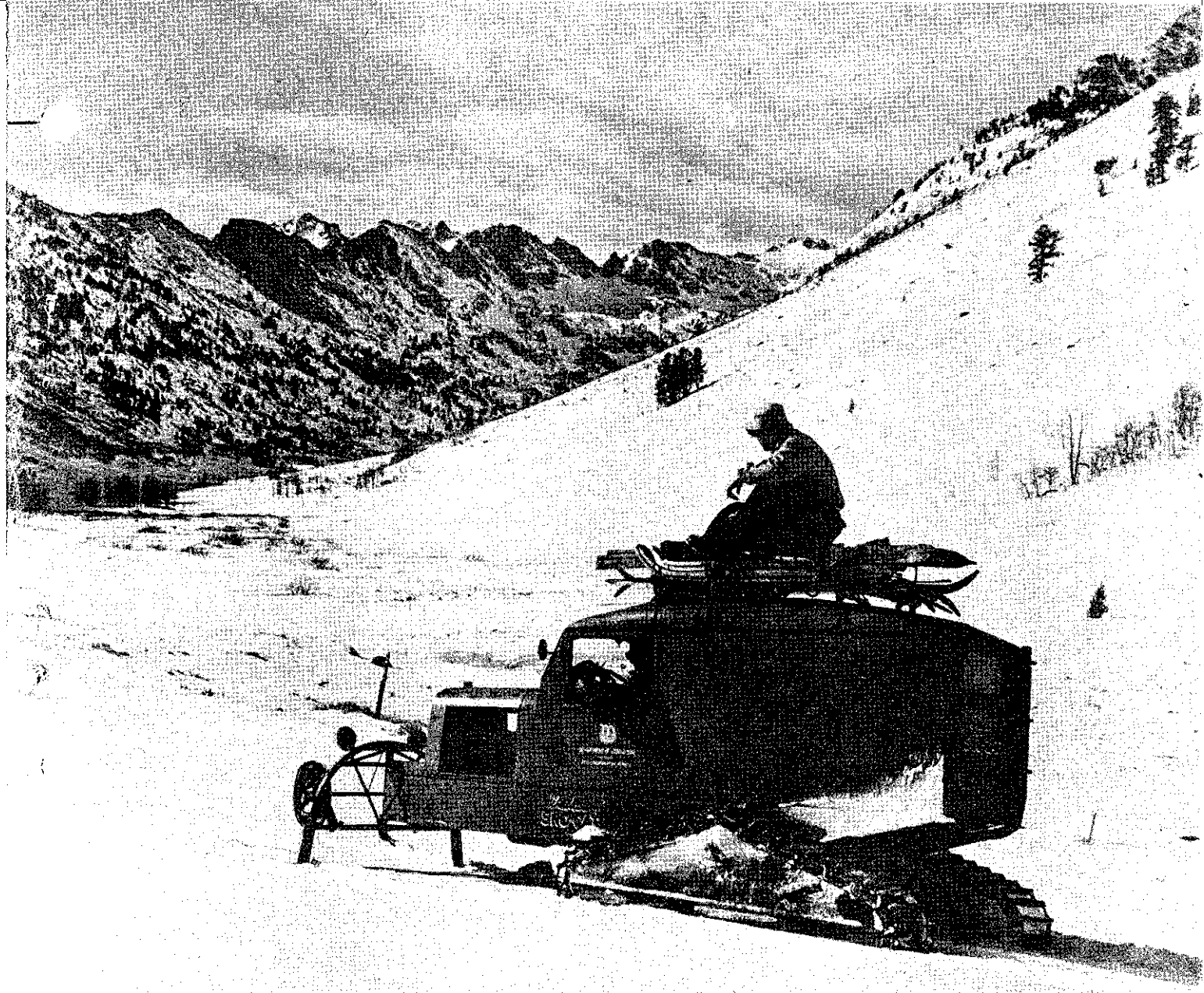


FEDERAL-STATE COOPERATIVE

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

Utah

By

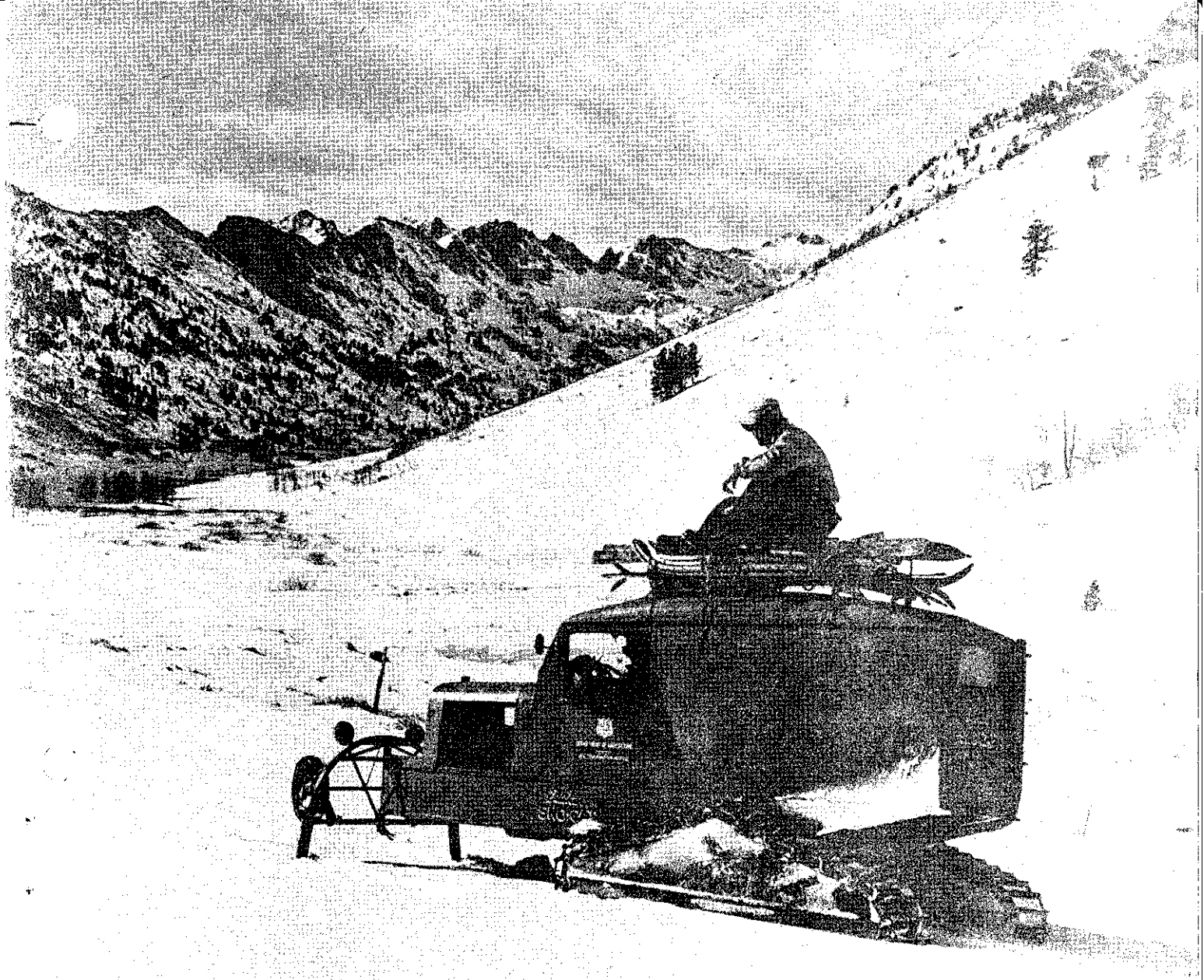
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Utah Agricultural Experiment Station

in cooperation with

U. S. Forest Service,
U. S. Geological Survey
U. S. National Park Service
State Engineer of Utah
State and Local Irrigation Organizations

As of

MAR. 1, 1950



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APR. 1, 1950

FEDERAL - STATE COOPERATIVE

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

FOR

U T A H

MARCH 1, 1950

Report Prepared
by
Gregory L. Pearson - Irrigation Engineer

Division of Irrigation
U. S. Soil Conservation Service
and
Utah Agricultural Experiment Station
Logan, Utah

Utah Agricultural Experiment Station Mimeographed Series No. 366

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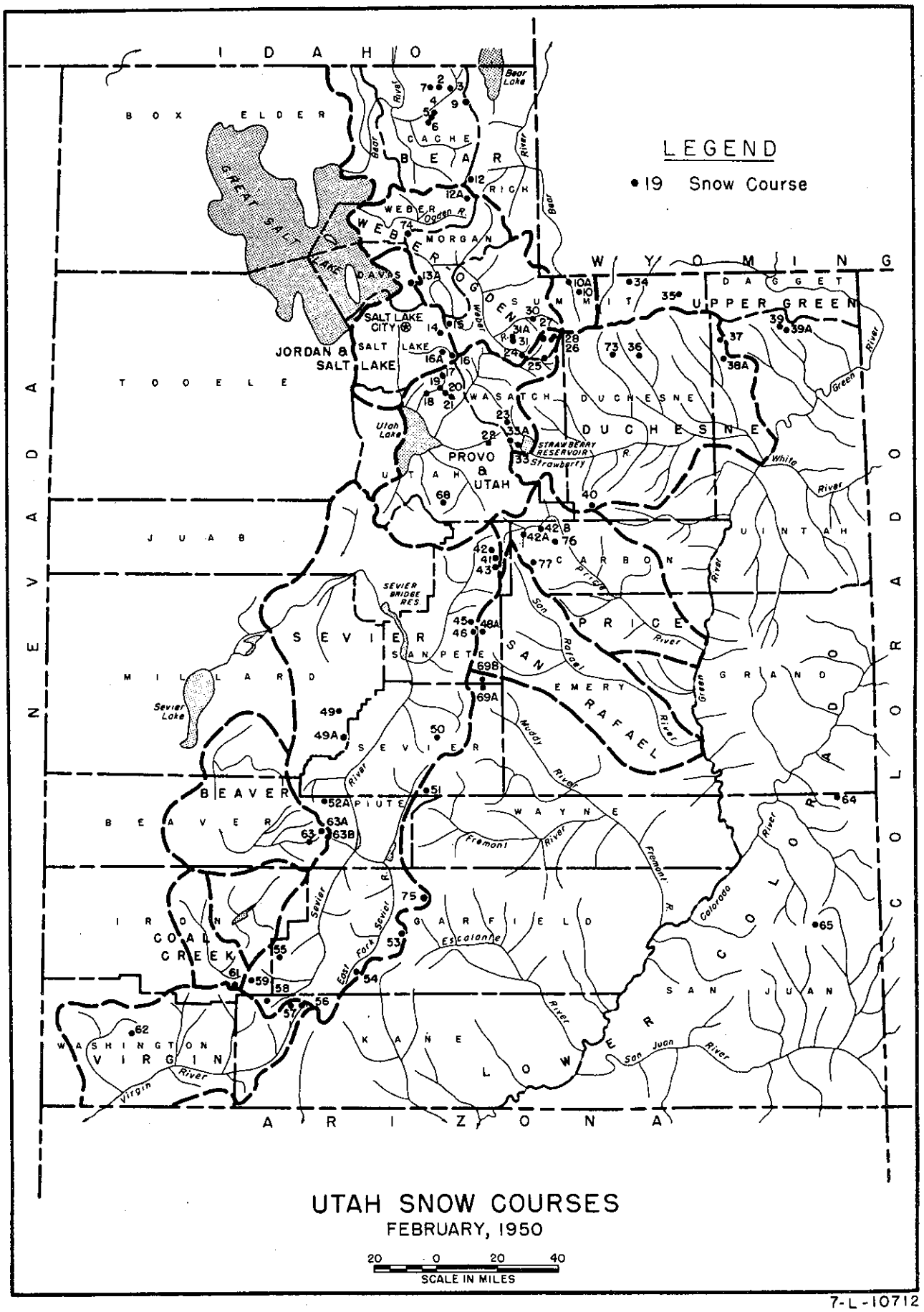

UTAH SNOW COURSES

FEBRUARY, 1950

7-L-10712

SOIL CONSERVATION SERVICE ALBUQUERQUE, NEW MEXICO
DECEMBER 1949 700 M-93-1

MARCH 1, 1950

PRELIMINARY WATER SUPPLY OUTLOOK

At this time the water supply outlook for Utah varies from excellent in the northern part of the state to about normal in the central and southern part, with one notable exception. The Antimony-Widtsoe-Escalante area has only about 50% of average water supply on the mountain watersheds. The snow blanket in the Cache-Wasatch-Ashley forests is considerably above normal in water content and could produce very heavy spring streamflows if combined with heavy rains and/or above normal temperatures. Reservoir storage supplies are near or considerably above the past ten year average.

SUMMARY OF WATER OUTLOOK FOR 1950

The water content of mountain snow-cover, as of March 1, averages about 135% of the April 1 average for the northern and northeastern part of the state. The central and southern mountains have about 80% to 85% of the April 1 average water content, which is near normal for this time of year.

The mountain watersheds for most of the state were relatively dry last fall when the winter season began. High February temperatures have caused some melting which has partly primed the soils. Additional snow melting must take place to complete priming of the soil before spring runoff can start.

Total water stored in all reservoirs, excluding Utah Lake, is 9% more than last year, 5% less than 1948 and 43% above the last 10 year average. Storage is 63% of capacity.

A tabulation of preliminary streamflow forecasts is given on pages 2 and 3 of this report. Another series of snow measurements and forecasts will be published in a report to be issued on April 10

Table 1 - Preliminary streamflow forecasts - March 1, 1950 - continued

Basin & stream	April-Sept. streamflow in 1000 acre feet					July-Sept. streamflow in 1000 acre feet				
		Measured runoff					Measured runoff			
	Forecast 1950	1949	1948	1947	10-year average 1939-48	Forecast 1950	1949	1948	1947	10 year average 1939-48
Provo River & Utah Lake										
American Fork River above Power Plant	42.5		38.5	37.3	32.3	12.0		7.3	9.6	7.9
Provo River below Forks[xx]	175.0	179.0	133.6	163.4	139.1	45.0	42.0	29.5	43.0	38.7
Sevier River										
Sevier River at Hatch	60.0		45.3	64.8	63.2*	18.0		12.2	16.4	16.8
Sevier River near Kingston	45.0		30.5	40.5	44.4	8.0		3.0	7.3	8.2
Beaver River										
Beaver River near Beaver	35.0	39.1	27.6	42.1	33.6	7.5	8.8	5.8	9.8	7.4
Coal Creek										
Coal Creek near Cedar City	19.5		17.9	21.0	19.6	3.0		1.9	2.8	3.0

[xx]Corrected for storage and Weber Diversion
* 9 year average

Table 2 - Status of reservoir storage about March 1, 1950

Basin and stream	Reservoir	Usable Capacity (1000 of acre feet)	1000 acre feet in storage March 1				
			1950	1949	1948	1947	10-year average 1939-48
Bear River system							
Bear River	Bear Lake	1420.0	953.5	950.1	1040.0	957.6	623.9
Little Bear River	Hyrum	15.3	10.4	10.6	10.5	10.5	10.3
Weber-Ogden Rivers							
Ogden River	Pine View	44.2	10.4	1.6	1.6	3.8	5.5
Weber River	East Canyon	28.7	16.5	15.4	23.8	9.9	18.1
Weber River	Echo	73.9	29.8	12.5	27.3	38.0	21.4
Provo River and Utah Lake							
Provo River	Deer Creek	147.3	116.2	98.8	117.2	73.8	53.9*
Spanish Fork River	Strawberry°	270.0	93.4	74.9	89.8	89.5	66.8
Utah Lake	Utah Lake°	850.2	702.5	639.2			
Sevier River system							
Sevier River	Otter Creek	52.5	50.2	25.1	51.5	33.4	37.4
Sevier River	Piute	84.8	60.0	44.0	57.3	50.8	53.7
Sevier River	Sevier Bridge	236.0	172.6	185.0	200.2	187.2	167.1
Beaver River							
Beaver River	Rocky Ford	23.3	19.5	13.3	19.9	15.6	17.4
Duchesne River							
Lake Fork River	Moon Lake	35.8	18.0	9.0	11.6	7.3	17.9
Price River							
Price River	Scofield	65.0	24.0	5.1	14.1	6.5	8.5**

* Eight year record

** Six year record

° Figures for the Strawberry Reservoir obtained from the reports of the Spanish Fork River Commissioner. Utah Lake figures are from the report of the Utah Lake and Jordan River Water Commissioner. All other data contained in this table supplied by U.S.G.S.

Table 3 - Utah snow surveys - about March 1, 1950

Drainage basin and Snow course name	Snow course number	Location			Elev.	SNOW COVER MEASUREMENTS						
						Date of survey 1950	Snow depth (inches) 1950	WATER CONTENT (INCHES)				
								About March 1			Past record	
		Sec.	Twp.	Range				1950	1949	1948	years of record	av. water content (inches)
					GREAT BASIN DRAINAGE							
Bear River system												
Spring Hollow (lower)	4	26	12N	2E	7000	2-25	42.6	15.0	16.9	9.8	24	12.5
Spring Hollow (upper)	5	35	12N	2E	8000	2-25	74.8	23.6	26.5	16.0	25	19.1
Mt. Logan	6	3	11N	2E	9000	2-25	82.7	31.1	33.8	18.6	25	22.7
Garden City summit	9	34	14N	4E	8000	3-2	71.1	25.5	N.R.	N.R.	3	17.5
Monte Cristo	12	3	8N	4E	8960	3-2	66.4	26.8	27.3	N.R.	1	27.3
Weber-Ogden Rivers												
Monte Cristo	12	3	8N	4E	8960	3-2	66.4	26.8	27.3	N.R.	1	27.3
Dry Bread Pond	12A	3	7N	4E	8230	3-2	55.6	21.6	no previous March measurements			
Mt. Ogden	74	5	5N	1E	8600	2-25	60.3	23.0	no previous March measurements			
Jordan River and Great Salt Lake												
Lamb's Canyon	14	19	1S	3E	6600	3-5	39.8	14.1	16.0	N.R.	11	13.7
Silver Lake	16	35	2S	3E	8720	2-28	68.7	25.7	20 1	16.3	15	20.1
Provo River and Utah Lake												
Timpanogas Cave camp	18	27	4S	2E	5500	2-25	8.0	4.0	8.2	N.R.	8	5.3
South Fork R. S.	19	24	4S	2E	6100	2-25	13.8	6.2	9.8	6.2	12	7.9
Camp Altamont	20	29	4S	3E	7300	2-25	54.8	24.0	15.5	11.3	15	15.5
Timpanogas divide	21	33	4S	3E	8200	2-25	85.4	35.8	32.6	15.8	15	21.4
Daniels-Strawberry summit	23	20	2S[x]	12W[x]	8000	2-27	48.5	17.4	20.5	9.2	19	13.0
Soapstone R. S.	25	9	3S	2E	7800	3-1	37.1	13.1	16.7	8.3	3	10.9
Trial Lake	26	5	2S	9E	9800	3-1	89.8	33.3	32.0	16.9	4	21.7
Lost Lake	28	33	1S	9E	9900	3-1	82.2	30.7	no previous March measurements			
East Portal	33	36	7S	6E	7560	2-27	42.3	14.9	16.4	6.8	15	10.5
Strawberry divide	33A	34-35	7S	6E	8000	2-27	59.9	22.7	16.6	12.2	14	16.5
Payson R. S.	68	30	10S	3E	8840	2-28	44.8	16.7	N.R.	N.R.	3	11.4

[x] Uinta special meridian

Table 3 - Utah snow surveys - about March 1, 1950 - continued

Drainage basin and Snow course name	Snow course number	Location			Elev.	SNOW COVER MEASUREMENTS						
						Date of survey 1950	Snow depth (inches) 1950	WATER CONTENT (INCHES)				
								About March 1			Past record	
		Sec.	Twp.	Range				1950	1949	1948	years of record	av.water content (inches)
Sevier River												
Gooseberry Reservoir	41	25	13S	5E	8700	2-27	52.3	20.6	18.4	N.R.	6	17.9
Huntington-Horseshoe	43	12	14S	5E	9800	2-27	50.1	18.7	no previous March 1 measurement			
G.B.E.S. meadows	46	27	17S	4E	10000	2-27	57.2	19.9	no previous March 1 measurement			
Seeley Creek R.S.	48A	25	17S	4E	10000			N.R.	no previous March 1 measurement			
Fish Lake	51	35	26S	1E	8700	2-23	26.8	7.8	no previous March 1 measurement			
Widtsoe-Escalante summit	53	22	34S	1W	9500	2-25	16.5	4.4	18.3	9.1	13	8.4
Widtsoe-Escalante # 2	53A	22	34S	1W	9500	2-25	22.9	6.3	new snow course			
Gravel Springs junction	56	22	38S	6W	7500	2-24	17.0	5.3	9.0	N.R.	1	---
Harris Flat R. S.	57	24	38S	7W	7700	2-24	32.5	10.0	12.5	N.R.	6	11.7
Duck Creek R. S.	58	11	38S	8W	8560	2-24	46.9	16.9	19.5	N.R.	5	15.0
Cedar Breaks	59	2	37S	9W	10300	2-24	51.5	19.7	25.3	N.R.	5	19.7
Coal Creek												
Cedar Breaks	59	2	37S	9W	10300	2-24	51.5	19.7	25.3	N.R.	5	19.7
Webster Flat	61	20	37S	9W	9200	3-4	39.9	15.0	no previous March 1 measurement			

Table 3 - Utah snow surveys - about March 1, 1950 - continued

Drainage basin and Snow course name	Snow course number	Location Sec.	Location Twp	Location Range	Elev.	SNOW COVER MEASUREMENTS: Date of survey 1950	Snow depth (inches) 1950	WATER CONTENT (INCHES) About March 1 1950	About March 1 1949	About March 1 1948	Past record years of record	Past record av. water content (inches)
COLORADO RIVER DRAINAGE												
Upper Green River												
Kings cabin (upper)	39	22	1S	21E	8800	3-6	43.9	14.6	no previous	March 1	measurement	
Kings cabin (lower)	39A	23&26	1S	21E	8600	3-6	37.8	13.0	no previous	March 1	measurement	
Duchesne River												
Lakefork Mountain	36	2&3	2N[x]	5W[x]	10500	3-6	46.2	10.6	no previous	March 1	measurement	
Paradise Park	37	7	3N[x]	1E[x]	10500	3-6	54.7	16.5	no previous	March 1	measurement	
Mosby Mountain (lower)	38A	5	2N[x]	1E[x]	9500	3-6	51.7	15.2	no previous	March 1	measurement	
Indian Canyon	40	2	11S	10E	9100		N.R.	N.R.	N.R.	7.4	11	8.0
Price River												
Indian Canyon	40	2	11S	10E	9100		N.R.	N.R.	N.R.	7.4	11	8.0
Gooseberry Reservoir	41	25	13S	5E	8700	2-27	52.3	20.6	18.4	N.R.	6	17.9
Staley Ranch	42A	32	12S	7E	7600	3-5	25.5	7.9	19.7	N.R.	10	7.6
Dry Valley Divide	42B	20	12S	8E	7800	3-5	41.0	15.1	N.R.	N.R.	9	8.7
Huntington-Horseshoe	43	12	14S	5E	9800	2-27	50.1	18.7	no previous	March 1	measurement	
Scofield Dam	76	22	12S	11W	9000	3-5	40.1	13.3	no previous	March 1	measurement	
Mud Creek	77	4	14S	11W	8600	3-5	42.7	14.0	no previous	March 1	measurement	
San Rafael River												
Huntington-Horseshoe	43	12	14S	5E	9800	2-27	50.1	18.7	no previous	March 1	measurement	
G.B.E.S. meadows	46	27	17S	4E	10000	2-27	57.2	19.9	no previous	March 1	measurement	
Escalante River												
Widtsoe Escalante Summit	53	22	34S	1W	9500	2-25	16.5	4.4	18.3	9.1	13	8.4
Widtsoe Escalante #2	53A	22	34S	1W	9500	2-25	22.9	6.3	no previous	March 1	measurement	
Virgin River												
Gravel Springs junction	56	22	38S	7W	7500	2-24	17.0	5.3	9.0	N.R.	1	---
Harris Flat R. S.	57	24	38S	7W	7700	2-24	32.5	10.0	12.5	N.R.	6	11.7
Duck Creek	58	11	38S	8W	8560	2-24	46.9	16.9	19.5	N.R.	5	15.0
Cedar Breaks	59	2	37S	9W	10300	2-24	51.5	19.7	25.3	N.R.	5	19.7
Webster flat	61	20	37S	9W	9200	3-4	39.9	15.0	no previous	March 1	measurement	

[x]Uinta special meridian

Table 4 - Comparative data for snow courses not previously measured March 1

Snow course name	Course number	Elevation	SNOW COVER MEASUREMENTS							
			About March 1, 1950			Av.water content (inches) April 1	years of record April 1	% April 1 average	April 1 1949	% April 1 1949
			Survey date 1950	Snow depth (inches)	Water content (inches)					
Bear River system										
Garden City Summit	9	8000	3-2	71.1	25.5	17.9	19	142	22.7	112
Monte Cristo	12	8960	3-2	66.4	26.8	22.7	17	118	31.1	86
Provo River and Utah Lake										
Payson R. S.	68	8840	2-28	44.8	16.7	18.2	6	92	N.R.	--
Lost Lake	28	9900	3-1	82.2	30.7	22.6	17	136	29.5	104
Weber-Ogden Rivers										
Monte Cristo	12	8960	3-2	66.4	26.8	22.7	17	118	31.1	86
Dry Bread Pond	12A	8230	3-2	55.6	21.6	17.3	12	125	22.8	95
Mt. Ogden	74	8600	2-25	60.3	23.0	31.1	2	74	25.4	91
Sevier River										
Huntington-Horseshoe	43	9800	2-27	50.1	18.7	24.1	20	78	27.3	69
G.B.E.S. meadows	46	10000	2-27	57.2	19.9	23.9	20	83	31.3	64
Fish Lake	51	8700	2-23	26.8	7.8	5.8	19	135	9.6	81
Gravel Spring junction	56	7500	2-24	17 0	5.3	6 1	13	87	8.5	62
Coal Creek										
Webster Flat	61	9200	3-4	39.9	15.0	17.6	23	85	21.7	69
Upper Green River										
Kings cabin (upper)	39	8800	3-6	43.7	14.6	9.7	20	150	16.2	90
Kings cabin (lower)	39A	8600	3-6	37.8	13.0	9.1	20	143	15.2	85
Duchesne River										
Lakefork Mountain	36	10500	3-6	46.2	10.6	9.9	19	107	15.6	68
Paradise Park	37	10500	3-6	54.7	16.5	11.7	18	141	14.9	111
Mosby Mountain (lower)	38A	9500	3-6	51.7	15.2	10.2	20	149	14.6	104
Price River										
Huntington-Horseshoe	43	9800	2-27	50.1	18.7	24.1	20	78	27.3	69
Scofield Dam	76	9000	3-5	40.1	13.3	14.9	1	89	14.9	89
Mud Creek	77	8600	3-5	42.7	14.0	18.3	1	78	18.3	78
Virgin River										
Gravel Springs junction	56	7500	2-24	17.0	5.3	6.1	13	87	8.5	62
Webster flat	61	9200	3-4	39.9	15.0	17.6	23	85	21.7	69

AGENCIES COOPERATING IN UTAH SNOW SURVEYS

U. S. Government Agencies:

U. S. Department of Agriculture
- Soil Conservation Service
- Forest Service

U. S. Department of the Interior
- Geological Survey
- National Park Service

U S. Department of Commerce
- Weather Bureau

State of Utah:

Utah Agricultural Experiment Station
State Engineer
- Little Bear River Commissioner
- Price River Commissioner
- Provo River Commissioner
- Sevier River Commissioner
- Spanish Fork River Commissioner
- Weber River Commissioner

Municipalities:

Ogden City Corporation
Provo City Corporation
Salt Lake City Corporation

Organized Public Agencies:

Beaver River Water-Users Association
Board of Canal Presidents - Jordan River
Coyote Irrigation Company
Emery Canal and Reservoir Company
Moon Lake Water-Users Association
Ogden River Water-Users Association
Strawberry Water-Users Association
Sevier River Water-Users Association
Provo River Water-Users Association

Public Utilities:

Utah Power and Light Company
Telluride Power and Light Company