

YELLOWSTONE RIVER

COMPACT COMMISSION

FIFTIETH ANNUAL REPORT

2001

**YELLOWSTONE RIVER COMPACT COMMISSION
DENVER FEDERAL CENTER, BUILDING 53, ROOM F-1200
LAKEWOOD, COLORADO 80225**

Honorable Jim Geringer
Governor of the State of Wyoming
Cheyenne, Wyoming 82002

Honorable Judy Martz
Governor of the State of Montana
Helena, Montana 59620

Honorable John Hoeven
Governor of the State of North Dakota
Bismarck, North Dakota 58501

Dear Governors:

Pursuant to Article III of the Yellowstone River Compact, the Commission submits the following fiftieth annual report of activities for the period ending September 30, 2001.

Members of the Yellowstone River Compact Commission convened their fiftieth annual meeting on December 4, 2001, at 10:00 a.m. in Billings, Montana. In attendance were Mr. James Kircher, U.S. Geological Survey, Chairman and Federal Representative; Mr. Jack Stults, Administrator, Water Resources Division, Montana Department of Natural Resources and Conservation and Commissioner for Montana; and Mr. Patrick Tyrrell, Wyoming State Engineer and Commissioner for Wyoming. Also in attendance were Mr. Keith Kerbel, Mr. Richard Moy, and Mr. Jim Robinson, Montana Department of Natural Resources and Conservation; Mr. Art Compton, Montana Department of Environmental Quality; Mr. Richard Stockdale, Deputy Wyoming State Engineer; Mr. Craig Cooper and Mr. Mike Whitaker, Wyoming Board of Control; Mr. Gary Beach, Wyoming Department of Environmental Quality; Mr. Tim Felchle, Bureau of Reclamation; Mr. Art Hayes, Jr., Tongue River Water Users Association, Birney, Montana; Mr. Les Hirsch, Mr. Ray Muggli, and Mr. Roger Muggli, Tongue River Water Users Association, Miles City, Montana; Mr. Wade Irion and Ms. Jennifer Reusser, HKM Engineering, Billings, Montana; and Mr. Robert Davis, U.S. Geological Survey.

Mr. Kircher called the meeting to order and welcomed Mr. Tyrrell as the new Commissioner for Wyoming. All attendees introduced themselves.

Mr. Davis presented budget information for the program of streamflow data collection and preparation of the annual report. The program cost was \$61,600 for Federal fiscal year 2001 and will be \$64,700 for fis-

cal year 2002. Estimates of costs for future years were presented, based on a 5-percent inflation factor per year. One-fourth of the cost is provided by the State of Wyoming, one-fourth by the State of Montana, and one-half by the U.S. Geological Survey through the Cooperative Water Program. The program for fiscal year 2002 was approved.

Mr. Davis reported that streamflow during water year 2001 was 62 percent of average for the Clarks Fork Yellowstone River, 51 percent of average for the Bighorn River (adjusted), 34 percent of average for the Tongue River, and 31 percent of average for the Powder River.

Total adjusted streamflow in the four rivers in water year 2001 was 2,053,000 acre-feet. For comparison, total adjusted streamflow in the four rivers was 2,861,000 acre-feet in water year 2000 and 5,517,000 acre-feet in water year 1999. Mr. Davis also noted that the total adjusted streamflow in the four rivers for water year 2000 was mistakenly reported as 3,200,100 acre-feet in the minutes of the water year 2000 report, although streamflow for each of the four rivers was reported accurately.

Bighorn Lake, Boysen Reservoir, Anchor Reservoir, Bull Lake, Pilot Butte Reservoir, Buffalo Bill Reservoir, and Tongue River Reservoir all had less water in storage at the end of water year 2001 than at the end of water year 2000. The total usable contents of the reservoirs at the end of water year 2001 was 1,320,000 acre-feet, which is a decrease of 556,100 acre-feet from the end of water year 2000.

Mr. Cooper reported that adjudication of all water rights for the Wind River Indian Reservation is anticipated to be settled by mid-2003. Mr. Tyrrell stated that additional water-storage capabilities are needed in the Wind River basin and five or six promising sites in the upper basin have been identified. Mr. Tyrrell offered to provide plans and details to Mr. Stults as they become available. Mr. Tyrrell also described the process for obtaining funding from the State of Wyoming for storage projects. Mr. Moy raised the importance of determining any potential impact these new projects may have on the existing Bureau of Reclamation water rights at Boysen and Yellowtail Reservoirs.

Mr. Stults reported that water-conservation programs in Montana have not changed during the past year. The Montana Department of Natural Resources and Conservation has been working with local groups to preserve streamflows, particularly in the Yellowstone River. Mr. Moy added that the agency has been successful in developing drought mitigation plans at the local level for various watersheds but expressed concerns about the potential for future successes if water availability remains extremely limited. Mr. Tyrrell reported that the Wyoming Conservation Officer now reports to the Wyoming Water Development Commission. Mr. Tyrrell also stated that the operating plan for Buffalo Bill Reservoir specifies minimum winter outflows of 100 or 300 cubic feet per second (ft^3/s), depending on antecedent conditions. The outflow this winter, and probably next winter, will be $100 \text{ ft}^3/\text{s}$. Mr. Stockdale reported that the Wyoming State Engineer's Office was not successful in helping to legally define the term "salvage water." Mr. Stults reported that Montana supports the concept of salvage water but has experienced difficulties in implementing the statutes. Mr. Tyrrell reported that Jan Curtis is the new Wyoming Climatologist and is administratively part of the Wyoming Water Resources Data System.

Mr. Stults recommended that discussions and close communications among technical people be maintained to deal with water availability during 2002, particularly in the Tongue River basin. Mr. Tyrrell concurred and requested that Mr. Kerbel and Ms. Sue Lowry, and possibly others, continue discussions and provide findings and recommendations to the Commission by the end of January 2002. Mr. Stults agreed and expressed his support for a technical group to address issues of water operations and management, focusing initially on the Tongue River basin. Mr. Tyrrell agreed, with the condition that associated costs were manageable, and stated that the work supported by the Wyoming Water Planning Program might be beneficial to the technical group.

Mr. Moy asked if new irrigation or changes in irrigation methods have occurred in the Tongue River basin in Wyoming since 1950. Mr. Whitaker stated that no major changes in methods or new uses have occurred. Mr. Roger Muggli expressed concern about apparent decreases in flow in the lower Tongue River and the effects on maintaining fishery resources and irrigation capability. Mr. Moy stated that an evaluation of pre-1950 water rights in both Montana and Wyoming might prove useful. Mr. Tyrrell recommended an evaluation of streamflow changes and trends for the Tongue River at the State boundary and below Tongue River Reservoir. Mr. Kerbel expressed support for forecasting runoff to aid water management and operations in the basin.

Mr. Compton reported on coal-bed methane development in Montana. At present, 250 production wells and 200 exploration wells will be allowed until the Montana EIS is issued, which probably will be in spring 2002. By agreement between Wyoming and Montana, water quality in the Powder, Little Powder, and Tongue Rivers at the State line will not be allowed to be significantly degraded by coal-bed-methane water discharges for a period of 18 months so that ambient water-quality conditions can be determined. Salinity (typically as measured by specific conductance) and sodium-adsorption ratio (SAR) for these rivers are being determined by month. Numeric standards will be developed by Montana through the process of determining total maximum daily loads (TMDLs) and in the EIS.

Mr. Beach reported on coal-bed methane development in Wyoming. He stated that Wyoming's strategy is to encourage producers to store discharge water as much as possible, thereby minimizing flow to the mainstems. A summary of a report prepared by consultants for the Wyoming Department of Environmental Quality estimates little or no effect on water quality in the Powder River from coal-bed methane discharge at projected development levels for most hydrologic conditions. Mr. Beach noted that additional assessment might be needed, particularly with regard to the fate of infiltrated discharge water, and as numeric standards are developed by Montana. Mr. Moy asked if the number of impoundments being developed to store discharge water in Wyoming was increasing significantly. Mr. Tyrrell estimated an increase in number of about 30 percent (in Wildcat Creek only), described procedures and conditions for permitting such impoundments, and stated that if storage in a basin significantly affects downstream flows, then additional evaluation is warranted. Mr. Roger Muggli inquired about the effects of salt accumulation on water quality during high streamflows when the salts could be flushed from stream channels. Mr. Beach replied that much of the storage is offstream and infiltration to ground water is encouraged to help minimize salt accumulations. Mr. Art Hayes asked about the number of discharge permits in the Powder and Tongue River basins in Wyoming. Mr. Beach replied that about 100 permits have been

issued in the Powder River basin since the signing of the Montana/Wyoming agreement, many with off-stream impoundment, and that no discharge is being permitted in the Tongue River drainage, including Prairie Dog Creek, unless the quality of the discharge is equal to or better than existing instream water quality. Mr. Roger Muggli asked about injection of produced water in areas previously developed and depressurized. Mr. Stockdale stated that injection has been considered and likely will be considered more thoroughly in the future.

Mr. Kircher reported that the USGS Yellowstone River Basin National Water-Quality Assessment (NAWQA) project has completed the high-intensity phase of water-quality sampling. A lower-intensity phase of sampling at three sites—Yellowstone River at Forsyth, Yellowstone River near Sidney, and Little Powder River above Dry Creek near Weston—will continue at least for the near future. Much of the current activity is focused on preparing reports of findings to date. Mr. Stockdale inquired about coordination of planning efforts. Mr. Kircher replied that coordination occurs mainly through a liaison committee for the project and will ensure that Mr. Stockdale is informed of future liaison committee meetings.

Mr. Kerbel reported on the status of the Montana Statewide Adjudication. The Montana Water Court is working on making recently issued water-court decrees for water rights enforceable on the West Gallatin River near Bozeman. They are also considering doing the same on the Musselshell River where there are chronic water shortages. The next probable preliminary decree will be for Basin 42KJ, the area along the Yellowstone River between the Bighorn River and Tongue River. Examination of claims in the Bighorn River basin is 80 percent complete. Examination in the Little Bighorn River basin is just beginning. Future examinations will most likely be in the Tongue River basin. Adjudications for the Powder River and Little Powder River basins have been completed. Mr. Kerbel described the use of water commissioners during the summer of 2001 in the Musselshell River and Tongue River basins to deliver State water contracts from State water projects located in both of these basins. Mr. Hayes reported that Tongue River Water Users bought 7,000 acre-feet of water from the Northern Cheyenne Tribe in 2001. The water had been stored in Tongue River Reservoir and was a part of the tribal compacted right.

Mr. Stults reported that the compact with the Crow Tribe has not yet been adopted by Congress and the Tribe but streamflow in the Bighorn River and the level of Bighorn Lake are being maintained in accordance with the provisions in the Streamflow and Lake Level Management Plan. The compact incorporates the Plan by reference. Operations are a joint effort of the State of Montana, the Crow Tribe, and the Bureau of Reclamation.

Mr. Tyrrell introduced Mr. Irion, who provided an overview of the many types of information being developed through the Wyoming Water Planning Program. The information is stored digitally and is geographically based. Information for the Bear and Green River basins is essentially complete. Information for the Powder, Tongue, Bighorn, and Little Bighorn River basins is being obtained and compiled, along with information for the Little Missouri, Niobrara, Cheyenne, and Belle Fourche River basins. Information for the North Platte River basin is expected to be obtained and compiled in the future. The amount of water available is compared to water requirements in order to determine and help manage water shortages

and to plan for development of available water. Additional information is available through the internet at address <http://waterplan.state.wy.us/sdi/> .

Mr. Robinson reported on activities in Montana in forming basin task forces to address cumulative effects of bank-stabilization efforts and other issues. Two main groups have been established. The Upper Yellowstone River Task Force was established by former-Governor Racicot to determine cumulative effects of bank-stabilization and channel-modification efforts. Data collection is nearing completion and reporting of results is anticipated to begin in late 2002. The Yellowstone River Conservation District Council was formed by 11 Conservation Districts to address bank-stabilization effects and other issues including water availability, habitat, and flooding. Some data collection has begun but overall plans are still being formulated.

Mr. Kerbel and Mr. Whitaker reported on the status of the Sunlight Ranch Petitions. A series of petitions were submitted to the Wyoming Board of Control requesting that water diverted in Wyoming be used to irrigate lands in Wyoming and Montana. The total number of acres irrigated is not changed but the area of application of the water now includes about 160 acres in Montana. Wyoming and Montana will coordinate processing efforts. Wyoming will send pertinent information to Montana and Montana will proceed with their evaluation. Montana stated that when new water rights or changes are processed in Wyoming, where the new use is in Montana, the applicant must abide by Montana Water Law.

The Commissioners agreed to try to schedule a field trip in the Tongue and Powder River areas in late June. Mr. Kerbel and Mr. Whitaker will coordinate scheduling and planning.

The Commissioners also agreed to tentatively schedule the next annual meeting for December 3, 2002 in Cody, Wyoming.

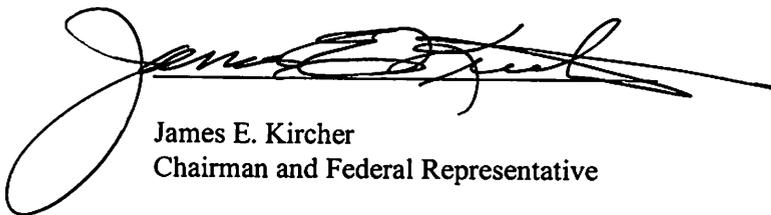
The meeting adjourned at 2:30 p.m.



Patrick T. Tyrrell
Commissioner for Wyoming



Jack Stults
Commissioner for Montana



James E. Kircher
Chairman and Federal Representative

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GENERAL REPORT

Cost of operation and budget

The work funded by the Yellowstone River Compact Commission, which to date has been primarily concerned with the collection of required hydrologic data, has been financed through cooperative arrangements whereby Montana and Wyoming each bear one-fourth of the cost and the remaining one-half is borne by the United States. The salaries and necessary expenses of the State and U.S. Geological Survey representatives, and the cost to other agencies of collecting hydrologic data, are not considered as expenses of the Commission.

The expense of the Commission during fiscal year 2001 was \$61,600, in accordance with the budget adopted for the year.

The estimated budgets for Federal fiscal years 2002, 2003, 2004, and 2005, based on an approximate 5-percent increase per year, were tentatively adopted subject to the availability of appropriations. The budgets for the four fiscal years are summarized as follows:

<u>October 1, 2001, to September 30, 2002 (fiscal year 2002):</u>	
Estimate for continuation of existing streamflow-gaging programs	\$64,700
<u>October 1, 2002, to September 30, 2003 (fiscal year 2003):</u>	
Estimate for continuation of existing streamflow-gaging programs	\$67,900
<u>October 1, 2003, to September 30, 2004 (fiscal year 2004):</u>	
Estimate for continuation of existing streamflow-gaging programs	\$71,300
<u>October 1, 2004, to September 30, 2005 (fiscal year 2005):</u>	
Estimate for continuation of existing streamflow-gaging programs	\$74,900

Streamflow-gaging station operation

Streamflow-gaging stations at the measuring sites specified in the Yellowstone River Compact were continued in operation and satisfactory records were collected at each station. Locations of streamflow-gaging stations, along with reservoir stations, are shown on a map of the Yellowstone River Basin at the end of the report.

During water year 2001, annual streamflow was below normal¹ at all reporting Yellowstone River Compact gaging stations.

<u>Station number</u>	<u>Measurement site</u>	<u>Percent of average²</u>
06208500	Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to White Horse Canal	62
06294500	Bighorn River above Tullock Creek, near Bighorn, Mont., minus Little Bighorn River near Hardin, Mont. Adjusted for change in contents in Bighorn Lake	51
06308500	Tongue River at Miles City, Mont.	34
06326500	Powder River near Locate, Mont.	31

¹The "normal" range is 80 to 120 percent of average.

²Average is based on period of record at station.

Tabulation of streamflow data for water year 2001 and graphical comparisons with average flows for the preceding year and for selected base periods are given in the section "Summary of discharge for Compact streamflow-gaging stations."

Diversions

No diversions were regulated by the Commission during the year. The Commissioners considered the need to develop procedures to administer water in accordance with the provisions of the Compact.

Storage in reservoirs

Reservoirs completed after January 1, 1950

Bighorn Lake, a Bureau of Reclamation project on the Bighorn River, and the largest storage project in the basin, contained 867,300 acre-feet at the beginning of the year and 744,400 acre-feet at the end of the year. Daily contents ranged from 739,300 acre-feet on September 6, 2001 to 900,000 acre-feet on November 8-10, 2000. Boysen Reservoir, located on the Wind River and operated by the Bureau of Reclamation, began the year with 502,100 acre-feet in storage and ended the year with 264,300 acre-feet. Anchor Reservoir began the year with 286 acre-feet in storage and ended the year with 266 acre-feet. Month-end and year-end contents and a description of these reservoirs are given in the section "Monthly summary of contents for Compact reservoirs completed after January 1, 1950." The Commission is cognizant of other reservoirs in the Yellowstone River basin and considers their aggregate effect to be insufficient to warrant the collection of storage data at this time.

Reservoirs existing on January 1, 1950

As a matter of record and general information, month-end contents are given later in the report for reservoirs in existence upstream from the points of measurement on January 1, 1950. The reservoirs are Bull Lake, Pilot Butte Reservoir, Buffalo Bill Reservoir, and Tongue River Reservoir. These data are pertinent to allocation under Article V, Section C, Item 3 of the Compact.

The capacity of Buffalo Bill Reservoir was increased in 1992 from 456,600 acre-feet to 644,540 acre-feet (listed as 646,565 acre-feet by Bureau of Reclamation). The capacity of Tongue River Reservoir was increased in 1999 from 68,000 acre-feet to 79,100 acre-feet.

SUMMARY OF DISCHARGE FOR COMPACT STREAMFLOW-GAGING STATIONS

06208500 Clarks Fork Yellowstone River At Edgar, Mont.

LOCATION.--Lat 45°27'58", long 108°50'35", in SE¹/₄SE¹/₄SE¹/₄ sec.23, T.4 S., R.23 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft downstream from county bridge, 0.5 mi east of Edgar, 6 mi upstream from Rock Creek, and at river mile 22.1.

DRAINAGE AREA.--2,032 mi².

PERIOD OF RECORD.--July 1921 to September 1969, October 1986 to current year.

REVISED RECORDS.--WSP 1509: 1924, 1932(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,460 ft above sea level, from topographic map. Prior to Aug. 31, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those for the estimated daily discharges, which are poor. Diversions for irrigation of about 41,500 acres, of which about 840 acres lies downstream from the station. In addition, about 6,300 acres of land upstream from the station are irrigated by diversions from the adjoining Rock Creek basin. U.S. Geological Survey satellite telemeter at station. Figures of discharge given herein have the flow of White Horse Canal subtracted.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	448	559	486	e300	e290	e280	332	897	2460	1430	135	89
2	582	528	482	e320	e290	e280	312	931	2560	1210	134	91
3	904	514	467	e340	e290	e280	323	663	2740	1020	139	92
4	684	494	442	e320	e280	275	328	528	2500	916	137	87
5	640	475	407	e300	e270	293	315	412	1940	861	129	92
6	615	499	416	e280	e250	328	315	400	1460	740	126	114
7	595	498	402	e260	e220	341	307	483	1210	646	121	142
8	570	467	418	e260	e240	340	310	382	1020	615	116	182
9	551	437	414	e300	e260	340	342	432	1080	572	102	198
10	535	e420	313	e300	e260	338	322	736	1380	558	106	188
11	540	e420	e300	e290	e240	327	298	825	1680	1060	109	188
12	628	e440	e280	e290	e220	323	293	935	1810	1100	113	187
13	616	e440	e280	e290	e210	323	282	1430	2810	985	104	215
14	579	464	e300	e280	e220	322	279	2460	5590	817	101	239
15	572	502	e350	e270	e230	319	278	3410	2780	844	93	278
16	566	497	e400	e250	e240	311	280	4230	2270	980	79	293
17	569	507	e400	e280	e250	302	270	3640	2100	928	85	296
18	554	519	e400	e300	e270	298	277	2700	2280	865	86	284
19	552	531	e460	e300	e280	299	298	2230	2430	740	84	271
20	547	524	e300	e300	e280	304	441	2210	2190	617	85	279
21	551	506	e280	e300	e280	309	487	2090	2040	521	84	283
22	544	504	e300	e300	e280	312	407	1550	1930	384	86	297
23	541	528	e320	e300	e280	318	361	1380	2050	313	84	292
24	535	517	e340	e300	e280	328	339	1840	2220	264	86	293
25	562	493	e340	e290	e270	336	309	2570	2360	238	86	286
26	578	463	e360	e280	e260	356	268	3050	2350	207	80	276
27	582	484	e340	e260	e250	378	418	3720	2090	213	80	260
28	574	514	e340	e260	e260	366	646	3560	1850	195	84	257
29	565	514	e320	e270	---	344	909	3320	1720	177	86	257
30	560	431	e320	e280	---	339	1060	3390	1600	159	87	239
31	559	---	e320	e280	---	337	---	2820	---	144	84	---
TOTAL	17998	14689	11297	8950	7250	9946	11406	59224	64500	20319	3111	6545
MEAN	581	490	364	289	259	321	380	1910	2150	655	100	218
MAX	904	559	486	340	290	378	1060	4230	5590	1430	139	297
MIN	448	420	280	250	210	275	268	382	1020	144	79	87
AC-FT	35700	29140	22410	17750	14380	19730	22620	117500	127900	40300	6170	12980

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2001, BY WATER YEAR (WY)*

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	537	502	409	351	350	366	560	2114	4071	2041	622	480
MAX	1010	777	593	512	584	554	1398	5578	7256	4771	1541	1395
(WY)	1942	1928	1996	1997	1963	1943	1943	1928	1996	1943	1951	1941
MIN	298	310	217	200	180	220	123	757	1768	290	49.5	156
(WY)	1956	1936	1937	1922	1922	1924	1961	1968	1987	1988	1988	1988

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR	FOR 2001 WATER YEAR	WATER YEARS 1921 - 2001*
ANNUAL TOTAL	323461	235235	
ANNUAL MEAN	884	644	1035
HIGHEST ANNUAL MEAN			1623
LOWEST ANNUAL MEAN			644
HIGHEST DAILY MEAN	5860	May 29	10600
LOWEST DAILY MEAN	147	Aug 26	37
ANNUAL SEVEN-DAY MINIMUM	154	Aug 22	43
MAXIMUM PEAK FLOW		6670	Jun 14
MAXIMUM PEAK STAGE		7.41	Jun 14
INSTANTANEOUS LOW FLOW			9.30
ANNUAL RUNOFF (AC-FT)	641600	466600	36
10 PERCENT EXCEEDS	2440	1840	749800
50 PERCENT EXCEEDS	460	338	2850
90 PERCENT EXCEEDS	221	138	470
			275

*During period of operation (water years 1921-69, 1987 to current year).
e--Estimated.

06208500 CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MONT.
 (Minus diversions to White Horse Canal)

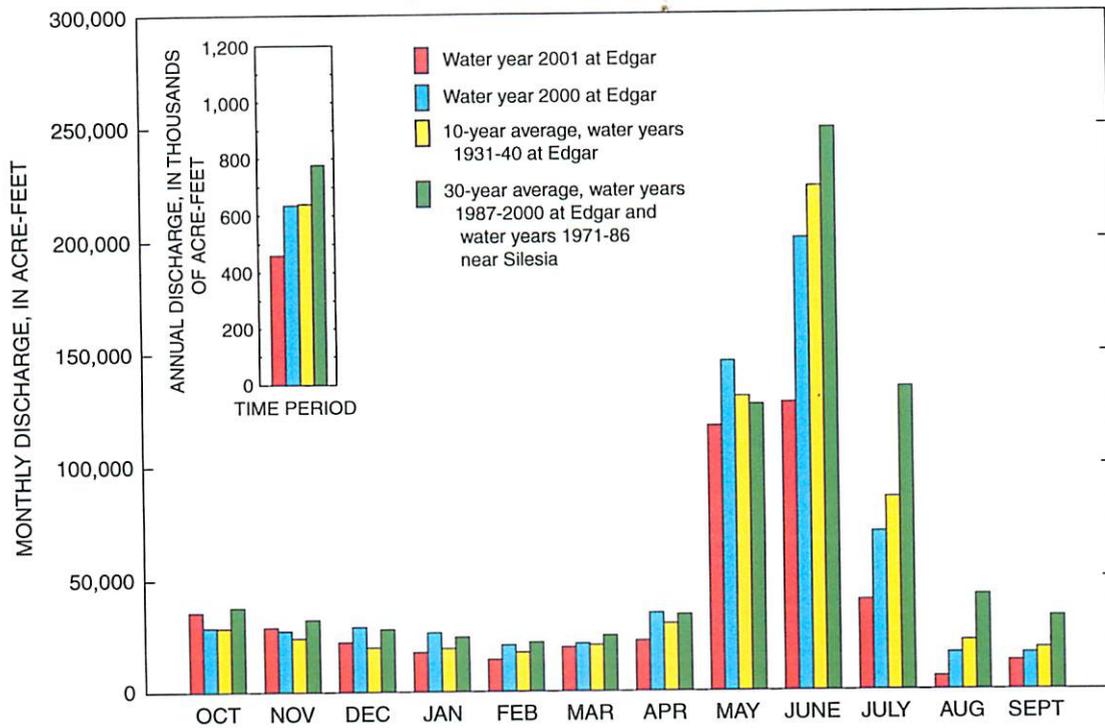


Figure 1. Comparison of discharge of the Clarks Fork Yellowstone River during water year 2001 with discharge during water year 2000 and with 10-year and 30-year average discharges.

06294500 Bighorn River Above Tullock Creek, Near Bighorn, Mont.--Continued

	WATER YEARS 1946-1961*		WATER YEARS 1967 - 2001**	
ANNUAL MEAN	3358		3937	
HIGHEST ANNUAL MEAN	5501	1947	5594	1997
LOWEST ANNUAL MEAN	1623	1961	1999	1989
HIGHEST DAILY MEAN	25700	Jun 23 1947	50000	May 20 1978
LOWEST DAILY MEAN	462	May 12 1961	400	Apr 4 1967
ANNUAL SEVEN-DAY MINIMUM	528	May 6 1961	843	Nov 18 1977
INSTANTANEOUS PEAK FLOW	f26200	Jun 24 1947	c59200	May 20 1978
INSTANTANEOUS PEAK STAGE	b10.65	Mar 20 1947		
INSTANTANEOUS LOW FLOW	d275	Nov 15 1959		
ANNUAL RUNOFF (AC-FT)	2578000		2852000	
10 PERCENT EXCEEDS	6200		6340	
50 PERCENT EXCEEDS	2810		3480	
90 PERCENT EXCEEDS	1500		2020	

*--Prior to construction of Yellowtail Dam.

**--After completion of Yellowtail Dam.

a--Gage height, 2.21 ft.

b--Backwater from ice.

c--Gage height, 14.50 ft, at different site and datum.

d--About, result of freezeup.

e--Estimated.

f--Gage height, 8.79 ft, at different site and datum.

06294500 BIGHORN RIVER ABOVE TULLOCK CREEK, NEAR BIGHORN, MONT.
 (Adjusted for change in contents in Bighorn Lake
 minus
 Little Bighorn River near Hardin, Mont.)

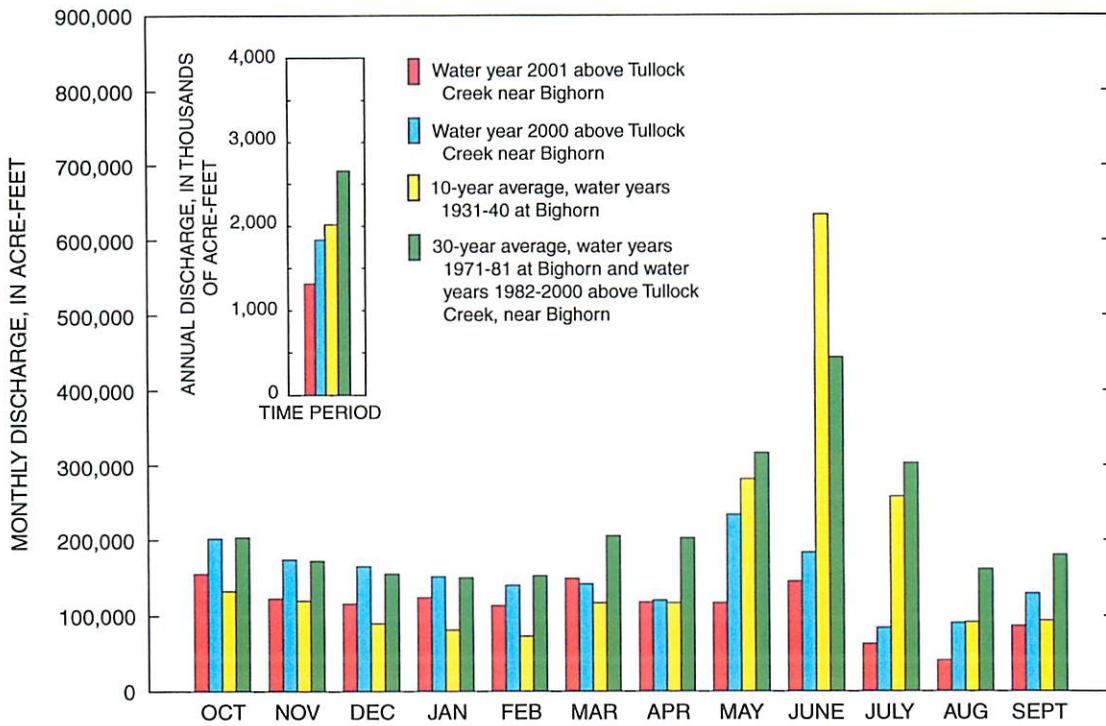


Figure 2. Comparison of discharge of the Bighorn River during water year 2001 with discharge during water year 2000 and with 10-year and 30-year average discharges.

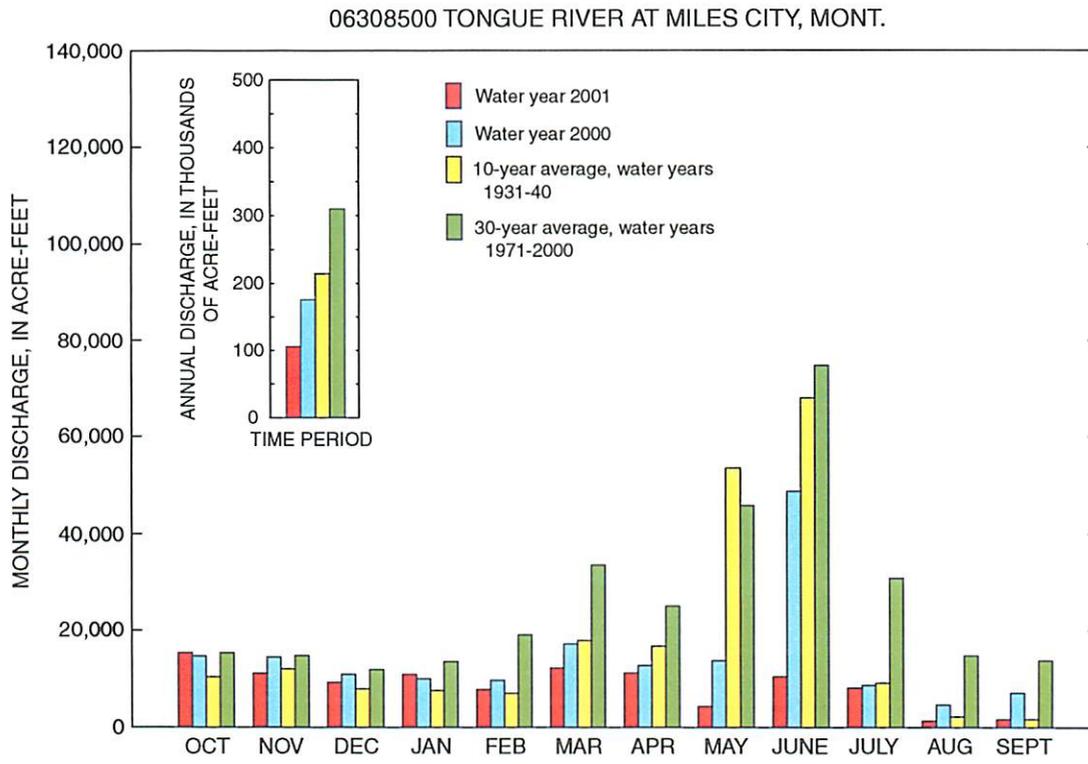


Figure 3. Comparison of discharge of the Tongue River during water year 2001 with discharge during water year 2000 and with 10-year and 30-year average discharges.

06326500 Powder River Near Locate, Mont.

LOCATION.--Lat 46°25'48", long 105°18'34", in SW¹/₄SW¹/₄SE¹/₄ sec. 23, T.8 N., R.51 E., Custer County, Hydrologic Unit 10090209, on left bank at downstream side of bridge on U.S. Highway 12, 0.1 mi west of Locate, and 25 mi east of Miles City, and at river mile 29.4.

DRAINAGE AREA.--13,189 mi².

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 926: 1939. WSP 1309: 1938-39 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,384.79 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage at bridge 1.5 mi upstream, and July 11, 1947 to Sept. 30, 1965, water-stage recorder at site near upstream bridge at different datum. Oct. 1, 1965 to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966 to Mar. 21, 1978, water-stage recorder at present site and datum. Mar. 22, 1978 to Apr. 23, 1981, water-stage recorder 1.5 mi upstream at different datum. Apr. 24 to Aug. 20, 1981, water-stage recorder at present site and datum, and Aug. 21, 1981 to Sept. 30, 1981, water-stage recorder 1.5 mi upstream at different datum. Oct. 1, 1981 to Apr. 5, 1995 water-stage recorder at site 1.5 miles downstream at different datum. Apr. 7, 1995 to present, water-stage recorders located on each bank and used depending on control conditions.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft. Diversions for irrigation of about 101,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	118	e80	e90	e110	e150	465	209	23	438	455	5.7
2	135	120	e100	e90	e120	e160	444	207	22	967	387	5.3
3	128	121	e90	e95	e120	e160	459	188	31	648	288	5.2
4	130	122	e90	e100	e120	e160	419	162	45	420	194	5.0
5	120	e100	e90	e100	e120	e160	385	146	124	240	154	4.7
6	120	e100	e100	e100	e120	e170	379	158	224	186	137	13
7	121	e100	e90	e100	e120	e180	397	208	97	139	107	43
8	126	e90	e80	e100	e110	e180	400	213	54	111	77	33
9	128	e90	e70	e100	e110	e180	418	215	132	79	64	24
10	139	e80	e50	e100	e110	e180	448	252	175	e60	57	18
11	127	e70	e40	e110	e120	e200	508	220	162	e60	50	14
12	120	e60	e50	e110	e110	e250	442	172	132	e10	45	10
13	118	e50	e60	e110	e110	e300	442	150	260	e10	41	8.8
14	121	e55	e70	e110	e120	e500	395	124	499	e100	36	11
15	122	e60	e70	e120	e120	e700	372	108	602	e10	33	11
16	122	e70	e70	e120	e120	e800	347	100	325	e100	30	12
17	125	e80	e70	e120	e120	e700	315	99	226	e500	24	12
18	127	e100	e70	e120	e120	e700	301	75	452	723	19	11
19	121	e90	e60	e120	e120	e700	306	59	346	597	14	9.6
20	122	e90	e60	e130	e120	e700	286	51	268	732	10	9.3
21	123	e90	e55	e140	e120	e700	248	47	178	475	7.3	8.6
22	120	e90	e60	e130	e120	e650	225	40	151	774	6.5	8.5
23	120	e90	e60	e120	e120	e600	227	30	128	454	5.8	7.6
24	120	e90	e70	e130	e120	e550	230	26	101	308	6.4	7.4
25	120	e90	e80	e120	e120	e550	234	31	94	776	7.0	7.4
26	119	e90	e90	e120	e120	e600	252	42	86	866	6.8	7.3
27	120	e90	e100	e110	e130	e600	233	35	72	2560	6.5	7.4
28	121	e90	e90	e120	e140	e550	227	29	68	1070	6.0	7.2
29	121	e100	e80	e120	---	e500	208	35	133	1020	5.6	7.1
30	119	e90	e80	e120	---	518	199	52	189	875	5.5	6.8
31	119	---	e80	e110	---	440	---	39	---	635	5.4	---
TOTAL	3809	2676	2305	3485	3330	13488	10211	3522	5399	15943	2290.8	340.9
MEAN	123	89.2	74.4	112	119	435	340	114	180	514	73.9	11.4
MAX	139	122	100	140	140	800	508	252	602	2560	455	43
MIN	115	50	40	90	110	150	199	26	22	10	5.4	4.7
AC-FT	7560	5310	4570	6910	6610	26750	20250	6990	10710	31620	4540	676

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2001, BY WATER YEAR (WY)

	256	222	151	145	439	1255	750	1170	1641	580	219	169
MEAN	256	222	151	145	439	1255	750	1170	1641	580	219	169
MAX	921	790	417	476	3850	4627	3062	5970	8045	2015	1096	898
(WY)	1941	1999	1942	1981	1943	1972	1965	1978	1944	1993	1941	1941
MIN	1.77	12.5	12.5	4.53	2.82	80.2	109	114	123	14.4	1.30	1.19
(WY)	1961	1961	1961	1950	1950	1950	1961	2001	1966	1988	1988	1960

SUMMARY STATISTICS FOR 2000 CALENDAR YEAR FOR 2001 WATER YEAR WATER YEARS 1939 - 2001

ANNUAL TOTAL	97318.9	66799.7	
ANNUAL MEAN	266	183	583
HIGHEST ANNUAL MEAN			1622
LOWEST ANNUAL MEAN			79.4
HIGHEST DAILY MEAN	2080	May 22	26000
LOWEST DAILY MEAN	4.4	Aug 29	.00
ANNUAL SEVEN-DAY MINIMUM	4.7	Aug 25	.00
MAXIMUM PEAK FLOW			4390
MAXIMUM PEAK STAGE			5.26
INSTANTANEOUS LOW FLOW			4.3
ANNUAL RUNOFF (AC-FT)	193000	132500	422300
10 PERCENT EXCEEDS	551	461	1370
50 PERCENT EXCEEDS	158	120	241
90 PERCENT EXCEEDS	15	11	42

a--Backwater from ice.

b--Also on many days in 1950, 1960-61, and 1988.

e--Estimated.

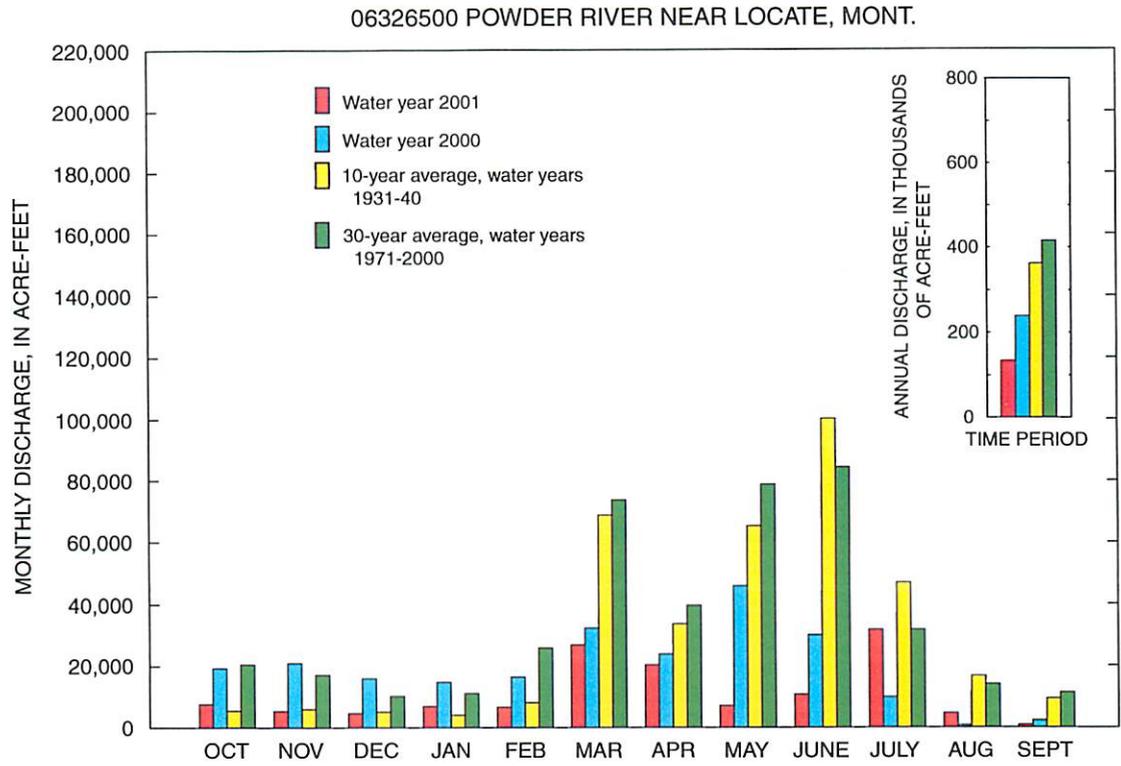


Figure 4. Comparison of discharge of the Powder River during water year 2001 with discharge during water year 2000 and with 10-year and 30-year average discharges.

**MONTHLY SUMMARY OF CONTENTS FOR COMPACT RESERVOIRS
COMPLETED AFTER JANUARY 1, 1950**

06258900 Boysen Reservoir, Wyo.

LOCATION.--Lat 43°25'00", long 108°10'37", in NW¹/₄NW¹/₄ sec. 16, T.5 N., R.6 E., Fremont County, Hydrologic Unit 10080005, at dam on Wind River and 13 mi north of Shoshoni, Wyoming.

DRAINAGE AREA.--7,700 mi².

PERIOD OF RECORD.--October 1951 to current year (month-end contents only).

GAGE.--Water-stage recorder. Datum of gage is feet above sea level (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed by rock-fill dam completed in October 1951. Storage began Oct. 11, 1951. Usable capacity, 701,500 acre-ft between elevation 4,657.00 ft, invert of penstock pipe, and 4,725.00 ft, top of spillway gate. Dead storage, 40,080 acre-ft below elevation 4,657.00 ft. Prior to Jan. 1, 1966, usable capacity was 757,800 acre-ft and dead storage was 62,000 acre-ft at same elevations. Between January 1966 and October 1996, usable capacity was 742,100 acre-ft and dead storage was 59,880 acre-ft, at same elevations. Crest of dam is at elevation 4,758.00 ft. Water used for irrigation, flood control, and power generation.

COOPERATION.--Elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 862,500 acre-ft, July 6, 7, 1967, elevation, 4,730.83 ft; minimum daily contents since normal use of water started, 191,900 acre-ft, Mar. 18, 19, 1956, elevation, 4,684.18 ft, capacity table then in use.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 501,600 acre-ft, October 1, elevation, 4,713.41 ft; minimum daily contents, 264,300 acre-ft, September 30, elevation, 4,694.04 ft.

Month	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2000	4,713.45	502,100	---
October 31	4,712.58	489,300	-12,800
November 30	4,712.24	484,400	-4,900
December 31	4,711.72	476,900	-7,500
January 31, 2001	4,710.91	465,300	-11,600
February 28	4,710.12	454,300	-11,000
March 31	4,711.03	467,000	+12,700
April 30	4,710.32	457,100	-9,900
May 31	4,708.62	433,800	-23,300
June 30	4,705.16	389,200	-44,600
July 31	4,700.74	336,600	-52,600
August 31	4,696.41	289,000	-47,600
September 30, 2001	4,694.04	264,300	-24,700
2001 water year			-237,800

06260300 Anchor Reservoir, Wyo.

LOCATION.--Lat 43°39'50", long 108°49'27", in sec. 26, T.43 N., R.100 W., Hot Springs County, Hydrologic Unit 10080007, at dam on South Fork Owl Creek, 2 mi downstream from Middle Fork, 3 mi southeast of Anchor, and 32 mi west of Thermopolis.

DRAINAGE AREA.--131 mi².

PERIOD OF RECORD.--November 1960 to current year (month-end contents only).

GAGE.--Water-stage recorder. Datum of gage is feet above sea level (Bureau of Reclamation benchmark).

REMARKS.--Reservoir is formed by concrete arch dam completed in 1960. Usable capacity, 17,160 acre-ft between elevation 6,343.75 ft, invert of river outlet, and 6,441.00 ft, spillway crest, including 68 acre-ft below elevation 6,343.75 ft. Prior to Oct. 1, 1971, usable capacity was 17,280 acre-ft, including 149 acre-ft below the invert. Water is used for irrigation of land in Owl Creek basin.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 9,250 acre-ft, July 4, 1967, elevation, 6,418.52 ft; no usable storage on many days some years.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,110 acre-ft, May 14, elevation, 6,372.80 ft; minimum daily contents, 260 acre-ft, June 5, elevation, 6,355.19 ft.

Month	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2000	6,356.10	286	---
October 31	6,356.00	283	-3
November 30	6,356.00	283	0
December 31	6,356.00	283	0
January 31, 2001	6,356.00	283	0
February 28	6,356.00	283	0
March 31	6,356.90	310	+27
April 30	6,367.00	733	+423
May 31	6,357.00	314	-419
June 30	6,355.64	273	-41
July 31	6,356.36	294	+21
August 31	6,355.59	271	-23
September 30, 2001	6,355.40	266	-5
2001 water year			-20

06286400 Bighorn Lake near St. Xavier, Mont.

LOCATION.--Lat 45°18'27", long 107°57'26", in SW¹/₄SE¹/₄ sec.18, T.6 S., R.30 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi upstream from Grapevine Creek, 15.5 mi southwest of St. Xavier, and at river mile 86.6.

DRAINAGE AREA.--19,626 mi².

PERIOD OF RECORD.--November 1965 to current year (month-end contents only). Prior to October 1969, published as "Yellowtail Reservoir." Records of daily elevations and contents on file at the USGS office in Helena, Mont.

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to sea level (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed by thin concrete-arch dam; construction began in 1961; completed in 1967. Storage began Nov. 3, 1965. Usable capacity, 1,312,000 acre-ft, between elevation 3,296.50 ft, river outlet invert, and 3,657.00 ft, top of flood control. Elevation of spillway crest, 3,593.00 ft. Normal maximum operating level, 1,097,000 acre-ft, elevation, 3,640.00 ft. Minimum operating level, 483,400 acre-ft, elevation, 3,547.00 ft. Dead storage, 16,010 acre-ft, below elevation 3,296.50 ft. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,346,000 acre-ft, July 6, 1967, elevation, 3,656.43 ft; minimum since first filling, 641,900 acre-ft, Apr. 14, 1989, elevation 3,583.30 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 900,000 acre-ft, November 8-10, elevation, 3,625.21 ft; minimum, 739,300 acre-ft, September 6, elevation, 3,601.92 ft.

Month	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2000	3,621.25	867,300	--
October 31	3,625.01	898,200	+30,900
November 30	3,624.18	891,200	-7,000
December 31	3,622.95	881,000	-10,200
January 31, 2001	3,620.95	865,000	-16,000
February 28	3,618.00	842,400	-22,600
March 31	3,619.55	854,100	+11,700
April 30	3,617.83	841,200	-12,900
May 31	3,617.63	839,700	-1,500
June 30	3,620.41	860,700	+21,000
July 31	3,612.59	804,100	-56,600
August 31	3,602.86	744,600	-59,500
September 30, 2001	3,602.82	744,400	-200
2001 water year			-122,900

**MONTHLY SUMMARY OF CONTENTS FOR COMPACT RESERVOIRS EXISTING ON
JANUARY 1, 1950**

The extent, if any, to which the use of reservoirs in this section may be subject to Compact allocations was not determined. As a matter of hydrologic interest, the month-end usable contents in acre-feet of four reservoirs are given. The first three reservoirs are in the Bighorn River basin, Wyoming, and data on contents were furnished by the Bureau of Reclamation. The Tongue River Reservoir in Montana is operated under the supervision of the Water Resources Division of the Montana Department of Natural Resources and Conservation, which furnished the water-level data.

Month	Usable contents, in acre-feet			
	06224500 Bull Lake	Pilot Butte Reservoir	06281500 Buffalo Bill Reservoir	06307000 Tongue River Reservoir
September 30, 2000.....	58,660	7,690	400,400	39,710
October 31	61,670	26,010	390,300	35,500
November 30	62,290	25,840	385,300	34,610
December 31	62,500	25,630	379,000	34,160
January 31, 2001	62,570	25,540	370,200	33,280
February 28	62,500	25,450	362,500	32,720
March 31	62,200	25,360	358,400	40,160
April 30	61,670	26,750	352,100	43,810
May 31	79,860	16,650	406,900	44,390
June 30	70,700	16,490	464,000	41,880
July 31	52,220	11,230	403,400	30,060
August 31	22,060	4,990	322,900	20,660
September 30, 2001	26,160	654	267,400	16,500
Change in contents during water year.....	-32,500	-7,036	-133,000	-23,210

RULES AND REGULATIONS FOR ADMINISTRATION OF THE YELLOWSTONE RIVER COMPACT

A compact, known as the Yellowstone River Compact, between the States of Wyoming, Montana, and North Dakota, having become effective on October 30, 1951, upon approval of the Congress of the United States, which apportions the waters of certain interstate tributaries of the Yellowstone River which are available after the appropriative rights existing in the States of Wyoming and Montana on January 1, 1950 are supplied, and after appropriative rights to the use of necessary supplemental water are also supplied as specified in the Compact, is administered under the following rules and regulations subject to the provisions for amendment revision or abrogation as provided herein.

Article I. Collection of Water Records

A. It shall be the joint and equal responsibility of the members of the States of Wyoming and Montana to collect, cause to be collected, or otherwise furnish records of tributary streamflow at the points of measurement specified in Article V (B) of the Compact, or as near thereto as is physically or economically feasible or justified.

1. Clarks Fork

The gaging station known as Clarks Fork near Silesia, Montana and located in NW1/4 SE1/4 sec. 1, T. 4 S., R. 23 E., shall be the point of measurement for the Clarks Fork.

2. Bighorn River (exclusive of Little Bighorn River)

The gaging station known as the Bighorn River above Tullock Creek, near Bighorn, Montana, and located in SE1/4 SE1/4 NE1/4 sec. 3, T. 4 N., R. 34 E., shall temporarily be the designated point of measurement on that stream. The flow of the Little Bighorn River as measured at the gaging station near Hardin, Montana, and located in SE1/4 NE1/4 NE1/4 sec. 19, T. 1 S., R. 34 E., shall be considered the point of measurement for that stream, except that if or when satisfactory records are not available, the records for the nearest upstream station with practical corrections for intervening inflow or diversion shall be used.

3. Tongue River

The gaging station known as the Tongue River at Miles City, Montana, and located in NE1/4 NE1/4 SE1/4 sec. 23, T. 7 N., R. 47 E., shall temporarily be the point of measurement for that stream.

4. Powder River

The gaging station known as the Powder River near Locate, Montana, and located in NW1/4 SW1/4 sec. 14, T. 8 N., R. 51 E., shall temporarily be the designated point of measurement for that stream.

- B. Records of total annual diversion in acre-feet above the points of measurement designated in the Compact for irrigation, municipal, and industrial uses developed after January 1, 1950, shall be furnished by the members of the Commission for their respective States, at such time as the Commission deems necessary for interstate administration as provided by the terms of the Compact. Providing that if it be acceptable to the Commission, reasonable estimates thereof may be substituted.
- C. Annual records of the net change in storage in all reservoirs, not excluded under Article V (E) of the Compact, above the point of measurement specified in the Compact and completed after January 1, 1950, and the annual net change in reservoirs existing prior to January 1, 1950, which is used for irrigation, municipal, and industrial purposes developed after January 1, 1950, shall be the primary responsibility of the member of the Commission in whose State such works are located; providing such data are not furnished by Federal agencies under the provisions of Article III (D) of the Compact, or collected by the Commission.

Article II. Office and Officers

- A. The office of the Commission shall be located at the office of the Chairman of the Commission.
- B. The Chairman of the Commission shall be the Federal representative as provided in the Compact.
- C. The Secretary of the Commission shall be as provided for in Article III of these rules.
- D. The credentials of each member of the Commission shall be placed on file in the office of the Commission.

Article III. Secretary

- A. The Commission, subject to the approval of the Director of the United States Geological Survey, shall enter into cooperative agreements with the U.S. Geological Survey for such engineering and clerical services as may reasonably be necessary for the administration of the Compact. Said agreements shall provide that the Geological Survey shall:

1. Maintain and operate gaging stations at or near the points of measurement specified in Article V (A) of the Compact.
 2. Assemble factual information on stream flow, diversion, and reservoir storage for the preparation of an annual report to the Governors of the signatory States.
 3. Make such investigations and reports as may be requested by the Commission in aid of its administration of the Compact.
- B. The Geological Survey shall act as Secretary to the Commission.

Article IV. Budget

- A. At the annual meeting of each even-numbered year or prior thereto, the Commission shall adopt a budget for operation during the ensuing biennium beginning July first. Such budget shall set forth the total cost of construction, maintenance and operation of gaging stations, the cost of engineering and clerical aid, and other necessary expenses excepting the salaries and personal expenses of the Commissioners. On odd-numbered years revisions of the budget shall be considered.
- B. It shall be the obligation of the Commissioners of the States of Montana and Wyoming to endeavor to secure from the Legislature of their respective States sufficient funds with which to meet the obligations of this Compact, except insofar as provided by the Federal government.

Article V. Meetings

An annual meeting of the Commission shall be held each November at some mutually agreeable point in the Yellowstone River Basin for consideration of the annual report for the water year ending the preceding September 30th, and for the transaction of such other business consistent with its authority; provided that by unanimous consent of the Commission the date and place of the annual meeting may be changed. Other meetings as may be deemed necessary shall be held at a time and place set by mutual agreement, for the transaction of any business consistent with its authority.

No action of the Commission shall be effective until approval by the Commissioners for the States of Wyoming and Montana.

Article VI. Amendments, Revisions and Abrogations.

The Rules and Regulations of the Commission may be amended or revised by a unanimous vote at any meeting of the Commission.



Gary Fritz
Commissioner for Montana



George L. Christopoulos
Commissioner for Wyoming

ATTESTED:



L. Grady Moore
Federal Representative

Adopted November 17, 1953
Amended December 16, 1986

**RULES FOR THE RESOLUTION OF DISPUTES
OVER THE ADMINISTRATION OF THE
YELLOWSTONE RIVER COMPACT**

December 19, 1995

Section I. General Framework

According to Article III(F) of the Yellowstone River Compact.

"In case of the failure of the representatives of Wyoming and Montana to unanimously agree on any matter necessary to the proper administration of this compact, then the member selected by the director of the United States Geological Survey shall have the right to vote upon the matters in disagreement and such points of disagreement shall then be decided by a majority vote of the representatives of the states of Wyoming and Montana and said member selected by the director of the United States geological survey, each being entitled to one vote."

Section II. Purpose and Goal

- A. The purpose of these rules is to clarify and more fully develop the dispute resolution process outlined in Section I.
- B. The goal of the dispute resolution process outlined in these rules is to encourage joint problem solving and consensus building. It consists of three phases -- unassisted negotiation, facilitation, and voting.
- C. Any agreement reached through this process is binding on Montana, Wyoming, and the United States Geological Survey (USGS).
- D. Either state can initiate the dispute resolution process defined in Sections IV, V, and VI, and the other state is obligated to participate in good faith. The states agree that the issues pursued under this dispute resolution process shall be both substantive and require timely resolution.

Section III. Consensus

- A. In the process of administering the Yellowstone River Compact, the representatives from Montana and Wyoming agree to seek consensus.
- B. For purposes of this rule, consensus is defined as an agreement that is reached by identifying the interests of Montana and Wyoming and then building an integrative solution that maximizes the satisfaction of as many of the interests as possible. The process of seeking consensus does not involve voting, but a synthesis and blending of alternative solutions.

Section IV. Unassisted Negotiation

- A. In all situations, the representatives from Montana and Wyoming shall first attempt to seek consensus through unassisted negotiation. The federal representative will not serve as chairperson in the unassisted negotiation process.
- B. During a negotiation process, the representatives from Montana and Wyoming shall identify issues about which they differ, educate each other about their needs and interests, generate possible resolution options, and collaboratively seek a mutually acceptable solution.
- C. To help facilitate negotiations, the representatives from Montana and Wyoming in cooperation with the USGS agree to share technical information and develop joint data bases. Other data sources may also be used.
- D. The USGS shall serve as technical advisor in the two-state negotiations.

Section V. Facilitation

- A. If the representatives from Montana and Wyoming are not able to reach consensus through unassisted negotiation, they shall each identify, articulate, and exchange, in writing, the unresolved issues.
- B. The representatives from Montana and Wyoming shall then jointly appoint a facilitator to assist in resolving the outstanding dispute. If the representatives from Montana and Wyoming cannot identify a mutually acceptable facilitator, the representative appointed by the USGS shall appoint a facilitator.
- C. A facilitator, for purposes of this rule, is defined as a neutral third party that shall help the representatives from Montana and Wyoming communicate, negotiate, and reach agreements voluntarily. The facilitator is not empowered to vote or render a decision.
- D. The facilitator shall assist the representatives from Montana and Wyoming in developing appropriate ground rules for each facilitated session including establishing a deadline for completion of the facilitation process, setting an appropriate agenda, identifying issues, collecting and analyzing technical information, developing options, packaging agreements, and preparing a written agreement. The facilitator reserves the right to meet privately with each representative during the facilitation process.

Section VI. Voting

- A. If, and only if, the representatives from Montana and Wyoming are unable to reach consensus with the assistance of a facilitator, then a dispute may be settled by voting.
- B. The representatives from Montana and Wyoming, along with the representative appointed by the director of the USGS, are each entitled to one vote.
- C. If the USGS representative does not vote in accordance with Article III, then the director of the USGS will select, with concurrence from Wyoming and Montana, a neutral third party to vote.

D. If the representative appointed by the director of the USGS is not involved in the steps outlined in Sections IV and V, each state shall have the opportunity to present appropriate information to that representative. This information may be presented through both oral presentations and written documents. All information will be shared with the other state.

The representative of the USGS may also consult the facilitator referenced in Section V in an attempt to resolve any disputes.

E. The USGS shall pay the expenses of the representative appointed by the director of the USGS.

F. Points of disagreement shall be resolved by a majority vote.

Section VII. Funding

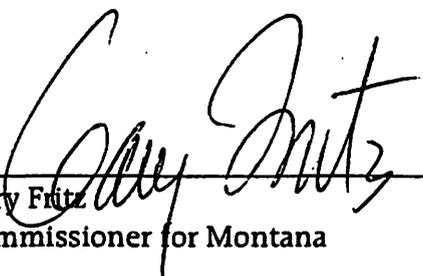
A. The USGS will pay one-half and the states of Montana and Wyoming shall each pay one-quarter of the expenses of the facilitator, which shall not exceed \$10,000, unless agreed to by both states and the USGS.

Section VIII. Amendments

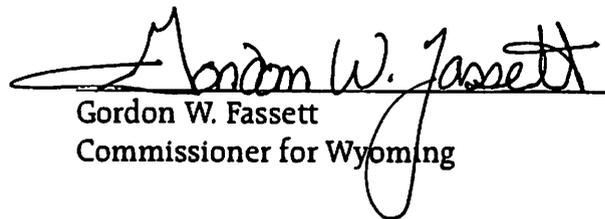
A. These rules may be amended or revised by a unanimous vote of the Commission.

Section IX. Execution

These rules for the resolution of disputes over the administration of the Yellowstone River Compact are hereby executed on the date indicated below.



Gary Fritz
Commissioner for Montana



Gordon W. Fassett
Commissioner for Wyoming



William F. Horak
Federal Representative

Date July 22, 1996

RULES FOR ADJUDICATING WATER RIGHTS ON INTERSTATE DITCHES

Article I. Purpose

The purpose of this rule is to determine and adjudicate, in accordance with the laws of Montana and Wyoming, those pre-Compact (January 1, 1950) water rights diverting from the Powder, Tongue, Bighorn and Clarks Fork Rivers and their tributaries where the point of diversion is in one State and the place of use is in the other State which have not yet been adjudicated.

Article II. Authority

In accordance with the Yellowstone River Compact, the State of Montana and the State of Wyoming, being moved by consideration of interstate comity, desire to remove all causes of present and future controversy between the States and between persons in one State and persons in another State with respect to these interstate ditches. Article III (E) of the Compact provides the Yellowstone River Compact Commission with the authority "...to formulate rules and regulations and to perform any act which they may find necessary to carry out the provisions of this Compact...."

Article III. Definitions

The terms defined in the Yellowstone River Compact apply as well as the following definitions:

1. "Acre-feet" means the volume of water that would cover 1 acre of land to a depth of 1 foot.
2. "Cfs" means a flow of water equivalent to a volume of 1 cubic foot that passes a point in 1 second of time and is equal to 40 miners inches in Montana.
3. "Interstate Ditches" shall include ditches and canals which convey waters of the Bighorn, Tongue, Powder, and Clarks Fork Rivers and their tributaries across the Wyoming-Montana State line where the water is diverted in one State and the place of use is in the other State.
4. "Department of Natural Resources and Conservation," hereafter called the "Department," means the administrative agency and Department of the Executive Branch of the Government of Montana created under Title II, Chapter 15, MCA which has the responsibility for water administration in that State.

5. "Water Court" means a Montana District Court presided over by a water judge, as provided for in Title III, Chapter 7, MCA.
6. "State Engineer" shall be the current holder of the position created by the Wyoming Constitution as Chief Water Administration Official for the State of Wyoming.
7. "Board of Control," hereinafter called the "Board," is defined as the constitutionally created water management agency in Wyoming composed of the four Water Division Superintendents and the State Engineer.
8. "Superintendent" is the member of the Board who is the water administration official for the Water Division where the interstate ditch is located. (The two Water Divisions in the Yellowstone River drainage are Water Division Numbers Two and Three.)
9. "Date of Priority" shall mean the earliest date of actual beneficial use of water, unless evidence and circumstances pertaining to a particular claim establish an earlier date.
10. "Point of Diversion" is defined to be the legal land description by legal subdivision, section, township, and range of the location of the diversion structure for an interstate ditch from a natural stream channel.
11. "Place of Use" is defined to be the legal land description (legal subdivision, section, township, and range) of the lands irrigated by an interstate ditch.
12. "Person" is defined as an individual, a partnership, a corporation, a municipality or any other legal entity, public or private.
13. "Claimant" is defined as any person claiming the use of water from an interstate ditch as herein defined.

Article IV. Procedures

The procedures for determining and adjudicating water rights associated with interstate ditches shall be categorized as follows: (A) Where the point of diversion is in Wyoming and place of use in Montana, and (B) Where the point of diversion is in Montana and place of use in Wyoming.

A. Wyoming Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim. (A sample form for this purpose is attached.)
2. The Yellowstone River Compact Commission will send the claim form to water users on the interstate ditches.
3. Water users will complete the claim form and file it with the Yellowstone Compact Commission, which, when found to be correct and complete, will be forwarded to the Board for verification.
4. Upon receipt of the form, the Board shall forward it to the appropriate Superintendent, who, in cooperation with the Department, will validate the information including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The Superintendent and the Department will utilize aerial photography and other information to have prepared a reproducible map showing the location of the ditch system, lands irrigated, point of diversion, etc., of the claim.
5. After the validation procedure, the Superintendent will hold a hearing, after appropriate notice and advertisement, at which time the claimant shall describe, in detail, the use that has been made of the water and the lands that are being irrigated, establish a priority date, etc. Costs incurred in advertising shall be paid by the claimant. If a single hearing is held to consider several claims, the costs of advertising shall be shared equally among the claimants. Anyone who opposes the claim shall appear and state the reasons, if any, for opposition to the claim. If there is no opposition to the claim, cost incurred in holding the hearing shall be paid by the claimant. If protestants do appear and oppose the claim, hearing costs will be paid 50 percent by the claimant and 50 percent by the protestant, or if there is more than one protestant, the remaining 50 percent shall be shared equally among the protestants.
6. At the conclusion of the hearing, the Superintendent shall forward the record to the Yellowstone River Compact Commission with his findings and recommendations. The Yellowstone River Compact Commission will make the

determination of the amount of the right, the location, and the priority date, and then send the record to the Board.

7. The Board shall review the record and integrate it into its water rights system. Upon entry of the record by the Board, the information shall be forwarded to the Department and the Chairman of the Yellowstone River Compact Commission.
8. Upon the entry of the right into the Board's records, it will have the following attributes:
 - a. The right will be a Wyoming water right with a priority date as established by this procedure.
 - b. The amount of the right will be determined as provided by Wyoming law.

B. Montana Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim.
2. The Commission will send the claim form to water users on the interstate ditches.
3. Water users will complete the claim form and file it with the Yellowstone River Compact Commission, which, when found to be correct and complete, will be forwarded to the Department for verification.
4. Upon receipt of the form, the Department, in cooperation with the Wyoming State Engineer's Office, will validate the information, including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The appropriate Superintendent and the Department will utilize aerial photographs and other information to have prepared a reproducible map showing the location of the ditch system, land irrigated, point of diversion, etc., of the claim.

5. The Department will then forward the record to the Yellowstone River Compact Commission with its findings and recommendations. Upon approval by the Commission, the record shall be submitted to the Montana Water Court for adjudication. A duplicate record will be forwarded to the Wyoming State Engineer's Office, the Board, and the Chairman of the Yellowstone River Compact Commission upon adjudication.
6. Upon adjudication of the right by the Montana Water Court, it will have the following attributes:
 - a) The right will be a Montana water right with a priority date as established by this procedure.
 - b) The amount of the right will be determined as provided by Montana law.

Article V. Exclusions

- A. These rules recognize the limitation in Article VI of the Yellowstone River Compact regarding Indian water rights.
- B. These rules shall not be construed to determine or interpret the rights of the States of Wyoming and Montana to the waters of the Little Bighorn River.

Article VI. Claim Form Submission Period

All claims must be submitted to the Yellowstone River Compact Commission, c/o District Chief, United States Geological Survey, 821 E. Interstate, Bismarck, ND 58501, within 90 calendar days after the claimant has received the claim form from the Commission. The blank claim form will be sent certified mail to the water user and the submission period of 90 calendar days will begin with the next day following receipt of the form, as evidenced by the certified mail receipt card. For good cause shown in writing, an extension of time beyond the 90 days for submittal may be obtained from the Commission.

YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING

GORDON W. FASSETT
STATE ENGINEER
HERSCHLER BUILDING
4TH FLOOR EAST
CHEYENNE, WYOMING 82002
(307) 777-7354

UNITED STATES

WILLIAM F. HORAK
CHAIRMAN
U.S. GEOLOGICAL SURVEY
821 E. INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58501
(701) 250-4601

MONTANA

GARY FRITZ
ADMINISTRATOR, WATER RESOURCES DIVISION
DEPT. OF NATURAL RESOURCES & CONSERVATION
1520 EAST SIXTH AVENUE
HELENA, MONTANA 59620
(406) 444-6603

YELLOWSTONE RIVER COMPACT COMMISSION

CLAIM FORM FOR INTERSTATE DITCHES

1. Name of ditch or canal: _____
2. Source of water supply: _____
Tributary of _____
3. Name of claimant: _____
Address _____
City _____ State _____ Zip Code _____
Home Phone No. _____ Business Phone No. _____
4. Person completing form: _____
Address _____
City _____ State _____ Zip Code _____
Home Phone No. _____ Business Phone No. _____
5. Method of irrigation: _____
6. Point of diversion: County _____ State _____
Headgate located in the ___ $\frac{1}{4}$ ___ ___ $\frac{1}{4}$ ___, Section _____, T. ___ R. ___

(a) Description of headgate: (Briefly describe the materials and general features, date constructed or last known work, general condition.) _____

9. Describe any additional uses of water claimed from the ditch:

10. Date of first beneficial use of water (priority date) on lands described above for _____ Ditch is _____
(mo/day/yr)
and shall be the same for all lands claimed on this form.
11. Has irrigation water been diverted onto all lands shown in the above tabulation each year since completion of works?___
If not, state exceptions and reasons therefore: _____

12. Attach documentary evidence or affidavits showing your ownership or control of the above lands, as well as the historic use of water on these lands. _____

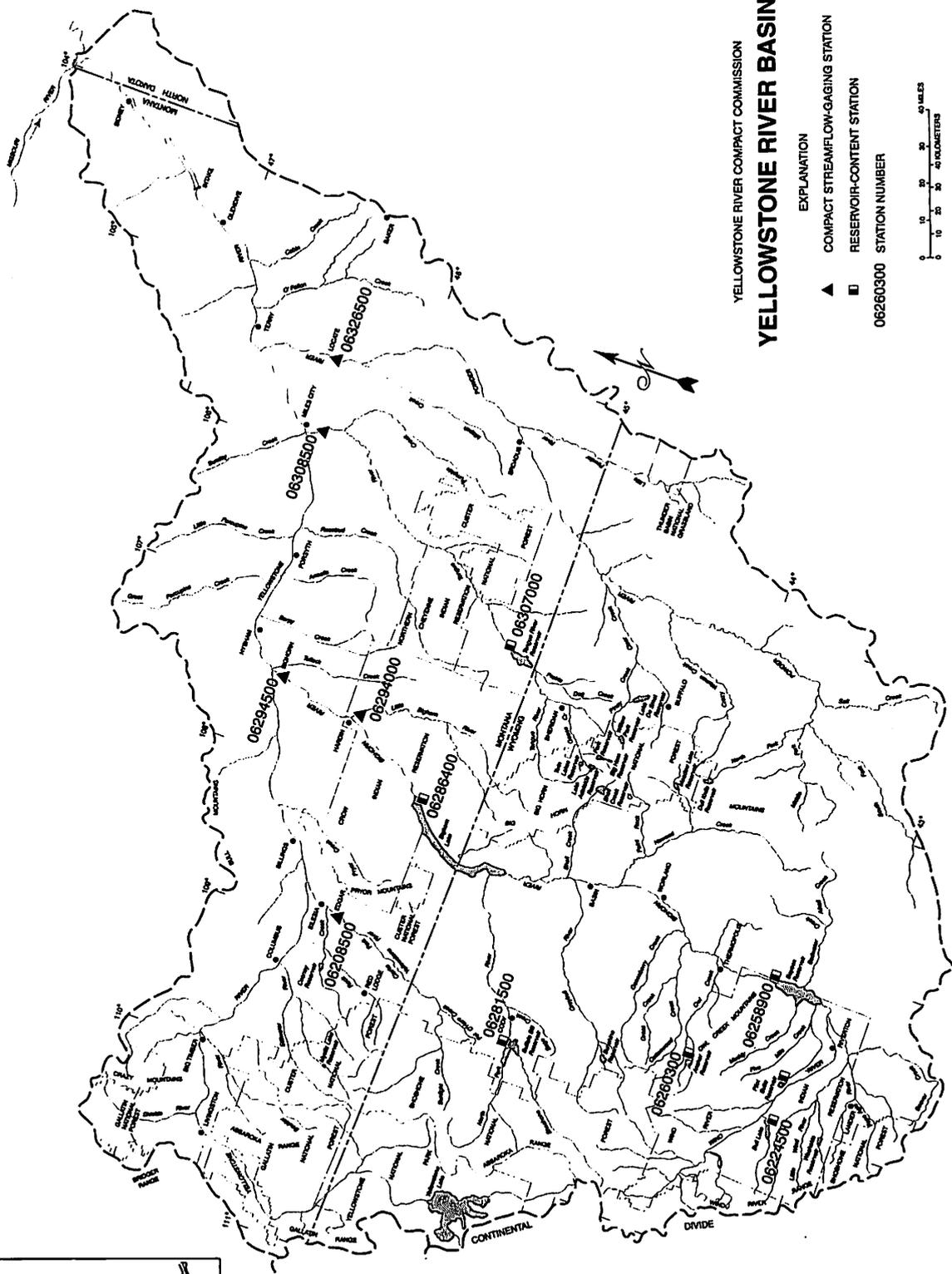
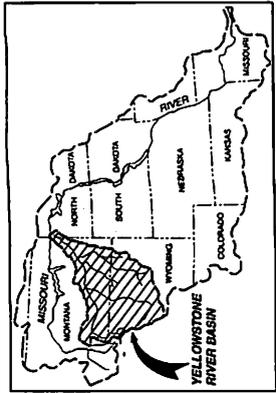
13. What permit or claim numbers have been assigned to known records filed with either the Wyoming State Engineer's Office or the Montana Department (DNRC) for irrigating the above lands? _____

14. Have personnel in the Wyoming State Engineer's Office or the Montana Department (DNRC) been contacted to obtain the information given in No. 13? () Yes () No
15. Describe any flumes or pipelines in the ditch conveyance system: _____

CONVERSION TABLE

<u>Multiply inch-pound units</u>	<u>By</u>	<u>To obtain SI units</u>
<i>Length</i>		
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)
<i>Area</i>		
acres	4,047	square meters (m ²)
	0.4047	*hectares (ha)
	0.4047	square hectometer (hm ²)
	0.004047	square kilometers (km ²)
square miles (mi ²)	2.590	square kilometers (km ²)
<i>Volume</i>		
cfs-day or second-foot day (ft ³ /s-day)	2,447	cubic meters (m ³)
	0.002447	cubic hectometers (hm ³)
cubic feet	0.02832	cubic meters
acre-feet (acre-ft)	1,233	cubic meters (m ³)
	0.001233	cubic hectometers (hm ³)
	0.000001233	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	28.32	liters per second (L/s)
	28.32	cubic decimeters per second (dm ³ /s)
	0.02832	cubic meters per second (m ³ /s)
acre-feet per year (acre-ft/yr)	1,233	cubic meters per year (m ³ /yr)
	0.001233	cubic hectometers per year (hm ³ /yr)
	0.000001233	cubic kilometers per year (km ³ /yr)

*The unit hectare is approved for use with the International System (SI) for a limited time. See National Bureau of Standards Special Bulletin 330, p. 12, 1977 edition.



MAP SHOWING LOCATIONS OF COMPACT STREAMFLOW-GAGING AND RESERVOIR-CONTENT STATIONS