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WATER DISTRIBUTION

AND

HYDROMETRIC WORK

WATER DISTRICT NO. 01

SNAKE RIVER, IDAHO

1976

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# WATER DISTRIBUTION AND HYDROMETRIC WORK

## WATER DISTRICT No. 01

### SNAKE RIVER, IDAHO

#### Introduction

The annual meeting of Water District No. 01 was held at Idaho Falls on March 1, 1976. Arthur L. Larson was elected as Watermaster for the ensuing year.

The following were elected as members of the Committee of Nine:

Leonard Graham, Chairman; Alfred Peters, Vice-Chairman; Clifford N. Scoresby, Secretary; Reed Murdock, R. Willis Walker, Lester Saunders, Kenneth Anderson, Burdell Curtis, and Lynn Loosli.

Alternate: Clyde Greenwell.

Advisory Members: Carlos Randolph, representing the Bureau of Reclamation; William Kerner, representing the Gooding Project; and Merle Kunz, representing Teton Basin.

Principal resolutions adopted at the annual meeting were as follows:

1. That the following transmission losses be charged on stored water: 1.7% Moran to Palisades; 0.8% Palisades to Heise; 4.4% Heise to Lorenzo; 0.5% Lorenzo to Woodville; 6% Woodville to Blackfoot; 4% Henrys Lake to Island Park; 2% Island Park to Warm River; 0.5% Warm River to Ashton.
2. Adopted a budget of \$97,055 to cover the expense of operating the District during the coming year.
3. Recommended the continuation of a pool committee to obtain and allocate rental water.
4. Reaffirmed support of an integrated multipurpose Lynn Crandall Project, the Salmon Falls Division of the Upper Snake River Project, and the Lower Teton Project.
5. Opposed any legislation which would establish minimum flows that would demand the waters of Idaho.

The Teton Dam failure on June 5 and resulting flood destroyed or damaged many farms, irrigation facilities, and urban property on the Teton River, Henrys Fork, and Snake River as far downstream as Blackfoot. Most Teton River canals were not renewed until late in the summer.

Precipitation and runoff for 1976 was once again above normal. The average precipitation for the nine representative weather stations for the water year ending Sept. 30, 1976, was 19.80 inches compared to 18.87 inches in 1975, and a normal of 15.28 inches. Every month but May was above normal, with October and December being the highest at 230 and 223 percent of normal, respectively. May was 68 percent of normal.

Snow surveys on April 1 indicated an accumulated snow pack of about 140 percent of normal, the same as 1974, and compared to 120 percent in 1975. Flood space was made in the upper reservoirs based on a forecasted runoff that turned out to be too high, thus calling for more flood space than needed. Consequently, Palisades filled only 78 percent of its entitled allotment, and American Falls 97 percent. However, normal flows held up very well, and with above normal precipitation in August, demand for stored water tapered off rapidly after the first few days in August, and storage holdover was excellent.

Stored water use began on July 6 in the lower valley and on July 13 above American Falls, and ceased on about Sept. 21. The lowest cut in decrees occurred Sept. 3 to 10 when the 1895 decrees were cut off.

Diversions were below normal for the season, averaging about 95 percent throughout the district, except for the Henrys Fork and Teton Canals which were about 85 percent of average due to the Teton Flood. The Lower Teton canals diverted about 50 percent of average.

Mean daily discharge at the Minidoka Dam was not cut below the 2,700 cfs power right at any time during the year. Five million, seventy-four thousand (5,074,000) acre-feet of water passed the Milner gage during the water year.

The Snake River at Heise peaked at 24,200 cfs on May 24. The unregulated peak at Heise would have been 35,000 cfs on June 5.

### PERSONNEL

People engaged in water distribution in Water District No. 01 during 1976 were as follows:

Arthur L. Larson	Watermaster
C. Michael Bennett	Deputy Watermaster
L. C. Anderson	Deputy Watermaster & Hydrographer, St. Anthony
Harold W. Blauer	Hydrographer at Burley
W. Lee Wright	Hydrographer at Idaho Falls
Lola Dunn	Clerk
Arthur W. Wilson	Deputy Watermaster & Hydrographer, Teton Basin
Reed Brower	Deputy Watermaster, Teton Basin
Val L. Richards	Deputy Watermaster, Lower Teton River
Sam B. Garrett	Deputy Watermaster, Henrys Fork
Elmer Lenz	Deputy Watermaster, Upper Falls River
Wilbur Brown	Deputy Watermaster, Heise Division
Russell Taylor	Deputy Watermaster, Rigby Division
Verall Smith	Deputy Watermaster, Blackfoot Division
Howard Hatfield	Deputy Watermaster, Swan Valley Division
Carlos Randolph	Supt., Minidoka Project, Bureau of Reclamation
Allan Templeton	Supt., American Falls Reservoir, Bureau of Reclamation
Tom Gates	Asst. Supt., Am. Falls Res., Bureau of Reclamation
Keith Ebersole	Supt., Jackson Lake, Bureau of Reclamation

Jeff Randall, Blanche Zollinger, Warren Travis, Rogers Livingston, R. H. Seymour, Mario M. Purin, Roy Flavel, and Jess Jackson, Gage Readers.

# SNOW SURVEYS

The results of snow surveys for the past ten years are shown in the following tabulations. The figures for earlier years are shown in previous annual reports of the District. Normals are those computed by the Soil Conservation Service and are mostly for period 1958-72.

Depths in Inches (S-Snow; W-Water)

YEAR	JAN 1		FEB 1		MAR 1		APR 1	
	S	W	S	W	S	W	S	W
<u>Moran (Snake River)</u>								
1967	22	4.6	37	10.3	41	12.4	40	12.9
1968	21	3.3	35	7.3	35	9.9	33	9.9
1969	28	5.5	44	11.4	49	13.6	44	14.0
1970	21	3.8	42	11.2	40	13.0	42	13.7
1971	33	7.8	41	13.0	47	14.8	51	17.9
1972	34	8.0	50	15.5	52	18.3	38	16.9
1973	24	4.6	30	7.2	36	9.4	35	10.0
1974	37	7.2	36	10.2	44	12.6	46	16.3
1975	21	3.9	36	8.0	47	12.9	52	15.4
1976	31	7.3	42	11.5	51	15.3	58	18.5
Normal		5.3		9.6		11.9		12.6
<u>Moran Bay (Snake River)</u>								
1967			49	14.2	58	18.3	55	20.5
1968			42	10.4	56	16.3	51	17.8
1969			56	16.2	63	19.0	55	20.0
1970			66	18.8	60	21.4	63	23.6
1971			62	21.9	69	25.0	81	32.1
1972			68	21.5	78	28.8	67	30.0
1973			45	12.5	60	16.7	55	18.7
1974					72	23.8	82	30.4
1975			49	13.3	63	18.7	83	25.3
1976			66	21.7	82	26.9	88	31.9
Normal				14.7		19.2		21.9
<u>Arizona Station (Snake River)</u>								
1967	32	8.8	53	15.4	59	18.8	62	21.5
1968	24	4.7	41	9.6	47	13.7	50	16.1
1969	34	8.4	67	18.6	70	21.9	63	22.5
1970	28	5.3	58	14.8	51	16.3	57	19.8
1971	50	12.6	62	19.8	66	22.6	79	29.0
1972	44	11.2	55	16.6	64	21.7	57	23.0
1973	31	6.7	37	9.9	47	13.3	50	15.8
1974	45	10.3	56	15.8	65	20.0	50	26.1
1975	24	4.3	41	10.2	58	16.2	70	20.6
1976	38	10.3	53	16.2	70	21.9	80	26.7
Normal		7.8		12.8		16.5		19.4



YEAR	JAN 1		FEB 1		MAR 1		APR 1	
	S	W	S	W	S	W	S	W
<u>Huckelberry Divide (Snake River)</u>								
1967	29	7.4	52	14.6	56	17.3	58	19.5
1968	31	6.5	49	11.4	57	16.4	53	17.7
1969	36	8.6	66	17.8	70	21.7	60	21.9
1970	28	5.5	60	13.7	49	15.6	57	19.6
1971	50	12.2	59	18.6	64	21.3	76	26.4
1972	42	10.7	55	16.9	66	20.9	54	22.0
1973	32	7.5	39	10.6	48	13.8	53	16.1
1974	45	10.3	58	15.6	63	19.0	77	25.6
1975	30	5.7	48	12.3	56	15.7	77	22.1
1976	42	11.7	54	16.8	75	24.1	81	29.4
Normal		7.9		13.1		16.9		19.3
<u>Snake River Station (Snake River)</u>								
1967	25	6.6	51	14.5	58	18.0	59	20.4
1968	29	5.8	47	10.7	57	17.0	56	19.2
1969	40	9.1	59	17.3	63	20.1	59	21.2
1970	32	6.2	69	16.8	58	19.4	63	23.2
1971	55	12.7	66	21.4	71	24.8	79	30.3
1972	44	11.0	63	19.6	77	26.1	65	27.4
1973	32	8.2	40	11.3	48	14.6	52	16.8
1974	45	9.8	61	16.8	65	21.0	74	26.5
1975	29	6.1	49	12.7	59	16.9	71	21.5
1976	43	12.7	61	20.3	74	23.9	88	29.9
Normal		8.2		13.8		18.3		21.0
<u>Lewis Lake Divide (Snake River)</u>								
1967	48	15.9	103	32.1	107	39.0	122	45.6
1968	45	11.6	82	21.4	90	28.3	94	33.0
1969	59	15.4	110	34.4	117	42.0	104	42.4
1970	52	12.2	109	28.7	97	35.1	109	42.6
1971	111	29.3	124	44.7	135	53.5	156	65.6
1972	78	20.1	114	40.6	150	49.8	133	57.7
1973	52	14.7	68	21.4	82	28.1	88	32.4
1974	84	23.0	119	37.3	125	45.0	150	60.8
1975	46	9.4	75	21.1	104	32.2	125	43.6
1976	78	26.6	102	38.0	125	45.5	148	58.1
Normal		17.0		27.5		35.9		42.1
<u>Aster Creek (Snake River)</u>								
1967	40	12.8	91	26.6	89	31.2	100	36.2
1968	33	7.9	69	16.3	66	20.3	67	22.5
1969	47	10.7	106	30.6	107	36.3	94	36.1
1970	34	7.6	84	20.6	69	23.0	79	28.8
1971	85	21.2	99	33.8	104	38.2	126	49.6
1972	62	15.1	92	30.3	119	39.9	100	42.7
1973	39	10.1	51	14.2	61	18.9	65	21.9
1974	66	17.5	88	24.9	94	26.4	116	44.0
1975	36	7.0	52	13.2	74	21.3	95	29.1
1976	56	17.7	67	24.4	90	30.0	109	40.3
Normal		12.7		21.1		26.6		31.0

Depth in inches (S-Snow; W-Water)

YEAR	JAN 1		FEB 1		MAR 1		APR 1	
	S	W	S	W	S	W	S	W
<u>Colter Creek (Snake River)</u>								
1967					60	20.6	61	22.5
1968					56	18.6	55	19.6
1969			62	18.7	64	21.5	57	20.9
1970					64	22.8	66	25.0
1971					76	25.6	84	32.6
1972					82	26.0	61	23.7
1973					51	14.5	54	18.4
1974							88	31.3
1975					63	19.6	73	24.4
1976	61	16.6	68	23.2	81	29.3	85	34.2
Normal						19.7		22.2

<u>Glade Creek (Snake River)</u>								
1967	29	7.3	52	14.8	61	18.9	63	22.0
1968	29	5.9	50	11.8	59	18.1	57	19.3
1969	36	9.1	64	18.1	67	21.0	63	23.0
1970	32	6.6	68	17.1	59	19.6	64	22.8
1971	61	15.1	71	24.0	75	26.8	89	34.8
1972	45	11.4	66	20.3	79	26.9	69	28.6
1973	36	9.1	44	12.5	56	16.9	58	19.5
1974	51	12.4	67	20.0	75	25.5	83	32.9
1975	32	6.2	51	13.7	68	20.4	79	25.1
1976	50	15.1	69	23.8	82	27.5	94	34.8
Normal		8.6		14.7		19.0		22.2

<u>Base Camp (Snake River)</u>								
1967	30	7.5	56	15.9	59	19.7	60	22.0
1968	31	6.6	42	10.5	55	16.1	53	17.5
1969	42	9.0	61	16.7	62	20.4	58	20.3
1970	29	5.7	64	16.7	55	18.9	57	21.9
1971	54	14.0	69	22.7	74	25.0	86	32.2
1972	43	10.8	68	21.0	80	28.3	69	29.9
1973	37	7.8	37	11.1	45	13.3	45	15.1
1974	50	11.7	67	18.5	69	22.4	85	29.2
1975	24	4.7	44	10.7	57	16.0	68	20.5
1976	44	11.2	57	18.5	40	10.9	81	28.7
Normal		8.1		13.9		17.8		20.1

<u>Average water content of ten Jackson Lake courses.</u>								
1967				17.6(9)	21.4			24.3
1968				12.9(9)	17.5			19.3
1969				20.0(9)	23.8			24.2
1970				17.6(9)	20.5			24.1
1971				24.4(9)	27.8			35.0
1972				22.5(9)	28.7			30.2
1973				12.3(9)	16.0			18.5
1974				19.9(8)	24.0(9)			32.3
1975				12.8(9)	19.0			24.8
1976				21.2(9)	25.5			33.2
Normal				15.7(9)	20.2			23.2

YEAR	FEB 1		MAR 1		APR 1		MAY 1	
	S	W	S	W	S	W	S	W
<u>Turpin Meadows (Buffalo River)</u>								
1967	30	7.1	35	9.6	29	9.8		
1968	29	6.3	33	9.5	36	10.4		
1969	35	8.5	36	9.5	35	10.1		
1970	40	9.1	34	10.5	34	11.3		
1971	35	9.3	41	11.3	44	13.9		
1972	37	10.0	41	12.6	30	12.0		
1973	23	5.1	27	5.8	24	6.6		
1974	39	10.0	42	12.5	46	14.3		
1975	31	6.9	36	9.0	41	11.1		
1976	40	11.6	46	13.6	49	15.9		
Normal		7.4		9.6		10.3		
<u>Four Mile Meadows (Buffalo River)</u>								
1967	35	8.0	39	10.4	41	12.6		
1968	41	9.5	47	12.3	52	14.9		
1969	42	10.3	43	11.9	44	13.1		
1970	44	10.3	39	11.9	43	13.4		
1971	42	11.5	49	14.0	57	17.8		
1972	45	12.4	52	14.8	48	17.3		
1973	28	6.4	34	7.8	39	9.1		
1974	45	11.9	48	13.9	59	18.0		
1975	37	8.3	41	10.6	52	13.5		
1976	42	11.3	48	13.6	55	17.1		
Normal		9.0		11.6		13.6		
<u>Black Rock (Buffalo River)</u>								
1967	53	13.8	60	18.2	64	21.3		
1968	59	15.3	67	20.3	69	22.6		
1969	60	16.8	62	19.8	65	21.9		
1970	64	16.6	59	18.9	64	22.0		
1971	69	20.6	76	24.8	94	31.1		
1972	63	18.8	80	24.1	76	28.6		
1973	39	9.8	46	11.8	49	13.4		
1974	67	17.7	67	21.6	85	28.3		
1975	52	13.7	61	17.7	72	21.5		
1976	62	19.6	76	23.6	81	28.6		
Normal		14.5		18.6		22.3		
<u>Togwotee Pass (Buffalo River)</u>								
1967	74	20.1	81	26.9	86	31.6	90	35.9
1968	62	18.3	77	25.0	78	27.8	73	29.1
1969	80	23.8	81	27.4	79	29.8	62	28.6
1970	82	21.5	72	23.9	82	29.9	106	37.1
1971	87	27.6	97	33.5	118	43.6	116	48.9
1972	84	27.1	107	34.9	97	40.8	96	44.0
1973	50	14.0	59	17.0	68	20.1	71	24.7
1974	83	23.1	81	26.9	108	38.3	90	41.1
1975	66	18.4	78	24.4	97	31.0	103	39.2
1976	75	24.9	98	32.0	102	38.8	100	41.2
Normal		20.0		25.4		30.6		33.9

YEAR	JAN 1		FEB 1		MAR 1		APR 1	
	S	W	S	W	S	W	S	W
<u>Valley View Ranch (Henrys Fork)</u>								
1967	33	7.0	62	18.2	61	22.2	69	25.2
1968	37	8.0	54	13.6	51	16.9	50	17.8
1969	33	6.3	75	22.4	83	28.1	69	28.1
1970	23	3.2	40	8.6	35	10.1	51	16.4
1971	47	12.2	55	17.9	65	22.2	69	26.1
1972	47	10.8	54	16.9	51	19.1	46	17.6
1973	24	4.1	33	6.3	32	8.0	39	10.8
1974	34	7.0	38	10.2	44	14.1	55	19.7
1975	24	3.5	33	7.7	47	12.8	61	19.2
1976	38	7.8	40	12.0	53	17.6	58	21.6
Normal		6.3		12.3		15.4		17.7

<u>Big Springs (Henrys Fork)</u>								
1967	37	9.4	69	19.4	68	23.1	74	26.7
1968	32	5.9	55	12.1	51	16.8	50	17.9
1969	41	8.4	69	21.3	85	26.0	68	27.2
1970	30	5.4	62	16.3	55	18.6	67	23.2
1971	51	14.6	68	22.3	75	26.2	80	30.8
1972	59	12.4	67	20.7	70	25.6	62	27.1
1973	32	7.6	45	11.1	49	14.7	53	18.1
1974	51	10.6	62	18.2	69	22.3	80	30.0
1975	32	5.0	42	10.5	61	18.0	71	22.6
1976	45	10.5	50	15.3	64	21.5	68	24.6
Normal		7.8		14.4		18.6		21.3

<u>Island Park (Henrys Fork)</u>								
1967	32	6.4	59	15.8	54	17.2	56	19.6
1968	26	4.4	46	8.9	44	12.9	30	13.5
1969	36	6.4	64	19.4	77	23.5	52	23.4
1970	27	4.6	54	12.6	48	15.1	58	19.4
1971	58	11.3	60	18.2	66	20.7	68	25.2
1972	51	10.6	54	15.9	51	17.6	45	16.3
1973	28	5.2	40	8.6	44	12.0	43	13.2
1974	43	8.8	51	13.3	59	17.7	63	22.2
1975	30	4.4	41	9.0	56	15.6	68	20.8
1976	40	8.8	44	12.9	58	18.4	60	21.5
Normal		6.1		11.6		14.7		16.4

<u>Grassy Lake (Falls River)</u>								
1967	47	13.0	79	23.9	86	29.8	98	34.8
1968	55	12.9	81	22.4	91	30.2	89	33.8
1969	59	15.9	84	27.6	97	32.5	86	34.1
1970	54	12.4	102	27.4	91	33.2	101	33.8
1971	75	22.1	98	34.7	110	41.1	125	51.0
1972	76	18.9	99	33.1	116	43.3	108	45.9
1973	51	14.5	64	20.1	76	25.9	83	29.8
1974	73	18.8	96	30.8	106	33.4	119	48.8
1975	49	11.1	74	21.8	93	29.8	109	37.2
1976	72	22.9	97	34.4	110	40.4	126	50.3
Normal		14.1		23.2		30.1		35.0

YEAR	JAN 1		FEB 1		MAR 1		APR 1		MAY 1	
	S	W	S	W	S	W	S	W	S	W
State Line (Teton River)										
1967	23	6.2	41	11.8	49	15.3	47	16.7	40	16.0
1968	22	4.7	33	7.4	34	10.1	40	11.6	0	0
1969	32	6.4	44	11.3	53	15.1	46	16.4	10	4.2
1970	24	4.3	47	11.7	40	13.1	51	16.8	57	20.3
1971	31	7.1	41	12.3	48	14.1	51	18.1	37	15.7
1972	31	8.3	53	16.2	54	19.1	42	18.2	22	10.7
1973	22	5.0	32	8.3	37	10.8	49	13.9	33	12.2
1974	34	6.7	45	11.1	49	13.5	52	17.0	31	13.0
1975			36	8.3	49	14.1	57	17.5	58	20.2
1976	45	10.9	40	12.8	65	18.1	63	20.3	48	19.6
Normal		6.7		9.9		12.8		15.7		8.4

Grover Park Divide (Salt River)										
1967	17	3.8	31	8.0	38	11.3	39	12.8	32	13.1
1968	23	4.3	30	6.8	33	10.1	37	11.9	27	11.1
1969	32	6.1	39	9.8	43	13.4	40	14.0	14	5.3
1970	19	3.0	43	10.1	36	12.4	43	14.9	43	14.9
1971	29	6.8	43	13.4	51	15.1	54	20.5	42	17.6
1972	27	5.9	44	11.4	47	16.2	40	15.4	28	13.9
1973	28	6.0	33	8.5	36	9.9	38	12.0	31	11.6
1974			45	8.5	38	11.1	38	14.2	24	10.2
1975			36	8.6	43	12.6	52	15.8	47	17.4
1976	22	5.2	30	8.4	40	11.6	56	18.6	41	15.0
Normal		5.1		8.2		11.3		12.8		9.6

CCC Camp FF12 (Salt River)										
1967			32	8.4	42	12.5	39	12.6	26	11.0
1968	22	4.1	25	5.3	31	8.4	30	10.0	22	8.9
1969	30	5.4	39	9.6	48	13.5	42	14.0	11	4.7
1970	20	2.9	38	8.6	33	9.1	41	12.5	40	14.2
1971	33	7.9	46	14.1	56	17.3	58	21.7	44	18.2
1972	27	6.4	49	12.1	48	15.8	40	14.7	27	13.2
1973	25	5.1	29	7.7	32	8.3	39	11.2	33	12.0
1974			36	8.4	38	11.2	43	14.8	23	9.5
1975			38	8.3	43	11.4	52	15.6	44	16.1
1976	22	5.0	30	7.9	40	10.9	50	16.4	36	12.6
Normal		4.9		8.2		11.1		12.2		8.2

Salt River Summit (Salt River)										
1967	20	4.0	41	11.2	49	16.1	54	17.6	43	17.8
1968	25	4.8	31	7.1	40	10.4	39	12.6	29	11.3
1969	38	6.6	53	13.6	60	17.8	51	18.1	23	9.4
1970	23	3.5	50	11.3	43	12.7	46	15.6	47	16.0
1971	43	10.6	62	19.1	66	21.6	72	26.2	59	26.3
1972	37	7.9	61	16.0	63	21.4	54	22.1	44	21.4
1973	29	5.6	35	8.1	41	12.0	49	13.9	41	7.4
1974			48	13.0	48	15.1	55	18.4	36	14.6
1975			43	11.0	51	14.2	63	19.8	58	22.0
1976	31	7.4	38	10.4	52	15.0	64	22.4	52	20.4
Normal		6.4		10.8		14.6		16.2		13.9

Depth in inches (S-Snow; W-Water)

Year	Jan 1		Feb 1		Mar 1		Apr 1		May 1	
	S	W	S	W	S	W	S	W	S	W
<u>Greys Boundary</u>										
1967	13	1.9	28	8.3	35	10.3	29	9.2	0	0
1968	24	4.3	35	8.4	34	10.6	28	10.4		
1969	32	5.5	31	8.2	32	11.9	32	11.9		
1970	19	2.9	33	10.0	36	11.7	37	13.3	31	10.5
1971	27	4.8	39	10.9	41	13.1	41	15.2	16	7.0
1972	28	7.4	36	9.5	40	13.3	30	11.4		
1973	22	5.3	31	6.6	40	10.6	36	11.4	10	3.9
1974	--	---	41	10.9	45	13.7	38	15.6	8	3.2
1975			25	6.6	46	12.0	46	16.2	38	14.7
1976	23	5.2	33	9.3	42	12.8	51	17.4	28	11.1
Normal		4.4		7.9		10.4		10.9		2.1

On April 1, 1976, the snow (water content) was the following average percent of Normal: Above Jackson Lake 143%; Moran to Heise 131%; Island Park 117%; Falls River 144%; Teton River 124%.

Comparable figures for runoff during the year ending Sept. 30, 1976, as percent of normal were: Snake River at Moran 119%; Snake River near Heise 123%; Henrys Fork near Ashton 125%; Falls River near Squirrel 118%.

The following tables show forecasts of streamflow made last spring compared to observed run-off:

Forecasts by Soil Conservation Service - April 1, 1976

<u>Station</u>	<u>Runoff in acre-feet from April through Sept.</u>		
	<u>Forecast</u>	<u>Observed</u>	<u>% Difference</u>
Snow River at Moran	1,175,000	1,197,000*	-1.8
Snow River near Heise	5,250,000	4,950,500*	+6.0
Salt River near Etna	465,000	516,000*	-9.9
Henrys Fork near Ashton	850,000	809,500*	+5.0
Teton River near St. Anthony	600,000	**	**

\*Corrected for storage in upstream reservoirs.

\*\*Record not complete for 1976. Station lost on June 5.

FORECASTS BY NATIONAL WEATHER SERVICE - APRIL 1, 1976

	<u>Runoff in Acre-feet - April through July</u>		
	<u>Forecast</u>	<u>Observed</u>	<u>% Difference</u>
Snake River at Moran	1,070,000	1,004,000*	+6.6
Snake River near Heise	4,750,000	4,273,100*	+11.1
Salt River near Etna	400,000	425,000	-5.9
Henrys Fork near Ashton	646,000	587,700*	+9.9
Henrys Fork near Rexburg**	1,420,000	1,709,000*	-22.8
Falls River near Squirrel	467,000	413,000*	+13.1
Teton River near St. Anthony	489,000	***	

\* Corrected for storage in upstream reservoirs.

\*\* Corrected for diversions.

\*\*\* Incomplete record for 1976. Station lost on June 5.

1976 REGULATION SCHEDULE

July	6	Filling Apr. 1, 1939, priority.
July	7	Filling Mar. 30, 1921, priority.
	8	Filling Aug. 6, 1920, priority.
	10	Filling Aug. 6, 1908, priority.
	12	Filling Oct. 7, 1905, priority.
	21	Filling Aug. 6, 1908, priority.
	25	Filling Oct. 7, 1905, priority.
	29	Filling Mar. 26, 1903, priority.
Aug.	3	Filling Oct. 7, 1905, priority.
	12	Filling Mar. 26, 1903, priority.
	18	Filling Oct. 7, 1905, priority.
	19	Filling Mar. 26, 1903, priority.
	22	Filling Oct. 7, 1905, priority.
Sept.	2	Filling Mar. 26, 1903, priority.
	3	Filling Apr. 1, 1895, priority.
	9	Filling Mar. 26, 1903, priority.
	15	Filling Oct. 7, 1905, priority.
	22	Regulation discontinued.

## WATER SUPPLY

Runoff in acre-feet at various gaging stations during the year ending Sept. 30, 1976, was as follows:

<u>Station</u>	<u>1976 Runoff</u>	<u>Average Runoff Past Years</u>	<u>Years of Record</u>	<u>1976 % of Average</u>
Snake River at Moran	1,253,600	1,057,000	73	119
Snake River near Heise	6,239,600	5,075,000	66	123
Snake River at Neeley	8,126,800	5,263,000	50	154
Falls River near Squirrel	669,500	565,000	62	118
Henrys Fork near Ashton	1,315,200	1,051,600	56	125
Henrys Fork near Rexburg	2,303,600	1,463,500	67	157

The runoff at Moran has been corrected for Jackson Lake holdovers; near Heise for Jackson Lake and Palisades holdovers; at Neeley for Palisades and American Falls holdovers; at Squirrel for Grassy Lake holdovers; at Ashton for Island Park and Henrys Lake holdovers; at Rexburg for Grassy Lake, Island Park, Teton Reservoir, and Henrys Lake holdovers.

Maximum mean daily discharges were as follows:

Snake River at Moran	6,050 cfs	on April 22
Snake River near Heise	24,200 cfs	on May 24
Snake River near Blackfoot	42,900 cfs	on June 7
Henrys Fork near Rexburg	79,000 cfs	on June 5
Blackfoot River near Blackfoot	1,870 cfs*	on May 11
Snake River at Milner	18,500 cfs	on April 28

\*Includes 1,240 cfs in bypass channel.

Unregulated flow at Heise would have been 35,000 cfs on June 5.



Annual reservoir holdovers in thousands of acre-feet on September 30, during the past ten years are shown in the following tabulation:

Year	Jackson Lake	Pali- sades	American Falls	Lake Walcott	Henrys Lake	Island Park	Grassy Lake	Total
1967	558.8	828	494	95.8	75.6	80.8	9.6	2,142.6
1968	585.5	1,094	751	94.0	77.8	90.2	9.2	2,701.7
1969	569.7	648	239	92.3	72.6	52.1	7.0	1,680.7
1970	573.9	918	811	93.8	73.7	72.2	11.4	2,554.0
1971	598.3	1,066	1,285	93.7	83.5	93.7	12.8	3,233.0
1972	584.8	1,047	984	96.4	82.5	86.7	9.5	2,890.9
1973	607.4	629	82	82.4	79.9	71.8	9.7	1,562.2
1974	586.7	1,018	251	93.9	82.0	109.3	10.3	2,151.2
1975	577.0	1,070	428	97.6	76.8	104.5	9.9	2,363.8
1976	563.6	1,120	265	96.5	81.3	50.2	10.3	2,186.9
Avg.	580.6	944	559	93.6	78.6	81.2	10.0	2,346.7

The Palisades figures are after deducting 201,000 acre-feet dead storage. The usable capacities of the above reservoirs total 4,082,000 acre-feet when American Falls is at its unrestricted capacity of 1,700,000 acre-feet. The 1976 holdover is slightly above the average for the past ten years. Teton Reservoir is not included above due to its failure on June 5, and Ririe Lake is not included as the storage is not yet allocated.

#### PERMITS

The following permits to appropriate the public water of the State of Idaho were approved by the Idaho Department of Water Resources:

001-7007 Brown, Larry, 0.88 cfs from Snake River, a priority of Mar. 22, 1976 with the point of diversion in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.8, T.3 N., R.41 E., Boise Meridian, for purpose of irrigation from April 1 to Nov. 1.

21-7067 Nedrow, George, Jr., 3.0 cfs for irrigation from April 1 to Nov. 1, a priority of Jan. 30, 1975, from Snow Creek, tributary of Henrys Fork, with the point of diversion SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.20, and NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 29, T.9 N., R.42 E., Boise Meridian.

21-7075 Cherry, Lavar A. &/or Donna P., 3.2 cfs from Green Canyon Springs, tributary to Henrys Fork, with a priority of Aug. 8, 1975, with the point of diversion in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.9 N., R.43 E., Boise Meridian.

21-7076 Cherry, Lavar A. &/or Donna P., 3.2 cfs from Blue Creek, tributary to Henrys Fork, a priority date of Aug. 8, 1975, with the point of diversion in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.9 N., R.43 E., Boise Meridian.

21-7077 Bollaert, Andre N., 0.8~~6~~ cfs from Henrys Fork with a priority date of Aug. 8, 1975, with the point of diversion in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.13, T.9 N., R.42 E., Boise Meridian.

21-7080 Nedrow, Alwyn, 2.0 cfs and storage of 35 acre-feet from Snow Creek, tributary to Henrys Fork, with a point of diversion in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.9 N., R.42 E., Boise Meridian.

21-7081 Nedrow, Alwyn, 1.8 cfs and 10.0 acre-feet storage from Snow Creek, tributary to Henrys Fork, a priority date of Sept. 22, 1975, with a point of diversion Lot 3 SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.32, T.9 N., R.42 E., Boise Meridian.

21-7082 Potter, Travis N., 1.40 cfs from Falls River with a priority date of Dec. 16, 1975, with the point of diversion in NW $\frac{1}{4}$ SW $\frac{1}{4}$  (Lot 5), sec.22, T.8 N., R.42 E., Boise Meridian.

21-7083 Harshberger, Don &/or Merle, 5.00 cfs from storage for irrigation (500 acre-feet storage), from Conant Creek, with a priority date of Feb. 13, 1976, point of diversion in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.25, T.8 N., R.43 E., Boise Meridian.

21-7085 Dickason, Victor Eugene, 0.04 cfs from spring which is tributary to Squirrel Creek, priority date of March 15, 1976, with point of diversion in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T.8 N., R.44 E., Boise Meridian.

21-7090 Bidstrup, A. C., 0.20 cfs from Moose Creek, tributary to Henrys Fork, with a priority date of July 30, 1976, with point of diversion in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.10, T.13 N., R.44 E.

21-7093 North Henrys Lake Estates Home Owners Association, from an unnamed stream, tributary to Henry's Lake, 1.00 cfs for domestic purposes with a priority date of Sept. 7, 1976, point of diversion in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.33, T.16 N., R. 43 E., Boise Meridian.

21-7096 McCord, J.J., 1.60 cfs and 200 acre-feet storage from unnamed stream, tributary to Henrys Fork, with priority date of Nov. 23, 1976, and point of diversion in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.24, T.9 N., R.43 E., Boise Meridian.

22-7130 Morrison, Fred D. and Bud, 7.1 cfs from Bitch Creek, tributary to Teton River, priority date of May 5, 1975, with point of diversion in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.11, T.7 N., R.44 E., Boise Meridian.

22-7148 Bott, DeMar, 7.0 cfs from Teton River, tributary to Snake River, priority of July 23, 1975, with a diversion point in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.3, T.6 N., R.44 E., Boise Meridian.

22-7149 Hoopes, Hugh, 4.0 cfs from Teton River, tributary to Snake River, priority of July 23, 1975, with point of diversion in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.26, T.6 N., R.44 E., Boise Meridian.

22-7150 Hoopes, Hugh, 2.0 cfs from Teton River, tributary of Snake River, priority of July 23, 1975, with diversion point in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.6 N., R.44 E., Boise Meridian.

22-7151 Hoopes, Horace, 5.0 cfs from Teton River, tributary to Snake River, priority of July 23, 1975, with point of diversion in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.6 N., R.44 E., Boise Meridian.

- 22-7152 Hoopes, Horace, 10.0 cfs from Teton River, tributary of Snake River, priority of July 23, 1975, with point of diversion in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.26, T.6 N., R.44 E., Boise Meridian.
- 22-7172 Arnold, Keith J. & Sons, 12.0 cfs from Teton River, with priority of Jan. 20, 1976, with point of diversion in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.33, T.7 N., R.44 E., Boise Meridian.
- 22-7173 Arnold, Keith J. & Sons, 9.00 cfs from Crooked Creek, tributary to Canyon Creek which is tributary to Teton River, priority of Jan. 20, 1976, with diversion point in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.6 N., R.43 E., Boise Meridian.
- 22-7178 Teton Georgic, Inc., 1.60 cfs from Teton River, priority date of March 19, 1976, with diversion point in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.3, T.6 N., R.44 E., Boise Meridian.
- 22-7179 Teton Georgic, Inc., 3.50 cfs from Milk Creek, tributary to Teton River, priority of March 19, 1976, with point of diversion in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.26, T.7 N., R.43 E., Boise Meridian.
- 22-7180 Echo Ranch, Inc., 12.8 cfs from Teton River, priority of April 1, 1976, point of diversion in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.6 N., R.44 E., Boise Meridian.
- 22-7181 Echo Ranch, Inc., 3.20 cfs from Teton River, priority of April 1, 1976, with diversion point in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.10, T.6 N., R.44 E., Boise Meridian.
- 22-7182 Echo Ranch, Inc., 1.00 cfs from unnamed springs, tributary to sinks, priority of April 1, 1976, with point of diversion in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.6, T.5 N., R.44 E., Boise Meridian.
- 22-7186 Ard, Darrell, 12.8 cfs from Teton River, priority of April 27, 1976, with point of diversion in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.3, T.6 N., R.44 E., Boise Meridian.
- 22-7187 Bischoff, Harold B., 1.60 cfs from unnamed slough, tributary to Teton River, priority date of June 4, 1976, point of diversion in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.15, T.7 N., R.41 E., Boise Meridian.
- 22-7196 Brown, Ray, 1.00 cfs from Teton River, priority date of Sept. 23, 1976, with point of diversion in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.29, T.7 N., R.44 E.
- 25-7071 Rhodehouse, Clifton B., 0.96 cfs from Rhodehouse Spring, tributary of Spring Creek which is tributary to Snake River, priority of July 11, 1975, point of diversion in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.31, T.5 N., R.38 E., Boise Meridian.
- 25-7076 Mercer, William, 0.56 cfs from Spring Creek, tributary to Snake River, priority date of Oct. 24, 1975, point of diversion to be two points in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.33, T.5 N., R.38 E., Boise Meridian.
- 25-7087 Westergard, Bernice J. &/or Elden, 2.0 cfs from irrigation waste, priority of Feb. 4, 1976, point of diversion in the NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.24, T.2 N., R.38 E., Boise Meridian.

25-7096 Lingren, Clinton L., 0.02 cfs from South Fork of Willow Creek, tributary to Snake River, priority of July 26, 1976, with point of diversion in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.18, T.2 N., R.38 E., Boise Meridian.

#### TRANSFERS

23-4002 Zitlan, Carl and Fred, transfer waters of Granite Creek from original point of diversion to unspecified points adaptable to pump and sprinkler systems.

22-0255 Kunz, Keith, transfers part of his Grove Creek right to second diversion point adapted to pump and sprinkler system.

21-0019 Potter, Travis N., transfers 3.00 cfs downstream on the Falls River to a new point of diversion in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.8 N., R.42 E., Boise Meridian.

22-0195 Canyon Creek Canal Co. transfers 70 cfs to additional points of  
& diversion in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, T.6 N., R.42 E.,  
22-0196 SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.30, T.7 N., R.42 E., NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.6 N., R.43 E.,  
Boise Meridian.

### CANAL DELIVERIES

Daily diversions from Snake River by canals above American Falls Reservoir during the 1976 irrigation season are shown on Plates 6-10A, 16-20A, 58 and 59. Daily diversions for canals below American Falls are included on Plates 62, 63, 66, and 68-74. Miscellaneous measurements of various canals and streams in the headwater areas are shown on Plate 24.

Total canal diversions during 1976 irrigation season by all canals in the district, including headwater areas, as tabulated in the annual billing for District No. 01, amounted to 7,678,063 acre-feet. This is 77,880 acre-feet more than 1975.

# DIVERSIONS DURING 1976 IRRIGATION SEASON BY SNAKE RIVER CANALS

May thru September for Upper Valley canals; April 15 thru September  
for Lower Valley canals.

(Canals in downstream order from Heise)

Canal	Diversions (Acre-feet)	Acres Irrigated	Acre-feet per Acre
Riley	6,630	900	7.4
Progressive Irrig. District	210,800 <sup>(a)</sup>	33,000	6.4
Farmers Friend	111,600	10,500	11.0
Enterprise Canal	54,200 <sup>(b)</sup>	5,200	10.4
Nelson	633	55	11.5
Mattson-Craig	5,150	485	10.6
Ross and Rand	930	145	6.4
Butler Island	9,900	1,100	9.0
Harrison	163,000	13,000	12.5
Cheney (includes Steele)	4,350	323	13.5
Rudy Irrigation Co.	77,890	5,000	15.6
Kite and Nord	2,350	210	11.2
Burgess	261,400	22,000	11.9
Clark and Edwards	26,680	1,940	13.8
Lowder	16,820	1,000	16.8
East Labelle	34,860	3,000	11.6
Sunnydell	57,220	3,780	15.1
Lenroot	40,960	3,100	13.2
Reid	58,750	5,500	10.7
Texas Feeder	62,710	10,000	6.3
Nelson-Corey	1,950	270	7.2
Hill-Pettinger	1,840	200	9.2
Rigby	52,410	4,000	13.1
Dilts	8,670	620	14.0
Island	49,200	5,500	8.9
W. LaBelle & Long Island	134,700	10,500	12.8
Parks and Lewisville	94,080	8,500	11.1
North Rigby	17,990	1,400	12.8
White	1,050	110	9.5
Ellis	783	70	11.2
Bramwell	1,770	470	3.8
Butte and Market Lake	68,560	20,000	3.4
Osgood	13,000	6,210 <sup>(c)</sup>	2.1
Bear Island and Smith	793	330	2.4
Idaho	241,600	35,850	6.7
Kennedy	4,060	2,200	1.8
Great Western and Porter	210,400	30,220 <sup>(d)</sup>	7.0
Woodville	26,570	2,350	11.3
Snake River Valley	198,500	20,790	14.4
Reservation	79,250 <sup>(e)</sup>	54,773	1.4
Blackfoot	86,530	15,000	5.8
New Lava Side	32,050	6,000	5.3
Peoples	20,500	20,000	1.0
Aberdeen	295,100	63,000	4.7
Corbett	50,200	6,000	8.4

<u>Canal</u>	<u>Diversions (Acre-feet)</u>	<u>Acres Irrigated</u>	<u>Acre-feet per Acre</u>
Nielsen-Hansen	2,040	460	4.4
Riverside	36,520	5,000	7.3
Danskin	53,330	8,000	6.7
Trego	15,560	1,620	9.6
Wearyrick	16,400	1,600	10.2
Watson	31,360	3,000	10.5
Parsons	11,440	930	12.3
Ft. Hall Michaud Canal	49,367 <sup>(f)</sup>	14,819	3.3
Falls Irrigation District	27,410 <sup>(g)</sup>	7,832 <sup>(g)</sup>	3.5
Minidoka Irrigation District	454,190	72,000	6.3
Burley Irrigation District	256,800	48,000	5.4
A & B Irrigation District	50,310	14,520	3.5
Twin Falls Canal Co.	1,046,300	202,700	5.2
North Side Canal	1,021,400	160,000	6.4
Milner Low Lift	59,940	13,470 <sup>(h)</sup>	4.4
Gooding	438,680	63,700	6.9
TOTAL	6,469,436	1,052,252	6.1

- (a) Received additional water from Willow and Sand Creeks, and Ririe Lake.  
(b) Used additional water from Willow Creek early in season.  
(c) Water pumped from wells for about 600 acres of this land.  
(d) Includes 7,680 acres outside New Sweden District to which water was delivered.  
(e) Supplements main supply from the Blackfoot River.  
(f) Includes 15,697 acre-feet pumped from wells.  
(g) Acreage includes 457 acres of non-project land supplied from canal. An additional 3,776 acres of project land were irrigated by pumping 6,879 acre-feet from wells.  
(h) Also delivered water to 645 acres outside the district.

These main river canals diverted about one percent more water than in 1975. Of the 3,139,220 acre-feet diverted by lower valley canals (below Neeley), 857,032 acre-feet, or 27 percent was stored water. Upper valley main canals diverted 3,330,200 acre-feet of which 180,533 acre-feet, or 5.4 percent, was stored water.

The following tabulation shows the monthly diversions in various sections of the District during the past ten years:

Diversions in Thousands of Acre-Feet

<u>Year</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Season</u>
<u>Heise to Blackfoot</u>						
1967	384	620	822	742	640	3,208
1968	541	720	871	534	492	3,158
1969	649	679	838	741	547	3,454
1970	287	780	840	760	475	3,142
1971	383	748	817	720	462	3,130
1972	673	752	840	662	543	3,470
1973	564	876	831	747	460	3,478
1974	539	874	903	720	639	3,675
1975	134	759	924	756	625	3,198
1976	324	704	909	654	543	3,134
Average	448	751	859	703	543	3,305

Henry's Fork and Tributaries (excluding headwater areas)

1967	190	243	234	204	149	1,020
1968	207	217	246	154	124	948
1969	238	223	248	194	135	1,038
1970	146	259	248	215	109	977
1971	179	239	250	208	109	985
1972	240	236	251	199	114	1,040
1973	186	267	233	208	129	1,023
1974	217	263	248	190	164	1,082
1975	84	239	264	207	145	939
1976	166	157	201	173	93	790
Average	185	234	243	195	127	983

Minidoka Project

<u>Year</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Season</u>
1967	27	124	124	201	176	115	767
1968	45	169	146	199	101	97	757
1969	63	192	138	197	179	95	864
1970	36	124	135	192	175	83	745
1971	21	120	150	201	180	97	769
1972	52	172	142	190	162	82	800
1973	24	154	155	182	155	80	750
1974	31	169	163	186	152	102	803
1975	53	68	153	188	146	107	715
1976	13	148	152	185	127	85	710
Average	37	144	146	192	155	94	768



Diversions in thousands of acre-feet - continued:

<u>Year</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Season</u>
<u>North Side Canal Co. Project</u>							
1967	104	198	202	254	242	202	1,202
1968	98	200	208	249	202	163	1,120
1969	89	214	212	236	237	172	1,160
1970	71	183	202	234	231	153	1,074
1971	111	189	202	241	240	172	1,155
1972	81	208	212	240	231	162	1,134
1973	63	203	213	243	227	147	1,096
1974	57	204	220	246	222	165	1,114
1975	26	130	206	240	223	169	994
1976	47	176	207	246	212	150	1,038
Average	75	191	208	243	226	166	1,110
<u>Twin Falls Project</u>							
1967	101	202	191	237	234	186	1,150
1968	106	220	204	239	193	157	1,112
1969	125	225	197	227	220	157	1,158
1970	80	194	194	228	231	144	1,071
1971	62	186	196	240	238	164	1,086
1972	86	210	196	236	223	150	1,101
1973	60	207	197	228	216	149	1,057
1974	63	213	203	228	216	154	1,077
1975	29	102	194	240	232	176	973
1976	30	203	213	241	213	146	1,046
Average	74	196	198	234	221	158	1,083
<u>Gooding Project</u>							
1967	21	84	85	102	98	80	470
1968	30	91	94	100	84	74	473
1969	16	77	73	95	95	76	432
1970	17	85	89	97	93	77	458
1971	22	76	88	100	97	82	465
1972	31	89	91	98	99	79	487
1973	41	85	88	95	90	70	469
1974	18	83	93	98	90	80	462
1975	11	57	85	96	96	79	424
1976	21	75	89	99	85	75	444
Average	23	81	87	98	92	78	459

## RIVER DATA

The usual methods of segregating stored water and normal flow at the reservoir outlets was continued in use during 1976. Palisades reservoir was operated on the same basis as Jackson Lake, namely, convert the daily drop in lake level to second-feet and call it storage from Palisades. For some time after storage draft started, a lag of several days was maintained in making normal flow cuts to avoid any possible natural flow losses at the high lake levels existing at Palisades and Jackson Lake. Later on in the season when dropping lake and river levels resulted in bank storage return, this water was gradually recovered for credit as stored water so that it balanced out by the end of the irrigation season.

Daily figures showing segregation of flow at the various river gaging stations and storage diversions by canals are shown in Plates 12 and 13 for Snake River and Plate 21 for Henrys Fork.

Storage use started on July 4 in the lower valley and July 13 in the upper valley and continued through Sept. 20 and Sept. 24th, respectively.

Total storage passing the Blackfoot station during the season amounted to 118,400 acre-feet.

Blackfoot River reservoir holdover on September 30 was 245,000 acre-feet. The Indian Service 1891 decree was not cut off.

# STORED WATER DELIVERIES

## RESERVOIR ALLOTMENTS

Jackson Lake filled 100 percent, American Falls filled 97 percent of its 66.2 percent restricted capacity, and Palisades filled 78 percent. Allotments were made as follows:

American Falls	1,091,250 acre-feet
Jackson Lake	847,000 acre-feet
Palisades	936,000 acre-feet

### 1976 Storage Allotments in Acre-Feet

(Downstream order from Heise)

<u>Canal</u>	<u>Am. Falls</u>	<u>Jackson Lake</u>	<u>Palisades</u>	<u>Total</u>
Poplar Irrigation Dist.	432	1,589	1,209	3,230
Progressive Irrig. Dist.	8,014	7,209	22,230	37,958
Farmers Friend		2,000	7,332	9,332
Enterprise Canal Co.	5,728	11,252	15,288	32,268
Mattson-Craig			1,123	1,123
Butler Island			195	195
Harrison	7,719	11,943	18,330	37,992
Rudy	1,700	3,530	12,246	17,476
Burgess	6,095	10,603	24,492	41,190
Clark and Edwards			624	624
Lowder		1,040	1,248	2,288
East Labelle			624	624
Sunnydell		4,000	4,914	8,914
Lenroot	2,483	5,234	6,123	13,840
Reid	1,636	1,472	2,457	5,565
Texas and Liberty Park			3,666	3,666
Enterprise Irr. Dist. (N.F.)	6,535	5,883		12,418
Fremont-Madison Irr. Dist.			780	780
Rigby			4,914	4,914
Island			3,666	3,666
Dilts	568	511	936	2,015
West Labelle			780	780
Long Island			3,900	3,900
Parks and Lewisville			4,290	4,290
North Rigby			936	936
Butte and Market Lake	2,995	2,695	34,320	40,010
Osgood (U&I Sugar Co)	8,640	7,771	11,895	28,306
Bear Island	122	110		232
Sakaguchi (Smith & Kennedy)	45	91		136
Clement Bros. (Kennedy)		105		105
Owners Mutual		200	226	426
Idaho	14,707	13,230	45,864	73,801
Martin	1,288	2,659	4,368	8,315
New Sweden Irr. Dist.	16,517	19,857	24,492	60,866
West Side Mutual			1,833	1,833
Woodville	3,882	3,491	4,680	12,053

1976 Storage allotments in acre-feet - continued  
(Downstream order)

<u>Canal</u>	<u>Am. Falls</u>	<u>Jackson Lake</u>	<u>Palisades</u>	<u>Total</u>
Snake River Valley	16,926	30,225	27,534	74,685
Palisades Water Users			42,221	42,221
Blackfoot	8,193	7,370	3,159	18,722
New Lava Side			9,165	9,165
Peoples	13,747	20,365	27,300	61,412
Aberdeen	35,684	74,626	119,184	229,494
Corbett	2,180	1,961	4,914	9,055
Riverside			1,170	1,170
Danskin			1,833	1,833
Trego	844	758	2,496	4,098
Wearyrick			468	468
Watson			1,833	1,833
Parsons			546	546
<b>TOTAL ABOVE BLACKFOOT</b>	<b>166,680</b>	<b>251,780</b>	<b>511,804</b>	<b>930,264</b>
Michaud (Indian Service)	30,619		65,442	96,061
Falls Irrig. Dist.	14,956		31,902	46,858
Minidoka Irrig. Dist.	53,641	186,030	27,300	266,971
Burley Irrigation Dist.	101,384		30,576	131,960
Minidoka N.S. Pump	30,550		70,824	101,374
Milner Low Lift	29,327		34,710	64,037
Twin Falls Canal Co.	97,048	97,183		194,231
Hillsdale	26,412			26,412
North Side Canal Co.	254,976	312,007	90,948	657,931
Gooding	256,769		780	257,549
Idaho Power Co.	28,886			28,886
City of Pocatello			39,000	39,000
Westvaco			3,900	3,900
J.R. Simplot			1,950	1,950
U. S.			26,864*	26,864
<b>TOTAL BELOW BLACKFOOT</b>	<b>924,568</b>	<b>595,220</b>	<b>424,196</b>	<b>1,943,984</b>
<u><b>GRAND TOTAL</b></u>	<u><b>1,091,248</b></u>	<u><b>847,000</b></u>	<u><b>936,000</b></u>	<u><b>2,874,248</b></u>

\*Wyoming: 25,740 acre-feet; other: 1,124 acre-feet

Storage Rental

The storage rental committee, consisting of John Walker, Leonard Graham, and Art Larson, supervised water rentals.

No computations were made of individual holdovers as excellent carryovers assured all reservoirs would fill and holdovers would be voided.

SUMMARY OF WATER DISTRICT NO. 01 RENTALS - 1976

<u>Supplier</u>	<u>Acre-Feet</u>	<u>Area of Use</u>	<u>Acre-Feet</u>
Falls Irrig. District	4,427	Swan Valley	170
Mrs. Ward Hittson	450	Heise to Blackfoot	5,729
U.S. Indian Service	750	Milner Low Lift	1,450
Neil Erickson	500	Lower Valley	950
Mrs. Mabel Winterfield	78		
M. J. Danielson	94		
Enterprise Canal	<u>2,000</u>		
 TOTAL	 8,299		 8,299

All rentals were at the rate of fifty-cents per acre-foot.

SUPPLY AND DISPOSAL OF STORED WATER - 1976

Supply

		<u>Acre-feet</u>
Jackson Lake Contents	July 17	847,200
Palisades (usable)	June 27	940,000
American Falls	June 30	1,089,000
Lake Walcott	July 5	97,400
Henrys Lake	July 12	86,000
Island Park	July 13	134,000
Grassy Lake	July 14	15,200
Indian & Bergman Reserv. Yield		450
Sheridan Creek Right		1,690*
Gain - Neeley to Milner		<u>115,900</u>
 TOTAL		 3,326,840

\*Special natural flow rights considered as storage for convenience in tabulation.

### Disposal

	Acre-feet
Used by Snake River rights	1,074,000
Used by Henrys Fork rights	15,508
Storage transmission loss, Snake River	26,760
Storage transmission loss, Henrys Fork	3,191
Storage transmission loss, Cross Cut	est. 1,000
River operation waste past Milner	920
Henrys Lake Loss	2,000
Used by FMC & Simplot	2,299
	<u>1,125,678</u>

### Holdovers:

Jackson	Sept. 19	561,200
Palisades (usable)	Sept. 20	1,127,000
American Falls	Sept. 22	271,300
Lake Walcott	Sept. 22	95,900
Henrys Lake	Sept. 20	81,400
Island Park	Sept. 21	53,900
Grassy Lake	Sept. 21	<u>10,200</u>

TOTAL 3,325,578

The computed supply exceeds the disposal by 1,262 acre-feet, or 0.04 of one percent.

# MICHAUD PROJECT USE OF STORED WATER

The annual reports since 1958 have contained detailed analyses of the water used on the Michaud Project by the Falls Irrigation District. Tabulated below is a summary of this data for the past five years.

## Area No. 1

### Tributary to American Falls

From data furnished by Falls Irrigation District

(Figures in Acre-Feet)

Year	<u>From Wells</u>			<u>From American Falls Reservoir</u>				Contr. to Gr. Water
	Acres	Pumped	Consumed	Acres	Del'd	Consumed	Excess	
1972	2,968	4,480	5,350	5,481	16,548	9,870	6,678	1,328
1973	2,968	4,884	5,350	5,481	16,332	9,870	6,462	1,112
1974	2,968	5,468	5,350	5,481	17,493	9,870	7,623	2,273
1975	2,968	4,725	5,350	5,481	18,568	9,870	8,968	3,348
1976	2,722	4,688	-----	5,270	12,845	9,870	2,975	-----

## Area No. 2

### Tributary Below American Falls

From data furnished by Falls Irrigation District

(Figures in Acre-Feet)

Year	<u>From Wells</u>			<u>From American Falls Reservoir</u>				Contr. to Gr. Water
	Acres	Pumped	Consumed	Acres	Del'd	Consumed	Excess	
1972	838	2,233	1,510	2,514	7,912	4,525	3,387	1,877
1973	838	2,188	1,510	2,514	8,173	4,525	3,648	2,138
1974	838	2,555	1,510	2,514	8,807	4,525	4,282	2,772
1975	838	2,424	1,510	2,514	7,796	4,525	3,271	1,761
1976	1,054	2,191	1,510	2,563	7,282	4,525	2,757	1,247

The above data has been computed assuming a consumptive use of 1.8 acre-feet per acre. Deliveries to East Branch Canal are reduced by four percent for estimated canal loss in the one and one-half miles which is non-tributary to American Falls Reservoir. No account is taken of this four percent loss in the contribution to ground water in Area No. 2.

In the tabulations in this report, the Falls Irrigation District was charged only with water pumped from American Falls Reservoir as determined from USGS records from pump data furnished by the District. Acreages were updated by Falls Irrigation District. No distinction between project and non-project lands is shown this year as it would seem to be no longer relevant to this report.

### GROUND WATER PUMPING

An additional credit to American Falls Reservoir is water now pumped from wells by the City of Pocatello, Westvaco Co., J. R. Simplot Co., and Fort Hall Michaud Project. Palisades contracts for Westvaco and Simplot provide that storage charges be made on one-half of the water pumped. The City of Pocatello (including Alameda) is permitted to pump 10,000 acre-feet each season before there is any charge. In the case of the Fort Hall Michaud Project, 22,400 acre-feet of pumping from wells is permitted before there is any charge against their reservoir storage.

Tabulated below is a summary of above pumping for the period May 1 to September 30, 1976:

<u>User</u>	<u>Acre-Feet</u>	
	<u>Pumped</u>	<u>Storage Charge</u>
City of Pocatello		
(including Alameda)	8,112	0
FMC Corporation*	1,782	891
Fort Hall Michaud Project (wells)	15,697	0
J. R. Simplot Co.**	2,816	1,408

\*Reported 1,782 acre-feet pumped and 36 percent of this used consumptively.

\*\*Reported 2,816 acre-feet pumped and 78 percent used consumptively.



# RIVER LOSSES AND GAINS

Gains and losses between river stations for the months of May through September (using time intervals shown on Plate 15) are shown in the following tabulations:

## GAIN IN SNAKE RIVER, MORAN TO ALPINE GAGING STATION - 1976

(Alpine dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Snake nr Moran	140,560	93,930	64,690	124,420	51,280	474,880
Snake nr Alpine	452,280	433,200	291,800	222,550	110,900	1,510,730
Total gain cfs	311,720	339,270	227,110	98,130	59,620	1,035,850
Mean gain cfs	10,060	11,310	7,330	3,170	1,990	6,770
Total gain ac-ft	618,300	672,900	450,500	194,600	118,300	2,054,600

## GAIN IN SNAKE RIVER, ALPINE GAGING STATION TO STATE LINE - 1976

(24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Greys River	81,620	70,360	39,524	18,616	13,266	223,386
Salt River	96,370	55,460	31,346	23,174	22,733	229,083
Total gain cfs	177,999	125,820	70,870	41,790	35,999	452,469
Mean gain cfs	5,740	4,190	2,290	1,350	1,200	2,960
Total gain ac-ft	353,000	249,600	140,600	82,900	71,400	897,500

## GAIN IN SNAKE RIVER, STATE LINE TO HEISE - 1976

(No correction for time of flow, 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Palisades release	-146,460	-275,670	-15,120	-45,370	+5,550	-477,070
Total supply*	483,810	283,350	347,550	218,970	152,449	1,486,129
Heise	637,000	363,410	385,580	244,770	176,110	1,806,870
Riley Canal	262	934	1,139	690	322	3,347
Total acc't for	637,262	364,344	386,719	245,460	176,432	1,810,217
Total gain cfs	153,452	80,994	39,169	26,490	23,983	324,088
Mean gain cfs	4,950	2,730	1,260	855	799	2,118
Total gain ac-ft	304,370	160,650	77,690	52,540	47,570	642,830

\*Sum of Snake River near Alpine, Greys, and Salt Rivers plus Palisades releases.

The gains in the above three reaches is consistent with other years of comparable snowpack.

GAIN IN SNAKE RIVER, HEISE TO SHELLEY - 1976

(Heise dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Rexburg	187,000	273,740	90,810	81,600	75,170	708,320
Total supply*	824,262	638,084	477,529	327,060	251,602	2,518,537
Diversions	110,770	281,016	340,797	241,460	202,694	1,176,737
Shelley	718,530	407,370	208,450	176,180	117,660	1,628,190
Total acc't for	829,300	688,386	549,247	417,640	320,354	2,804,927
Total gain cfs	5,038	50,302	71,718	90,580	68,752	286,390
Mean gain cfs	163	1,680	2,310	2,920	2,290	1,870
Total gain ac-ft.	9,990	99,770	142,250	179,670	136,370	568,050

\*Rexburg plus Heise and Riley from previous table.

The mean gain was 1,870 cfs compared to 1,690 cfs in 1975. This gain included inflow from Market Lake Springs, which is credited to Owners Mutual Canal Co.

GAIN OR LOSS IN SNAKE RIVER, SHELLEY TO BLACKFOOT - 1976

(Shelley dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Shelley	719,700	417,400	206,490	179,310	117,970	1,640,870
Blackfoot River*	43,240	13,630	6,010	12,070	6,680	81,630
Total supply	762,940	431,030	212,500	191,380	124,650	1,722,500
Diversions	52,434	74,180	117,661	88,400	71,097	403,772
Snake River nr Blackfoot	698,700	347,790	95,690	112,600	73,090	1,327,870
Total acc't for	751,134	421,970	213,351	201,000	144,187	1,731,642
Total diff cfs	-11,806	-9,060	+851	+9,620	+19,537	+9,142
Mean diff cfs	-381	-302	+27	+310	+651	+60
Total diff ac-ft.	-23,420	-17,970	+1,690	+19,080	+38,750	+18,130

\*Includes bypass.

The mean gain of 60 cfs for the season is consistent with past years.

GAIN OR LOSS IN SNAKE RIVER, BLACKFOOT TO NEELEY - 1976

(Neeley dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Blackfoot	701,000	353,790	95,500	113,250	72,980	1,336,520
Inflow*	124,447	101,264	87,290	95,122	94,690	502,813
Am Falls Res Draft	-21,670	+96,260	+210,970	+107,150	+66,530	+459,240
Total supply	803,777	551,314	393,760	315,522	234,200	2,298,573
Diversions	1,236	4,198	4,572	2,254	1,562	13,822
Neeley	780,100	544,500	381,860	313,430	230,090	2,249,980
Total use	781,336	548,698	386,432	315,684	231,652	2,263,802
Total diff cfs	-22,441	-2,616	-7,328	+162	-2,548	-34,771
Mean diff cfs	-724	-87	-236	+5	-85	-227**
Total diff ac-ft.	-44,510	-5,190	-14,540	+321	-5,050	-68,970

\*A tabulation of inflow data is shown on Plate 11. Seven sets of measurements were obtained for the period and figures interpolated between measurements. Portneuf River inflow was depleted by pumping for Indian Service Michaud Canal. Amount pumped each day is shown on Plate 53, and included in Portneuf River inflow below Pocatello on Plates 11-11D. Monthly totals in above table are actual inflow. Inflow figures shown on Plates 12 and 13 are theoretical inflow including pump diversion figures in actual inflow. These are shown on last line of Plate 11 series. The above computations fulfill requirements of Section 8(b) of Fort Hall Michaud Division, Palisades Contract. Daily figures of waste from the Aberdeen Project were furnished by Mr. Myron Dance, Manager. Unmeasured inflow as computed from the "Newell" formula varied from 1,320 to 1,450 cfs.

\*\*The average loss of 227 cfs from Blackfoot to Neeley for 1976 compares to an average loss of 312 cfs in 1975.

REUGAR SPRINGS

The following measurements of Reugar Springs flows were obtained:

<u>Date</u>	<u>Discharge in cfs</u>
May 7, 1976	22
May 28, 1976	22
June 19, 1976	19
July 9, 1976	19
July 30, 1976	21
Aug. 25, 1976	21
Sept. 16, 1976	21

# GAIN OR LOSS IN SNAKE RIVER, NEELEY TO MINIDOKA - 1976

(Minidoka dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Neeley	778,980	547,600	381,890	314,300	231,030	2,253,800
Walcott	+2,000	-2,000	+2,400	-1,800	+500	1,100
Total supply	780,980	545,600	384,290	312,500	231,530	2,254,900
N. Minidoka	32,010	36,174	42,270	30,729	20,644	161,827
S. Minidoka	42,472	40,668	51,240	33,450	22,144	189,974
Snake at Minidoka	718,000	471,390	292,580	252,090	189,660	1,923,720
Total acc't for	792,482	548,232	386,090	316,269	232,448	2,275,521
Total diff cfs	+11,502	+2,632	+1,800	+3,769	+918	20,621
Mean diff cfs	371	88	58	122	31	135
Total diff ac-ft.	22,814	5,220	3,570	7,476	1,821	40,900

The average gain is consistent with past years.

# GAIN IN SNAKE RIVER, MINIDOKA TO MILNER - 1976

(Milner dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Snake at Minidoka	710,940	478,020	292,670	252,780	191,450	1,925,860
Minidoka NS Pump	4,134	5,462	7,877	5,147	2,520	25,140
PA Lateral	1,638	2,047	2,042	1,457	1,487	8,671
Milner Low Lift	5,851	6,486	8,588	5,092	3,644	29,661
Milner North Side	58,868	71,850	91,380	75,660	52,840	350,598
Gooding	65,720	75,440	80,300	72,840	58,790	353,090
Twin Falls	102,470	106,990	121,700	107,580	73,580	512,320
Lk Milner Stored	+1,966	-6,350	+101	-1,764	-2,016	-8,063
Snake at Milner	503,700	210,840	366	5,635	22,860	743,401
Total acc't for	744,347	472,765	312,354	271,647	213,705	2,014,818
Total gain, cfs	33,407	-5,255	19,684	18,867	22,255	88,958
Mean gain, cfs	1,078	-175	635	609	742	581
Total gain ac-ft.	66,260	-10,420	39,040	37,420	44,140	176,450

The average gain of 581 cfs compares to 329 cfs in 1975 and 593 cfs in 1974.

# TOTAL GAIN IN SNAKE RIVER, NEELEY TO MILNER - 1976

	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Total gain, ac-ft.	89,074	-5,200	42,610	44,896	45,961	217,350

The total gain Neeley to Milner for period May through September was 217,350. For the period July 4 to Sept. 23, this gain was 115,900 acre-feet, computed by using the above figures, and this gain is credited to the Minidoka Project.

### DISTRIBUTION ON HENRYS FORK

Mr. L. C. Anderson served as deputy watermaster at St. Anthony in charge of water distribution on Henrys Fork, Falls River, and Lower Teton River.

Holdovers in Henrys Fork reservoirs at the end of the season were about 62 percent of capacity. Island Park was reduced beyond storage demand in order to facilitate inspection and core drilling in the spillway and outlet works.

Releases from Grassy Lake were discontinued on September 9. Releases from Henrys Lake and Island Park were discontinued near the end of September.

The usual methods described in previous reports of segregating stored water and normal flow at the outlets of Henrys Lake and Island Park reservoirs were continued in 1976. During the period July 26 to August 4, stored water was charged a daily loss of 30 cfs. During the period of August 20 to 30, stored releases were credited with a like amount. This adjustment has been used in past years, and presumably corrects the observed normal flow to pre-reservoir conditions. When Island Park Reservoir is full, there is a loss to ground water which is later recovered when the reservoir level drops. By making the above adjustment, normal flow is more nearly distributed to the rights that would be in effect if Island Park Reservoir were not in the river system.

Mr. C. Michael Bennett made one trip to the Henrys Lake and Island Park areas to regulate. The following measurements were made:

<u>July 21, 1976</u>	Duck Creek at County Road	8.40 cfs
	Rock Creek at County Road	1.84 cfs
	Magleby Div. from Rock Creek	2.29 cfs
	Magleby Div. from Rock Creek - sprinkler	est. 1.50 cfs
	TOTAL SUPPLY	14.03 cfs
	Duck Creek below all diversions wasting into Henrys Lake	9.25 cfs

No observations made of any of the other streams in the area around either Henrys Lake or Island Park Reservoir.

## 1976 REGULATION SCHEDULE

With the exception of a few days, the Henrys Fork and Falls River remained on nearly the same regulation schedule as the Main Snake River. For most of the season, the Upper Teton River was cut to earlier priorities than the Main River.

Figures showing the operation of the Cross Cut Canal in 1976 are shown on Plate 23A. Due to the Teton Disaster, an indeterminate amount of water was delivered to the Teton River. Whatever the amount, it has no significance due to the extraordinary situation which existed on the Teton River.

### CANAL DELIVERIES IN HENRYS FORK BASIN

Diversions during the 1976 irrigation season, May to September, from Falls River, Henrys Fork, and Lower Teton River were as follows:

<u>Falls River Canals</u>	<u>Diversions (acre-feet)</u>	<u>Area Irrigated (acres)</u>	<u>Acre-Feet Per Acre</u>
Yellowstone	2,360	2,100	1.1
Marysville	33,590	16,000	2.1
Farmers Own	16,990	5,800	2.9
Enterprise	19,030	5,890	3.2
Bell	877	110	8.0
Falls River	66,070 <sup>(a)</sup>	9,000	7.3
McBee	968	125	7.7
Chester	19,440	1,400	13.9
Silkey	5,030	1,080	4.7
Curr	13,490	1,300	10.4

TOTAL FALLS RIVER	191,814	42,935	4.5
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(a) Includes 27,700 acre-feet diverted through the Cross Cut Canal.

### Henrys Fork Canals

Dewey	5,360	1,200	4.5
Last Chance	28,950	1,860	15.6
St. Anthony Union	121,950	9,700	12.6
Farmers Friend	28,400	3,025	9.4
Twin Groves	29,800	2,500	11.9
Salem Union	37,020	5,500	6.7
Egin	78,930	7,000	11.3
St. Anthony Union Feeder	18,990	2,300	8.3
Independent	68,560	6,000	11.4
Consolidated Farmers	43,880	6,000	7.3
TOTAL HENRYS FORK	461,840	45,085	10.2

<u>Lower Teton Canals</u>	<u>Diversions (acre-feet)</u>	<u>Area Irrigated (acres)</u>	<u>Acre-Feet Per Acre (e)</u>
Siddoway	891	500	
Wilford	20,340	2,300	
Teton Irrigation	14,710	2,000	
Good Luck	684	330	
Pioneer	371	300	
Stewart	595	478	
Pincock-Byington	666	260	
Pincock-Gardner	780	480	
Teton Island Feeder	48,170	10,400	
Roxana	762	880	
Island Ward	3,680	3,300	
North Salem	657(a)	450	
Bigler Slough	109	240	
Woodmansee-Johnson	2,270(b)	1,320	
City of Rexburg	2,720	950	
Rexburg Irrigation	35,010	5,280	
McCormick-Rowe	71	160	
Saurey-Sommers	651	275	
Eames-Thompson	0	70	
<b>TOTAL LOWER TETON</b>	<b>133,137(c)</b>	<b>29,893(d)</b>	
<b>TOTAL FALLS RIVER, HENRYS FORK &amp; LOWER TETON</b>	<b>786,791(c)</b>	<b>117,913(d)</b>	<b>---(e)</b>

- (a) Used additional water from Henrys Fork through Salem Union.  
(b) Used additional water from Moody Creek.  
(c) 1976 diversions for these canals greatly reduced due to the flood.  
(d) Acreage prior to damage of some lands by Teton Flood. In following years, this figure will be subject to change as flood damaged lands are reclaimed.  
(e) No meaningful figure for water use per acre can be computed due to the damaged lands and interrupted irrigation season.

Diversions by some of the principal canals in the headwater areas for the 1976 irrigation season (June 1 to September 30) are shown below:

	<u>Diversions (acre-feet)</u>	<u>Area Irrigated (acres)</u>	<u>Acre-feet Per Acre</u>
Trail Creek Irrig. Co.	12,950	7,520	1.7
Fox Creek Canals	7,500	3,760	2.0
Darby Creek Canals	13,480	4,800	2.8
Grand Teton Canal	40,320	7,000	5.8
Canyon Creek Canal	8,310	2,200	3.8
Conant Creek Canal	3,960	1,680	2.4
Squirrel Creek Canal	2,670*	1,165	2.3
Boom Creek Canal	2,000*	2,180	0.9

\*June 1 to Sept. 4. 35

### STORED WATER DELIVERIES ON HENRYS FORK

Water available for Fremont-Madison allotments was as follows:

Island Park Reservoir (July 13)	134,000 acre-feet
Grassy Lake Reservoir (July 13)	15,200 acre-feet
Sheridan Creek Right	<u>1,690 acre-feet</u>
TOTAL	150,890 acre-feet

The District allotted 132,400 acre-feet for the 1976 season. Henrys Fork users rented 455 acre-feet.

### HENRYS LAKE ALLOTMENTS - 1976

Henrys Lake contents June 24 was 88,800 acre-feet. From this, a figure of 2,000 acre-feet was deducted for dead storage and loss. Actually, contents were nearer 87,000 acre-feet when storage deliveries began, 1,800 acre-feet having been allowed to escape.

#### Allotments

<u>Canal</u>	<u>Percent</u>	<u>Allotment Acre-Feet</u>
Independent	26.90	23,349
Salem Union	24.21	21,014
Consolidated Farmers	20.17	17,508
Last Chance	13.85	12,022
St. Anthony Union	6.72	5,833
Egin	6.72	5,833
Dewey	<u>1.43</u>	<u>1,241</u>
TOTAL	100.00	86,800

Henrys Fork near Rexburg gage showed 35,942 acre-feet of unused stored water from the North Fork reservoirs that passed downriver. This compares to 14,900 acre-feet in 1975 and resulted from deliberate lowering of the reservoir for investigation of structural spillway weakness.



# RIVER GAINS IN HENRYS FORK BASIN - 1976

The following time intervals have been used in preparing the tabulations by river sections:

Lake to Island Park	20 hours
Island Park to Ashton	19 hours
Ashton to St. Anthony	5 hours
St. Anthony to Rexburg	12 hours
Squirrel to Chester	8 hours

## Gain in Henrys Fork, Lake to Island Park - 1976 (Island Park dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
H. F. nr Lake	3,574	2,851	2,639	2,644	1,920	13,628
I. P. release	-16,930	-3,830	+15,020	+21,670	+6,000	+21,930
Total supply	-13,356	-979	+17,659	+24,314	+7,920	+35,558
H. F. at Is. Park	30,487	25,018	36,762	42,635	26,183	161,085
Total gain cfs	43,843	25,997	19,103	18,321	18,263	125,527
Mean gain cfs	1,410	867	616	591	609	820
Total gain ac-ft	86,960	51,570	37,890	36,340	36,220	248,980

The average gain is 820 compared to 931 in 1975.

## Gain in Henrys Fork, Island Park to Ashton - 1976 (Ashton dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Island Park	30,278	26,105	35,978	43,243	26,463	162,067
Ashton	110,960	64,330	67,220	78,260	63,180	383,950
Total gain cfs	80,682	38,225	31,242	35,017	36,717	221,883
Mean gain cfs	2,600	1,270	1,010	1,130	1,220	1,450
Total gain ac-ft	160,000	75,820	61,970	69,460	72,830	440,100

The mean gain is 1,450 cfs compared to 1,500 cfs for 1975.

## Gain in Henrys Fork, Ashton to St. Anthony - 1976 (St. Anthony dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Ashton	110,746	64,482	67,022	78,391	63,270	383,911
Chester	97,981	76,960	25,377	15,707	14,619	230,644
Total supply	208,727	141,442	92,399	94,098	77,889	614,555
Diversions	33,278	33,034	36,891	28,135	16,037	147,375
St. Anthony	187,720	115,500	60,480	66,260	55,800	485,760
Total acc't for	220,998	148,534	97,371	94,395	71,837	633,135
Total gain cfs	12,271	7,092	4,972	297	-6,052	18,580
Mean gain cfs	396	236	160	10	-202	121
Total gain ac-ft	24,340	14,070	9,860	589	-12,000	36,850

The average gain of 121 cfs compares to the 179 cfs in 1975.

Gain in Falls River, Squirrel to Chester - 1976  
(Chester dates and 24-hour cfs except as noted)

<u>Station</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
Squirrel	80,105	77,436	35,363	23,563	19,356	235,823 .
Diversions	5,287	11,641	13,267	12,773	9,729	52,697
Chester	97,981	76,960	25,377	15,707	14,619	230,644
Total acc't for	93,268	88,601	38,644	28,480	24,348	273,341
Total gain cfs	13,163	11,165	3,281	4,917	4,992	37,518
Mean gain cfs	425	372	106	159	166	245
Total gain ac-ft	26,110	22,150	6,510	9,750	9,900	74,420

The average gain of 245 cfs compares to 183 cfs in 1975.

Gain in Henrys Fork and Teton River, St. Anthony to Rexburg - 1976

The table of gains in this particular river reach was not computed for 1976 due to the extraordinary situation that existed on account of the Teton flood. The regular Teton River near St. Anthony gage was lost, and there's some doubt that substitution of the record below the dam would have been consistent.

TETON BASIN

Mr. Arthur Wilson, with summer office at Driggs, continued as deputy watermaster in the Teton Basin during 1976.

The water content of snow on April 1 on the Teton watershed was about 124 percent of normal. April to September precipitation at Driggs was 12.25 inches compared to the normal of 8.08 inches.

Again this year, canal diversions were started early and water spread to build up the ground water table. This practice seems to result in a greater sustained flow of the Teton River later in the season. This early water spreading may result in undesirable high sub in the low areas along the river in some years.

A group of users formed a combine calling themselves Teton Pipeline Association and they pump their water supply from the Teton River west of Felt. A number of smaller users also pump from the Teton. Construction of these systems was based partly on obtaining Teton Reservoir storage, and any further expansion will likely be delayed pending availability of storage on the Teton River. No daily record was kept of their diversion, but it is planned to do so beginning in 1977.

The discharge of various streams and canals and storage used in Teton Basin through exchange for natural flow is shown in Plates 23 and 24. Again this year, water formerly diverted by South Fox Canal was diverted by a pipeline from the North Canal and is included in figures for North Canal above pipeline on Plate 24.

Water distribution on Teton Creek between Wyoming and Idaho users was on the basis of 1940 Wyoming Federal Court decree. Stored water diversions by Teton Basin users, through exchange for natural flow belonging to prior downstream rights, was on the basis of diverting 1.625 times the amount of replacement storage delivered to Lower Teton River at the St. Anthony gaging station, in accordance with an agreement reached by Upper and Lower users on the Teton River in 1949.

Canals in Teton Basin used very little of their storage allotments. No water was rented from sources outside the Basin.

There has been an increase in the use of sprinklers in recent years in Teton Basin. Conversion of a large part of the String Canal System to sprinklers has been made.

Mr. Reed Brower of Tetonia served as special deputy on the Leigh and Spring Creeks on an hourly basis for time actually spent. Considerable time is required to keep the headgates on these creeks regulated, and it is impossible for one man to look after the other streams in Teton Basin and still give the necessary attention to the streams in the vicinity of Tetonia. One-half the cost of Mr. Brower's services, amounting to \$200.75 was charged as a special item to the local users, and a similar amount was charged as general District No. 01 expense.

#### SWAN VALLEY

Mr. Howard Hatfield served as deputy watermaster and also as watermaster on several canals. The local users were charged on-half of the cost, or \$240.65, and the other half of the cost of his services was charged as a general expense to District No. 01.

There was little demand for stored water by individuals not owning space in Palisades Reservoir. Swan Valley users rented 170 acre-feet from Water District No. 01 during 1976.

# CLIMATOLOGICAL DATA

(Precipitation in inches for year ending September 30, 1976)

Month	Alta		Moran		Jackson		Afton		Palisades	
	Act.	Nor.	Act.	Nor.	Act.	Nor.	Act.	Nor.	Act.	Nor.**
Oct.	3.96	1.47	3.51	1.40	2.70	1.06	1.36	1.44	3.24	1.41
Nov.	3.14	1.61	3.05	2.32	1.27*	1.27	2.05	1.65	2.41	1.74
Dec.	1.43	1.75	3.14	2.69	1.20	1.65	1.12	1.65	1.51	1.66
Jan.	1.51	1.67	4.06	2.81	1.53	1.55	0.98	1.51	2.23	1.93
Feb.	2.80	1.40	3.62	2.10	2.70*	1.08	2.51	1.48	1.77	1.63
Mar.	2.30	1.35	2.67	1.82	1.03	1.05	1.36	1.31	1.78	1.42
Apr.	3.25	1.67	2.51	1.72	1.32	1.09	1.76	1.63	2.36	1.78
May	0.76	2.35	0.92	2.00	1.33	1.41	1.18	2.05	1.42	1.83
June	2.47	2.76	1.55	1.85	2.58	1.84	2.05	2.41	2.33	2.28
July	1.00*	1.00	0.91	0.88	0.93	0.70	1.47	0.92	0.91	0.99
Aug.	2.76	1.41	1.38	1.30	2.28	1.16	1.79	1.18	1.89	1.22
Sept.	1.74	1.54	1.63	1.46	1.35	1.26	1.21	1.37	1.58	1.78
YEAR	*27.12	19.98	28.95	22.35	20.22*	15.12	*18.84	18.60	23.43	19.65

Month	Ashton		Idaho Falls FAA		Pocatello		Twin Falls 3SE		Average 9 Stations	
	Act.	Nor.	Act.	Nor.	Act.	Nor.	Act.	Nor.	Act.	Nor.
Oct.	2.66	1.29	1.67	0.57	2.54	0.75	2.65	0.69	2.70	1.12
Nov.	2.84	1.86	1.07	0.75	0.95	1.05	0.74	1.06	1.95*	1.48
Dec.	2.34	2.04	0.23	0.78	0.59	0.99	0.49	1.11	3.29	1.59
Jan.	2.78	1.85	1.07	0.66	0.45	1.05	1.44	0.97	1.78	1.56
Feb.	1.52	1.80	0.99	0.63	1.42	0.80	1.50	0.73	2.09*	1.29
Mar.	1.53	1.30	0.75	0.54	1.08	0.94	0.52	0.81	1.45	1.20
Apr.	2.37	1.22	1.69	0.69	2.82	1.06	0.92	0.85	2.11	1.30
May	1.33	1.87	1.38	1.15	0.51	1.29	0.41	1.14	1.03	1.68
June	1.69	2.21	0.82	1.28	0.98	1.28	0.81	1.04	1.70	1.88
July	0.56	0.64	0.17	0.36	0.77	0.36	0.26	0.19	0.78*	0.67
Aug.	1.70	1.04	0.76	0.62	0.74	0.62	1.38	0.38	1.63	0.99
Sept.	1.65	1.15	0.71	0.61	0.45	0.61	0.98	0.53	1.26	1.15
YEAR	22.97	18.27	11.31	8.64	13.30	10.80	12.10	9.50	19.80*	15.91

\*Partly estimated. Normal used for missing record.

\*\*18 year average (U.S. Bureau of Reclamation averages).

On an average for the nine stations, the precipitation for the year ending September 30, 1976 was 130 percent of normal. October and December were excessive, 230 and 223 percent of normal, respectively. All other months were moderately above normal, with May being the only deficient month at 68 percent of normal.

### WATER DISTRICT FUNDS

Water District No. 01 collects revenues for delivery of water to users in the District and disburses these funds for expenses incurred in the operation of the District's activities in accordance with Idaho Water Laws and Regulations. Billings to water users of Water District No. 01 rendered at the close of the 1976 water year totaled \$85,210.11 for delivery of 3,725,476 24-hour second-feet of water.

As operating funds are collected from waterusers following the close of each water year, there is always a deficit of operating funds the latter part of each water year. The Watermaster has been authorized by action of the water users in annual meeting to borrow up to \$35,000 as funds are needed to meet operating expenses for the District.

When cash on hand derived from water users' payments substantially exceeds current operating needs, the surplus is invested in short term time certificates as authorized by Idaho State Law.

The Watermaster of Water District No. 01 serves on the rental storage committee and the Water District office keeps the records of water rentals and collects and disburses payments pertinent thereto.

WATER DISTRICT NO. 01 OPERATING COSTS

Costs incurred October 1, 1975, to September 30, 1976

SALARIES

Watermaster, assistant, and clerk	\$34,962.50*	
Temporary summer employee	<u>185.50</u>	\$35,148.00
Hydrographers	13,367.53	
River Riders	4,426.50	
Gage Readers	<u>380.50</u>	18,174.53
TRANSPORTATION	<u>6,398.40</u>	6,398.40
SUBSISTENCE	<u>408.89</u>	408.89

MISCELLANEOUS

Postage and box rent	254.86	
Telephone and telemark	948.76	
Interest on borrowed money	527.40	
Watermaster's performance bond	20.00	
State insurance	658.13	
Social security	1,074.15	
Printing and binding Watermaster Rpt	401.95	
Copier cost and misc office expense	347.08	
Watermaster's mileage & professional mtgs	579.95	
Charge for meeting room for annual mtg	87.55	
Construction and maintenance	1,715.00	
Misc. canal gaging supplies	95.59	
Storage space rental	<u>120.00</u>	6,830.42

STREAMGAGING

Water District proportionate share of streamgaging operations	<u>15,266.67**</u>	15,266.67
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GROUNDWATER INVESTIGATIONS ADJACENT TO  
AMERICAN FALLS RESERVOIR

<u>2,000.00</u>	2,000.00
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<u>COMMITTEE OF NINE</u> (25 per day & expenses)	983.20	<u>983.20</u>
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WATER DISTRICT NO. 01 GENERAL AND SPECIAL EXPENSES  
INCURRED FOR YEAR ENDING SEPTEMBER 30, 1976

\$85210.11

\*Salaries for watermaster, assistant, and clerk are paid into Federal-State cooperative repay account to be used to pay that part of the U.S. Geological Survey employees salaries chargeable to the Water District function. Balance of salaries for these employees, as determined by Federal Civil Service and USGS regulations, are paid from non-water district funding sources. Federal fiscal year begins Oct. 1, beginning in 1976.

\*\*Proportionate share of streamgaging operations and maintenance paid into the Federal-State cooperative repay account with allowance for streamflow data collected by Water District hydrographers for use in the Federal-State cooperative program.

ACTUAL CASH RECEIPTS AND CASH DISBURSEMENTS

October 1, 1975, through September 30, 1976

Bank balance September 30, 1975

\$ -2,411.74

Cash Receipts Oct. 1, 1975, through Sept. 30, 1976

Payments to Delivery of water	
(Includes 1975 water deliveries,	
late payments, penalties & interest)	\$75,976.47
Payments to stored water use	4,141.00
American Falls groundwater investigations	2,000.00
Borrowed money	35,000.00
Sale of gage	7.50
Deposit of time certificate	6,000.00
Interest on time certificate	128.51
State insurance refund	271.00
Refund to adjust Social Security withholding	10.85
Overpayment on delivery accounts	.29

TOTAL DEPOSITS

123,535.62

Cash Disbursements Oct. 1, 1975 through Sept. 30, 1976

Repay loans (1975 operating funds)	30,000.00
Salaries-Watermaster & staff	34,500.00
Summer temporary employee	185.50
Hydrographers salaries (net)	6,735.07
Dpty watermasters & gage readers	8,022.63
Mileage-dpty watermasters & gage readers	3,986.40
Auto us on daily rate-dpty watermasters, etc.	2,412.00
Subsistence	408.89
Xerox copier	272.00
Interest on borrowed money	527.40
Conference space for annual meeting	87.55
Bond premium for watermaster	20.00
State insurance	929.13
Social security	1,855.62
IDWR coop acc't for streamgaging	14,520.00
Mtnc and construction of stations	1,000.00
Print and bind watermaster's report	401.95
Mileage, meals, lodging, meetings for	
travel of watermaster & staff	579.95
Telephone and telemark	948.76
Postage and box rent	254.86
Storage space rent	120.00
Misc. office supplies and expense	75.08
Misc. streamgaging supplies	95.59
Back hoe work on ditches - Leigh Creek	40.00
American Falls groundwater investigations	1,800.00
Committee of Nine	678.25
Time certificate	6,000.00
Rentals (1975 rental water)	4,068.50

TOTAL DISBURSEMENTS

120,525.13

BANK BALANCE SEPTEMBER 30, 1976

\$ 598.75