

BEAR RIVER COMPACT

Sept. 28, 1954

DIVERSION DATA & COMPACT ALLOCATIONS

1953 - 1954

At a meeting of the Bear River Compact Commission Engineering Committee held in Salt Lake City, May 15, 1953, it was recommended that records be collected on all Main Stem canals above Border, Wyoming, including Smiths Fork, for the balance of the 1953 irrigation season. At that time water supply forecasts indicated that Bear River Basin supplies would be well below normal and less than any year for which records of diversion were obtained. Consequently, these records were collected by the Logan Office of the Geological Survey. However, it was after June 1 before installation of staff gages was completed and the program fully inaugurated. There were in excess of 130 canals to be gaged under this program.

Cold weather extending into the irrigation season with a resulting late melting of higher snowcover, together with above-normal precipitation, changed the picture materially as the season progressed. As a result, a fair water supply was available for irrigation.

In 1954 the water supply prospect was much below the previous year. In the latter part of May, the Compact Commissioners again authorized the collection of diversion records as for 1953. Gage readers were employed and complete coverage of the system was underway shortly after June 1st.

1953 Irrigation Season

The table on page 4 gives in tabular form compact allocations in the Upper Division as set up in the present draft (July 8, 1954), of the Compact. The total Divertible Flow in this Division did not drop below 1250 second-feet until July 4th, at which time regulation would have begun. Since diversion

records were not obtained in May, it is impossible to compute the Divertible Flow for this month. However, from a study of the supplies it is likely that the Divertible Flow would have exceeded 1250 second-feet only during the last week of May, and consequently, regulation would have been in effect during most of May. There would have been no regulation during June.

It is noted that Lower Wyoming users (B. Q. Dam and Pixley Dam) cut diversions to zero on July 14. Since about 100 second-feet was passing Pixley at this time, it is assumed their allocation would not be used for the remainder of the month. Therefore, in accordance with Article IV of the Compact, this allocation was divided among the other Sections. These allocations were computed only for the month of July in this Division for 1953.

In the Central Division, the flow at Border was below 400 second-feet most of May, during which time regulation would have been in effect. Since diversion records were not complete in May, the amount of regulation is unknown. The flow at Border dropped below 400 second-feet again on July 6 for the remainder of the season. It is noted that the Divertible Flow dropped below 810 second-feet on July 22 (see Article IV 2a of Compact). Tables on pages 5, 6 and 7, show the respective diversions and Compact Allocations between Wyoming and Idaho for the remainder of the season. This data is shown graphically on page 8. It is evident that regulation would have been relatively minor in the Central Division in 1953.

1954 Irrigation Season

At this time diversion data is not as yet available in the Central Division and operation under a Compact cannot be ascertained. Regulation would have been in effect from May 25 throughout the season. (Flow at Border below 400 second-feet).

In the Upper Division, data has been tabulated for June, July and August on pages 9, 10 and 11 and shown graphically on page 12. During May, supplies

would indicate that regulation would have been in effect during the early part of the month and again in the latter part. Considerable regulation would have been necessary in the Upper Wyoming Section during June and July, amounting to an average reduction of 29% of the water diverted. Between June 25 and 30, a voluntary reduction by many Wyoming users together with some precipitation temporarily increased Utah's diversions up to and slightly in excess of their compact allocation. At this time many Wyoming diversions were shut down completely. However, in the aggregate as can be seen on the graph the total section diversions still slightly exceeded the compact allocation.

Lower Wyoming Canals would have supplies increased somewhat by regulation throughout most of the season. It is noted in this Section that a small amount of water was diverted throughout the season. It might be concluded that during dry years, rather than follow the usual practice of diverting no water after about July 10th, that this section would use it's Compact allocation for most of ^{the} season.

Compact Regulation in Woodruff-Randolph Area

In the meeting of Nov. 7, 1952 there was some discussion on the extent of regulation in the Woodruff-Randolph area due to the limitation which establishes a maximum rate of diversion of one second-foot for each 50 acres during the time that Bear River at Border is below 400 second-feet. With two more years of diversion records available it appears worthwhile to examine the 10 years of available records to determine the extent, if any, of this type of regulation. On page 13 is a listing of canals in this area showing the number of days on which their diversions exceeded one second-foot for each 50 acres of land during the period in which Bear River at Border was below 400 second-feet. In the 10 year period it is evident that supplies were, most generally, insufficient to necessitate regulation under this provision.

It is possible that under compact operation, additional supplies from regulation in Upper Wyoming might have changed the picture somewhat for a few canals at the head of the section. Here again, however, this will occur during periods of low supply.

UPPER DIVISION COMPACT ALLOCATION - 1953

July 1953	Upper Utah Diversions (2)	Upper Utah Compact (0.6%) (2)	Upper Wyoming Diversions (4)	Upper Wyoming Compact (49.3%) (5)	Lower Utah Diversions (6)	Lower Utah Compact (40.5%) (7)	Lower Wyoming Diversions (8)	Lower Wyoming Compact (9.6%) (9)	Bear R. below Pixley (10)	Total Divertible (2/4/6 /8/10) (11)	Bear R. at Woodruff Narrows (12)
(1)	(2)	(2)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	11		675		384		114		142	1,326	197
2	11		670		339		130		131	1,281	166
3	11		708		298		117		130	1,264	143
4	10	7	670	567	251	466	100	110	119	1,150	123
5	11	6	648	530	223	434	84	103	107	1,073	102
6	12	6	617	491	198	404	72	96	98	997	88
7	12	5	569	448	174	367	60	87	92	907	69
8	11	5	520	400	149	327	43	78	87	810	56
9	11	5	509	380	134	313	30	74	86	770	44
10	12	5	640	457	155	375	33	89	86	926	44
11	11	6	775	541	175	445	48	105	88	1,097	54
12	10	7	712	506	165	416	51	99	90	1,028	74
13	9	6	642	466	160	382	31	90	102	944	70
14	9	5	569	498	149	407	0	87	183	910	83
15	9	5	525	454	163	372	0	89	134	831	74
16	10	5	489	441	154	362	0	78	155	808	64
17	10	4	460	396	130	325	0	79	125	725	58
18	9	4	420	358	117	293	0	63	109	655	48
19	8	3	366	319	112	262	0	56	98	584	40
20	8	3	319	298	130	243	0	52	87	544	34
21	9	3	272	251	99	206	0	44	80	460	30
22	9	2	239	213	62	173	0	37	78	388	26
23	9	2	205	177	35	146	0	31	76	325	23
24	9	2	187	176	35	145	0	31	92	323	19
25	9	2	166	163	33	135	0	29	92	300	16
26	9	2	169	161	29	131	0	28	87	294	13
27	9	2	176	157	26	129	0	28	77	288	12
28	9	2	167	149	23	122	0	26	74	273	11
29	9	2	179	160	23	130	0	28	81	292	9.5
30	9	2	194	166	23	135	0	29	77	303	8.4
31	10	2	213	176	25	145	0	31	75	323	9.2
Total	305	110	13,670	9,499	4,173	7,790	913	931	3,138	22,199	1,808.1

1953 - CENTRAL DIVISION COMPACT ALLOCATIONS - 1953

July 1953	Wyoming Diversions	Wyoming Compact Alloc. 43%	Idaho Diversions	Idaho Compact Alloc. 57%	Bear R. below Stewart Dam	Total Divertible Flow (2/4/6)	Bear R. at Border	Rainbow Canal
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	519		908		14	1,441	668	364
2	560		795		15	1,370	519	269
3	543		697		16	1,256	475	146
4	535		664		19	1,218	442	126
5	520		636		19	1,175	419	113
6	509	488	608	647	18	1,135	393	100
7	501	406	425	539	19	945	368	83
8	494	414	452	548	16	962	353	134
9	494	431	496	572	13	1,003	340	165
10	466	417	490	552	13	969	340	195
11	477	441	535	584	13	1,025	368	250
12	470	458	584	608	12	1,066	348	286
13	466	452	573	599	12	1,051	335	257
14	465	440	546	582	11	1,022	335	231
15	459	436	545	579	11	1,015	374	228
16	440	448	590	593	11	1,041	350	259
17	442	435	559	577	11	1,012	338	242
18	443	433	553	574	11	1,007	307	226
19	432	409	509	543	11	952	296	213
20	401	377	465	500	11	877	291	222
21	357	359	467	477	12	836	278	213
22	330	344	458	456	12	800	272	188
23	332	333	432	442	11	775	255	173
24	342	324	402	430	10	754	235	156
25	346	314	374	416	10	730	235	148
26	348	319	384	422	9	741	223	148
27	348	315	376	418	9	733	223	140
28	360	321	377	425	9	746	225	140
29	360	323	383	429	9	752	229	158
30	339	317	389	420	9	737	229	173
31	332	323	409	428	10	751	229	186
Total	13,430	10,077	16,081	13,360	386	29,897	10,292	5,932

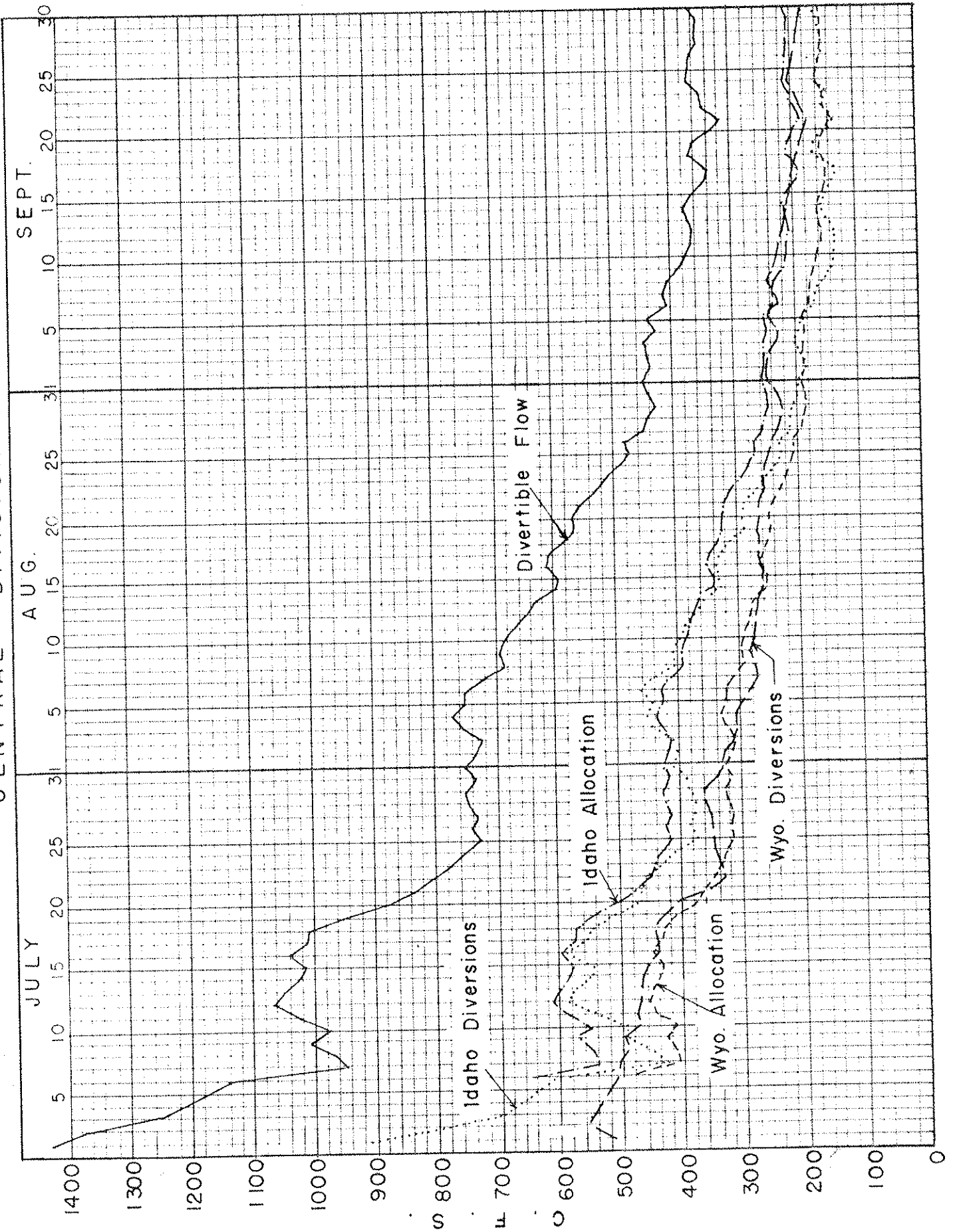
1953 - CENTRAL DIVISION COMPACT ALLOCATIONS - 1953

Aug. 1953	Wyoming Diversions	Wyoming Compact Alloc. 43%	Idaho Diversions	Idaho Compact Alloc. 57%	Bear R. below Stewart Dam	Total Divertible Flow (2/4/46)	Bear R. at Border	Rainbow Canal
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	325	316	400	419	10	735	217	199
2	308	312	408	414	10	726	245	208
3	303	324	442	430	9	754	268	240
4	305	331	454	438	10	769	253	242
5	295	322	444	427	10	749	272	224
6	280	322	461	428	9	750	247	245
7	271	312	445	414	10	726	231	235
8	277	296	401	392	10	688	229	195
9	282	299	403	396	10	695	217	204
10	277	295	397	390	11	685	215	202
11	274	288	384	381	11	669	217	199
12	269	280	371	372	12	652	215	184
13	266	272	354	361	13	633	206	188
14	259	257	327	341	12	598	204	182
15	253	256	331	340	12	596	198	193
16	262	263	337	348	12	611	192	195
17	269	259	322	343	11	602	187	177
18	262	251	312	333	10	584	171	162
19	271	244	287	324	10	568	163	136
20	268	246	293	325	10	571	153	146
21	263	240	286	319	10	559	151	140
22	256	229	268	304	9	533	150	122
23	258	221	248	294	9	515	147	100
24	249	212	235	281	9	493	148	87
25	244	206	226	273	9	479	147	72
26	240	207	233	274	8	481	144	76
27	233	194	211	258	8	452	136	56
28	225	190	209	252	8	442	130	55
29	222	186	202	246	8	432	127	51
30	233	189	199	251	8	440	123	50
31	246	194	196	256	8	450	115	48
Total	8,245	8,013	10,086	10,624	306	18,637	5,818	4,813

1953 - CENTRAL DIVISION COMPACT ALLOCATIONS - 1953

Sept. 1953	Wyoming Diversions	Wyoming Compact Alloc. 43%	Idaho Diversions	Idaho Compact Alloc. 57%	Bear R. below Stewart Dam	Total Divertible Flow (2/4/6)	Bear R. at Border	Rainbow Canal
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	249	189	181	250	9	439	110	41
2	244	190	188	251	9	441	108	53
3	232	190	202	253	9	443	107	46
4	228	185	193	245	9	430	102	38
5	241	190	191	251	9	441	100	39
6	237	176	164	224	9	410	99	41
7	236	177	167	235	9	412	99	43
8	241	174	156	230	7	404	102	32
9	234	164	139	218	9	382	112	21
10	228	161	138	214	9	375	108	21
11	222	158	137	210	9	368	106	21
12	219	157	136	207	9	364	106	22
13	215	160	148	212	9	372	100	26
14	210	161	156	214	9	375	100	27
15	206	156	148	207	9	363	100	19
16	200	148	135	196	9	344	98	18
17	198	146	132	193	9	339	99	26
18	193	158	164	209	10	367	104	22
19	188	155	163	205	9	360	108	21
20	180	142	141	199	10	331	112	18
21	175	137	134	182	10	319	113	26
22	183	147	149	195	10	342	115	38
23	195	151	146	200	10	351	115	34
24	201	160	161	212	10	372	113	34
25	200	159	159	210	10	369	108	31
26	196	156	155	206	11	362	110	29
27	191	152	152	202	11	354	110	27
28	190	153	155	203	11	356	108	29
29	187	153	156	202	12	355	106	31
30	182	157	172	209	12	366	107	53
Total	6,301	4,862	4,718	6,444	287	11,306	3,185	927

CENTRAL DIVISION - 1953



UPPER DIVISION COMPACT ALLOCATION

June 1954 (1)	Upper Utah Diversions (2)	Upper Utah Compact (0.6%) (3)	Upper Wyoming Diversions (4)	Upper Wyoming Compact (4.9.3%) (5)	Lower Utah Diversions (6)	Lower Utah Compact (40.5%) (7)	Lower Wyoming Diversions (8)	Lower Wyoming Compact (9.6%) (9)	Bear R. below Pixley (10)	Total Divertible (2/4/6 + 8/10) (11)	Bear R. at Woodruff Narrows (12)
1	12	6	587	511	307	422	126	100	7	1,039	166
2	12	6	594	497	266	405	125	96	7	1,004	181
3	12	6	576	477	266	392	107	93	7	968	158
4	11	6	570	453	232	372	99	88	7	919	111
5	11	5	583	435	186	356	93	84	7	880	85
6	10	5	596	421	159	346	83	82	6	854	74
7	10	5	587	413	153	340	82	80	6	838	69
8	9	5	571	399	144	328	80	78	6	810	62
9	9	5	544	380	136	312	76	74	6	771	60
10	8	5	531	377	145	310	75	73	6	765	62
11	8	4	481	349	138	287	75	68	6	708	54
12	9	4	460	333	134	274	67	65	6	676	47
13	10	4	464	330	128	271	61	64	6	669	42
14	10	4	510	349	121	287	61	68	6	708	39
15	9	5	649	424	133	348	62	82	6	859	38
16	10	6	719	464	141	382	67	91	6	943	38
17	9	6	817	517	144	423	69	100	7	1,046	52
18	10	6	824	514	132	421	68	100	7	1,041	100
19	10	6	722	465	137	383	69	91	7	945	77
20	10	5	667	429	123	353	65	84	6	871	59
21	10	5	612	392	108	322	58	76	7	795	44
22	11	4	544	355	95	292	63	69	7	720	37
23	12	4	526	337	88	277	52	66	6	684	31
24	12	4	501	313	81	258	37	61	5	636	25
25	11	4	500	312	79	256	37	61	6	633	32
26	5	4	479	306	95	252	37	60	6	622	116
27	2	4	407	335	225	275	39	65	6	679	187
28	2	5	410	387	326	317	38	75	8	784	304
29	2	5	394	384	343	315	33	75	7	779	256
30	2	4	417	362	278	297	30	70	6	733	181
Total	268	147	16,842	12,020	5,043	9,873	2,034	2,339	192	24,379	2,787

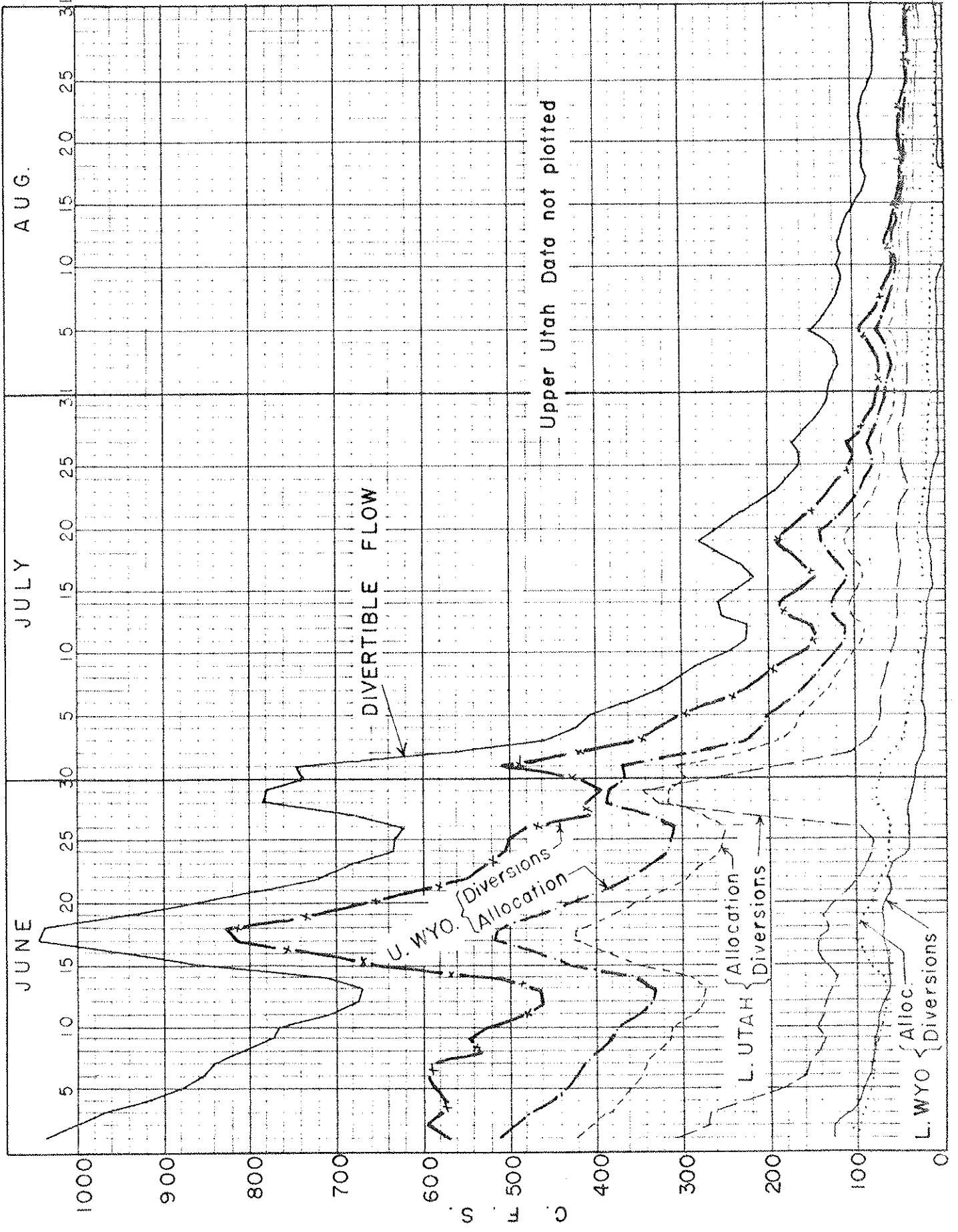
UPPER DIVISION COMPACT ALLOCATION

July 1954	Upper Utah Diversions (2)	Upper Utah Compact (0.6%) (3)	Upper Wyoming Diversions (4)	Upper Wyoming Compact (49.3%) (5)	Lower Utah Diversions (6)	Lower Utah Compact (40.5%) (7)	Lower Wyoming Diversions (8)	Lower Wyoming Compact (9.6%) (9)	Bear R. below Pixley (10)	Total Divertible (244/6 /8/10) (11)	Bear R. at Woodruff Narrows (12)
1	2	4	510	367	196	301	29	71	6	743	98
2	2	3	433	281	107	231	22	55	6	570	40
3	2	3	348	227	84	186	20	44	6	460	26
4	2	3	318	207	74	170	20	40	6	420	20
5	2	2	306	201	72	164	20	39	6	406	16
6	2	2	264	180	71	148	22	35	6	365	14
7	2	2	229	161	68	132	21	31	6	326	11
8	2	2	204	147	65	121	22	29	6	299	8.8
9	0	2	190	137	62	113	21	27	6	279	7.0
10	0	1	161	121	59	100	20	24	6	246	5.5
11	0	1	143	110	57	91	18	22	6	224	4.5
12	0	1	148	111	52	90	17	21	6	223	4.8
13	0	2	178	124	51	102	17	24	6	252	4.5
14	0	2	183	125	51	104	16	25	6	256	3.5
15	0	1	168	116	49	95	11	23	7	235	3.8
16	0	1	146	107	47	87	11	21	12	216	3.0
17	2	1	158	113	44	93	11	22	14	229	2.8
18	8	2	172	125	46	102	13	24	14	253	3.0
19	8	2	190	136	51	112	14	26	13	276	4.2
20	7	2	177	128	51	106	14	25	12	261	5.5
21	7	1	157	117	48	96	14	23	11	237	6.4
22	6	1	139	106	44	86	13	20	11	213	3.0
23	5	1	125	93	35	76	12	18	11	188	2.8
24	5	1	112	87	39	72	11	17	10	177	2.4
25	5	1	101	79	42	66	8	16	6	162	2.2
26	5	1	100	79	43	66	5	16	9	162	7.8
27	6	1	109	85	43	69	5	16	8	171	1.7
28	5	1	94	77	44	63	6	15	7	156	1.2
29	4	1	84	69	40	57	6	14	7	141	1.5
30	4	1	77	64	38	53	5	13	7	131	1.3
31	4	1	74	64	39	52	5	12	7	129	1.3
Total	97	50	5,798	4,144	1,812	3,404	449	808	250	8,406	317.5

UPPER DIVISION COMPACT ALLOCATION

August 1954 (1)	Upper Utah Divisions (2)	Upper Utah Compact (0.6%) (3)	Upper Wyoming Divisions (4)	Upper Wyoming Compact (49.3%) (5)	Lower Utah Divisions (6)	Lower Utah Compact (40.5%) (7)	Lower Wyoming Divisions (8)	Lower Wyoming Compact (9.6%) (9)	Bear R. below Pixley (10)	Total Divertible (2/4/6/8/10) (11)	Bear R. at Woodruff Narrows (12)
1	4	1	72	60	36	50	4	12	7	123	1.3
2	3	1	68	57	34	47	4	11	7	116	1.2
3	3	1	72	59	34	48	3	11	7	119	1.2
4	4	1	81	64	35	53	3	12	7	130	1.3
5	5	1	94	74	39	60	4	14	7	149	1.7
6	5	1	81	67	38	55	4	13	8	136	1.3
7	3	1	70	61	36	50	5	11	9	123	1.1
8	3	1	63	57	36	47	5	11	9	116	1.0
9	2	1	56	54	35	45	5	11	13	111	1.0
10	2	1	56	58	33	47	1	11	25	117	.8
11	1	1	56	54	34	45	0	11	20	111	.8
12	0	1	62	56	34	46	0	11	18	114	.7
13	0	1	58	54	34	44	0	10	17	109	.7
14	0	1	54	50	33	42	0	10	16	103	.7
15	0	1	52	47	30	39	0	9	14	96	.4
16	0	1	46	44	30	36	0	9	14	90	.3
17	0	1	42	41	30	34	0	8	12	84	.2
18	0	1	42	43	30	36	5	9	12	89	.2
19	0	1	39	43	29	36	8	8	12	88	.1
20	0	1	45	43	29	36	6	9	9	89	0
21	0	1	46	43	29	36	6	9	8	89	0
22	0	1	44	44	31	36	7	9	8	90	0
23	0	1	42	43	31	36	7	8	8	88	0
24	0	0	40	41	29	34	7	8	7	83	0
25	0	0	38	39	28	32	5	8	8	79	0
26	0	0	35	38	27	30	6	7	7	75	0
27	0	0	33	36	27	30	6	7	7	73	0
28	0	0	34	37	26	30	7	7	7	74	0
29	0	0	34	37	26	30	7	7	7	74	0
30	0	0	34	38	26	30	8	7	7	75	0
31	0	0	34	38	25	30	9	7	7	75	0
Total	35	23	4,523	1,520	974	1,250	132	295	324	3,088	16.0

UPPER DIVISION - 1954



WOODRUFF-RANDOLPH CANALS

Total days diversions exceed 1 cfs per 50 acres during period
Bear River at Border is below 400 cfs

<u>Canal</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>	<u>1947</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>
Francis Lee	14	10	3	0	4	0	0	0	34	28
Bear River	0	5	1	0	0	0	0	11	34	11
Neville	0	0	0	0	0	0	0	0	0	0
Rees Land & Livestock	0	0	0	0	0	0	0	0	16	13
Booth	0	0	0	0	0	0	0	0	31	2
Randolph-Woodruff	0	0	0	0	0	0	0	0	6	2
Crawford-Thompson	0	0	0	0	0	0	0	0	6	0
Dykens	0	0	0	0	0	0	0	0	1	0
Randolph-Sage	0	0	0	0	0	0	0	0	2	0
McMinn	0	0	0	0	0	0	0	0	0	0
Enberg	0	0	0	0	0	0	0	0	0	0
B. Q. West Side	0	2	0	0	0	0	0	0	5	3