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FEDERAL - STATE - PRIVATE  
COOPERATIVE  
SNOW SURVEY and WATER SUPPLY FORECASTS  
for  
MONTANA & NORTHERN WYOMING

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 the Bureau of Reclamation, U.S. Forest Service, U.S. Geological Survey, National Park Service, State Engineers of Montana and Wyoming and other Federal, State, and private organizations.

AS OF  
FEB. 1, 1961

# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## *To Recipients of Cooperative Snow Survey and Water Supply Forecast Reports:*

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

### PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
<b>RIVER BASINS</b>			
COLORADO AND STATE OF UTAH _____	MONTHLY (JAN.-MAY) _____	SALT LAKE CITY, UTAH _____	UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA _____	MONTHLY (JAN.-MAY) _____	BOISE, IDAHO _____	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSOURI AND STATE OF MONTANA _____	MONTHLY (FEB.-MAY) _____	BOZEMAN MONTANA _____	MONT. AGR. EXP. STATION
WEST-WIDE _____	OCT. 1, APR. 1, MAY 1 _____	PORTLAND, OREGON _____	ALL COOPERATORS
<b>STATES</b>			
ALASKA _____	MONTHLY (MAR.-MAY) _____	PALMER, ALASKA _____	ALASKA S.C.D.
ARIZONA _____	SEMI-MONTHLY (JAN. 15 - APR. 1) _____	PHOENIX, ARIZONA _____	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO _____	MONTHLY (FEB.-MAY) _____	FORT COLLINS, COLORADO _____	COLO. AGR. EXP. STATION COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO _____	MONTHLY (FEB.-MAY) _____	BOISE, IDAHO _____	IDAHO STATE RECLAMATION ENGINEER
NEVADA _____	MONTHLY (FEB.-APR.) _____	RENO, NEVADA _____	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES DIVISION OF WATER RESOURCES
OREGON _____	MONTHLY (JAN.-MAY) _____	PORTLAND, OREGON _____	ORE. AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON _____	MONTHLY (FEB.-MAY) _____	SPOKANE, WASHINGTON _____	WN. STATE DEPT. OF CONSERVATION
WYOMING _____	MONTHLY (FEB. JUNE) _____	CASPER, WYOMING _____	WYOMING STATE ENGINEER

*Copies of these various reports may be secured from:* Head, Water Supply Forecasting Section  
Soil Conservation Service,  
209 S. W. Fifth Ave., Portland 4, Oregon

### PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA _____	MONTHLY (FEB.-JUNE) _____	COMPTROLLER, WATER RIGHTS BR., DEPT. OF LANDS AND FORESTS, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA _____	MONTHLY (FEB.-MAY) _____	CALIF. DEPT. OF WATER RESOURCES, SACRAMENTO, CALIF.

FEDERAL-STATE-PRIVATE COOPERATIVE  
SNOW SURVEYS and WATER SUPPLY FORECASTS  
For  
MONTANA AND NORTHERN WYOMING  
(Upper Missouri and Upper Columbia River Basins)

Report Prepared  
By

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U. S. Department of Agriculture  
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MONTANA WATER SUPPLY OUTLOOK  
as of  
February 1, 1961

The present water supply outlook for Montana is poor. The February first snow-pack is considerably below average and generally less than last year by 20 to 50 percent.

If moisture conditions do not improve through the remainder of the snow season, the water supply in many areas will be very critical during the irrigation season. Farmers who depend upon natural streamflow for irrigation should give serious consideration to planting early maturing crops, such as small grains, that require less water than later maturing crops. Good water management and proper application will be necessary in most areas to obtain the most beneficial use of a limited water supply.

In the Missouri River Drainage, the Madison-Gallatin River basin snow-pack is 115 percent of last February, but only 66 percent average. In the Yellowstone River basin it is 110 percent of last February and 67 percent of the February average. The Beaverhead-Jefferson River basin is covered with a snow-pack which is 80 percent of last year and 49 percent average.

In the Columbia River Drainage in Montana, the outlook is not much better. Comparison with last year on the Kootenai River above Libby indicates a 9 percent better supply than last year, but 6 percent less than average. In the Flathead and Clark Fork River basins, the snow-pack is 20 percent less than last year and only 67 percent of average.

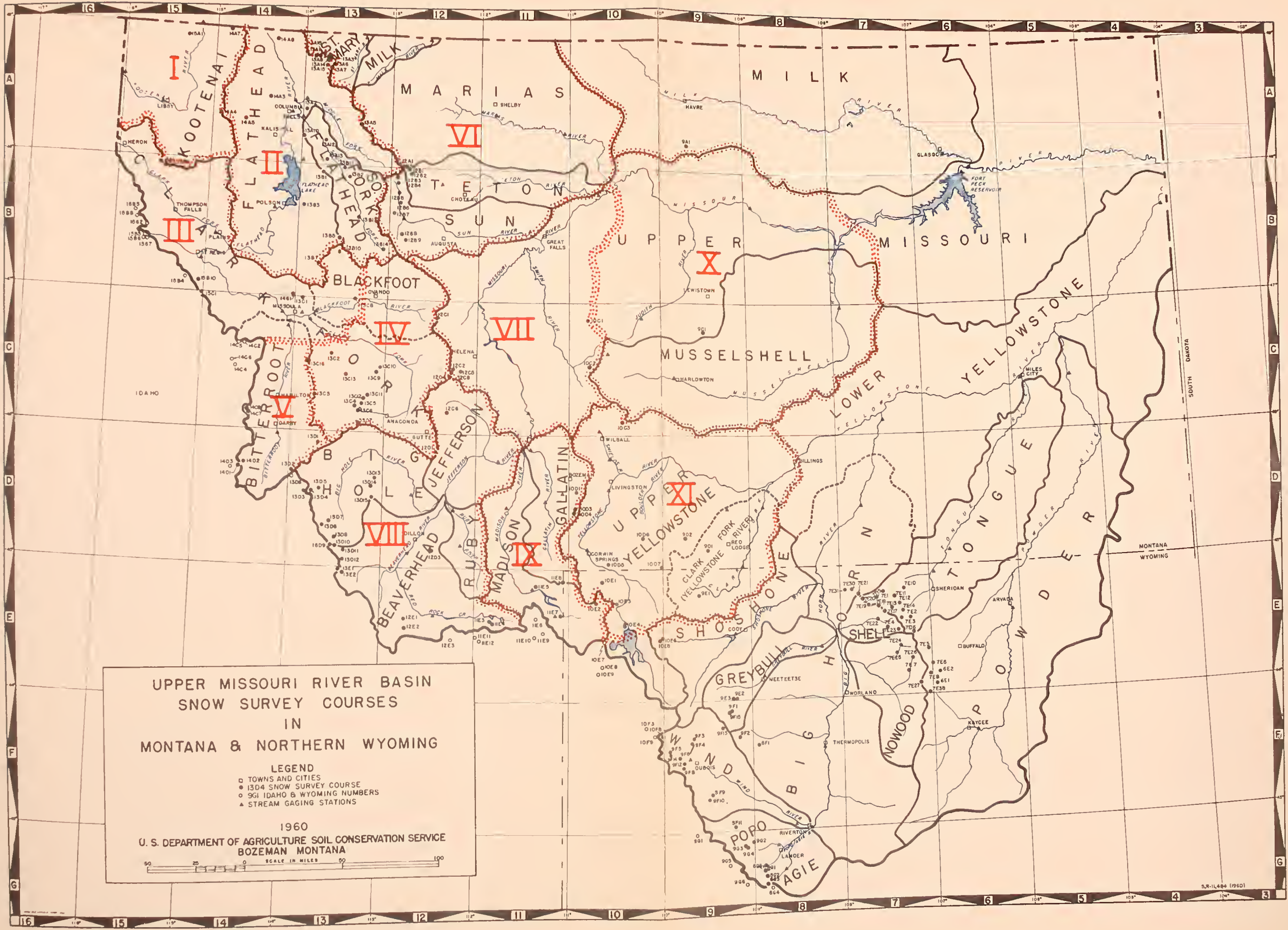
The deficient moisture condition in the soil underlying the snow-pack will have a great effect on this year's streamflow, producing less runoff than would normally be expected from an equivalent snow-pack.

Irrigation reservoir storage is generally below average throughout Montana.





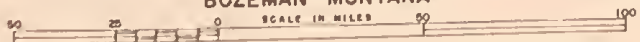




UPPER MISSOURI RIVER BASIN  
SNOW SURVEY COURSES  
IN  
MONTANA & NORTHERN WYOMING

- LEGEND
- TOWNS AND CITIES
  - 1304 SNOW SURVEY COURSE
  - 961 IDAHO & WYOMING NUMBERS
  - ▲ STREAM GAGING STATIONS

1960  
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE  
BOZEMAN MONTANA









COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

Summary of Snow Survey Data by Tributary Watersheds February 1, 1961

TRIBUTARY WATERSHED	No. of Courses Averaged	No. Years Used	1961 Snow Water Equivalent Expressed as Percent of	
			1960	1943-57 Average

COLUMBIA RIVER BASIN IN MONTANA

Kootenai above Libby	8	7-15	109	94
Flathead	8	5-15	73	65
Clark Fork	13	5-15	87	68
Bitterroot	2	9-14	107	70

MISSOURI RIVER BASIN IN MONTANA

Marias, Teton & Sun	1	15	82	68
Missouri Main Stem	4	15	54	49
Beaverhead-Jefferson	11	5-15	80	61
Madison-Gallatin	10	4-15	115	66
Upper Yellowstone	11	4-13	110	67





MONTANA SNOW SURVEYS ABOUT FEBRUARY 1, 1961

MISSOURI DRAINAGE

No.	Snow Course Name	Elev.	Current Information			Past Record		Years Record Used in Average
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.)		
						Last Year	15-Year Average 1943-57	
<u>BEAVERHEAD-JEFFERSON BASIN</u>								
12E3	Camp Creek	6800	1/30	16	3.4	4.5	7.0	15
12C5	Chessman Res.	6200	1/27	4	0.8	3.0	3.4	15
13D2	Gibbons Pass	7100	1/30	41	11.4	9.8	16.4*	14
11E12	Kilgore	6200	1/29	18	3.9	5.1	7.2	15
13D16	Moose Creek	6200	1/30	31	7.6	8.0	10.7	9
12C6	Picnic Grounds	6500	2/1	11	1.7	1.7	3.5*	13
12D1	Pipestone Pass	7200	1/30	11	2.8	4.2	3.2*	14
13C7	Storm Lake	7780	1/27	26	7.0	6.6	8.4*	5
12C2	Tenmile, Lower	6250	1/29	15	2.9	5.1	5.1	15
12C3	Tenmile, Middle	6800	1/28	18	4.1	6.7	7.4	15
13C4	Tenmile, Upper	8000	1/29	20	4.7	8.2	9.4	15
<u>MADISON-GALLATIN BASIN</u>								
11E9	Big Springs	6500	1/29	30	8.8	5.6	14.5	15
10D4	Devil's Slide	8100	1/31	33	9.2	13.4	11.9*	4
11E5	Hebgen	6550	1/30	24	5.7	4.8	8.6	15
10D3	Hood Meadow	6600	1/30	18	4.3	4.4	4.5*	4
11E10	Island Park	6315	1/29	26	7.0	4.8	11.3	15
10D1	New World	6700	1/28	21	5.5	5.5	6.8*	10
10E2	Norris Basin	7500	1/31	21	4.7	3.8	7.7*	8
11E6	Twenty-One Mile	7150	1/30	29	7.8	5.4	13.0	15
11E8	Valley View	6500	1/29	23	5.8	4.4	9.1*	11
11E7	West Yellowstone	6700	1/30	21	4.9	3.3	8.8	15
<u>MISSOURI MAIN STEM</u>								
12C5	Chessman Res.	6200	1/27	4	0.8	3.0	3.4	15
12C2	Tenmile, Lower	6250	1/29	15	2.9	5.1	5.1	15
13C3	Tenmile, Middle	6800	1/28	18	4.1	6.7	7.4	15
12C4	Tenmile, Upper	8000	1/28	20	4.7	8.2	9.4	15
<u>MARIAS, TETON &amp; SUN BASIN</u>								
13A5M	Marias Pass	5250	1/31	36	8.8	10.7	13.0	15

\*\*Average for years of record shown in 1943-57 base period.





WYOMING SNOW SURVEYS ABOUT FEBRUARY 1, 1961

No.	Snow Course Name	Elev.	Current Information			Past Record		Years Record Used in Average
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.)		
						Last Year	15-Year Average 1943-57	
<u>UPPER YELLOWSTONE BASIN</u>								
10E3	Canyon	7500	1/31	31	6.2	3.9	9.4**	13
10D7	Cooke City	7400	2/1	23	4.0	2.8	6.2**	11
10D4	Devil's Slide	8100	1/31	33	9.2	13.4	11.9**	4
10E6	East Entrance	7000	2/4	29	5.4	3.5	8.7**	9
10D3	Hood Meadow	6600	1/30	18	4.3	4.4	4.5**	4
10E4	Lake Camp #1	7850	1/31	21	3.7	2.9	7.1**	10
9E1	Lodgepole	8200	1/30	22	3.8	3.3	-	-
10E1	Lupine Creek	7200	1/31	21	4.9	2.8	7.2**	12
10D1	New World	6700	1/28	21	5.5	5.5	6.8**	10
10E2	Norris Basin	7500	1/31	21	4.7	3.8	7.0**	8
10E5	Sylvan Pass	7100	2/4	32	5.7	4.1	10.2**	14
10E7	Thumb Divide	7900	1/30	32	8.4	7.0	15.5**	14
<u>LOWER YELLOWSTONE - WIND RIVER</u>								
9F12	Big Warm	8800	1/27	19	4.2	2.9	5.2**	5
9F4	Burrough Creek	8800	1/29	21	5.1	3.8	11.0**	11
9F10	Dinwoodie	10000	1/30	20	4.7	7.0	8.4**	11
9F17	Dinwoodie Glaciers	10000	1/24	10	3.0E	7.0E	-	-
9F9	Dry Creek	9500	1/30	11	2.5	2.5	4.5**	11
9F6	DuNoir	8750	1/27	13	2.7	2.2	6.1*	15
9F7	Geyser Creek	8500	1/28	12	2.2	2.0	5.3**	11
9F8	Little Warm	9500	1/28	29	7.2	7.9	11.8**	10
9F14	Sheridan R.S. #2	7500	1/27	16	2.7	2.0	4.2**	5
9F3	T-Cross Ranch	8000	1/29	11	2.4	2.3	5.5	15
#10F9	Togwotee Pass	9600	2/1	54	15.3	14.4	20.6	15
9G7	Twenty Lakes	10000	1/24	8	2.0E	3.0E	-	-
<u>LOWER YELLOWSTONE - POPO AGIE RIVER</u>								
8G2	Blue Ridge	9500	1/23	15	4.1	5.0	8.5*	14
8G5	Bruce's Camp	6500	1/24	10	1.6	2.4	1.5**	5
9G3	Hobbs Park	10000	2/1	27	8.0	7.6	12.0**	11
9G4	Mosquito Park R.S.	9500	2/1	11	2.4	4.1	5.5*	14
8G1	Sawmill Glade	8500	1/24	16	3.3	4.4	5.5	15
# 8G3	South Pass	9000	1/23	21	4.2	5.2	10.3	15
9F11	St. Lawrence R.S.	9000	1/31	10	2.6	2.4	4.6*	14
9G2	Trout Creek	8400	2/1	12	2.1	3.1	3.4**	11
9G7	Twenty Lakes	10000	1/24	8	2.0E	3.0E	-	-

\*\*Average of all past data. - #Adjacent drainage.

\*Average for years of record shown in 1943-57 base period.

E Estimated water content.



WYOMING SNOW SURVEYS ABOUT FEBRUARY 1, 1961

No.	Snow Course Name	Elev.	Current Information			Past Record		
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.)		Years Record Used in Average
						Last Year	15-Year Average 1943-57	
<u>LOWER YELLOWSTONE - GREYBULL RIVER</u>								
#9F19	Kirwin	10000	1/24	8	2.0E	5.0E	-	-
8F1	Owl Creek	8700	2/2	20	4.3	2.9	3.7**	10
<u>LOWER YELLOWSTONE - SHOSHONE RIVER</u>								
#10E6	East Entrance	7000	2/4	29	5.4	3.5	8.7**	9
9E5	Ishawooa Cone	9200	1/24	31	8.5	-	-	-
#10E5	Sylvan Pass	7100	2/4	32	5.7	4.1	10.2**	14
10F9	Togwotee Pass	9600	2/1	54	15.3	14.4	20.6	15
9F18	Younts Peak	8500	1/24	20	4.0	-	-	-
<u>LOWER YELLOWSTONE - OWL CREEK</u>								
8F1	Owl Creek	8700	2/2	20	4.3	2.9	3.7**	10
<u>LOWER YELLOWSTONE - NOWOOD CREEK</u>								
7E25	Cold Springs Camp	8700	2/3	16	3.5	6.5	-	-
7E24	Medicine Lodge Lks.	9500	2/3	23	4.8	9.2	-	-
# 7E8	Munkres Pass	9700	2/1	18	3.5	8.8	-	-
#7E27	Onion Gulch	8100	2/1	19	4.3	7.6	-	-
7E26	W. Tensleep Lake	9075	1/25	18	4.0	9.1	-	-
7E7	Tensleep R.S.	8300	2/1	19	4.2	7.5	-	-
7E35	Tyrell R.S.	8300	2/1	20	4.1	7.7	-	-
<u>LOWER YELLOWSTONE - SHELL CREEK</u>								
7E21	Bald Mountain	9600	1/25	39	11.4	17.3	-	-
#7320	Beaver-Tongue Div.	9200	1/25	39	10.9	17.3	-	-
#7E18	Bone-Spring Div.	9200	1/25	22	4.5E	13.4	-	-
7E22	Granite Cr. Camp	7800	2/4	9	1.9	4.1	-	-
#7E17	Granite Pass	8950	1/27	32	8.6	12.9	-	-
7E4	Ranger Creek	8800	2/4	20	4.3	7.8	-	-
7E23	Shell Creek	9600	1/25	27	6.0	11.3	-	-

\*\*Average of all past data.

# Adjacent drainage.

E Estimated water content.



WYOMING SNOW SURVEYS ABOUT FEBRUARY 1, 1961

No.	Snow Course Name	Elev.	Current Information			Past Record		Years Record Used in Average
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.)		
						Last Year	15-Year Average 1943-57	
<u>LOWER YELLOWSTONE - PORCUPINE CREEK</u>								
7E31	Five-Springs Falls	7500	1/31	13	3.2	8.5	-	-
7E30	Medicine Wheel	9000	1/25	31	8.4	16.3	-	-
<u>LOWER YELLOWSTONE - TONGUE RIVER</u>								
7E20	Beaver-Tongue Div.	9200	1/25	39	10.9	17.3	-	-
7E32	Big Goose #2	7700	1/30	15	2.9	5.9	-	-
7E18	Bone-Spring Div.	9200	1/25	22	4.5E	13.4	-	-
7E33	Burgess R.S. #2	7900	1/26	16	3.5	7.0	-	-
7E34	Dome Lake #2	8800	1/25	14	3.0E	7.5	-	-
7E14	Gloom Creek	9300	1/25	22	4.5E	10.3	-	-
#7E17	Granite Pass	8950	1/27	32	8.6	12.9	-	-
7E15	North Tongue	8800	1/26	25	5.7	11.0	-	-
7E11	Sibley Lake	8000	1/27	22	4.9	8.6	-	-
7E10	Steamboat Point	7500	1/27	13	2.7	6.3	-	-
7E12	Sucker Creek	9000	1/25	21	4.5E	10.2	-	-
7E13	Wood Rock G.S.	8500	1/27	22	4.4	8.5	-	-
<u>LOWER YELLOWSTONE - POWDER RIVER</u>								
#7E28	Muddy Creek G.S.	7500	1/31	8	1.7	3.9	-	-
# 7E8	Munkres Pass	9700	2/1	18	3.5	8.8	-	-
#7E27	Onion Gulch	8100	2/1	19	4.3	7.6	-	-
7E5	Soldier Park	8700	1/31	9	1.8	4.6	2.9**	7
7E6	Sour Dough	8500	1/31	8	1.7	5.5	-	-

\*\*Average of all past data.

# Adjacent drainage.

E Estimated water content.





MONTANA SNOW SURVEYS ABOUT FEBRUARY 1, 1961

COLUMBIA DRAINAGE

No.	Snow Course Name	Elev.	Current Information			Past Record		Years Record Used in Average
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.)		
						Last Year	15-Year Average 1943-57	
<u>KOOTENAI BASIN</u>								
Can. 10	Fernie	3500	1/31	23	5.5	7.0	7.3	15
Can. 12A	Field	4200	1/31	22	7.6	7.2	4.5	15
Can. 43	Gray Creek	5100	1/28	40	12.8	12.3	12.5*	9
Can. 33	Kicking Horse	5400	1/31	35	10.3	9.4	10.9*	11
Can. 32	Marble Canyon	5000	1/27	37	8.5	6.3	11.3*	10
Can. 10A	New Fernie	4100	1/31	40	9.1	8.7	11.2*	7
Can. 8A	Sinclair Pass	4500	1/27	18	4.3	5.5	4.7*	10
Can. 20A	Sullivan Mine	5100	1/30	35	9.4	5.4	9.7*	12
<u>FLATHEAD BASIN</u>								
13B14A	Basin Creek	5000	1/28	15	3.8	3.5	7.3*	7
13A2M	Desert Mountain	5600	1/27	25	6.8	12.4	11.2*	8
Can. 10	Fernie	3500	1/31	23	5.5	7.0	7.3	15
13B13A	Holbrook	4530	1/28	16	4.8	7.5	7.6*	7
13A5M	Marias Pass	5250	1/31	36	8.8	10.7	13.0	15
Can. 10A	New Fernie	4100	1/31	40	9.1	8.7	11.2*	7
13B2	Spotted Bear Mt.	7000	1/31	39	8.4	11.0	-	-
13A12M	Trout Lake	3600	2/1	21	5.3	10.8	11.5*	5
14B1	TV Mountain	6800	1/27	26	6.1	8.9	-	-
13B11	Twin Creeks	3580	1/31	27	6.7	8.9	8.9*	7
<u>CLARK FORK BASIN</u>								
12C5	Chessman Res.	6200	1/27	4	0.8	3.0	3.4	15
13B10	Coyote Hill	4200	1/31	28	5.0	6.6	7.9*	10
15C2	Fish Lake Airstrip	5000	1/28	61	17.8	17.0	25.6*	6
13C4	Intergaard	6450	2/1	18	3.9	5.2	5.1*	13
15B2	Lookout	5250	1/31	75	19.8	16.8	25.6	15
13C8	Lubrecht For. #6	4040	2/1	10	2.0	1.7	3.4*	6
12D1	Pipestone Pass	7200	1/30	11	2.8	4.2	3.2*	14
13C5	Southern Cross	6500	2/1	13	2.5	3.2	4.1*	13
13C7	Storm Lake	7780	1/27	26	7.0	6.6	8.4*	5
13C6	Stuart Mill	6500	2/1	15	3.3	3.6	4.4	13
13C1	Stuart Mountain	7400	1/29	46	13.6	-	-	-
12C2	Tenmile, Lower	6250	1/29	15	2.9	5.1	5.1	15
12C3	Tenmile, Middle	6800	1/28	18	4.1	6.7	7.4	15
12C4	Tenmile, Upper	8000	1/28	20	4.7	8.2	9.4	15
14B1	TV Mountain	6800	1/27	26	6.1	8.9	-	-
<u>BITTERROOT BASIN</u>								
13D2	Gibbons Pass	7100	1/30	41	11.4	9.8	16.4*	14
13D16	Moose Creek	6200	1/30	31	7.6	8.0	10.7*	9

\*Average for years of record shown in 1943-57 base period.



AVAILABLE SOIL MOISTURE  
as of  
February 1, 1961

Drainage Basin and Station	Station No.	Elev.	Soil Profile in Inches		Date	Soil Moisture Content in Inches About 2/1/61				Y r s
			Depth	Cap.		1961	1960	1959	Avg.	
<u>GALLATIN</u>										
College Site	11D2M	4856	54	14.5	2/3	7.1	10.6	8.7	8.1	4
<u>MADISON</u>										
Red Bluff	11D4M	4800	40	3.6E	2/1	1.5	-	-	-	-
<u>SHIELDS</u>										
Battle Ridge	10D11M	6020	48	13.3	2/1	10.7	-	-	-	-
Shields River	10C4M	5850	48	15.9	2/1	10.8	-	-	-	-
<u>FLATHEAD</u>										
Desert Mountain	13A2M	6370	54	6.8	1/27	6.1	8.4	7.9	7.2	4
Marias Pass	13A5M	5250	54	8.4	1/24	5.1	6.4	6.3	5.8	6
Spotted Bear R.S.	13B15M	3700	28	5.9	2/1	4.3	5.2	4.9	4.7	4
Trout Lake	13A12M	3600	54	11.8	2/1	12.6	12.3	12.4	12.1	4

AVAILABLE SOIL MOISTURE  
as of  
October 1, 1960

Drainage Basin and Station	Station No.	Elev.	Soil Profile in Inches	Date	1960	1959	1958	Avg.	Y r s	
<u>GALLATIN</u>										
College Site	11D2M	4856	54	14.5	9.30	5.8	8.6	6.8	5.8	4
<u>MADISON</u>										
Red Bluff	11D4M	4800	40	3.6E	New Station					
<u>SHIELDS</u>										
Battle Ridge	10D11M	6020	48	13.3	10/3	10.6	-	-	-	-
Shields River	10C4M	5850	48	15.9	10/3	11.5	-	-	-	-
<u>FLATHEAD</u>										
Desert Mountain	13A2M	6370	54	6.8	9/23	4.5	7.2	5.9	5.5	4
Marias Pass	13A5M	5250	54	8.4	9/26	3.2	5.6	4.5	4.7	6
Spotted Bear R.S.	13B15M	3700	28	5.9	9/23	0.6	4.3	3.7	3.1	4
Trout Lake	13A12M	3600	54	11.8	9/23	6.9	9.8	10.5	7.9	4



STATUS OF RESERVOIR STORAGE

February 1, 1961

BASIN & STREAM	RESERVOIR	USABLE CAPACITY 1000 A.F.	USABLE STORAGE - 1000 ACRE FEET			
			1961	1960	1943-57 Average	Years Record Used
<u>COLUMBIA RIVER BASIN - MONTANA</u>						
Flint Creek	Georgetown Lk.	31.0	25.0	28.6	24.0	15
S. Fk. Flathead	Hungry Horse	3428.0	3416.0	3281.0	2420.0**	5
Flathead River	Flathead Lake	1791.0	1008.0	1324.0	991.3	15
Flathead River 4/	Camas Res.	45.2	22.5	34.2	23.6	15
Flathead River 5/	Mission Valley	100.3	28.1	50.8	31.6	15
Clark Fork	Noxon	200.1	177.1	192.4	-	-
<u>MISSOURI RIVER BASIN - MONTANA</u>						
Beaverhead	Lima	84.0	9.9	24.7	32.7	15
Madison River	Hebgen Lake	345.0	125.8	36.2	223.3	15
Madison River	Ennis Lake	41.0	39.3	39.2	35.7	15
Hyalite Creek	Middle Creek	8.0	-	3.9	3.3**	7
Missouri River	Canyon Ferry	2043.0	1474.0	1773.0	1412.0**	5
Missouri River	Hauser & Helena Lakes	61.9	52.9	43.6	48.8	15
Missouri River	Lake Helena	10.4	11.3	4.5	7.1**	13
Missouri River	Holter Lake	81.9	40.1	45.2	62.1	15
N. Fk. Sun River	Gibson	105.0	34.3	67.5	59.7	15
N. Fk. Sun River	Willow Creek	32.3	14.4	14.1	18.7	15
N. Fk. Sun River	Pishkun	32.0	17.0	21.9	18.9	15
Marias River	Tiber	1316.0	625.5	630.1	-	-
Birch Creek	Swift	30.0	12.6	25.4	20.9	15
Dupuyer & Birch	Lake Francis	112.0	77.8	96.1	94.5	15
Judith River	Ackley Lake	5.8	-	4.2	4.2	15
Missouri River	Ft. Peck 3/	19410.0	11410.0	11020.0	11027.0	15
Milk River	Fresno	127.2	27.5	82.5	64.0	15
Milk River	Nelson	66.8	41.8	50.2	35.6	15
W. Rosebud Cr.	Mystic Lake	20.8	11.8	9.7	11.3	15
Tongue River	Tongue River	68.0	9.8	14.0	7.5**	14

\*\* Average for years of record shown in 1943-57 base period.

3/ Gross contents; usable capacity less 617.0 A.F.; minimum power pool 4,500 A.F.

4/ Camas Reservoirs are shown as a sum of four (4) small reservoirs on the West side of Flathead Lake located on Dry Creek and Little Bitterroot River.

5/ Mission Valley Reservoirs are shown as a sum of eight (8) small reservoirs located south and east of Flathead Lake. Both Camas and Mission Valley Reservoirs are operated by the Indian Irrigation Service.





STATUS OF RESERVOIR STORAGE

February 1, 1961

BASIN & STREAM	RESERVOIR	USABLE CAPACITY 1000 A.F.	USABLE STORAGE - 1000 ACRE FEET			
			1961	1960	1943-57 Average	Years Record Used
<u>MISSOURI RIVER BASIN - WYOMING</u>						
Shoshone River	Buffalo Bill	440.0	127.0	141.4	244.6	15
Wind River	Boysen	560.0AC	88.7	159.8	276.4**	5
Wind River	Pilot Butte	31.6	10.4	10.5	11.2	15
Bull Creek	Bull Lake	152.0	57.7	39.5	70.7	15
Belle Fourche	Key Hole	190.0AC	3.3	0.1	10.2**	5
<u>MISSOURI RIVER BASIN - NORTH DAKOTA</u>						
Heart River	Lake Tschida	68.7AC	48.9	44.3	51.8**	7
Heart River	E. A. Patterson	5.6AC	3.5	3.8	3.7**	6
Missouri River	Garrison Lake	18100.0AC	5408.1	3820.5	-	-
James River	Jamestown	220.0AC	15.8	8.2	-	-
<u>MISSOURI RIVER BASIN - SOUTH DAKOTA</u>						
Belle Fourche	Belle Fourche	185.2AC	22.5	27.6	92.0	15
Cheyenne River	Angostura	90.0AC	2.3	17.5	43.2**	6
Cheyenne River	Deerfield	15.1AC	2.3	1.0	12.6**	10
Grand River	Shadehill	84.0AC	51.2	69.7	76.0**	5
Missouri River	Ft. Randall	3800.0AC	2390.0	2471.5	-	-
Missouri River	Gavins Point	320.0AC	242.0	326.7	-	-
Missouri River	Oahe	17000.0AC	1043.0T	345.0T	-	-
Cheyenne River	Pactola	55.0AC	15.9	23.8	-	-

\*\* Average for years of record shown in 1943-57 base period.

AC Active Capacity - USBR Billings.

T Total Storage.





Agencies Cooperating in Collecting Data Contained  
in this Bulletin

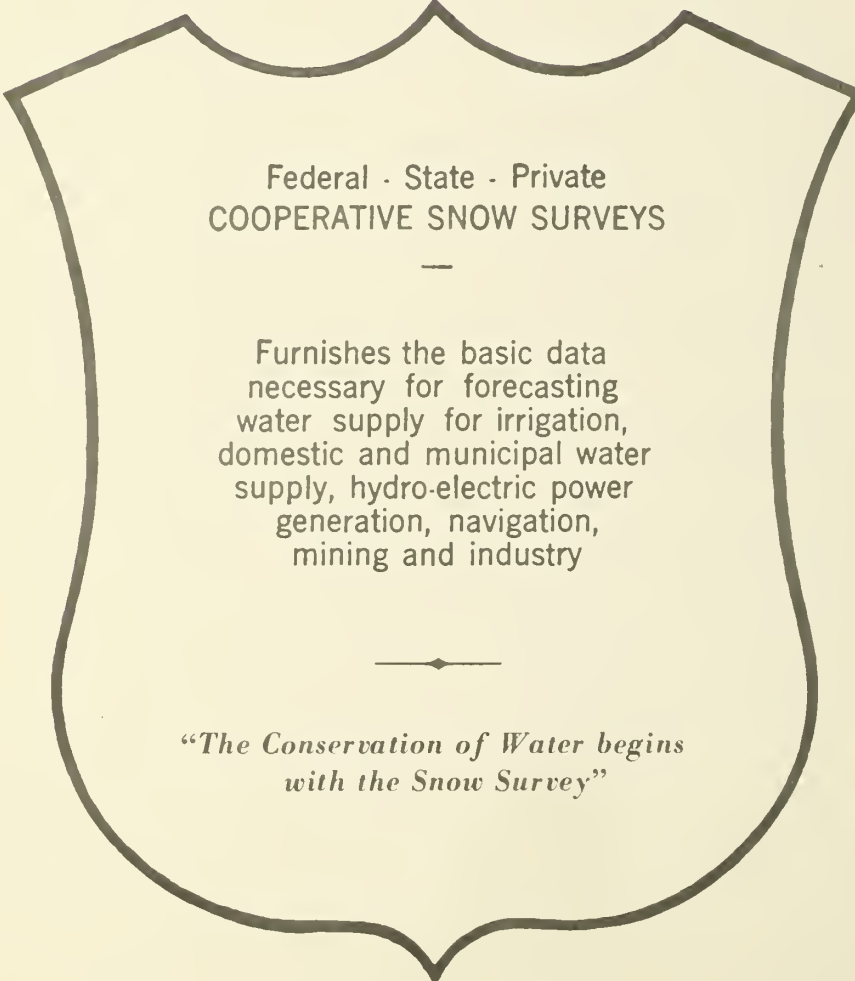
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|---|---|
| U. S. Forest Service<br>Region I, Missoula, Montana   | National Park Service<br>Yellowstone National Park<br>Glacier National Park       |
| U. S. Geological Survey<br>Helena, Montana  | Montana Experiment Station<br>Montana State College<br>Bozeman, Montana           |
| U. S. Army Corps of Engineers<br>Portland, Oregon<br>Seattle, Washington<br>Omaha, Nebraska<br>Riverdale, N. D. | Bonneville Power Administration<br>Portland, Oregon                               |
| U. S. Indian Irrigation Service<br>St. Ignatius, Montana  | Montana State School of Forestry<br>Montana State University<br>Missoula, Montana |
| U. S. Weather Bureau<br>Helena, Montana   | Soil Conservation Service<br>Montana, Wyoming, Idaho                              |
| U. S. Fish & Wildlife Service<br>Red Rock Lakes Refuge<br>Monida, Montana                                       | Soil Conservation Districts<br>Montana Counties                                   |
| U. S. Bureau of Reclamation<br>Billings, Montana<br>Boise, Idaho  | Johnson Flying Service, Inc.<br>Missoula, Montana                                 |
| Montana Power Company<br>Butte, Montana   | Water Rights Branch<br>Dept. of Lands & Forests<br>Victoria, British Columbia     |
| Agricultural Experiment Station<br>North Montana Branch Station<br>Havre, Montana                               | Department of Northern Affairs<br>& National Resources<br>Calgary, Alberta        |
| Montana State Highway Dept.<br>East Glacier, Montana  |   |

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COOPERATIVE SNOW SURVEYS

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Furnishes the basic data  
necessary for forecasting  
water supply for irrigation,  
domestic and municipal water  
supply, hydro-electric power  
generation, navigation,  
mining and industry

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*“The Conservation of Water begins  
with the Snow Survey”*