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WATER SUPPLY FORECAST FOR UTAH, 1932*

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In the period from March 27 to April 3 snow surveys were completed at all of the 49 snow courses throughout the major watersheds of the state. This constitutes the annual snow survey made at the end of the winter precipitation season and before melting of the snow has progressed to any extent. The snow survey data at this time, therefore, may be taken as indicative of the April-September runoff with, of course, later modification of estimates in accordance with subsequent storms and temperature conditions.

This report presents:

1. Forecasts of July-September and April-September runoff for the Logan and Blacksmith Fork Rivers, these being the only areas where snow surveys have been conducted for a sufficient number of years to make it possible to forecast streamflow quantitatively.

2. A brief statement of conditions on the other principal watersheds of the state based on the available records.

3. Results of the annual snow surveys grouped according to stream basins.

FORECASTS FROM SNOW SURVEYS
April 1, 1932

Table "A" - Logan River Areas

Normal water content of snow cover for area (using Franklin Basin, Tony Grove Lake, Tony Grove Ranger Station, Spring Hollow No.3, Spring Hollow No.4, Mud Flat, and Mt. Logan Snow courses, weighted according to area and elevation) (Period, 1924-31)	20.1 inches
Mean water content for 1932	32.97 "
Mean water content 1932 in percentage of normal	164.0 percent
Normal April-September runoff (35-year record)	172,600 A.F.
Normal runoff April-September (period of record, 1924-31)	115,540 A.F.
Estimated April-September runoff 1932(based on 1924-31 period)	189,500 A.F.

(Note ! This estimate is subject to a marked decrease if spring temperatures remain low and the melting is at a slow rate.)

(continued)

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*These forecasts are based on the Utah cooperative snow surveys made under the direction of the Utah Agricultural Experiment Station, United States Forest Service, and the United States Weather Bureau, cooperating.

(Table "A" continued)

Normal July-September runoff (35-year record)	57,500 A.F.
" " " (period 1924-31)	37,560 A.F.
Normal water content of snow cover(Avg.Franklin Basin, Tony Grove Lake)	28.8 inches
Mean water content 1932 in inches on Mt. Logan	45.03 "
Mean water content 1932 in percentage of normal	156 per cent
Estimated July-September runoff (based on 1924-31 period)	58,500 A.F.

(Note ! A deficient April-May precipitation will reduce this estimate materially).

Table "B" - Blacksmith Fork Area

Normal water content of snow cover for area based on snow survey at Franklin Basin, Tony Grove Lake, Tony Grove Ranger Station, Mud Flat Ranger Station, Spring Hollow No.3, Spring Hollow No.4, and Mt.Logan (for period 1924-31, weighted according to area and elevation)	20.1 inches
Mean water content for 1932	32.97 "
Mean water content, 1932, in percentage of its normal	164.0 percent
Normal April-September runoff (24-year record)	79,065 A.F.
Normal April-September runoff (1924-31 record)	46,940 A.F.
Estimated April-September runoff (based on 1924-31 record)	77,000 A.F.
Normal July-September runoff (24-year record)	26,300 A.F.
" " " (period 1924-31)	16,500 A.F.
Normal water content of snow cover (at Franklin Basin, Tony Grove Lake, and Mt. Logan)	28.8 inches
Mean water content, 1932	45.03 "
" " " , 1932 in percentage of normal	156.0 "
Estimated July-September runoff (based on 1924-31 period)	25,700 A.F.

(Note ! These estimates will have to be revised downward if spring temperatures are low and the April-May precipitation is deficient.)

A GENERAL STATEMENT OF WATERSHED CONDITIONS AS OF APRIL 1, 1932

Bear River Area above Bear Lake

There are no snow courses on this area, but Blacks Fork Course and the Lost Lake course are just over the divides on the south and west, respectively, of the headwaters of Bear River. Both of these courses show a snow cover this year more than twice what it was in 1931. The snow pack is of rather low density and the ground under the snow open and dry. These conditions are conducive to high absorption losses and a diminished runoff. The runoff from this area during 1932 will be considerably larger than in 1931 but probably not twice as large.

Bear Lake Drainage

A fairly heavy snow patch covers the Bear Lake drainage. The Garden City Creek course shows 31.4 inches of water as compared to 4.4 inches in 1931 and the Monte Cristo course shows 20.2 inches as compared to 6.5 inches in 1931. A normal runoff from this snow pack is not to be expected, due to the dry condition of the watershed; in spite of this, however, the seasonal contribution to Bear Lake this year will probably exceed twice that in 1931.

Bear River Area below Bear Lake

This area includes all that portion of the state north of Ogden Valley and east of Boxelder County. The principal streams draining this area are: Cub River, Maple Creek, High Creek, Summit Creek, Logan River, Blacksmith Fork River, Little Bear River, Bear River, and several smaller creeks.

These watersheds were extremely dry and the soil open when the snows started accumulating last fall. Many of the springs dried up during the late summer of 1931. The ground storage was badly depleted and the 1931-32 winter flow of these streams reached a low of record.

The seasonal snow surveys over these areas were made from March 30 to April 3, inclusive. These surveys revealed the heaviest snow pack of record, extending to elevations lower than usual. The soil under the snow was open and relatively dry in most cases, showing that little or no melting had taken place. The density of the snow pack was about normal. The temperatures have held fairly low during the first ten days of April, and except for the Little Bear River the high-water flow had not started by April 11.

Cub River Drainage

The Franklin Basin Snow course is fairly representative of the snow cover on the Cub River Watershed. The snow cover at that station this year has a water content of 38.6 inches as compared with 14.9 inches in 1931 and an 8-year average of 26.3 inches. With normal spring temperatures and April-May precipitation the runoff from Cub River this year should double that in 1931.

Maple Creek, High Creek, Summit Creek, Providence Creek, etc.

These drainage areas are all on the west side of the Bear River Range and are relatively short and steep. There is a relatively heavy snow pack on these watersheds and it extends to elevations lower than usual. A few warm days will start the runoff in these streams and thus should maintain a fair flow up to mid-June or early July.

Logan River Drainage

The stream flow forecast for the Logan River is given in Table "A". This area is covered with the heaviest snow pack of record and extends unbroken to as low as 6000 feet elevation. This heavy low cover is conducive, with proper temperature conditions, to a high early runoff. The heavy snow pack at higher elevations will tend to maintain the flow. Table 1 shows the results of the annual snow survey over this watershed. It is seen that the snow pack this year is about 164 per cent of the 8-year average and more than 3.4 times that in 1931.

The average of the three high courses (Franklin Basin, Tony Grove Lake, and Mt. Logan) is lower than the average for the entire watershed. These high snows furnish the late water so that the July-September runoff will be proportional to the high snow pack. The average water content of the snow at the high stations is 156 per cent as against an average of 164 per cent of the entire area.

The unusual drought of 1931 and the dry condition of the watershed at the beginning of the precipitation season introduces an unknown factor in water-supply predictions. Low spring temperatures and slow melting of the snow will materially reduce the estimated water-supply, but it will furnish a much better natural regulation of flow and the net result may be to the advantage of the farmer.

The maximum discharge last year was 370 c.f.s., reached on May 17. The maximum discharge this year will probably reach 1400 c.f.s. not later than the middle of May. The minimum discharge of 85 c.f.s. was reached in September of 1931. The minimum discharge this season will probably not be less than 150 c.f.s.

Blacksmith Fork River

The Blacksmith Fork River has a larger drainage area than the Logan River by about 60 square miles. A larger portion of its area is lower and its earth-mantle is thicker, thus allowing for greater losses. Due to its lower elevation and greater area of south exposure the runoff from the Blacksmith Fork starts from two to three weeks before that from the Logan. Only one snow course is located on the Blacksmith Fork drainage and that has been surveyed only one year. The snow course on Mt. Logan seems to be a good indicator of the runoff from Blacksmith Fork.

The snow cover seems to be less on the south end of the watershed than it is on the north end. The Mt. Logan course is on the northwest edge of the area; the Blacksmith Fork course is near the center on the east side; and the Monte Cristo course is near the south end.

This is the second year that Blacksmith Fork has been measured and the third year for Monte Cristo.

The water content of the snow cover at each of these courses this year is more than three times what it was in 1931. Due to the shortness of the record at the Monte Cristo and Blacksmith Fork courses the forecast for the Blacksmith Fork River is based on the snow cover on the Logan Watershed. The heavy snow pack at low elevations on the Blacksmith Fork area is conducive to a high early runoff. The late runoff should be well sustained by the heavy snow pack at the high elevations. Table 1 shows the detail of the snow pack.

Ogden River Area

A snow course was established in 1930 on the south slope of Monte Cristo near the head of the South Fork of the Ogden River. There are now three years of record available. The water content of the snow cover this year is more than three times that in 1931 and 150 per cent of that in 1930. There is a relatively heavy low snow cover which will cause unusually high water under proper conditions of temperature. The range was so dry and open when the snow came that much of the water in the snow will be absorbed by the soil if the spring temperature remains cool during the melting period. The high snows furnish the late-season water and the comparatively heavy snow pack gives assurance of a late-season water-supply probably twice that in 1931.

Weber River Area

The major portion of the water in Weber River comes from the four main branches: Chalk Creek, Lost Creek, East Canyon, and the main stream above Oakley. The runoff characteristics of Lost Creek are similar to the South Fork of the Ogden, and the 1932 flow will probably be similar to that stream. There

are no snow courses on Chalk Creek or East Canyon. The main flow comes from the area above Oakley. There are two snow courses on this watershed. The Smith-Morehouse course (elevation, 7600 feet) has been measured for four years, while the Redden Mine Course (elevation, 8700 feet) has been measured for only three years. The Washington-Long Lake course is near the head of Weber River and the snow cover there should be representative of that on the Weber.

The average snow cover on the Weber River Watershed this year is more than three times that in 1931, with a relatively heavy cover at the lower elevations. The record of snow cover is too short to forecast the acre-feet of water for 1932, but the indications are that the runoff in 1932 will be at least twice what it was in 1931. An early quick runoff on this stream is desirable to fill the Echo and East Canyon storage reservoirs.

Salt Lake City Watershed

For many years snow-stake measurements have been made at various points in Brighton Basin, Big Cottonwood Canyon. Two years' record of snow cover, by snow survey, are available at Silver Lake. The average water content of the snow cover as measured at the snow stakes over a period of 14 years represents a depth of 23.4 inches. The snow pack this year at Silver Lake measures 30.1 inches of water. This is more than three times the 1931 pack and 128 per cent of the 14-year average. Under normal conditions of temperature and spring precipitation the runoff from Big Cottonwood and adjoining streams should be at least twice the 1931 flow.

Provo River Drainage[2]

Snow surveys were established on the head waters of the Provo River in 1931 and at the head of Daniels Creek in 1930. The record of snow cover available is too short to form the basis of any definite water forecast. The snow pack on the Provo River at the five courses averages more than 2.5 times that in 1931, with a relatively heavy snow cover at the lower elevations. The watershed was quite dry last fall and no doubt considerable water will be absorbed by the soil if the melting is slow. In spite of this condition, with normal spring rains the indications are that the runoff for the 1932 season will be at least twice that in 1931.

American Fork River Drainage

Snow surveys on the American Fork Canyon area were started in 1931. The snow pack at the Dutchman Ranger Station this year is 23.5 inches of water as compared to 11.3 inches last year. Under normal conditions of temperature and spring precipitation the runoff this season should be about twice that last year with a much better late-season supply.

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[2] These surveys were conducted jointly by the Provo Reservoir Company, the U.S. Forest Service, and the Utah Power and Light Company

Hobble Creek, Spanish Fork River, Payson Creek, etc.

There are no snow courses on these drainage areas, but the snow cover on the adjoining areas points to a runoff in 1932 about twice that in 1931.

Uintah Basin Streams

The Uintah Basin watersheds are well covered with snow courses, all above the 8000-feet elevation. The Lake Fork Mountain course (elevation, 10,500 feet), the Paradise Park course (elevation, 10,500 feet), the Mosby Mountain course (elevation, 9500 feet), and the King's Cabin course (elevation, 8800 feet) furnish a splendid index of the seasonal flow of Uintah Basin streams. These snow courses are two years old and prior to their establishment snowstake measurements were made. In addition to these courses, there is a course at the head of Strawberry River and one at the head of Indian Canyon.

The 1932 measurements of the snow pack are more than three times those made in 1931. Although the record is too short to form the basis of a streamflow forecast it indicates a probable runoff in 1932 of at least twice that in 1931. If the runoff is rapid it may approach 2.5 times that in 1931.

Daggett County Area

Only two snow courses have been established on the north side of the Uintah Mountains. One of these is located on Blacks Fork and the other on Beaver Fork above the Hole-in-the-Rock Ranger Station. The former course has been measured for two years and the latter for one year.

The snow pack in this area is comparatively light, it being only 166 per cent of 1931. It is doubtful if the runoff from the streams on the north side of the Uintah Mountains yield more than 125 per cent of the flow in 1931.

Price River, Huntington, Ferron, and Cottonwood Creeks

These streams drain the north end and the east side of the Wasatch Plateau in central Utah. For several years snow surveys have been made which are representative of conditions on these watersheds, -- Price River and Huntington Creek. Ferron and Cottonwood Creeks are represented by the snow courses on the head of Seeley Creek and at the Alpine Ranger Station.

The average water content of the snow cover at the head of the Price River for the past five years is 18.2 inches. This year the snow cover agerages 25.1 inches, or 138 per cent of the average. The snow courses on this area are all above 8700 feet in elevation. This year there is reported from Scofield an unusually heavy low snow cover. The high snow cover this year is about 2.4 times that in 1931. In spite of a dry watershed under the present snow cover there should be a sufficient runoff to fill the Pleasant Valley reservoir to its allowable limits and provide a much better late season flow than was available in 1931.

Ferron and Cottonwood Creeks are represented by snow courses near the head of Seeley Creek and at the Alpine Ranger Station. These courses have been measured for only three years and the record is too short to use as a basis for forecasting the runoff in acre-feet. The snow pack on this area this year at the high elevations is 2.5 times that in 1931 and the low snow is relatively heavy. The runoff from these streams under normal spring runoff conditions should not be less than twice that in 1931.

Sanpete Valley Area

Most of the streams supplying water to Sanpete Valley drain off the west side of the Wasatch Plateau. Six snow courses are located along this plateau, varying in elevation from 7500 to 10,200 feet. Most of these courses have been measured for only three years and the record is too short to be used for definite forecasting. The snow pack on the west side of the Wasatch Plateau this year is more than 2.5 times that in 1931 and should yield a runoff more than twice that in 1931. The low snow is conducive to early high water, while the high snow should maintain the flow much better than in 1931.

Sevier Valley Area

Sevier River is so long and drains such a varied topography that there are many factors other than the snow cover which effect the runoff. Several snow courses have been established on this watershed, but the records are limited. The Kimberly Mine course on Clear Creek and the Castle Valley course on Mammoth Creek are the best records now available. Short records are available at Fish Lake, Harris Flat, and Gooseberry Ranger Station. This year it was not possible to get to the Castle Valley course on account of heavy snow cover; accordingly, a series of measurements was made at Panguitch Lake. These measurements show 10.2 inches of water when last year the area was bare of snow. There was more than three times as much water in the snow of Panguitch Lake in 1932 than there was in 1931 at Castle Valley, 1000 feet higher in elevation. The course at Kimberly Mine on Clear Creek showed a snow cover approximately 2.5 times that in 1931. The snow pack at the Harris Flat Ranger Station is about 4.5 times and at Fish Lake and Gooseberry Ranger Station twice that in 1931. The watershed of the Sevier River is for the most part low and is covered with a relatively deep earth mantle. The watershed losses are normally high. The succession of dry years just passed badly depleted the ground storage, and if the snow melts slowly much of the water will be absorbed and not appear directly as runoff.

There was little holdover storage in the reservoirs last year; as a result there was less storage available on April 1 this year than last year, except in the ~~other~~ creek reservoir which showed a slight gain[3]. Low temperatures mean a slow rate of melting and little high water. The natural flow of the Sevier River will be maintained at a higher stage throughout the season this year, due to the heavy snows in the upper valleys as well as in the mountains. A period of continued high temperatures during April is the only thing that will cause high water to be available for storage and secondary rights on the Sevier, due to the badly depleted ground storage.

Coal Creek and Virgin River

Snow courses were established on the Kolob Plateau at Coon Flat and Webster Flat in 1927. The snow pack this year is more than three times that in 1931 and more than twice the last 5-year average. The snow cover extends to unusually low elevations and unless the spring temperatures are unusually low, the runoff from Coal Creek and the Virgin River tributaries heading in this area should be from 2 to 2.5 times that in 1931.

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3 These data were furnished by Brice McBride, Water Commissioner, Sevier River

Beaver River Area

The Beaver River Area drains the west slope of the Tushar Mountains. Snow stake measurements have been made on this watershed since 1916. A snow course was established in Merchants Valley in April 1931. The snow pack this year is more than twice that in 1931. The snow cover extends to an unusually low elevation. In spite of the dry watershed under the snow, with normal spring temperatures and precipitation, the runoff should be at least twice that in 1931.

Fillmore-Chalk Creek Area

This is the only snow course that reported a smaller snow pack than that in 1931. It is believed that the scales which were used to weigh the snow cores were out of adjustment as the weights of snow at different stations were not consistent. The depth of snow equalled that in 1931, and by comparison with other areas this year its density was higher than in 1931, thus giving a heavier snow cover.

Mill Creek and Montezuma Creek Areas

Snow courses are located on the LaSal and Abajo Mountains. The course at the head of Mill Creek on the LaSal Mountains showed the same snow pack in 1932 as in 1931. The snow course at the head of Montezuma Creek in the Abajo Mountains showed a snow pack 151 per cent of 1931. These measurements show that the highest snow cover in the state this year occurred in the LaSal and Abajo Mountains in southeastern Utah.

SUMMARY

The water-supply prospects for the entire state for the season of 1932 are exceptionally good compared to the past few years. In northern Utah the runoff will probably exceed the 1931 runoff by two to three times. In central and southwestern Utah and in the Uintah Basin it will probably exceed the 1931 runoff by approximately two times, and in southeastern Utah it will probably only slightly exceed that in 1931.

The unusual abundance of low snow on most of the watersheds is conducive to a high early runoff, while the higher snows will tend to sustain the flow later in the season.

The unusually dry condition of the ranges last fall will no doubt cause excessive absorption losses if the snow melts slowly. If the spring temperatures are abnormally low it may even so reduce the runoff as to eliminate high water on some streams.

These comments on water-supply prospects for 1932 are based on short records and consequently of necessity, are very general and may have to be materially modified as the melting season advances if abnormal conditions occur.

UTAH CO-OPERATIVE SNOW SURVEYS

TABLE 1 SNOW SURVEY DATA FOR ALL COURSES

Drainage Area[1] and Snow Courses.	Elevation in Feet.	Date of Survey	Depth of Snow (Inches)	Water Content (Inches)	Density in Per cent.	Normal water content. (Inches)	Percentage of normal water content.	Percentage of water content. 1931
BUB RIVER								
Franklin Basin	8200	4/2/32	91.7	38.6	42.0	26.3	147.0	259
LOGAN RIVER								
Franklin Basin	8200	4/2/32	91.7	38.6	42.0	26.3	147.0	259
Tony Grove Lake	8500	4 /1/32	126.6	54.2	42.7	31.3	173.0	361
Tony Grove R. S.	6250	4/1/32	39.3	16.1	41.0	8.6	187.5	448
Mt. Logan	9000	3/27/32	120.0	42.3	35.4	28.7	147.0	515
Spring Hollow no. 3	7000	3/27/32	66.0	24.5	36.8	13.6	179.0	293
Spring Hollow No. 4	8000	3/27/32	106.0	36.5	34.5	22.6	161.0	365
BLACKSMITH FORK RIVER								
Mt. Logan	9000		120.0	42.3	35.4	28.7	147.0	515
Blacksmith Fork	9000		83.8	32.3	38.5	*	*	510
OGDEN RIVER								
Monte Cristo	8500		70.4	20.2	28.8	*	*	308
WEBER RIVER								
Smith and Morehouse	7600	3/29/32	45.7	17.0	37.2	*	*	258
Ledden Mine	8700	3/30/32	71.9	25.4	35.4	*	*	296
Beaver Creek Nursery	7500	3/28/32	29.2	9.8	33.5	*	*	576
Bear Lake Drainage								
Garden City Creek	8200	3/31/32	95.3	24.6	26.4	*	*	555
Monte Cristo	8500	4/ 6/32	70.4	20.2	28.8	*	*	308

1 - Snow courses common to more than one drainage are listed under each area.
* = Record not long enough to establish normal.

TABLE 1 (Continued) SNOW SURVEY DATA FOR ALL COURSES

Drainage Area and Snow Courses.	Elevation in Feet.	Date of Survey	Water content in inches	Depth of snow in inches.	Desnity in Percent	Normal water content in inches.	water content in percent of normal	Percentage of water content. 1931
BEAR RIVER (Above Bear Lake)								
Blacks Fork	9500	4/ 1/32	9.6	47.1	20.4	*	*	
Hole in the Rock	9300	3/29/32	5.4	25.1	21.5	*	*	
Lost Lake	10000	3/30/32	25.9	84.4	30.7	*	*	223
PROVO RIVER								
Soapstone R.S.	7800	3/28/32	14.1	52.8	26.7	*	*	294
Lake Tryel	9850	3/21/32	29.3	93.8	31.2	*	*	268
Lost Lake	10000	3/30/32	25.9	84.4	30.7	*	*	223
Washington-Long Lake	9900	3/31/32	36.0	104.6	34.6	*	*	252
Daniels Creek-Strawberry	8100	3/31/32	20.7	56.0	37.0	*	*	259
BIG COTTON WOOD CREEK								
Silver Lake	8700	3/31/32	30.1	92.0	32.8	*	*	338
AMERICAN FORK RIVER								
Dutchman R. S.	8500	4/ 1/32	23.5	67.3	35.0	*	*	208
UINTA BASIN								
Daniels Creek-Strawberry.	8100	3/31/32	20.7	56.0	37.0	*	*	259
Lake Fort Mt-Moon Lake	10500	3/28/32	11.4	45.8	24.9	*	*	254
Mosby Mt.	8900	3/31/32	13.2	45.8	28.8	*	*	300
Paradise Park	10500	3/30/32	15.5	53.7	28.5	*	*	326
Kings Cabin	8900	3/31/32	17.1	45.4	37.6	*	*	311
PRICE RIVER								
Gooseberry Reservoir Site	8800	4/2/32	24.9	64.8	38.4	18.4	135	242
Mammoth R. S.	8700	4/2/32	25.5	64.5	39.5	18.0	141	209
Huntington-Horseshoe Basin	9700	4/2/32	30.6	81.4	37.6	*	*	243
Indian Canyon	9200	3/30/32	15.3	45.2	33.8	*	*	213

* - Record is too short to establish normal.

UTAH CO-OPERATIVE SNOW SURVEYS

TABLE 1 (Continued) SNOW SURVEY DATA FOR ALL COURSES

Drainage Area and Snow Courses.	Elevation in Feet.	Depth of Survey.	Depth of snow in inches	Water content in inches	Density in Percent	Normal water content in inches	Water content in per-cent of Normal	Percentage of water content 1931
COTTONWOOD CREEK-SAN PITCH								
Mammoth R. S.	8700	4/ 2/32	64.5	25.5	39.5	180.0	141	269
Horshoe Basin-Huntington	9700	4/ 2/32	81.4	30.6	37.6	*	*	243
EPHRAIM CREEK								
G. B. E. S. Oaks	7800	3/28/32	25.4	7.8	30.6	*	*	261
G. B. E. S. Headquarters	8700	3/28/32	56.8	18.2	32.0	*	*	228
G. B. E. S. Meadows	9500	4/ 2/32	75.9	24.0	31.6	*	*	222
G. B. E. S. Alpine	10200	3/29/32	76.1	26.5	34.8	*	*	265
SEELEY CREEK								
Seeley Creek R. S.	10000	3/29/32	65.7	23.5	35.7	*	*	240
SALINA CREEK								
Gooseberry R. S.	8700	3/29/32	47.4	12.2	25.7	*	*	209
CHALK CREEK								
Fillmore Chalk Creek	9000	3/30/32	47.9			*	*	
CLEAR CREEK OF SEVIER								
Kimberley Mine	9000	3/31/32	42.1	14.0	33.3	*	*	246
EAST FORK SEVIER								
Fish Lake	8700	3/31/32	19.5	4.8	*	*		192
Widtsoe-Escalante Summitt	9500	3/31/32	31.0	11.0	*	*		Norecord.
UPPER SEVIER								
Harris Flat R. S.	7500	3/28/32	42.8	16.4	*	*		455
Panguitch Lake		3/30/32	30.9	10.2	*	*		no snos 193

* - Record too short to establish normal.

UTAH CO-OPERATIVE SNOW SURVEYS

TABLE I (Continued)

Snow Survey Data for All Courses

Drainage Area and Snow Courses.	Elevation in Feet.	Date of Survey	Depth of Snow in inches	Water content in inches	Density in per cent	Normal water content in inches.	Water content in percent of normal	Water content in percent. 1931
COAL CREEK								
Co-op Flat	9500	3/31/32	55.4	22.7	*	*		336
Webster Flat	9200	3/28/32	70.1	28.7	*	*		346
MILL CREEK								
La Sal Mt.	9000	3/30/32	24.4	5.6	*	*		100
MONTEZUMA CREEK								
Buckboard Flat	9000	3/30/32	55.9	15.9	*	*		151
VIRGIN RIVER								
Harris Flat R. S.	7500	3/28/32	42.8	16.4	*	*		455
Co-op Flat	9500	3/31/32	55.4	22.7	*	*		336
Webster Flat	9200	3/28/32	70.1	28.7	*	*		346
BEAVER RIVER								
Merchants Valley	8900	3/31/32	36.6	10.5	*	*		228

* - Record too short to establish normal.