snow survey as follows:

1. U. S. Soil Conservation Service
2. U. S. Forest Service
3. U. S. Geological Survey
4. Montana Power Company
5. U. S. Indian Service
6. U. S. National Park Service
7. MSU Agricultural Experiment Station
8. U. of M. School of Forestry
9. Department of Energy, Mines & Resources
10. U. S. Bureau of Sport Fisheries & Wildlife
11. Private Cooperator
12. Soil and Water Conservation District

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE
	COLUMBIA RIVER BASIN						
KOOTENAI RIVER							
BC 10	Fernie	3500	1/31	48	11.8	4.2	7.1
BC 12A	Field	4200	1/30	24	4.7	5.3	5.5
BC 11	Glacier	4100	1/28	58	19.7	19.7	20.5
BC 43	Gray Creek	5100	1/28	50	12.6	10.3	12.4
BC 33	Kicking Horse	5400	1/30	40	10.5	10.6	11.4
BC 32	Marble Canyon	5000	1/30	45	11.3	8.4	10.6
BC 10B	Morrissey Ridge	6100				15.7	20.0*
BC 10A	New Fernie	4100				8.4	11.1
BC 8A	Sinclair Pass	4500	1/27	20	5.5	4.0	4.7
BC 20A	Sullivan Mine	5100	1/31	53	14.2	10.6	9.7
FLATHEAD RIVER							
13A02	Desert Mountain	5600	1/31	55	15.9	10.2	10.7
14A03	Hell Roaring Divide	5770	1/30	92	28.1	18.2	22.3*
13B13	Holbrook	4530	2/4	50	12.5A	6.0A	7.4
13A05	Marias Pass	5250	1/29	56	14.0	9.3	12.1
13B02	Spotted Bear Mountain	7000	2/4	56	15.0A	9.0A	10.1*
13B11	Twin Creeks	3580	2/4	57	14.0A	7.0A	8.7*
CLARK FORK RIVER							
13C13	Black Pine	7100	1/31	48	13.6	10.9	-
13C13	Black Pine Pillow	7100	1/31	SP	12.9	11.2	-
13B10	Coyote Hill	4200	2/4	41	10.1	6.8	7.8
14C10	Heart Lake Trail	4800	1/30	66	20.4	-	-
15C10	Hoodoo Basin	6000	1/30	132	44.7	31.3	-
15C10	Hoodoo Basin Pillow	6000	No Report			28.9	-
15C01	Hoodoo Creek	5900	1/30	129	41.8	27.6	-
13C04	Intergaard	6450	1/31	34	7.1	7.2	5.3
15B02	Lookout	5250	1/31	133	38.7	21.0	25.0
13C21	Lubrecht Forest No. 3	5450				5.4	5.2
13C22	Lubrecht Forest No. 4	4650				3.1	2.7
13C08	Lubrecht Forest No. 6	4040				3.2	3.3
13C05	Southern Cross	6500	1/31	28	6.5	5.7	4.4
13C18	Spring Gulch	6000				10.6	8.9*
13C07	Storm Lake	7780	1/30	46	12.0	12.4	8.5
13C06	Stuart Mill	6500	1/31	30	6.8	5.7	4.5
13C01	Stuart Mountain	7400				23.6	21.5*
14B01	TV Mountain	6800				11.4	11.8*

SP - Snow pillow observation - water content only.
A - Aerial observation - water content estimated.

*Note: All Averages Based on 1953-67, 15 year period. *Adjusted Average*

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE
BITTERROOT RIVER							
13D02	Gibbons Pass	7100	1/28	79	22.0	14.8	15.1
14C05	Lolo Pass	5230	1/29	84	25.6	-	-
13D16	Moose Creek	6200	1/30	60	15.2	9.0	10.9
13D22	Saddle Mountain	7940	1/29	83	25.1	18.8	-
13D22	Saddle Mountain Pillow	7900	1/28	SP	25.6	17.9	-
14C04	Savage Pass	6600	1/29	78	23.3	18.5	-
14C13	Twelvemile Creek	5600	1/31	65	18.9	13.9	-
14C13	Twelvemile Creek Pillow	5600	1/31	SP	15.8	11.8	-

SP - Snow pillow observation - water content only.

*Note: All Averages Based on 1953-67, 15 year period. *Adjusted Average*

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
	MISSOURI RIVER BASIN						
BEAVERHEAD RIVER							
12E03	Camp Creek	6800	1/27	55	14.5	8.0	6.3
12D04	Carter Creek	7400	2/1	22	4.2	3.4	-
11E12	Kilgore	6200	2/1	51	14.8	8.5	6.2
11E04	Lakeview Canyon	6930	1/31	71	18.4	10.1	8.3*
11E03	Lakeview Ridge	7400	1/31	64	15.5	10.7	7.7*
JEFFERSON RIVER							
12C09	Copper Mountain	7700	1/30	40	8.8	10.6	-
12C10	Nez Perce Creek	6500	1/30	27	6.1	5.1	-
12C06	Picnic Grounds	6500	1/30	23	4.6	3.9	3.1
12D01	Pipestone Pass	7200	1/30	26	5.3	4.3	3.4
12C11	Rocker Peak	8000	1/29	52	13.8	13.9	-
12C11	Rocker Peak Pillow	8000	1/29	SP	12.6	13.0	-
12C12	Uncle Sam Gulch	6500	1/29	36	8.7	8.1	-
MADISON RIVER							
11E09	Big Springs	6500	1/29	69	21.3	12.1	13.1
11E05	Hebgen Dam	6550	2/1	44	11.6	10.2	7.5
11E10	Island Park	6315	1/30	64	19.4	8.9	10.6
10E02	Norris Basin	7500	2/3	43	8.6	10.9	7.2
11E08	Valley View	6500	1/30	75	22.4	13.6	10.3
11E07	West Yellowstone	6700	2/2	49	13.4	7.7	7.4
11E07	West Yellowstone Pillow	6700	1/27	SP	9.8	7.2	-
GALLATIN RIVER							
10D14	Arch Falls	7350	1/30	37	10.0	13.6	8.0*
10D15	Bridger Bowl	7250	1/29	68	22.0	24.5	-
10D15	Bridger Bowl Pillow	7250	1/29	SP	18.3	23.7	-
10D04	Devil's Slide	8100	1/30	54	15.8	22.7	13.2*
10D03	Hood Meadow	6600	1/30	31	7.8	10.6	5.8*
10D13	Lick Creek	6860	1/30	31	6.9	11.0	6.3*
10D13	Lick Creek Pillow	6860	1/30	SP	6.7	9.8	-
10D18	Maynard Creek	6210	1/29	50	14.5	16.1	-
10D18	Maynard Creek Pillow	6210	1/29	SP	10.2	11.3	-
10D01	New World	6700	1/29	33	8.3	12.0	6.4
10D16	Shower Falls	8100	1/30	65	19.5	25.3	-
10D16	Shower Falls Pillow	8100	1/30	SP	16.7	22.0	-
11E06	Twenty-One Mile	7150	2/2	79	21.8	13.2	11.9

SP - Snow pillow observation - water content only.

*Note: All Averages Based on 1953-67, 15 year period. *Adjusted Average*

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
MISSOURI RIVER (Main Stem)							
12C05	Chessman Reservoir	6200	1/31	24	5.8	6.4	2.6*
10C09	Deadman Creek	6450	2/4	40	9.4	9.2	-
10C09	Deadman Creek Pillow	6450	2/4	SP	8.9	8.2	-
9A01	Rocky Boy	4700				5.0	-
9A01	Rocky Boy Pillow	4700				4.4	-
12C02	Ten Mile Lower	6600	1/31	36	8.8	7.5	4.6
12C03	Ten Mile Middle	6800	1/30	42	11.2	9.4	6.9
12C04	Ten Mile Upper	8000	2/3	48	14.0	13.0	8.8
JUDITH RIVER							
10C06	Spur Park	8000	2/4	61	17.6	18.2	-
10C06	Spur Park Pillow	8000	2/4	SP	15.9	17.0	-
ST. MARY RIVER							
13A18	Hudson Bay Divide	5800	1/28	50	13.3	-	-
SASKATCHEWAN (Bow River)							
Alb. 1	Bow River	5100	1/31	33	7.2	6.6	-
Alb. 8	Chateau Lake	5700	1/30	39	9.2	7.6	-
Alb. 6	Mirror Lake	6600	1/30	38	9.6	8.8	-
Alb.10	Mount Eisenhower	5000	1/31	26	5.5	3.6	-
Alb. 2	Upper Pipestone	5400	1/29	31	6.2	6.0	-
UPPER YELLOWSTONE RIVER							
10E03	Canyon	7750	1/29	56	14.8	10.8	10.1
10E06	East Entrance	7000	1/28	35	8.6	4.5	7.1*
9D05	Grizzly Peak	8400	1/31	32	7.5	13.4	10.1*
10E04	Lake Camp	7850	1/30	47	10.4	5.0	5.8*
10E01	Lupine Creek	7300	2/1	44	12.3	8.4	7.1
10D07	Northeast Entrance	7400	1/30	34	8.6	6.4	6.0
10D07	Northeast Entrance Pillow	7400	1/30	SP	7.8	6.7	-
10E05	Sylvan Pass	7100	1/28	45	12.2	7.6	8.8
10E07	Thumb Divide	7900	1/29	85	23.0	14.8	14.6*
9D02	West Rosebud	7500	1/29	38	10.0	9.8	-

SP - Snow pillow observation - water content only.

*Note: All Averages Based on 1953-67, 15 year period. *Adjusted Average*

SOIL MOISTURE DATA

AS OF FEBRUARY 1, 1969

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE
			COLUMBIA RIVER BASIN					
Kootenai								
15B15M	Baree Trail	3800	48	7.5			-	-
14A10M	Murphy Lake R.S.	3000	48	22.6			19.0	-
15A02M	Raven R.S.	3050	48	23.0			20.5	-
Flathead								
13A02M	Desert Mountain	5600	54	8.4	1/31	8.7	6.9	7.0
13A05M	Marias Pass	5250	54	6.5	2/1	5.6	5.4	5.1
Clark Fork								
13C13M	Black Pine	7100	48	10.0	1/31	8.7	8.0	-
13B19M	Seeley Lake R.S.	4030	48	11.9	2/4	8.3	5.1	6.8
13C03M	Skalkaho Summit	7260	48	10.8			-	-
Bitterroot								
13D18M	Gibbons Pass	7100	48	7.1	1/28	5.8	6.2	5.4
14C05M	Lolo Pass	5250	48	10.6	1/31	7.0	10.1	6.6
			MISSOURI RIVER BASIN					
Beaverhead								
11E13M	Lakeview	6700	48	15.3	2/1	6.1	5.2	7.1
Madison								
10D04M	Red Bluff	4800	40	4.7			-	-
11E07M	West Yellowstone	6700	48	6.5	1/27	3.5	2.3	-
Gallatin								
10D15M	Bridger Bowl	7250	48	17.0	1/29	13.7	15.5	-
11D02M	College Site	4856	54	14.5	1/31	12.2	10.3	9.7
10D13M	Lick Creek	6860	48	18.8	1/30	16.6	17.8	-
11E06M	Twenty-One Mile	7150	48	10.0	1/26	7.1	3.2	2.8
Missouri Main Stem								
10C01M	Kings Hill	7420	48	11.8	1/31	7.4	6.3	7.1
13C08M	Stemple Pass	6350	48	5.9	1/31	4.1	4.3	4.1
Yellowstone								
10D11M	Battle Ridge	6020	48	17.6	1/29	14.5	12.7	14.6
10D07M	Northeast Entrance	7350	48	9.4	1/31	7.7	5.6	6.5

**AVERAGE FOR PERIOD OF RECORD

RESERVOIR STORAGE DATA

AS OF JANUARY 31, 1969

(1000 Acre Feet)

BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVERAGE
COLUMBIA RIVER BASIN					
Flathead	Hungry Horse	3,428.0	2,902.0	2,034.0	2,474.0
	Flathead Lake	1,791.0	1,184.0	1,272.0	1,186.0
	Camas (Sum of 4)	45.2	14.3	22.4	26.6
	Mission Valley (Sum of 8)	100.3	80.2	24.2	31.0
Clark Fork	Georgetown Lake	31.0	29.4	28.7	25.1
	Nevada Creek	12.6		5.8	4.4
	Noxon Rapids	334.6		325.7	320.2**
Bitterroot	Como	34.9	16.0	14.4	9.3
	Painted Rocks	31.7	29.4	21.8	21.7
MISSOURI RIVER BASIN					
Beaverhead	Clark Canyon	328.9	152.8	156.7	126.5**
	Lima	84.0	44.9	42.1	22.8
Ruby	Ruby	38.8		-	21.1
Madison	Hebgen Lake	377.5	299.5	237.0	168.7
	Ennis Lake	41.0	35.4	34.6	38.4
Gallatin	Middle Creek	8.0	3.5	3.3	3.3
Missouri	Canyon Ferry	2,043.0	1,649.0	1,709.0	1,602.0**
	Hauser & Helena	61.9	63.0	59.0	56.5
	Lake Helena	10.4	10.9	9.4	8.6
	Holter Lake	81.9	51.2	75.4	61.5
	Smith River	10.7	8.0	8.1	5.7
	Durand	7.0	6.1	4.6	4.0
	Martinsdale	23.1	10.6	9.8	6.3
	Deadman's Basin	72.2	46.6	60.4	42.2
	Fort Peck	19,410.0	16,210.0	16,100.0	10,930.0
Sun	Gibson	105.0	61.9	32.1	47.0
	Willow Creek	32.2	20.4	16.6	20.4
	Pishkun	32.0	17.2	16.7	17.9
Marias	Lower Two Medicine	16.6		-	0.0
	Four Horns	19.2		-	12.1
	Swift	30.0		9.5	17.9
	Lake Frances	112.0	79.5	70.8	83.3
	Tiber	1,313.0	450.2	461.2	625.5**
Milk	Fresno	127.2	86.8	66.8	59.6
	Nelson	66.8	45.2	41.0	42.4
	Lake Sherburne	66.1		24.6	17.9
Yellowstone	Mystic Lake	20.8	12.0	13.5	10.4
	Tongue River	68.0	33.0	30.7	19.9
	Cooney	27.5	18.5	15.0	13.0
Big Horn	Yellowtail	1,356.0	731.8	800.6	-

*Note: All Averages Based on 1953-67, 15 year period. **Average for Period of Record*

Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service
Region 1, Missoula, Montana
Montana Forests and Ranger Districts

U. S. Geological Survey
Helena, Montana
Portland, Oregon

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Walla Walla, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana
Portland, Oregon
Kansas City, Missouri

U. S. Bureau of Sports Fisheries and Wildlife
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

U. S. Bonneville Power Administration
Portland, Oregon

U. S. Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

U. S. National Park Service
Yellowstone National Park
Glacier National Park

Montana Power Company
Butte, Montana

Montana Water Resources Board
Helena, Montana

North Montana Branch Station
Agricultural Experiment Station
Havre, Montana

Montana State University
Agricultural Experiment Station
Bozeman, Montana

University of Montana
School of Forestry
Missoula, Montana

Water Rights Branch, Dept. of Lands and Forests
Victoria, British Columbia

Department of Energy, Mines and Resources
Calgary, Alberta

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SOIL CONSERVATION SERVICE
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