

YELLOWSTONE RIVER
COMPACT COMMISSION

THIRTY-EIGHTH ANNUAL REPORT

1989

YELLOWSTONE RIVER COMPACT COMMISSION

821 East Interstate Avenue
Bismarck, North Dakota

Honorable Mike Sullivan
Governor of the State of Wyoming
Cheyenne, Wyoming

Honorable Stan Stephens
Governor of the State of Montana
Helena, Montana

Honorable George Sinner
Governor of the State of North Dakota
Bismarck, North Dakota

Dear Sirs:

Pursuant to Article III of the Yellowstone River Compact (YRC), the Commission submits the following thirty-eighth annual report of activities for the period ending September 30, 1989.

The Commission held its annual meeting in Cody, Wyoming on December 1, 1989. Mr. Jeff Fassett, Wyoming State Engineer; and Mr. Gary Fritz, Administrator, Water Resources Division, Montana Department of Natural Resources and Conservation; the designated representatives of their respective States; and Mr. L. Grady Moore, the designated Federal representative and chairman, were present.

Others present included:

Craig Cooper, Water Division III, Riverton, Wyoming;
Chuck Dalby, Montana Department of Natural Resources and Conservation, Helena, Montana;
Don Englert, Water Division III, Byron, Wyoming;
Bill Horak, U.S. Geological Survey, Bismarck, North Dakota;
Bill Hergett, Representative, Two Interstate Ditches, Belfry, Montana;
Jim Kircher, U.S. Geological Survey, Cheyenne, Wyoming;
Sue Lowry, Wyoming State Engineer's Office, Cheyenne, Wyoming;
Joe Moreland, U.S. Geological Survey, Water Resources Division, Helena, Montana;
Dick Stockdale, Wyoming State Engineer's Office, Cheyenne, Wyoming; and
Michael Whitaker, Wyoming State Board of Control, Sheridan, Wyoming.

Mr. Moore called the meeting to order and introductions of members were made. The following items of business were discussed:

1. BUDGET:

Mr. Moreland reported that the budget for water year 1989 was \$36,100. Estimated expenditures for FY 90 are \$37,300, a 3.3% increase over 1989. Due to anticipated inflation, 1991 costs will be about \$39,500, a 6% increase over 1990 costs. Mr. Moore commented that future reports will indicate the amount of Federal funds used to publish the report and pay for travel of U.S. Geological Survey employees to attend meetings.

2. STREAMFLOW AND RESERVOIR REPORT:

Mr. Moreland distributed handouts. Precipitation in the Yellowstone River basin was near normal in water year 1989. However, the streamflow at the monitoring sites was below average in the Bighorn, Tongue, and Powder Rivers. Streamflow in the Powder River was second lowest of record, exceeded only by the extreme drought of 1961. Part of the reason streamflow was considerably smaller than the precipitation would seem to indicate is because of the extreme drought in 1988. At the end of water year 1988, most reservoirs were severely overdrafted. Much of the runoff in 1989 went into storage. As an example, 207,000 acre-feet went into storage in 1989 in Boysen Reservoir. In most months, streamflow was considerably below normal. Bighorn River above Tullock Creek had nearly 2,000,000 acre-feet of deficit flow compared to the 25-year average. Of that deficit flow, 455,000 acre-feet can be accounted for as increases in storage in the reservoirs. Powder River near Locate virtually dried up in August 1989, as it did in 1988. Mr. Moreland commented that the observer on the Tongue River Reservoir had not been reporting reservoir levels on a regular basis.

Mr. Cooper asked if data were available to determine if higher discharges in the Clarks Fork Yellowstone River were related to the forest fires. Mr. Moreland replied that a proposal to compare burned and unburned areas was not funded. However, he believed the higher discharge was more a factor of less usage, no reservoirs, and more normal precipitation during the water year. Mr. Horak agreed that the burned areas did not contribute significantly more runoff, but that the water contained a lot of sediment.

Mr. Whitaker reported that Wyoming experienced a favorable water year in that precipitation was received in a timely manner. However, due to the 1988 drought, the soil moisture carryover was poor. Precipitation was about 2 inches below normal in the Sheridan and Powder River areas. Snowpack has been below normal for about the last 10 years.

3. COMPACT ADMINISTRATION/MODELS:

Mr. Fritz commented that discussion of administrative methods was premature. Mr. Fritz stated that the Compact was formulated to guide the two States in sharing water on four streams in terms of post-1950 use. However, the expected development in the area has not occurred so the Compact may not address contemporary issues. Perhaps the problems the Compact originally meant to resolve are not the problems that exist today. Montana has prepared a preliminary draft report on the history and intent of the Yellowstone River Compact and the activities of the Compact Commission over the last 39 years. The report includes summaries of the positions of the two States on various issues during that period of time and draws preliminary conclusions on what the Compact has or has not done for the States of Montana and Wyoming.

Mr. Fassett said the States needed to work together to take a contemporary view of the Compact and make changes if possible. He mentioned that he appreciated the work Montana has done to prepare the report.

Mr. Moore suggested that a meeting be held March 27-28, 1990, in Billings, Montana to discuss the report and contemporary needs for the Compact. Mr. Fritz will prepare an agenda. In subsequent discussions, the meeting dates were changed to March 20-21, 1990.

4. INTERSTATE DITCHES:

Mr. Fassett stated that a conference call among Commission members resulted in a decision to change the adjudication process from a deadline process to an open-ended process. A follow-up letter on January 5, 1989 specified the language to be used to announce the change in the adjudication process. Mr. Fritz commented that a subsequent telephone call added a clarification to the letter. The Commission moved and voted acceptance of the language for announcing the open-ended process.

Mr. Moore commented that the Department of the Interior Field Solicitor in Billings, Richard Aldrich, feels that advertisements in newspapers are acceptable to the Federal government if they are acceptable to the States. The Federal government requires public disclosure in the Federal Register. Both States agreed that the Federal Register was not an appropriate place to inform ranchers in Montana and Wyoming. Notice of the rule change will be published in Montana and Wyoming newspapers prior to the March 1990 work meeting.

Mr. Dalby reported on the progress being made on Britton Ditch. The initial field verification at the point of diversion in Montana has been made. Mr. Dalby will compile the information on an acceptable base map for Wyoming to review and the site will be revisited for final field verification with Mr. Cooper.

Mr. Cooper reported on an adjudication problem on Crooked Creek and the Britton Ditch. Apparently, a ranch owned by two brothers (Tilletts) is changing the current diversion from one to two points which will affect downstream ranchers in Wyoming. A Montana court decree has been issued for Crooked Creek in the area of the State line. However, water rights adjudicated by Wyoming are not affected by the court decree. Mr. Cooper will talk to the landowners and have them make written requests to Mr. Fritz and Mr. Fassett. They will submit a request to the Montana District Court for adjudication of rights. Mr. Fritz thinks it is possible for the District Court to grant authority to Wyoming personnel to administer the waters of this interstate ditch.

5. MONTANA ADJUDICATION PROCESS:

The Montana Supreme Court has ruled on the procedures to be used by the water courts. The Montana legislature also passed actions pertaining to the adjudication process last session. The preliminary decrees that are issued by the District Courts are now enforceable.

6. MISCELLANEOUS:

Methane Gas Production:

Mr. Fassett reported about recent methane gas production in Wyoming. A new technique is being used to produce methane gas from coal bed formations in the Powder River Basin. A series of wells are drilled into the coal formations to withdraw the water. As water is withdrawn, gas is produced. The more the wells can be dewatered, the more gas is produced. Test permits have been issued by the U.S. Bureau of Land Management on BLM lands in Wyoming with the approval of the Wyoming State Oil and Gas Commission. The water is proposed to be discharged into the nearest dry draw.

The Wyoming State Engineer's Office is concerned about impacts of the production method on water resources. Dewatering a portion of an aquifer to produce methane gas could affect water appropriators in the area. Artesian-type wells are a big concern because substantial withdrawals could lower hydraulic heads below land surface. The water-quality aspect of the water discharged is another concern. Potential exists for sediment movement and movement of salts from the dry drainages. Mr. Whitaker related an incident that occurred in the Rawhide Village subdivision in Gillette where people were evacuated because dewatering at a coal mine released gas which accumulated in basements of homes in the area. The coal depth there is only 300-500 feet.

A driving force for the methane production is a tax incentive law that expires at the end of 1990. BLM is preparing an environmental assessment that is due to be released in April. Unfortunately, few data are available for the assessment.

Mr. Fassett commented that his office has talked to the Geological Survey and university research centers to stir interest in data collection. He also encouraged extension of the tax incentive deadline which would allow more time for collecting baseline data and developing monitoring programs. All of the State permitting agencies are coordinating their activities.

Wyoming Water Development Commission Activities:

Mr. Fassett reported that the four priority state-sponsored projects in Wyoming are (1) the enlargement of Buffalo Bill Reservoir, (2) Deer Creek Dam on the North Platte, (3) Sandstone Reservoir in the Colorado drainage, and (4) Middle Fork Powder River. The enlargement of Twin Lakes Reservoir by about 2,000 acre-feet is a successful project in the Sheridan area. The Lake Adelaide Dam project is under construction this year. The project will result in a 1,500 acre-foot increase in the storage capacity of Lake Adelaide, on the headwaters of Shell Creek, a tributary of the Bighorn. One new project, Kirby Dam, primarily proposed for recreation and power for irrigation users, probably will not be studied. Wyoming is continuing its negotiations to obtain control of the water rights for Middle Fork Powder River project.

Wild and Scenic Designation:

Mr. Fassett reported that the wild and scenic designation of the Clarks Fork Yellowstone River was supported by Governor Sullivan. Wyoming is currently working on language for a bill to designate the Clarks Fork Yellowstone River as a Wild and Scenic River. The issue of most debate is whether or not to quantify the water associated with that Federal designation. The State originally did not want to quantify water rights until after a 3-year period of time during which the State, the Department of the Interior, and the U.S. Forest Service could work together to report to Congress. The wild and scenic designation is for a segment from the forest boundary at the mouth of the canyon to a point 23 miles upstream on the mainstem. The lower 6 miles would overlap a segment of river which has been awarded an instream flow water right under State law. The water right has been quantified for fishery purposes.

Governor Sullivan does not support wild and scenic designation of the Little Bighorn River in Wyoming. The State has been participating in the Forest Service's environmental process.

Indian Water Rights:

Mr. Fassett reported that Wyoming received the final U.S. Supreme Court resolution of the 13-year litigation of quantifying the Indian reserved water rights on the Wind River Indian Reservation in June 1989. The decision was a 20-word statement which upheld the Wyoming Supreme Court decision. Potentially Irrigable Acres (PIA) was the standard that was adopted by the court for quantification of about 500,000 acre-feet of water carrying a July 1868 priority date. Prior to the U.S. Supreme Court decision, the State initiated an interim 1-year agreement that dealt with water rights, severance-tax issues, rehabilitation funding for the reservation, etc. Wyoming has been working with the tribes to implement the agreement, exchange technical information, and continue negotiations of the implementation issues that were left unresolved by the litigation. The tribes cannot export water off the reservation and were not given any reserved rights for ground water. They are allowed to use the water for other than agricultural purposes, but the mechanism of how to change to other uses was not specified. The U.S. Supreme Court did not specify who was to administer the water rights that were quantified by the court.

Mr. Fritz reported that of the seven reservations in Montana, the majority of water rights negotiations are with the Northern Cheyenne and Fort Belknap Reservations. The Crow tribal government has experienced personnel changes and no progress has been made there. Governor Stephens sent a letter to congressional members stating that rehabilitation of the Tongue River Dam is Montana's number one priority water development project. Congressional authority for this project hopefully will be addressed in the coming session. The final design on the project is scheduled for 1992 and construction should be underway in 1993. The Northern Cheyenne tribe is interested in the project. Environmental enhancement, cost sharing, Indian water-rights settlement, etc., are expected to be included in the project. The reservoir will be enlarged about 20,000 acre-feet above the present capacity of about 70,000 acre-feet. The settlement will settle Tongue River reserved water rights for the Northern Cheyenne Reservation. The tribe also has some claims in the Rosebud drainage and the Yellowtail Reservoir. Because the town of Sheridan uses the reservoir for recreation, Wyoming asked that the State Engineer be kept informed of the activities related to the Tongue River Reservoir.

Mr. Moore asked if the USGS was involved with the Indian reservations in the southern part of the State. Mr. Moreland replied that they have a small cooperative program with the Montana Bureau of Mines and Geology on the Crow Reservation related to water use. The USGS is measuring flows in irrigation canals and the Bureau of Mines is conducting a ground-water assessment to determine the availability of ground water to supplement irrigation. The USGS also operates a few gaging stations on the two southern reservations.

Instream Flow Reservations:

Mr. Fassett commented that he has a pending application for an instream-flow water right for fisheries purposes on the Tongue River in the canyon above Dayton, Wyoming. The application is for a 10-mile reach in the headwaters area. Quantities range from 60 cfs (cubic feet per second) in the winter up to about 180 cfs in the spring. Wyoming instream-flow laws have language that will not allow an instream water right to be issued if it would prevent in-state use of the water provided by compact.

Mr. Fritz explained the instream-flow legislation in Montana. There are two parts--the reservation process and the leasing process. The reservation process was completed in the Yellowstone and a substantial amount of work has been done on the Missouri River. The process has been started in the upper Clark Fork to address serious dewatering problems. The leasing program is designed to enhance streamflow in streams that are overappropriated. The 4-year leasing process will allow the Department of Fish, Wildlife and Parks to lease water in as many as five stream reaches. They are attempting to identify priority streams where leasing can make a substantial difference in the fisheries.

The effect of instream reservations on economic development in Montana was briefly discussed. Mr. Fritz stated that recreation is a very significant part of the economy of the State.

7. OTHER ITEMS:

Personnel:

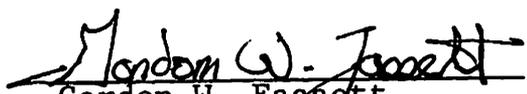
Mr. Moore reported that Bill Horak has been selected to serve as Chairman of the Commission. Mr. Moore commented that he enjoyed serving with the Commissioners and would continue to follow the activities of the Commission. He also commented that the Commission has served as a good forum for the two States to discuss and resolve problems.

Mr. Horak said the Compact has a wide range of complex issues and it would take him some time to become acquainted with all the issues. He commented that he had spent some time in Wyoming with the Forest Service and went to school at the University of Montana for 2 years.

Mr. Fritz, on behalf of the State of Montana, expressed appreciation for the work Mr. Moore has done on the Compact Commission. Mr. Fassett agreed and told Mr. Horak that they were looking forward to working with him.

The meeting was adjourned.

Respectfully submitted,


Gordon W. Fassett
Commissioner for Wyoming


Gary Fritz
Commissioner for Montana


L. Grady Moore
Federal Representative

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GENERAL REPORT

Cost of operation and budget

The work funded by the 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 1989 was \$36,100, in accordance with the budget adopted for the year.

The budgets for fiscal years 1990 and 1991 were tentatively adopted subject to the availability of appropriations.

The budgets for the three fiscal years are summarized as follows:

October 1, 1988, to September 30, 1989 (fiscal year 1989):

Continuation of existing stream-gaging programs \$36,100

October 1, 1989, to September 30, 1990 (fiscal year 1990):

Continuation of existing stream-gaging programs \$37,300

October 1, 1990, to September 30, 1991 (fiscal year 1991):

Estimate of continuation of existing stream-gaging programs
\$39,500

Stream-gaging-station operation

Gaging stations at the measuring sites specified in the Compact were continued in operation and satisfactory discharge records were collected at each. Locations of gaging and reservoir stations are shown on a map of the Yellowstone River Basin at the end of the report.

During the water year ending September 30, 1989, annual streamflow was less than average in all four tributaries of the Yellowstone River as given in the following table:

<u>Measurement point</u>	<u>Percent of average</u>
Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to Whitehorse Canal	96
Bighorn River above Tullock Creek, near Bighorn, adjusted for change in contents in Bighorn Lake, minus Little Bighorn River near Hardin, Mont.	55
Tongue River at Miles City, Mont.	39
Powder River near Locate, Mont.	31

Although precipitation was near average in the basin, annual streamflow at the Tongue and Powder River measurement points was the second lowest of record--exceeded only by the record lows measured in 1961.

Details of streamflow for water year 1989 and comparisons with average flows for the preceding year and for selected base periods are given in the section "Monthly summary of discharge for Compact stream-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 U.S. Bureau of Reclamation project on the Bighorn River, and the largest storage project in the basin, contained 793,300 acre-feet at the beginning of the year and 867,300 acre-feet at the close. It fluctuated from 641,900 acre-feet on April 14, 1989, the lowest for period of record, to 867,300 acre-feet on September 30, 1989. Boysen Reservoir, located on the Wind River and operated by the U.S. Bureau of Reclamation, began the year with 396,500 acre-feet in storage and ended with 604,100 acre-feet. Details regarding 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 this general group 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 storage data are given later in the report for reservoirs in existence upstream from the points of measurement on January 1, 1950. These data are pertinent to allocation under Article V, Section C, Item 3 of the Compact.

MONTHLY SUMMARY OF DISCHARGE FOR COMPACT STREAM-GAGING STATIONS

06208500 Clarks Fork Yellowstone River at Edgar, Mont.

LOCATION.--Lat 45°27'58", long 108°50'35", in SE1/4 SE1/4 SE1/4 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 mile 27.0.

DRAINAGE AREA.--2,032 mi².

PERIOD OF RECORD.--July 1921 to September 1969, October 1986 to current year. Records for October 1969 to September 1986 (published as Clarks Fork Yellowstone River near Silesia) at site 5.8 mi downstream not equivalent owing to diversion in Whitehorse Canal during irrigation season. Records since January 1950 available in annual reports of Yellowstone River Compact Commission.

GAGE.--Water-stage recorder. Elevation of gage is 3,460 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Aug. 31, 1953, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 15 to Mar. 11. Records good except those for 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. Figures of discharge given herein have the flow of Whitehorse Canal subtracted.

AVERAGE DISCHARGE.--51 years (water years 1922-69, 1987-89), 1,031 ft³/s, 747,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 10,900 ft³/s, June 2, 1936, gage height, 8.62 ft; minimum, 36 ft³/s, Apr. 22, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,990 ft³/s, June 17, gage height, 7.48 ft; minimum daily, 90 ft³/s, Feb. 3.

<u>Month</u>	<u>Second-foot days</u>	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Discharge, in acre-feet</u>
October 1988	9,498	306	390	246	18,840
November	11,735	391	461	348	23,280
December	11,109	358	453	180	22,030
January 1989	7,900	255	400	150	15,670
February	6,350	227	350	90	12,600
March	12,320	397	720	180	24,440
April	23,915	797	1,980	319	47,440
May	74,796	2,413	4,330	830	148,400
June	118,520	3,951	6,740	2,010	235,100
July	59,905	1,932	3,290	886	118,800
August	17,468	563	851	329	34,650
September 1989	<u>8,660</u>	289	394	201	<u>17,180</u>
1989 water year	362,176	992	6,740	90	718,400

CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MONT.
 (Minus diversions to Whitehorse Canal)

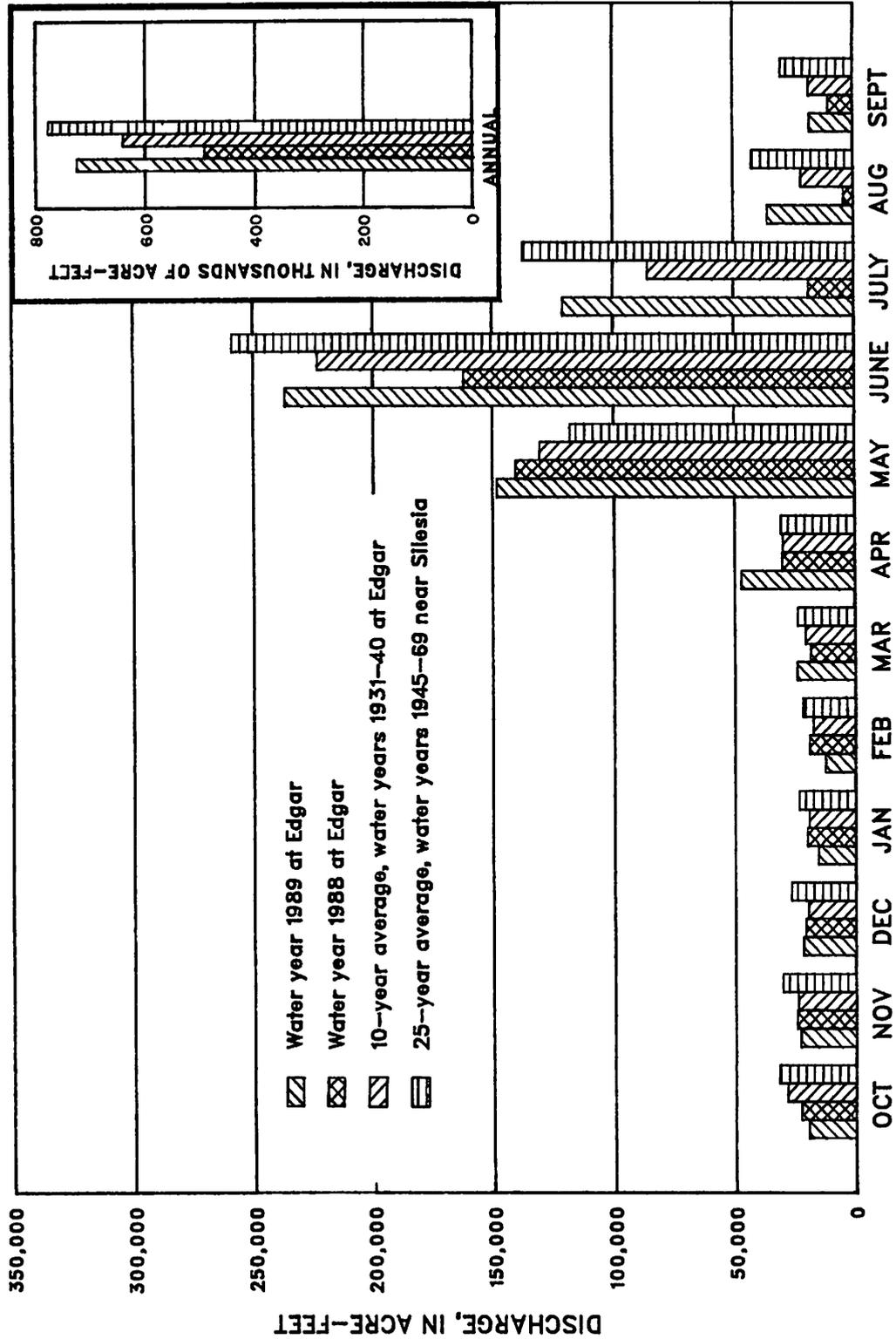


Figure 1.--Comparison of discharge of the Clarks Fork Yellowstone River during water year 1989 with discharge during water year 1988 and with 10-year and 25-year average discharges.

06294000 Little Bighorn River near Hardin, Mont.

LOCATION.--Lat 45°44'09", long 107°33'24", in SE1/4 NE1/4 NE1/4 sec. 19, T. 1 S., R. 34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft downstream from bridge on Sarpy Road, 0.2 mi upstream from terminal wasteway of Agency Canal, 0.6 mi upstream from mouth, and 2.3 mi east of Hardin.

DRAINAGE AREA.--1,294 mi².

PERIOD OF RECORD.--June 1953 to current year. Records since June 1953 available in annual reports of Yellowstone River Compact Commission.

REVISED RECORDS.--WDR MT-86-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 2,882.29 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage at site 0.4 mi downstream. Oct. 7, 1953, to May 6, 1963, water-stage recorder at site 0.3 mi downstream. May 6, 1963, to Nov. 6, 1963, nonrecording gage at site 0.4 mi downstream. All at different datums. Nov. 7, 1963, to Aug. 15, 1976, water-stage recorder at site 35 ft downstream at present datum. Aug. 15, 1976, to Sept. 30, 1979, water-stage recorders located on each bank downstream of Sarpy Road bridge and were used depending on control conditions.

REMARKS.--Estimated daily discharges: Nov. 27 to Dec. 1, Dec. 14-18, Dec. 24 to Mar. 24. Records good except those for estimated daily discharges, which are poor. Flow partly regulated by Willow Creek Reservoir (capacity 23,000 acre-ft). Diversions for irrigation of 20,980 acres upstream from station. Figures of discharge given herein include flow of terminal wasteway of Agency Canal.

AVERAGE DISCHARGE.--36 years, 299 ft³/s, 216,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft³/s, May 19, 1978, gage height, 11.20 ft, used gage height as obtained at bridge on Sarpy Road; maximum gage height, 11.78 ft, Mar. 20, 1960, site and datum then in use, backwater from ice; minimum discharge observed, 0.20 ft³/s, Aug. 7, 1961, result of discharge measurement.

EXTREMES FOR CURRENT YEAR--Peak discharges greater than base discharge of 1,000 ft³/s and maximums(*):

Date	Time	Discharge, in ft ³ /s	Gage height, in feet
Mar. 12	---	*unknown	*a 7.06
Mar. 28	0615	1,280	4.30

a--backwater from ice.
Minimum daily discharge, 18 ft³/s, Feb. 3.

Month	Second-foot days	Mean	Maximum	Minimum	Discharge, in acre-feet
October 1988	3,187	103	137	84	6,320
November	3,648	122	151	95	7,240
December	3,790	122	158	50	7,520
January 1989	3,054	98.5	170	45	6,060
February	1,968	70.3	150	18	3,900
March	13,565	438	1,700	55	26,910
April	6,420	214	322	168	12,730
May	12,273	396	672	230	24,340
June	6,509	217	338	151	12,910
July	2,358	76.1	119	37	4,680
August	1,605	51.8	78	32	3,180
September 1989	1,351	45.0	63	29	2,680
1989 water year	59,728	164	1,700	18	118,500

06294500 Bighorn River above Tullock Creek, near Bighorn, Mont.

LOCATION.--Lat 46°07'29", long 107°28'06", in SE1/4 SE1/4 NE1/4 sec. 3, T. 4 N., R. 34 E., Treasure County, Hydrologic Unit 10080015, on right bank, 1.9 mi upstream from Tullock Creek, 3.0 mi upstream from mouth, 3.6 mi southwest of Bighorn, and 4.5 mi southeast of Custer.

DRAINAGE AREA.--22,414 mi². Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi².

PERIOD OF RECORD.--Oct. 1, 1981, to current year. Records since January 1950 available in annual reports of the Yellowstone River Compact Commission. Previously, published as "06294700 Bighorn River at Bighorn, MT," 1956-81, and as "near Custer," 1945-55. Flows are equivalent at all sites.

GAGE.--Water-stage recorder. Elevation of gage is 2,700 ft above National Geodetic Vertical Datum of 1929, from topographic map. May 11, 1945, to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945, to Oct. 6, 1955, water-stage recorder at different datum. Oct. 7, 1955, to Sept. 30, 1981, at site 2.3 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 25 to Mar. 14. Records good except those for estimated daily discharges, which are poor. Flow regulated by Bighorn Lake beginning November 1965 (usable capacity, 1,356,000 acre-ft). Major regulation prior to November 1965 by 14 reservoirs in Wyoming and 1 in Montana with combined usable capacity of about 1,400,000 acre-ft; see section "Monthly summary of contents for Compact reservoirs existing on January 1, 1950." Diversions for irrigation of about 445,200 acres upstream from station.

AVERAGE DISCHARGE.--44 years (water years 1946-81, 1982-89), 3,843 ft³/s, 2,784,000 acre-ft/yr, unadjusted.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 59,200 ft³/s, May 20, 1978, gage height, 14.15 ft; maximum gage height recorded, 14.21 ft, Apr. 2, 1965, ice jam; minimum discharge, about 275 ft³/s, Nov. 15, 1959, result of freezeup; minimum daily, 400 ft³/s, Apr. 4, 1967.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s, July 4, 1983, gage height, 5.66 ft; maximum gage height, 8.65 ft, Jan. 13, 1985, ice jam; minimum daily discharge, 1,220 ft³/s, Oct. 18, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge not determined but occurred on Mar. 11; maximum gage height, 7.61 ft, Jan. 27, backwater from ice; minimum daily discharge, 1,280 ft³/s, Oct. 30, 31, Nov. 2.

Month	Second-foot days	Mean	Maximum	Minimum	Discharge, in acre-feet	Adjusted discharge, in acre-feet*
October 1988	49,190	1,587	2,100	1,280	97,570	105,400
November	51,730	1,724	1,980	1,280	102,600	82,100
December	63,020	2,033	2,300	1,600	125,000	76,600
January 1989	65,300	2,106	2,200	2,000	129,500	77,400
February	56,700	2,025	2,500	1,500	112,500	62,300
March	80,910	2,610	4,000	1,800	160,500	123,300
April	62,570	2,086	2,440	1,970	124,100	114,300
May	70,260	2,266	2,750	2,060	139,400	164,400
June	61,130	2,038	2,200	1,850	121,300	198,800
July	56,790	1,832	2,120	1,440	112,600	140,400
August	59,820	1,930	2,120	1,810	118,700	121,100
September 1989	52,100	1,737	1,870	1,580	103,300	136,600
1989 water year	729,520	1,999	4,000	1,280	1,447,000	1,402,500

*Adjusted for change in contents in Bighorn Lake minus Little Bighorn River near Hardin.

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

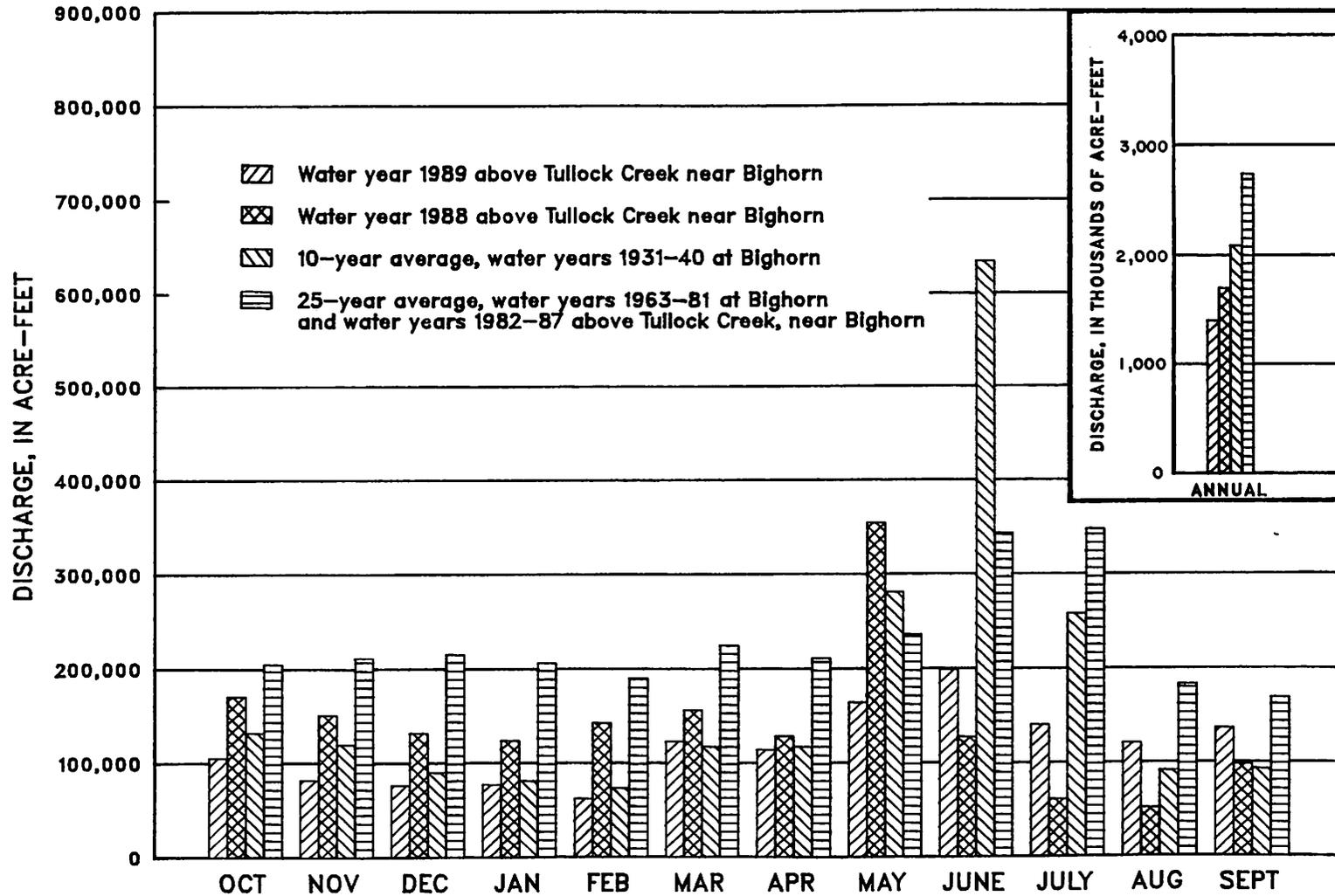


Figure 2.--Comparison of discharge of the Bighorn River during water year 1989 with discharge during water year 1988 and with 10-year and 25-year average discharges.

06308500 Tongue River at Miles City, Mont.

LOCATION.--Lat 46°20'44", long 105°48'10", in NE1/4 NE1/4 SE1/4 sec. 23, T. 7 N., R. 47 E., Custer County, Hydrologic Unit 10090102, on right bank 4 mi south of Miles City and at mile 8.1.

DRAINAGE AREA.--5,379 mi².

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. Monthly discharges only for some periods, published in WSP 1309. Records since January 1950 available in annual reports of Yellowstone River Compact Commission.

GAGE.--Water-stage recorder. Datum of gage is 2,375.76 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). April 1938 to April 1942, nonrecording gage at site 8 mi upstream at different datum. April 1946 to Sept. 30, 1963, at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 16 to Mar. 25. Records good except those for estimated daily discharges, which are poor. Flow regulation by Tongue River Reservoir (see section "Monthly summary of contents for Compact reservoirs existing on January 1, 1950") and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Diversions for irrigation of about 100,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--46 years (1938-41, 1946-89), 422 ft³/s, 305,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s, June 15, 1962, gage height, 12.33 ft, present datum, from rating curve extended above 8,220 ft³/s on basis of float measurement; maximum gage height, 13.27 ft, Mar. 19, 1960, Feb. 15, 1971, ice jam, present datum; no flow July 9-19, Aug. 13, 14, Sept. 28, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,900 ft³/s, Mar. 27, gage height, 4.67 ft; maximum gage height, 7.74 ft, Mar. 10, backwater from ice; minimum daily discharge, 13 ft³/s, July 12, 13.

<u>Month</u>	<u>Second-foot days</u>	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Discharge, in acre-feet</u>
October 1988	1,514	48.8	87	31	3,000
November	1,826	60.9	115	20	3,620
December	2,176	70.2	100	35	4,320
January 1989	2,611	84.2	200	40	5,180
February	3,750	134	190	50	7,440
March	14,033	453	1,230	60	27,830
April	12,321	411	1,450	237	24,440
May	13,701	442	1,460	182	27,180
June	2,385	79.5	121	32	4,730
July	2,113	68.2	157	13	4,190
August	1,980	63.9	86	43	3,930
September 1989	<u>2,001</u>	66.7	98	29	<u>3,970</u>
1989 water year	60,411	166	1,460	13	119,800

TONGUE RIVER AT MILES CITY, MONT.

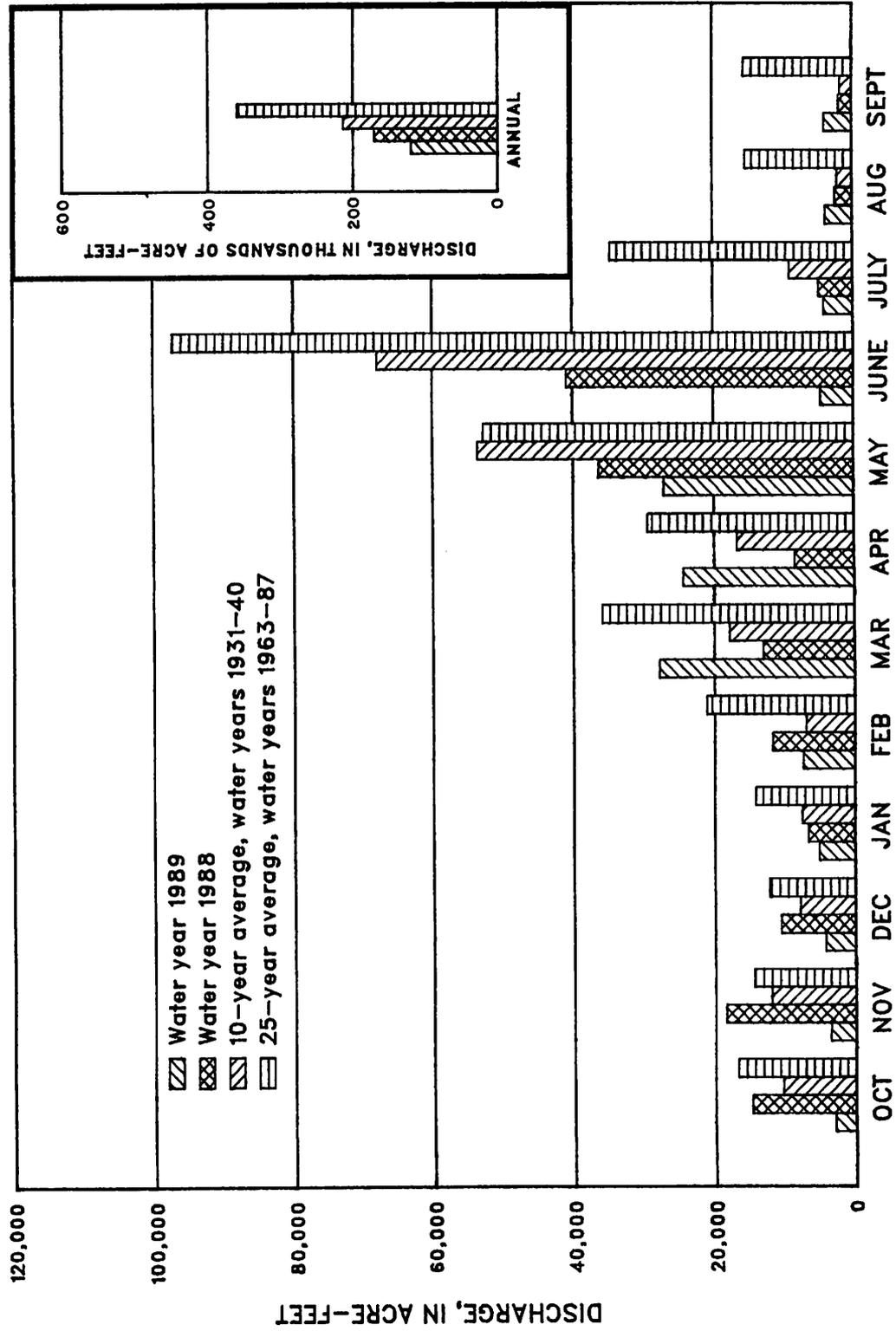


Figure 3.--Comparison of discharge of the Tongue River during water year 1989 with discharge during water year 1988 and with 10-year and 25-year average discharges.

06326500 Powder River near Locate, Mont.

LOCATION.--Lat 46°26'56", long 105°18'44", in NW1/4 SW1/4 sec. 14, T. 8 N., R. 51 E., Custer County, Hydrologic Unit 10090209, on left bank 1.5 mi downstream from bridge on old U.S. Highway 12 at present site of Locate, 1.5 mi upstream from Locate Creek, 5 mi west of former site of Locate, 25 mi east of Miles City, and at mile 27.9.

DRAINAGE AREA.--13,194 mi². Drainage area at site 1.5 mi upstream, 13,189 mi².

PERIOD OF RECORD.--March 1938 to current year. Records since January 1950 available in annual reports of Yellowstone River Compact Commission.

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 National Geodetic Vertical Datum of 1929 (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.

REMARKS.--Estimated daily discharges: Oct. 28, Nov. 9 to Mar. 10, 15-25, Apr. 1-5, July 28 to Aug. 7. 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.

AVERAGE DISCHARGE.--51 years, 587 ft³/s, 425,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 31,000 ft³/s, Feb. 19, 1943, maximum gage height, 12.27 ft, Mar. 16, 1978, backwater from ice; no flow on many days in 1950, 1960-61, and 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximums(*):

<u>Date</u>	<u>Time</u>	<u>Discharge, in ft³/s</u>	<u>Gage height, in feet</u>
Mar. 10	1900	*unknown	*a 7.60

a--result of backwater from ice.
Minimum discharge, 5.1 ft³/s, Aug. 31.

<u>Month</u>	<u>Second-foot days</u>	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Discharge, in acre-feet</u>
October 1988	1,899	61.3	115	23	3,770
November	2,978	99.3	120	60	5,910
December	3,235	104	160	55	6,420
January 1989	3,445	111	190	45	6,830
February	2,045	73.0	95	35	4,060
March	19,610	633	2,700	40	38,900
April	10,733	358	1,250	170	21,290
May	10,668	344	1,260	122	21,160
June	6,654	222	431	79	13,200
July	2,986	96.3	298	22	5,920
August	300.1	9.68	18	5.6	595
September 1989	<u>1,187.4</u>	39.6	192	7.9	<u>2,360</u>
1989 water year	65,740.5	180	2,700	5.6	130,400

POWDER RIVER NEAR LOCATE, MONT.

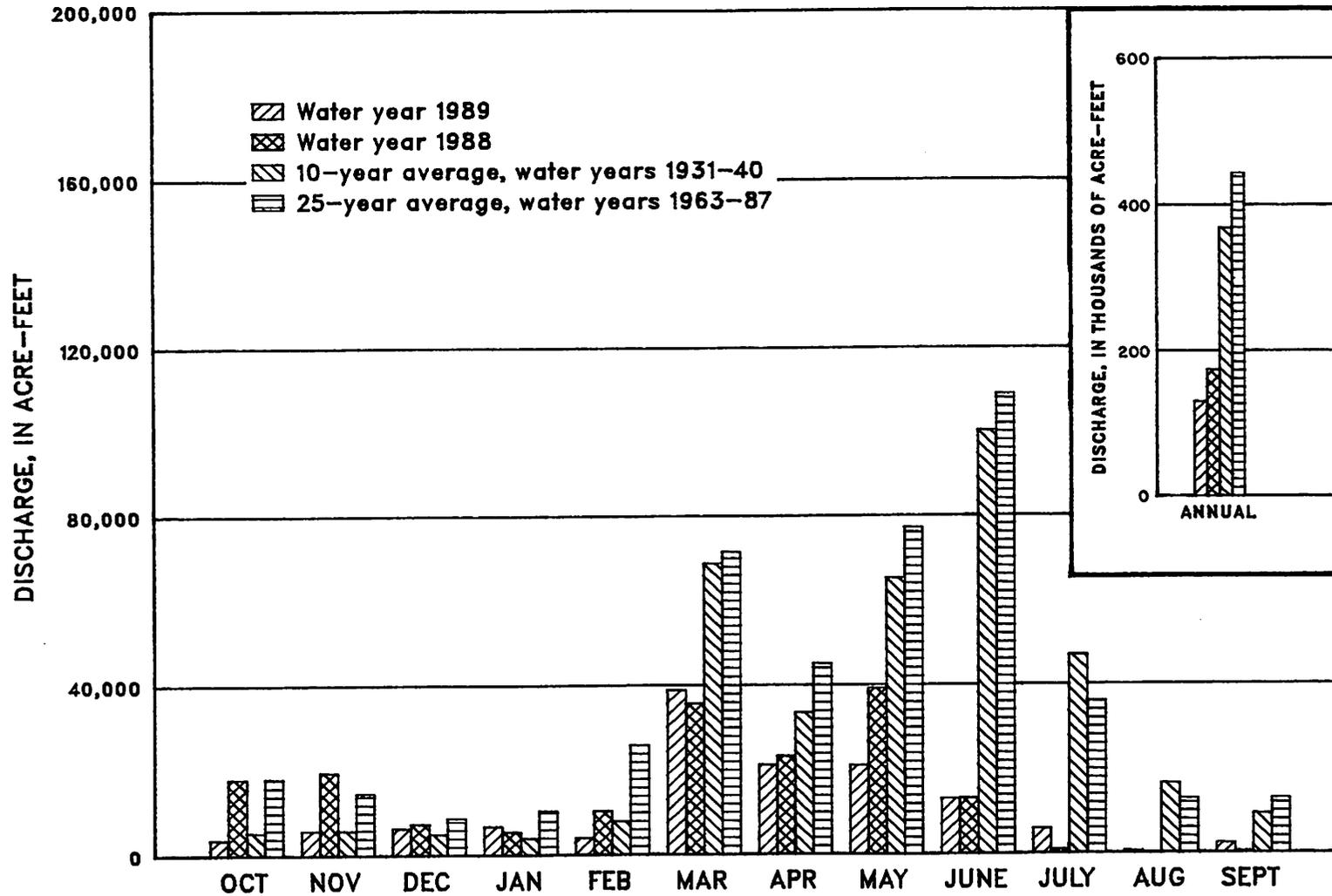


Figure 4.--Comparison of discharge of the Powder River during water year 1989 with discharge during water year 1988 and with 10-year and 25-year average discharges.

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 NW1/4 NW1/4 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 (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by rock-fill dam completed in October 1951. Storage began Oct. 11, 1951. Usable capacity, 742,100 acre-ft between elevation 4,657.00 ft, invert of penstock pipe, and 4,725.00 ft, top of spillway gate. Dead storage, 59,880 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. Crest of dam is at elevation 4,758 ft. Figures given herein represent usable contents. Water used for irrigation, flood control, and power development.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum usable daily contents, 862,500 acre-ft, July 6, 7, 1967, elevation, 4,730.83 ft; minimum usable daily 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 usable contents, 636,100 acre-ft, July 19, elevation, 4,719.27 ft; minimum usable, 395,700 acre-ft, Oct. 14, elevation, 4,703.69 ft.

<u>Month</u>	<u>Water-surface elevation, in feet</u>	<u>Usable contents, in acre-feet</u>	<u>Change in contents, in acre-feet</u>
September 30, 1988.	4,703.75	396,500	---
October 31.	4,704.03	400,200	+3,700
November 30	4,705.17	415,700	+15,500
December 31	4,705.97	426,700	+11,000
January 31, 1989.	4,706.69	436,800	+10,100
February 28	4,707.37	446,500	+9,700
March 31.	4,709.11	471,700	+25,200
April 30.	4,707.34	446,100	-25,600
May 31.	4,705.72	423,300	-22,800
June 30	4,717.03	596,500	+173,200
July 31	4,719.01	630,800	+34,300
August 31	4,717.78	609,400	-21,400
September 30, 1989.	4,717.47	604,100	-5,300
1989 water year			+207,600

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 (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (U.S. Bureau of Reclamation benchmark).

REMARKS.--Reservoir is formed by concrete arch dam completed in 1960. Usable capacity, 17,170 acre-ft between elevation 6,343.75 ft, invert of river outlet, and 6,441.00 ft, spillway crest, not including 68 acre-ft below elevation 6,343.75 ft. Prior to Oct. 1, 1971, usable capacity was 17,280 acre-ft not including 149 acre-ft below the invert. Figures given herein represent usable contents. Water is used for irrigation of land in Owl Creek basin.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,130 acre-ft, June 12-21, elevation, 6,374.00 ft; no storage most of year.

<u>Month</u>	<u>Water-surface elevation, in feet</u>	<u>Usable contents, in acre-feet</u>	<u>Change in contents, in acre-feet</u>
September 30, 1988.	6,304.30	0	---
October 31.	6,304.30	0	0
November 30	6,304.30	0	0
December 31	6,304.30	0	0
January 31, 1989.	6,304.30	0	0
February 28	6,304.30	0	0
March 31.	6,304.30	0	0
April 30.	6,350.00	80	+80
May 31.	6,304.30	0	-80
June 30	6,347.00	38	+38
July 31	6,304.00	0	-38
August 31	6,304.00	0	0
September 30, 1989.	6,304.00	0	0
1989 water year			0

06286400 Bighorn Lake near St. Xavier, Mont.

LOCATION.--Lat 45°18'27", long 107°57'26", in SW1/4 SE1/4 sec. 18, T. 6 S., R. 31 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 southeast of St. Xavier, and at mile 86.6.

DRAINAGE AREA.--19,626 mi².

PERIOD OF RECORD.--November 1965 to current year (monthend contents only). Prior to October 1969, published as "Yellowtail Reservoir."

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. 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, 1,356,000 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. Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, and recreation.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum daily 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, 867,300 acre-ft, Sept. 30, elevation, 3,621.25 ft; minimum, 641,900 acre-ft, Apr. 14, elevation, 3,583.30 ft.

<u>Month</u>	<u>Water-surface elevation, in feet</u>	<u>Usable contents, in acre-feet</u>	<u>Change in contents, in acre-feet</u>
September 30, 1988	3,610.96	793,300	---
October 31	3,613.08	807,400	+14,100
November 30.	3,611.08	794,100	-13,300
December 31.	3,604.37	753,200	-40,900
January 31, 1989	3,596.06	707,200	-46,000
February 28.	3,587.11	660,900	-46,300
March 31	3,585.05	650,600	-10,300
April 30	3,585.64	653,500	+2,900
May 31	3,595.24	702,800	+49,300
June 30.	3,610.94	793,200	+90,400
July 31.	3,615.71	825,700	+32,500
August 31.	3,616.48	831,300	+5,600
September 30, 1989	3,621.25	867,300	+36,000
1989 water year			+74,000

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

The extent, if any, of the use of reservoirs in this category which may be subject to Compact allocations was not determined. As a matter of hydrologic interest the monthend 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 U.S. 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 operating data.

Contents, in acre-feet

Month	06224500	b/Pilot	06281500	06307000
	a/Bull Lake	Butte Reservoir	c/Buffalo Bill Reservoir	d/Tongue River Reservoir
September 30, 1988. . .	24,950	9,360	134,900	21,900
October 31.	24,750	20,060	137,200	27,740
November 30	25,190	19,740	147,200	33,800
December 31	26,010	19,420	155,300	37,220
January 31, 1989. . . .	26,470	19,260	162,100	39,120
February 28	26,780	19,180	168,200	37,010
March 31.	27,500	20,300	182,700	39,340
April 30.	30,550	17,100	198,500	35,400
May 31.	47,900	18,620	253,700	---
June 30	105,400	25,650	375,500	48,240
July 31	147,800	23,490	370,500	34,400
August 31	130,600	14,560	284,000	---
September 30, 1989. . .	106,900	14,190	221,500	---
Change in contents during water year. . .	+81,950	+4,830	+86,600	---

a/ Usable contents, from revised capacity table effective October 1, 1965. Dead storage is 722 acre-ft.

b/ Usable contents. Dead storage is 5,360 acre-ft.

c/ Usable contents, from revised capacity table based on survey of 1959. Contents prior to October 1960 based on survey of 1941. Dead storage is negligible.

d/ Usable contents. Dead storage is 1,400 acre-ft. Contents based upon sedimentation surveys of October 1948.

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 approved 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 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 for 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.

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. "Cubic foot per second" 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.
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 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 would 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, i.e., 1 cubic foot per second per 70 acres, with an additional 1 cubic foot per second if the right has priority earlier than March 1, 1945, under the Wyoming Surplus Water Law, 41-4-318 and 41-4-319, W.S. 1977.

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 would 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 would 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 L. Grady Moore, United States Geological Survey, 821 E. Interstate, Bismarck, ND 58501 no later than December 31, 1984.

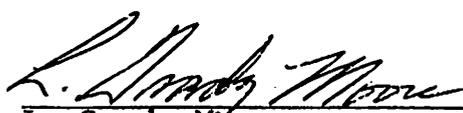


Gary Fritz
Commissioner for Montana



George L. Christopoulos
Commissioner for Wyoming

ATTESTED:



L. Grady Moore
Federal Representative

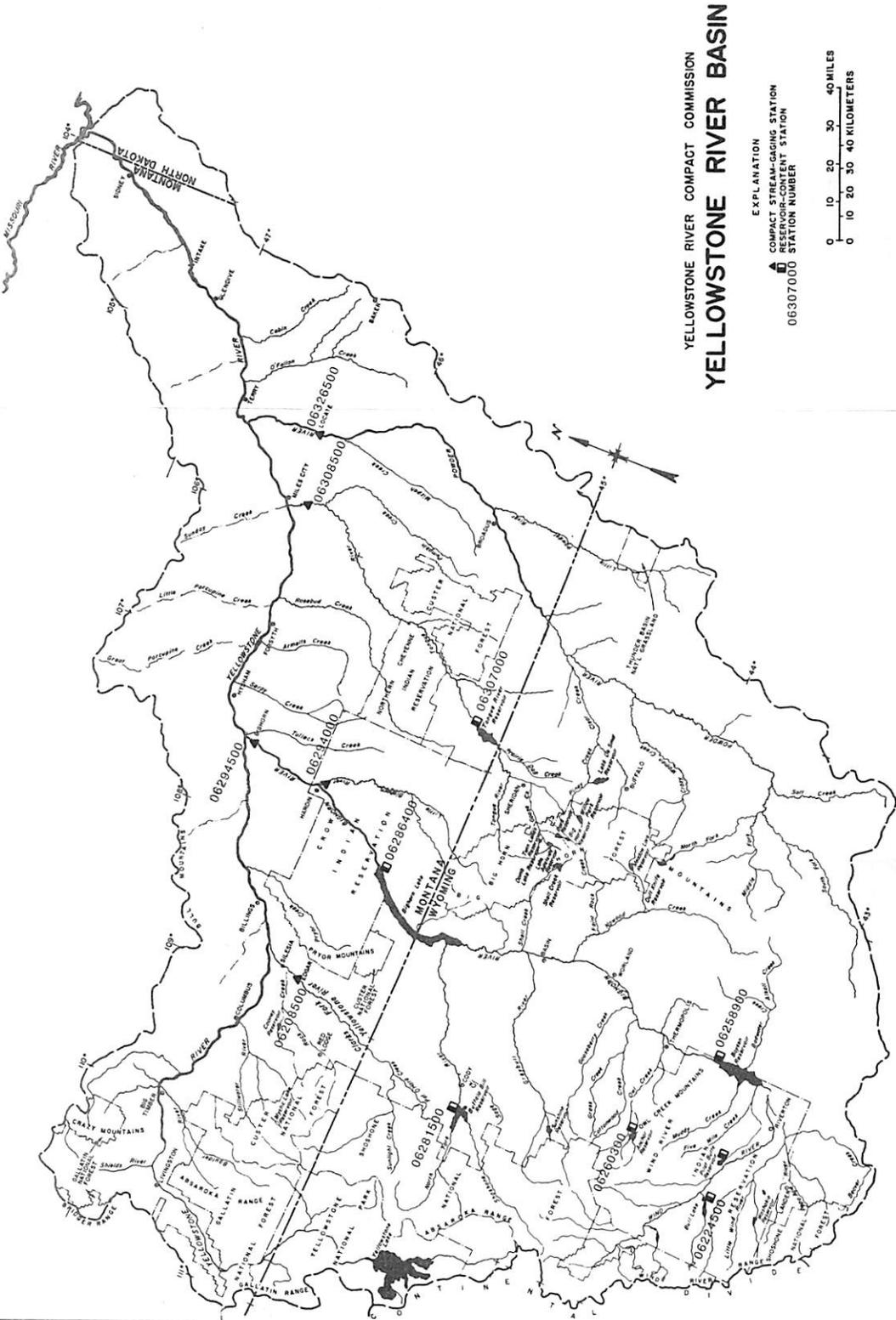
Adopted September 20, 1984

CONVERSION TABLE

The following factors may be used to convert the inch-pound units published herein to the International System (SI) of metric units. Subsequent reports will contain both the inch-pound and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

<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 STREAM-GAGING AND RESERVOIR-CONTENT STATIONS

YELLOWSTONE RIVER COMPACT COMMISSION
YELLOWSTONE RIVER BASIN

EXPLANATION
 COMPACT STREAM-GAGING STATION
 RESERVOIR-CONTENT STATION
 06307000 STATION NUMBER

